

Foundation for a Sustainable Northern Future

REPORT OF THE JOINT REVIEW PANEL FOR THE MACKENZIE GAS PROJECT

VOLUME II — CHAPTERS 11 TO 19
DECEMBER 2009



Joint Review Panel
for the Mackenzie Gas Project

Foundation for a Sustainable Northern Future

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CHAPTER II

CONSERVATION MANAGEMENT AND PROTECTED AREAS

11.1 INTRODUCTION

Clearly, in highly altered landscapes, we've exceeded the capacity of natural systems to absorb the changes associated with certain activities, resulting in a loss of integrity and associated values.

At the other end of the spectrum, we recognize that intact systems have high natural integrity. The challenge is to identify a framework for sustaining ecological and socio-economic systems, given inherent uncertainties and to minimize the risk that landscapes of opportunity become landscapes of regret. (Dr. Fiona Schmiegelow, consultant for World Wildlife Fund Canada, HT V47, p. 4575)

The Mackenzie Valley remains today an area where human presence is light and the footprint of development is small when viewed against the great scale of these largely intact natural landscapes. These features and the wildlife populations and ways of life they support are highly valued by Northerners in virtually all of the communities that the Panel visited. In Community Hearings, many residents spoke about what these values mean to them. They spoke of the challenges of maintaining the land on which they depend in the face of the inevitable social and economic changes, and of the environmental disturbances that the Project would introduce.

This challenge of establishing the appropriate balance between the economic benefits of hydrocarbon development and the conservation and protection of large and intact natural ecosystems is an enduring one. In addition to being a universal challenge, it has informed many of the conservation, resource management, environmental assessment and economic benefits provisions of modern day land claim agreements in the Inuvialuit Settlement Region, the Gwich'in Settlement Area and the Sahtu Settlement Area. It continues to shape land claim negotiations in the Dehcho Region and continues to be one of the overriding challenges in the development of land use plans and the establishment of a system of protected areas of ecological and cultural significance in the Project Review Area.

Many participants who appeared before the Panel did not distinguish between Project-specific impacts and those that would result from other developments that the Project could induce. Participants who did make this distinction generally agreed with the Proponents that the Project as Filed would have no significant impact on establishing a

network of protected areas in the Mackenzie Valley or on existing protected areas. As evidenced in the Panel's hearings, however, the focus of much public discussion and planning transcends concerns over the Project as an initial undertaking that has a relatively small physical footprint. Rather, concerns are related to widespread anxiety about the cumulative landscape-level impacts of a range of future undertakings that could be induced by the Project or be combined with it — what the Panel has generally referred to throughout this Report as the Expansion Capacity Scenario and Other Future Scenarios. These scenarios are described in Chapter 3, "Potential Future Developments."

This public discussion is driven by a deep concern about the ability of governments and regulators to manage the pace and scale of development in the Project Review Area and to effectively manage cumulative impacts on people and the environment. There is a widespread perception that many of these impacts will be irreversible once they occur.

This chapter reviews the Project's impacts on the conservation and protection of areas of natural and cultural importance, including potential cumulative impacts from future developments. It reviews the scope of these potential impacts at the level of regional ecosystems, which include marine areas. These large terrestrial and marine areas encompass a wide range of habitat and environmental features that are necessary to sustain a particular wildlife population or groups of populations, as well as the human communities that depend on them. The concept of regional terrestrial and marine ecosystem management recognizes the importance of integrating the management of species, habitats, resource development and other human activities in order to achieve broader conservation objectives, and to avoid unintended and irreversible consequences.

The chapter addresses these issues of conservation and protection in two ways: the potential impacts of the Project on existing and proposed protected areas, and the ways conservation management and land use planning at the landscape level could play a central role in avoiding and mitigating cumulative impacts of future development induced by or occurring in combination with the Project.

The Panel held four days of hearings dedicated to the review of conservation measures and areas that would affect the Project and be affected by it. These matters were also discussed extensively in other hearings. Important issues raised by participants during the review included:

- the national and international significance of the Beaufort Sea, Mackenzie Delta and Mackenzie Valley areas as a large complex of mainly undeveloped marine, estuarine and boreal ecosystems;
- the opportunity, already lost in many other parts of Canada, to initiate an effective conservation management system before large-scale development takes place;
- the component parts of such a system — including protected areas, special management areas designated through land use planning, and management tools such as thresholds for cumulative impacts, disturbance and development — and best practices in resource management;
- the perceived conflict between the setting aside of lands for conservation purposes and the existing system of land and resource management and rights issuance, and the sequencing of conservation initiatives and development-related undertakings; and
- the preparedness and commitment of governments to support the completion of regional land use plans and to establish a system of protected areas in advance of large-scale development.

This chapter is closely related to Chapter 9, "Fish and Marine Mammals" and Chapter 10, "Wildlife." Those chapters consider the potential environmental impacts of the Project on valued species of wildlife, fish and marine mammals, and on wildlife protection plans proposed to mitigate identified impacts. This chapter overlaps some of that discussion by considering potential environmental impacts of the Project on a landscape basis, particularly the scope of cumulative impacts of future development that may be induced by the Project or occur in addition to it.

11.2 APPROACHES AND METHODS

11.2.1 PROPONENTS' APPROACH

The Proponents' approach to the impact assessment undertook to identify High Conservation Value Areas (HCVAs), evaluate the potential impacts of the Project on existing and proposed protected areas and special management areas, and evaluate how the Project could impact the establishment and long-term functioning of a planned network of protected areas in the Mackenzie Valley.

The Proponents assessed Project impacts on protected and special management areas and on HCVAs at two levels, the Local Study Area and the Regional Study Areas.

The Proponents identified existing and proposed protected areas and plans for conservation and land use in each of the 16 ecoregions identified in the Northwest Territories Protected Areas Strategy's *Mackenzie Valley Five-Year Action Plan (2004–2009): Conservation Planning for Pipeline Development*, referred to as the Five-Year Action Plan. In the nine ecoregions in which Project components would be located, Project impacts on these areas and plans were assessed. The Proponents did not attempt to identify a complete range of HCVAs throughout the Regional Study Areas or the 16 ecoregions. Instead, they selected a group of 10 HCVAs in 6 ecoregions where Project

facilities or activities would be located. The Proponents then studied how the Project would impact habitat fragmentation and connectivity in these representative areas in order to assess biodiversity effects at the landscape level. The Proponents indicated that these 10 areas were chosen because they were “of conservation value and often important for traditional use, may be sensitive, rich in wildlife, or more diverse than surrounding areas, represent the ecological relationships in the Regional Study Area, and may be important elements in the establishment of the proposed NWT Protected Areas Strategy.” (Steff Stephansson, HT V46, p. 4449)

For each of these 10 areas, the Proponents predicted what the direct physical impacts from the Project would be and how these physical impacts would affect the size of specific ecotypes, connectivity among ecotypes and the extent to which habitat would be fragmented. In most instances, the assessment focused on moose winter foraging habitat.

From this analysis, the Proponents concluded that the total disturbance footprint, including current disturbances and potential Project disturbances, would range from <1% to 2% of the total area, depending on whether the calculation included existing seismic line disturbance. If the analysis focused on effective habitat in the selected area rather than on the total area, the Project-related disturbance could temporarily be as high as 13% during the construction period because of sensory disturbance. The Proponents asserted that current understanding in landscape ecology is that landscape patterns change abruptly at about 50% of natural habitat loss.

Concluding that the degree of impact on biodiversity and effective habitat would not be significant in any of the 10 HCVA's or representative areas, the Proponents also concluded that the Project would not have a significant effect on biodiversity and ecosystem conditions (such as structure, function and productivity) in the Regional Study Area and at the landscape level in the 16 ecoregions of the Five-Year Action Plan.

The Proponents summarized the various types of specially designated areas, including protected areas that are within or near the Regional Study Areas. These included:

- the Kendall Island Bird Sanctuary (KIBS), a migratory bird sanctuary;
- Inuvialuit Community Conservation Plan category areas;
- a potential heritage river (the Mackenzie River);
- Gwich'in and Sahtu conservation zones and special management areas;
- territorial parks;
- proposed and existing protected areas;
- International Biological Program sites;
- national historic sites;

- recreation areas; and
- two overlapping marine management areas.

The Proponents' assessment addressed each of these designated areas and identified measures to avoid or reduce adverse Project impacts, including:

- modifying the pipeline route and adjusting the location of facilities and infrastructure in response to community input and refinement of engineering design;
- additional modifications resulting from consultation with protected areas planning teams;
- using existing disturbed areas to reduce the footprint of disturbance;
- using terrain or vegetation to screen facilities where practical;
- using lighting and noise control systems at facility sites to minimize external impacts;
- using access management as the primary mitigation for controlling the extent to which other (non-traditional) land users use Project roads to access protected areas that were previously inaccessible; and
- progressively reclaiming disturbed areas following construction and eventual Project decommissioning and abandonment.

Where Project components would occur in protected or special management areas, the Proponents indicated that the development would either be permitted under special conditions or that the Proponents would comply with established processes to address non-conforming land uses.

The Proponents committed to continue participating in the Northwest Territories Protected Areas Strategy (NWT-PAS) through the Canadian Association of Petroleum Producers' representative on the NWT-PAS Steering Committee and to provide information on future development plans in the Mackenzie Valley to the committee through appropriate application and permitting processes. In addition, they indicated that future site-specific information collected during the detailed design and construction phase of the Project would also be made available to regulators.

On this basis, the Proponents concluded that there would be no significant adverse impacts from the Project — and, by extension, no cumulative impacts — on existing and proposed protected and special management areas.

11.2.2 PARTICIPANTS' VIEWS

Government and non-governmental participants commented on the Proponents' methodology, particularly on the scope of the impact assessment. In a joint presentation, Indian and Northern Affairs Canada (INAC), Environment Canada, and the Government

of the Northwest Territories (GNWT) criticized the Proponents' approach to identifying HCVAs. They noted the following deficiencies:

- the 16 ecoregions referenced in the Five-Year Action Plan and as required by the Environmental Impact Statement's (EIS's) Terms of Reference were not used as the basis for identifying HCVAs;
- no rationale was given for using a 60 km-wide study area centred on the pipeline from within which to identify HCVAs;
- no consistent approach was used to identify HCVAs, including a common set of valued components;
- it was unclear whether all appropriate communities and resource management agencies were consulted during the identification process;
- the appropriateness of the HCVAs could not be verified; and
- the contribution that the HCVAs would make to a network of protected areas cannot be determined.

INAC indicated that it interpreted the requirement for the Proponents to identify HCVAs as analogous to identifying the Goal 2 areas referenced in the Five-Year Action Plan — i.e. core representative areas.

A number of participants observed that the Proponents' assessment of Project impacts on the establishment and functioning of a planned network of protected areas focused largely on existing and proposed protected areas. This assessment was supplemented by identifying and qualitatively assessing HCVAs in six ecoregions directly affected by the Project's physical footprint (facilities and activities). The qualitative assessment described the types of impacts on HCVAs that could occur from the Project. However, in the absence of quantitative information on core representative areas in the 16 Mackenzie Valley ecoregions (i.e. regions of diverse landscapes and habitats), participants observed that the Proponents were unable to conduct the following:

- a gap analysis of the level of protection in each ecoregion;
- an assessment of how the Project would impact the representation of the diversity of habitats and landscapes; and
- an identification of HCVAs in all 16 ecoregions.

The GNWT indicated to the Panel that it had completed an analysis that had identified additional areas needed to meet all representation goals and had assessed how well representation goals could still be met (exclusive of the Project's footprint and all production and significant discovery licences). The GNWT indicated that the Proponents could use the results of its analyses to address the deficiencies in their assessment of Project impacts, and that regulatory boards could use the analyses to evaluate impacts of proposals for resource-based activities.

The Proponents stated that it was not their role to select or propose protected areas. The Proponents said that the *Mackenzie Gas Project: Additional Information Report* had identified 10 HCVAs, based on a literature review and previous discussions with regulators. These areas were selected to illustrate the impacts that would occur across the Project Review Area and were "never intended to be used as a means to identify core areas for purposes of protection." (Dr. A. Kennedy, HT V47, p. 4509)

The Canadian Parks and Wilderness Society (CPAWS) and World Wildlife Fund Canada (WWF-Canada) submitted that the scope of the assessment was inappropriate. CPAWS stated that, "in order to adequately address conservation issues, the scope of the environmental assessment must be at the ecoregion level, which was determined to be the most effective approach to protected area planning in the development of the NWT-PAS." (J-CPAWS-00006, p. 8) WWF-Canada added that, due to the reasonably foreseeable induced development that would follow the approved Project, HCVAs in key NWT ecoregions should be identified and the impacts of the Project and foreseeable development on conservation options/ecosystem integrity be assessed. In a similar vein, Environment Canada stated that it was reasonable to assume that certain parts of the Project Review Area would experience induced development from the Project and that a network of protected areas was an important instrument for anticipating and managing cumulative impacts associated with the Project and other developments.

The Sierra Club of Canada challenged the Proponent's statements that described habitat disturbance thresholds for the sustainability of most species as a range of 50 to 70% clearance of a habitat area. For example, it referred to a body of expert opinion that held the view that even low levels of industrial development are sufficient to threaten the viability of woodland caribou.

11.2.3 PANEL VIEWS

Both the EIS Terms of Reference and the Five-Year Action Plan establish the scope for the assessment of impacts associated with the Project, i.e. the 16 ecoregions in the Mackenzie Valley potentially affected by the direct and indirect impacts of the Project and induced and additional developments. Related methodological issues associated with the scope of the Proponents' assessment of cumulative impacts and the views of the Panel on these matters are discussed in Chapter 5, "Approach and Methods." However, in this context, the Panel also understands that the establishment and long-term functioning of a system of protected areas is intrinsically tied to several important considerations:

- maintenance of ecological integrity of NWT ecoregions, including representation of a diversity of landforms, vegetation, animals and their habitats;

- viability of wide-ranging species such as caribou, wolves, bears, wolverine, fish, marine mammals and migratory birds; and
- maintenance of an unfragmented natural landscape.

These are landscape-level considerations that are best addressed at the ecoregion level and on a regional basis, hence the notion of a “network” or system of protected areas in the Mackenzie Valley as proposed by the Five-Year Action Plan.

The Panel understands that, since the quantitative information and analyses of core representative areas for the 16 ecoregions compiled by the GNWT were not available to the Proponents when they conducted their impact assessment, it was not feasible for the Proponents to conduct an adequate assessment of the Project’s impacts on the proposed establishment and functioning of a network of protected areas in the Mackenzie Valley consistent with the requirements of the EIS Terms of Reference. The Panel also understands that, typically, it is the role and responsibility of governments to collect and share, for the purposes of conservation management, research and information concerning ecosystem and ecoregion integrity and functioning, including the identification of HCVAs, important and critical habitat, and areas that best represent the biodiversity of an ecoregion.

The Panel is of the view that the limitations in the Proponents’ approach to the assessment of impacts on core representative areas can be addressed through the ongoing work of the GNWT in identifying important core representative areas and in a systematic sharing of information among the GNWT, the Proponents and regulatory authorities. This is discussed later in this chapter and is the subject of a recommendation.

11.3 IMPACTS ON PROTECTED AREAS AND AREAS OF HIGH CONSERVATION VALUE

11.3.1 EXISTING CONDITIONS

The opportunity to protect ecological integrity, key habitat sites, and important cultural sites and traditional use areas depends on the existence of undisturbed landscapes and the availability and effectiveness of management instruments to conserve these areas. This opportunity and availability exist today in the Mackenzie Valley (including the Mackenzie Delta) and, in the context of the Mackenzie Valley Pipeline and the Northwest Alberta Facilities, stand in contrast to conditions in northwest Alberta (see Figure 11-2). Constraints on the creation of protected areas in the NWT as a result of industrial development are low compared with many other regions in Canada, and there are ways to designate and establish protected areas and special management areas through legislative and other means.

Existing protected areas include national and territorial parks, migratory bird sanctuaries and national landmarks. These have been established pursuant to federal and territorial legislation and some derive from the provisions of land claim agreements. Land claim agreements have made an important contribution to the establishment of protected areas, special management areas and comprehensive environmental management regimes in the NWT. Since the signing of the *Inuvialuit Final Agreement* in 1984, three national parks and a territorial park have been established, and a marine protected area has been proposed in the Inuvialuit Settlement Region. The *Gwich’in Comprehensive Land Claim Agreement* (Gwich’in Final Agreement) and its land use planning process led to establishment of a number of important conservation areas. The *Sahtu Dene and Metis Comprehensive Land Claim Agreement* established a land use planning process to create parks and other protected areas, and this remains a work in progress at the time of the writing of this Report. In the Dehcho Region, land claims negotiations continue, although a land use planning process established pursuant to *The Deh Cho First Nations Interim Measures Agreement* (Interim Measures Agreement) is far advanced and provides a means for establishing interim land withdrawals for areas that are the subject of some form of protected area designation.

Outside of these agreements and processes, the primary initiative for creating new protected areas — i.e. areas with protections that range from strict preservation to the accommodation of various levels and types of development — is the NWT-PAS and the related Five-Year Action Plan. Additional areas may be designated for protection through land use and other conservation planning processes that may also place special management requirements on lands, marine areas and development to meet certain conservation goals.

The NWT-PAS was developed through a partnership of regional Aboriginal organizations, the federal and territorial governments, environmental organizations, and industry. The Five-Year Action Plan was developed out of the NWT-PAS process in order to prepare for the eventuality of the Mackenzie Valley Pipeline and associated and additional developments in the Mackenzie Valley. The intention of the Five-Year Action Plan is to fast-track efforts to help communities meet their long-term conservation goals, such as those identified in land claims and interim measures agreements and in conservation and land use plans, before the opportunities for doing so are lost or severely constrained. To this end, an enhanced strategic effort is under way to identify, review and establish interim protection and evaluate a network of protected areas in the Mackenzie Valley. The Five-Year Action Plan states:

To achieve a long-term balance of ecological, cultural and economic values in the Mackenzie Valley, a network of culturally significant and ecologically representative protected areas must be reserved prior to or concurrently with the development of the pipeline. To meet this objective and work within a timeframe that is relevant to communities, Aboriginal and regulatory decision-makers, governments and industry,

immediate planning and action must occur. There is a unique, although time-limited opportunity, in the Mackenzie Valley to maintain the ecological integrity and natural connections that still exist. (J-WWF-00021, p. 3)

The Five-Year Action Plan targets the 10 ecoregions that the pipeline would directly impact and 6 additional regions that have identified hydrocarbon development areas.

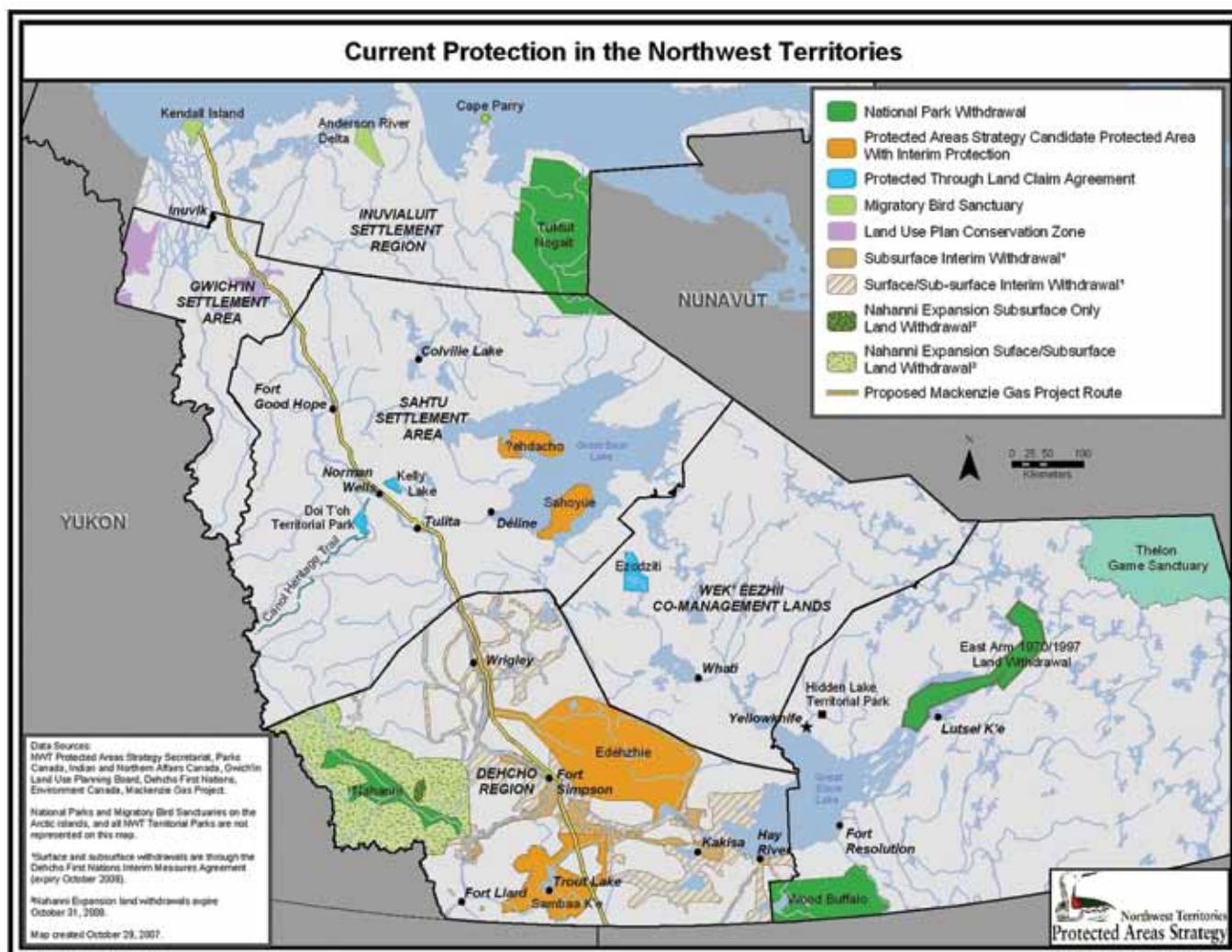
The NWT-PAS has two goals that are functionally represented as the establishment of two types of protected areas:

- Goal 1 areas are special natural and cultural areas as identified by communities that are the most critical to the sustainability of northern land-based economies and cultures. These could include unique or significant wildlife habitats, harvesting areas, important cultural sites, prime recreational and scenic areas and unique scientific features. Development restrictions are established on the basis of the values being protected.

- Goal 2 areas are core areas that represent the combination of landscape features, plants and animals which make each of the 16 ecoregions in the Mackenzie Valley unique. Currently some ecoregions are under-represented in existing protected areas. Establishing these core areas is important for protecting the entire range of biodiversity in the NWT, and is a supplementary contribution to conserving those features which are not represented in existing protected areas or Goal 1 areas. Resource-based developments and associated infrastructure are not permitted in core representative areas.

These goals are achieved through eight steps, the first of which identifies an "area of interest" and, following further review, a proposal for status as a "candidate protected area." The final step is to seek formal establishment of the protected area. Under the NWT-PAS, candidate protected areas may be sponsored by a federal, territorial or Aboriginal body that has an appropriate mandate to protect and manage land. Until interim protection

Figure 11-1 Current Protected Areas in the Mackenzie Valley and Mackenzie Delta



is approved by INAC, there are no legal restrictions on activities within an area of interest or a candidate protected area. Interim land withdrawals of surface and/or subsurface rights are made for a limited time (usually five years) so that the renewable and non-renewable resources and cultural and socio-economic values of the candidate protected area can be assessed and a management plan proposed, without the potential introduction of additional development constraints during the assessment and planning period. During the interim land withdrawal period, lands cannot be sold or leased by government. If the withdrawal is for the surface and the sub-surface, no new mining claims or oil and gas rights will be issued. Existing third-party interests are respected. If approved through this process, the protected area will be designated through appropriate legislation and the management plan implemented.

Figures 11-1 and 11-2 show the most current mapped information submitted to the Panel that depicts the status of current and proposed protected areas. These are areas that have

been identified, withdrawn or established as a result of land claim agreements and negotiations, interim measures agreements, land use and conservation planning processes, and legislative and policy initiatives, as well as through the NWT-PAS. The designation and status of proposed protected areas under the NWT-PAS and national park expansion processes that fall within the initiatives for assessing and establishing protected areas under the Five-Year Action Plan are identified in Table 11-1. All of these are in the Dehcho Region and Sahtu Settlement Area. For the Dehcho Region, neither a land claim agreement nor a regional land use plan has been ratified or approved. For the Sahtu Settlement Area, no regional land use plan has been finalized or approved.

In the Beaufort Sea marine environment, the Tarium Niryutait Marine Protected Area has been proposed pursuant to implementation of Canada's Oceans Action Plan (2005) and the development of an integrated management plan for the Beaufort Sea.

Figure 11-2 Current and Proposed Protected Areas in the Mackenzie Valley and Mackenzie Delta

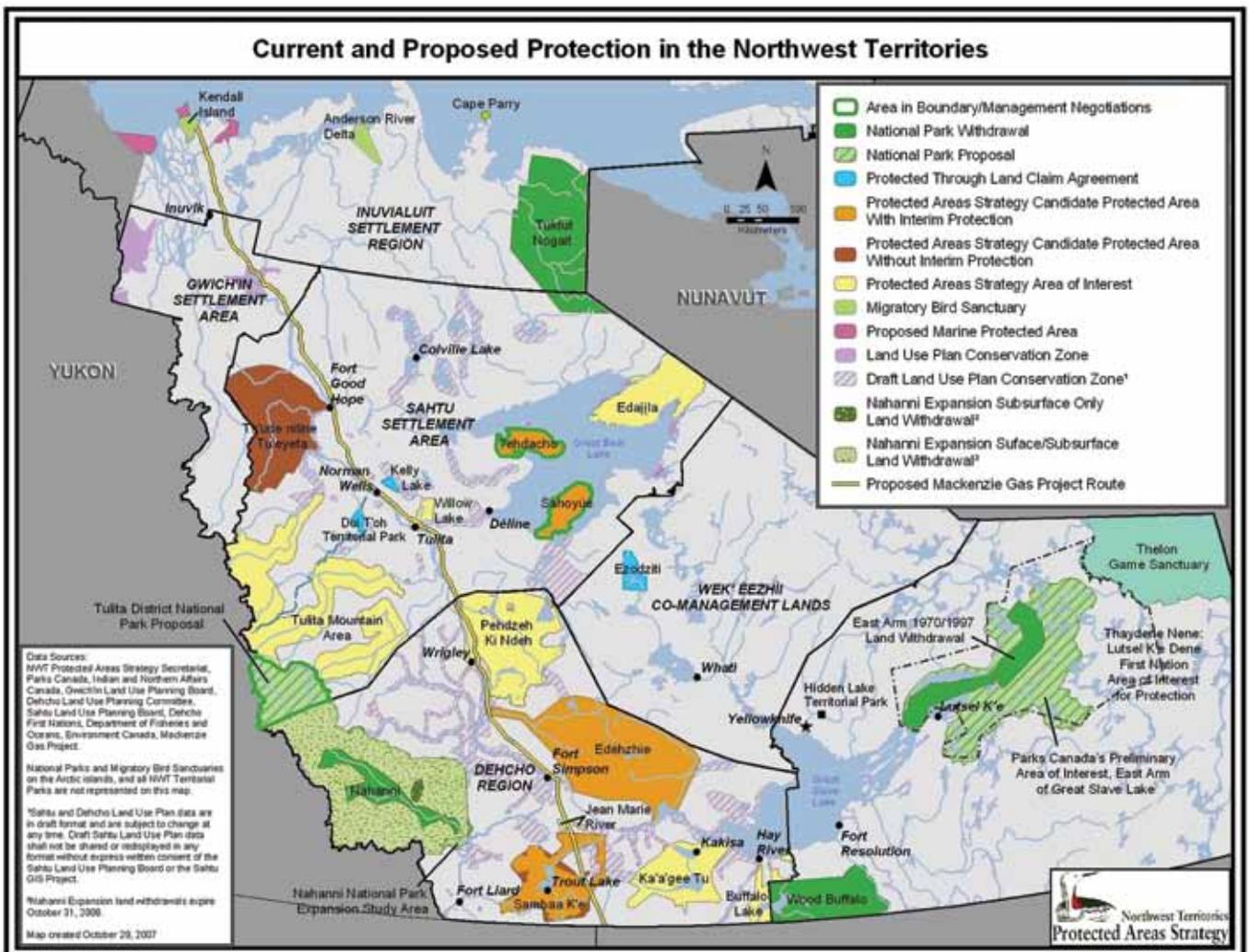


Table 11-1 Proposed Protected Areas under the NWT-PAS and National Park Expansion Process

	Candidate Protected Areas with Interim Land Withdrawal Protection	Areas of Interest with Interim Land Withdrawal Protection	Areas of Interest without Interim Land Withdrawal Protection
Dehcho Region	<p>Nahanni National Park Reserve expansion</p> <p>Nááts'ihch'oh National Park Reserve (headwaters of the South Nahanni River)</p> <p>Edézhzié (Horn Plateau)</p> <p>Sambaa K'e (Trout Lake)</p>	<p>Pehdzeh Ki Ndeh (Wrigley [Pehdzeh Ki Nation] area)</p> <p>Ka'a'gee Tu (Kakisa)</p> <p>Ejje Túé and Ejje Túé Dehé (Buffalo Lake and Buffalo River)</p> <p>The Five Lakes</p>	
Sahtu Settlement Area	<p>Sahoyúé - ?ehdacho (Grizzly Bear Mountain/Scented Grass Hills) (transfer of lands to Parks Canada became effective April 24, 2009)</p> <p>Ts'ude niline Tu'eyeta (Ramparts River and Wetlands; interim land withdrawal announced on November 21, 2007)</p>		<p>Edaiila (Caribou Point)</p> <p>Shúhtagot'ine Néné (Tulita Mountain Area)</p> <p>Tulita Conservation Initiative</p>

Source: Adapted from J-CPAWS-00038, Table 1, Appendix 1, pp. 8–10; J-INAC-00062, pp. 11–12

11.3.2 PROPONENTS' VIEWS

The Proponents assessed Project impacts on individual protected areas and candidate protected areas in each Regional Study Area and in each of the nine ecoregions in which Project components would be located. Based on Project mitigation and commitments outlined elsewhere in this chapter — including modification to the pipeline proposed route, adjustments to the location of facilities and infrastructure, and the refinement of engineering design in response to community input and consultation with protected areas planning teams — the Proponents concluded that no significant impacts from the Project on existing or proposed protected areas were expected.

As discussed elsewhere in this chapter, the Proponents also predicted that the Project would not change the capacity of natural systems to the extent that biophysical diversity and productivity would be significantly altered. The Proponents stated that there may be some loss of habitat and some local impacts on uncommon landforms. However, they also stated that, due to the limited footprint of disturbance within any one landscape type relative to the effective habitat available and to the management of sensory disturbance during construction and facility operations, the Project is not predicted to significantly impact ecosystem conditions or measurably impact effective habitat in any settlement region or protected area. The Proponents concluded that the Project could proceed in parallel with the NWT-PAS.

The Proponents commented that they would continue to support the NWT-PAS and the Five-Year Action Plan, through the Canadian Association of Petroleum Producers' representative on the NWT-PAS Steering Committee. The Proponents would also continue to work with the NWT Protected Areas Strategy Secretariat to help advance candidate protected areas, again through their Canadian Association of Petroleum Producers' representative. The Proponents also indicated that, via their membership in the Canadian Association of Petroleum Producers, they would provide the NWT-PAS Steering Committee with information on their future development plans in the Mackenzie Valley. In addition, they indicated that future site-specific information collected during the detailed design and construction phase of the Project would also be made available to regulators.

11.3.3 PARTICIPANTS' VIEWS AND RECOMMENDATIONS

Most of the discussion concerning protected areas at the Panel's hearings focused on the potential cumulative impacts that the Project and other developments could have on the completion of a protected areas network in the NWT. Points of concern that emerged in this discussion, included:

- Progress made to date in achieving the two goals of the NWT-PAS has been important but slow.

- Further delays in implementing the Five-Year Action Plan would seriously compromise or imperil the achievement of the NWT-PAS's goals and their effectiveness.
- Introducing or maintaining temporary protection via interim land withdrawals is critical if conservation areas identified and proposed for designation, assessment and establishment are not to be lost to ongoing incremental development.

These concerns were founded in a deeper concern that the potential pace and scale of development induced by the Project would outstrip the ability of regulators to manage the resulting cumulative impacts on areas of cultural and ecological importance to Northerners and the environment.

Representatives from the Canadian Boreal Initiative affirmed the importance and primacy of establishing a network of protected areas in the NWT and emphasized that cumulative rather than Project-specific impacts were the greater threat to attaining conservation objectives. It presented the results of a landscape simulation study it had conducted to model and predict the cumulative impacts of 100 years of land use (i.e. oil and gas, forestry and agriculture) in two areas of the Mackenzie watershed: the southern Dehcho territory and the more developed Alberta-Pacific Forest Industries Forest Management Agreement area in northeast Alberta (including the Athabasca oil sands). The model is one that has been widely applied to areas in Alberta, the NWT, British Columbia, the Yukon and Alaska.

For each study area, two land use scenarios were simulated. One was a business-as-usual scenario that applied conservation strategies that were presently in place, such as existing protected areas. The other, a conservation framework scenario, promoted increased protection and implementation of sustainable management practices in order to maintain the ecological, cultural and sustainable economic integrity of the broader region. The latter scenario, based on a vision for conservation in the boreal forest developed by a group of natural resource companies, First Nations and conservation organizations, was applied to the northeast Alberta study area. The conservation scenario applied to the Dehcho study area simulated the implementation of the draft Dehcho Land Use Plan, as well as industry best practices. The results of the simulations in each of the study areas were combined with wildlife models to examine impacts to woodland caribou and to a selection of songbird species.

In the northeast Alberta study, both the business-as-usual scenario and the conservation framework scenario predicted that, over the 100-year period, even conservation strategies were unlikely to result in the conservation of woodland caribou. Selected songbird species were expected to decline, although at a rate that would be reduced under the conservation framework. The results in the NWT were slightly different; in the southern Dehcho study area, under the business-as-usual scenario, the prediction was that caribou would likely be extirpated as a result of development. Under the conservation framework scenario,

however, caribou populations were predicted to be sustainable. Selected songbird species were predicted to decline under the business-as-usual and conservation framework scenarios.

Based on the results of its analysis, the Canadian Boreal Initiative recommended that, in regions that are relatively unallocated to development, a conservation plan that includes a large-scale protected areas network should be developed and implemented ahead of resource allocation to ensure that the full complement of native species is sustained. The Canadian Boreal Initiative further recommended that this should be supplemented by land use simulations in land use planning processes to inform choices about the long-term consequences of land use options and further research to improve understanding of the impacts of land use in the region.

Environment Canada specifically warned of potential impacts on the completion of a protected area network in the Mackenzie Valley when it told the Panel:

In Environment Canada's view, the pipeline portion of the project will likely have a limited impact on the establishment and long-term functioning of the proposed network of protected areas. However, over time, induced development could pose an impediment to the completion of this network and could pose a threat to the ecological integrity of individual sites if subsurface rights underlying these sites are not withdrawn. (Kevin McCormick, HT V47, p. 4486)

As a means to address and limit the impacts of induced development, Environment Canada reaffirmed its support for the goal of the NWT-PAS to set aside a network of protected areas prior to or concurrent with the Project's development. Environment Canada indicated that it would continue to sponsor additional candidate protected areas that meet its criteria for National Wildlife Areas.

INAC also stated that the Project as Filed would likely have a low impact on a network of protected areas and that continued support for NWT-PAS should continue. INAC informed the Panel that INAC could exercise discretion when awarding oil and gas rights and that it takes into account a number of factors, including the sensitivity of a particular area. However, INAC also indicated that it was constrained from doing so when issuing prospecting permits that allow for the staking of mineral claims, as this was not an activity subject to discretion.

The GNWT addressed the importance of establishing Goal 2 protected areas (ecologically representative areas that have not been subject to human disturbance). It indicated that these areas are important for ecological "benchmarking" purposes, i.e. to monitor and understand naturally occurring environmental changes and impacts at the landscape level, distinct from those that result from human disturbance. These areas can be used to help assess development impacts and mitigation effectiveness in comparable areas that have had industrial disturbance.

The importance of establishing core representative areas in a protected areas network was expanded on by Dr. Fiona Schmiegelow, a consultant for WWF-Canada. Dr. Schmiegelow stated that, as ecological benchmarks, core representative areas should be intact, represent environmental variation and be large enough to maintain key ecological processes. Dr. Schmiegelow also stated:

In addition to serving as controls for development activities, they play an important role as ecological baselines to increase our basic knowledge concerning the natural dynamics of systems and also act as anchors of a comprehensive protected area system.

As anchors, they represent areas with high natural integrity that provide a buffer against disturbance and contribute to the resilience of a system to climate change. (HT V47, pp. 4576–77)

Nature Canada supported this view stating:

Without these controls it is impossible to narrow whether observed environmental changes are a result of human activity or not. Consequently, protected areas are not just a means to achieve conservation objectives, but are an integral part of the learning process inherent in effective environmental planning and adaptive management across the entire landscape. (Dr. Brent Gurd, HT V68, p. 6984)

The GNWT indicated that the Project would have some impact and reduce the opportunities for meeting core area representation goals (Goal 2) for all conservation features, especially in the Mackenzie Delta, when combined with the physical footprint of production and significant discovery licences. The GNWT's analysis of potential core representative areas within the 16 ecoregions affected by the Project found that many of the key, irreplaceable areas overlapped the proposed pipeline route. In addition, implementing an effective protected areas system in the 16 ecoregions intersected by the pipeline would not be feasible without immediate action, or action concurrent with pipeline construction. In nine of the ecoregions, 90% of the representation goals can be met for all conservation features, but, in the other seven, opportunities are reduced. The GNWT suggested that its analysis

indicates that we still have a good opportunity in the Mackenzie Valley to identify and protect core representative areas but there is some urgency to complete this work within the timelines of the Mackenzie Valley Five Year Action Plan and before more land is committed to resource development. (J-GNWT-00120, p. 8)

The GNWT recommended that the Proponents work with the NWT Protected Areas Strategy Secretariat to identify and mitigate any impacts from Project infrastructure that could impact the establishment of a planned network of protected areas. The GNWT urged the Proponents to demonstrate their support for interim land withdrawals within candidate protected areas, share

information collected during the preparation of the EIS, and contribute funding to help implement the Five-Year Action Plan in order to ensure that the NWT protected areas system was established in the Mackenzie Valley by 2009–2010. Environment Canada, INAC and the GNWT also requested that the Proponents share any knowledge and other information regarding future development in the Mackenzie Valley that might affect the establishment of a protected areas network.

CPAWS and WWF-Canada commented extensively on the limited progress that had been made in establishing permanent protection, management and monitoring of a system of protected areas, i.e. the achievement of the NWT-PAS's goals, and repeatedly expressed concern with the time-consuming process of securing interim land withdrawals for proposed protected areas of interest and candidate protected areas. Significant gaps in protection were identified in two areas viewed as most likely to be impacted by induced development from the Project: the Mackenzie Delta and the Colville Hills.

Other participants, including the Tulita-Norman Wells Protected Areas Working Group, the Sahtu Renewable Resources Board, the Déline Land Corporation, the Sierra Club of Canada and the Canadian Arctic Resources Committee, strongly supported the immediate withdrawal of development rights where areas of conservation concern or interest had been identified, or the rapid completion of the NWT-PAS to establish interim protection for such areas before further development occurred.

CPAWS and WWF-Canada did not accept assurances from the Proponents and government that the NWT-PAS could proceed at the same time as the Project. CPAWS commented that, "with the large scale and fast pace of the proposed project and the development that will follow it, land will be taken out by industrial activities long before it can be protected." (Erica Janes, HT V45, p. 4263) WWF-Canada repeatedly emphasized this concern.

The Five-Year Action Plan was launched by parties to the NWT-PAS to expedite the planning and establishment of protected areas in the Mackenzie Valley in preparation for the Project. A number of participants raised concerns about Project timing and how it would affect the achievement of the NWT-PAS's goals. Stephen Kakfwi, on behalf of WWF-Canada, stated:

The question is: Are we sufficiently prepared now?

I must say that as of today, we are not, but we could be, if we had the active support of all Aboriginal leaders, northern leaders, if we had the active support of federal ministers and the federal government. We can finalize land-use plans, make sufficient advances in the Protected Area Strategy to feel that we have a plan in an environment where we can look at mega projects like the pipeline without concern for our environment and our cultures.

So this is a condition of approval, that large areas traditionally important to us be protected while there is still an option to do so. (HT V115, p. 11466)

In its closing remarks to the Panel, CPAWS suggested that current commitments by the governments who were parties to the NWT-PAS and the Five-Year Action Plan were insufficient to meet the timelines it established. Accordingly, CPAWS recommended to the Panel that it recommend in its Report that the entire network of culturally significant and ecologically representative protected areas in the Mackenzie Valley, as laid out in the Five-Year Action Plan, be required prior to Project approval.

A number of other participants, including the Sahtu Renewable Resources Board, WWF-Canada, the Canadian Arctic Resources Committee, and Dennis Bevington, MP, Western Arctic, proposed similar versions of this recommendation. WWF-Canada recommended that, as a condition of Project approval, the Panel should request the federal government to permanently protect all candidate protected areas under interim withdrawal, and provide interim protection for all candidate protected areas and areas of interest currently identified by communities in the 16 ecoregions of the Five-Year Action Plan. WWF-Canada also recommended that the federal government immediately impose a moratorium on any new industrial allocations for exploration and development in the 16 ecoregions of the Mackenzie Valley until such time as the Five-Year Action Plan was fully implemented and comprehensive long-term land use plans were completed and approved.

The federal government, the GNWT and the Proponents did not accept that full implementation of the NWT-PAS in the Mackenzie Valley should be a condition for Project approval. They held a common view that implementation of the NWT-PAS could proceed concurrently with development of the Project and that this was consistent with the Five-Year Action Plan.

11.4 IMPACTS ON LAND USE PLANS AND OCEAN MANAGEMENT

11.4.1 EXISTING CONDITIONS

The *Northwest Territories Environmental Audit 2005* states that community-based land use plans “allow institutions of public government to identify, conserve and protect areas of special values and resources” and that “the areas protected could be important for resource or traditional use, environmental protection, social and spiritual significance or a combination thereof.” (J-INAC-00065, p. 47)

Various land use planning or conservation planning initiatives are under way or have been completed within the NWT, largely as a result of the requirements of land claim settlements in the Inuvialuit Settlement Region, the Gwich’in Settlement Area and the Sahtu Settlement Area, or as a product of negotiations in progress and the associated Interim Measures Agreement in the Dehcho Region. The requirements for regional land use planning

in the land claim agreements outside of the Inuvialuit Settlement Region were given effect through the *Mackenzie Valley Resource Management Act* of 1998. That legislation applies to all of the NWT outside the Inuvialuit Settlement Region. Unlike the Gwich’in Settlement Area and Sahtu Settlement Area, which currently have functioning land use planning as well as land and water boards as required by their respective land claim agreements and by the *Mackenzie Valley Resource Management Act*, the Dehcho Region does not.

The Gwich’in Settlement Area is the only region that has an approved and enforceable land use plan in place. Plans are at various stages of progress for the Sahtu Settlement Area and the Dehcho Region, although neither is likely to be implemented before 2010.

In the Inuvialuit Settlement Region, the *Inuvialuit Final Agreement* provided for conservation planning, but does not require a land use plan. This has resulted in the development and implementation of community-based conservation plans that are landscape-level plans that apply throughout the Inuvialuit Settlement Region, area-specific land use guidelines, and various marine-based conservation plans and guidelines. The Inuvialuit Renewable Resources Conservation and Management Plan and Community Conservation Plans have been prepared for the Inuvialuit Settlement Region, but they are not legally enforceable. However, they are consulted by federal and territorial governments, regulatory agencies, and proponents that participate in the environmental screening, review and permitting of development in the Inuvialuit Settlement Region. In addition, a Beluga Management Plan, comparable to the Community Conservation Plans, identifies conservation zones in the offshore waters adjacent to the Mackenzie Delta.

The federal *Oceans Act*, Oceans Strategy, and Oceans Action Plan have provided the basis for developing the Beaufort Sea Integrated Ocean Management Plan. Such a plan would establish clear objectives and a cooperative approach to oceans management. Development of the proposed Tarium Niryutait Marine Protected Area has been a component of this planning. The intent in designating Tarium Niryutait as the first Arctic candidate marine protected area is to provide regulated protection to three areas already chosen for protection.

At the close of the Panel’s hearings, there was no regional land use plan in effect for northwest Alberta.

In a summary of the status of land use plans, the *Northwest Territories Environmental Audit 2005* observed that regional land use planning in the NWT has been in progress since 1983, when the Basis of Agreement on Northern Land Use Planning was signed by the federal and territorial governments, with the participation of Aboriginal authorities that existed at the time. In addition, it stated that the *Mackenzie Valley Resource Management Act*, enacted in 1998, also established land use planning requirements. Despite these efforts and requirements under the *Mackenzie Valley Resource Management Act*, the

audit states that little progress has been made in developing land use plans in the Mackenzie Valley, with less than one fifth of the Mackenzie Valley managed under legally enforceable land use plans as of the close of the Panel's record. The Panel heard that a greater degree of success with land use planning has been achieved in the Inuvialuit Settlement Region. It also heard that the lack of land use plans in many areas of the NWT is adding increased complexity and uncertainty to the regulatory processes for resource management and environmental protection.

An important feature of the conservation and land use planning required by the three regional land claim agreements has been the establishment of a number of regional and local community-based institutions to provide input and oversight for a wide range of matters related to wildlife and environmental planning, management, policy development and legislation. These are unique institutional arrangements in Canada, and they carry varying levels of authority for these matters, some of which are shared with the federal and territorial governments and some of which are exclusively their own. A consequence of these arrangements has been the extension of partnership or co-management arrangements beyond the specific requirements of land claim agreements to many other forms of environmental planning and management, such as protected areas and marine management.

11.4.2 PROPONENTS' VIEWS

The Proponents were required to assess the conformity of proposed Project-related land uses with designated land use management areas as described in approved and draft land use plans, Community Conservation Plans, and proposed land use designations, and to consider such plans when assessing impacts on protected areas and special management areas.

For each protected or special management area, the Proponents assessed the magnitude of the loss of available land base or marine environment and the degree of disturbance to each area by analysing the effect of:

- construction on the land base or marine area; and
- construction and operations on land access and, consequently, on land and marine use.

The Proponents indicated that conservation areas and land use planning objectives have been incorporated into the Project planning and design process. They committed to comply with Community Conservation Plans and regional land use plans, when finalized, and with proposed marine protected area regulations. These commitments applied to the Project's Anchor Fields, the Mackenzie Gathering System and the Mackenzie Valley Pipeline.

The Proponents indicated that most Project components either avoid sensitive areas or occur in areas where development is permitted under certain conditions. They claimed that construction and reclamation practices are expected to return

the majority of the disturbed land, such as the land along the pipeline right-of-way, to productive wildlife habitat. Based on their commitments outlined elsewhere in this Report, the Proponents concluded that no significant impacts from the Project on existing or proposed special management areas were expected.

11.4.3 PARTICIPANTS' VIEWS AND RECOMMENDATIONS

Land use plans and conservation plans were generally viewed by all participants, including the Proponents, as important instruments for managing cumulative impacts from future development at the landscape level. However, the effectiveness of current and draft plans for managing cumulative impacts from the Project and future induced development and the slow progress toward the completion and approval of land use plans in the Mackenzie Valley were central issues discussed by many participants.

Dr. Schmiegelow, on WWF-Canada's behalf, provided the context and scientific basis for implementing land use plans within a region that is biologically diverse and resource-rich. Dr. Schmiegelow indicated that it was helpful to understand the maintenance of sustainable landscapes in the context of conservation science, which has emerged primarily as a crisis discipline in response to species loss and degradation in human-altered systems. Historically, the focus of conservation planning has largely been on establishing protected areas after significant conservation concerns have already arisen, and on the management of small, threatened populations. This reactive approach envisages protected areas as islands within a resource development background. According to Dr. Schmiegelow, conservation science, consistent with sustainability, provides a more proactive approach whereby resource use and industrial development should be surrounded by networks of conservation areas and protected areas that provide opportunities for natural resource harvesting (i.e. hunting, fishing and timber harvesting) and the protection of biodiversity.

Dr. Schmiegelow stated:

In largely intact systems, including the Mackenzie and adjacent regions where the vast majority of lands are appropriately considered conservation lands, it was equally important to ask: How much is too much? How much development can occur, such that natural and cultural values and integrity of the region are not compromised by such activities?

We refer to this as a "conservation matrix model," where the matrix is the supportive environment that sustains these values and within which a variety of land uses can occur, ranging from strict protection to regulated resource development at appropriate scales. (HT V47, p. 4574)

Dr. Schmiegelow also stated that development and conservation could be planned and managed through locally supported land

use plans, and that these plans should be in place concurrent with the Project's development.

WWF-Canada referred to specific examples of this type of proactive planning in northeastern British Columbia, including the Muskwa-Kechika Management Area and the Fort Nelson and Fort St. John Land and Resource Management Plans, which were the result of consultation and accommodation among industry, regional organizations, conservation groups and government.

LAND AND RESOURCE MANAGEMENT AND RIGHTS ISSUANCE

A major issue raised during the Panel's hearings was the perceived conflict between the objectives of the NWT-PAS and regional land use planning and the ongoing system of land management and rights issuance in the NWT.

Several participants stated that the existing system of land management and rights issuance in the NWT makes it difficult to reserve lands for conservation purposes. Former NWT Premier Stephen Kakfwi, speaking on behalf of WWF-Canada, stated:

It is shocking to me that while the Dehcho communities are continuing to work to finalize the Land Use Plan, and while communities throughout the valley are working under the Protected Area Strategy to identify critical areas for conservation, all around us, governments are granting industry preferred access to the land through prospecting permits and oil and gas leases. It seems to me that industry has more rights than we do. (J-WWF-00044, p. 11)

Monte Hummel, President Emeritus of WWF-Canada, echoed this view:

INAC has consistently issued mineral tenures and oil and gas leases inside areas proposed for protection, and they will do so even more rapidly if this project is approved, foreclosing conservation options.

INAC argues that unless the land has already been withdrawn by Order in Council, they have no discretion in the matter. They say they are obliged to commit the land for industrial development. It's a free entry system: You ask, you get. (HT, V115, p. 11463)

At an earlier hearing, WWF-Canada referred to the *Places We Take Care Of* report, which was produced as an undertaking from the *Sahtu Dene and Metis Comprehensive Land Claim Agreement* and published in 2000, after the NWT-PAS was signed. The report lists key special areas in the Sahtu Settlement Area and recommends conservation measures for all of them. WWF-Canada was particularly concerned that INAC had issued exploration licences in the following areas identified for protection in that report:

- In 2000, an exploration licence was issued that completely covered Bear Rock and part of Willow (Brackett) Lake.

- In 2000, an exploration licence was issued that completely covered Red Dog Mountain.
- In 2004, an exploration licence was issued that overlapped the Kelly Lake land withdrawal.

WWF-Canada pointed out that, from 2003 to 2006, INAC issued 17 new licences for oil and gas exploration and 8 coal licences in the Sahtu Settlement Area, yet no new land withdrawals were permitted nor were protected areas established. WWF-Canada concluded that the

Protected Areas Strategy cannot meet its goals, and the Sahtu Land Use Planning Board cannot complete a credible, effective land use plan if oil and gas leases and prospecting permits continue to be issued within proposed candidates before these areas are granted interim protection. (Freya Nales, HT V47, p. 4572)

The Tulita-Norman Wells Protected Areas Working Group reached the same general conclusion.

INAC responded to these concerns with the information that land withdrawals are Cabinet orders, made on the recommendation of one or more ministers, and therefore are political rather than bureaucratic decisions. INAC indicated that, in the case of oil and gas, "the folks involved in that process are certainly well aware of candidate protected areas and do their best to respect the community interests when it comes to rights issuances," but acknowledged that the situation was "a lot more complicated on the mineral rights issuance." (David Livingstone, HT V105, p. 10470)

INAC stated that "current Government of Canada policy is market-based with private sector investment determining the pace of development" and that "there is no direct regulation of pace of development: such regulation would be inconsistent with the market-based approach." (J-INAC-00185, p. 2) INAC explained that the present mining regulations do not allow for administrative discretion in the awarding of rights, although there is some allowable administrative discretion with respect to oil and gas exploration rights.

As of September 2007, according to a list furnished by INAC, there were about 200 existing oil and gas exploration licences, significant discovery licences and production licences in the Beaufort Sea, Mackenzie Delta and Mackenzie Valley regions. While the majority date from before 2000 (Imperial Oil's Norman Wells leases are almost a century old), 59 licences were issued in the period 2000–2007.

In its concluding remarks to the Panel, INAC stated that there is no incompatibility between its continuing issuance of oil and gas exploration rights and the goals of conservation. It stated that it is committed to managing its oil and gas responsibilities in concert with the evolution of land use planning and the protected areas network. It stated that it believes that continuing investment in oil and gas exploration and development, which may or

may not be induced by the Project, is important for economic sustainability and can occur without significantly compromising the environment, subject to appropriate planning and mitigation. Further, “in this regard INAC is committed to working with communities, northern Aboriginal organisations, industry and other stakeholders to ensure that conditions of rights issuance are clear and can be practically implemented.” (J-INAC-00194, p. 4)

While INAC’s formal submission said nothing about mineral exploration or coal mining, Department officials indicated that the existing system of non-renewable resource rights issuance in such matters will continue: “In the issuance of prospecting permits, the Department of Indian and Northern Affairs has taken the view that it’s not a discretionary activity; it is required. If an individual or a company asks for a prospecting permit and follows the correct format, the Department will issue.” (Livingstone, HT V47, p. 4511)

The Panel heard that implementation of the Gwich’in Land Use Plan has proved challenging. In order to give effect to the conditions that restrict or otherwise limit development on lands so designated in the plan, INAC has pursued amendment of the *Canada Mining Regulations* (now the *Northwest Territories and Nunavut Mining Regulations*), a task that remained outstanding at the close of the Panel’s record. At the close of the Panel’s hearings land withdrawals were in effect, but they were only interim. An INAC representative stated that “the ultimate goal, though, is to amend the Canada Mining [Regulations] to ensure that they conform with the Gwich’in final agreement and other final agreements in the NWT” and that this is “taking longer than expected.” (Livingstone, HT V91, p. 9084)

INAC indicated that, until the regulatory amendments were accomplished, extending land withdrawals as a temporary measure was also an option.

Environment Canada and the GNWT supported the withdrawal from disposition of lands of conservation concern.

Environment Canada specifically warned of potential effects on the completion of a protected area network:

In Environment Canada’s view, the pipeline portion of the project will likely have a limited impact on the establishment and long-term functioning of the proposed network of protected areas. However, over time, induced development could pose an impediment to the completion of this network and could pose a threat to the ecological integrity of individual sites if subsurface rights underlying these sites are not withdrawn. (McCormick, HT V47, p. 4486)

The GNWT, when discussing the selection of Goal 2 areas, stated “there is some urgency to complete this work before more land is committed for resource-based development.” (Susan Fleck, HT V47, p. 4494)

EFFECTIVENESS OF LAND USE PLANS

Many participants commented on the critical role that land use plans should play in managing cumulative impacts of the Project and future induced development. The Panel heard comments from WWF-Canada, CPAWS, the Sierra Club of Canada and others about what was required to make regional land use plans in the Gwich’in Settlement Area, the Sahtu Settlement Area and the Dehcho Region — and Community Conservation Plans in the Inuvialuit Settlement Region — effective in managing the cumulative impacts of the Project. WWF-Canada and the Sierra Club of Canada recommended that all regional land use plans and Community Conservation Plans include the following components, and, if necessary, be amended to do so:

- measures to mitigate impacts of the Project and induced developments on the ability to complete a network of protected areas in the Mackenzie Valley;
- measures to identify habitat targets;
- cumulative effects thresholds, such as linear density and core habitat thresholds; and
- measures to develop an ecologically representative network of protected areas.

The Canadian Arctic Resources Committee and WWF-Canada stated that the absence of enforceable measures in Community Conservation Plans in the Inuvialuit Settlement Region was an issue that should be addressed.

The Panel received considerable evidence on the use of cumulative impacts thresholds in land use and conservation planning. Participants referred to the fact that the initial draft Dehcho Land Use Plan included what in effect would be legally binding density thresholds on landscape disturbance. However, the binding versus discretionary nature of these thresholds was under review, with the consideration that they could be discretionary. Although considerable work had been carried out to examine the feasibility and application of cumulative impacts thresholds in different regions of the NWT, none was currently in effect. During the hearings, federal and territorial government representatives indicated that “resilience thresholds, carrying capacity, [and] limits of acceptable change [are] a common concern throughout the NWT” and agreed that “broadly speaking, we recognize the need, the applicability of thresholds, of carrying capacity, but we haven’t, in most cases, come up with numbers that reflect a consensus.” (Livingstone, HT V47, pp. 4524–25) The GNWT agreed that thresholds were potentially a valuable tool for landscape management but that they needed the support of a strong information base. Environment Canada expressed caution as to whether the science was sufficiently developed to support the application of thresholds, given the complexity of ecological systems. It also recommended more research on thresholds and the limits of acceptable change. INAC, Fisheries and Oceans Canada, and Environment Canada suggested that interim and tiered thresholds and a discretionary

approach may be preferred for applying thresholds in the near term until there was more confidence on:

- certain specified habitat disturbance thresholds;
- other cumulative impacts thresholds in different regions and for certain species; and
- agreement on how they would be applied.

However, as discussed in Chapter 10, “Wildlife,” Environment Canada has, as a matter of policy, set a development footprint threshold of 1% of the total area to limit the cumulative impacts of all current and future development in KIBS.

The Proponents indicated they anticipated that, as land and resource management planning and decision making evolved, it would include consideration of thresholds; however, the role they would play would require further discussion and consultation.

The legal effect of approved land use plans was a significant topic of discussion at the Panel’s hearings. INAC explained that, once a plan was approved by the appropriate Aboriginal authority and by the territorial and federal governments, it became binding on all parties. The various boards that issue development permits and authorizations were bound to follow the terms and guidance of the approved land use plan as they related to conservation and development constraints.

As with the establishment of a network of protected areas in the Mackenzie Valley, the issue of timing as it relates to the sequencing of approval of land use plans and approval of the Project was of great concern. On the question of whether the federal government would ensure that land use plans were in place prior to permitting further developments that could be expected to be induced by the Mackenzie Gas Project, INAC responded that “the absence of land-use planning or land-use plans...will not in and of itself result in a moratorium on development.” (Livingstone, HT V105, p. 10500)

Many participants argued that land use and conservation planning should be completed prior to significant industrial development. WWF-Canada commented that, in the past decade, there has been remarkably little investment or action on conservation measures in the NWT to match a rapid acceleration of investment and allocations to industrial developments.

Many participants, especially within the Sahtu Settlement Area and Dehcho Region, recommended that the Sahtu and Dehcho Land Use Plans be completed, approved and implemented prior to construction of the Project. In the same vein, participants recommended that no approvals for a pipeline or any related developments be given prior to approval of these plans. Wilfred Lennie, President of the Tulita Renewable Resource Council, stated that it is unreasonable to think that a major decision on a natural gas pipeline and/or other related development in the Sahtu Settlement Area should occur prior to the completion and approval of the Sahtu Land Use Plan. He recommended that the Panel “delay any major decision or reporting to the National

Energy Board on the Mackenzie Gas Project until the Sahtu Land Use Plan is approved by the Government of Canada.” (HT V17, p. 1727)

This recommendation extended to include the measure of deferring further “industrial allocations on lands identified as conservation zones” until interim land withdrawals of conservation zones and candidate protected areas within these zones were established. (J-WWF-00056, p. 13) Bobby Clement, appearing before the Panel in Tulita, stated the following:

I heard elders mention Bear Rock, which is a spiritual place people go to to say their prayers and so forth. There’s a coal seam that’s about four miles from here that people use. There’s Bear River. There’s Keele River. Those are historical sites that we use to hunt and trap.

And that’s why, when we talk about this land use planning, we need to push that through before anything happens on our land. We must concentrate on that. That’s the only way we could get what is needed to preserve for future generations.” (HT V17, p. 1746)

More specifically, WWF-Canada recommended further interim withdrawals of lands identified for conservation under the draft Sahtu and Dehcho land use plans in order to forestall any new industrial allocations prior to approval of these plans.

Finally, the Panel was urged to consider the application of interim measures until such time as all regional land use plans were completed. The Sierra Club of Canada recommended that interim habitat targets and linear disturbance thresholds be developed, using Traditional Knowledge and peer-reviewed science, prior to the pipeline’s approval.

The Proponents, the Government of Canada and the GNWT opposed recommendations that required the completion and implementation of land use plans as a condition for Project approval and for other industrial allocations of lands in conservation zones. They maintained that completion, approval and implementation of land use plans could occur concurrently with the Project and other industrial development.

11.5 IMPACT ASSESSMENT: INUUVIALUIT SETTLEMENT REGION

11.5.1 EXISTING CONDITIONS

The Inuvialuit Settlement Region includes two federal protected areas in the Project Review Area. KIBS is managed by Environment Canada and encompasses 623 km² of the Mackenzie Delta. The proposed Tarium Nirvutait Marine Protected Area consists of three marine areas in the vicinity of the Mackenzie estuary that have been chosen for the protection

of beluga whales and the traditional use of the Inuvialuit. The proposed marine protected area is sponsored by Fisheries and Oceans Canada and has been developed and evaluated by the Beaufort Sea Integrated Management Planning Initiative Working Group, a group consisting of representatives of Fisheries and Oceans Canada, the Fisheries Joint Management Committee (based in Inuvik), the Inuvialuit Regional Corporation, the Inuvialuit Game Council, INAC, and the Canadian Association of Petroleum Producers.

Community Conservation Plans have been established by the Wildlife Management Advisory Council (NWT) and Hunters and Trappers Committees for regions surrounding each of the six communities in the Inuvialuit Settlement Region. The plans are not legally binding. They establish conservation conditions and guidance for development activities occurring in the areas they encompass. Updated in 2000, the plans address such issues as identifying and managing important wildlife habitat, seasonal harvesting areas and cultural sites, as well as educational initiatives and strategies for enhancing the local economy. They also address a process for making land use decisions and protecting community values and resources.

The Project study area includes lands and waters that have the following Community Conservation Plan designations:

- Category B: Lands where cultural or renewable resources are of some significance;
- Category C: Lands of particular significance during specific times of the year;
- Category D: Lands of particular significance throughout the year; and
- Category E: Lands of extreme significance and sensitivity.

Terms and conditions associated with permits and leases in these areas are to assure conservation of the resources of significance and, for Categories C and D lands, to eliminate to the greatest extent possible, potential damage and disruption. No development is to be allowed in Category E lands.

Protected areas in the Inuvialuit Settlement Region in the vicinity of the Project area are shown in Figure 11-3.

11.5.2 PROPONENTS' VIEWS

The Proponents indicated that some protected areas and special management areas in the Inuvialuit Settlement Region would be directly affected by the Project. The part of the gathering system that connects Niglintgak and Taglu Anchor Fields and their infrastructure sites is within KIBS, and pipeline and infrastructure site installation would affect previously undisturbed lands there.

Development of the Niglintgak Anchor Field would result in a decrease in the total land base of KIBS for the life of the Project. Similarly, development of the Taglu Anchor Field would result in a decrease in the total land base of KIBS for the life of the

Project. Taglu would be located in several areas designated as Inuvialuit Category C lands for conservation of spring goose harvesting, fall goose harvesting and important migratory bird habitat. Development is permitted, although these areas must be managed to eliminate potential damage and disruption. Chapter 10, "Wildlife," addresses the Project's impacts on KIBS and recommends mitigation measures.

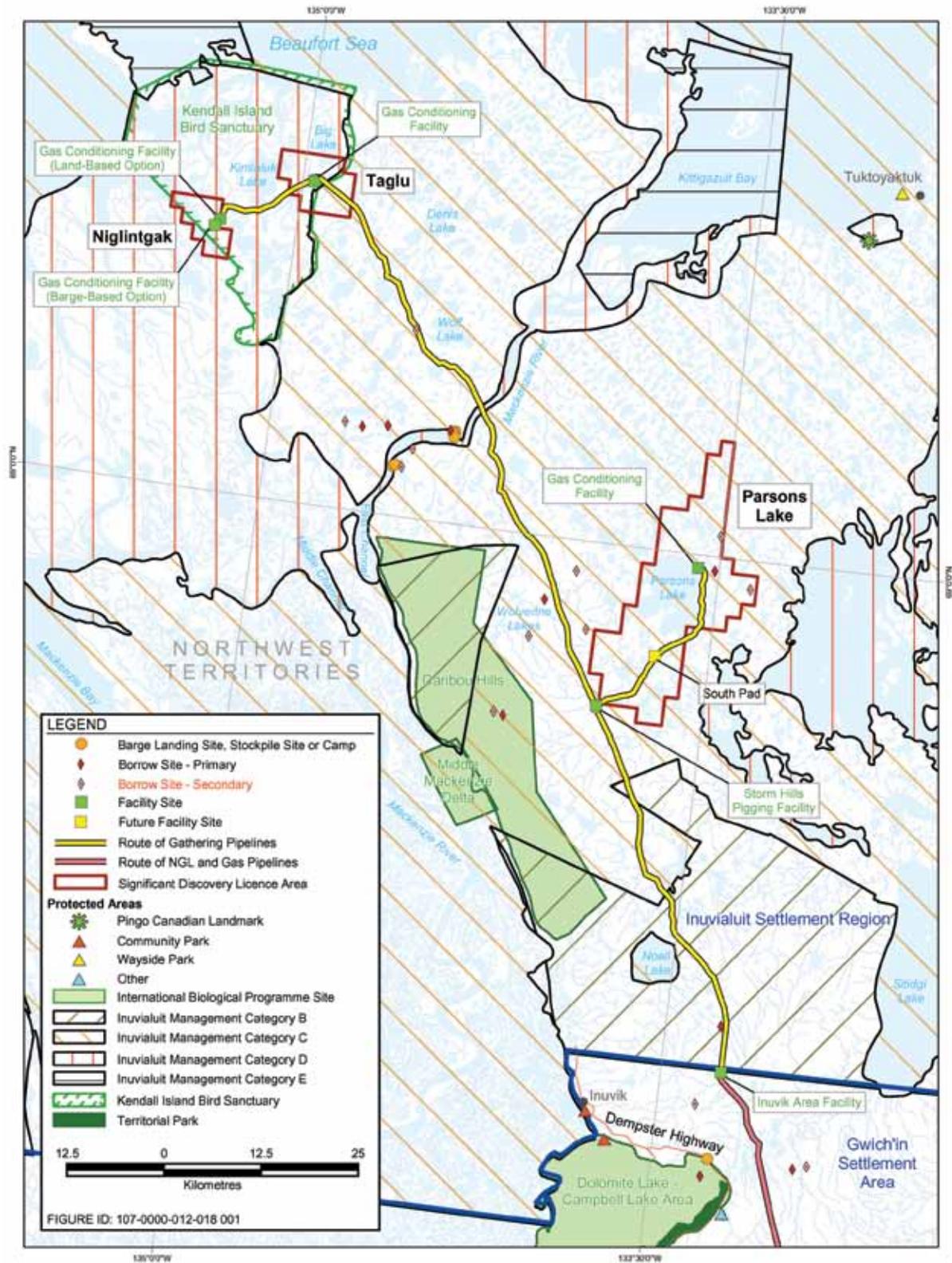
A proposed Project transportation corridor would pass through the Kugmallit Bay Beluga Management Zone 1A, as designated in the Fisheries Joint Management Committee Beluga Management Plan. As noted in Chapter 9, "Fish and Marine Mammals," the Proponents indicated that dredging and shipping are permitted in Beluga Management 1A Zones at all times of the year, provided that the activity takes place along a designated route. The Proponents indicated that dredging would occur two years prior to the transportation of the gas conditioning facility. The gas conditioning facility is proposed to be towed through Kugmallit Bay and Kittigazuit Bay to the Mackenzie River, passing through Community Conservation Plan Areas 714 C, D and E. The Category E portion of this area encompasses a traditional beluga harvesting area.

The Proponents noted that, under the *Oceans Act*, once designated as a marine protected area by Fisheries and Oceans Canada, all marine protected areas would share minimum protection standards prohibiting ocean dumping, dredging and the exploration for or development of non-renewable resources. Although no marine protected areas had been formally designated at the time the EIS was filed, the Proponents acknowledged that interim management guidelines might be applied to candidate marine protected areas under exceptional circumstances when the guidelines are necessary to protect threatened marine resources. Chapter 9 addresses Project impacts within the candidate marine protected areas, with particular emphasis on dredging, and recommends mitigation measures.

The Proponents also addressed Project impacts to areas covered by Community Conservation Plans for Tuktoyaktuk, Inuvik and Aklavik. The Proponents indicated that, although not legally binding, the plans would be consulted during the regulatory processes that are applicable in the Inuvialuit Settlement Region. Development of the Parsons Lake Anchor Field, parts of the gathering system and other Project facilities would be constructed in Category B and C lands. Again, development is permitted with conditions. Access to lands near Parsons Lake would be increased by the construction of new winter roads from Tuktoyaktuk to Parsons Lake and from the Mackenzie River to Parsons Lake.

The Proponents concluded that impacts on protected and special management areas from the Anchor Fields, gathering system and other Project components located in the Inuvialuit Settlement Region would occur only in that region and would not have significant impacts on its protected and special management areas. They indicated that, given the short construction season

Figure 11-3 Protected Areas: Inuvialuit Settlement Region



Source: EIS Volume 4, Section 6, Figure 6-4

and following the implementation of the mitigation measures they had outlined, the recommended guidance of the Community Conservation Plans for Category C, B, D and E lands could be met. They also indicated that disturbance of lands in the vicinity of Project infrastructure — and the presence of winter roads to Project facilities and the Project corridor — could result in a change in the activities of other land users in these areas and increase access to nearby lands. The Proponents indicated that, during the Project's construction phase, they would work closely with regulatory agencies, Inuvialuit organizations and wildlife management bodies to plan the timing of those activities that may conflict seasonally (especially during spring and summer) with time-sensitive periods for certain wildlife species and Inuvialuit harvesters in these conservation areas.

11.5.3 PARTICIPANTS' VIEWS AND RECOMMENDATIONS

Parks Canada was concerned that the Proponents had omitted a number of parks, historic sites and landmarks in the Inuvialuit Settlement Region under Parks Canada jurisdiction from their assessment of impacts on protected areas. Parks Canada asserted that the Project would have impacts resulting from the potential for accidents arising from shipping and barging and from the location of borrow pits. Parks Canada recommended that the following areas be included in the list of sites of particular value when planning for accidents and malfunctions, and that proposed developments or activities near these sites should be avoided or monitored to minimize impacts:

- Ivvavik National Park of Canada (marine and terrestrial components);
- Kittigazuit Archaeological Sites (National Historic Site); and
- the Pingo Canadian Landmark.

Throughout the hearings, a number of participants, including Environment Canada, CPAWS, WWF-Canada, the Fisheries Joint Management Committee and Alternatives North, raised concerns about the potential cumulative impacts of the Project and future induced development on the Mackenzie Delta and the marine and coastal habitat areas of the Beaufort Sea. The Mackenzie Delta was singled out by many as a special case requiring a proactive approach to the management of cumulative impacts from induced development, especially given its overall international importance as an important key habitat area to many species of wildlife and in providing important ecosystem functions. Environment Canada commented:

Although the extent and pace of exploration and development will be governed by a variety of factors, it is reasonable to assume that the next few decades will see a greatly increased level of exploration and development in certain parts of the Mackenzie Valley, particularly the Mackenzie Delta.

Induced development in the Mackenzie Delta and adjacent Beaufort Sea (as in other areas of focused exploration and development) will likely involve an array of marine, sub-marine and/or land-based infrastructure along with an increased level of industrial activity. This will result in direct permanent impacts on the landscape and more subtle effects that could include visual and noise impacts and increased populations of predators. (J-EC-00078, p. 4)

Environment Canada indicated that exploration and development in the Delta should be managed in a manner that will ensure that the ecological resources of this area are sustained over the long term. It also stated that now was the time to be preparing for induced development, particularly in the Mackenzie Delta, and made recommendations, echoed by others, on the need for a proactive approach in the area and in the Beaufort Sea offshore area. Recommendations to this end included:

- establishing special management areas that have protected areas conditions;
- establishing cumulative impacts thresholds;
- protecting marine and key habitat areas;
- monitoring and continually assessing the impacts of development activities on wildlife species for which the Delta and adjacent coastal areas represent key habitat; and
- considering the interaction of development activities with other factors such as Inuvialuit hunting and long-term climate change.

There was a general recognition that these recommendations went beyond the responsibilities of the Proponents and implicated many departments of the federal and territorial governments, Inuvialuit and Gwich'in organizations, and wildlife management boards. There was also recognition, along with recommendations, to the effect that enhanced funding would be required by these institutions to facilitate these recommended management measures and to respond to the pressures of assessing and monitoring increased exploration and development in the area.

The Joint Secretariat filed a copy of the draft *Beaufort Sea Strategic Regional Plan of Action* (June 2007). The plan is a cooperative venture involving the Inuvialuit, government and industry and is intended to provide a management foundation for offshore oil and gas exploration in the Beaufort Sea. The plan indicates that, in response to the new wave of oil and gas activity associated with the proposed Project, the issue of the long-term environmental and social sustainability of the Mackenzie Delta–Beaufort Sea region was brought forward by the Inuvialuit Game Council. In June 2004, the Council wrote to the Minister of the Environment expressing concerns that Project-specific environmental assessment might not adequately capture the cumulative environmental and social impacts of an extended period of oil and gas activity induced by the Project. The Council

requested that the Canadian Environmental Assessment Agency undertake a strategic regional environmental assessment of the development of offshore oil and gas resources in the Beaufort Sea and consider the impacts of this development on the communities surrounding it. In his written response to the Council, the Minister of the Environment indicated that he found the proposal for a regional strategic environmental assessment “to prepare for future exploration and development [to be] both prudent and timely.” (J-JS-00059, p. 7)

The draft *Beaufort Sea Strategic Regional Plan of Action* allows for the evaluation of immediate and long-term needs with regard to Beaufort Sea hydrocarbon development and provides specific actions to meet those needs. These actions are to be implemented over a number of years and are intended to provide a management framework to help guide offshore hydrocarbon exploration and development. These actions also stress the need for sustainable development.

In planning for the management of future exploration and development, the plan chose the Proponents’ hypothetical development scenario submitted to the Panel in response to its request that the Proponents assess the cumulative impacts of the Project arising from a scenario in which the system would operate at its maximum capacity (1.8 Bcf/d).

The Joint Secretariat indicated that the draft plan emerging from the interim draft *Beaufort Sea Strategic Regional Plan of Action* process would be reviewed by Inuvialuit communities and organizations, government, industry and others to ensure that the recommendations and priority actions are appropriate to prepare for oil and gas development in the Beaufort Sea and coastal areas.

Fisheries and Oceans Canada provided a statement of regulatory intent, dated April 21, 2005, of the proposed Tarium Niryutait Marine Protected Area and a copy of the draft management plan. Fisheries and Oceans Canada indicated that, if the Proponents complied with the existing regulatory framework and the existence of the marine protected area, and if its conservation objectives were taken into account in deciding whether and how to issue regulatory approvals, then the protective mechanisms of the marine protected area would be essentially addressed by the Proponents.

11.6 IMPACT ASSESSMENT: GWICH’IN SETTLEMENT AREA

11.6.1 EXISTING CONDITIONS

Gwich’in Territorial Park Reserve is about 20 km from the pipeline corridor, south of Inuvik, on the east and south shores of Campbell Lake, immediately west of the Dempster Highway. The park encompasses about 8,800 ha and is classified as an Outdoor

Recreation Park with two existing wayside parks and one existing campground.

Nagwichoosjik National Historic Site is administered by the Gwich’in Tribal Council. The site is a 175-km-long stretch of the Mackenzie River from 1 km upstream of the Thunder River confluence down to Point Separation and extends 5 km inland. Nagwichoosjik holds a prominent position within the Gwich’ya Gwich’in cultural landscape and is of great cultural, social and spiritual importance.

The Gwich’in Land Use Plan came into effect in August 2003 and was the culmination of more than a decade of work. The plan divided the Gwich’in Settlement Area into four kinds of zones: general use, special management, conservation and heritage conservation. In general use zones, all land uses are allowed, in accordance with necessary regulatory approvals. All uses are also permitted in special management areas, provided the conditions set out in the Land Use Plan are met and necessary approvals obtained. There are no restrictions on traditional activities in either zone. By contrast, no industrial activity, including oil and gas or mineral exploration and development, is allowed in Gwich’in conservation or heritage conservation zones. When the Land Use Plan was approved, surface and subsurface rights in the various conservation and heritage conservation zones were withdrawn for an interim period of five years. The Gwich’in Land Use Plan also anticipated future industrial development and identified a set of rules for a pipeline to transport oil and gas in the Mackenzie Delta–Beaufort Sea region to southern markets.

11.6.2 PROPONENTS’ VIEWS

The Proponents identified a number of specially designated areas that would be affected to some degree by the Project. Gwich’in Territorial Park Reserve is about 20 km from the pipeline corridor. The proposed pipeline corridor passes near the Nagwichoosjik National Historic Site and crosses several special management areas identified in the approved Gwich’in Land Use Plan.

The Project’s right-of-way, borrow sites and block valve sites traverse the Campbell Creek special management area, lakes around the Travaillant Lake special management area and the Mackenzie/Tree River conservation zone. The Project’s Inuvik Area Facility is in the Campbell Creek special management area. Several borrow sites and parts of some of the proposed access roads are also in several special management areas. The Gwich’in Land Use Plan allows for development in these areas as long as the conditions outlined in the plan are met. The Travaillant Lake area is a prime fishing and trapping area for the communities of Fort McPherson and Tsiigehtchic, and no development activity, including oil and gas development, is permitted in this zone.

However, the Gwich’in Land Use Planning Board has acknowledged that the pipeline is a potential use through this area and that the potential negative environmental and cultural effects could be mitigated. A pipeline corridor through this zone would be considered only on the following conditions:

- no feasible alternative to the corridor exists;
- the shortest route possible is followed;
- the most sensitive ecological and cultural areas are avoided;
- no additional developments, e.g. borrow sites, access roads, camps, are proposed; and
- consultation with Gwich'in communities and other affected parties takes place.

The Proponents predicted that Project activities and facilities in the protected areas identified by the Gwich'in Land Use Plan would result in the loss of available land base and disturbance to the protected area. However, the impacts were assessed as not significant.

11.6.3 PARTICIPANTS' VIEWS AND RECOMMENDATIONS

Parks Canada recommended that the Nagwicheonjik National Historic Site be included in the list of sites of particular value when planning for accidents and malfunctions. In addition, Parks Canada recommended against locating the proposed borrow pit adjacent to Nagwicheonjik National Historic Site. If this is not possible, the Proponents, in consultation with Parks Canada, should survey and mark the boundary of the site in the vicinity of the borrow site to ensure that the pit would not extend into this historic site. The Proponents should also ensure that the pit would not be visible from the Mackenzie River or Nagwicheonjik National Historic Site.

CPAWS expressed concern that the Gwich'in Land Use Plan did not adequately protect conservation values. It recommended that, if the Project were approved, the Gwich'in Land Use Plan should be revised concurrently with the development of the Project in order to be "more ecologically representative" and that the conditions for development in Gwich'in special management areas should be reviewed and adapted as new information becomes available. (Daryl Sexsmith, HT V45, p. 4266) Other participants also made general comments and recommendations in this regard.

11.7 IMPACT ASSESSMENT: SAHTU SETTLEMENT AREA

11.7.1 EXISTING CONDITIONS

The Willow Lake and Willow River area (Brackett Lake) International Biological Program site and the eastern section of Ts'ude niline Tu'eyeta, a candidate protected area under the NWT-PAS, are located within the Regional Study Area of the Project. Ts'ude niline Tu'eyeta has formal boundaries and

community support. At the time of the Panel's topic-specific hearings on conservation measures, there were no restrictions on development in place. Subsequently, on November 21, 2007, Environment Canada announced interim land withdrawal for Ts'ude niline Tu'eyeta.

The draft Sahtu Land Use Plan of February 2007 divides the Sahtu Settlement Area into three zones: conservation (30%), special management (49%) and multiple use (11%). The three zones total 90%; the other 10% is Great Bear Lake, which is bordered by special management and conservation zones. Generally speaking, no industrial development activities are permitted in conservation zones. Special management areas allow development with specific requirements, and multiple-use zones are open for development subject to requirements established by regulatory agencies such as the Sahtu Land and Water Board.

11.7.2 PROPONENTS' VIEWS

The Proponents stated that there would be no physical impacts within Ts'ude niline Tu'eyeta.

The route of the pipeline would pass through the Willow Lake and Willow River area (also known as Brackett Lake) International Biological Program site, which would result in a loss of land base in this area. The existing winter road and Enbridge pipeline also run through the same part of this site. However, the site was enlarged to include the potential highway and pipeline transportation corridor to permit monitoring of the natural recovery processes following human disturbance. The Proponents predicted that there would be no significant adverse effects.

The proposed pipeline corridor would also cross several special conservation and management zones identified in the draft Sahtu Land Use Plan.

The pipeline route would cross two of the conservation zones identified in the Sahtu Land Use Plan:

- the Loon River block valve site and one borrow site would be located near the Fort Anderson Trail conservation zone; and
- part of the Tulita infrastructure site might be located in the Great Bear River conservation zone.

Although the draft Sahtu Land Use Plan specifies that oil and gas exploration and development are restricted or unacceptable in such areas, the Sahtu Land Use Planning Board has the authority to grant an amendment or exception to allow the pipeline to pass through, as long as amendment procedures and conditions are followed.

Construction and operations of the pipeline and associated Project components would also be located near or overlap several Sahtu Land Use Plan special management areas:

- The Norman Wells and Little Chicago compressor stations would be located near the Mackenzie River special management area.
- The Chick Lake block valve site would be constructed in the Lac à Jacques special management area, and the Tulita and Little Smith Creek block valve sites would be located near the Mackenzie River special management area.
- Most of the infrastructure sites in the Sahtu Settlement Area have components in the Mackenzie River special management area. Several of the borrow sites would be located in special management areas.

The Proponents acknowledged that installation of Project components in special management areas and in conservation areas would decrease the total undisturbed land base in each case. They indicated, however, that they would work with the Sahtu Land Use Planning Board to meet all conditions required. While Project development would provide increased access to these areas, the Proponents expected that the Sahtu Land Use Plan would manage other land uses that might be induced by this new access and predicted no significant impacts.

11.7.3 PARTICIPANTS' VIEWS AND RECOMMENDATIONS

Participants in the Sahtu Settlement Area focused on the potential cumulative impacts of the Project and future developments.

CPAWS cited the example of Sahoyúé-?ehdacho, a candidate protected area that has interim protection under the NWT-PAS. Sahoyúé-?ehdacho is near Déline and consists of two peninsulas located a moderate distance from the proposed pipeline route. In 2005, despite the fact that it had received interim protection, seismic and exploration activity was conducted west of Sahoyúé-?ehdacho and within the candidate protected area. According to CPAWS, that seismic activity would not have occurred without the prospect of the Project, since those areas would not be economically viable for hydrocarbon development. CPAWS indicated that this was an example of Project-induced development having a direct and deleterious impact on candidate protected areas.

The Tulita-Norman Wells Protected Areas Working Group recommended that the Panel recognize the importance of the potential protected areas or conservation zones that this working group has identified. In addition, it was recommended that the Proponents provide funding support for the formal designation and implementation of the Mackenzie River as a Canadian Heritage River.

The Sahtu Land Use Planning Board indicated that progress in completing the draft Sahtu land use plan was delayed, in part

because of lack of quorum for board meetings. A breakdown in the process for appointing board members prevented the Sahtu Land Use Planning Board from meeting the requirements of the *Mackenzie Valley Resource Management Act*. The *Northwest Territories Environmental Audit 2005* raised the same issue, although it noted that Aboriginal, territorial and federal government agencies had all contributed to delays. The audit recommended that appointments be completed within two months of nomination.

Because of the time required for consultation and modifications to the draft plan, INAC did not expect a final Sahtu Land Use Plan to be approved before the fall of 2009 at the earliest.

The Sahtu Land Use Planning Board indicated that its planning work anticipated the Project by approving a 1-km-wide corridor for the pipeline. However, the developments induced by the Project were of ongoing concern:

Construction and subsequent completion of the Mackenzie Gas Pipeline will spawn additional land use planning pressures for the Sahtu Land Use Planning Board. These additional pressures will make proper planning impossible if not very difficult.

Accordingly the Sahtu Land Use Planning Board urges the Joint Review Panel to recommend that the Sahtu Land Use Plan be completed before the start of the regulatory phase of the approval process of the Mackenzie Gas Project. (J-OHP-00349, p. 2)

As discussed previously in this chapter, many participants recommended that the Sahtu Land Use Plan should be completed, approved and implemented prior to construction of the Project. This recommendation extended to include deferral of further "industrial allocations on lands identified as conservation zones" until interim land withdrawals of conservation zones and candidate protected areas within these zones were established. (J-WWF-00056, p. 13) Further interim withdrawal of lands identified for conservation under the draft Sahtu Land Use Plan and all candidate protected areas and areas of interest was also recommended in order to forestall any new industrial allocations prior to approval of the plan. Similarly, as discussed earlier in this chapter, a number of participants recommended that full implementation of the Five-Year Action Plan and NWT-PAS to establish a network of protected areas in the Sahtu Settlement Area and the remainder of the Mackenzie Valley should occur as a condition of Project approval.

The Proponents, the Government of Canada and the GNWT opposed these recommendations as a condition for Project approval. They maintained that completion, approval and implementation of land use plans could occur concurrently with the Project and other industrial development.

11.8 IMPACT ASSESSMENT: DEHCHO REGION

11.8.1 EXISTING CONDITIONS

Several existing and proposed protected areas are in the Dehcho Region within or near the Regional Study Area. The NWT-PAS has designated Pehdzeh Ki NDeh, near Wrigley, as an area of interest for its lakes and watersheds. The area includes sacred sites and traditional use areas of the Pehdzeh Ki First Nation. Edézhíe candidate protected area in the Dehcho Region was also withdrawn from development under the NWT-PAS. It includes a large part of Horn Plateau and extends west to the Mackenzie River along the Willowlake River Valley. A 4-km-wide-development corridor, including the existing Enbridge pipeline and the Mackenzie Highway, has been reserved and excluded from land withdrawal.

At the southern end of the Dehcho Region, the Sambaa K'e area of interest is at an early stage of the NWT-PAS process.

The Dehcho Land Use Planning Committee, composed of representatives from the Dehcho First Nations, the GNWT and Canada, was established under the terms of the May 2001 Dehcho First Nations Interim Measures Agreement and was given four years to complete a land use plan for the Dehcho Region. The committee submitted its Final Draft Dehcho Land Use Plan and Background Report to the Dehcho First Nations, the GNWT and Canada for approval in May 2006.

At present, more than 50% of the Dehcho Region has at least temporary protection through land withdrawals, conservation zones or other mechanisms. The draft Land Use Plan would withdraw a network of culturally and ecologically important lands for an interim period of five years, pending land claim negotiations and approval of a final plan. The plan contains elements that would set thresholds for:

- road/corridor density;
- core habitat and patch size;
- stream crossing density; and
- habitat availability.

The plan includes a specific zone for the Project (Zone 34) and restricts any Project-related components from being constructed outside of the special infrastructure corridor. Exceptions can be made for construction outside of this corridor if it is not feasible to locate the infrastructure within it.

11.8.2 PROPONENTS' VIEWS

Project infrastructure, heater stations, pipelines and borrow sites will be located in the Pehdzeh Ki NDeh and Sambaa K'e areas. Currently, no restrictions to development are in place in either.

According to the Proponents, the major impact of the Project would be a loss of available undisturbed land base. The Proponents claimed that in order to minimize loss, "the pipeline generally parallels the existing Enbridge pipeline, Mackenzie Highway and a winter road." (J-IORVL-00218, p. 169)

Liard River Crossing Territorial Park is located on the east side of the Liard River, south of Fort Simpson, less than 5 km west of the pipeline corridor. The Proponents indicated that increased traffic on the Mackenzie Highway might reduce enjoyment of the park. However, the Proponents considered the potential impacts would be minimal, as the major impacts would occur during the winter, when the park is used less frequently.

Overall, the Proponents did not predict any significant impacts on proposed protected areas or special management areas in the Dehcho Region.

11.8.3 PARTICIPANTS' VIEWS AND RECOMMENDATIONS

WWF-Canada recommended that the GNWT or the federal government permanently protect all candidate protected areas under interim withdrawal. These areas include Sahoyúé-?ehdacho as a national historic site, Edézhíe as a National Wildlife Area and the South Nahanni Watershed and Nahanni karstlands as an expanded national park reserve.

For Project activities near and in the Sambaa K'e area of interest, the Sambaa K'e Dene Band recommended that the Proponents:

- find an alternative to the construction of an access road for water delivery from K'éotsee (Trainor Lake); and
- find alternative sites or mitigation measures to address concerns regarding the location of two borrow sites within the K'éotsee watershed.

The Sambaa K'e Dene Band was of the view that these could be addressed through the permitting process. It expressed strong concern for the protection of the eastern K'éotsee watershed and indicated that the Proponents should consult closely with the community in planning its activities and infrastructure sites that would affect this area.

The Sambaa K'e Dene Band also recommended that elders and harvesters fly over the proposed pipeline corridor before a final route is set to ensure that special wildlife habitat and cultural sites were clearly identified and protected.

In its presentation, the Dehcho Land Use Planning Committee informed the Panel that the Proponents, through Canadian Association of Petroleum Producers, had provided substantial comments on the plan's treatment of cumulative effects and challenged a number of its planning assumptions. This had resulted in a number of refinements to the plan. However, INAC indicated to the Panel it was unlikely that the draft plan would

be approved in its present form, and it was unable to provide an estimate of when the plan might be approved.

As discussed earlier in this chapter, a number of participants, including the Dehcho Harvesters Council, the Dehcho Elders Council and the Pehdzeh Ki First Nation, recommended that a Dehcho Land Use Plan be completed, approved and implemented prior to construction of the pipeline. The Pehdzeh Ki First Nation also indicated that it was in the process of identifying additional areas in its regions that it wished to protect permanently. It recommended that the GNWT and the Government of Canada work with it to facilitate the interim withdrawal of lands during the study period.

The Proponents, the Government of Canada and the GNWT opposed the approval and implementation of a Dehcho Land Use Plan as a condition for Project approval. They maintained that completion, approval and implementation of land use plans could occur concurrently with the Project and other industrial development.

11.9 IMPACT ASSESSMENT: NORTHWEST ALBERTA

11.9.1 EXISTING CONDITIONS

In northwest Alberta, a Caribou Protection Area falls within the study corridor, and no other existing or proposed protected areas are within the corridor. The region also includes the Bistcho Lake peat plateau bog, an environmentally sensitive area that is not protected by legislation.

11.9.2 PROPONENTS' VIEWS

The proposed pipeline route passes through the Caribou Protection Area. The Proponents indicated that they would develop a Caribou Protection Plan, as required by existing regulations, and would ensure that Project activities were consistent with this plan. The pipeline would cross the western edge of the Bistcho Lake peat plateau bog; however, development is not precluded in this area.

The Proponents' primary mitigation measure would be to prevent other potential land users from accessing the disturbed areas through Project roads.

Project impacts were expected to be greatest during construction and decommissioning, when levels of activity were high compared with levels during operations. The Proponents predicted that "adverse effects on protected areas could exceed guidelines but will not limit the opportunities of current generations beyond the lands assigned to the project" and concluded that the Project's impacts would not be significant. (EIS, V6B, Section 7, p. 83)

11.9.3 PARTICIPANTS' VIEWS AND RECOMMENDATIONS

Chapter 10, "Wildlife," addresses issues related to the protection of woodland caribou in northwest Alberta, including recommendations (subsequently withdrawn) by the Dene Tha' First Nation that no Project authorizations be issued in northwest Alberta until:

- significant steps have been taken to advance the completion of the Caribou Recovery Plan for the Bistcho caribou herd; and
- a multi-party land use planning process and a protected areas strategy, consistent with the processes adopted in NWT, had been established.

The North Peace Tribal Council told the Panel that the Alberta portion of the pipeline would be reviewed under the process of the Alberta Energy and Utilities Board, and that the Government of Alberta had informed it that this process would be consistent with Alberta's *First Nations Consultation Policy on Land Management and Resource Development* for consultation on land and resources. This framework assumes:

- the existence of regional forums through which First Nations and industry proponents can discuss integrated planning approaches and cumulative effects; and
- the development of integrated land use planning.

At the close of the hearings, neither of these was in place.

11.10 PANEL VIEWS AND RECOMMENDATIONS

In the Panel's view, regional land use plans and a network of protected areas are important and possibly the most effective conservation measures for managing cumulative impacts on areas of ecological and cultural importance. In the Mackenzie Valley, these measures have been under development for more than 30 years, largely as instruments that took shape via the negotiation and implementation of land claim agreements. In all regions, these measures remain works in progress, and the many good reasons for establishing them remain valid and even more pressing. However, today, more than ever before, there is clear evidence of what is required for these instruments to be effective and timely. This evidence has bearing on the adequacy of existing land use and conservation plans and protected areas, and the requirements for new and proposed ones.

Taken in isolation, the Panel accepts that impacts from the Project on existing and proposed protected areas and on the establishment of a network of protected areas in the Mackenzie Valley would not likely be significantly adverse. The Project would introduce a measure of habitat disturbance and affect a number of core representative areas that are not currently protected and

in which opportunities for representing all conservation features already have been reduced. However, the Panel is satisfied that, if the Proponents fulfill their commitments and follow through with a process of ongoing consultation with communities, wildlife management boards, regulators and NWT-PAS committees during engineering design and refinement, the quantum of those lands that remain undisturbed would still allow for the conditions of land use and conservation plans to be met and the objectives of the NWT-PAS to be largely realized. The Project would introduce some new development constraints on the conditions for managing conservation and development in the existing and proposed land use and conservation plans. To some extent, this was anticipated in these plans through identification and reservation of an infrastructure corridor for the pipeline, through interim withdrawal of selected conservation lands, and through procedural arrangements established to accommodate this type and level of development. The Panel notes that many of the as yet unprotected Goal 1 areas identified in Table 11-1 lie some distance from the pipeline corridor.

However, the Panel also considers that this Project brings into sharp relief the need for conservation planning at the landscape level to be put in place now, to manage cumulative impacts from the Project in combination with other developments. The greatest concern raised by participants focused on how the potential cumulative impacts of the Project with other developments could jeopardize or seriously compromise the very conservation tools designed to manage, mitigate and monitor these impacts.

As succinctly stated by Environment Canada and amplified by a number of other participants, there are three main types of tools for managing development impacts on wildlife and the environment, which could be listed in descending order of effectiveness: those that address where (protected areas and land use planning), when (controlled issuance of land rights), and how (best practices and access management) development activities occur. The current regulatory regime as it applies throughout the Project Review Area relies primarily on application of best practices in the context of Project-specific assessment and permitting of land use activities as the principal means of managing Project impacts. However, a number of participants commented on the limited effectiveness of this approach for managing cumulative effects on the sustainability of wildlife populations and communities in the NWT and northern Alberta.

Proponents, governments, Aboriginal authorities and communities generally supported the need for a system of protected areas and the legal requirements for regional land use plans in the Mackenzie Valley to provide guidance to resource managers and developers to determine the appropriate distribution and scale of development activities at the landscape level. However, important differences emerged with respect to the timing of implementation of these measures as they affect and are affected by the Project and future developments, and the effectiveness of some of the land use and conservation plans that are currently in place.

While there has been progress in the development of lands level conservation measures in the NWT, the absence of limitations introduced by approved land use plans and conservation plans, as well as an incomplete system of protected areas in the Mackenzie River Valley and Delta, are major obstacles to effective management of cumulative impacts of the Project in combination with other developments. The Panel is not the first review body to make these observations. In 2003, the National Round Table on the Environment and the Economy, in its report *Securing Canada's Natural Capital: A Vision for Nature Conservation in the 21st Century*, observed some of the difficulties facing conservation planning in Canada:

One of these is the failure of planning to keep pace with other pressures on the landscape — decisions about industrial development are being made more rapidly and in advance of conservation planning.

As a first priority, the Round Table recommends that governments immediately require integrated land-use planning to ensure that conservation decisions are made at the same time as, or prior to, decisions about major industrial development. All governments should adopt this approach; however, the federal government should take the lead by requiring completion of integrated conservation planning in advance of major regulatory approvals such as oil and gas pipeline construction licences. (J-VWWF-00128, p. 15)

The National Round Table on the Environment and the Economy's report recognized the unique opportunity in the Mackenzie Valley and specifically recommended that the federal government require conservation planning there prior to the issuance of permits.

The *Northwest Territories Environmental Audit 2005* cited an observation of the Office of the Auditor General of Canada made 15 years earlier:

There are both actual and potential adverse consequences of not having land use plans. [INAC] acknowledges that piecemeal land use control, as practised through the issuance of permits and licences, does not address the larger questions. These relate to such areas as minimization of risks to the environment, avoidance of conflict between water users, and development opportunities associated with larger regions and their complex characteristics. Other adverse impacts include possible threats to aboriginal cultures, disincentives to investors, environmental damage, and perhaps economic stagnation. While land use plans would not necessarily provide all the answers, a sound plan would provide a better balance of economic development and environmental protection and a better consideration of social/cultural issues. (J-INAC-00065, p. 49)

Of the instruments available for the management of cumulative impacts from the Project, the Panel is of the view that the most effective ones are those that are proactive and provide certainty in advance of development. Interventions to manage

cumulative impacts during and after their occurrence are of limited effectiveness. Once opportunities are lost for permanent protection of ecosystems and culturally important areas, and for establishing core representative areas as ecological benchmarks, there is no indication they will recur. In effect, they are permanently lost.

Evidence before the Panel that refers to cases in northern Alberta suggests that the land and non-renewable resource rights permitting process itself has not been very effective in managing the pace and scale of industrial development and associated cumulative impacts (see the discussion of woodland caribou in Chapter 10, "Wildlife"). In the NWT, without approved land use plans and without interim or permanent land withdrawals for proposed protected areas, effective management of cumulative impacts will continue to be frustrated by land and non-renewable resource rights issuance processes. These processes continue to assign land and resource rights that may irreversibly compromise the unique and long-term integrity of landscapes and the ecological and cultural values of special areas.

The Panel finds that, although the exact timing and location of future developments that would support the Expansion Capacity Scenario are uncertain, it is reasonably foreseeable that these developments would occur and that, when they did, the consequence of their cumulative impacts could be significant and adverse for ecological and culturally important areas that are not protected.

Securing protected areas and establishing conditions for industrial development through special management requirements that are applied through land use and conservation plans in advance of development offer the best and most effective option for cumulative impacts management. The urgency for accomplishing this is fully reflected in the Five-Year Action Plan.

The Panel notes that the primary focus of the Five-Year Action Plan is to expedite the identification, review and evaluation of areas for protection in the Mackenzie Valley. A critical early component is the timely establishment of interim protection, usually for a period of five years, to allow this work to be accomplished. Substantial progress has been made in the implementation of the Five-Year Action Plan, but the Panel is not confident that the work will be completed either within the time frame prescribed by the Five-Year Action Plan or prior to construction of the Project.

The Panel observes that landscape-level planning exercises in the North are typically caught in a bind whereby the immediate prospect of development does not allow enough time to complete the planning work or to do it properly. Further, in the absence of immediate and pressing development projects, there is little political will or funding to see the work done. Based on the experience of the last three decades of hydrocarbon exploration and development in the Mackenzie Valley and the Beaufort Sea, either of these scenarios could equally apply to the implementation of the Five-Year Action Plan and the completion and approval of regional land use plans.

Identification and interim protection of Goal 2 areas is of particular concern to the Panel because this work is not as advanced as the identification and interim protection of Goal 1 areas — areas of cultural and ecological importance identified by communities in the Mackenzie Valley. The Panel understands Goal 2 areas to be important in two respects. First, under the 1992 UN Convention on Biological Diversity and the 1995 Canadian Biodiversity Strategy, Canada and the GNWT have made commitments to conserving biodiversity, and the protection of core representative areas is a means to do this. Second, these areas are also important as ecological benchmarks — areas in which there is no development that can be used as control areas for distinguishing environmental change that occurs as a result of industrial disturbance as distinct from natural variation. These areas are a critical component in an effective cumulative impacts monitoring and management regime, in that they can isolate impacts resulting from industrial development and assist in developing adaptive management and contribute to the application of improved mitigation measures.

The Panel is of the view that the window of opportunity for effectively addressing these deficiencies and completing the work in the Five-Year Action Plan is a narrow one. Once the Project begins, other projects would likely follow. In the Panel's view, the protected areas system and completed land use plans are the best instruments for managing cumulative impacts from the Project in combination with other developments.

On these matters, federal, territorial and Aboriginal authorities are primarily responsible. Wildlife management boards, communities and sector-specific industries also have important roles to play in the development of these measures. However, it is the federal government and the GNWT that must demonstrate unprecedented commitment and leadership to facilitate the completion of the Five-Year Action Plan and the implementation of regional land use plans.

The Proponents have indicated that they would be guided by these measures as they proceed with the design and development of the Project. Indeed, their statements about the management of cumulative impacts from future developments appear to assume that these measures are or would be in place. The Proponents also indicated general willingness to contribute biophysical information they have collected and will acquire through Project design and engineering that could assist in developing a network of protected areas.

The timing for completion of these landscape-level conservation measures remains a critical issue. Although the Proponents and governments have stated the importance of these measures, they have indicated that their development and completion could proceed concurrently with the Project. A number of participants recommended that approval of the Project should be conditional on these measures being in place prior to development. The Panel understands this view to be partially born out of frustration that, without fixed conditions and set deadlines, future developments induced by the Project and their

impacts will continue to erode the long-standing opportunity to establish a comprehensive landscape-level conservation regime for the management of cumulative impacts in the Mackenzie Valley, and thereby undermine its overall effectiveness.

It is clear that continuing delay in the completion of land use plans and the establishment of a system of protected areas will also affect the timely completion of future reviews of various developments in the Mackenzie Valley and Beaufort Sea. The Panel's review of the Project would have benefited greatly if these conservation management measures had been in place at the outset.

In their absence, and without landscape-level guidance concerning the scale and distribution of development, considerable speculation and debate remain as to the significance of adverse cumulative impacts that may arise, especially given a widespread perception that existing regulatory instruments and best practices alone are not adequate for managing these types of impacts on the sustainability of wildlife populations, northern communities and harvesting activities. This situation will continue to seriously hinder the ability of proponents, resource managers and environmental review bodies to assess environmental risks, plan mitigation to reduce or eliminate impacts, and to monitor the effectiveness of mitigation measures. These constraints will continue unless the federal and territorial governments apply strong leadership and northern land and water boards, land use planning boards, wildlife management boards, and regional and Aboriginal authorities make an exceptional effort to complete and implement this important work.

11.10.1 PROTECTED AREAS

It is evident that the Five-Year Action Plan will need to be extended beyond 2009 in order to complete the enhanced program of work for the establishment of a system of protected areas in the Mackenzie Valley. The Five-Year Action Plan focuses on the confirmation and interim protection of specific areas that should be permanently protected. It does not confer permanent protection upon them. The Panel understands that this will take considerable additional time to accomplish. The Panel is aware that, based on past experience, it may take a decade or longer for legislated permanent protection to occur from the time an area is identified and confirmed as a candidate for permanent protection.

Consequently, the outcome of the Five-Year Action Plan will be an important but incomplete one until such time as permanent protection of all identified Goal 1 and Goal 2 areas, a full system of protected areas in the Mackenzie Valley, is achieved. Permanent protection is an important management milestone. It is the established and implemented management regimes associated with permanently protected areas that provide the certainty that the expectations of communities can be met and their values protected. Permanently protected areas also provide guidance at the landscape level to proponents and resource managers as to how, where and when development may or may not proceed.

The need and urgency to establish permanent protection for a system of protected areas in the Mackenzie Valley transcends the Project as Filed by the Proponents. It should be viewed as a central condition of sustainability in the Project Review Area that will have a long-term impact on the range of choices and resources available to future generations. It will also establish the means for anticipating and proactively managing Project-related cumulative impacts in combination with other developments.

Substantial progress is needed toward the establishment of permanently protected areas that provide the basis for long-term management throughout the Mackenzie Valley of the Project's potential cumulative impacts in combination with other developments.

RECOMMENDATION 11-1

The Panel recommends that, within one year of the date of the Government Response to the Panel's Report, the governments of Canada and the Northwest Territories, together with relevant Aboriginal organizations, establish a firm timeline for implementing permanent protection for existing candidate protected areas in the Mackenzie Valley.

Interim protection of areas of interest and candidate protected areas that require further study and assessment provides time-limited protection from resource development activity through five-year land withdrawals, and it ensures that identified values and associated landscapes will not be compromised by ongoing land and non-renewable resource rights issuance processes that do not or cannot take these values into account. Interim protection through withdrawal of these areas from disposition is one of the few flexible, non-permanent tools available to address identified conservation opportunities before they are lost to potential cumulative negative impacts associated with future developments.

INAC informed the Panel that, until land areas are protected, the existing rights issuance process gives priority to market-based objectives. Therefore, resource development uses are allowed in areas under consideration or designated for the conservation purposes of maintaining ecological integrity or wildlife habitat unless they are protected on an interim or permanent basis.

The Panel heard persuasive evidence from other participants that the ongoing issuance of licences for oil and gas and for mineral exploration and development is outstripping and endangering the process to identify and protect areas of land for conservation purposes. Issuance of a licence or permit may render an area unfit for conservation purposes, either permanently or for a very long time. The Panel understands this to be an issue that the Five-Year Action Plan was designed to address by providing enhanced resources and an expedited process for identifying and confirming protected areas. Notwithstanding the progress that has been achieved through this initiative, the concern remains.

The Panel urges the federal government to apply interim land withdrawals at the earliest opportunity following the identification

of areas of interest. This would enable the review and analysis of these areas to occur without permanently jeopardizing their future establishment as protected areas. Interim land withdrawals are temporary, and, if they were more vigorously applied by INAC, they could preserve a window of opportunity. This window could close quickly if a decision to construct the Project were to be announced. The potential for cumulative impacts from activities associated with future developments also provides a compelling reason — notably, for INAC — to apply interim land withdrawals vigorously until such time as the Five-Year Action Plan is completed. This could greatly improve the long-term prospects for the effective management of cumulative impacts in the Mackenzie Valley and Delta.

RECOMMENDATION 11-2

The Panel recommends that, within one year of the date of the Government Response to the Panel’s Report, the Governor-in-Council formally withdraw from disposition the following lands for the purpose of achieving interim protection of conservation values:

- all identified candidate protected areas awaiting interim protection;
- all identified areas of interest awaiting further study and assessment; and
- all identified Northwest Territories Protected Areas Strategy Goal 2 areas that may be required to complete a network of core representative areas in each of the 16 ecoregions in the Mackenzie Valley.

The Panel recommends that these lands be withdrawn until such time as permanent protection is achieved for these areas as modified through final boundary determination.

Identification and interim protection of Goal 2 areas is of special concern to the Panel for two reasons:

- these areas are important in assisting Canada and the GNWT to meet their international and national commitments to the conservation of biodiversity; and
- these areas are critical for ecological benchmarking and the role they play in cumulative impacts monitoring, management and mitigation.

Goal 2 areas have particular relevance today, given the unprecedented rates of ecological change occurring in the North as a consequence of climate change.

An effective cumulative impacts assessment and management regime for the Mackenzie Valley depends heavily on the existence of ecological benchmarks, i.e. Goal 2 ecologically representative areas. If these areas are not identified and provided interim protection prior to developments that would support the Expansion Capacity Scenario and Other Future Scenarios, it is most likely that the opportunities and benefits they might offer could be significantly diminished or permanently lost.

The GNWT indicated that the Mackenzie Delta requires special attention with respect to Goal 2 objectives. The Panel

understands that the Delta contains irreplaceable areas for ecological representation, that the current level of protection is low, and that the opportunities for reaching the representation goals have already been reduced. Cumulative impacts, especially under the Expansion Capacity Scenario, will exacerbate this situation, unless the establishment of core representative areas in the Mackenzie Delta is made a priority.

RECOMMENDATION 11-3

The Panel recommends that, prior to the commencement of construction, the governments of Canada and the Northwest Territories, working with all partners in the Northwest Territories Protected Areas Strategy process, complete implementation of the Mackenzie Valley Five-Year Action Plan (2004–2009), including:

- identification and interim protection of all Goal 1 areas; and
- identification and interim protection of all Goal 2 areas in each of the 16 ecoregions, subject to the consent of the appropriate Aboriginal authorities in the affected settlement areas.

As the work of the Five-Year Action Plan proceeds and as the NWT-PAS is implemented, particularly with regard to the identification, interim protection and establishment of Goal 2 representative areas, communication among the NWT-PAS Steering Committee, INAC, the GNWT, the Proponents, regulators, and land management and planning boards will be extremely important. The GNWT has indicated its willingness to play a supportive role in this regard and has requested that other parties do the same.

RECOMMENDATION 11-4

The Panel recommends that the Government of the Northwest Territories provide the Proponents, industry, regulatory authorities and planning boards with the results of their assessments of Goal 2 ecologically representative areas in the 16 ecoregions as they are completed.

The Proponents are represented by the Canadian Association of Petroleum Producers on the NWT-PAS Steering Committee. To facilitate the exchange of Project-specific information with this committee and the implementation of the Five-Year Action Plan, the Panel recommends, in addition to representation on the NWT-PAS Steering Committee, that the Proponents also work directly with NWT-PAS Steering Committee staff.

RECOMMENDATION 11-5

The Panel recommends that the Proponents communicate and consult directly with the Northwest Territories Protected Areas Strategy Steering Committee staff during route selection for the Mackenzie Gas Project to exchange information on any matters associated with the establishment of a network of permanently protected areas that may affect or be affected by the Mackenzie Gas Project.

The Five-Year Action Plan provides enhanced funding and resources to expedite the work of identifying, evaluating and confirming the establishment of Goal 1 culturally and ecologically important areas and Goal 2 ecologically representative areas in the Mackenzie Valley. To ensure that the NWT-PAS Steering

Committee and affected government agencies, communities and Aboriginal authorities have adequate resources to complete the Five-Year Action Plan and to fulfill the recommendations of the Panel as they affect this plan, adequate financial and human resources must be made available in a timely manner.

RECOMMENDATION 11-6

The Panel recommends that, within one year of the date of the Government Response to the Panel's Report, the governments of Canada and the Northwest Territories provide the Northwest Territories Protected Areas Strategy process with sufficient financial and technical resources to complete the implementation of the Mackenzie Valley Five-Year Action Plan (2004–2009). In addition, these governments should allocate appropriate and adequate financial and technical resources annually to complete the establishment of and implementation of a network of protected areas in the Mackenzie Valley.

11.10.2 REGIONAL LAND USE PLANS AND COMMUNITY CONSERVATION PLANS

In the Panel's view, Project-specific and cumulative impacts arising from the Project can be accommodated within the arrangements and conservation designations of existing Community Conservation Plans and the Land Use Plan in the Inuvialuit Settlement Region and Gwich'in Settlement Area, respectively, and are not likely to cause significant adverse impacts on the conservation areas to which the plans apply. It is also the Panel's view that the infrastructure corridor reserved in the draft Dehcho and Sahtu Land Use Plans and the interim land withdrawals that are currently in place on designated conservation lands, combined with the Proponents' proposed commitments and mitigation, should be sufficient to result in no likely significant adverse impacts on the lands encompassed by the draft Dehcho and Sahtu land use plans.

However, management of the potential cumulative impacts of the Project particularly in combination with activities that would support the Expansion Capacity Scenario, and other future developments, could present special challenges for the Community Conservation Plans and land use plans in each region. They could result in significant adverse impacts on some of the lands to which the plans apply unless steps are taken to update and complete these plans and establish the appropriate measures for conservation lands they identify.

ENFORCEABLE PLANS

Several important developments in the management of cumulative impacts at a landscape scale were frequently mentioned during the Panel's hearings. One was with respect to the legal enforceability of land use plans. Pursuant to the *Mackenzie Valley Resource Management Act*, regulators cannot issue licences, permits or authorizations for land or water use within the Mackenzie Valley unless they comply with the requirements of an approved land use plan. Planning boards in

each region make a determination of conformity with the region's land use plan or authorize a variance from the plan. Through this process, approved land use plans can provide guidance to regulators on the conditions for conservation and development in different regions of the Mackenzie Valley that will protect the socio-cultural and ecological values associated with these areas.

CUMULATIVE IMPACTS THRESHOLDS

Another development in the management of cumulative impacts is the identification and application of landscape-level thresholds and limits of acceptable change. The Panel understands a threshold to be a measurable point at which a condition becomes unacceptable from a social or ecological perspective (based on Traditional Knowledge and science). Limits of acceptable change are socially defined points or thresholds that establish boundaries or a range on the extent of acceptable change for a species, where exact thresholds may not exist. From a sustainability perspective, both measures are useful in establishing the conditions for social, cultural and ecological sustainability in a region.

The *Northwest Territories Environmental Audit 2005* recommended that identification of maximum development density thresholds in approved and new land use plans be considered. The 2001 report of the National Round Table on the Environment and the Economy entitled *Aboriginal Communities and Non-Renewable Resource Development* observed: "Objectives, benchmarks and thresholds provide essential guidance to project proponents, decision makers and other interested parties when asked to take action on the basis of the information generated through cumulative effects assessment and monitoring." (J-WWF-00134, p. 55)

A number of studies have been completed in the Northwest Territories to identify:

- the potential adverse effects of fragmenting habitat at the landscape level;
- cumulative impacts thresholds, limits of change and carrying capacity for select valued social and environmental components at which these adverse effects would occur and related indicators based on scientific and Traditional Knowledge and socio-cultural values; and
- institutional and regulatory mechanisms identified for their application in the management and monitoring of landscape-level cumulative impacts.

These studies provide a substantial base of work on landscape thresholds for cumulative impacts management that could be further developed and applied in each region of the NWT. Landscape thresholds have also been applied in some circumstances (e.g. Cameron Hills development activity) and are under consideration or proposed in others (e.g. seismic work in the Dehcho Region and development footprint in KIBS, respectively). The Panel observes that the draft Dehcho Land Use Plan is the first land use plan to take concrete steps in

this direction through the proposed application of thresholds. The Panel understands that use of thresholds is also under consideration for the Sahtu Land Use Plan.

The Gwich'in Land Use Plan and the Inuvialuit Community Conservation Plans do not include thresholds. In part, this appears to be a function of the expectations and requirements of the period in which they were developed. However, in the last five years, considerable work has been completed to identify candidate indicators, thresholds and limits of acceptable change for onshore and offshore areas, and these have been informed by and conceptually applied to all categories of development in the Community Conservation Plans and lands included in the Gwich'in Land Use Plan. The Beaufort Delta Cumulative Effects Project (2005) recommends that a framework of social and environmental indicators and management thresholds that are of practical application in assessing and minimizing adverse cumulative impacts in the region should supplement the existing Beaufort Delta regulatory and resource management institutions and initiatives. Some parties that appeared before the Panel recommended that Community Conservation Plans and the Gwich'in Land Use Plan should be revised to include cumulative impacts thresholds.

The Panel observes that, while many participants recognize the general benefits of establishing thresholds, considerable debate remains as to how thresholds should be determined, the certainty that can be attached to them, and how they should be applied on a species-specific basis and on a landscape basis. Nonetheless, landscape thresholds and other measures can make an important contribution to the assessment, monitoring and management of the cumulative impacts of the Project in combination with other developments. They do so by establishing limits of acceptable social or environmental change. The importance of this contribution is underlined by the widespread concern expressed to the Panel particularly about the pace and scale of future developments and impacts that could arise from activities associated with the Expansion Capacity Scenario.

In view of the work that has already been completed on thresholds and the high level of concern about cumulative impacts, the Panel is of the view that thresholds should, and could, be introduced to land use and community conservation plans within three years.

RECOMMENDATION 11-7

The Panel recommends that, within three years of the date of the Government Response to the Panel's Report, the bodies responsible for developing Community Conservation Plans and land use plans in the Inuvialuit Settlement Region, the Gwich'in Settlement Area, the Sahtu Settlement Area and the Dehcho Region establish and incorporate landscape thresholds and limits of acceptable change for valued socio-cultural and ecological components into Community Conservation Plans and regional land use plans, including, as appropriate, the core habitat and development density thresholds that apply to boreal caribou, barren ground caribou, grizzly bear, migratory birds and beluga.

RECOMMENDATION 11-8

The Panel recommends that no regulatory agency issue any authorization for an activity or any authorization or approval for a facility that would enable the throughput of the Mackenzie Valley Pipeline to be increased above 1.2 Bcf/d until Community Conservation Plans and land use plans, that incorporate socio-cultural and ecological thresholds for the region in which the activity would occur or the facility would be located, have been approved by the appropriate parties.

RANGE MANAGEMENT PLANS

In Chapter 10, "Wildlife," the Panel recommended the development of range management plans, including range disturbance thresholds, for woodland caribou, barren ground caribou, grizzly bears and polar bears. These landscape-level plans are relevant for the assessment and management of cumulative impacts and should provide essential guidance to those responsible for developing and updating Community Conservation Plans and Land Use Plans.

RECOMMENDATION 11-9

The Panel recommends that the bodies responsible for the development and updating of Community Conservation Plans and land use plans in each region incorporate guidance from the Wildlife Range Management Plans referred to in Panel Recommendations 10-9, 10-12 and 10-14 and any other applicable wildlife range management plans.

INUVIALUIT SETTLEMENT REGION

The Inuvialuit Settlement Region differs from the other land claim settlement areas in the NWT in that the Proponents' Anchor Fields and gathering lines are located wholly in that region and there are no existing or proposed land use plans. Instead, Community Conservation Plans identify areas of high wildlife conservation value and important traditional use. They also assign management directives that, through the timing and seasonal restriction of commercial development activities and certain permanent restrictions on development, may address disturbances from human activities and physical infrastructure. These plans are not legally binding on rights issuance processes and cannot be enforced. They also do not completely address the spatial density of permanent infrastructure and hydrocarbon-related production facilities or the long-term cumulative biophysical disturbances these facilities have on the landscape. In this regard they contemplate graduated restrictions on development via Community Conservation Plan updates that, over time, reassign land use restrictions on new developments in response to the level and extent of incremental developments and associated cumulative impacts.

The Panel understands that Community Conservation Plans have worked well since they were first adopted almost 20 years ago. They have provided guidance to proponents of development, screening and review bodies, government resource managers and regulators. In addition, the Panel recognizes the innovative role that Inuvialuit organizations have

played in advancing collaborative institutional arrangements in landscape-level planning and management, particularly in the nearshore and offshore areas of the Beaufort Sea. However, the Panel is concerned that the Community Conservation Plans and management arrangements, which have been effective in the past, will likely be less so in the face of cumulative impacts arising from future exploration and development activities that expand pipeline throughput above 1.2 Bcf/d. These activities will likely require modified conditions that are more robust, certain and binding for the management of cumulative impacts in the Inuvialuit Settlement Region. These changes would be consistent with the types of action recommended in the draft *Beaufort Sea Strategic Regional Plan of Action* in anticipation of offshore development and cumulative impacts from activities that would support the Expansion Capacity Scenario of 1.8 Bcf/d.

The Panel has proposed in Panel Recommendation 11-7 that cumulative impacts thresholds be incorporated into Community Conservation Plans for each of the conservation designations (Category A, B, C, D and E areas). Alternatively, these thresholds could be incorporated into the regulatory regime. In addition, the Panel is of the view that Community Conservation Plans should have legal status that is equivalent to that of approved Land Use Plans in the other regions of the Mackenzie Valley.

RECOMMENDATION 11-10

The Panel recommends that within two years of the date of the Government Response to the Panel's Report, the Government of Canada, in consultation with the Inuvialuit, introduce legislative provisions that would provide legal enforceability to approved Inuvialuit Community Conservation Plans comparable to the status of approved land use plans in the Mackenzie Valley and no regulatory agency issue any authorization for an activity or any authorization or approval of a facility that would enable the throughput of the Mackenzie Valley Pipeline to be increased above 1.2 Bcf/d until the Community Conservation Plans have legal enforceability equivalent to approved land use plans in the Mackenzie Valley.

THE BEAUFORT SEA AND MACKENZIE DELTA

A number of participants, including Environment Canada, attached special importance to the Mackenzie Delta as exceptional among Canada's key habitat sites. This is discussed at length in Chapter 10, "Wildlife." In addition, Chapter 9, "Fish and Marine Mammals," discusses the importance for conservation of the adjacent nearshore and offshore waters of the Beaufort Sea.

Over the last decade in particular, Inuvialuit organizations, Fisheries and Oceans Canada, and industry have devoted special attention to anticipating and planning for increased hydrocarbon exploration and development in the Beaufort Sea. The Beaufort Sea Partnership and the Beaufort Sea Integrated Management Planning Initiative are indicative of this forward-looking approach. The Panel notes the Minister of the Environment's statement of support for a strategic environmental assessment of future oil and gas exploration and development in the Beaufort. The Panel

observes that such an assessment could greatly benefit and expedite future environmental reviews of offshore activities and establish conditions for the management of cumulative impacts in the area.

RECOMMENDATION 11-11

The Panel recommends that, within two years of the date of the Government Response to the Panel's Report, the Government of Canada, in conjunction with the relevant responsible parties, complete the proposed strategic environmental assessment of future oil and gas exploration and development in the Beaufort Sea.

Major river deltas are biologically productive and diverse, not least because of the constant replenishment and mixing of nutrients in both water and soil, and the shallow waters, which are warmer than either the main channels of the river upstream or the ocean beyond. Deltas provide excellent and critical habitat for waterfowl, shorebirds, aquatic wildlife, and fish, which are often found in much greater abundance than in other landscapes. The Mackenzie Delta is one of the largest and least disturbed such environments in North America, because there has been to date no flood control or infilling, no clearing, no flow regulation, very little dredging and no channelling, and no oil and gas extraction that many other major deltas have experienced.

The Mackenzie Delta, an area of over 14,000 km², consists of the inner or wooded Delta and the treeless outer Delta, where KIBS is located. The Anchor Fields and the associated gathering lines would be located in the outer Delta. The specific effects of the MGP, including dredging, Project construction, the permanent footprint of the Project, and extraction-induced subsidence resulting in habitat loss (as discussed in previous chapters) would occur mainly in the outer Mackenzie Delta. However, the overall Delta habitat could be put at risk as a result of the cumulative impacts of what the MGP might induce, along with other unrelated developments.

The Inuvialuit Settlement Region currently has the most extensive system of protected and special management areas of any region in the Project Review Area, including three national parks. However, the only part of the Mackenzie Delta that has any protected status is KIBS. While development activities in KIBS are restricted while birds are present, they are not entirely prohibited. KIBS does not protect all migratory bird habitat in the Delta. There are many other wildlife and fisheries values that are also sustained by the Delta.

The Inuvik, Tuktoyaktuk and Aklavik Community Conservation Plans place a high conservation value on the inner and especially the outer Mackenzie Delta, particularly with regard to waterfowl, grizzly bears, moose, furbearers and fish. The plans provide guidance on the management of these lands and waters to limit potential damage and disruption to the greatest extent possible, either during specific times of the year or throughout the year, but these restrictions are not legally enforceable.

The Panel observes that despite the extensive provisions for protected areas in the Inuvialuit Settlement Region, the Mackenzie Delta itself — an exceptionally productive and diverse environment — is, with the exception of the small area of KIBS, essentially unprotected. The Panel heard widespread public concern about the ability of governments to control the pace and scale of development and the capacity of communities and ecosystems to respond and adapt to rapid and extensive change, particularly with respect to future developments in the Delta that might be associated with the Expansion Capacity Scenario.

The Panel is concerned that the current conditions and guidance for development as established in Community Conservation Plans will not be adequate to address the cumulative impacts and associated pressures of future development in the Delta. In the Panel’s view, current arrangements for amending Community Conservation Plans could make it difficult, if not impossible, to respond to the pace and scale of future developments. Timing restrictions, as provided for on Category C and D lands, might address some disturbances from human activities that conflict with the movement of wildlife populations and the activities of local harvesters, but they will not address habitat loss, fragmentation and degradation from permanent and even temporary hydrocarbon activity-related infrastructure and the associated impacts of increased hunter access and increased predation. In addition, it is not at all certain that the voluntary measures and agreements that have worked well in the past will continue to do so in the face of increased pressures from future developments.

The Panel is of the view that existing institutional arrangements and measures must be enhanced to establish a special conservation regime for the Mackenzie Delta.

RECOMMENDATION 11-12

The Panel recommends that Indian and Northern Affairs Canada, Environment Canada, Fisheries and Oceans Canada, and the Government of the Northwest Territories, in collaboration with the Inuvialuit Game Council, the Inuvialuit Regional Corporation, and, as appropriate, the Gwich’in Tribal Council and the Gwich’in Renewable Resources Board, and in consultation with industry, establish the greater Mackenzie Delta as a special management area prior to any authorization for an activity or any authorization or approval of a facility that would enable the throughput of the Mackenzie Valley Pipeline to be increased above 1.2 Bcf/d.

The purpose of the special management area would be to accommodate and protect important wildlife, environmental and cultural values, and traditional uses in the area while allowing development to continue. Using guidance from the Inuvik, Tuktoyaktuk and Aklavik Community Conservation Plans and utilizing existing institutional arrangements and processes as appropriate, the special management area should provide a comprehensive and integrated approach to conservation management by:

- designating core habitat requiring additional protection;
- ensuring buffer areas and connectivity between those areas;

- providing for development within cumulative impact thresholds, including development intensity/density thresholds; and
- requiring, where appropriate, higher standards with respect to exploration, construction, operation, reclamation and abandonment.

RECOMMENDATION 11-13

The Panel recommends that, within one year of the date of the Government Response to the Panel’s Report, the governments of Canada and the Northwest Territories make available to the appropriate parties adequate financial and technical resources to support the development and implementation of the Mackenzie Delta as a special management area.

The Panel observes that the productivity and diversity of the Mackenzie Delta environment, and the ecological values that it sustains, are based not simply on the Delta environment itself, but also upon the great river that feeds it. Not only is the Delta a relatively undisturbed environment, but the Mackenzie River itself is largely in its natural hydrological state. It is thus exceptional (along with the Yukon River) among the great rivers of North America in being undiverted, unimpounded, and unregulated over virtually its entire length, except for the upper reaches of some of its tributaries. As a result, the eternal pattern of spring breakup, flooding and erosion; of late summer low water levels and deposition; and of relatively stable ice cover during the winter, persists. It is this natural hydrological regime that replenishes the richness and diversity of the Delta every year. Maintaining this hydrological regime, or at least the ecological effects of it in the Delta, is no less important to ensuring the objectives of a special management regime there than the protection of the Delta environment itself. No amount of local species or landscape protection would sustain those values without the maintenance of the upstream hydrological regime. In the Panel’s view, any proposed changes to that regime should be subject to intense scrutiny, and to the highest level of public review and consideration.

RECOMMENDATION 11-14

The Panel recommends that any proposed developments on the Mackenzie River or its major tributaries that could have the effect of altering the hydrological regime of the Mackenzie Delta, and that might have environmental impacts on the values protected by the proposed special management area recommended in Panel Recommendation 11-12, be subject to a public consultation and review process that considers impacts on the Mackenzie Delta directly.

GWICH’IN SETTLEMENT AREA

The Gwich’in Land Use Plan is the NWT’s first approved land use plan. However, it does not include cumulative impacts thresholds. Based on the work that has been completed to date in the Beaufort Delta Region, the Panel has proposed in Panel Recommendation 11-7 that cumulative impacts thresholds be incorporated into the Gwich’in Land Use Plan in areas zoned for development that include environmentally sensitive areas.

SAHTU SETTLEMENT AREA

A Sahtu Land Use Plan has been under development since 1999. At the close of hearings, a complete draft of the plan had not been finished for review by the parties to it. The Panel understands that a Sahtu Land Use Plan will be legally enforceable and will contain development density thresholds to manage and monitor cumulative impacts at the landscape level. The Sahtu Land Use Planning Board conveyed the urgency of completing the plan, and the Panel agrees. The Panel observes that a decision to construct the Project as Filed by the Proponents may induce heightened exploration and development activity in the Sahtu Settlement Area, especially in the area of the Colville Hills. If this were to occur, it could compromise the integrity of conservation lands in the Sahtu planning process that are not already protected under interim land withdrawal.

RECOMMENDATION 11-15

The Panel recommends that no regulatory agency issue any authorization for an activity or any authorization or approval for a facility in the Sahtu Settlement Area that would enable the throughput of the Mackenzie Valley Pipeline to be increased above 1.2 Bcf/d, until Indian and Northern Affairs Canada has established, through withdrawal from disposition, interim protection of lands identified in the draft Sahtu Land Use Plan as having high conservation value or traditional and cultural importance.

RECOMMENDATION 11-16

The Panel recommends that no regulatory agency issue any authorization for an activity or any authorization or approval for a facility in the Sahtu Settlement Area that would enable the throughput of the Mackenzie Valley Pipeline to be increased above 1.2 Bcf/d, until the Sahtu Land Use Plan has been completed and approved by the responsible parties.

RECOMMENDATION 11-17

The Panel recommends that the governments of Canada and the Northwest Territories make available immediately to the appropriate parties sufficient financial and technical resources to complete and approve the Sahtu Land Use Plan.

DEHCHO REGION

Unlike the other regions of the NWT, the Dehcho Region has no land claim agreement to permanently protect lands and resources of social, cultural, economic and ecological value to the Dehcho people. In this context, an approved Dehcho Land Use Plan assumes special importance as a management instrument that could establish important conditions for conservation and development of lands in the Dehcho Region.

The Panel understands that the Dehcho Interim Measures Agreement provides the legal enforceability of land management directions and conditions in a Dehcho Land Use Plan, which, once approved, will be binding on regulators. In addition, the Dehcho Land Use Plan may contain certain thresholds to guide management and monitoring of cumulative impacts at the landscape level and may include ecologically representative areas. A draft Dehcho Land Use Plan remains under final review by the parties responsible for it.

The Panel attaches great importance to the completion and approval of a Dehcho Land Use Plan, particularly as it relates to the assessment, monitoring and management of cumulative impacts from the Project in combination with other developments in the region.

RECOMMENDATION 11-18

The Panel recommends that no regulatory agency issue any authorization for an activity or authorization or approval for any facility in the Dehcho Region that would enable the throughput of the Mackenzie Valley Pipeline to be increased above 1.2 Bcf/d until the Dehcho First Nations and the governments of the Northwest Territories and Canada approve a Dehcho Land Use Plan.

NORTHWEST ALBERTA

The Panel was advised that northwest Alberta is facing considerable pressures from existing and future industrial development, including the proposed Project. At the close of the Panel's hearings, it had neither a regional multi-party forum through which to address cumulative impacts of development nor an integrated land use planning process. Nor was there a process in place to systematically identify and protect HCVAs.

While the Government of Alberta has defined the need for a recovery plan for the Bistcho woodland caribou herd and has delineated a Caribou Protection Area, it had not established the Bistcho/Caribou Mountains Range Team by the close of the Panel's hearings and the Panel understands that, consequently, there is no range management plan in place for this herd. The Panel heard that the impacts of industrial development in northwest Alberta, in the absence of effective conservation and land use planning, already constitute a warning about the risks of cumulative impacts.

The Panel's recommendations in Chapter 10, "Wildlife," identify measures that, in the Panel's view, are necessary to address cumulative impacts on woodland caribou in northern Alberta.

CHAPTER 12

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CHAPTER 12

HARVESTING

12.1 INTRODUCTION

Harvesting is a cornerstone of life for most Aboriginal residents of the Project Review Area. Harvesting of wildlife, fish and marine mammals, and of berries, plants and wood, are of economic, cultural and recreational importance for men, women and children, especially in the smaller communities. The Panel heard concerns about Project impacts on harvesting at every community hearing without exception. In addition, the Panel held five days of hearings on harvesting matters.

This chapter summarizes the findings of previous chapters on the potential impacts of the Project on harvesting and then focuses on two key issues: the Proponents' plans for minimizing Project disruption of harvester access to resources and, should adverse impacts on harvesters occur as a result of the Project, the Proponents' provision for compensation. As there are different legal requirements and circumstances between the Northwest Territories (NWT) and Alberta, this discussion on compensation has been separated by jurisdiction. In addition, as a requirement of the *Inuvialuit Final Agreement*, the potential mitigations and liability of the Proponents are detailed from a worst-case scenario perspective with respect to the Inuvialuit Settlement Area. The description of worst-case scenarios is set out in Chapter 7, "Accidents, Malfunctions and Emergency Response."

Related issues arising from the review of the Project's impacts on harvesting are addressed in other chapters in this Report. Consideration of potential contaminants to country foods and the impacts of Project emissions and effluents (including those resulting from accidents and malfunctions) on the terrestrial and aquatic environment are found in Chapter 7, "Accidents, Malfunctions and Emergency Response" and Chapter 8, "Air and Water Quality." The impacts of marine traffic and dredging on fish and marine mammals are considered in Chapter 9, "Fish and Marine Mammals," and the impacts of Project activities and Project-related transport on wildlife and birds are considered in Chapter 10, "Wildlife." Potential impacts of the Project on the economic, social and cultural aspects of harvesting are discussed in Chapter 16, "Social and Cultural Impacts."

In these other chapters, the Panel concludes that, if the Proponents' commitments and the Panel's recommendations are implemented,

the Project would not likely have significant adverse impacts on the abundance and distribution of wildlife, and there would be no contaminant pathways by which there could be significant adverse impacts on the quality of country food. There could be short-term disruptions of normal harvesting activities in preferred locations during construction, notably of fishing in the vicinity of Fort Providence and of caribou hunting north of Inuvik and in the Parsons Lake area, but if mitigated as proposed, in the Panel's view, these would not likely be significant.

The Panel notes that a continued influx of population into the NWT, as a result of the Project or other developments, could result in increased harvesting pressure on fish stocks; however, the Proponents have committed to appropriate steps to minimize the contribution of their own activities to such an outcome.

In the Panel's view, however, the avoidance of potential impacts on harvesting activities related to cumulative impacts of the Project with other developments will require vigilance on the part of resource management agencies.

Having established that the Project would not likely significantly disrupt harvesting through reduced fish or wildlife abundance, by movement of fish or animals away from traditional harvesting areas, or by the contamination of country food, the Panel now turns to consideration of Project impacts on access to harvesting areas, the Proponents' wildlife compensation arrangements, and the worst-case scenario as required under the terms of the *Inuvialuit Final Agreement*.

12.2 IMPACTS ON HARVESTER ACCESS

12.2.1 PROPONENTS' VIEWS

The Proponents stated that, in order to construct and operate the Project, certain restrictions on harvesting activities, particularly the use of firearms, would be required for the safety of harvesters and Project workers at active work sites and permanent facilities. The potential impact of these restrictions would be to impede crossing the right-of-way on a temporary basis on some occasions, and to impose restrictions on the use of firearms for reasons of public safety on a temporary basis near active work sites and for the life of the Project near permanent facilities.

During construction, temporary restrictions would occur at construction camps, equipment lay-down areas, the pipeline right-of-way, borrow sources and barge landing sites. During operations (i.e. for the life of the Project), restrictions would apply to permanent, above-ground operating facilities, including production wells and gas conditioning facilities, the Storm Hills Pigging Facility, the Inuvik Area Facility, compressor stations, the Trout River Heater Station and the NOVA Gas

Transmission Ltd. (NGTL) Interconnect Facility. The spatial extent of these restrictions would "be limited to the immediate vicinity of the project structure, but will not limit access to an overall harvest area." In addition, "although plant harvesting can take place immediately adjacent to the access restricted area, a zone surrounding the restricted area would be established to preclude hunting." (J-IORVL-00258, pp. 36–37)

The Proponents noted the following points concerning restrictions on access by harvesters across the pipeline right-of-way during construction:

- Consultations with communities before installation of the pipeline would identify where harvesters need to cross the right-of-way and when. This would allow the Proponents to plan where breaks should be located and where the pipeline would be installed at specific times.
- No specific limitations on access are foreseen other than the need to consult with the affected harvesters to identify where they need to go on the land while the Proponents are working on the right-of-way.
- While a construction crew is in an area where pipe is strung out over a 35-km distance, harvesters would still be able to cross the right-of-way on a daily basis at some location within the area, except during a 24-hour period at a specific location during which the trench is open, the pipeline is being joined and welded together and placed in the ground, and the trench is being refilled.
- Consultations with harvesters would identify when that 24-hour period occurs relative to their usual crossing location.
- Through consultations, harvesters would be informed when and where workers would be in the area, and they would be encouraged to refrain from firearm activity during the full period when there are workers in the area.

The Proponents noted that, during construction of the pipeline and gathering system, movement across the right-of-way could be impeded for reasons of clearing, pipe stringing, installation, clean-up, pipe testing and, during operations, occasional maintenance. The greatest duration and extent of disruption would occur during the second year of construction, when the pipe would be strung, welded and installed, and this might occur over a distance of up to 35 km on any spread at any particular time, for up to two weeks at any one location.

During such times, limited delays could be experienced by those wishing to cross the right-of-way, but the Proponents suggested that these would generally be only an hour or so in duration. The Proponents assured the Panel that there would be safe access across the right-of-way for people, snowmobiles and all-terrain vehicles in remote areas, and, in most instances, this could occur almost immediately upon request to cross. According to the Proponents, the specific measures taken to ensure safe access would be:

- communicating Project activities, before and during construction, to local communities to increase awareness of the type, location and approximate timing of activity;
- identifying community access paths and incorporating them into Project plans; and
- locating breaks, averaging about 750 m apart, along the right-of-way to provide land users with a path across the right-of-way.

In order to minimize disruption of harvesting activities during the construction phase, the Proponents stated that they would develop Access Management Plans in consultation with affected communities. The Proponents described the principles for access management as using community guidance and involvement in developing the plans; maintaining communication with communities, particularly about the construction schedule; and adopting industry best management practices.

The Proponents further stated that Access Management Plans would be finalized for each of the regions of the study area. The Proponents stated that the types of restrictions that specific Project activities might place on land users was an area of discussion in the Access Agreement negotiations in the Sahtu. The Proponents explained that the Access Agreement includes a provision for the Proponents to provide detailed development plans that define when Project work would take place and what restrictions this would put on land users. These plans would require approval by the appropriate District Land Corporation. The Proponents noted that Access Management Plans would be very important throughout the construction process in order to identify “active trapping areas and other traditional harvesting sites, harvester access trails, and known wildlife trails...to minimize conflicts with land uses.” (David Kerr, HT V46, p. 4367)

The Proponents advised that NGTL would implement a similar Access Management Plan in northwestern Alberta as part of its Caribou Protection Plan, which it would review with the Dene Tha’ First Nation before submitting it to the appropriate regulatory authority for approval.

With respect to the nature and contents of the Proponents’ Access Management Plans, which are to be negotiated with representative groups in the various regions, the Proponents stated that they did not have a draft plan or contents list prepared. They indicated, however, that Access Management Plans would include:

- a communications component;
- a component that addresses safety concerns; and
- a description of the environment where work would take place, including the kinds of activities that would occur in that environment and what access restrictions the Proponents might require.

Most permanent facilities, such as compressor stations, would be fenced. Outside of these facilities, no access restrictions would apply. However, the normal considerations of public safety with respect to the use of firearms under applicable legislation would apply. Such restrictions could be enforced only by public authorities.

The Proponents made a number of specific commitments regarding:

- harvester access with respect to managing site access;
- identifying activities that restrict access;
- managing the interface between harvesting and the Project;
- removing temporary harvesting restrictions at construction sites;
- restricting access to permanent, above-ground operating facilities; and
- developing an Access Management Control Plan.

The Proponents filed additional commitments, which the Panel understands to be supplemented or modified by information and responses given during the hearings. These commitments can be summarized under three areas: nature of access restrictions, Access Management Plans and Agreements, and access management practices.

12.2.2 PARTICIPANTS’ VIEWS

Some harvester organizations stressed the need to ensure that the ability to harvest not be impaired by restrictions on access, as did a number of participants who spoke at Community Hearings. None suggested that the Proponents’ proposed mitigations were inappropriate or insufficient, or that Project activities, if implemented, would constitute a significant disruption to harvesting activities.

12.2.3 PANEL VIEWS

The Panel accepts that certain restrictions on access and the use of firearms are necessary for the safe construction and operation of the Project. The Proponents propose to take measures to minimize the disruption potentially caused by harvesters, which the Panel finds appropriate and reasonable. The Panel considers that these measures, if applied to the Project as Filed, would result in minimal and negligible disruption, with no significant adverse impacts on harvesting. Any exceptions experienced by individual harvesters could and should be addressed by the harvesting compensation measures set out elsewhere in this chapter. The Panel heard no evidence to suggest that these findings would not also apply to the Expansion Capacity Scenario.

12.3 HARVESTER COMPENSATION (NORTHWEST TERRITORIES)

12.3.1 EXISTING CONDITIONS

Section 13 of the *Inuvialuit Final Agreement* (IFA), which relates to harvesting compensation, identifies two types of harvest loss for which compensation is applicable:

- Actual wildlife harvest loss:
 - Individual harvesters who depend on harvesting for a material part of their income may obtain compensation for damage or loss of harvesting equipment and for loss or reduction of hunting, trapping or fishing income.
 - Individual harvesters who harvest for subsistence purposes may obtain compensation for damage to or loss of harvesting equipment and for any material reduction in wildlife take or harvest.
 - Types of compensation include the cost of temporary or permanent relocation, replacement of equipment, reimbursement in kind, provision of wildlife products, and payment in lump sum or by instalments.
- Future harvest loss:
 - Future harvest loss is defined as damage to habitat or disruption of harvestable wildlife having a foreseeable negative impact on future wildlife harvesting.
 - Any Inuvialuit group or community affected may seek recommendations from the Arbitration Board (a quasi-judicial arbitration body) with respect to remedial measures, including clean-up, habitat restoration and reclamation.

The IFA also includes an outline of procedures for obtaining compensation:

- Claims may be made individually or collectively, or through duly authorized representatives.
- Every claim must be made in writing by the claimant.
- The claimant and developer have 60 days, including appointment of a mediator, to attempt to settle the claim.
- If the claim is not settled within 60 days, the claimant may forward the claim in writing to the Arbitration Board, pursuant to the arbitration provisions of the land claim.
- The onus is on the claimant to prove the loss on a balance of probabilities.

The harvesting compensation sections of the *Gwich'in Comprehensive Land Claim Agreement* (Section 17) and the *Sahtu Dene and Metis Comprehensive Land Claim Agreement*

(Section 18) are identical to each other. Under these agreements, the types of loss or damage eligible for compensation include:

- loss or damage to property or equipment used in wildlife harvesting or to wildlife harvested;
- present and future loss of income from wildlife harvesting; and
- present and future loss of wildlife harvested for personal use or that is provided to others for personal use.

Within the Gwich'in and Sahtu Agreements, the types of compensation that may be provided include:

- a lump sum or periodic cash payment; or
- non-monetary compensation, such as replacement or substitution of damaged or lost property or equipment, or relocation or transportation of participants or equipment to a different harvesting locale.

Finally, the procedures for making claims outlined in the two Agreements are:

- claims must be made in writing; and
- the claimant and developer have 30 days to reach agreement, after which either party may refer the matter to arbitration, pursuant to arbitration provisions of the land claim.

In the absence of a land claim agreement in the Dehcho Region, no formal compensation agreements apply.

12.3.2 PROPONENTS' VIEWS

The Proponents' analysis of residual impacts of the Project on harvesting concluded that, for all cases where adverse impacts were identified, the effect attributes in all regions of the study area were:

- moderate or less in magnitude;
- regional or local in geographic extent; and
- short-term in duration.

Therefore, the Proponents concluded, based on their criteria for determination of significance, Project impacts on harvesting would not be significant.

However, in order to address specific cases where disruption of harvesting activities would occur in the short term, the Proponents stated they expected that compensation agreements would be negotiated by the Proponents with Hunters and Trappers Committees or other relevant authorities in the settled land claim regions, and the affected communities in the Dehcho Region, in order to address actual and potential future wildlife harvest loss resulting directly from Project construction and operations.

The Proponents supplemented the information provided in the Environmental Impact Statement (EIS) with presentations of their proposed plans for harvesting compensation. The Proponents stated that compensation would cover hunting and trapping activities and would allow harvesters affected by the Project to be compensated for damages resulting from Project activities. More specifically, the types of damages, losses or expenses covered would be similar to those identified in the land claim agreements:

- present and future loss of income;
- present and future loss of resources for personal use;
- cost of temporary or permanent relocation; and
- loss or damage to property or equipment used in harvesting.

Further, compensation would be based on market values and estimated harvest loss and be referenced to current and historical records provided, either in the form of reimbursement in kind or through a cash payment.

The Proponents also described the form that agreements on compensation would take. During the hearings, the Proponents replaced the EIS's term "compensation agreements" with the term "compensation process." The Proponents noted that the compensation process would use the "definitions and compensation process outlined in the appropriate land claim agreements" and would include "working with applicable organizations to develop an agreed-upon process and procedure for harvester compensation." (J-IORVL-00681, p. 27)

The Proponents stated that, as a mitigation measure, they would communicate with appropriate organizations such as Renewable Resource Councils and Hunters and Trappers Committees, as well as individual harvesters, in order to identify any harvesters who might be affected by the Project, and that they would work together to reduce conflicts between harvesters and Project activities. In this way, the likelihood of damages and subsequent claims required under the compensation process would be reduced. The Proponents also affirmed that the harvesting compensation process would include a dispute resolution process.

The Proponents provided clarification concerning coverage of the compensation process, both in terms of types of harvesters covered as well as specific types of damage and costs covered:

- The compensation process would cover all types of harvesters — full-time, part-time and beginner — since the land claim agreements make no distinction of this type with regard to harvester compensation.
- In cases where harvesters have to spend more time and money on harvesting as a result of Project access restrictions, the compensation process would include reimbursement for cost of temporary or permanent relocation, which would cover physical relocation, for example, relocation of a cabin, as well

as increased harvester costs, for example, in time or gas or increased wear and tear on equipment arising from the need to move harvesting activities to alternative locations.

- Such temporary or permanent relocation could be the result of Project activities or Project impacts, whether the impacts were those identified in the EIS or those that were not predicted although identified by harvesters as the cause of relocation.
- In the event of an accident, compensation would be made for reduced harvesting of a species for reasons of quality, either in cash to obtain replacement meat from an alternative community or in cash for additional expenses required to access more distant areas that would allow harvesters to supplement their country foods in the future.

The Proponents provided additional information about the basis on which compensation would be determined. First, in cases of increased costs associated with additional effort to harvest, the burden of proof on harvesters could include written records and oral corroboration by other harvesters. Second, in reference to the Proponents' statement that compensation would be based on current and historical records, the matter of whether the ongoing collection of harvest data might be necessary for the purposes of compensation was raised, given that there are no longer any comprehensive harvest surveys conducted in the three land claim areas and that there never has been such a survey in the Dehcho Region. The Proponents responded that compensation for subsistence harvesting activities would be based on a discussion between the Proponents and individual harvesters "about what is a typical harvest for a year." (Dr. Dee Brandes, HT V46, p. 4399) Therefore, the Proponents stated, restarting or commencing harvest studies would not be necessary for the purposes of Project compensation.

The Proponents also stated that compensation for trappers would be based on the records of furs sold to market through the Government of the Northwest Territories' trapper support program. At the same time, recognizing that many trappers sell furs through unrecorded transactions, the Proponents noted that they were currently in discussions with Renewable Resource Councils, Hunters and Trappers Committees, and individual harvesters to help formulate "an anecdotal record that allows us to appreciate how we might facilitate our discussions with them in the future." (Dr. Brandes, HT V46, p. 4400)

With respect to the nature and status of the documents resulting from discussions with harvester organizations and individual harvesters on the compensation process, the Proponents assured the Panel that harvesting compensation would be provided based on the applicable sections of the land claim agreements in place — i.e. Section 13 of the IFA, Section 18 of the *Sahtu Dene and Metis Comprehensive Land Claim Agreement*, and Section 17 of the *Gwich'in Comprehensive Land Claim Agreement* — and that dispute resolution procedures would follow those outlined in these agreements.

With respect to the instrument that would be used to execute compensation arrangements, the Proponents indicated that compensation arrangements would be part of the discussion on access and benefits. The Proponents had previously suggested that there would be stand-alone compensation agreements. They clarified, however, that the compensation process would not be included in the negotiated Access Agreements and Benefits Agreements and that “the reason for this is that the negotiators clearly pointed out that our obligation to the harvesters is embedded in the land claim agreement,” with the further clarification that “the need for a further agreement to restate our obligation to the harvesters was unnecessary and redundant.” Instead, the Proponents noted, obligations under the land claim agreements would be supplemented by discussions with harvesters and harvester organizations “to put some better definition around how soon do we need to come out and talk to you with detailed plans, when do you go in and lay your traps, so that we can avoid you laying traps in an area where we would be working.” The Proponents further stated:

Thus, current discussions are focused on jointly coming to agreement on a process that we would use to facilitate our communication up front and the compensation in the event that there is damage and we need to compensate. Now, some of the land claimant groups have fairly established processes. And we’re not looking to re-invent the wheel, we’re simply looking to understand the process. (Dr. Brandes, HT V46, p. 4415)

The Proponents also noted that, while formal agreements are not necessary in the land claim regions, the Dehcho Region is “an anomaly” since there is no land claim agreement in place and the Interim Measures Agreement does not specify harvester compensation. (Dr. Brandes, HT V46, p. 4415) Therefore, the Proponents expect that they would enter into an agreement with the Dehcho Region that is specific to harvesters because they do not have the same level of definition within their Deh Cho Process to date.

With respect to the Proponents’ use of the terms “framework” and “a proposed process” to describe the compensation arrangements to be put in place in the various regions, the Proponents provided an example of a document from one of the regions resulting from the discussions. Specifically, the Proponents submitted a copy of the *Process for Harvester Mitigation and Compensation*, which was under negotiation for implementation in the Inuvialuit Settlement Region. The document restates the description of the compensation process outlined in the Proponents’ written and oral presentations at the hearings, including:

- consultation in advance of construction and operations activities to identify harvesters who are active in proposed Project areas and to mitigate disruption of harvesting activities;
- compensation for actual wildlife harvest loss or future harvest loss in accordance with Section 13 of the IFA;
- submission of claims in writing;

- compensation based on market values and estimated harvest loss, referenced to current and historical records where available; and
- a dispute resolution to follow arbitration procedures as outlined in the IFA.

The only new information provided in the document was a note that “the written claim should contain particulars in reasonable detail of the damage or loss for which compensation is being claimed” and inclusion of forms for harvester compensation and for settlement of claims. (J-IORVL-00938, pp. 2–3)

With respect to how the compensation discussions would produce a final draft and who approves it, the Proponents explained that they were not trying to develop formal compensation agreements as originally stated in the EIS, since the commitment to compensate harvesters is already established under the land claim agreements:

We actually are not trying to create an agreement, so to speak. The dilemma for us is that our obligation is to the harvesters and not all harvesters do their work through the organizations that are within their communities. And so what we are striving to achieve is that there is a process, that it’s well understood by all harvesters, and that it’s supported by all harvesters; and thus, we don’t foresee that we could have an approval mechanism...that would be appropriate for that circumstance. (Dr. Brandes, HT V52, p. 5032)

The Proponents further explained that, if they were to reach an agreement of some type with a Renewable Resource Council, a Hunters and Trappers Committee or the Inuvialuit Game Council, their understanding is that it would not necessarily bind all the harvesters because they would not be signatories to it.

The Proponents also stated that:

the *Inuvialuit Final Agreement* and the land claims in the Gwich’in and the Sahtu Settlement Area are very clear in their wording, and they help harvesters to be comforted in knowing that should there be a loss experienced by them as a result of development, the developer is responsible to compensate them for that loss. (Dr. Brandes, HT V52, p. 5025)

Further, the Proponents reiterated that, for the Dehcho Region, where no settled land claim agreement is in place, the compensation process would be similar to regions that have established land claims.

The Proponents asserted that, even though formal compensation agreements would not be put in place, there would be an obligation for the Proponents to follow a compensation process outlined in the documents, since they help to define the obligations within the land claim agreements. The Proponents emphasized that, in the Dehcho Region, where there is no land claim agreement that specifies what the dispute resolute mechanisms are in relation to harvesting compensation claims, a dispute mechanism would be embedded within the Dehcho

compensation agreement. This Dehcho dispute resolution mechanism would be consistent with those regions that have settled land claims.

The Proponents stated that approaches similar to those for beneficiaries would be employed for harvesters who are not beneficiaries of the land claim agreements. This would be true for non-beneficiary harvesters if there were an impact on their trapping lines, their trapping returns or their hunting. However, the Proponents emphasized that access to arbitration provided for under land claim agreements might not be available to non-beneficiaries.

Finally, in relation to a date by which the compensation processes would be in place, the Proponents stated that they expected that discussions would be completed and the compensation process in place in the various regions at least six months in advance of construction beginning, and that the parties “would be at a point where harvesters understand and [the Proponents] understand what process we should be using to facilitate the mitigative measures and potentially the compensation measures.” (Dr. Brandes, HT V52, p. 5032)

The Proponents made a number of commitments in relation to harvesting compensation and, specifically, with respect to compensating harvesters for damages and loss of subsistence or commercial harvesting opportunities, establishing compensation terms and conditions, and negotiating specific terms and provisions of a wildlife harvesting compensation process.

12.3.3 PARTICIPANTS’ VIEWS AND RECOMMENDATIONS

A number of participants presented views and recommendations on harvesting compensation during the Panel’s hearings as well as through written filings to the Panel. Those views and recommendations focused on three main issues:

- the need for formal compensation agreements;
- the basis for determining compensation; and
- the types of compensation required to address Project impacts.

NEED FOR FORMAL COMPENSATION AGREEMENTS

In the Dehcho Region, both the Sambaa K’e Dene Band and Pedzeh Ki First Nation called for negotiated harvester compensation agreements to be in place prior to Project approval.

The Proponents agreed that, in the Dehcho Region, where there is no settled land claim in place and where the Interim Measures Agreement does not address harvesting compensation, there is a need to establish a formal agreement on harvesting compensation through negotiation with Dehcho communities, and the Proponents are committed to doing so.

Participants from the Gwich’in Settlement Area and the Sahtu Settlement Area called for the negotiation of regional compensation agreements with the involvement of community Renewable Resource Councils. The rationale, as stated by the Sahtu Renewable Resources Board, was that the land claim does not provide a process for individual harvesters to follow in seeking compensation; therefore, an agreement between the Proponents and the Renewable Resource Councils would be required to put such a process in place. The Sahtu Renewable Resources Board further stated that, while the individual harvester has responsibility to bring forth a claim, responsibility for support to the harvester falls on Renewable Resource Councils, which lack the personnel and funding needed to provide that support. Having an agreed-upon process within a compensation agreement would assist the Renewable Resource Councils with this responsibility.

Similarly, the Déline Renewable Resources Council stated that it is important that interested Renewable Resources Councils be enabled to negotiate a harvester compensation protocol with the Proponents. They explained that harvesters cannot afford the professional expertise required to negotiate an agreement. The concern of the Council is that the burden of proof for pursuing compensation falls on the harvester, who would be required to prepare and document the claim, negotiate the claim with the developer, and finally present the case before an arbitrator if not satisfied with the outcome. Most harvesters have no experience in these areas and would require professional help. Currently, however, there are no resources provided for this kind of assistance, and the compensation process in the land claim agreement does not provide for any dedicated funding.

Several participants commented on the burden on harvesters of the compensation process proposed by the Proponents. The Dehghah Alliance Society commented on the negotiation of a harvester compensation agreement between it and the Proponents. It considered the Proponents’ proposal unacceptable because it would place the onus and burden of proof on harvesters instead of the Proponents. Concern was also expressed by another participant that negotiations with harvester organizations not take away the rights of individual harvesters to compensation under the land claim agreement. At the same time, however, it was noted that harvesters generally have no experience in assigning a monetary value to lands and resources, and therefore it would be essential to ensure that harvesters receive assistance from the Renewable Resource Councils in dealing with compensation claims.

Previous experience with compensation to harvesters for losses caused by the impacts of oil and gas activities was described by Randal Pokiak in Tuktoyaktuk. He stated that the burden imposed on the harvester in making the claim can be excessive compared with the actual amount of compensation received. Therefore it acts as a disincentive to pursue compensation:

Now to claim \$150.00 for trap and the loss of opportunity then adding on the two days I lost in setting a claim and extra

two days I had to stay in town to get ready for my next trip was at my own time, the two days I spent with them was not considered by the O/G industry... After evaluating it all, the time and effort it took to claim \$150.00, I decided that from that time on it was more profitable to continue trapping and leave the O/G companies out of my life. (J-POKIA-00005, p. 64)

BASIS FOR DETERMINING COMPENSATION

Some participants asserted the need for continuing and ongoing harvest surveys and studies as part of the basis required to determine accurate and fair compensation. The Gwich'in Renewable Resources Board (GRRB) stated that the Proponents' reliance on older GRRB wildlife and harvesting studies would leave considerable doubt about the accuracy of forecast impacts in the EIS on valued components. The GRRB recommended that the Proponents, together with the Government of the Northwest Territories, the Government of Canada and the Gwich'in Tribal Council, provide adequate resources for the GRRB to continue conducting regular and ongoing wildlife and harvesting surveys to maintain an accurate database for assessing impacts of the Project during the development, operation and decommissioning phases. The GRRB further suggested that it is essential that the adequacy of compensation in any area, or for any harvesting group, be based on broadly comparable, species-relevant data about impacts.

The Sahtu Renewable Resources Board recommended that the Sahtu Settlement Harvest Study, including mandatory collection of all harvest statistics, be continued through all hydrocarbon and pipeline stages. It stated that this was essential for capturing and using information about subsistence harvesting for assessment, litigation and monitoring purposes.

The view of the Proponents, as noted, was that restarting or commencing harvest studies would not be necessary for determining and settling compensation claims.

A participant in Fort Good Hope noted that there is a lack of specific information on harvester compensation in Section 18 of the *Sahtu Dene and Metis Comprehensive Land Claim Agreement*. He said that there are "no set rates per se for the individual trapper to go by," nor is there "some sort of scale that both industry and the trapper can use to come to terms rather than go to arbitration." (Roger Boniface, HT V22, p. 2062) In addition, no funding was allocated under Section 18 for implementation of the compensation provisions. This participant suggested that, while it may have been possible previously for each trapper to come to an arrangement on compensation with individual exploration companies that might have created more limited, seasonal impacts, much more would be required to make a compensation claim for the impacts created by the permanent presence of the pipeline and associated activities.

The Dehcho Harvesters Council rejected the Proponents' approach that compensation be dealt with on an individual basis. Instead, it recommended that the:

condition of license include the need for the project management team to cease their current approach of compensation to harvesters as individuals and be required to deal with the First Nations as governments in dealing with all aspects of the project within First Nation territory. (J-DHC-00017, p. 4)

TYPES OF COMPENSATION REQUIRED TO ADDRESS PROJECT IMPACTS

The third issue addressed by participants was the types of compensation that would be required to address impacts of the Project.

The Liidlii Kue First Nation described its experience with the Norman Wells oil pipeline as causing animals to relocate to new areas away from the pipeline, requiring harvesters to travel farther to find animals. They made the following recommendations concerning specific forms and coverage of compensation:

- compensate harvesters for loss of wild foods based on the cost of groceries;
- allow harvesters access to their traplines and trails; and
- compensate harvesters adequately for lost trapping income.

The Dehcho Harvesters Council also made the following recommendations on specific areas of Project impact that it sought to have addressed through harvesting compensation:

- that impact, access benefits and compensation be paid to Dehcho harvesters to recover the cost of any environmental impact, destruction or damage caused as a result of the Project (for example, loss of traditional foods, fur and fish); and
- that financial compensation be paid on an annual basis to the Regional Harvester's Management Board to provide it capacity to support financial needs of harvesters and their families to deal with potential loss of equipment, shelters, destroyed trails, emotional distress, spiritual distress and added costs to maintain their lives as harvesters through the need to open new trails.

A number of participants proposed to the Panel that the impacts of the Project would be of greater magnitude and longer duration than suggested by the Proponents' significance determination in the EIS. In particular, the Sambaa K'e Dene Band disputed the Proponents' evaluation and conclusions regarding potential impacts of the Project on harvesting activities. The Sambaa K'e Dene Band stated that it strongly believes that "these impacts will be adverse, of high magnitude during construction and [of] moderate magnitude during operations, and long-term (i.e. extending beyond the construction phase)." Given this assessment of Project impacts, the Sambaa K'e Dene Band opposed the compensation regime proposed by the Proponents. It stated that the compensation regime appeared to suggest that "compensation will only be provided where, during the actual construction process, there is evidence of harvesters

and trappers being adversely affected.” It asserted that compensation must be “based on a clear understanding of the nature and extent of project impacts.” (J-SKDB-00032, p. 2)

In their closing remarks, the Dehcho First Nations emphasized their view that damages from the Project will continue throughout the life of the Project through the impacts of operations on animal habitat and behaviours. Therefore, the Dehcho Harvesters Council recommended that compensation for impacts on harvesting include programs for the maintenance of traditional culture. The Gwich’in Renewable Resources Board, like the Dehcho Harvesters Council, also recommended the need for compensation to address the maintenance of traditional knowledge and culture.

The Déline Renewable Resources Council stated that the problem with the harvester compensation system provided for under the land claim agreements is that it provides only for monetary compensation or possibly in-kind compensation. The Council suggested that compensation should also include programs addressing loss of livelihood, loss of culture and loss of other values not mentioned specifically in the land claim.

The need to utilize compensation to provide programs that address the longer-term impacts of the Project in terms of loss of livelihood and culture was addressed in the submission by Randal Pokiak of Tuktoyaktuk. He pointed out that “most Inuvialuit that stay and live in the ISR still depend on the wildlife resource as food to feed their families.” He further stated:

This includes when those on the wage economy take their holiday period during the warm spring season to take the opportunity to teach their children the value and importance and techniques of harvesting the wildlife, as well as teaching culture and traditions while out on the land. (J-POKIA-00005, p. 38)

According to Mr. Pokiak’s submission, during development such as that proposed by the Project, “the impact directly on harvesters is not considered properly or effectively and is unsatisfactory at the present time in the view of this harvester.” He further submitted that the impacts of development in the area will not be limited to the Project itself, but rather “once the MGP and the three Anchor Fields gets the green light, the threshold door will be kept wide open for more pipelines that will expand into the other parts of the ISR creating more impacts and competition for harvesters and the wildlife resources for habitat space on the land and offshore.” He also stated in his submission that, among all the Inuvialuit, harvesters will be culturally, socially, environmentally and financially impacted the most, and that the land will be “alienated from their normal use during all of the phases of the MGP until the area is restored to its natural state.” He continued: “Before that restoration takes place and the wildlife returns, a lifetime will pass by, possibly two lifetimes, even if each person lives to an old age, it could be that it will never be fully restored.” (J-POKIA-00005, p. 83)

His submission suggested that, once the oil and gas interest is gone, many Inuvialuit will wish to revert back to dependence on

hunting, fishing and trapping, since “no matter what happens in the ISR these are the things most dependable and will continue to provide for Inuvialuit survival.” (J-POKIA-00005, p. 40) Therefore, he stated, the long-term impacts of the pipeline and the subsequent induced development on the maintenance and transmission of traditional knowledge between generations must be considered.

12.3.4 PANEL VIEWS AND RECOMMENDATIONS

The Panel notes that most of the impacts identified by participants appear to be contemplated within the compensation process proposed by the Proponents, i.e. loss of country foods; loss of trapping income; loss of equipment, shelters and trails; and additional costs required to open new trails or harvest in new areas. However, it appears that impacts such as emotional distress and spiritual distress go beyond the types of impact contemplated by the Proponents and by the land claim agreements.

The Panel is of the view that a regime for compensating harvesters whose livelihood is adversely impacted by the Project must be in place prior to Project approval. The compensation regime should provide not only for fair and equitable outcomes, but also for a simple and efficient process. Both outcome and process should be well understood by harvesters in advance of the Project. The regime should apply to all harvesters in the Project Review Area, whether or not they are currently the beneficiaries of a comprehensive land claim agreement.

The Panel considers that the sum of the Proponents’ commitments, both specified in writing and stated orally in the hearings, in large measure fulfills these requirements. The resulting regime would, in the Panel’s understanding, be consistent with the requirements of existing land claim agreements in the NWT and provide for greater clarity with respect to both process and coverage than is actually specified in those agreements.

RECOMMENDATION 12-1

The Panel recommends that the Governor-in-Council, pursuant to section 8 of the Territorial Lands Act, as a condition of disposing of any federal Crown land required for the Mackenzie Gas Project, require the Proponents to conclude a harvester compensation agreement for each of the Inuvialuit Settlement Region, the Gwich’in Settlement Area, the Sahtu Settlement Area and the Dehcho Region of the Northwest Territories.

The Panel further recommends that in each of the above noted regions the agreements be concluded with a single harvester organization that acts on behalf of all harvesters in the region, that the Government of Canada provide funds to each regional harvester organization to negotiate harvester compensation agreements with the Proponents, and that each agreement address, at a minimum, the following:

- *the scope of coverage (what is eligible for compensation);*
- *eligibility criteria (who is eligible for compensation);*

- *categories of remedies available and choices available to the claimant;*
- *the specific process for making compensation claims (the steps required of the claimant and of the Proponents);*
- *the information required to substantiate a claim (both burden of proof and extent of loss);*
- *roles and responsibilities of each party to the agreement in processing and, if necessary, adjudicating compensation claims;*
- *any additional resources that may be required by Aboriginal authorities that have responsibilities for assisting harvesters with their claims;*
- *the time frame for reviewing and awarding a claim;*
- *the process for communicating and informing harvesters about the compensation program;*
- *provision for mediation;*
- *a dispute resolution mechanism;*
- *the enforceability of the agreement; and*
- *any other matter of importance to either party to the agreement.*

RECOMMENDATION 12-2

The Panel recommends that the National Energy Board, as a condition of any certificate or approvals it might issue in relation to the Mackenzie Gas Project, require the Proponents to file the completed harvester compensation agreements (referred to in Panel Recommendation 12-1) with the National Energy Board six months prior to the commencement of construction and to communicate the substance of each agreement with all affected harvesters no later than two months after filing the completed agreement.

As noted, the Proponents intend to extend harvester compensation benefits to individuals who are not beneficiaries of settled land claim agreements. These benefits are to be the same as the harvester compensation benefits that beneficiaries are entitled to in the land claim agreements. The Proponents would be responsible for communicating this effectively.

With the implementation of Panel Recommendations 12-1 and 12-2, the Panel is of the view that the Project would not likely cause significant adverse impacts on harvester livelihood and income. Further, the Panel considers that these recommended arrangements would also provide an adequate basis for addressing the impacts of possible future developments, if applied to the proponents of those developments, and the Panel therefore recommends the following:

RECOMMENDATION 12-3

The Panel recommends that the Government of Canada, when disposing of federal Crown land for the purposes of oil and gas development in the Northwest Territories, require the proponent to comply with the same or equivalent conditions, mitigation measures or commitments with respect to harvester compensation agreements as govern the Proponents of the Mackenzie Gas Project.

Some participants recommended that harvest studies be undertaken as a basis for documenting harvester compensation claims. The Proponents stated that they would not require such studies for the compensation process. The Panel therefore finds that it is not necessary to pursue further harvest studies in the context of the Project. The Sahtu Renewable Resources Board's recommendation was more broadly framed, however, and was not restricted to the Project. Depending on the compensation policies of other developers, harvest studies might be required. However, the Panel did not hear any specific evidence to that effect, or that such studies are required for monitoring and follow-up programs. Therefore the Panel cannot comment further on that recommendation.

The Panel acknowledges the concern expressed by some participants that future developments (of which the Project may be a key part) may cumulatively and adversely affect the ability to maintain harvesting as a livelihood and a way of life, and to maintain the Traditional Knowledge and culture necessary to its success. Several participants spoke of the need for programs to provide for the maintenance and transfer of Traditional Knowledge and culture between Elders and youth, administered by harvester organizations. They suggested that such programs should be included as a kind of compensation. Some also suggested that compensation should cover emotional and spiritual distress. In the Panel's view, such programs are not properly part of a wildlife compensation regime. The Panel does not consider that emotional and spiritual distress could be effectively quantified in relation to the Project and does not support the view that the Proponents should be liable for such distress. The Panel would consider such programs an enhancement rather than a Project-specific mitigation. The social and cultural aspects of harvesting are discussed in Chapter 16, "Social and Cultural Impacts."

12.4 HARVESTER COMPENSATION (ALBERTA)

12.4.1 EXISTING CONDITIONS

The Alberta Trappers' Compensation Program is a program jointly funded by government and industry that provides a framework for compensating trappers of Registered Fur Management Areas for trapping-business losses related to industrial activity and cabins lost to naturally caused forest fires.

The only registered trapline in the vicinity of the Northwest Alberta Facilities is held by members of the Dene Tha' First Nation.

12.4.2 PROPONENTS' AND NOVA GAS TRANSMISSION LTD.'S VIEWS

In northern Alberta, harvester compensation would be the responsibility of NGTL. The Proponents noted that in Alberta there is already legislation in place that deals with compensation for trappers and establishes the Alberta Trappers' Compensation Program. NGTL's construction activities would be subject to this legislation's provisions, although NGTL explained that its compensation program would not necessarily be limited to the requirements of the Alberta Trappers' Compensation Program.

NGTL further stated that the matter of trappers' compensation is addressed in a Community Cooperation Protocol Agreement between NGTL and the Dene Tha' First Nation. Since it is a private agreement, its contents were not disclosed to the Panel. However, NGTL provided the Panel with a brochure that outlined how the NGTL compensation program works. Under the Trapper Compensation and Engagement Program, trappers are classified into three categories:

- full-time active trappers;
- part-time hobby trappers; and
- trapline owners who do little if any trapping.

The NGTL program provides for negotiation of compensation with the senior holder of a trapline within the framework of three elements:

- **Project notification:** A registered letter is sent to affected trappers in advance of any project that may affect a trapline, with a payment to cover review of the material.
- **Pre-construction consultation/negotiation:** Meetings are held with each affected trapper to discuss potential impacts and determine a fair payment schedule, with payments to cover meetings, expenses for adjusting trapping activities, and reasonable compensation for disturbance.
- **Post-construction fur loss negotiation/compensation:** Compensation is provided for fur loss based on actual fur loss, auction prices, a five-year average revenue of the trapper and his or her current trapping classification, and fur affidavits and receipts from the Government of Alberta's Fish and Wildlife Division.

The statement in NGTL's application to the Alberta Energy and Utilities Board was that the Dene Tha' First Nation's position is that NGTL's Trapper Compensation Program is inadequate. Also noted was that "the final compensation program will be developed through negotiations as part of the Community Cooperation Protocol Agreement and the Project-specific Participation Agreement." (J-IORVL-00599, p. 39) With respect to the areas of the compensation program that the Dene Tha' First Nation found inadequate, NGTL indicated that it and the Dene Tha' First Nation were re-establishing a sub-table of the negotiation table to look at harvester compensation but that these negotiations had not yet commenced.

NGTL advised the Panel that its application to the Alberta Energy and Utilities Board contained a commitment that the final compensation program would be developed through negotiations as part of the Community Cooperation Protocol Agreement.

12.4.3 PARTICIPANTS' VIEWS

The Dene Tha' First Nation filed, and subsequently withdrew, the following recommendation:

- In order to ensure that the Dene Tha' First Nation is able to exercise its traditional practices and rights in the NWT and Alberta, the Panel should recommend that any authorizations issued by Canada and Alberta must be conditional upon:
 - Imperial Oil Resources Ventures Limited and NGTL negotiating compensation with Dene Tha' First Nation trappers for any adverse impacts to their livelihood; and
 - Imperial Oil Resources Ventures Limited and NGTL not restricting access to Dene Tha' First Nation hunters, trappers and gatherers.

12.4.4 PANEL VIEWS AND RECOMMENDATIONS

The Panel understands that NGTL has committed to develop a final trapper compensation program through negotiations with the Dene Tha' First Nation on a Project-specific participation agreement in accordance with the Community Cooperation Protocol Agreement. The Panel also understands that these negotiations would result in a final harvester compensation program that would supplement or replace NGTL's Trapper Compensation and Engagement Program, which was found to be inadequate by the Dene Tha' First Nation.

The Panel endorses NGTL's commitment to negotiate and conclude a harvester compensation agreement with the Dene Tha' First Nation and encourages NGTL to do so prior to the commencement of construction of the Northwest Alberta Facilities. The Panel notes that, while members of the Dene Tha' First Nation may be able to access the Alberta Trappers' Compensation Program administered by the Alberta Trappers' Association, that program relates only to furbearers and does not address the broader economic, social or cultural impacts associated with harvester losses. In the Panel's view, the Dene Tha' First Nation should have access to a Project-related harvester compensation process similar to that which the Proponents have committed to implementing in the NWT, and that it would be NGTL's responsibility to provide for this with respect to the Northwest Alberta Facilities.

RECOMMENDATION 12-4

The Panel recommends that the Government of Alberta, as a condition of disposing of any provincial Crown land required for the Northwest Alberta Facilities, require NOVA Gas Transmission Ltd. to conclude a harvester

compensation agreement with the Dene Tha' First Nation prior to the commencement of construction of the Northwest Alberta Facilities.

The Panel further recommends that NOVA Gas Transmission Ltd. conclude the harvester compensation agreement with the Dene Tha' First Nation, or other harvester organization that acts on behalf of all harvesters in the region that might be affected by the Northwest Alberta Facilities, that Indian and Northern Affairs Canada provide funds to the Dene Tha' First Nation or other harvester organization to negotiate the harvester compensation agreement with NOVA Gas Transmission Ltd., and that the agreement address, as a minimum, the following:

- *the scope of coverage (what is eligible for compensation);*
- *eligibility criteria (who is eligible for compensation);*
- *categories of remedies available and choices available to the claimant;*
- *the specific process for making compensation claims (the steps required of the claimant and of NOVA Gas Transmission Ltd.);*
- *the information required to substantiate a claim (both burden of proof and extent of loss);*
- *roles and responsibilities of each party to the agreement in processing and, if necessary, adjudicating compensation claims;*
- *any additional resources that may be required by Aboriginal authorities that have responsibilities for assisting harvesters with their claims;*
- *the time frame for reviewing and awarding a claim;*
- *the process for communicating and informing harvesters about the compensation program;*
- *provision for mediation;*
- *a dispute resolution mechanism;*
- *the enforceability of the agreement; and*
- *any other matter of importance to either party to the agreement.*

RECOMMENDATION 12-5

The Panel recommends that the appropriate regulatory authority, as a condition of any licence or authorization it might issue in relation to the Northwest Alberta Facilities, require NOVA Gas Transmission Ltd. to file the concluded harvester compensation agreement (referred to in Panel Recommendation 12-4) six months prior to the commencement of construction of the Northwest Alberta Facilities and to communicate the substance of the agreement to all affected harvesters no later than two months after filing the completed agreement.

The Panel also notes that the Dene Tha' First Nation entered into a Settlement Agreement with the federal Crown in November 2006 as settlement of litigation in relation to the Project. In that agreement, Canada provided \$25 million to the Dene Tha' First Nation to, among other things, assist it to address the socio-economic impacts of the construction and operation of the Project. As the Dene Tha' First Nation will have considerable input into the disposition of those monies, it would

be in a position to establish a program, perhaps in conjunction with the provisions of the compensation program with NGTL, to compensate for a broader range of impacts arising from wildlife losses suffered by their membership arising from the Project.

12.5 WORST-CASE SCENARIOS IN THE INUVIALUIT SETTLEMENT REGION: MITIGATION AND POTENTIAL LIABILITY OF THE PROPONENTS

The Panel is required by Annex 2 to Schedule 1 of the *Joint Review Panel Agreement (JRPA)* to recommend in respect of the Inuvialuit Settlement Region:

- a) Terms and conditions relating to mitigation measures that would be necessary to minimize any negative impact on wildlife harvesting, as referred to in paragraph 13(11)(a) of the IFA, including, as far as is practicable, measures to restore wildlife and its habitat to its original state and to compensate Inuvialuit hunters, trappers and fishermen for the loss of their subsistence or commercial harvesting opportunities; [and]
- b) An estimate of the potential liability of the Proponents, determined on a worst case scenario, taking into consideration the balance between economic factors, including the ability of the Proponents to pay, and environmental factors, as referred to in paragraph 13(11)(b) of the IFA.

Section 7 of the JRPA states: "For greater certainty, the establishment of the Environmental Impact Review pursuant to this Agreement does not diminish any financial responsibility or liability for damages Canada or the Proponents may have under sections 13(13) to 13(16) of the IFA."

This section describes proposed mitigation measures on wildlife harvesting with respect to worst-case scenarios in the Inuvialuit Settlement Region as well as the potential liability of the Proponents. A description of the worst-case scenarios as agreed to by the Proponents and the Inuvialuit Game Council is set out in Chapter 7, "Accidents, Malfunctions and Emergency Response."

12.5.1 PROPONENTS' MITIGATIONS

During the course of the proceedings, the Proponents made several commitments relating to mitigation measures to minimize any negative impacts on wildlife harvesting in the Inuvialuit Settlement Region. These include commitments to:

- control the speed of heavy-lift ships and barges;
- use marine mammal monitors during transit;

- advise marine captains to be vigilant about watching for whales;
- dredge after the annual beluga harvest;
- conduct aerial reconnaissance flights to identify aggregations of marine mammals before transit of heavy-lift vessels and barges;
- ensure that flight plans include minimum altitudes to comply with permit conditions in the Inuvialuit Settlement Region;
- develop species protection plans for barren ground caribou, grizzly bear and wolverine;
- avoid encounters with caribou when caribou are present or moving through an area;
- provide funds for telemetry for barren ground caribou and range condition studies;
- develop protocols for managing and/or avoiding interactions between bears and humans;
- conduct pre-construction surveys to identify active bear dens;
- enhance off-site habitat, or implement restoration and wildlife enhancement programs, if required;
- maintain contact with Hunters and Trappers Committees, Wildlife Management Advisory Committees and government agencies to advise them of incidents involving wildlife;
- hire wildlife monitors or environmental monitors from local communities;
- ensure that a wildlife monitor is on-site during drilling to assess potential wildlife conflicts;
- design waste management plans to avoid attracting grizzly bears and wolverines to Project sites;
- prevent or control impacts on wildlife and wildlife habitat before drilling and construction begins in the Inuvialuit Settlement Region;
- comply with the *Beaufort Sea Beluga Management Plan* and the proposed regulations for the Tarium Niruyutait Marine Protected Area;
- prepare detailed wildlife management plans before drilling and construction begins in the Inuvialuit Settlement Region based on the Panel’s review, Traditional Knowledge and community consultations; and
- manage Project activities in the barren ground caribou winter range between October and January to limit interaction with caribou, to the extent practical.

12.5.2 ESTIMATE OF POTENTIAL LIABILITY

The Joint Secretariat — Inuvialuit Renewable Resources Committees filed figures and tables summarizing the number of species harvested in each 10-km by 10-km grid within a 15-km radius of each well blowout and 5 km of each pipeline rupture scenario. The data provided by the Joint Secretariat was collected for the Inuvialuit Harvest Study, which was conducted from 1988 to 1997. The information filed with the Panel included the reported harvest quantities for the Inuvialuit Harvest Study time period rather than an estimated total based on harvester response rates. Harvesting location was identified by harvesters on a map within a grid 10 km by 10 km.

Early in the Panel’s proceedings, the value for each species harvested was provided by the Joint Secretariat. Subsequently, the Joint Secretariat confirmed that the values, as initially filed, remain current. With respect to grizzly bear, the value is based on the dollar amount received by an Inuvialuk for leading a sport hunter on a grizzly bear hunt.

12.5.3 PANEL VIEWS AND RECOMMENDATION

The Panel is of the view that the commitments made by the Proponents as mitigation measures necessary to minimize any negative impact on wildlife harvesting in the Inuvialuit Settlement Region are adequate.

For each blowout or pipeline rupture, the Panel calculated the value of harvest loss for an average year using the harvest data and monetary value supplied by the Joint Secretariat. These harvest values for each worst-case scenario are summarized in Table 12-1.

The assumptions made in the calculation of potential liability of the Proponents with respect to harvest compensation include:

- the number of animals harvested is based on the 1988–1997 period, when the harvest data was collected;

Table 12-1 Value of Harvest Loss

Worst-Case Scenario	Value of Harvest Loss/Year (\$2007)
Niglintgak blowout	12,000
Taglu blowout	7,600
Parsons Lake North blowout	18,500
Parsons Lake South blowout	22,000
Taglu lateral rupture	6,000
Storm Hills lateral rupture	11,200

Source: Panel calculation based on harvest data and harvest values provided by the Joint Secretariat

- the harvest value is based on the 2007 figures provided by the Joint Secretariat;
- calculations assume that the scenarios would prevent hunting or fishing for a period of one year; and
- no account has been made for limitations of the harvest survey.

The higher values for Parsons Lake and Storm Hills reflect the fact that more caribou are harvested in these areas.

Table 12-1 lists the value of harvested species for one year within a radius of 15 km for a blowout and within a radius of 5 km for a pipeline rupture. The figures contain no provision for future harvest loss due to the destruction of prime bird habitat or nesting and breeding birds or their chicks or eggs. Therefore, in order to account for these factors, the Panel recommends that the potential liability be increased by a factor of five for Taglu and Niglintgak to compensate Inuvialuit hunters, trappers and fishermen for the loss of their subsistence or commercial harvesting opportunities over several years, while the bird population rebuilds and caribou re-establish occupancy of the area. Table 12-2 lists the resulting potential liability for harvest compensation after this calculation has been made.

Table 12-3 estimates the maximum costs to the Proponents for recovery and clean-up of the worst-case scenarios. This assumes

that a relief well would be necessary to stop the blowouts at the Anchor Fields and that up to 1 km of pipe would have to be replaced at each pipeline rupture. Cost estimates come from the development costs estimates of each *Development Plan Application* and were modified to reflect the increased cost for each Anchor Field and the gathering system as reflected in the May 2007 *Supplemental Information — Project Update*. The Panel is of the view that these cost estimates include landscape restoration costs.

In order for the Panel to comply with the requirements of the IFA, the Panel makes the following recommendation:

RECOMMENDATION 12-6

The Panel recommends that the National Energy Board include as conditions of any certificate or approvals it might issue in relation to Mackenzie Gas Project facilities in the Inuvialuit Settlement Region:

- *the specific commitments as set out in Section 12.5.1 of this Report that the Proponents have made with respect to mitigating negative impacts on wildlife harvesting in the Inuvialuit Settlement Region; and*
- *evidence of financial responsibility in a form and amount satisfactory to the National Energy Board to cover the liability from individual Proponents as described in the estimates for the worst-case scenario in the Inuvialuit Settlement Region and as set out in Section 12.5.3 of this Report.*

Table 12-2 Potential Liability for Harvest Compensation

Worst-Case Scenario	Proponent	Potential Liability (\$2007)
Niglintgak blowout	Shell Canada Limited	60,000
Taglu blowout	Imperial Oil Resources Limited	38,000
Parsons Lake blowout	ConocoPhillips Canada (North) Limited (75%) and ExxonMobil Canada Properties (25%)	22,000
Gathering lines rupture	Imperial Oil Resources Ventures Limited	11,000

Source: Table 12-1

Table 12-3 Cost Estimates for Recovery and Clean-Up

Worst-Case Scenario	Proponent	Potential Liability (\$2007)
Niglintgak blowout	Shell Canada Limited	30,000,000
Taglu blowout	Imperial Oil Resources Limited	30,000,000*
Parsons Lake blowout	ConocoPhillips Canada (North) Limited (75%) and ExxonMobil Canada Properties (25%)	40,000,000
Gathering lines rupture	Imperial Oil Resources Ventures Limited	6,000,000

Note:

* The Panel predicted that the cost estimate for recovery and clean-up at Taglu would be the same as for Niglintgak.

Source: Adapted from J-CPCNL-00002, Section 14, p. 5, J-SCL-00010, Section 14, p. 5, J-IORVL-00953, Section 7, p. 4

CHAPTER 13

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CHAPTER 13

LAND USE AND HERITAGE RESOURCES

13.1 INTRODUCTION

This chapter focuses on how the construction and operations of the Mackenzie Gas Project and the Northwest Alberta Facilities could potentially affect land ownership and land access, land uses (specifically, granular resources, timber resources, and tourism and outdoor recreation), and heritage and historical resources. Land and resource users in the Mackenzie Delta and the Mackenzie Valley include Aboriginal and non-Aboriginal residents, businesses and tourists.

Granular resources were discussed during three days of hearings and at many Community Hearings, especially in those communities closest to the Project's proposed borrow pit and quarry sites.

In response to the Environmental Impact Statement's (EIS's) Terms of Reference, the Proponents identified existing oil and gas and mining activities in the Project Review Area. However, no issues were raised by participants in this regard, and the Panel agrees with the Proponents' assessment that Project impacts on oil and gas and mining activities in the Project Review Area would not likely be significant.

Timber resources were discussed during four days of hearings. The potential impact of the Project on local timber resources was also discussed at several Community Hearings in the Northwest Territories (NWT). The Panel heard from several Dehcho communities that have sawmills or that plan to acquire timber-processing equipment.

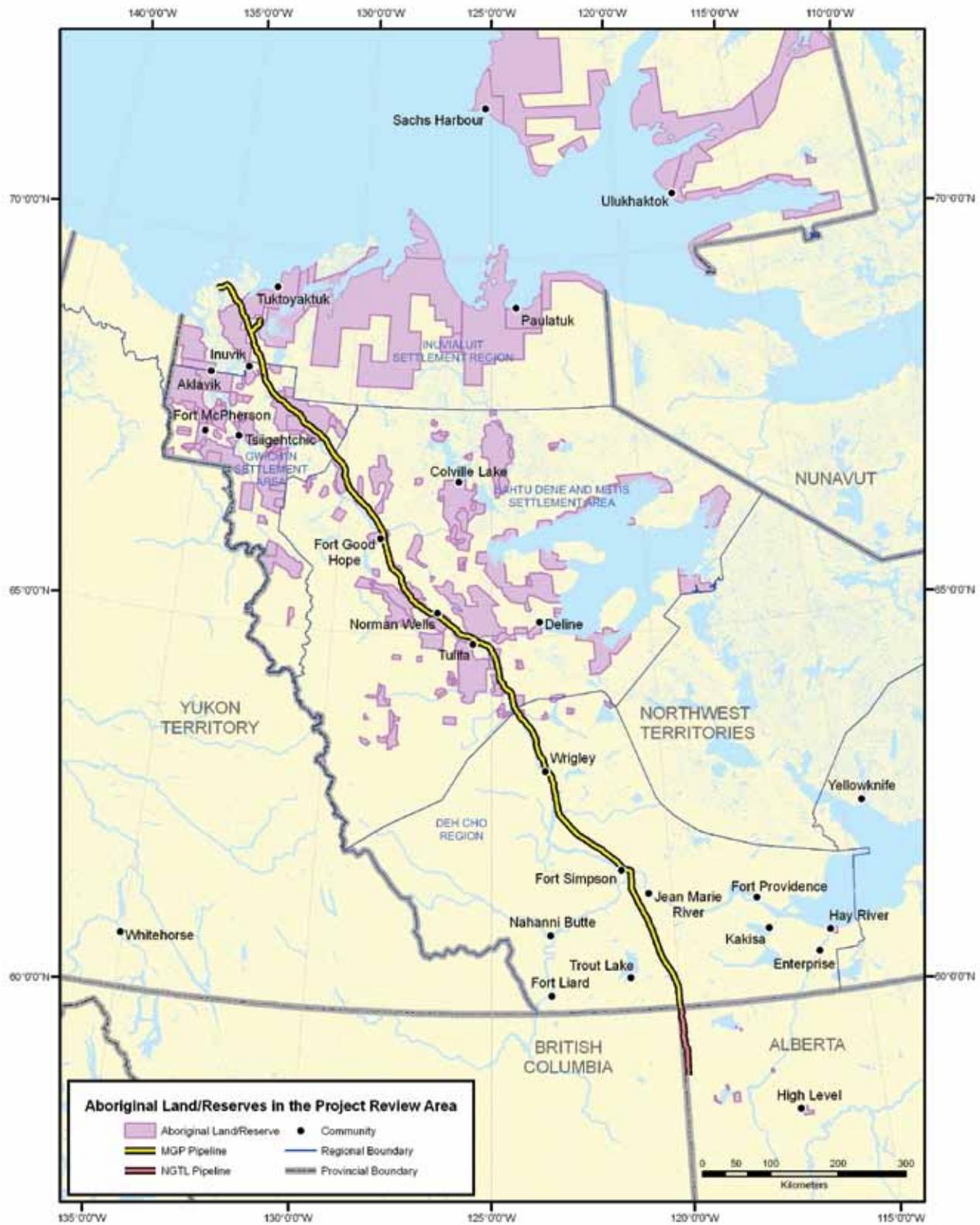
Heritage and historical resources were discussed during a single day of hearings. The potential impact of the Project on these resources was also noted at several Community Hearings, and evidence was also presented in Traditional Knowledge studies completed by the Inuvialuit, the Gwich'in, the Sahtu Dene and Métis, the Dehcho First Nations, and the Dene Tha' First Nation of northwest Alberta.

13.2 LAND OWNERSHIP AND ACCESS

13.2.1 EXISTING CONDITIONS

The lands on which the three Anchor Fields, the Mackenzie Gathering System, the Mackenzie Valley Pipeline and the Northwest Alberta

Figure 13-1 Aboriginal Private Lands and Reserves in the Project Review Area



Source: Adapted from maps provided by INAC

Facilities would be located fall into two broad categories of ownership:

- Aboriginal private lands, which are lands owned and administered by the Aboriginal land administration or land corporation within their respective land claim settlement region or land claim settlement area;
- public lands, which include:
 - federal Crown lands administered by Indian and Northern Affairs Canada (INAC) (also referred to as “territorial lands” in the *Territorial Lands Act*);
 - municipal lands administered by the Government of the Northwest Territories (GNWT) or local municipality;
 - Commissioner’s lands administered by the GNWT; and
 - provincial Crown lands or Alberta public lands administered by Alberta Sustainable Resource Development.

Figure 13-1 shows the distribution of Aboriginal private lands in the NWT and reserves in the NWT and northwest Alberta. The Dene Tha’ First Nation has several reserves within the Project Review Area, but none of the proposed Northwest Alberta Facilities are located on the Dene Tha’ First Nation’s reserves.

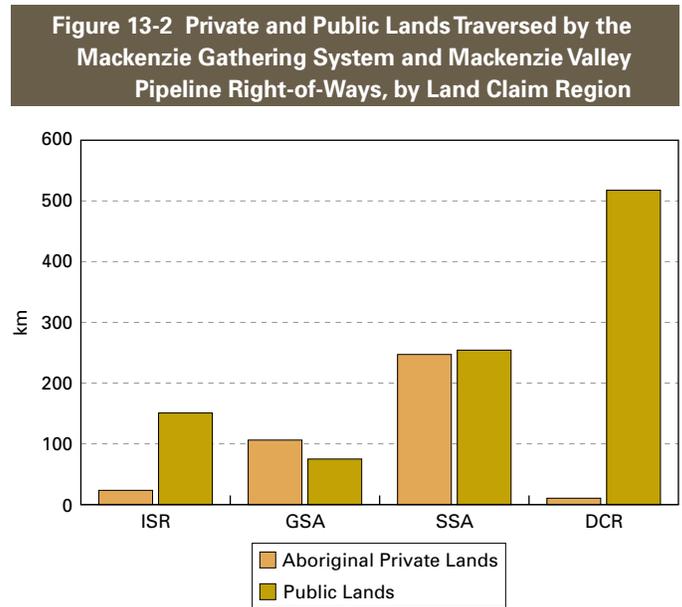
With the settlement of Aboriginal land claims between Canada and the Inuvialuit in 1984, the Gwich’in in 1992 and the Sahtu Dene and Métis in 1993, these claimant groups established private land corporations to hold title to their own lands and, together with Canada, in the Gwich’in Settlement Area (GSA) and the Sahtu Settlement Area (SSA) established resource management boards and land use planning boards. These boards are institutions of public governance that have jurisdiction over all public Crown lands in the respective settlement regions and have formal linkages to regional regulatory and impact assessment boards that have jurisdiction throughout the Mackenzie Valley.

In regions that have settled land claims in the NWT, Aboriginal land corporations are responsible for permitting land uses, such as for the Project’s right-of-way and facilities, on their private lands. Each land claim organization has established administrative procedures by which application can be made to access that organization’s Aboriginal private lands. In instances where developers need to cross Aboriginal private lands to access granular, timber, oil and gas, or mineral resources, negotiation of an Access Agreement between the developer and the Aboriginal authority is required.

13.2.2 PROPONENTS’ VIEWS

In total, the Mackenzie Gas Project and the Northwest Alberta Facilities right-of-ways would cross 1,488 km in the NWT and Alberta. Overall, about 26% of the combined pipeline right-of-ways would be located on Aboriginal private lands, with the greatest percentage on Aboriginal lands in the GSA (58%) and the SSA (49%). In the Inuvialuit Settlement Region (ISR), the percentage is 13%; in the Dehcho Region (DCR), it is 2%. The Panel also notes that the Mackenzie Valley Pipeline route would traverse 528 km of land in the DCR, the longest distance for any region in the Project Review Area.

Figure 13-2 shows the amount of private and public lands traversed by the Mackenzie Gathering System and the Mackenzie Valley Pipeline right-of-ways, by land claim region.



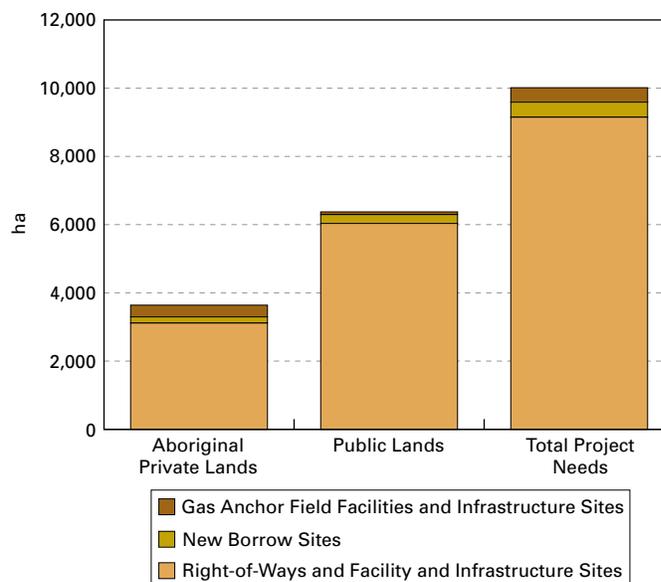
Source: Adapted from J-IORVL-00953, Tables 3-1 and 3-2, pp. 1–2

As there is no settled land claim in the DCR, there are currently no Dehcho First Nations private lands that would be crossed by the proposed pipeline. However, about 10 km of Sahtu private lands within the DCR would be traversed by the pipeline.

About 36% of the total land area that would be used for long-term Project right-of-ways, and facility and infrastructure sites would be on Aboriginal private lands (see Figure 13-3 and Table 13-1).

The Proponents indicated that there were no zoning conflicts with Project facilities proposed for Inuvik, Fort Good Hope, Norman Wells, Fort Simpson and Hay River. However, the Proponents would require a variance from the Gwich'in Land Use Plan for the pipeline routing in the Travaillant Lake area. NGTL also expects to receive necessary permissions from the Government of Alberta for facilities located on provincial Crown lands.

Figure 13-3 Land Ownership of the Mackenzie Gas Project Right-of-Ways and Facility and Infrastructure Sites (Project as Filed)



Source: Adapted from J-IORVL-00953, Tables 1-2, 1-3, 1-4 and 1-5, pp. 22–25

Table 13-1 Land Ownership of the Mackenzie Gas Project Right-of-Ways and Facility and Infrastructure Sites (Project as Filed)

Region	Long-Term and Permanent Area Requirements ¹			
	Aboriginal Private Lands (ha)	Crown Lands ² (ha)	Total (ha)	Aboriginal Private Lands (% of Total)
Anchor Field Facilities and Infrastructure Sites ³	345	79	424	81.4
Project Right-of-Ways and Facility and Infrastructure Sites ⁴	3,115	6,035	9,150	34.0
New Borrow Sites ⁵	180	260	440	40.9
Totals	3,640	6,374	10,014	36.0

Notes:

1. These figures do not include temporary facilities such as winter roads required during construction, barge landing areas, construction camps or storage areas.
2. Includes federal Crown lands, municipal lands and Commissioner's lands.
3. Includes lands required for permanent facilities at the Niglintgak, Taglu and Parsons Lake Anchor Fields, including the airstrips at Taglu and Parsons Lake and the Pete's Creek winter haul road.
4. Includes lands required for the Mackenzie Gathering System and Mackenzie Valley Pipeline right-of-ways and permanent facilities at the Storm Hills Pigging Facility, the Inuvik Area Facility, the compressor stations at Loon River, Great Bear River and River Between Two Mountains, the Norman Wells Interconnect Facilities and the Trout River Heater Station.
5. Proponents estimate each new borrow site area would cover an average of 10 ha (see EIS V2, p. 7–2).

Source: Adapted from J-IORVL-00953, Tables 1-2, 1-3, 1-4 and 1-5, pp. 22–25

13.2.3 PARTICIPANTS' VIEWS

In the settled land claim areas, community leaders and residents commented on the beneficial impacts of a settled land claim. The Aklavik Indian Band stated:

Today there is certainty to land ownership and the Inuvialuit, the Gwich'in and Sahtu each have a Land Claim Agreement that allows them to participate and set conditions for any major project on their lands. The power of these land claim agreements triggers certain processes when major development occurs... Our Land Claim Agreement truly demonstrated power when development is proposed on our lands. This is the authority and powers our past leaders and Elders talked about to Thomas Berger. This is what they wanted in 1970. They wanted ownership to the land and the ability to set conditions on future development on those lands. (Chief Charlie Furlong, HT V97, pp. 9752–53)

A different sentiment was expressed by leaders in the DCR, where an agreement has not been concluded on land claims. The Liidlil Kue First Nation in Fort Simpson presented its concerns regarding land ownership in the DCR:

So why are we here again talking about all the things that we have been saying since the government in Canada has been coming to us in their many ways to take our lands? Because we have an obligation to ourselves, our lands, our future generations, to do what we can to let you know that we still do not agree with Canada and the industrial interest taking action on our lands without our consent. (Chief Keyna Norwegian, HT V25, p. 2251)

The Dehcho Naxehcho (Elders) recommended delaying development of the Project and withholding any rights for pipeline access onto Dehcho lands until the Deh Cho Process has been successfully concluded. They requested that this be done before any final decisions are issued authorizing construction of the Project. The Dehcho Elders also recommended that the Dehcho Land Use Plan be formally adopted and implemented by the Government of Canada and the GNWT before the pipeline is allowed to proceed.

A similar view was presented by the Pehdzeh Ki First Nation in Wrigley. It recommended that the National Energy Board not issue a Certificate of Public Convenience and Necessity to the Project until the Deh Cho Process and Dehcho Land Use Plan have been approved and implemented.

In response to the Dehcho Elders and the Pehdzeh Ki First Nation, the Government of Canada and the GWNT emphasized that the Deh Cho Process negotiations are ongoing and that the conclusion of negotiations should not be a condition precedent for Project approval. As well, governments and the Proponents responded that completion or approval of a particular land use plan should not be a condition precedent for Project approval.

Jim Antoine, former Premier of the NWT and former Member of the Legislative Assembly for Nahendeh, noted:

With an unsettled claim... the Deh Cho Dene and Métis are caught in a very tough legal situation... It's a difficult position because the proponents and their own advisors have to go by what they're told... As the Dene people here, we believe this — all this land is ours, and all the resource on it is ours. And that is what we're dealing with the federal government on in terms of the Deh Cho Process. (HT V25, p. 2276)

Mr. Antoine concluded:

It would be ideal to finish the Deh Cho process negotiations before this pipeline gets built... However, if that doesn't happen, then the situation in the Deh Cho gets even more political, because here a major project — the pipeline is going to be crossing the Deh Cho territory, which is under negotiations through the Deh Cho Process. (HT V25, p. 2289)

The North Slave Metis Alliance (NSMA) told the Panel that it has Aboriginal and treaty rights that extend into the Mackenzie Valley and that it had “not been consulted” in relation to the Project and had “not even been considered in the assessment of cultural or socioeconomic impacts” and that “this needs to change in order for us to consent to the project going ahead.” (J-NSMA-00029, p. 7) The NSMA, which is not engaged in a land claim negotiation process with the Government of Canada, recommended that the Panel recommend that the NSMA have “an established land claims process.” (J-NMSA-00029, p. 4)

During the review, the Government of Canada told the Panel that it had established the Mackenzie Gas Project Crown Consultation Unit (CCU) to provide a mechanism for Aboriginal groups who claim Aboriginal rights pursuant to section 35 of the *Constitution Act* that might be adversely affected by the Project, and that those concerns would be communicated to the government and to the National Energy Board. INAC indicated to the Panel that:

There are a number of Aboriginal groups along the proposed MGP route with existing s. 35 rights. These range from groups with rights outlined in comprehensive land claims agreements protected by s. 35(3) of the *Constitution Act, 1982*; to Aboriginal groups who are signatories to Treaty 8 or Treaty 11. In addition, there are Aboriginal groups who assert claims of aboriginal rights and title to areas potentially impacted by the MGP. Canada acknowledges that it has a legal obligation to consult and, where appropriate, accommodate Aboriginal groups where it has knowledge of the potential existence of Aboriginal rights and contemplates conduct that might adversely impact on those rights. Canada intends to fulfill its legal obligations and further the ongoing goal of reconciliation with Aboriginal peoples. (J-INAC-00016, p. 4)

13.2.4 PANEL VIEWS

The Proponents would be required to negotiate Access Agreements with the appropriate Aboriginal authorities where access to Project facilities, infrastructure sites or right-of-ways requires crossing Aboriginal private lands. The Panel understands that these negotiations have been initiated and, if not already concluded, are ongoing.

The Panel notes concerns that, in the absence of a completed settlement agreement under the Deh Cho Process or an approved land use plan in the DCR, Aboriginal interests in managing and protecting traditional and non-traditional land uses and land access in the DCR may not be fully realized.

The Panel is of the view that the Deh Cho Process land claim negotiations between the Dehcho First Nations, the Government of Canada and the GNWT should continue to be of the highest priority to all negotiating parties. However, the Panel agrees with the Government of Canada and the GNWT that final approval and implementation of a land claim agreement with the Dehcho First Nations should not be a condition precedent for Project approval.

The Panel also notes that the Proponents have agreed to enter into a negotiation process with the Dehcho First Nations with regard to concluding an agreement on access.

With respect to the recommendations of the NSMA, the Panel has described Project-related impacts that are within its jurisdiction based on the evidence that was presented to it from participants in the review. The Panel notes that the NSMA filed its official bylaws with the Panel and that these bylaws restrict membership in the organization to those persons who are “descended from Aboriginal people who resided in, or used and occupied, the North Slave Region prior to January 1, 1921.” (J-NSMA-00031, p. 3) The North Slave Region was not considered by the Proponents to be within any of its regional study areas identified for assessing Project-related impacts on the biophysical environment or on land access.

13.3 GRANULAR RESOURCES

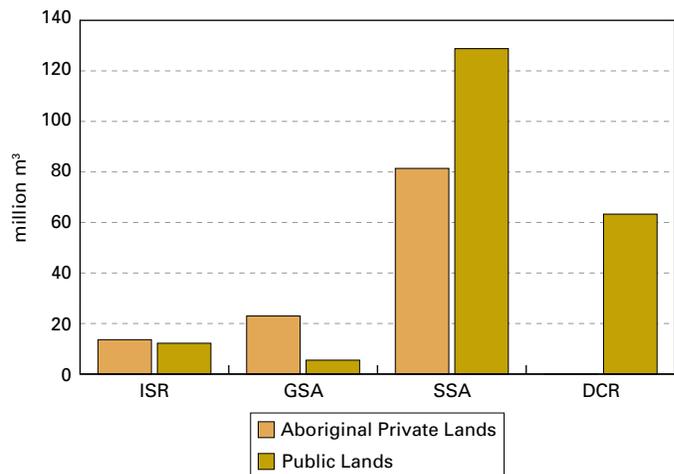
13.3.1 EXISTING CONDITIONS

Granular resource sites on federal Crown lands in the NWT are managed by INAC.

The Inuvialuit, Gwich'in and Sahtu Dene and Métis each own and manage granular resources found on their respective private lands. Figure 13-4 summarizes the estimated granular supply in the various regions according to the Proponents.

The GNWT's Department of Transportation noted that NWT communities are faced with unique challenges with respect to

Figure 13-4 Estimated Granular Supply (million m³) on Aboriginal Private Lands and Public Lands by Region



Source: Adapted from J-IORVL-00953, Tables 8-1 to 8-5; J-IORVL-00436, pp. 14–19

finding and maintaining adequate supplies of granular materials. These include the long distance and seasonal access to potential granular sources and high development costs. Inequalities exist between communities in terms of access to and availability of granular materials. Once a proven granular source has been depleted, accessing and developing an alternative site is often difficult and costly.

According to the GNWT's Department of Transportation, granular resource demand for non-tax-based NWT communities was about 1.5 million m³ between 2000 and 2005. The GNWT also noted that future transportation projects, such as the all-weather road between Inuvik and Tuktoyaktuk, would require about 4 million m³ of granular material, and the Mackenzie Highway extension from Wrigley to the Sahtu communities would require about 10 million m³ of granular material.

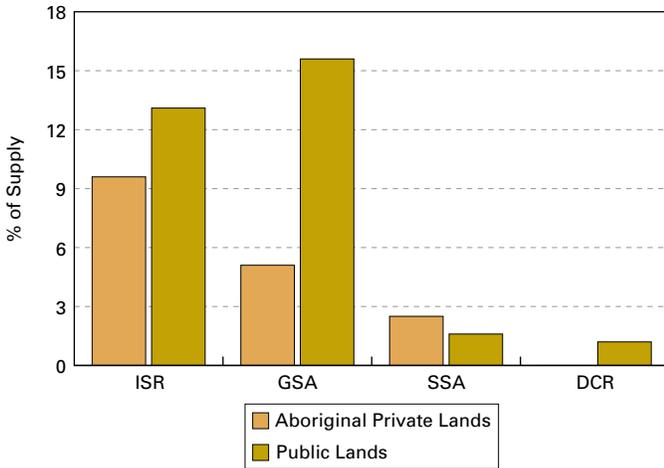
Under the *Inuvialuit Final Agreement*, sufficient supplies of sand and gravel of appropriate quality and within reasonable transport distances to communities are to be reserved to meet community needs, based on reasonable 20-year forecasts of volumes required from Inuvialuit lands.

13.3.2 PROPONENTS' VIEWS

Borrow material — sand, gravel and crushed rock — is the largest single material input by volume required by the Project. Table 2-2 in Chapter 2, “Project Description,” provides an overview of the proposed primary borrow site requirements by Project component and by region.

Figure 13-5 provides a region-by-region overview of the estimated Project needs as a percentage of existing granular supply. The total estimated supply at primary sites is more than 300 million m³ of material (more than 118 million m³ on

Figure 13-5 Estimated Project Needs as a Percentage of Existing Granular Supply on Aboriginal Private Lands and Public Lands by Region



Source: Adapted from J-IORVL-00953, Tables 8-1 to 8-5; J-IORVL-00436, pp. 14–19

Aboriginal private lands and more than 209 million m³ on public lands). Estimated Project needs for granular material (excavated volumes) are in the order of 10 million m³, of which 4.6 million m³ (46%) would be from primary borrow pit and quarry sources on Aboriginal private lands in the NWT.

Approximately 2.9 million m³ of granular material would be excavated in the ISR (29% of estimated Project needs), with 1.3 million m³ of granular material being sourced from Inuvialuit private lands and more than 1.6 million m³ from public lands. This represents almost 10% of the estimated granular resource supply on Inuvialuit private lands and 13.1% of the estimated granular supply on public lands in the ISR.

Over 2 million m³ of total granular material would be excavated in the GSA, with more than half of volumes required by the Project being extracted from granular resource sites on Gwich'in private lands. This would represent about 5% of the known granular resource supply on Gwich'in private lands. The Project's granular requirements from public lands is substantial when compared with the available supply, as more than 15% of the known supply in the GSA would be consumed by the Project. The Proponents indicated that some infrastructure pads, such as the Campbell Lake camp, could be decommissioned after construction, and the gravel could be used again for other projects or by communities.

According to information provided by the Proponents:

- 3 of the 8 primary sites in the ISR would be new borrow or quarry sites;
- 6 of 11 primary sites in the GSA would be new;
- 24 of the 30 primary sites in the SSA would be new; and
- 10 of the 20 primary sites in the DCR would be new.

In total, 43 of the 69 primary sites (62%) identified by the Proponents would be new borrow sites.

The 2,000 m³ of gravel required for the Northwest Alberta Facilities would come from existing pits near those facilities.

During the Project's operations, additional granular resources would be required periodically for maintenance and repairs. The Proponents indicated that operational requirements for the Project, over 25 years of operating life, are estimated at 5,000 m³ of granular material per year. According to the Proponents, construction of the Mackenzie Gathering System and pipeline right-of-ways and new access roads would open up access to new areas that could lead to improved community or regional access to granular resources. Project construction activities could also block access to existing granular operations in the Project Review Area. Project impacts would be adverse only if existing operations are temporarily closed or inaccessible for community use during the Project's construction phase.

The Proponents also indicated that some infrastructure pads could be decommissioned after construction and that the gravel could be either reused for other projects or by communities, or be left in place. According to the Proponents, most borrow material used for facilities and the remaining infrastructure sites could become available for reuse by communities or others following decommissioning.

The Proponents acknowledged that construction of the Project would greatly increase the number of active borrow sites. Other existing developments in the Project Review Area, such as roads, bridges and well sites, could occasionally require granular material for maintenance purposes. This requirement, combined with Project requirements, could lead to cumulative impacts on available granular resources. The Proponents indicated that reasonably foreseeable projects requiring granular resources included the construction of 23 bridges along the Mackenzie Highway winter road. The Proponents stated that the use of granular resources for those projects in conjunction with Project needs would have an adverse cumulative impact on the total amount of granular material available.

The Proponents conducted consultations with the communities of Tuktoyaktuk, Inuvik, Fort Good Hope, Norman Wells, Tulita, Wrigley, Jean Marie River and Trout Lake regarding potential impacts of the Project on existing community granular resource operations. Based on these discussions, the Proponents decided in several instances not to use existing borrow sites that are being used to support ongoing community maintenance and construction needs.

The Proponents also acknowledged that development of up to three new borrow sites for fill material at the proposed Great Bear River compressor station could result in increased adverse impacts on the supply of granular material for the community of Tulita.

In response to questioning, the Proponents stated that compressor station granular requirements are site-dependent. For example, 70,000 m³ of granular material would be needed for construction of the Loon River compressor station, but 370,000 m³ of material would be required for the Great Bear River compressor station. The Proponents indicated that a “very, very preliminary estimate” of an additional 2.2 million m³ of granular material would be needed to support construction of an additional 11 compressor stations on the Mackenzie Valley Pipeline. (Rick Luckasavitch, HT V11, p. 1068) On further questioning from the Panel regarding the quality of granular material required for the compressor station pads, the Proponents stated that higher-quality material would be required for topping and that the base material could be of a lesser grade.

The Proponents did not assess the cumulative impacts on loss of granular resources or changes to granular resource operations for the Expansion Capacity Scenario. That scenario would also have to consider the granular resources required to develop new gas fields in the NWT to support a fully expanded pipeline with a throughput of 1.8 Bcf/d.

With respect to use of granular resources for the Project, the Proponents committed to:

- preparing granular resource plans, also known as pit or quarry development plans (as some of the granular resource plans would be proprietary, the landowner’s permission would be required before the Proponents could release the plans to any other party);
- negotiating compensation with granular resource owners, where required, for removing granular resources from their lands;
- making available to the GNWT and Aboriginal authorities, prior to and during construction, and from time to time upon request, information that the Proponents acquire regarding the locations, extent and quality of any granular resources within Project borrow sites in the NWT, subject to receipt of any necessary approvals from the owners of such resources and information;
- discussing with the GNWT and Aboriginal authorities opportunities to transfer interests that the operators hold in borrow sites and have identified for transfer (any such transfer will be subject to receipt of any approvals required pursuant to applicable regulations and to the execution of an agreement on reasonable commercial assignment terms, which may include terms addressing consideration and appropriate releases and indemnities);
- incorporating local cultural, land use and environmental principles into Project planning and implementation decisions regarding borrow sites; and
- tracking quantities of borrow material used from a specific location.

The Proponents concluded that, although some granular materials would be permanently removed from availability, the overall impact of a long-term loss of gravel would be reduced because of positive economic impact and opportunity for relatively easily accessible granular materials following decommissioning. The Proponents stated that no impacts are expected on granular resources in northwest Alberta.

13.3.3 PARTICIPANTS’ VIEWS AND RECOMMENDATIONS

ACCESS AND USE OF GRANULAR RESOURCES BY COMPETING INTERESTS

INAC responded to the Proponents’ claims that the Project’s granular resource demands are small in relation to existing availability by noting that it is not the overall amount required that is the key issue but the location of specific sources of supply in relation to specific locations of demand. INAC also indicated that borrow materials are plentiful in some areas and not in others, and that the location of competing demands on these resources is also variable.

Robert Gruben of the Tuktoyaktuk Community Corporation emphasized the need to protect existing granular resource sites in the Tuktoyaktuk area when he stated:

I would like to know, with all the gravel that is taken out of our ISR and the surrounding Crown lands, what effects that will have on our opportunity which, right now, is at a serious need for gravel. And to have all that good gravel taken out before we can access it is really doing an injustice to this community. We need that gravel, but if that gravel is going to be given to the proponents, something in its place has got to be made for the community of Tuktoyaktuk. (HT V98, p. 9780)

The GNWT stated that the use of the Yaya Lakes pit would have to be examined very carefully because the community of Tuktoyaktuk relies on that source, especially for select grade material for its roads.

The Pehdzeh Ki First Nation noted that, with respect to the Project’s proposed borrow pits near the community of Wrigley, some pits are to be preserved for community use. The Pehdzeh Ki First Nation recommended that the Proponents not use any granular material within 50 km of the community. The Proponents stated:

Without knowing whether we have got sufficient material in alternate sites, we are not in a position to make any decisions around what sites we could get by with. We may, in fact, after conducting a winter geotechnical investigation, find out that we could accommodate a number of the concerns that Pehdzeh Ki have mentioned to us. But in the absence of that information, we just don’t know whether there’s sufficient granular material in some of the sites. (Randy Ottenbreit, HT V27, p. 2480)

At a Community Hearing in Norman Wells, the mayor of that community stated that “development of the potential quarry sites identified on our western boundary by the proponent will be actively opposed by the Town.” (Her Worship Ann Marie Tout, HT V20, p. 1932) In reply, the Proponents stated: “Quarry sites, pipe storage areas, and camp locations for the project construction activities are the subject of ongoing discussions. We are mindful of that and we will fully consider the Town’s stated preferences.” (Ottenbreit, HT V20, p. 1935)

BORROW SITE ABANDONMENT AND RECLAMATION PLANS

In response to a query from the GNWT regarding possible community use of borrow sites no longer required by the Project, INAC indicated that borrow site abandonment plans would be reviewed on a case-by-case basis. INAC also stated that pit closure may make it more difficult to recover granular material from that site at a later date.

The Tuktoyaktuk Hunters and Trappers Committee queried the Proponents regarding the reclamation of the Yaya River infrastructure site. The Proponents indicated that pit development plans, including abandonment and reclamation plans, include a commitment by the Proponents to consult on what would specifically happen at that site.

MANAGEMENT OF GRANULAR RESOURCES

INAC recommended that the Proponents prepare a Granular Management Plan for the Project. This would include a decision tree on choosing sites, conservation measures and impact mitigation. According to INAC, such a plan is not required for permitting the Project but would assist in providing a framework for it. In response, the Proponents’ legal counsel noted that information with respect to site development, abandonment and reclamation matters is normally contained in land use permit applications. The Proponents’ legal counsel concluded: “Assuming that there will be further discussions between INAC and the proponent with respect to this issue...I think the proponent is certainly prepared to work with INAC to provide certain information in a plan.” (Don Davies, HT V12, pp. 1220–21)

The GNWT recommended that the Proponents prepare a Sustainability Plan for Granular Resources prior to construction. It proposed that the plan address the present and future needs of the GNWT, NWT municipalities, Aboriginal authorities and the public interest. The plan would also identify the best use of each borrow site that the Proponents intend to use and provide an update of the Proponents’ granular resource information. In response to this recommendation, the Proponents replied: “We recognize and support the value of this plan but believe this is a government responsibility. In support of this plan, we will certainly continue to share information with the GNWT.” (Arnold Martinson, HT V12, p. 1244)

The Panel queried the GNWT as to whether it and INAC had discussed the possibility of having a unified granular management plan prepared to meet the interests and needs of both parties. The GNWT replied that such a discussion had not been held with INAC but that it would be an obvious area of discussion between them.

13.3.4 PANEL VIEWS AND RECOMMENDATIONS

SUPPLY AND AVAILABILITY OF GRANULAR RESOURCES

The Panel notes that northern communities face considerable challenges in accessing and developing local granular resources. Although some participants indicated their concerns regarding potential impacts to existing granular extraction operations, the Proponents’ consultation efforts during the hearings aided in reducing the number of outstanding community concerns. The Panel also notes that the Proponents’ activities could make available new sources of granular resources for community use.

The Project would require the excavation of some 2.9 million m³ of granular material from borrow sites on Inuvialuit private lands and on public lands in the ISR. This represents more than 11% of the estimated supply of granular resources in the region. The Panel also notes that this does not include additional granular material that would be required to develop any new gas fields in the Mackenzie Delta to support incremental gas volumes beyond the 0.83 Bcf/d from the Anchor Fields.

Based on the evidence before the Panel for the Expansion Capacity Scenario and other future developments, it appears that, with developments beyond the Project as Filed, the loss of granular resources could, in some community and regional situations, be significant and irreversible if extraction of the resource is not properly managed.

The Panel was not presented with any evidence of established impact thresholds with which to compare the predicted impacts of either the activities that would expand the throughput of the Project beyond 1.2 Bcf/d or the activities associated with other future developments on granular resources in the NWT. The Panel is of the view that this type of information should come from resource managers. Nonetheless, in taking a precautionary approach, the Panel concludes that the granular resource requirements associated with other future developments could have a significant impact on the loss of granular resources in the ISR and perhaps the GSA. The impacts of the loss of granular resources associated with other future developments could be irreversible.

RECOVERY AND REUSE OF GRANULAR RESOURCES

The Panel is of the view that some of the granular resources at Project facilities and infrastructure sites might, over a period of more than 20 years of ongoing operations, become inadvertently contaminated (e.g. leaks of oil, fuel and glycols from vehicles, equipment and machinery), making the granular materials unsuitable for recovery and reuse by local NWT communities.

The Panel also notes that, in some instances, the long distances between facilities, infrastructure sites and communities would make recovery and reuse of the granular materials uneconomic when the full cost of materials recovery and transportation is considered. The Proponents did not provide the Panel with any information regarding the feasibility of granular recovery and reuse or an estimate of the volume of potentially recoverable granular materials that might be available following abandonment of Project facilities and infrastructure sites. As a result, the Panel is not persuaded that the granular material used for some Project construction camps, well-site pads, operational facility pads and major infrastructure sites (including the proposed airstrips at Taglu and Parsons Lake) would be easily recoverable for alternative uses by local NWT communities or government.

The Panel concludes that there is little or no potential legacy in recovery or reuse of granular resources at Project facilities and infrastructure sites.

CUMULATIVE IMPACTS

The Panel notes that the granular resource requirements of the Project in the ISR (3 million m³) added to those of a future highway from Inuvik to Tuktoyaktuk (4 million m³) would deplete more than 25% of the total known granular resources in the region.

The Panel is of the view that granular resource managers should consider the cumulative impacts on the loss of granular resources in the ISR as it is the most likely candidate area for activities that would expand the throughput of the Project beyond 1.2 Bcf/d.

MANAGEMENT OF GRANULAR RESOURCES

The Panel agrees that a plan is required to address the long-term development and use of granular resources in the Project Review Area. The Panel also agrees that the supply of granular resources has the potential to become a significant regional issue in the ISR under the Expansion Capacity Scenario and, if not managed properly, to become a significant regional and community issue in the ISR and GSA for activities associated with other future developments. The responsibility for the management and use of granular resources in the NWT is, in the Panel's view, that of government.

The Panel is of the view that, similar to the assessment of the impacts of the Project on granular resources in the Expansion Capacity Scenario and Other Future Scenarios, there is a need for granular resource managers to consider impact thresholds.

RECOMMENDATION 13-1

The Panel recommends that:

- (a) *No pit or quarry permit in the Northwest Territories be issued to the Proponents in relation to the Mackenzie Gas Project by Indian and Northern Affairs Canada or any Aboriginal or private land owner until the Proponents file with the landowner geotechnical information and a Pit or Quarry Management Plan for each borrow pit or quarry from which they intend to extract granular resources for the Mackenzie Gas Project.*
- (b) *Indian and Northern Affairs Canada develop a Granular Management Plan that includes the Inuvialuit Settlement Region, the Gwich'in Settlement Area, the Sahtu Settlement Area and the Dehcho Region using information obtained in Panel Recommendation 13-1(a) as well as existing information. The Granular Management Plan must be developed in consultation with owners of Aboriginal private lands and the Government of the Northwest Territories and be endorsed by the Government of the Northwest Territories. The Granular Management Plan is to be developed within two years of the date of the Government Response to the Panel's Report.*
- (c) *The Granular Management Plan be based on the following principles:*
 - *granular resources are finite and non-renewable;*
 - *granular resources must be managed according to impact thresholds; and*
 - *priority allocations be given to Northwest Territories community and regional needs.*
- (d) *Following completion of the Granular Management Plan in Panel Recommendation 13-1(b), Indian and Northern Affairs Canada and any Aboriginal or private land owner issue only a pit or quarry permit for granular resources in the Mackenzie Delta or Mackenzie Valley that is informed by, and consistent with, the Granular Management Plan.*
- (e) *Indian and Northern Affairs Canada, in consultation with owners of Aboriginal private lands and the Government of the Northwest Territories, maintain and update its granular resource database and the Granular Management Plan identified in Panel Recommendation 13-1(b) at least every five years.*

For greater certainty, the Panel recommends the following.

RECOMMENDATION 13-2

The Panel recommends that the National Energy Board not approve any facility that would enable the throughput of the Mackenzie Valley Pipeline to be increased above 1.2 Bcf/d until the Granular Management Plan in Panel Recommendation 13-1(b) is completed.

13.4 TIMBER RESOURCES

13.4.1 EXISTING CONDITIONS

The role of the GNWT as forest manager is to assist in conserving and managing the forest resource. The NWT *Forest Management Act* and *Forest Management Regulations* provide the legislative framework that applies to proposed timber-clearing activities on Crown lands. Timber authorizations address the GNWT requirement to manage sustainability issues, harvesting impacts, impact mitigation and monitoring, and community concerns. Appropriate authorizations are required before commencing any timber harvesting or clearing, transporting timber off of the licence or permit area, and milling more than 300 m³ of timber annually. A stumpage charge and a reforestation charge are levied on timber-cutting permits or licences issued to industrial forestry proponents. At the time of the hearing, there was no stumpage charge for non-forestry related timber clearing. The GNWT does not regulate timber cutting on private lands.

The contents of an application for a timber-clearing permit under the NWT *Forest Management Regulations* must include:

- the location and volume of merchantable timber to be harvested;
- a timber-cutting, transportation and salvage management plan; and
- a disposal plan, including details on burning and fire suppression.

The GNWT advised that it is in the process of introducing new forestry regulations that would address the incidental cutting of timber while carrying out a non-forestry-related industrial activity such as clearing a pipeline right-of-way. Fees for such a permit would be area-based instead of volume-based. In response to a query from the Proponents regarding the current status of the draft forestry regulations, the GNWT replied:

The authorization has not been formally named at this point. We are presently using the working title of Incidental Timber Permit internally. I do not know the date we expect it to become law. It is presently at Justice in a drafting stage. In regards to the jurisdiction it will cover, it will cover Crown and Commissioner's land. It will not cover private or ISR lands. (Tom Lakusta, HT V95, p. 9607)

The Proponents submitted a *Timber Atlas* to show the location of merchantable timber in the Regional Study Area. The Proponents indicated that the *Timber Atlas* would be updated in conjunction with the application for timber permits from the GNWT.

The Proponents estimated the existing merchantable timber inventory in the Project's Regional Study Area to be 2.2 million m³.

In response to a query as to whether any surveys had been completed to determine the volume of merchantable timber in the northwest Alberta Regional Study Area, a representative of NGTL stated, "I would expect that we would carry out those surveys the year prior to construction...when the data would be current as to the conditions along the right-of-way and any other disturbances or forest harvesting that has gone on." (Karen Etherington, HT V42, p. 3967)

The local use of timber is generally limited to small-scale harvesting for fuel and small commercial operations such as sawmills.

Most of the ISR is north of the treeline and has insufficient timber resources for commercial operation within the Regional Study Area. Timber harvesting for firewood is conducted near Inuvik. A portable sawmill in Inuvik processes less than 20 m³ of wood per year to meet local demands for small construction projects requiring timber.

In the GSA, no commercial timber harvesting currently occurs, but wood is harvested for fuel. Given the limited resource in the region, future expansion of timber harvesting in the Regional Study Area is unlikely. Three sawmills in the region each process less than 20 m³ of wood per year for small local projects.

There are no major timber-harvesting operations in the SSA part of the Regional Study Area. Each community has a small lumber mill to process timber for local use. Residents harvest fuel wood along the winter road throughout the SSA.

There are no major timber-harvesting operations in the DCR part of the Regional Study Area. A small community lumber mill and log home operation are run in Jean Marie River. DCR residents harvest fuel wood throughout the region, using the highways and winter roads for access. The GNWT indicated that long-term sawmilling capacity and use in the DCR has been between 1,000 m³ and 10,000 m³ per year. The GNWT noted that, in the late 1990s, forestry companies in northern British Columbia entered into industrial agreements and licences to harvest timber in the Liard River Valley. It was considered a one-time event.

In 2003, the Dehcho Land Use Planning Committee commissioned an analysis of timber potential in the region. According to that analysis, most lands traversed by the proposed pipeline have a timber productivity rating of less than 40%. The study also indicated that levels of timber harvesting between 1990 and 1999 in the DCR ranged from about 50,000 m³ to almost 200,000 m³ per year.

The northwest Alberta Regional Study Area is within the Government of Alberta's Forest Management Unit 20, but no forest management agreements are in place in the vicinity of the Northwest Alberta Facilities.

13.4.2 PROPONENTS' VIEWS

According to the Proponents, more than 64,000 m³ of merchantable timber would be cleared from the Project footprint for the right-of-way. They also estimate that about 85% (54,600 m³) of the cleared timber would be from merchantable coniferous stands.

The GNWT questioned the Proponents' merchantable timber assessment methodology and results as presented in the *Timber Atlas*. The GNWT stated that the Proponents' aerial photo interpretation process did not meet GNWT standards and, as a result, areas of productive forest and tree heights were underestimated in the Regional Study Area.

The Proponents initially estimated that 53,000 m³ of merchantable timber would be cleared during the Project's construction phase. At a hearing in 2006, the Proponents' estimate of cleared merchantable timber was increased to 70,900 m³. By May 2007, the Proponents' estimate was again changed, this time to 64,000 m³. The Proponents' consultant acknowledged there had been calculation errors and under-reporting of cleared volumes outside the pipeline right-of-way in the previous evidence presented to the Panel.

The Proponents' consultants noted that merchantable stands refer to those forested communities greater than 4 ha in size that include all trees greater than 6 m tall, with a crown closure of more than 6% and having a stump diameter of at least 13 cm and top diameter of at least 7 cm. Based on aerial photography interpretation, the *Timber Atlas* provided information on tree height, canopy closure and dominant tree species. The estimated volume of each merchantable timber stand was determined using Alberta timber volume tables. The Proponents' timber estimates for the NWT were based on forest stands that have similar characteristics in northern Alberta.

The three Anchor Fields and the Mackenzie Gathering System are located within the tundra region. Virtually none of the trees cleared in this area would be of merchantable quality. During the construction phase, the following areas would be cleared of brush and trees:

- the shared Mackenzie Valley Pipeline and natural gas liquid pipeline right-of-ways (50 m wide) from the Inuvik Area Facility to Norman Wells;
- the Mackenzie Valley Pipeline right-of-way (40 m wide) from Norman Wells to the NGTL Interconnect Facility;
- the Dickins Lake Section and the Vardie River Section right-of-ways; and
- all facility and infrastructure sites in the GSA, SSA, DCR and northwest Alberta.

More than 93% (60,000 m³) of the merchantable timber that would be cleared during Project construction would come from the DCR. The actual volume of timber to be cleared would be

refined through the timber inventory and clearing permitting process.

In response to questioning as to the percentage of the 64,000 m³ of cleared merchantable timber that would be surplus to Project needs, the Proponents stated:

At this point in time, we do not have a precise number for that... There is still a fair bit of unknowns until you get on the right-of-way the year of your pipeline installation to really determine where you need to use the decked timber. (Ken Johnson, HT V95, p. 9599)

According to the Proponents, merchantable timber cleared from the right-of-way would be salvaged, where practical and where the timber is of acceptable quality, to be used for erosion control, timber rip-rap, watercourse embankment construction and temporary bridge structural components. Merchantable timber would be stockpiled for Project use in storage areas adjacent to the pipeline right-of-way. If requested, merchantable timber would also be stockpiled for community use, where practical. The Proponents noted that the timber-clearing permit from the GNWT would require all decked merchantable timber to be removed within one year. A consultant to the Proponents' indicated that the majority of the pipeline and camp skids would be sourced outside of the NWT.

NGTL committed to salvage timber for use during construction of the Northwest Alberta Facilities or where agreements have been made with the Forest Management Agreement holder, or as directed by Alberta Sustainable Resource Development.

The Proponents noted that they have not yet determined the maximum distance they are prepared to move cut merchantable timber and surplus timber products for community use. They also noted that, beyond any identified priorities for Project use and any identified community use, surplus decked merchantable timber would be burned on the pipeline right-of-way or chipped and disposed of on the pipeline right-of-way. All other timber and brush remaining from pipeline right-of-way and facility and infrastructure site-clearing activities would be burned.

The Proponents concluded that existing timber harvesting practices for local firewood supply or building materials could be disrupted because of restricted access to areas in and around facilities, infrastructure sites, borrow sites and the pipeline right-of-way during the Project's construction phase. In addition, clearing of timber along the pipeline right-of-way and infrastructure and facility sites would result in a decrease in the available supply of firewood and construction materials for residents in the Project Review Area.

The Proponents stated that installation and operation of the Northwest Alberta Facilities would have no impact on commercial forestry operations. However, clearing of timber on the Dickins Lake Section and Vardie River Section pipeline right-of-ways would decrease the available supply to residents in the Project Review Area.

Within the Project's Regional Study Area, current forestry developments and activities, combined with the Project, could lead to a decrease in total timber resources because of clearing and removal of trees during the construction phase. Hence, an adverse cumulative impact is expected on the total amount of timber resources in the Regional Study Area because of Project construction.

The Proponents told the Panel that they were not aware of any wood products used for the Project being manufactured in the NWT. They believed that pipe and camp skids could be manufactured locally. However, the Proponents stated that the contractors normally provide their own wood products and would not necessarily need to procure them in the NWT.

The Proponents stated that the Project would have the following impacts on timber resources:

- low adverse impact on the available land base for timber resources (impacts would be local in extent and would be short- to long-term in duration);
- no impact on existing forest industry practices;
- low adverse impact on existing timber harvesting practices (impacts would be regional in extent and short-term in duration); and
- no impact to a low impact on the loss of timber resources (impacts would be local to regional in extent and long-term in duration).

13.4.3 PARTICIPANTS' VIEWS AND RECOMMENDATIONS

MANAGEMENT OF TIMBER RESOURCES

The GNWT encouraged the Proponents to provide an updated *Timber Atlas* as soon as practical for the following reasons:

- the Project would clear a very large amount of wood in the NWT;
- the GNWT does not know precisely where or how much wood would ultimately be encountered; and
- the Project's forest harvest needs to be accurately estimated.

In response to a query regarding forest management challenges the Project would present, the GNWT replied:

Given what I know about the forest around Wrigley, down through the Fort Simpson area and then to the Alberta border...where it might be the thickest, it might be quite likely that every kilometre, if you're decking all the merchantable wood that you would be decking up to maybe 10 logging truckloads full of wood every kilometre, which is a significant amount of wood and would require a plan in how this wood is going to be disposed of... One of the elements that we'll be working with the proponent on will be to ensure

that the disposal mechanisms are rapid and that the wood does not stay onsite for more than a year after it's been harvested so it doesn't become an issue for spruce bark beetle or other infestation agents, and certainly not as a fire vector as well. (Lakusta, HT V95, p. 9612)

LOSS OF TIMBER RESOURCES AND SUSTAINABILITY OF THE FOREST

In response to questioning about the impact of the large volume of merchantable timber to be cleared for the right-of-way, the GNWT responded, "there is no information that I have that would indicate that the amount of wood...that will be harvested or impacted by this project will have long-term regional implications on sustainability of the forest." (Lakusta, HT V95, p. 9619)

The Dehcho Harvesters Council recommended that the value of all vegetation and timber stands to be cleared for the pipeline right-of-way should be evaluated and that First Nations be compensated for the loss of timber. The GNWT, the Government of Canada and the Proponents disagreed with the Dehcho Harvesters' recommendation. Canada and the GNWT indicated that such compensation should be part of Access and Benefits Agreement negotiations between the Proponents and Aboriginal authorities in the Project Review Area.

ACCESS TO MERCHANTABLE TIMBER FROM THE PROJECT

The Gwich'in Social and Cultural Institute recommended that trees harvested in the GSA during Project construction should be made available to Gwich'in residents to use for construction or firewood. It also recommended that the Proponents stack wood and inform the owner or user of the nearest camp if one exists within 50 km of the pipeline right-of-way. The Proponents agreed to stockpile excess merchantable timber near access roads to the pipeline right-of-way or adjacent to facility sites in the GSA.

Some groups (the Pehdzeh Ki First Nation, the Liidlii Kue First Nation and the Jean Marie River First Nation) expressed interest in acquiring access to surplus merchantable timber from the Project. The Proponents noted that, upon request and where practical, surplus merchantable timber would be stockpiled for community use and that stockpiles would be at agreed locations in the general vicinity of the area in which they were harvested.

The Dene Tha' First Nation requested information on discussions between NGTL and Tolko Industries Ltd. regarding timber harvesting in the area where the Northwest Alberta Facilities would be constructed. NGTL advised that it had initiated discussions with Tolko about the Forest Management Agreement Consent and the Consent to Withdraw. Further discussions would take place with Tolko before clearing begins on the NGTL pipeline right-of-way to coordinate delivery of any salvageable timber.

POTENTIAL COMMUNITY BUSINESS OPPORTUNITIES

The Pehdzeh Ki First Nation indicated that it was interested in pursuing a community sawmill initiative to provide lumber materials to the Project. It suggested that a contract to produce pipeline skids and stakes for the Project would be economically viable. The Pehdzeh Ki First Nation also recommended that the Proponents purchase all rough lumber and posts needed for areas within its traditional territory. The Proponents disagreed with this recommendation, stating that contracts would be awarded on the basis of best total value, but that preference would be given to regional Aboriginal businesses and northern businesses.

The Jean Marie River First Nation recommended that the Panel require the Proponents to purchase lumber and wood product from them and that the Proponents commit to negotiating clearing and timber salvage contracts along the pipeline right-of-way. The Proponents replied that contracts would be awarded on the basis of best total value, considering safety, quality, cost, schedule and content plans. Preference would be given to regional Aboriginal businesses and northern businesses. At a Community Hearing in Jean Marie River, the Proponents stated:

I don't want to leave the impression that...contractors bring[ing] their own skids would end any opportunity for us acquiring wood products from Jean Marie River. In fact, there are other wood products that we would...like to seek from Jean Marie River, and it is exactly the acquiring of those products that is at the negotiating table with the Dehgah Alliance. (Dee Brandes, HT V29, p. 2626)

The Panel queried the Jean Marie River First Nation as to its desire to obtain timber from the pipeline right-of-way as supply for the community sawmill. The Jean Marie River First Nation replied that that was an item it was trying to negotiate with the Proponents through the Dehgah Alliance Society. The Jean Marie River First Nation would like to supply other communities with dimension lumber and, if enough timber could be salvaged, that material could be also be used for log home construction.

In response to a query from the Panel regarding the local business capacity available to take advantage of the timber clearing and harvest opportunities during Project construction, the GNWT noted that there is a shortage of business capacity. However, there has been interest expressed to the GNWT that the Project might provide an opportunity to develop some forest industry opportunities for various entrepreneurs and communities.

13.4.4 PANEL VIEWS AND RECOMMENDATIONS

IMPACTS ON EXISTING TIMBER INVENTORY

The Panel notes the GNWT's position that there is no information indicating that the amount of timber to be harvested or

impacted by Project construction would have long-term regional implications on the sustainability of the forest in the NWT.

The Panel notes the GNWT's desire to have an updated *Timber Atlas* as soon as practical and encourages the Proponents to do so.

TIMBER FEES

The Panel heard that a new type of permit for industrial use of forest lands was being proposed by the GNWT. Fees for this type of permit would be based on the geographic extent of the area cut, not the volume of timber cut. The Panel is of the view that this new permit should continue to have a reforestation fee similar to that charged to a commercial forestry operator.

With respect to the Dehcho Harvesters Council's recommendation that First Nations receive compensation for the value of all vegetation and timber stands to be cleared for the Mackenzie Valley Pipeline right-of-way, the Panel understands that matters related to compensation could be part of the Access and Benefits Agreement negotiations between the Proponents and Aboriginal authorities in the NWT.

SALVAGE OF MERCHANTABLE TIMBER FOR PROJECT OR NWT COMMUNITY USE

While several communities expressed interest in accessing surplus decked merchantable timber from the Project, the overall volumes to be taken up are expected to be small, given local capacity. The Panel notes that, according to timber permit conditions, any decked timber would have to be removed from the deck site within one year, and this would be a further constraint to community access. The Panel is of the view that the clearing of merchantable timber during the Project's construction phase represents a one-time harvest that greatly exceeds the capacity of local communities to exploit.

The Panel notes that the Proponents have committed to negotiate terms for the decking of merchantable timber for community use, where practical. However, it is not clear from the Panel's record how much of Project-cleared merchantable timber would actually be salvaged for Project or community-related uses.

SALVAGE AND REUSE OF PROJECT WOOD PRODUCT FOLLOWING CONSTRUCTION

The Panel is of the view that the salvage and reuse of wood products, imported or otherwise, (e.g. pipeline skids, plywood and dimension lumber) following Project construction could represent a benefit to northern communities. However, the Panel does not know whether this benefit is captured in the Benefits Agreements being negotiated between the Proponents and NWT Aboriginal groups. As well, the proximity of the Proponents' reusable wood product storage areas to Project Review Area communities would be an important economic factor to be considered by the Proponents and local communities.

The Panel makes the following recommendations with respect to timber resources.

RECOMMENDATION 13-3

The Panel recommends that the National Energy Board, as a condition of any certificate or approvals it might issue in relation to the Mackenzie Gas Project, require the Proponents to notify and consult with Aboriginal and municipal authorities in each community proximate to the Mackenzie Valley Pipeline right-of-way with regard to community use of merchantable timber that would be cleared along the Mackenzie Valley Pipeline right-of-way. Where consultations lead to an agreement between the parties with respect to the decking of, and liability for, cleared timber, these agreements must be filed with the National Energy Board prior to the commencement of construction of the relevant spread.

RECOMMENDATION 13-4

The Panel recommends that the Government of the Northwest Territories, with the involvement of the Proponents and Aboriginal authorities in those Northwest Territories Project Review Area communities that have either existing sawmilling capabilities or propose to acquire these capabilities, conduct a feasibility study for the potential supply of Northwest Territories-produced timber products to the Mackenzie Gas Project. The feasibility study should be completed and made public within six months of the Proponents' Decision to Construct.

13.5 TOURISM AND OUTDOOR RECREATION

13.5.1 EXISTING CONDITIONS

Air-, water- and land-based tours are offered within the ISR. Local residents and tourists travel and camp along the Mackenzie and Dempster highways, and there is recreational boat traffic on the Mackenzie River, the Mackenzie Delta and the Beaufort Sea.

Most tourism and outdoor recreational activity in the GSA is limited to fishing camps. The Project Review Area includes the route of the abandoned Canadian National telegraph line, which is used for some recreational activities, such as snowmobiling. In the Inuvik area, there are also cross-country ski trails, hiking trails and recreational dog team trails.

Residents use a variety of waterways in the SSA for outdoor recreation. Tourism activities include jet-boat tours on the Mackenzie River, tourism opportunities on Kelly Lake and a tourist camp on Manuel Lake. The Mackenzie Highway winter road and the Norman Wells oil pipeline right-of-way are used for outdoor recreation by snowmobile and all-terrain vehicles. In Norman Wells, other outdoor recreation users include a local birdwatchers' club, cross-country skiers, hikers and mountain bikers. The Canol Road wilderness trail through the Mackenzie Mountains is accessible from Norman Wells.

Within the DCR, several tourism-based businesses operate in the Project Review Area, including local boat charters, the *M.S. Norweta* riverboat cruise operated by the NWT Marine Group out of Hay River, day-trip fishing charters and package vacations. Those pursuing outdoor recreational activities in the DCR frequently use the all-weather highways (e.g. the Mackenzie Highway and the Liard Highway) and winter roads for touring by snowmobile or all-terrain vehicle.

Tourism and recreational activities near the Northwest Alberta Facilities are limited due to lack of road access.

13.5.2 PROPONENTS' VIEWS

The Proponents acknowledged that tourism and recreation activities could be affected by construction of the Project owing to restricted access or changes to existing travel routes. Most tourism activities occur during the summer, and pipeline construction would take place over the winter, so the number of potential interactions would be reduced. However, there would be some construction activities in summer months at the Project's facility, infrastructure and borrow sites.

Project-related summer barge traffic on the Mackenzie River and in the Mackenzie Delta could interfere with some water-based tourism and recreation activities, such as recreational boating. These impacts could occur all along the Mackenzie River.

Sensory disturbance because of increased traffic, noise and emissions during the Project's construction phase could adversely affect the quality of tourism and outdoor recreation activities, particularly those activities enjoyed by local community residents, such as snowmobiling or cross-country skiing. Some potential sensory disturbance would continue into the Project's operations phase in the local area of the Anchor Field production facilities and the pipeline compressor stations because of the noise produced by these facilities.

To accommodate the transport of the Inuvik Area Facility's very large modules (VLMs), the Proponents propose constructing a new south Inuvik barge landing site and all-weather road from the barge landing to the Dempster Highway. Construction of the road and south Inuvik barge landing and the transport of the VLMs might affect the use of cabins along the Mackenzie River near Inuvik, users of Jak Territorial Park, and an Inuvik-area recreational dog team trail. Three cabins are located within 1.5 km of the proposed south Inuvik barge landing site. The Proponents indicated that they met with the cabin owners to provide information on the barge landing and related infrastructure. The Proponents also met with two businesses that use recreational dog team trails in the vicinity and one business involved with boat tours in the area. The Proponents have committed to investigate concerns raised by the stakeholders and follow up with further meetings.

According to the Proponents, tourists and recreational users could be displaced by some existing developments or activities

within the Project Review Area in the Mackenzie Delta and the Mackenzie Valley. These activities include other oil and gas development and industrial developments such as borrow sites. Reasonably foreseeable projects, including the bridges along the Mackenzie Highway winter road from Wrigley to Fort Good Hope and the proposed Mackenzie River bridge project at Fort Providence, would provide improved access within the Project Review Area and could lead to new tourism and recreation opportunities.

The Proponents stated that the addition of the Project to other non-Project activities in the Project Review Area could result in a low adverse cumulative impact on how tourists or recreational users perceive their experiences because of further degradation of the local landscape. This may be offset by the cumulative increase in access and an increase in the quality of existing infrastructure provided by Project-related road improvements that could result in opening up new areas to tourism and recreational opportunities in the Project Review Area.

The Proponents committed to the following mitigation and management measures:

- prohibit the recreational use of all-terrain vehicles and snowmobiles by construction personnel while working on the pipeline or construction sites;
- prohibit the recreational use of Project roads and right-of-ways by Project staff during construction; and
- implement appropriate measures intended to mitigate safety risks caused by interactions between Project-related traffic and traffic at adjacent community docks, aquatic recreational facilities and public boating facilities.

The Proponents acknowledged that, during Project construction, it would be important to monitor tourism operations in the immediate vicinity of Project facilities, particularly those in the Mackenzie Delta, to determine if tourists and recreational users are being displaced from their areas of use.

The Proponents stated that the Project would have no impact or low adverse impact on the following in relation to tourism and recreation:

- The available land base for tourism and outdoor recreation activities and any impacts would be local to regional in extent and would be short-term in duration.
- Any impacts to tourism and recreation activities would be local to regional in extent and would be short- to long-term in duration.
- Any impacts to the quality of tourism and outdoor recreation would be local to regional in extent and short-term in duration.
- Any impacts to summer tourist and recreational boat traffic in the Mackenzie Delta and the Mackenzie River would be local to regional in extent and short- to long-term in duration.

13.5.3 PARTICIPANTS' VIEWS AND RECOMMENDATIONS

DISRUPTION OF LOCAL RECREATIONAL ACTIVITIES

Olaf Falsnes of Inuvik stated he was representing a number of people concerned with the proposed south Inuvik dock facility and access road. Mr. Falsnes noted that Jak Territorial Park is widely used in summer and winter by tourists and local people for cross-country skiing, snowmobiling, dog sledding, hiking, and bird and wildlife watching. He noted that Project facilities would create a new industrial area in conflict with the existing land uses and landscape. Mr. Falsnes suggested that the Proponents review another transport route option for the Inuvik Area Facility VLMs, from the existing Northern Transportation Company Ltd. dock and around the eastern edge of the town of Inuvik. This routing option is discussed further in Chapter 14, "Physical Infrastructure and Housing."

DISRUPTION OF LOCAL AND REGIONAL TOURISM AND ECO-TOURISM

Moe Grant, owner of Raven Enterprises and an ecotour guide based in Inuvik, indicated that she had "grave concerns regarding the proposed plan to construct a new barge landing south of Inuvik." (J-GEN-00028, p. 1) She stated that ecotourism in Inuvik is currently on the rise but that it would suffer significantly with this industrial development in the vicinity of Jak Territorial Park. Ms. Grant commented that the area has been used for over 20 years for summer fish camps, eco-boat tours and winter dog mushing, and that the area has many well-developed recreation trails.

The NWT Marine Group operates the *M.S. Norweta* as part of a small tourism business operating a passenger tour vessel providing ecotourism cruises on Great Slave Lake and the Mackenzie River. In a document filed with the Panel, the NWT Marine Group indicated its concern that the Project would have a negative impact on its tour vessel operations.

At a Community Hearing in Wrigley, the Pehdzeh Ki First Nation stated that there would be considerable loss of tourism due to the Project on many fronts, be it from road travel to the community or reduced tourism-related river traffic. It stated that the community should be compensated for this loss.

The Village of Fort Simpson noted that it is a gateway community for tourists who explore the Nahanni National Park Reserve of Canada and the Ram Plateau and who travel along the Mackenzie River and Dehcho highway system. Over 2,000 tourists visit Fort Simpson each year to enjoy the area's tours and services. The Village was of the opinion that the Proponents had not analyzed the Project's impact on the sustainability of the small but growing wilderness tourism business sector in the DCR.

The Deh Cho Business Development Centre completed a survey of DCR businesses and conducted an analysis of the potential

impacts of the Project on regional businesses, including tourism operations. The Deh Cho Business Development Centre stated:

The attraction of the Mackenzie Valley and the Deh Cho as a tourism destination is largely that of a pristine, wilderness destination. It could be argued that perceptions of the Mackenzie Valley and the Deh Cho as a major industrial zone for the four years of construction could adversely affect the ability of tourism marketing agencies to attract tourists to the region both on a short term and a long term basis... The Deh Cho region is part of the “Deh Cho Connection” travel route — a cooperatively marketed road touring route that links Alberta, British Columbia and the Deh Cho. The potential affect of the project on the rubber tire tourism industry in the Deh Cho has not been mentioned in the EIS. (J-OHP-00033, pp. 40–41)

Parks Canada recommended that any proposed borrow sites in the vicinity of the Nagwichoonjik National Historic Site of Canada be constructed in a way that minimizes impacts to the commemorative integrity of the site. The Proponents agreed with this recommendation.

FUTURE PARKS AND RECREATIONAL USE

The Canadian Parks and Wilderness Society recommended that the Proponents consider the compatibility of temporary use sites, such as barge landings, with future parks and recreational use. It referred to the proposed barge landing site near River Between Two Mountains and stated that the site should be studied with the community of Wrigley and GNWT Tourism and Parks officials to determine potential tourism and community end uses. The GNWT and the Proponents disagreed with this recommendation. The GNWT indicated that it is willing to enter into discussions with communities where there is interest to establish a protected area. The Proponents replied that, although they are willing to consider subsequent uses of the proposed barge landing site at River Between Two Mountains, any consideration or conditions should be addressed as part of the site-specific land-use permit approval process.

13.5.4 PANEL VIEWS

The Panel encourages the Proponents to continue with their consultation efforts with local communities and recreational user groups prior to the commencement of Project construction so as to minimize disruptions to outdoor recreation activities in the Project Review Area.

The Panel recognizes that some tourism and recreation activities may be negatively affected during the Project’s construction phase, especially with regard to temporary access restrictions and the impacts of construction and traffic noise. The Panel is of the view that the Proponents’ ongoing consultation and construction notification programs should be expanded to include all local tourism operations adjacent to the Project. This would help address tourism-related concerns expressed by community

leaders and tourism operators in Inuvik, Norman Wells, Wrigley, Fort Simpson and Hay River.

The Panel notes the potential impact of the Project’s barging activity on the NWT Marine Group’s *M.S. Norweta* operations on the Mackenzie River. The Panel encourages the Proponents to communicate with the NWT Marine Group and other marine tour operators in advance of the Project’s barging seasons to ensure that any barge scheduling conflicts are minimized.

The Panel is also aware that construction of the south Inuvik barge landing and access road, and the transport of the Inuvik Area Facility VLMs to the south Inuvik barge landing and then overland to the Inuvik Area Facility, could result in temporary disruptions to outdoor recreation activities in the Mackenzie Delta and Inuvik area. The Panel notes the Proponents’ efforts to continue to consult with potentially affected cabin users and recreational dog team trail operators near the proposed south Inuvik barge landing.

The Panel notes the Proponents’ willingness to consider subsequent uses of the temporary-use sites as part of the site-specific land-use permit approval process and encourages the Proponents to actively do so with interested parties.

13.6 HERITAGE AND HISTORICAL RESOURCES

13.6.1 EXISTING CONDITIONS

Heritage resources are defined and managed under the provisions of several pieces of legislation in the NWT, including the *Mackenzie Valley Resource Management Act*, the *Territorial Land Use Regulations*, the *Northwest Territories Archaeological Sites Regulations* and the NWT’s *Historical Resources Act*, which pertains only to Commissioner’s lands. Under the *Mackenzie Valley Resource Management Act*, heritage resources are defined as archaeological or historic sites, burial sites, artifacts and other objects of historical, cultural or religious significance, and historical or cultural records.

In Alberta, historical resources are managed under the provincial *Historical Resources Act*. Under that Act, historical resources are defined as any work of nature or of humans that is primarily of value for its paleontological, archaeological, prehistoric, historic, cultural, natural, scientific or aesthetic interest, including but not limited to, a paleontological, archaeological, prehistoric, historic or natural site, structure or object.

The authority responsible for managing and protecting archaeological resources in the NWT is the Prince of Wales Northern Heritage Centre. In Alberta, the responsible authority is Alberta Community Development.

A total of 537 heritage sites were identified in the heritage resources study area through the Proponents' field studies or studies conducted previously. Of these, 102 sites were classified as having moderate or high value. These sites include historic burial, camp and cabin sites. No heritage sites were identified in the northwest Alberta heritage resources study area.

The Proponents provided financial assistance to local and regional NWT Aboriginal organizations to complete Traditional Knowledge studies in their areas. The focus of the studies was to gather local knowledge of the historic and current use of lands and resources, as well as the location of special cultural and spiritual areas for Aboriginal residents in those communities closest to the Project's proposed facilities and pipeline routes.

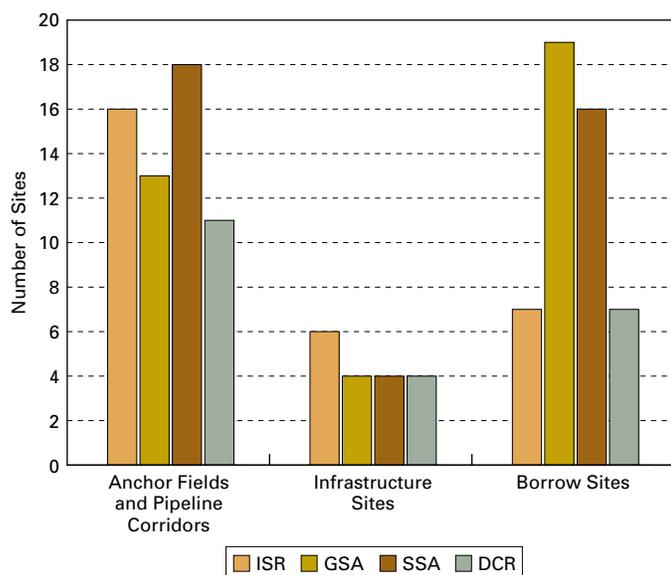
The studies contain important site-specific information that, in many instances, Aboriginal communities and residents wish to keep confidential. As a result, some of the Project-funded Traditional Knowledge Study Reports were submitted to the Panel as confidential.

13.6.2 PROPONENTS' VIEWS

Figure 13-6 shows the distribution of the 125 heritage, historical and paleontological sites identified by the Proponents' field programs that were potentially in conflict with the Project.

The Proponents stated that, until final designs and locations for various Project components are available, the precise areas that would be subject to ground disturbance cannot be specified. The heritage resources program designed for the Project recognizes

Figure 13-6 Distribution of Heritage and Historical Sites Potentially Affected by the Project, by Region



Source: Adapted from EIS, V6B, Section 8, pp. 25, 27-31, 38, 40-42, 50-54 and 59-61; J-NGTL-00013, p. 2

these uncertainties, and the Proponents have adopted a staged approach that would provide for increasing levels of assessment precision throughout the Project's planning and pre-construction phase.

The Proponents stated that complete information on expected impacts of the Project on heritage resources would be provided in advance of construction and that appropriate mitigation measures would be implemented to offset or reduce predicted negative impacts. At the time of the hearing, the Proponents could only outline their heritage resources mitigation measures. Mitigation strategies are usually devised when full information on impacts is known and are made in consultation with the regulatory agency responsible for heritage resource management in the NWT, i.e. the Prince of Wales Northern Heritage Centre.

In response to questioning about how much time the Proponents would require to complete the heritage resources impact assessment, the Proponents' consultant noted:

While much of the work to date has been reconnaissance level, we have, in fact, completed some heritage resources impact assessment level work because we know where some borrow sources and infrastructure locations are, so some of that has been done already. Going forward, I expect it'll take two field seasons to do the balance of the impact assessment work. (Rebecca Balcom, HT V31, p. 2857)

The Proponents submitted an outline of a Heritage Resources Management Plan for the Project. The Plan's regulatory compliance procedures result from the principles outlined in the *Northwest Territories Archaeological Sites Regulations* and Alberta's *Historical Resources Act*. The Heritage Resources Management Plan would include information on regulatory compliance, recognizing archaeological remains and impacts-management procedures.

The Heritage Resources Management Plan provides step-by-step procedures to be followed by the Proponents' construction contractors and archaeological consultant in the event of a heritage resource discovery during Project-related field work and construction activity. The Proponents provided an example where the pipeline ditch would intersect a previously undisturbed heritage site. In that instance, the contractor would stop work in that area, bypass installation of that pipeline segment, and develop an action plan for the mitigation strategy or protection of the heritage resource. Following mitigation or protection of the heritage resource, a smaller pipeline work crew would return to complete the installation of that segment of pipe.

Subsurface excavations in selected areas would be subject to inspection and monitoring by the Proponents' archaeological consultant. If the contractor or its employees encounter actual or suspected archaeological remains, the archaeological consultant would be contacted to assess the situation and identify suitable mitigation or protection procedures.

Although considerable information was collected during the Project's 2002, 2003 and 2004 heritage resource field seasons, the uncertainties of the precise impacts of the Project on heritage resources precludes providing a complete assessment of the significance of these impacts.

According to the Proponents, the following uncertainties must be resolved:

- identifying the precise locations and nature of development disturbance;
- identifying the significance of the heritage resources that might be affected; and
- devising effective mitigation strategies to offset negative impacts.

The Proponents made several commitments with regard to heritage resources in the three Anchor Fields and along the Mackenzie Gathering System and Mackenzie Valley Pipeline corridors, including:

- continue to involve community members and seek their advice on the locations of heritage sites;
- complete a heritage resource assessment of Project impacts;
- inform the GNWT of changes to the Project footprint made after the heritage resources impact assessment is complete to determine if additional archaeological work is required in areas not examined during the heritage resources impact assessment;
- determine mitigation strategies for heritage resources through discussions with the Prince of Wales Northern Heritage Centre and local communities;
- provide a management plan for field personnel and use the plan as a guideline for site protection if a discovery is made;
- flag or fence sensitive areas for protection; and
- assess any archaeological, heritage or paleontological resources that are discovered during the design and construction phases, determine suitable mitigation measures, and notify the applicable government agencies, as required.

Wherever possible, known archaeological sites would be avoided by the Project. Project personnel would be notified that they cannot wilfully disturb or remove archaeological or historic artifacts or materials from sites. Collection of such artifacts would be strictly forbidden.

NGTL committed to undertake the following actions regarding heritage resources in the Northwest Alberta Facilities pipeline corridor:

- Protection measures and management techniques for heritage resources will address site-specific conditions and the type of feature discovered. Before construction, a report would be

completed that would specify mitigation measures at each known heritage resource site.

- Where a previously unidentified archaeological or heritage site is encountered during construction, until the site has been examined by a qualified archaeologist, no further construction would be undertaken in the immediate vicinity. Construction activity in the identified area would not commence until permission to proceed has been granted by Alberta Community Development.
- If archaeological, heritage or paleontological resources are discovered during the Northwest Alberta Facilities design and construction phase, the site would be assessed and suitable mitigation measures would be determined. NGTL would notify applicable government agencies, as required, and site assessment and steps to protect the discovery would be undertaken as directed by Alberta Community Development.

The Proponents stated that the direct impacts of Project-related activities on undiscovered heritage resources would be negative and, in most cases, permanent because of the non-renewable nature of heritage resources.

13.6.3 PARTICIPANTS' VIEWS AND RECOMMENDATIONS

AVOIDING KNOWN HERITAGE RESOURCE SITES

Several participants noted the importance of avoiding known heritage sites. The Gwich'in Social and Cultural Institute also recommended that an archaeologist and a Gwich'in Elder familiar with the proposed development area must monitor gravel developments for burial and other archaeological sites. The Proponents agreed, in principle, stating that Project pipeline routes and facility and infrastructure sites would avoid known sacred sites.

MANAGEMENT OF HERITAGE RESOURCES ENCOUNTERED DURING CONSTRUCTION

The GNWT expects that numerous archaeological sites would be at risk of impact due to the size of the Project's footprint. The GNWT stated: "For most development footprints, there are two main mitigation options to offset negative impacts to archaeological sites. One allows for complete preservation of an archaeological site and the other only partial preservation of the site." (Glen MacKay, HT V32, p. 2902)

The GNWT noted that archaeological and heritage site impacts can be avoided by Project realignment or rerouting. They acknowledged that, while this option preserves all of the information contained in an archaeological or heritage site for later study, it would not always be feasible from an engineering perspective to realign the Project footprint. The GNWT also indicated that post-construction monitoring of archaeological sites should be conducted after each of the Project's construction seasons to confirm site avoidance. In cases where site avoidance

had been compromised by Project activities, this measure would facilitate the development of more effective management techniques for the next construction season.

In response to questioning about the timing of pre-construction archaeological work by the Proponents and subsequent review of that information by the GNWT, the GNWT expressed concern that one field season may be inadequate to complete the necessary work.

The Liidlii Kue First Nation recommended that the Proponents:

- contact it immediately if an unknown cultural site is found during pipeline construction;
- train employees working on the pipeline to recognize cultural sites and treat these areas with respect; and
- create a protocol for pipeline staff to follow when a suspected cultural site is found in the field.

The Proponents agreed with these recommendations, with variation. The Proponents replied that culturally sensitive areas would be identified and mitigation measures would be in place before construction begins. Mitigation measures would include protection and avoidance strategies. If an unknown heritage site is discovered during construction, activities would be suspended until an assessment is completed and mitigation measures are determined. Environmental monitors from local communities would be hired to work on all pipeline construction spreads.

13.6.4 PANEL VIEWS AND RECOMMENDATIONS

The Proponents stated that they are unable to assess the overall significance of the impacts that the Project may have on heritage resources based on the information collected to date. The Panel also notes that the Proponents have acknowledged that further site-specific heritage resources impact assessments need to be completed before commencement of Project construction. With respect to assessing the potential impacts of the Project on NWT heritage resources, the Panel takes particular note of, and concurs with, comments of the GNWT:

The overall impact of the Mackenzie Gas Project on archaeological resources is at present unknown. The Government of the Northwest Territories will not be able to predict the overall effect of the project until the final heritage resource impact assessment is completed and the proponents have determined the number and character of archaeological sites at risk of impact. The Government of the Northwest Territories is concerned that if an effective strategy for mitigation is not adopted, the Mackenzie Gas Project may result in an adverse impact to the archaeological record of the Mackenzie Valley. (MacKay, HT V32, p. 2902)

As primary regulator of heritage resources in the NWT, the Prince of Wales Northern Heritage Centre has the experience

and ability to review the Proponents' heritage resources impact assessments, and to provide appropriate mitigation and management measures before the commencement of any Project construction. The Panel is of the view that the mitigation and management measures that the Prince of Wales Northern Heritage Centre would require the Proponents to assist in would minimize any negative impacts on heritage resources in the NWT. The critical element in completing the Project's heritage resources impact assessment and preparation of mitigation measures is to ensure that there is enough time and resources for the Prince of Wales Northern Heritage Centre to complete its field verifications and community consultations.

To help expedite the Prince of Wales Northern Heritage Centre's review of the Project's heritage resources impact assessments, the Panel is of the view that the Proponents should consider filing the heritage resources impact assessment studies sequentially by right-of-way clearing spread.

The Panel understands that the Proponents provided funding to a number of NWT Aboriginal organizations to complete Traditional Knowledge Study Reports, which were used by the Proponents to further refine their facility and infrastructure site locations and pipeline routing. However, the Panel also observes that the primary regulator of heritage resources in the NWT, the Prince of Wales Northern Heritage Centre, does not have access to all of the Traditional Knowledge Study Reports completed for the Proponents, as some of the studies have been completed in confidence and the reports are currently held by the Proponents and the Aboriginal groups that participated in their preparation. Therefore, the Panel is concerned that there is no knowledgeable, independent person who could inspect, monitor and intercede in relation to Project-related impacts on those heritage resources that have been identified in the Proponent-funded Traditional Knowledge Study Reports that remain confidential.

The Panel expects the Proponents and NGTL to incorporate the results of all the Traditional Knowledge studies with their facility and pipeline route selection process, as the studies are completed.

The Panel is of the view that, with the following actions, the Project would not likely have a significant adverse impact on heritage resources in the NWT:

- implementation of the Proponents' proposed heritage resources mitigation and management measures;
- completion of the outstanding heritage resources impact assessments;
- consideration and mitigation of heritage resources identified in the Traditional Knowledge studies;
- application of any mitigation measures required by the Prince of Wales Northern Heritage Centre; and
- implementation of the following Panel recommendations.

RECOMMENDATION 13-5

The Panel recommends that:

- (a) The Mackenzie Valley Land and Water Board and Indian and Northern Affairs Canada, as a condition of any licence or permit they might issue in relation to the Mackenzie Gas Project, require the Proponents to file heritage resources impact assessments for all Project-related facilities, including borrow pits and quarries, that have been completed to the satisfaction of the Prince of Wales Northern Heritage Centre.*
- (b) The Mackenzie Gas Project heritage resources impact assessments referred to in Panel Recommendation 13-5(a) be completed and submitted to the Prince of Wales Northern Heritage Centre sequentially by pipeline right-of-way clearing spread and in the order that the spreads are scheduled to be cleared, and that the assessments for each spread be filed at least six months prior to the proposed commencement of Project-related clearing or construction activity on each respective spread.*

RECOMMENDATION 13-6

The Panel recommends that:

- (a) The Mackenzie Valley Land and Water Board and Indian and Northern Affairs Canada as a condition of any licence or permit they might issue in relation to the Mackenzie Gas Project, require the Proponents to file, at least one month prior to the commencement of construction, a final Heritage Resources Management Plan as approved by the Prince of Wales Northern Heritage Centre.*
- (b) The National Energy Board, as a condition of any certificate or approvals it might issue in relation to the Mackenzie Gas Project, require the Proponents to file, at least one month prior to the commencement of construction, the Heritage Resources Management Plan, as approved by the Prince of Wales Northern Heritage Centre.*

CHAPTER 14

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CHAPTER 14

PHYSICAL INFRASTRUCTURE AND HOUSING

14.1 INTRODUCTION

Transportation infrastructure, energy and utilities, and housing are vital elements to life in the Northwest Territories (NWT), and there are important differences in the range, level, availability and capacity of these elements between regional centres and communities. The various activities of the Project have the potential to impact transportation networks, communications, water supply and treatment, waste disposal and treatment, electrical generation, gas and oil supply, and housing. These impacts would occur particularly during the Project's construction phase due to, among other things, the transportation of construction material, an increase in the labour force, and increases in population related to the Project's potential indirect and induced impacts. The ability of governments to maintain public services and physical infrastructure in the NWT is fundamental to its social and economic well-being.

This chapter addresses how the Project would affect the following specific key areas:

- the quality of transportation infrastructure and availability of transportation services;
- community infrastructure and availability of utilities and energy; and
- the availability and quality of housing.

Critical to the assessment of potential Project impacts on physical infrastructure and housing are the broader mitigation and management plans developed by the Proponents and various governments, in particular:

- the *Mackenzie Gas Project Socio-Economic Agreement (SEA)* between the Government of the Northwest Territories (GNWT) and the Proponents;
- the Mackenzie Gas Project Impacts Fund (MGPIF) as proposed by the Government of Canada; and
- Access and Benefits Agreements between the Proponents and Aboriginal authorities.

The Panel held three days of hearings specifically on these matters, and it heard from many participants on the same issues throughout the review process.

This chapter discusses potential Project impacts on local and territorial physical infrastructure and housing. Where an issue or topic is specific to a particular community or geographic location, it has been noted as such within the broader context of the issue or topic under discussion.

Issues related to the Project's impacts on physical infrastructure and housing are addressed in other chapters of this Report. Infrastructure to support the Project's construction and operation is summarized in Chapter 2, "Project Description," and additional details are provided in this chapter. Chapter 7, "Accidents, Malfunctions and Emergency Response," considers accident- and malfunctions-related issues. Concerns related to potential impacts of the proposed south barge landing in Inuvik on that community's water supply are set out in Chapter 9, "Fish and Marine Mammals," as are issues of maintenance of quality drinking water and treatment of wastewater and sewage in communities that would be affected by the Project. Socio-economic and socio-cultural drivers related to housing demand and affordability are discussed in Chapter 16, "Social and Cultural Impacts."

14.2 TRANSPORTATION

The Project Review Area is served by four modes of transport: rail, road, barge and ship, and air. There are two main points of entry to the Project Review Area: by road or rail from Alberta, and by road from the Yukon. Secondary entry points are by road from British Columbia and by sea from the Pacific Ocean via the Beaufort Sea. Figure 14-1 provides an overview of the existing transportation network in the Project Review Area.

Figure 14-2 provides an overview of transportation logistics associated with the Project. Air transportation would also be used from various points within and outside of the Project Review Area.

The Proponents stated that the NWT is well served by transportation facilities and services. They further asserted that all communities have surplus transportation capacity. Some roads already carry heavy oil and gas traffic.

At a number of Community Hearings, participants referred to the informal network for local travel by snowmobile, established by breaking trail each fall for winter travel. Numerous individuals spoke of the importance of these trails for harvesting as well as their cultural significance. In addition, along the main rivers there is much local travel by boat during the open-water season.

The Panel notes that the regional centres are served by more transport modes, and more frequently and reliably, than are the smaller communities. Regional differences are also important with respect to surface transport.

14.2.1 RAIL TRANSPORTATION

EXISTING CONDITIONS

The NWT is connected by a single rail line owned and operated by the Canadian National Railway Company (CN) that extends north from Grimshaw, Alberta, to the terminus on Vale Island in Hay River. The railway is a major component in community resupply and fuel transport into the NWT. Currently, the railway delivers about 240,000 tonnes per year (t/a) of goods to Hay River, 90% of which is fuel. Three trains of up to 120 railcars each arrive weekly at Hay River during the winter (January to March) with fuel to supply the diamond mines. Outside the fuel-hauling season, there are two weekly trains.

PROPONENTS' VIEWS

The Proponents plan to use this rail line, which was operated by Mackenzie Northern Railway (CN purchased the line during the course of the Panel's hearing process), to move pipe and fuel from Alberta to Hay River, where it would then be loaded onto barges and trucks for delivery throughout the Project Review Area.

During construction of the Project, about 826,000 t of pipe and fuel would be delivered via rail to Hay River, which represents about 67% of the Project's total cargo. Peak railcar requirements would be about 4,900 railcars per year. This would result in increased train frequency into Hay River from the current two to three trains per week to seven trains per week. Train lengths would range from 20 to 120 railcars, and peak monthly deliveries were estimated at about 600 railcars. The Proponents noted that the current maximum allowable weight per railcar on the railway is 100 t, which would be sufficient to meet Project requirements. Traffic would be constant from early May through to the end of September, and it would coincide with preloading of barges in May to the end of the barging season. A lower volume of Project-related rail traffic would occur in the fall and early winter if pipe and fuel were transported to the southern spreads after the opening of the Trout Lake winter road. The Proponents noted that they do not anticipate any conflict in timing between Project demands and the winter fuel-hauling season for resupply to NWT diamond mines.

To address potential issues related to rail traffic, the Proponents made a number of commitments, including commitments for maintenance and upgrades.

In addition, the SEA commits the Proponents to provide lead time to rail service providers to allow them to meet community requirements and Project demands, and to work with rail system providers so that necessary capacity improvements could be completed before construction begins.

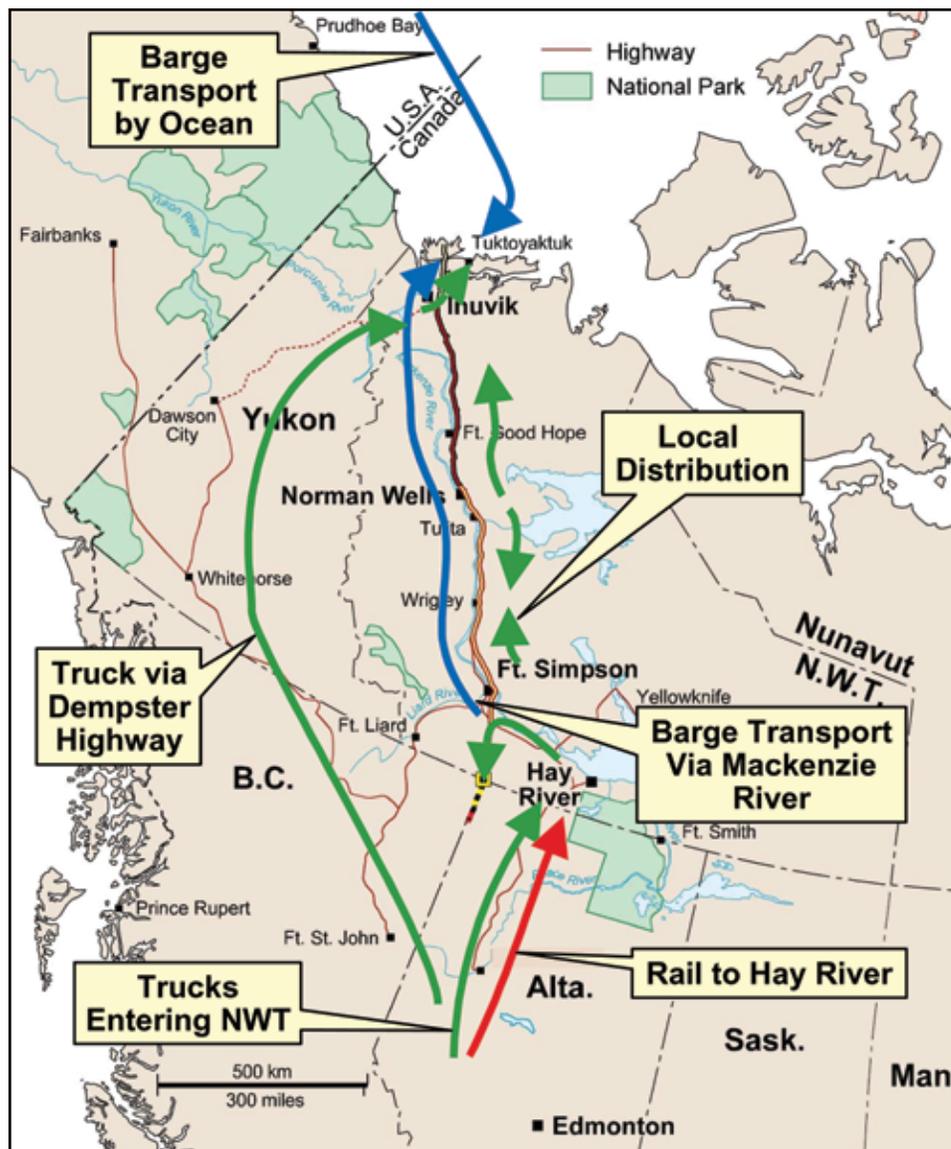
The Proponents submitted that early communication, planning and coordination with governments and service providers would help mitigate potential adverse impacts. In applying its proposed mitigation measures, the current level of train service to Hay

Figure 14-1 Existing Transportation Network in the Project Review Area



Source: Panel Figure

Figure 14-2 Transportation Logistics Overview



Source: J-IORVL-00553, p. 4

River, including fuel resupply for the diamond mines, would be maintained. The Proponents noted that some potential residual impacts related to rail transportation would be adverse but not significant. A potential positive impact resulting from the Project would be enhancements to the current rail infrastructure.

PARTICIPANTS' VIEWS

Concerns regarding increased rail traffic that were raised by participants at hearings included scheduling and safety, emergency preparedness and response, and accidents and malfunctions.

The Settlement of Enterprise raised concerns regarding the marshalling of rail and road traffic. In response, the Proponents

noted that some of Enterprise's issues would be addressed between that community and the GNWT. The Proponents also noted that they would continue to consult with Enterprise as they developed more details about their Transportation and Logistics Plan.

Increases in rail traffic frequency and train length would require certain upgrades to the Mackenzie Northern Railway, including the addition of new sidings and switches for on-rail storage at or near Hay River. The Proponents noted that they would determine the required upgrades with CN. The result of these discussions would be an arrangement that would result in the required maintenance or upgrades to satisfy Project requirements. Transport Canada also noted that it had previously identified

concerns regarding the condition of the section of track between Smith, Alberta, and Hay River, and that it had increased its monitoring activities to ensure that the railway complies with the track safety rules. CN had provided Transport Canada with a plan for significant upgrades to its railway infrastructure, which were under way during the Panel's review. Transport Canada noted that it would continue to monitor the situation to ensure compliance with the *Railway Safety Act*.

PANEL VIEWS

The Panel is of the view the Mackenzie Northern Railway would be able to accommodate Project transportation requirements and operate safely. The Panel notes the ongoing discussions between the Proponents and CN to identify required upgrades to the Mackenzie Northern Railway to accommodate Project requirements. Transport Canada, as the primary regulator of the line, stated that it would be working with CN to identify required upgrades to the railway infrastructure and that it would continue to monitor the line for compliance with the *Railway Safety Act*. Based on Transport Canada's evidence, the Panel understands that these railway upgrades were already under way during the Panel's proceedings.

The Panel notes the concerns regarding increased levels of rail traffic and associated potential safety and congestion issues raised by the communities of Hay River and Enterprise. The Proponents have stated that they would continue to discuss these issues with these communities, and the Panel encourages this ongoing dialogue to address any outstanding concerns.

14.2.2 ROAD TRANSPORTATION

HIGHWAYS

EXISTING CONDITIONS

The all-weather highway system in the NWT serves all but two communities in the Dehcho Region, all Gwich'in communities, and the city of Yellowknife. However, except for Hay River, Enterprise, Kakisa and Jean Marie River, none of these have uninterrupted road access from southern Canada. The rest are cut off from access for several weeks during freeze-up and breakup. Communities served by unpaved roads are subject to spring load restrictions. An additional nine communities are accessible by winter road only, including all communities in the Sahtu Settlement Area, whose winter road network connects to the South but not to the North. Aklavik and Tuktoyaktuk are accessible in winter by ice roads only. The three Beaufort Sea communities — Sachs Harbour, Ulukhaktok and Paulatuk — have no road access.

The GNWT operates the highway system in the NWT, as shown in Figure 14-1, along with connecting ferries, support works and winter roads. Roads within communities are the responsibility of local governments. All public highways and local roads in the

NWT are regulated through the territorial *Public Highways Act*, the *Motor Vehicles Act*, and other legislation and regulations.

Truck traffic on the Mackenzie Highway entering the NWT is currently estimated at 12,000 vehicles per year. Current traffic on the Dempster Highway is estimated at 800 trucks per year but in recent years has ranged from 400 to 1,200 trucks per year.

The Government of Canada and the GNWT have allocated \$135 million for highway improvements between 2003 and 2009. Of this, \$96.3 million will be used to straighten and improve the driving surface of highways in the Mackenzie Valley. The GNWT has also submitted proposals to the federal government to fund road improvements and an all-weather Mackenzie Highway to the Arctic coast. As of mid-2006, the GNWT had not had a response from the federal government to these proposals.

In Alberta, the highway system is owned and operated by the provincial government. High Level, Meander River and Bushe River are all on the paved highways, while Chateh is accessible by an unpaved all-weather road.

The NWT Construction Association commented on the high cost of transportation. Several community residents spoke of a need for better winter roads and more all-season roads. Some also commented on the existing capacity of NWT highways. In Fort Liard, Chief Harry Deneron stated:

We live on Liard Highway 7...and every year this time of the year when we sign out, the road ban...exists. They go only on the basis of 70 percent of the load... What we see is that even the highway wouldn't even take that.

We basically have to shut down to the point that you have just light traffic only. (HT V28, p. 2539)

PROponents' VIEWS

To move up to 7,000 truckloads of Project-related material into the NWT during construction, the Proponents would use various public roads, as indicated in Figure 14-2, including:

- portions of the winter road system;
- the Mackenzie Highway to Hay River and north to Wrigley;
- the Dempster Highway;
- community roads in Inuvik, Norman Wells and Hay River; and
- the highway bypass road in Fort Simpson and the Fort Good Hope airport road.

Approximately 400 new roads totalling approximately 1,050 km would also be constructed by the Proponents to support construction activities. Of these, 70 km would be all-weather roads, most of which would be less than 5 km in length, and 980 km would be winter roads. The travel lane on the Mackenzie Valley Pipeline right-of-way would also be an important part of transportation requirements. Bus transportation would be used in some locations, such as at Fort Simpson, to transport workers

from airports to work sites, helping to reduce the total number of Project-related vehicles on the road system.

In addition to Project-related material entering the NWT, the Project would require movement of more than 500,000 truckloads of gravel within the NWT. These trucks would operate on winter roads, all-weather roads and on the pipeline right-of-way. Trucking from approximately half of the primary borrow sites that would be used for gravel extraction would require crossing or using public roads.

The Proponents submitted that the primary potential impacts of the Project on ground transportation would stem from increased traffic volume. This could lead to deteriorating road conditions without ongoing maintenance, increased dust on gravel roads, increased potential for vehicle-related incidents and disruptions to local traffic. To alleviate these potential Project impacts, the Proponents proposed a number of mitigation measures and commitments throughout the Panel's proceedings.

The Proponents' commitments and primary mitigation relating to ground transportation are formalized in the SEA. These require the Proponents to:

- provide the GNWT in advance of construction with their Transportation and Logistics Plan, including contingency options (SEA 5.3.3);
- negotiate arrangements, including reasonable cost-sharing agreements, with the GNWT and the municipalities of Inuvik, Norman Wells, Fort Simpson and Hay River as appropriate, with respect to capital upgrades to the public transportation system required by the Project and the costs of additional maintenance and operational considerations required for roads and highways directly attributable to Project activities (SEA 5.3.6); and
- consult with affected communities and the GNWT to develop public safety measures due to Project-related increased traffic volumes on highways and community roads (SEA 5.3.7).

With respect to the transport of borrow materials, to address public safety the Proponents would have specific procedures in place during the removal, transport and application of borrow materials at Project sites. The Proponents have identified where Project requirements for materials could result in the use or crossing of public roads, as well as an estimate of daily use at each location. Site safety plans would be in place during excavation, truck loading and truck dispatch to Project sites. With respect to safety management for the hauling and placing of borrow material, the Proponents committed to working with communities and government agencies, primarily the GNWT's Department of Transportation and the Yukon's Department of Highways and Public Works. Specific traffic management procedures for public safety would be put in place, such as having flag persons, signage and early communication on road hazards and restrictions.

The Proponents also referred to the National Energy Board's Proposed Conditions 10 and 11, which require the Project's

winter roads to be constructed and operated in a safe and environmentally acceptable manner.

Assuming that appropriate mitigation were developed and applied within the Beaufort Delta Region, the Proponents concluded that potential Project impacts on some local roads and the Dempster Highway would be preventable but that there would likely be occasional disruptions because of unforeseen circumstances. The Proponents stated that, in all cases, these impacts are expected to last only during the Project's construction phase and would not be significant. The Proponents concluded that increases in road, marine and air transport would decline once construction was complete. Drilling programs would continue in the Anchor Fields, and exploratory drilling might increase at that time, but the potential impacts on the transportation systems would be much less than during the construction years and largely confined to the winter months and to the use of winter roads. Further, the Proponents submitted that the Project could result in some increase in transportation capacity. The Proponents concluded that no residual impacts are expected during operations.

Similar to the Beaufort Delta Region, the Proponents concluded that there would be no significant impacts on ground transportation within the Sahtu Settlement Area as a result of the Project during construction or operation. However, the Proponents acknowledged that there could be occasional disruptions due to unforeseen circumstances.

The Proponents submitted that, within the Dehcho Region, the Project would create a substantial increase in traffic on the Mackenzie Highway and the winter road that runs north of Wrigley. Again, the Proponents stressed the need for appropriate mitigation and planning. The Proponents concluded that, assuming the implementation of these measures, the Project would not result in significant adverse impacts on ground transportation within the Dehcho Region during the Project's construction or operations phases.

The Proponents did not identify any significant adverse residual impacts on ground transportation within the Dene Tha' area of northwestern Alberta, assuming appropriate mitigation and planning, although they acknowledged that residents could experience periodic highway congestion, particularly when they travel to High Level. Further, the Proponents submitted that traffic conditions should improve following the planned-for widening of Highway No. 35, where it passes through High Level. Parking for passenger vehicles and pickup trucks in the town would also benefit from parking control measures.

The Proponents submitted that, after the completion of these mitigation measures, potential adverse impacts on road transportation would be manageable, given cooperation, coordination and sharing of information among the Proponents, the GNWT and local governments. They asserted that overall road infrastructure is expected to improve as a result of Project-related activity.

PARTICIPANTS' VIEWS AND RECOMMENDATIONS

Of the 2,200 km of public all-weather roads in the NWT (Figure 14-1), the GNWT identified three roads that would be most likely to be impacted by the Project:

- Highway No. 1 (the Mackenzie Highway), the NWT's primary connection with Alberta;
- Highway No. 2, which connects Highway No. 1 to Hay River; and
- the Mackenzie River barge system and Highway No. 8 (the Dempster Highway), which connect the Beaufort Delta Region with the Yukon and southern Canada.

The GNWT also noted that, should contingency planning require the Proponents' increased use of Highway No. 7 (the Liard Highway), the Project could have potential impacts on this highway from its junction with Highway No. 1 to the NWT–British Columbia border. The Project could also have potential impacts on the 1,450 km of publicly constructed winter roads, including the more than 460 km Mackenzie Valley winter road that connects Wrigley and Fort Good Hope. The GNWT further noted that most of the Project's highway logistics would occur on parts of the highway system that were built to accommodate only transportation activity that is related to community resupply and intercommunity travel.

During the Panel's hearing on potential Project impacts on transportation infrastructure in Hay River, the GNWT outlined four primary concerns applicable to all forms of transportation, not only road transportation:

- limited structural and volume capacity at specific points;
- the potential for increased costs of operation and maintenance due to expected increased traffic volume;
- the potential for increased costs of operation and maintenance due to inflation (e.g. competition for available contractors); and
- safety concerns.

To assist in its assessment of potential Project impacts on transportation infrastructure, the GNWT, with Transport Canada, commissioned studies by PROLOG Canada Inc. The final study report, *Logistics Opportunities and Transportation Impacts in the Northwest Territories During the Mackenzie Gas Project*, was completed in March 2005 and submitted to the Panel in July 2005.

The GNWT concurred with the Proponents' finding that virtually every road in the Regional Study Area would experience a substantial increase in traffic volume. The GNWT also recognized that Project-related traffic on highways that were not designed for such heavy traffic would damage the surface and foundation of roads and would substantially increase repairs and maintenance. Specific areas of concern noted by the GNWT included the non-reconstructed section of Highway No. 1 from

the junction of Highway No. 3 to Highway No. 7 and from Fort Simpson to Wrigley. The GNWT stated that there would be an increase in operations and maintenance costs and that future rehabilitation would be needed because of reduced infrastructure life cycle. In addition to capital improvements, the GNWT stated that it anticipated the need for additional dust control on gravel sections of highways and that safety concerns would also increase with the rise in heavy traffic due to Project activities.

The RCMP stated that it has a mandate to maintain road safety and that its responsibilities include enforcing and promoting safe driving practices. The RCMP was examining the need for more staff and vehicles for that purpose.

The GNWT submitted that, in order to accommodate the construction of the Project and ensure the sustainability of the NWT's transportation infrastructure:

- the safety, reliability and long-term viability of the current NWT infrastructure must be preserved;
- negative impacts on community resupply must be minimized;
- a cost-sharing agreement for incremental costs must be reached with the Proponents; and
- enhancements to existing infrastructure would be needed at specific points in the system in order to accommodate the Project.

The GNWT submitted that these objectives had been addressed in the SEA. The GNWT noted that the Proponents committed to protect community resupply as a priority and avoid impacting community facilities. They also noted that the Proponents stated that they were working with potential third-party service providers regarding logistics, adequacy of response plans and other issues. The GNWT filed no recommendations with the Panel regarding transportation infrastructure.

The Government of Yukon noted its concerns with increased truck traffic and its implications for safety and maintenance costs. Of particular concern was the potential for increased use of the highway system because of an unexpected reduction in barge system capacity on the Mackenzie River. The Government of Yukon made several preliminary recommendations to the Panel that focused on:

- the need for the Government of Yukon's participation in the Proponents' development of specific and detailed logistics and transportation plans for the Project, which would, among other things, address a reduced barge capacity scenario on the Mackenzie;
- the need for a complete transportation impacts assessment methodology by the Proponents, with a full description of the methodology used so that the Government of Yukon could verify the Proponents' conclusions and determine any exposure to incremental costs; and

- ongoing coordinated transportation planning between the Proponents and key transportation agencies.

In response, the Proponents noted that their anticipated uses of the Dempster Highway in the Yukon, including its use as an alternative transportation route, would have only low-magnitude and short-term transportation impacts on the Yukon. The Proponents also noted that they planned to meet with Government of Yukon representatives to discuss transportation and other issues as more Project details are developed.

In its closing remarks, the Government of Yukon referred to its discussions with the Proponents on the management of potential Project impacts in the Yukon. Commitments made by each party during these discussions were set out in correspondence dated October 17, 2007, and filed with the Panel. The Government of Yukon stated that it was hopeful that ongoing dialogue between the parties as the Project proceeds would provide for adequate adaptive management programs as well as agreement on further means to improve upon them. The Government of Yukon also noted that it had made several recommendations to the Panel regarding transportation planning within the Yukon and potential Project impacts on the Yukon's highway system. The Government of Yukon noted that it was in accord with the commitments set out by the Proponents regarding transportation planning.

The Dehcho First Nations filed several recommendations with the Panel. The following recommendation was directed to the Proponents, the Northern Transportation Company Limited (NTCL), the Government of Canada and the GNWT: "Transportation of pipe, camps, construction equipment, and workers be restricted to our highway system, from the Alberta border to Fort Wrigley (Pehdzeh Ki). The pipe should be barged north from Pehdzeh Ki." (J-DFN-00026, p. 4)

The GNWT disagreed with this recommendation. In its view, the transportation system would function more effectively and safely if the transportation of pipe, camps, construction equipment and workers utilizes all available modes of transportation (rail, marine, air, all-weather roads and winter roads) rather than relying solely on the highway system from the Alberta border to Pehdzeh Ki.

The Proponents did not agree with this recommendation, stating that the existing Mackenzie Highway system (including ferries) is not capable of transporting the entire amount of pipe, camps, equipment and workers required by the Project to Wrigley. Further, they submitted that the staging site and dock facilities in Wrigley are also not sufficient to manage the amount of material and equipment required by the Project.

The Dehcho First Nations recommended that the GNWT should "monitor dust on roads from truck traffic and mitigate the excessive dust that will be created by increased traffic" and pave "the highway from Fort Providence junction to Fort Wrigley to ensure safety." (J-DFN-00026, p. 4)

In response, the GNWT submitted that existing regulatory and enforcement mechanisms would address the Dehcho Region's concerns. It also noted that it would monitor Project logistics plans and work with the Proponents to ensure that any infrastructure improvements required for the GNWT's transportation system are addressed through the SEA. The GNWT further stated that it anticipated that relatively few loads would travel on the gravel portions of the highway system in the summer months.

To alleviate potential traffic and safety concerns, Enterprise Settlement Corporation submitted recommendations to the Panel that focused on:

- improving information signage on the highways that approach Enterprise to assist and inform the travelling public and professional drivers;
- restricting heavy vehicle road use during the Project in the morning and afternoons, when school buses are taking children to and from school; and
- the GNWT developing a designated truck parking area with safe and efficient access to and from Enterprise's weigh scale and the businesses on Highway No. 1.

The Settlement of Enterprise noted that it could be negatively impacted by road and traffic issues associated with the Project and that it was interested in additional discussions with the Proponents to allow for the advance preparation, jointly with the GNWT, of traffic control measures for truck and train movement. The Proponents responded that, although they were of the view that some of these issues would be best discussed with the GNWT, they would continue to consult with the community as they developed more details about their Transportation and Logistics Plan.

The Pehdzeh Ki First Nation recommended to the Proponents and the GNWT that the Mackenzie Valley winter road be widened to improve visibility. They also recommended that these parties improve, widen and better maintain the road leading to the area waste management facility to accommodate the transportation of solid waste associated with the Project.

The GNWT did not agree with either of these recommendations and noted that improvements to the Mackenzie Valley winter road to accommodate Project needs and maintain safe travel for the public would be addressed through the SEA.

The Proponents agreed with the premise of the first recommendation but noted that they would make arrangements with the GNWT regarding possible capital upgrades to public roads in accordance with the SEA. This could include road widening. The Proponents disagreed with the second recommendation from the Pehdzeh Ki First Nation and noted that it does not intend to use the Wrigley nuisance grounds or related access roads, and that upgrading the road to the landfill site is not the Proponents' responsibility.

The Smbaa K'e Dene Band recommended the following:

An assessment of the impact of industrial traffic on the Smbaa K'e winter road must be carried out and, based on this assessment, the Proponent and the GNWT Department of Transportation must work with the [Smbaa K'e Dene Band] to upgrade the road to ensure sustainability, minimize damage to the surrounding environment, protect public safety, and ensure that community use of the road is not hindered. (J-SKDB-00039, p. 15)

The GNWT noted that action was being taken and provisions were in place to deal with this recommendation. Improvements that would be required on the Trout Lake winter road to accommodate Project needs and maintain safe travel for the public during the Project would be addressed through the SEA.

Similarly, the Proponents agreed with the intent of this recommendation, but it noted that it was working to establish agreements with governments that include provisions for Project use of seasonal roads, such as the Trout Lake winter road.

The Town of Inuvik recommended that community impact development agreements be completed and that appropriate levels of compensation be provided to the Town to protect and enhance community infrastructure.

Although the Town of Inuvik stated support for the Project, it had concerns regarding potential Project impacts on roads and their maintenance. It noted that it would permit the Proponents to make upgrades to Town roads according to schedules and standards agreed to in advance, and that it had been discussing a draft road-use agreement with the Proponents, particularly as it relates to the size and use of the road leading from the proposed Inuvik south barge landing to the proposed camp. The Proponents acknowledged that there is potential for increased traffic incidents where the road from the proposed Inuvik south barge landing site would intersect the Dempster Highway and that more policing might be required if additional traffic incidents occur. In addition, the Proponents submitted that the Project's use of the Inuvik south barge landing site would reduce Project-related activity at the NTCL dock in Inuvik. This would subsequently reduce the amount of traffic required to travel through Inuvik, reduce the potential for Project-related traffic incidents, further reduce road deterioration, and reduce associated noise, dust and fuel exhaust emissions. The proposed Inuvik south barge landing site is discussed further in Section 14.2.3, "Barge Transportation."

The Town of Norman Wells noted several concerns regarding potential Project impacts on roads and other infrastructure during the Panel's proceedings. However, it stated in its closing remarks its strong support for the Project and that it had almost reached agreement with the Proponents on mitigating potential impacts to infrastructure and the tax mill rate. The Town of Norman Wells did not file any final recommendations with the Panel.

The Village of Fort Simpson raised concerns regarding increased truck traffic past residential areas and through school zones within the municipality and related concerns regarding safety, dust control and maintenance. It wanted the Proponents to enter into formal discussions with the municipality to address these concerns. The Proponents responded that they had already met with the Village of Fort Simpson and the GNWT to discuss these concerns and would continue to do so.

The Town of Hay River submitted that the potential impacts for the community would be related more to its location as a year-round distribution point for goods and services rather than to its proximity to the Mackenzie Valley Pipeline corridor and production facilities. It further noted its responsibilities for maintaining all roads within its municipal boundaries, with the exception of Highway No. 2, which is the GNWT's responsibility. The Proponents stated that Project loads, including oversize and overweight loads, would be transported into Hay River on Highway No. 2 and across the West Channel Bridge onto Vale Island. The loads would then be transferred from trucks to barges at existing NTCL docks on Vale Island. There would be no requirement to transfer loads off of the main roads. The Town had several concerns regarding truck traffic and related impacts, including:

- impacts of truck and rail movements on emergency services;
- the need for increased road maintenance; and
- potential congestion during peak periods and the need for additional truck parking.

The Town of Hay River stated that it had already met with the Proponents and various levels of government to discuss potential issues, and the Proponents indicated that they would continue these discussions with the Town. The Proponents also noted that they were planning a 20 ha truck staging area on the highway into Hay River to better manage truck traffic.

The Town of High Level noted concerns regarding traffic congestion and overnight parking for trucks, which has already been an issue in the spring and fall. The Proponents also recognized the inadequate truck parking in High Level and recommended that new overflow truck parking be provided. To alleviate traffic congestion in High Level, the Town suggested to Alberta Transportation that the two-lane road passing through High Level be increased to four lanes. At the close of the Panel's record, the Government of Alberta was considering this recommendation. The Proponents submitted that, if appropriate government agencies widened the Mackenzie Highway to four lanes through the Town, the bottleneck should be alleviated. The Proponents also noted that it might be necessary to install traffic lights at key intersections to ensure safety. The Proponents submitted that traffic and truck parking problems in High Level would be reduced by proposed Project control measures and that there would be a sharp decline in the volume of truck traffic passing through High Level after the Project's construction

phase. The Proponents also committed to upgrade railway crossing warning devices in High Level.

The Panel heard from numerous other participants regarding potential Project impacts related to increased truck traffic and road transportation. Concerns generally centred on safety, increased need for road maintenance, dust control, truck parking and congestion, new road construction in the Mackenzie Valley, and potential impacts on residents' transportation needs. Based on the number of participants who raised the issue, it is apparent to the Panel that potential Project impacts related to road transportation are an important issue to many residents, local governments and Aboriginal organizations.

PUBLIC WINTER ROADS

PROONENTS' VIEWS

In addition to Project-specific winter roads, the Proponents would use portions of the NWT's public winter road system. The Proponents would use an approximately 60-km-long stretch of the Trout Lake winter road to access the Mackenzie Valley Pipeline right-of-way during construction.

PARTICIPANTS' VIEWS AND RECOMMENDATIONS

The GNWT identified concerns with potential Project impacts on winter roads and stated that the current Trout Lake winter road and Mackenzie Valley winter road might not be able to accommodate Project construction phase requirements in terms of capacity, safety and reliability, and that operation and maintenance costs of these winter roads would likely increase.

The Sambaa K'e Dene Band noted concerns about the Sambaa K'e (Trout Lake) winter road regarding safety and the need for road upgrades to accommodate the increased level of traffic. The Proponents noted that they were in the process of conducting an engineering assessment to further assess road usage and impacts and that, upon its completion, they would consult with the Sambaa K'e Dene Band and the Sambaa K'e Development Corporation to obtain their feedback and input. In response, the Sambaa K'e Dene Band noted that it would also like to be involved in the development stage of the engineering assessment. They also inquired about the method of pipeline crossing proposed for the winter road. The Proponents noted that they plan to open cut the crossing of the winter road, which might result in a disruption or delay in traffic movement for one or two days. The Proponents also stated that they would notify and work with the community during such periods.

The GNWT noted that its primary focus is to maintain public safety on the winter road regardless of the type of road improvements that are done. Ensuring community resupply would be another priority. The Sambaa K'e Development Corporation raised specific concerns regarding the need for increased maintenance on the road as a result of Project impacts. The Corporation has the building and maintenance contract for the road and was concerned about the potential impact of

increased maintenance on its existing resources. It also wanted to ensure that transport scheduling to the community for resupply would be maintained.

The Pehdzeh Ki First Nation noted its concerns regarding the level of traffic and associated safety and maintenance on the Mackenzie Highway, including the winter road portion. The Pehdzeh Ki First Nation also filed final recommendations with the Panel regarding visibility and safety on the Mackenzie Valley winter road.

The Proponents noted that they had heard concerns from residents of Déline and other communities within the Sahtu Settlement Area regarding increased traffic and safety concerns on winter roads within the area due to increased gas exploration near Colville Lake. The Panel heard similar concerns about potential Project impacts on community resupply and winter road safety from participants at the Colville Lake Community Hearing. In response, the Proponents noted that they did not expect to use winter roads in the Colville Lake area to a significant extent.

PANEL VIEWS AND RECOMMENDATION

The Panel heard considerable evidence concerning potential road safety impacts associated with the Project as a result of increased traffic entering the NWT and within the NWT. In particular, the Panel notes the large increase in truck traffic associated with gravel hauling and its potential impacts on road safety and maintenance. The SEA and the Proponents' commitments identify measures to address road safety concerns, including those resulting from the transport of borrow materials. However, the application of site-specific measures has yet to be determined in consultation with the communities, the GNWT and the Government of Yukon. Nonetheless, the Panel considers that the Project poses increased risks to public safety on public roads, particularly during certain times of the day, such as when school buses are on the road.

The Panel also notes the concerns it heard regarding potential Project construction impacts on community resupply, for example, during the proposed open-cut crossing of the Trout Lake winter road. The Panel acknowledges that the Proponents have committed to maintaining community resupply, but it is not clear to the Panel how the Proponents would accomplish this in all circumstances.

RECOMMENDATION 14-1

The Panel recommends that the National Energy Board, as a condition of any certificate or approvals it might issue in relation to the Mackenzie Gas Project, require the Proponents to file, six months prior to the commencement of construction, a Transportation and Logistics Plan, approved by the Government of the Northwest Territories, that documents measures to:

- *maintain or enhance safety on the Northwest Territories' highway system, including winter roads, as a result of Project-related traffic;*
- *facilitate traffic flow as a result of Project-related traffic;*

- ensure community access at all times in the event of an emergency during construction of the Project; and
- guarantee community resupply during construction of the Project.

The plan must be developed in consultation with affected communities.

The Panel considers that the concerns of the communities of Hay River and Enterprise regarding increased truck traffic associated with the Project are adequately addressed by the relevant clauses of the SEA. In the case of the Town of High Level, the Proponents recommended that new overflow truck parking be provided. The Panel encourages the Proponents to continue dialogue with the Town of High Level and the Government of Alberta to resolve this matter.

Based on the Proponents' May 2007 *Supplemental Information — Project Update*, the Panel understands that the majority of truck traffic associated with the Project would either bypass Fort Simpson on the Mackenzie Highway, or cargo would be loaded at the barge landing at the Liard River and not at the barge landing at Fort Simpson.

Dialogue between the Proponents and the Government of Yukon evolved throughout the Panel's proceedings. The Panel notes the increased communication between these two parties and understands that they will continue to discuss transportation-related matters as Project planning proceeds. The Panel encourages the Proponents to continue to consult with the Government of Yukon on such matters so that any outstanding issues can be resolved to the latter's satisfaction.

14.2.3 BARGE TRANSPORTATION

The Mackenzie River forms an important part of the NWT's transportation network. The River's main barge transport system is operated from Hay River to the Beaufort Sea by NTCL. Additional service is provided between Fort Simpson and Norman Wells by Cooper Services, which also operates a charter barge service between Fort Nelson, British Columbia and Fort Simpson, serving Fort Liard and Nahanni Butte. The system generally operates between late May and mid-October, with season length dependent on spring breakup, late summer water levels and fall freeze-up, and it is the main means of freight transport in the region, particularly for bulk commodities such as fuel for industrial and community resupply. At each community along the system, there is a permanent barge landing site with road connection to the community. The only communities not served by the barge system are Kakisa, Trout Lake, Déline and Colville Lake.

BARGE CAPACITY AND COMMUNITY RESUPPLY

EXISTING CONDITIONS

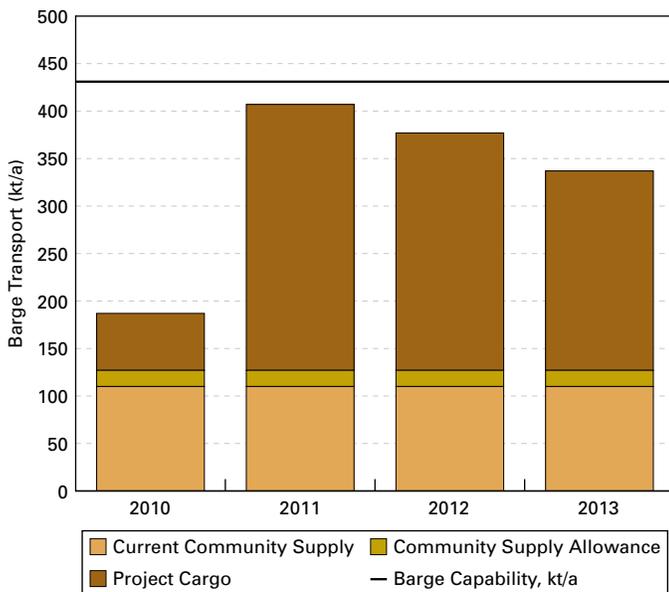
Current traffic is estimated at about 130 barge loads per year (100,000 t), or 1 or 2 barge trains per week during the season. Barge trains proceeding downstream from Providence Rapids typically have 6 barges, and barge trains leaving Fort Simpson typically have 4 barges. The Proponents submitted that this amount of cargo represents only about 25% of the 430,000 t/a of barge capacity within the NWT. The existing capacity is a residual effect of higher levels of activity at the peak of petroleum exploration in the Beaufort Sea in the 1970s and 1980s.

PROPOSERS' VIEWS

The Proponents stated that the vast majority of cargo (800,000 t) would be moved by barge from Hay River to various Project sites along the Mackenzie River over a period of 4 years. Another 40,000 t of cargo would be shipped from the Liard River ferry crossing near Fort Simpson, and 60,000 t would be routed through the Beaufort Sea, including facility modules and related materials for construction at Niglimgak, Taglu, Parsons Lake and the Inuvik Area Facility. During peak periods of summer transportation, approximately 6 barge trains (of 6 barges per train) would depart weekly from Hay River, and 2 or 3 barge trains (of 4 barges per train) would leave weekly from the Liard ferry crossing. An estimated 10 to 13 trips into the Mackenzie Delta would also be required by ships and barges coming from the Beaufort Sea.

The Proponents noted that Project requirements would likely exceed current barge capacity and estimated that one additional tug and additional barges would likely be required. They discussed a number of mitigative strategies to address this concern, including working with barge companies to ensure that investments are made to meet increased demands and to protect summer community resupply by barge. However, as a result of changes in construction planning included in the May 2007 *Supplemental Information — Project Update*, the Proponents stated that they now had a more level barge delivery profile over the construction phase, which had extended from two to three years. In addition, the planned movement of some cargo had shifted from barges to trucks. This resulted in fewer barge loads per year than previously expected. Therefore, the existing fleet of barges on the Mackenzie River would be adequate to ensure community resupply and meet the Project's needs, and purchasing additional tugs and barges would no longer be necessary. Figure 14-3 shows the estimated Mackenzie River barge tonnage during Project construction. In light of Project changes, the Proponents did not identify any potential significant impacts on community resupply.

Figure 14-3 Mackenzie River Barge Tonnage During Project Construction



Source: Adapted from J-IORVL-00953, Figure 6-2, p. 17

PARTICIPANTS' VIEWS

Early in the Panel's proceedings, Transport Canada and the GNWT raised concerns regarding the capacity of the existing barge system to meet Project demands and how this might affect community resupply issues, i.e. whether an insufficient capacity for community and Project needs would result in a shortfall of goods delivered to communities.

At the close of the Panel's proceedings, the GNWT had no outstanding concerns regarding protection of community resupply.

PANEL VIEWS

The Panel notes that the Project is likely to result in a substantial increase in barge traffic on the Mackenzie River. The Panel heard concerns from various participants regarding potential impacts on community resupply and safety and navigation. The Mackenzie River currently forms an important part of the NWT's transportation network, and the Panel notes that the evidence before it indicates that barge traffic on the Mackenzie River has been even greater in the past. The Proponents provided evidence that the existing fleet of barges on the Mackenzie would be adequate to ensure community resupply and meet Project needs because there is excess barge capacity resulting from past barge activity. The Panel has considered this evidence and, when combined with the Proponents' commitments and proposed mitigation, including the relevant paragraphs of the SEA, the Panel is of the view that the Project would not likely cause significant impacts to community resupply.

NAVIGATION AND SAFETY

PROPOSERS' VIEWS

A number of Proponents' commitments and mitigation measures related to transportation infrastructure were included in or superseded by the SEA. Paragraph 5.3.3 of the SEA committed the Proponents to provide the GNWT with an updated Project Transportation and Logistics Plan, including contingency options. In addition, paragraph 5.3.4 of the SEA committed the Proponents to not disrupt the existing level of public access to the various modes or sites of transportation and to implement appropriate measures intended to mitigate safety risks caused by interactions between Project-related traffic and traffic at adjacent community docks, aquatic recreational facilities and public boating facilities, as provided for in paragraph 5.3.5.

The Panel questioned the Proponents on marine traffic and safety issues during Technical Hearings with respect to fisheries and water. The Proponents noted that they see their role as sharing responsibility for the management of transportation of goods and services on the Mackenzie River. For example, the Proponents stated that they would be responsible for giving the Canadian Coast Guard and other parties that are responsible for regulating traffic on the Mackenzie River all the information they could to help the Coast Guard do its job.

The Proponents also noted that proposed dredging in the Kittigazuit S-bends could interfere with navigation through that section of the Mackenzie River. However, in response to questioning from the Panel, the Proponents stated that they plan to coordinate their activities with NTCL, which provides regular barge service between Tuktoyaktuk and Inuvik. The Proponents also noted that they would be able to move the dredging equipment out of the way on fairly short notice in order to allow barge passage. They also noted their commitment to protect community resupply and that their Marine Management Plan would ensure the safe passage of normal shipping traffic in the channel.

PARTICIPANTS' VIEWS AND RECOMMENDATIONS

During a Community Hearing in Fort Providence, concerns were raised regarding the potential level of barge traffic on the Mackenzie River and the ability of this traffic to safely navigate in the Providence Narrows, particularly if the proposed Dehcho bridge is constructed. The Proponents estimated that a barge train would pass through the Providence Narrows every three to four hours throughout the summer barging season. The Fort Providence Resource Management Board and the Deh Gah Got'ie Dene Council also noted concerns regarding potential logistical conflicts in the event that the Dehcho bridge is constructed. The Northwest Territories Marine Group voiced similar concerns and noted the potential for accidents as a result of barge traffic colliding with bridge support piers. The Northwest Territories Marine Group also expressed concerns regarding its ability to operate its marine tour boat in light of substantially increased vessel traffic on the Mackenzie River. The Liidlii Kue

First Nation also voiced concerns regarding the potential for barge traffic to interfere with local boat traffic.

To assess the risks associated with increased marine traffic on the Mackenzie River due to the Project, Transport Canada prepared a *Mackenzie River Marine Risk Analysis*, dated August 24, 2006. The purpose of the analysis was to quantify the residual risks associated with the anticipated increase in river traffic relative to current traffic levels and to propose mitigative measures.

Transport Canada summarized its marine risk analysis and made preliminary recommendations to the Panel. Transport Canada focused on the following for the Panel's consideration:

- The proposed Dehcho bridge, if constructed, is not expected to add any measurable risk for marine traffic to collide with the bridge, given that its design would meet the navigational needs of the Mackenzie River.
- To mitigate groundings, the Canadian Coast Guard monitors and marks the preferred shipping route with buoys and other navigational aids along the Mackenzie River.
- For navigating rapids, barge trains would be broken down into smaller trains, and NTCL has noted that it would assign its most experienced operators to tugs working in these areas.
- To mitigate collisions:
 - the Canadian Coast Guard's Marine Communications and Traffic Service Centre, based in Inuvik, monitors shipping and relays information to other ships along the Mackenzie River;
 - the *Vessel Traffic Marine Safety Advisory — Mackenzie River* stipulates that vessels report to this traffic centre before entering, transiting or exiting any of the designated danger zones along the River, such as the Providence Rapids and Ramparts Rapids; and
 - vessels reporting using marine radio frequencies.
- To mitigate collisions, a minimum distance should be established between tow trains travelling in the same direction, taking into account the time and distance required to abruptly stop a tow train in the event of an emergency.
- To mitigate collisions, designated passing zones should be established for the duration of the Project by permitting passing only in areas that can accommodate the safe navigation of incoming and outgoing vessels.
- In the event that system capacity on the Mackenzie is exceeded, the Proponents could explore alternative shipping routes such as via Point Barrow.

Transport Canada recommended to the Panel that, among other things, the Proponents develop a traffic management plan in consultation with its marine carriers and that it adopt

the *Vessel Traffic Marine Safety Advisory — Mackenzie River* as a mandatory procedure for its marine carriers during Project activities.

In response, the Proponents submitted that development of a specific traffic management plan for the Project's barge traffic is not necessary. However, the Proponents stated that they understood that barge operators include traffic management in their operational plans. The Proponents also noted that barge operators on the Mackenzie River use the *Vessel Traffic Marine Safety Advisory — Mackenzie River*.

In its closing remarks, Transport Canada outlined its participation in the Panel's proceedings and stated that the Department's core mandate, which is safety and security of the transportation system, was at the heart of its submissions before the Panel. It further noted that it had assessed the Project with a view to supplementing, where required, the existing regulatory framework with safety measures that are specific to the unique characteristics of the Project, and that this framework could be addressed in the context of the Panel's review. Transport Canada submitted that the key area where supplemental measures would be required is barge traffic management, and it made recommendations to this effect to the Panel. Transport Canada also noted that the Proponents had agreed to make available to the Department operational plans that the Proponents would develop with its barge service providers. Transport Canada submitted that these operational plans would supplement existing compliance and enforcement tools already at its disposal, if the Panel were to recommend that the Proponents develop these plans and make them available to the Department. These combined measures would allow for more closely scrutinized marine operations during the Project's construction phase, especially during peak traffic periods, and would help verify that barging activity complied with existing regulations.

Transport Canada also noted its filing of the *Mackenzie River Marine Risk Analysis*. Of the three recommendations put forward, Transport Canada pointed out that it had withdrawn its recommendation concerning the shipping of supplies via Point Barrow because this matter was addressed when the Proponents filed its May 2007 *Supplemental Information — Project Update*.

In its closing remarks, the Deh Gah Got'ie Dene Council noted that its participation in the Panel's proceedings was well documented and reiterated its concerns with potential impacts of overland transportation and barging on its community and territory. It submitted that potential impacts from the Project could be significant for the Council and its members. It filed a number of recommendations with the Panel regarding barging and potential Project impacts, many of which are discussed in other chapters of this Report (Chapter 7, "Accidents, Malfunctions and Emergency Response" and Chapter 9, "Fish and Marine Mammals").

PANEL VIEWS

Participants raised concerns regarding safety and navigation issues as a result of increased barge traffic. In particular, the Panel notes the participation of Fort Providence residents and their contributions to the Panel's proceedings. Despite the safety and navigation concerns noted by some participants, the Panel is of the view that the projected level of barge traffic could be operated safely and efficiently. Again, the Panel notes that past levels of barge traffic on the Mackenzie River have been substantially greater than the current level of traffic or that proposed by the Proponents. Further, the Panel notes that Transport Canada's marine risk analysis did not identify any prohibitive constraints from a navigational or operational perspective regarding the projected levels of barge traffic on the Mackenzie River. However, the marine risk analysis resulted in Transport Canada making preliminary recommendations to the Panel and, in the end, Transport Canada's final recommendations focused exclusively on marine traffic management. Transport Canada noted that these Project-specific recommendations regarding the development of a traffic management plan and adoption of procedures in the *Vessel Traffic Marine Safety Advisory — Mackenzie River* were supplemental to the existing regulatory framework. They were also intended to support Transport Canada's core mandate, which is the safety and security of the transportation system.

In response to Transport Canada's recommendations, the Proponents noted that they understood that barge operators include traffic management in their operational plans and that they use procedures in the *Vessel Traffic Marine Safety Advisory — Mackenzie River*. Based on the Proponents' response, the Panel notes that the Proponents appear to agree with the premise of the recommendations, but they also appear to infer that the recommendations would be more appropriately directed to barge operators. Further, the Panel notes that, in its closing remarks, Transport Canada stated that the Proponents had agreed to make available to the Department the operational plans that they would develop with their barge service providers.

The Panel is of the view that Transport Canada's recommendations are more appropriately directed to barge operators on the Mackenzie River than the Proponents. The Panel is also of the view that the Proponents, as they themselves recognize, have a responsibility to share information with barge operators and Transport Canada to ensure that the intent of Transport Canada's recommendations is fulfilled. The Panel urges the Proponents to work closely with their contracted barge operators to ensure that an appropriate traffic management plan is developed and that the operators adopt the procedures in the *Vessel Traffic Marine Safety Advisory — Mackenzie River*. The Panel also expects that the Proponents would follow through on their commitment to provide Transport Canada with the operational plans they would develop with their barge service providers. Lastly, the Panel notes that paragraph 5.3.5 of the SEA commits the Proponents to mitigate safety risks caused by interactions between Project-related traffic and traffic at

community docks, aquatic recreational facilities and public boating facilities.

BARGE LANDINGS

PROponents' VIEWS

The Proponents noted that they had heard concerns about the impact that barging might have on community barge landings at Inuvik and Norman Wells. They also stated that an analysis would be completed to determine whether upgrades would be required at these sites so that community and Project activities could be carried out safely. Other mitigation measures noted included early delivery and stockpiling of fuel, pipe and camp modules to reduce potential impacts on existing barge services and some infrastructure in the affected regions.

Within the Beaufort Delta Region, the Proponents noted that Project activities would affect the proposed south Inuvik barge landing more than others. Without carefully planned mitigation, the Proponents concluded that the Project could have negative impacts on barge freight services. However, the Proponents stated that, in all cases, impacts are expected to last only during construction and would not be significant. Similarly, the Proponents concluded that no residual impacts are expected during operations. The Proponents submitted that the Project could result in some increase in transportation capacity.

The Proponents submitted that potential Project impacts on transportation infrastructure, including barging, would be manageable provided that there was adequate and timely planning and adequate human and financial resources. The Proponents also noted that they would provide construction-related air and barge traffic demand projections to the GNWT and other government authorities. Included would be an assessment of the need for upgrading and other improvements to regional and municipal airports, airstrips and barge landings.

The Proponents did not identify any significant adverse residual impacts as a result of construction of barge landings within the regional study area.

PARTICIPANTS' VIEWS AND RECOMMENDATIONS

Participants raised concerns regarding the location of some barge landings and how the use of these barge landings might interfere with their use by the community or with other uses in the vicinity.

The Northwest Territories Marine Group, operator of a passenger tour vessel on the Mackenzie River, had specific concerns about its ability to access dockage at Hay River, Norman Wells and Inuvik in light of substantially increased Project barge traffic, and about how barge traffic might impact its ability to navigate the Mackenzie River. It submitted that this could have a significant impact on its business due to delays in its tour scheduling. It also noted that it understood that the regulatory approval process for barge landings and proposed marine traffic under the *Navigable Waters Protection Act* would require consultation between the Northwest Territories Marine Group and the Proponents. It stated

that it would be available for such discussion with the Proponents during the Act's regulatory and approval process to determine the potential impact on its business and how to best mitigate any such impact.

The Town of Norman Wells stated that it and the Proponents had been discussing a relocation site for the public boat launch and the site where barges that resupply the community would dock during construction. The Town noted in its closing remarks to the Panel that it had almost reached agreement with the Proponents on mitigating potential impacts to current infrastructure.

During Community Hearings, several residents of Fort Good Hope raised concerns regarding barge landings and, specifically, the Proponents' proposed barge landing near Hare Indian River. In response, the Proponents noted that they had already moved the barge landing away from Hare Indian River and closer to the airport in response to community concerns. Concerns were also raised regarding the location of the Little Chicago barge landing, as that is where residents fish. The Proponents responded that, when choosing sites for Project facilities, they try to achieve a balance of factors, including safety, cost, environmental impacts and community input.

The GNWT filed no recommendations with the Panel regarding transportation infrastructure, as it was of the view that transportation-related issues that appeared in its earlier recommendations, including protection of community resupply, would be addressed through the SEA.

PANEL VIEWS

Regarding barge landings, the Panel notes that the Proponents heard particular concerns regarding the potential impact of barge traffic on barge landings in the communities of Norman Wells and Inuvik. In its closing remarks, the Town of Norman Wells stated that it had almost reached agreement with the Proponents on mitigating potential Project impacts on infrastructure. The Panel expects that the Town of Norman Wells and the Proponents would continue to work together to resolve any outstanding issues.

INUVIK SOUTH BARGE LANDING AND ACCESS ROAD

PARTICIPANTS' VIEWS

The Town of Inuvik and some residents raised specific concerns regarding the location of the new south barge landing proposed for Inuvik and the associated 3-km all-weather road for transporting cargo from the barge landing to a stockpile site near the Dempster Highway. The Town inquired as to the Proponents' plans to decommission the road and barge landing site when construction is finished. In response, the Proponents noted that their intent is to abandon and reclaim the road and barge landing site approximately eight years after their construction but, recognizing that Inuvik might have use for such facilities in the future, it would continue to work with the Town regarding potential future use and abandonment plans.

The Town of Inuvik, Olav Falsnes and the Gwich'in Tribal Council noted specific concerns related to potential impacts of the south barge landing on Inuvik's water supply. Their concerns regarding this matter are discussed in Chapter 9, "Fish and Marine Mammals."

Olav Falsnes presented to the Panel and the Proponents a potential alternate route for transport of the very large modules (VLMs) from the existing Inuvik barge landing to the Inuvik Area Facility. This route would run north and east of Inuvik from the existing NTCL barge landing and eliminate the need for the proposed Inuvik south barge landing and associated all-weather road and stockpile site. In response to an Undertaking, which committed Mr. Falsnes and the Proponents to develop a map to explain his proposed route, Mr. Falsnes submitted this map to the Panel. The Proponents filed an updated map showing Mr. Falsnes' proposed route and committed to evaluate and consider an alternate route that incorporates the suggestions for transporting the VLMs to the Inuvik Area Facility. Subsequently, the Proponents filed a report, *Evaluation of Land Routes for Transporting Very Large Modules to the Inuvik Area Facility*, which included an assessment of the south route contained in the May 2007 *Supplemental Information — Project Update* and an Inuvik northern route that incorporated Mr. Falsnes' suggestions. The Proponents' latest evaluation indicated that the south route was their preferred route from a technical and economic perspective, but the Proponents stated that additional technical and engineering analysis would be completed for the final routing. The Proponents also committed to continued consultation with the Town of Inuvik and residents regarding routing.

In their closing remarks, the Proponents again stated that they would continue to work with the Town and its residents to determine the most appropriate site for the barge landing to deliver VLMs required for construction of the Inuvik Area Facility. The Proponents noted that it had sited the barge landing south of the town centre to avoid major upgrades required to transport the modules through the town and to reduce traffic concerns raised by the Town. However, this alternative still raises concerns for nearby residents that would be affected by the south access.

PANEL VIEWS

At the close of the Panel's hearings, the siting of the barge landing in Inuvik was unresolved. The Panel notes the alternative route proposed by Mr. Falsnes, but also that, according to the Proponents, the proposed route might not be suitable from an operational standpoint. The Proponents noted that they had sited the barge landing south of the town centre to avoid major upgrades required to transport the VLMs through the community and to reduce traffic concerns raised by the Town. In their closing remarks, the Proponents noted that they would continue to work with the Town and its residents to determine the most appropriate site for the barge landing by considering operational requirements and concerns raised by residents. The Panel encourages the Proponents to do so.

14.2.4 AIR TRANSPORTATION

EXISTING CONDITIONS

The main air service hubs in the NWT are Yellowknife, Hay River, Norman Wells and Inuvik, with daily connections to the south provided by major airlines. There is a secondary hub at Fort Simpson. In 2004, aircraft capacity to Inuvik and Norman Wells was more than 1,200 seats per week. With the exception of Kakisa, Enterprise and Tsiigetichic, all of the smaller communities have unpaved airstrips and navigational aids. Several regional carriers provide service to communities by small aircraft from the main hubs, in some cases daily.

Airports in the NWT are owned and operated by the GNWT. The GNWT's Department of Transportation is making necessary improvements at the Norman Wells airport and is assessing upgrade requirements at the Inuvik and Fort Simpson airports.

In northwest Alberta, High Level has an airport with a paved airstrip.

PROPOSERS' VIEWS

The Proponents would use existing facilities and construct new airstrips and helipads to support the Project. Peak air transportation requirements would occur over a two-week period at the beginning and end of each winter construction season as workers were transported to support Project construction. Aircraft would also be used to ship fresh foods and other perishables to camps.

The hub airports from which the majority of workers would be transported are Inuvik, Norman Wells and Fort Simpson. The Proponents would also use airports at Fort Good Hope, Tulita, Wrigley and Hay River. Peak daily flights into each of the hubs were estimated to be two to three flights per day. The May 2007 *Supplemental Information — Project Update* extended Project construction from a two-year period to a three-year period. This would result in fewer annual flights into the transportation hubs. Project workers stationed in Hay River would likely use commercial airlines for travel, and other personnel would use charter aircraft to Inuvik, Norman Wells and Fort Simpson.

The Proponents identified the following potential impacts on air transportation as a result of Project activities:

- overloading of existing air transportation ground facilities;
- airport congestion;
- the need to upgrade airport infrastructure and increase the hours of operation for weather and communications services; and
- conflict with residents with respect to the demand for commercial flights competition for charter services.

The Proponents identified the need for additional facilities at the Fort Simpson airport to handle Project demands. In addition to a

temporary passenger-handling area capable of accommodating 120 people, additional apron space and fuel storage would be required. The passenger-handling facility would be required to provide shelter for workers being transported to and from work sites. The facility is expected to be used for two weeks at the beginning and end of each winter. The Proponents stated they expected that the GNWT's Department of Transportation would require a land lease for any building site on airport property. The Village of Fort Simpson also noted that land at the Fort Simpson airport that had been identified for the Proponents' use would be subject to municipal zoning bylaws, and that any development would require a municipal development permit in addition to any Department of Transportation permits before being allowed to proceed. The Village of Fort Simpson noted that it was important that the Proponents enter into formal discussions with it in order to ensure that development requirements are properly taken into consideration.

From the transportation hubs, workers would be transported to the various camps using a combination of buses and smaller aircraft, such as Twin Otters, Dash 7s or Dash 8s, and helicopters. As well, assuming completion of the proposed Parsons Lake airstrip, the Proponents would eventually transport cargo and passengers directly to the Parsons Lake site using Boeing 737 aircraft. On the return flight from Parsons Lake, these aircraft would stop at Inuvik for refuelling. Peak daily flights into the airstrips at each of the camps would range from three to six. Buses would then be used to transport personnel to and from camps.

A number of the Proponents' commitments and mitigations related to transportation infrastructure were either included in or superseded by the SEA. The primary paragraphs of the SEA relevant to air transportation include paragraphs 5.3.3 and 5.3.4.

The Proponents made several other specific commitments regarding:

- increased demand;
- transporting construction personnel;
- coordinating arrival and departure times;
- security checks and baggage handling;
- crew transfer points;
- Project requirements and detailed plans; and
- compliance with Access and Benefits Agreements.

The Proponents noted the potential for Project air traffic requirements to affect air travel and freight services within the Regional Study Area, particularly at the hub airports of Inuvik, Norman Wells and Fort Simpson. Without carefully planned mitigation, the Proponents concluded that the Project could have negative impacts on air travel and air freight services. They also noted that they expected that the Yellowknife airport would be able to handle the anticipated incremental traffic load. The

Proponents stated that, in all cases, negative impacts would be expected to last only during construction and would not be significant. The Proponents concluded that no significant adverse residual impacts are expected during operations. With the application of its proposed mitigation measures, the Proponents concluded that no significant adverse impacts are expected on air transportation. The Proponents also submitted that the Project could result in some increase in transportation capacity within the Regional Study Area.

PARTICIPANTS' VIEWS AND RECOMMENDATIONS

Transport Canada stated that it had no outstanding concerns with the current equipment and safety landing systems at the major airports that the Proponents would use. They noted that the airlines were aware of the Project, and, if they needed more equipment or aircraft, they could either purchase or lease it. Regarding increased air traffic volume, Transport Canada noted that it is responsible for audits and inspections of certified airports and that the owners or operators of airports or aerodromes are responsible for traffic levels. If traffic becomes too great for a particular airport, the airport operator would implement appropriate flow control measures for how many aircraft were allowed to land. Transport Canada also noted that smaller airstrips, such as those proposed for the Project and used in the diamond mining industry, are often classified as "Private, Prior Permission Required," meaning that a pilot must have permission to land there. Earlier in the Panel's proceedings, the Proponents had confirmed that new airstrips and helipads would be so registered. The Proponents also confirmed that lighting in accordance with Canadian aviation regulations, standards and practices would be required, as most construction work would be in the winter. New airstrips would also be designed with appropriate navigational systems.

The GNWT agreed with the Proponents that most airstrips and airports in the Regional Study Area would experience substantially increased traffic during construction. Consequently, it stated that additional flights might cause congestion of airport facilities and noted potential regulatory concerns with regard to issues such as violation of federal zoning regulations. Specifically, the GNWT noted potential concerns regarding availability of apron space for parked aircraft.

As previously noted, the GNWT filed no recommendations with the Panel regarding transportation infrastructure, as it was of the view that transportation-related issues would be addressed through the SEA.

The Pehdzeh Ki First Nation expressed concerns regarding the use and maintenance of the Wrigley airport and major increases in air traffic due to the Project. It was of the view that it would need a larger airport terminal and related infrastructure to deal with increased air traffic.

The Pehdzeh Ki First Nation filed a recommendation with the Panel regarding potential terminal and infrastructure

improvements at the Wrigley airport related to baggage claim and expediting, security, storage and aircraft maintenance services. In response, the Proponents stated that they did not expect additional facilities to be required at the Wrigley airport to accommodate Project air transportation requirements. The GNWT did not agree with this recommendation and stated that any improvements required at the Wrigley airport to accommodate Project needs and maintain safe travel for the public would be addressed through the SEA. It submitted that potential improvements should be determined following the Proponents' final logistics plan and should not be required prior to construction.

The Pehdzeh Ki First Nation also stated that, should lengthening the existing runway at the Wrigley airport be required to accommodate larger aircraft, it was willing and able to lengthen it to the required specifications. In response, the Proponents stated that they did not expect that the Wrigley airport runway would need to be lengthened.

The Panel also heard concerns regarding potential Project impacts on cargo shipments to Sachs Harbour. It was noted that the community is currently experiencing difficulties obtaining a sufficient number of cost-effective cargo flights out of Inuvik to supply community demands. The Sachs Harbour Community Corporation stated that this problem would likely become worse in light of increased Project demands for cargo flights in the area.

PANEL VIEWS

In the Panel's view, the actions of the Proponents and the GNWT should permit the level of air traffic envisioned for the Project to proceed with minimal disturbance to community services.

PARSONS LAKE AIRSTRIP AND ALTERNATIVES

Early in the Panel's proceedings, the Panel was made aware of the concerns of the Hamlet of Tuktoyaktuk and some of its residents regarding construction of the proposed Parsons Lake airstrip. The alternatives put forward to the construction of a larger airstrip include construction of a smaller airstrip and other road options; therefore, the Panel has chosen to discuss these issues in this section of the Report. The Panel also notes that the following discussion focuses on potential infrastructure impacts only. Potential environmental impacts associated with the Parsons Lake airstrip and proposed alternatives are discussed elsewhere in this Report, primarily in Chapter 10, "Wildlife."

PROPONENTS' VIEWS

ConocoPhillips plans to construct a permanent airstrip in the Parsons Lake area capable of handling aircraft up to the size of Boeing 737s. Two helipads, temporary ice roads for ground transportation, and an all-weather road from the airstrip to the north pad would also be required.

ConocoPhillips outlined its aircraft requirements to support the Parsons Lake development. A variety of aircraft would be used,

including heavy-lift helicopters, smaller fixed-wing aircraft and larger fixed-wing aircraft, such as the Lockheed Martin Hercules and Boeing 737, with the latter configured to carry personnel and cargo. ConocoPhillips noted that larger aircraft would be required to provide cargo service to support well drilling and completion activities on a year-round basis.

ConocoPhillips also provided a detailed comparative analysis of air and land transport alternatives to deliver materials, equipment and personnel to and from the proposed Parsons Lake field. ConocoPhillips stated that fundamental to its analysis of access alternatives is the need for year-round access due to the nature of the proposed activities. Although it had initially considered the use of all-weather roads for accessing the Parsons Lake site, it determined that the construction of such roads would not be economical and, therefore, did not consider this viable. It further stated that it was of the view that construction of a public highway that might be used for accessing the site is the responsibility of government and not the Proponents. As the timing of such a road cannot be determined with certainty, ConocoPhillips stated that the Project's schedule cannot depend on such indeterminate timing. However, it also submitted that it had assisted in reopening communication among the Hamlet of Tuktoyaktuk, the GNWT and the federal government regarding a potential all-weather highway between Inuvik and Tuktoyaktuk.

PARTICIPANTS' VIEWS AND RECOMMENDATIONS

The Hamlet of Tuktoyaktuk, the Tuktoyaktuk Community Corporation and community residents continued to express opposition throughout the Panel's proceedings to the current plan for the Parsons Lake airstrip. In addition to environmental concerns, participants were concerned that the airstrip would serve as an alternative to the airstrip already at Tuktoyaktuk and result in the movement of industrial activity away from Tuktoyaktuk. Their preference was to use the existing airstrip at Tuktoyaktuk and promote the construction of all-weather roads to the site, which might also support construction of an all-weather road between Inuvik and Tuktoyaktuk. The Tuktoyaktuk Community Corporation outlined specific options it had put forward to ConocoPhillips, but it stated that these options had not been taken into consideration. These options included:

- a smaller airstrip on the west side of Parsons Lake;
- construction of a winter airstrip on Parsons Lake;
- using existing airstrips at Tuktoyaktuk and Swimming Point;
- construction of an all-weather road from Tuktoyaktuk to Gravel Source 177 and onward to Parsons Lake;
- construction of a haul road from the end of Gravel Source 177 to Parsons Lake, which ConocoPhillips could utilize year-round except during summer; and
- construction of a one-time, heavy-duty winter road to haul the modules and heavy equipment.

The Hamlet of Tuktoyaktuk submitted that the development of a site-specific airstrip at Parsons Lake could have long-term and serious consequences for the Hamlet, and it encouraged the Panel to "forcefully remind" ConocoPhillips of this position. (Mayor Jackie Jacobson in Tuktoyaktuk, HT V98, p. 9778)

In response, ConocoPhillips stressed that it had considered the options put forward by Tuktoyaktuk and its residents and determined that they are not workable. ConocoPhillips concluded that the only viable development scenario for Parsons Lake would require an airstrip on-site to provide year-round access for the following reasons:

- the safe and efficient movement of personnel must be ensured;
- year-round operational requirements, including emergency response capabilities, need to be provided for;
- Parsons Lake is landlocked and remote from existing roads;
- a public highway would not be built in time to meet the Project's proposed construction schedule; and
- a permanent access road would be cost-prohibitive.

ConocoPhillips also submitted that its airstrip would not compete with Tuktoyaktuk's existing airport since the latter would be a private airstrip and not be for public or industrial use.

In their closing remarks, the Proponents reiterated their views as to why the proposed Parsons Lake airstrip is the only viable option for accessing the Parsons Lake site. They further submitted that, since an all-weather access road is not economically feasible, an environmental assessment of such a road is not required, and the Panel should not conclude that an all-weather road be considered as an alternative means of access when it is not economically feasible and has not been assessed. The Proponents stated that ConocoPhillips requires an airstrip to support the Parsons Lake development and that the development could not proceed in its absence. The Proponents also stated that the Parsons Lake Anchor Field is integral to the overall Project and that a viable development plan for Parsons Lake is necessary for the Project to proceed.

In Tuktoyaktuk, Randal Pokiak recommended to the Panel that no gravel airstrip be built in the Parsons Lake area and that an all-weather road be used instead for access to the Parsons Lake field for the following reasons:

- there would be less environmental impact on wildlife and wildlife habitat for the benefit of harvesters;
- eventually, there will be an all-weather road between Tuktoyaktuk and Inuvik, which would have impacts related to the road and proposed airstrip; and
- there is already public support from the majority of Tuktoyaktuk residents for an all-weather road, and the current

interest in developing the Parsons Lake field presents an opportunity to work out a financial deal between the oil industry and the GNWT for constructing the highway link to Inuvik, leading to social and economic benefits of the already impacted community of Tuktoyaktuk.

During the Tuktoyaktuk hearing, other participants made similar recommendations to the Panel.

The Proponents did not agree with these recommendations and reiterated why they believed that construction of the proposed Parsons Lake airstrip is necessary.

PANEL VIEWS

In Chapter 10, “Wildlife,” the Panel found that the proposed Parsons Lake airstrip would not likely result in significant adverse environmental impacts. Having made this finding, the Panel now turns its attention to the potential impacts of, demands on and contributions to transportation infrastructure associated with the Parsons Lake airstrip.

The Panel was told that construction of the Parsons Lake airstrip could have serious consequences for Tuktoyaktuk. Participants asserted that the airstrip would serve as an alternative to the Tuktoyaktuk airport, which could result in the movement of industrial activity away from Tuktoyaktuk.

However, the Panel notes that there was negligible evidence put forward to support the assertion of negative impacts of the Parsons Lake airstrip on traffic into the Tuktoyaktuk airport or on area businesses. Furthermore, the Panel notes ConocoPhillips’ submission that the Parsons Lake airstrip would not compete with Tuktoyaktuk’s airport since it would be a private airstrip and not be for public or industrial use. The Panel is of view that there is not sufficient evidence on the record to support the assertion that construction of the Parsons Lake airstrip could result in significant economic or transportation impacts on the Hamlet of Tuktoyaktuk and its residents.

The Panel notes the Proponents’ statement that the Parsons Lake airstrip is integral to the Parsons Lake development, which, in turn, is integral to the Project. Nonetheless, the Panel is of the view that it should comment on the alternatives to the Parsons Lake airstrip put forth by participants such as the Hamlet of Tuktoyaktuk, its residents and the Tuktoyaktuk Community Corporation. Alternatives to the proposed Parsons Lake airstrip in its current form included a variety of road alternatives, such as construction of an all-weather road from Tuktoyaktuk to Parsons Lake. Participants expressed the belief that an all-weather road to Parsons Lake might, in turn, promote the construction of an all-weather highway between Inuvik and Tuktoyaktuk. The evidence before the Panel indicates that construction of an all-weather highway between Inuvik and Tuktoyaktuk remains a long-term priority for the GNWT. However, the Panel heard that the GNWT does not have the current fiscal capacity to construct this highway and has submitted a funding request to the Government

of Canada. The GNWT has undertaken preliminary environmental studies regarding the proposed all-weather highway route. The Panel does not have evidence before it supporting the idea that timelines or funding associated with construction of an all-weather highway from Inuvik to Tuktoyaktuk would be affected by the construction of an all-weather road to the Parsons Lake development.

Further, the Panel notes that an environmental assessment has not been conducted for an all-weather road to the Parsons Lake area. In light of this and ConocoPhillips’ opinion that an all-weather road is not economically feasible, ConocoPhillips submitted that the Panel should not consider an all-weather road as an alternative means of access. Considering the Panel’s finding that the Parsons Lake airstrip is not likely to result in significant adverse environmental impacts, the Panel does not find it necessary to speculate on potential environmental impacts associated with construction of an all-weather road. Should such a road be considered in the future, the Panel is of the view that an environmental assessment should be undertaken by the appropriate parties at that time.

ConocoPhillips stated its need for permanent year-round access to the Parsons Lake site and outlined its need for an airstrip capable of handling aircraft up to the size of a Lockheed Martin Hercules or Boeing 737. The Panel is persuaded by ConocoPhillips’ evidence of the need for the airstrip as proposed in its current form. The Panel is also mindful of ConocoPhillips’ concern that a public highway would not be built in time to meet the Project’s construction schedule.

14.3 LOCAL INFRASTRUCTURE

14.3.1 EXISTING CONDITIONS

The GNWT explained the role of its Department of Municipal and Community Affairs (MACA) regarding municipal and territorial infrastructure. MACA does not operate municipal services but, rather, establishes a policy and legislative framework and provides funding, technical support and advice to enable community governments to deliver their legislative mandates. Infrastructure that falls within MACA’s mandate includes water treatment plants, solid waste sites, sewage disposal systems, community offices and community gathering buildings, recreational facilities, and roads. The NWT’s six larger communities, or tax-based communities (including the five regional centres covered in this Report), have full authority for all aspects of their infrastructure development, including planning and financing. Traditionally, MACA has been responsible for planning and financing municipal infrastructure for all other communities in the NWT. However, under the GNWT’s strategic policy initiative, the New Deal for NWT Community Governments, MACA noted that, as of April 1, 2007, the majority of NWT community governments would become

fully responsible for the acquisition and development of their infrastructure. In turn, MACA would provide funding that it previously kept within its own budget to these communities to build these projects. Property taxation authority and property taxation revenues would also be transferred to these community governments.

The GNWT noted that the tax base of some communities was so small that MACA did not even conduct assessments because the cost of the assessment would exceed tax revenues. The remaining communities generated a total of \$350,000 in annual tax revenues, ranging from as little as \$1,000 per year to \$73,000 per year in the case of Tuktoyaktuk. In 2004, MACA estimated that there was a \$168 million deficit in public infrastructure throughout the NWT. More recently, MACA revised the estimated deficit to \$400 million due to rising costs of construction in the NWT.

The adequacy, or inadequacy, of public community infrastructure is reflected in the range and level of services available in smaller communities. Water is provided through services ranging from bucket and melting blocks of ice to full, piped-in delivery in the larger regional centres. Most smaller communities are served by water truck, although some homes have piped systems. Water is taken from nearby lakes and rivers or, less commonly, from wells in places where permafrost is not a factor. Water quality is generally good, except at Aklavik and Tulita, where the treatment facility is often challenged by seasonal increases in sediment, and at Enterprise, where private wells may contain hydrogen sulphide.

Sewage is disposed of either by bags or pump-out from holding tanks in most small communities. Bagged sewage is deposited in lagoons. Pumped-out sewage is emptied from trucks into lagoons, which in turn drain into local surface water. Norman Wells, Hay River, Yellowknife, Inuvik and Fort McPherson have a combination of piped sewage disposal, bagging and pump-outs. Enterprise uses a pump-out system. Wrigley and Nahanni Butte use pit privies or septic fields. All communities, except Colville Lake, have some form of a landfill to dispose of solid wastes.

Most communities do not have cellular phone service. Wrigley, Trout Lake and Colville Lake have no Internet service. While many smaller communities have at least one public point where there is Internet service, such as a school or town office, there are few private points. Microwave and satellite phone services, CBC radio and satellite television are available everywhere, except in Colville Lake where there is no television service. The regional centres have private radio and television services as well as public service through the CBC. All communities receive newspapers and mail delivery.

Community leaders and members spoke about the effectiveness of water and waste systems and suggested that these systems may be operating at capacity and may need expansion whether or not the Project goes ahead. In Wrigley, D'Arcy J. Moses,

Protected Area Strategy Coordinator and Acting Land and Resource Officer, Pehdzeh Ki First Nation, stated:

High priority, community water supply: We've been living for years with inadequate and a possibly contaminated water supply system. Most of our traditional drinking water still comes from road accessible creeks such as River Between Two Mountains. There is concern of dust and related emissions in our traditional sources of drinking water. (HT V27, pp. 2462–63)

In Fort Providence, Darren Campbell of the Fort Providence Resource Management Board noted:

The Fort Providence dump site here is a municipal facility, and it's designed exactly for that. It's not designed to take on extra industrial-type disposals.

Another thing is...I don't believe that there's a hazardous waste disposal site located in the entire Northwest Territories. So in municipal facilities, things tend to stockpile and grow in size.

There's a number of municipal facilities that I have visited that [have] batteries and oil drums and car parts — I don't know if you've been paying attention to the news about Iqaluit's growing problem with dead cars..." (HT V40, p. 3669)

14.3.2 PROPONENTS' VIEWS

The Proponents submitted that the largest single design feature of the Project to avoid potential direct impacts on community infrastructure and related services was its plan to house most Project construction workers in self-contained camps. The camps would generally be designed to be self-sufficient for power generation and fuel, water supply and treatment, sewage and solid-waste treatment and disposal, communications capabilities, medical facilities, and emergency response. The camps would generate a typical domestic wastewater stream from kitchen, laundry, bathroom and washing facilities, and the Proponents plan to use commercially available self-contained sewage and wastewater treatment systems. In response to an inquiry from the Fisheries Joint Management Committee regarding historical evidence for effectiveness of wastewater treatment in the region, the Proponents noted that they had selected equipment that has been shown to be effective in northern environments. Issues related to potential Project impacts on water quality as a result of wastewater and sewage treatment, including maintenance of drinking water quality, are discussed in Chapter 8, "Air and Water Quality."

Notwithstanding the self-sufficiency of the Project's proposed camps, the Proponents noted that they might enter into agreements with nearby communities to use their infrastructure and/or related services. The Proponents stressed that this would occur only in cases where the community has sufficient capacity and where both parties would benefit. In these cases, the Proponents would become an additional source of municipal

revenue by becoming customers for existing excess capacity. The camps would not require electrical power from communities because the camps would be self-sufficient in this respect.

The Proponents noted that discussions were under way with tax-based municipalities about potential Project use of specific infrastructure or services, where such arrangements might be of mutual benefit. They stated that the Project's use of infrastructure, land or services would be implemented through existing governance and commercial means such as bylaws, fee-for-service arrangements, road-use agreements or leases. Possible uses of infrastructure under discussion at that time included bulk water purchase from Inuvik for use at the Inuvik Area Facility and Campbell Lake camps, the purchase of water from Fort Simpson for the Liard River crossing camp, and the purchase of water and sewer services from Hay River and Norman Wells for the camps in those communities. However, the need for the Hay River camp was subsequently eliminated in the May 2007 *Supplemental Information — Project Update*.

The Proponents stated that they do not plan to send solid or semi-solid waste to community landfills during the construction phase, when volumes of waste generated would be larger than during the Project's operations phase. The Proponents expect to dispose of solid waste materials at third-party industrial landfills, likely outside of the NWT. These waste materials would be shipped by either truck or barge.

The Proponents may use community landfills to dispose of smaller volumes of acceptable inert waste materials generated from permanent facilities during the Project's operations phase. Any use of community solid waste services would include discussions with community representatives, GNWT representatives such as MACA, and local regulatory authorities.

The Proponents stated that, during the construction phase, Project workers would not be expected to use community recreational facilities and programs, as the workers would be housed in self-contained construction camps equipped with recreational facilities. The Proponents further stated that, during the operations phase, Project workers and their families stationed in Inuvik and Norman Wells may use existing community recreational facilities and programs.

During the Panel's proceedings, the Proponents made specific mitigation and commitments regarding:

- equipping self-contained construction camps;
- storing toxic or hazardous materials;
- recycling wastewater;
- using local utilities and infrastructure maintenance service providers;
- developing a waste tracking system; and
- using community landfills.

The SEA committed the Proponents to negotiate arrangements for Project-related use of municipal-type services with the municipalities of Inuvik, Norman Wells, Fort Simpson and Hay River, as appropriate (SEA, paragraph 5.3.8), as well as with other communities if a mutually beneficial opportunity for Project-related use of municipal-type services arose (SEA, paragraph 5.3.9).

Overall, the Proponents submitted that the Project would not have adverse impacts on non-transport-related community infrastructure such as utilities, energy sources or communications in any community in the Regional Study Area. The Proponents stated that the Project may result in benefits to communities that have excess capacity. The Proponents also submitted that all communities have sufficient utilities and energy infrastructure capacities to provide for any foreseeable demands created by the projected level of in-migrants or transients the Project might attract to the Regional Study Area during construction or operations.

14.3.3 PARTICIPANTS' VIEWS AND RECOMMENDATIONS

Several communities noted concerns regarding potential Project impacts on municipal infrastructure. As well, the communities that could supply infrastructure services to the Project camps commented on potential infrastructure provision arrangements with the Proponents. The Panel also heard concerns regarding solid-waste disposal and sewage and grey-water treatment.

MACA submitted that community presentations to the Panel are reflected in the GNWT's general submission and in discussions related to the SEA.

The GNWT noted the following in discussion of its recommendations regarding waste management:

- The GNWT's recommendations to the Panel should be incorporated as components of the Environmental Protection Plan required by the National Energy Board.
- The NWT does not currently possess the infrastructure to adequately treat and dispose of waste streams originating from industrial operations. Commercial or third-party waste management infrastructure in the NWT, including that of local communities or commercial enterprises, is narrowly limited or non-existent.
- Tracking waste produced and disposed of that originates from industrial operations in the NWT, other than what is required to be manifested for hazardous waste transportation, will be necessary to monitor impacts and activities related to controlling waste and materials.
- Reporting would be useful to help predict and plan for present and future waste management infrastructure and the development of a territory-wide waste management strategy.

Reporting would also assist in realizing adaptive waste management.

- All reporting should reflect consistency with Project scheduling, be made publicly available without restriction, be developed in consultation with GNWT, and be consistent with National Energy Board Proposed Conditions as stated in its letter dated February 5, 2007. This reporting is not intended to replace existing reporting requirements presently required.

The Settlement of Enterprise noted that its experience with previous development projects showed that the amount of solid waste generated is consistently underestimated. Thus, it suggested the development of a regional waste management facility within its boundaries. Further, it noted that most of its drinking water is trucked from Hay River and that it was concerned that the Project's demand for truck drivers could result in interruptions to water delivery. The Settlement suggested that it needs a secure alternative source of community water to alleviate any potential water shortages that might occur. It stated that it did not need alternative piped services but, rather, a safe and secure alternative community source.

The Village of Fort Simpson expressed several concerns regarding potential Project impacts on water and sewage infrastructure and solid-waste disposal. It stated that it wished to explore these issues further with the Proponents and other levels of government. The Village noted that it would revisit these issues with the Panel before the end of the hearings in order to report on progress and present final recommendations. The Proponents noted that they had already met with the Village and the GNWT to discuss concerns and looked forward to continued discussions. The Village did not file any closing remarks or recommendations with the Panel.

The Town of Hay River noted concerns regarding potential impacts on its water, sewage and solid-waste disposal systems as a result of Project activities, and it noted its ongoing discussions with the Proponents regarding its concerns. The Proponents confirmed their discussions with the Town and noted that they looked forward to continued and successful discussions.

The Town of Inuvik noted that, although it could conceivably provide potable water to nearby camps, it did not appear that supplying water to nearby camps would be beneficial to it. Nonetheless, the Town noted that it would have future discussions with the Proponents regarding any rate or user-fee agreements for water or other municipal services. The Town confirmed that any user-fee agreements, rate bylaws or any type of monitoring of the Project through the municipality would not cost the taxpayers any additional money.

In its closing remarks, the Town of Inuvik noted that, although it continues to have concerns regarding the potential impacts of the Project on its municipal services and infrastructure, it supported the Project and the benefits it would provide. The Town noted that the municipality has no ability to tax facilities

or activities occurring outside the municipal boundaries and that royalties paid by the Proponents would accrue directly to the territorial and federal governments. No further funding would be provided to the Town to address the additional costs of municipal infrastructure and services caused by the Project. The only avenue to obtain compensation for the use of municipal infrastructure and services would be through a fee-for-service agreement or a community impact development agreement with the Proponents. The Town noted that it would continue to recommend that community impact development agreements be completed and that appropriate levels of compensation be provided to the Town to protect and enhance community infrastructure. The Town of Inuvik noted that, as of the close of the Panel's proceedings, it was close to reaching agreement with the Proponents on mitigating potential impacts to infrastructure and on the tax mill rate.

The Town of Norman Wells confirmed that it had made substantial progress with the Proponents on developing fee-for-service agreements and had worked out arrangements for sewage disposal and supply of potable water, including preferred transportation times. The Town also stated that it was its expectation that marine services required by the Proponents would be managed to provide minimal disruption to the community. Specifically, the Town will seek assurances that Norman Wells' recreational boaters would enjoy unrestricted access to community docks.

The Pehdzeh Ki First Nation noted concerns regarding sewage and water treatment and solid-waste management at the Proponents' camps. It requested funding from the Proponents to help build a new water treatment plant so that it could provide water to the Proponents' camps. The Pehdzeh Ki First Nation also recommended that refuse be sorted for recyclable and reusable materials for donation to the local community. In response, the Proponents noted that the Project's construction camps would be self-contained. The Proponents do not intend to use Pehdzeh Ki First Nation community infrastructure and services for the Project, and they considered that upgrades to community services are not the Proponents' responsibility. The GNWT stated its willingness to assist a community should the Proponents wish to use community facilities such as the community water supply. The Proponents also stated that waste from Project construction camps would be transported to approved landfills, likely outside of the NWT, and that specific waste handling procedures, including community initiatives, would be considered as Project planning advances.

The Pehdzeh Ki First Nation also recommended that no waste be burned at any Project camps or work locations. This recommendation was directed to the Proponents and the GNWT. The Proponents did not agree with this recommendation and noted that non-hazardous combustible construction camp waste that was not bagged for disposal would be incinerated on-site. The GNWT had no position on this recommendation and noted that there is no GNWT or federal legislation that prohibits incineration. With respect to air quality, however, there are

Canada-wide standards that provide emissions limits and testing and reporting requirements (see Chapter 8, “Air and Water Quality”). The GNWT also noted that these issues were covered in its recommendations regarding waste management.

14.3.4 PANEL VIEWS AND RECOMMENDATIONS

The Panel observes that the basic utilities in the regional centres — water, sewer, waste disposal, electricity, telephone and Internet — are of a similar standard to those encountered in small towns in southern Canada, although in some cases at higher costs due in part to engineering challenges of cold weather and permafrost. In smaller northern communities these services, if available, are less convenient, less reliable and more costly.

The Panel notes the Proponents’ commitment to self-sufficiency of their camps in terms of power, water supply, water treatment, sewage and solid-waste treatment and disposal, communications, and recreational facilities. Further, as provided for in the SEA, where the Proponents might wish to use community services, they would enter into fee-for-service agreements if mutually beneficial to both parties. While the Panel agrees that fee-for-service agreements would help to mitigate Project impacts, the Panel is concerned with the timing of these agreement negotiations. To ensure timely mitigation and, if required, compensation to the NWT communities identified in section 5.3.8 of the SEA, the Panel is of the view that the fee-for-service agreements need to be concluded prior to the commencement of Project construction activity.

RECOMMENDATION 14-2

The Panel recommends that the National Energy Board, as a condition of any certificate or approvals it might issue in relation to the Mackenzie Gas Project, require the Proponents to demonstrate, at least six months prior to the commencement of construction, that they have concluded fee-for-service agreements with affected communities respecting the use of community services or infrastructure facilities.

In light of these and other commitments and mitigation, the Panel has not identified any potential adverse impacts of the Project on local infrastructure. However, the Panel recognizes that there are outstanding concerns, particularly on the part of the GNWT, regarding waste management.

In its consideration of the GNWT’s recommendations, the Panel notes other commitments of the Proponents, the most important being:

- to not use community landfills;
- to transport all construction waste to approved landfills, likely outside the NWT; and
- to implement a waste tracking system as part of its Waste Management Plan.

Despite the GNWT’s statement that the Proponents had previously accepted its recommendations regarding waste management, the Panel notes that the Proponents did not agree with three of the GNWT’s four recommendations on this issue. The Proponents agreed to the remaining recommendation, but with variation. It is the Panel’s understanding that the Proponents agreed with the premise of the GNWT’s recommendations, as the GNWT submitted that waste management planning, implementation and reporting were addressed by the Proponent’s commitments and by regulatory requirements. What appears to be at issue is the frequency and form of reporting that the Proponents would undertake. Neither party has stated that it does not see a need for waste management planning, including regional waste management concepts. The Panel is of the view that this issue is best resolved through continued consultation between the Proponents and the GNWT.

RECOMMENDATION 14-3

The Panel recommends that the National Energy Board, as a condition of any certificate or approvals it might issue in relation to the Mackenzie Gas Project, require the Proponents to file with the National Energy Board and the Government of the Northwest Territories, prior to the commencement of construction, a Waste Management Plan that incorporates all of the Proponents’ commitments and regulatory requirements. The plan should also include reporting requirements developed in consultation with the Government of the Northwest Territories.

Since the need for a construction camp at Hay River was eliminated, the Panel understands that any impacts on Hay River’s infrastructure would result from other Project activities and not from the camp originally proposed.

The Panel also notes the Settlement of Enterprise’s concern regarding potential water delivery interruptions resulting from a shortage of truck drivers due to Project demands. The Panel is of the view that Enterprise’s concerns are similar to other concerns raised with the Panel regarding potential displacement of the current labour force for Project-related employment. This issue is discussed further in Chapter 15, “Economic Impacts.”

14.4 GAS SUPPLY TO COMMUNITIES AND OTHER SMALL-MARKET CONSUMERS

14.4.1 EXISTING CONDITIONS

Electrical generation in the NWT is the responsibility of the Northwest Territories Power Corporation. All communities in the Project Review Area currently use diesel generators to generate power, except for Inuvik and Norman Wells, which use local sources of natural gas. Diesel generation depends on annual resupply of diesel fuel by barge or truck. Those communities that rely on local diesel generation are partially subsidized by the GNWT to reduce cost differentials with Yellowknife.

Many communities expressed interest in obtaining natural gas from the Project for home use or to displace diesel power generation, with existing generators likely serving as backup or for emergency use. Some community residents spoke of the high cost of diesel-generated electricity and the inconvenience of running small generators. In Fort Good Hope, John T'Seleie, Executive Director of the Sahtu Land Use Planning Board, stated:

Electricity cost is a high cost as well for everyone.

I don't know who in the end to blame, but if ten years from now we're still paying diesel prices while a gas pipeline is running two miles from us, I am really going to believe that something is wrong. So I hope we're not going to be paying diesel prices forever for electricity. (HT V23, p. 2158)

14.4.2 PROPONENTS' VIEWS

To facilitate access to gas for communities and other small-market consumers (defined in the SEA to include residential, institutional and small industrial customers), the Proponents committed to provide valve access points on the Mackenzie Valley Pipeline at their expense if:

- natural gas purchase agreements are in place;
- agreements are in place with pipeline owners for the interconnection; and
- regulatory approvals are in place.

In response to questioning from the Panel, the Proponents confirmed that valve access points could be installed during the operations phase of the Mackenzie Valley Pipeline at no cost to the party requesting it and that these conditions need not be in place prior to construction.

Which communities and customers might choose to convert to natural gas would, in the Proponents' view, depend on a number of factors, including proximity to the Mackenzie Valley Pipeline, size of customer base, and the cost of converting existing furnace and heating systems to natural gas. The Proponents noted that Inuvik, Fort Good Hope, Norman Wells, Tulita, Wrigley, Fort Simpson and Jean Marie River are all within 20 km of the pipeline route and are potential candidates for access to natural gas. Inuvik, which has an existing natural gas distribution system, would require about 19 km of pipe and metering in addition to pressure-reduction facilities. Norman Wells, which also has a natural gas distribution system, would require only about 1 km of pipe to connect to the Mackenzie Valley Pipeline. The Proponents submitted that Norman Wells' current source of natural gas supply is declining and that a replacement source of natural gas is important, which was confirmed by the Town. The five other communities would require pipe lengths ranging from approximately 3 to 20 km in order to access the Mackenzie Valley Pipeline.

In the section of the SEA that discusses residential and industrial access to gas, the Proponents committed to assist in providing

access to gas to NWT small-market consumers, who generally consist of industrial and manufacturing consumers and whose total gas consumption at any particular location in the NWT is less than 100,000 GJ in any calendar year. Paragraph 6.3.2 of the SEA commits the Proponents to design the tolls for the pipeline "so as to provide a credit to each firm shipper on the Mackenzie Valley Pipeline that makes deliveries of gas to any delivery point located in the Northwest Territories for use by a NWT Small Market Consumer." (J-GNWT-00206, p. 29) Under paragraph 6.3.3, the Proponents committed to include the cost of all metering and other interconnection facilities downstream of the access point valves that are required to provide delivery of gas from the Mackenzie Valley Pipeline.

The Proponents also committed to charging reduced Mackenzie Valley Pipeline tolls for up to 100,000 GJ/a for natural gas delivered to NWT residential and small-market consumers. Communities would be able to negotiate gas purchase agreements with shippers. The Proponents submitted that the negotiated price would reflect these reduced tolls. Communities could also choose to build their own natural gas distribution systems. Any party that chooses to access gas from the Mackenzie Valley Pipeline would be responsible for providing any facilities downstream of the access valve, such as transportation and distribution, metering, and other facilities needed to bring the natural gas from the Mackenzie Valley Pipeline to users in the communities.

A number of the Proponents' commitments and mitigation measures that are related to energy and utilities were either included in or superseded by the SEA. With respect to fuel supply to communities and other small-market consumers, paragraph 5.2.1 of the SEA committed the Proponents to not purchase any diesel fuel or gasoline from GNWT or its agents in Fort Good Hope, Tulita, Trout Lake or Tsiigehtchic for Project-related purposes without first obtaining consent from the GNWT, and to make reasonable efforts to cause their contractors to do the same.

In sum, the Proponents' commitments to facilitate community and small-market access to gas are described in detail in the SEA. The Proponents confirmed with the Panel that the same conditions in the SEA would apply for existing gas distribution systems in Norman Wells and Inuvik, i.e. both of these communities would benefit from a reduced tolling rate.

14.4.3 PARTICIPANTS' VIEWS AND RECOMMENDATIONS

The GNWT retained CH4 Consulting to evaluate the feasibility of gas supply to communities and summarized the results of its work in a report entitled *Bringing Natural Gas to NWT Communities: Synopsis Report* (November 2006). The GNWT stated that the conversion to natural gas for the communities of Tulita, Fort Good Hope and Fort Simpson appears to be economical because of their proximity to the proposed pipeline.

However, it submitted that the economic benefits would be marginal and that relatively small savings would be realized over a 20-year period. The GNWT submitted that environmental benefits of using cleaner-burning natural gas and avoiding the use of imported diesel strengthen the case for these communities to convert to natural gas. The study's findings were based on a number of assumptions that included, but were not limited to, the anticipated cost of natural gas relative to diesel, the expected capital costs for facilities and pipelines in the community, and almost complete conversion of the community to natural gas for heating, cooking and electrical supply. The GNWT noted that the proposed next steps would involve working with communities on a more detailed analysis and undertaking field investigations to review and prove these assumptions.

The GNWT stated that Fort Good Hope and Tulita appear to have the strongest initial case because both communities are within 5–7 km of the proposed pipeline route and have no major obstacles such as river crossings that could elevate the cost and present technical challenges to the construction of a lateral pipeline. The conversion for Fort Simpson might be more challenging, as the community is situated some 20 km from the pipeline, and a directional drill under either the Liard River or the Mackenzie River would be required.

The GNWT also noted that it expects that 100,000 GJ/a of gas, which was offered by the Proponents at reduced tolls, would cover all community and potential industrial gas demand for the foreseeable future. Thus, NWT communities and industries should see a reduced toll rate for access to the Project's natural gas. However, economics would play a large role in the feasibility of community access to gas, and the supply of natural gas would also need to be competitive with current energy supplies.

The Ayni Keh Land Corporation recommended that the Proponents guarantee the availability of a minimum gas supply and make available market development funds to assist in the development of natural gas infrastructure and conversions.

The Proponents did not agree with either of these recommendations and stated that the natural gas transported through the Mackenzie Valley Pipeline would be available to any buyer that has an agreement to receive delivery of it. The Proponents reiterated their commitments regarding facilitating community access to gas.

The Pehdzeh Ki First Nation recommended that the Proponents provide a gas supply valve near the community to allow for free access to the natural gas shipped south. The Pehdzeh Ki First Nation also requested that the Project assist in the design, construction and financing of the community's natural gas supply lines. The Proponents did not agree with this recommendation and noted their commitments to facilitate community access to gas.

14.4.4 PANEL VIEWS

The Panel is of the view that potential benefits associated with community access to gas are uncertain, with the exception of Norman Wells and, possibly, Inuvik. Both of these communities have an existing natural gas infrastructure in place and would likely be within an accessible distance from the Mackenzie Valley Pipeline to facilitate construction of any new required infrastructure, should they so choose.

For any small-market consumer to access natural gas from the Mackenzie Valley Pipeline, that consumer or a third-party provider must be able to fund and develop distribution infrastructure. Further, for the Proponents to provide valve access on the Mackenzie Valley Pipeline, there must be natural gas purchase and interconnection agreements in place, in addition to regulatory approvals. With the exception of Norman Wells, there is no evidence before the Panel indicating that communities or other small-market consumers are likely to access gas from the Mackenzie Valley Pipeline. In fact, the GNWT stated that the economics are marginal for communities such as Tulita, Fort Good Hope and Fort Simpson, all of which are within 20 km of the Mackenzie Valley Pipeline. The Proponents also confirmed that, although their offer to facilitate gas access was extended to all communities, it would likely be economically beneficial only to certain communities and would not likely be economically favourable for those that are some distance from the Mackenzie Valley Pipeline, such as Colville Lake and Hay River. Further, the Panel notes that, despite the Proponents' submission that shippers would pass on savings from the reduced tolls to small-market consumers in their negotiation of natural gas purchase agreements, there is no guarantee of the extent to which that might occur. This could further impact the economics associated with accessing Mackenzie Valley Pipeline gas.

The Panel is of the view that only the Town of Norman Wells is likely to benefit from access to Mackenzie Valley Pipeline gas. The Town of Inuvik may benefit in the future, should it choose to access gas from the Project. There is insufficient information available at this time and, therefore, no basis upon which the Panel could determine that any other community in the NWT might benefit from access to natural gas from the Mackenzie Gas Project. Thus, this potential benefit remains an uncertainty.

14.5 HOUSING

This section examines potential Project impacts on and contributions to the physical stock of housing within the Project Review Area. Socio-economic and socio-cultural drivers related to housing demand and affordability and associated mitigation are, for the most part, discussed in Chapter 16, "Social and Cultural Impacts."

14.5.1 EXISTING CONDITIONS

The Northwest Territories Housing Corporation is the lead GNWT housing agency and is responsible for the delivery of affordable, adequate and suitable housing to meet the needs of northern residents.

Table 14-1 summarizes the results of a housing survey that the Corporation conducted in 2004.

The Panel observes from this table that, irrespective of region, the housing situation in regional centres differs in several respects from that in smaller communities and, consequently, that the Project might have different impacts on housing based on location. Housing in communities is primarily social housing provided by the Northwest Territories Housing Corporation, for which there is often a waiting list. This may be one of the reasons that crowding is much more prevalent in communities than in regional centres, where housing is provided mainly through private markets. In addition, the physical condition of housing is better in regional centres than in communities. On the other hand, there is little difference in affordability between regional centres and communities, perhaps because of social housing in communities and, in particular, the Corporation's rent-to-income policy.

The Northwest Territories Housing Corporation uses core need as a measure to identify how housing funds should be spent and in what communities. If a household has a housing problem (suitability, adequacy or affordability) or a combination of housing problems, and has a total household income below a certain threshold, the household is considered to be in core need. The Corporation's survey indicates that between 2000 and 2004 there was a 4% decrease in the number of houses in core need. The Corporation's goal is to further reduce the number of houses

in core need by building 500 new dwellings between 2006 and 2009 at a cost of \$100 million, to be shared equally by the GNWT and the Government of Canada.

The report, *GNWT Beaufort-Delta Regional Workshop on the Social Impacts of the Mackenzie Valley Gas Project*, describes the general housing situation as follows:

- overcrowding: larger families living together creates social issues;
- lack of sewer/water service;
- homelessness is high and homelessness shelter is about to close due to lack of funding;
- economic rates for rent are extremely high;
- problem with policy that evicts those convicted of a crime: families suffer; hard in smaller communities;
- infrastructure not in place to accommodate influx of people and businesses;
- houses not up to adequate standards;
- need for a viable real estate market;
- lack of tradespeople in small communities; lack of building inspectors; staff shortages in all departments and organizations;
- access to building materials and supplies and getting materials to communities; and
- limited building season. (J-GNWT-00040, p. 7)

The report *GNWT Sahtu Regional Workshop on the Social Impacts of the Mackenzie Valley Gas Project* notes that there is a "lack of suitable housing for young people and young families"

Table 14-1 Percentage of Households with Housing Problems and Core Need, 2004

		Suitability (%)	Adequacy (%)	Affordability (%)	Core Need (%)
Beaufort Delta Region	Inuvik	8	9	14	13
	Communities	6–26	17–36	3–13	26–36
Sahtu Settlement Area	Norman Wells	2	9	9	9
	Communities	16–27	21–100	6–13	36–76
Dehcho Region	Hay River/Fort Simpson	8–12	14–19	9–6	9–16
	Communities	0–25	18–67	0–15	20–47
Northwest Territories		9	14	11	16
Definitions					
Suitability: Overcrowding					
Adequacy: Physical condition and basic facilities					
Affordability: >30% of family income paid for shelter costs					
Core need: One or more problems and total household income below core-need income threshold					

Source: Adapted from J-GNWT-00198, Table 1

and that “these individuals are obliged to live with their parents and/or other relatives.” (J-GNWT-00060, p. 8)

With respect to public housing, the current policy of scaling rent to income was noted as a disincentive to short-term employment. According to the report *GNWT Beaufort-Delta Regional Workshop on the Social Impacts of the Mackenzie Valley Gas Project*, people occupying subsidized housing may be obliged to leave if they take employment, and finding alternative housing may prove very difficult or impossible. This observation was echoed in the reports *GNWT Dehcho Regional Workshop on the Social Impacts of the Mackenzie Gas Project* and *Sahtu Regional Workshop on the Social Impacts of the Mackenzie Valley Gas Project*.

This issue was also identified by several community residents. In Inuvik, Richard Binder stated that people who live in public housing and who are not working are expected to pay \$30 to \$40 per month to the housing authority. If those people start working, their rent would increase to \$1,400 to \$1,700 a month, regardless of the person’s income. Mr. Binder also stated:

I don’t know how reliable or realistic these figures are... I don’t see this as affordable housing. I thought there was a maximum rent rate that could be charged to any tenants, and this is through the NWT housing program, and I thought that was 25 percent. In any case, it doesn’t seem fair. Once you’re in the workplace, I understand that those people are not eligible for any other GNWT programs that are provided to unemployed persons. There doesn’t seem to be any incentive for people living in public housing to find work, especially for a single parent, because if this is the case, a single-income home cannot afford the higher cost of housing provided by the authority. (HT V72, p. 7268)

In Aklavik, Dean Arey of the Aklavik Community Corporation noted: “Housing is another issue. The people that go to work for a couple of months, they make good money for a couple of weeks, and their rent goes up, and they have to put food on their table.” (HT V97, p. 9767)

In Tulita, Julie Lennie stated: “When they first brought in housing, they told us that we would only be paying two dollars a month for rent. And all the old houses they took down from us and more or less forced us into rental housing. Now, if a couple both work, they have to pay a lot of money for rent.” (HT V17, p. 1742)

14.5.2 PROPONENTS’ VIEWS

The Proponents summarized potential Project impacts on housing and its proposed mitigation for negative impacts. The Proponents stated that regional centres in the NWT face housing shortages and that these shortages are often reflected in housing affordability. The Proponents also noted that they understood that communities and the GNWT were taking steps to address the issue of existing housing shortages and that the private sector was also responding by investing in housing and the hospitality

industry. The Proponents stated that, although Project-related competition for labour and goods would add inflationary pressure on wages and costs for short-term accommodations, they did not expect these pressures to be substantial. The Proponents submitted that incomes earned by direct Project workers, in either construction or operations phases, might actually serve to reduce core housing needs.

The Proponents noted that direct and indirect Project-related demand on short-term accommodation in transportation hubs (Inuvik, Norman Wells, Fort Simpson and Hay River) and other communities near the Project could surpass existing capacity. The Proponents’ use of self-contained camps to accommodate direct Project construction personnel and their recruitment and worker transportation strategies would reduce Project impacts on housing in the NWT. The Proponents noted that a few direct Project personnel would require temporary and short-term housing in Inuvik and Norman Wells during construction.

Beyond the Project’s direct workforce, the Proponents predicted some population increases linked to indirect and induced in-migration during the Project’s construction phase as a result of speculation and expansion of existing northern businesses and new business development. The Proponents do not expect that large numbers of in-migrants in communities such as Tuktoyaktuk, Aklavik, Tsiigehtchic and Fort McPherson. However, since housing in those communities is particularly limited, any influx of people would have adverse impacts on housing. Thus, the Proponents referred to its recruitment and worker transportation plans to mitigate potential adverse impacts. The Proponents submitted that Project-related in-migration in Yellowknife might not be noticeable in light of Yellowknife’s expanding housing supply and growth.

The Proponents estimated population increases and housing needs for regional centres during peak construction activity to be as follows, assuming that all individuals sought permanent accommodation:

- 125 people in Hay River, requiring as many as 45 additional housing units;
- 140 people in Fort Simpson, requiring as many as 50 additional housing units;
- 100 people in Norman Wells, requiring as many as 40 additional housing units; and
- 450 people in Inuvik, requiring as many as 160 additional housing units.

The Proponents predicted that approximately half of these in-migrants would leave the North after the Project’s construction phase and that housing needs in Hay River and Fort Simpson would be predominantly during construction.

During the Project’s operations phase, camps would house workers brought in for Anchor Field development work, but operations employees would require long-term housing in

regional centres, particularly in Inuvik and Norman Wells. The Proponents submitted that operations employees are not expected to contribute to the GNWT's core housing needs and that direct Project personnel housing requirements are likely to be met through private sector housing and, thus, would not impact public housing needs. The Proponents also noted that, although most camps associated with construction of the Mackenzie Valley Pipeline and the gathering system would be removed, camps would likely remain at Parsons Lake and Taglu to accommodate potential future drilling activity. The Proponents stated that they would discuss long-term housing needs with the communities of Inuvik and Norman Wells before operations begin.

The Proponents also referred to its discussions with the GNWT regarding the potential sale of camp housing components after Project construction for conversion by the GNWT into permanent housing. However, these discussions were not concluded at the close of the Panel's proceedings.

Most of the Proponents' commitments and mitigation regarding housing were included in the SEA. In particular, in paragraph 5.4.1 the Proponents committed to:

- house Project workers in self-contained camps;
- discourage Project workers who would be in transit between camps and their home communities from entering other NWT communities;
- recruit in each of the primary communities; and
- discourage non-NWT residents from migrating to the NWT to seek Project employment.

The Proponents stated that their camps would be large enough to accommodate the direct workforce, subcontractors and other workers indirectly related to the Project.

In addition, the Proponents committed, in paragraph 6.2.1 of the SEA to:

- make reasonable commercial efforts to afford GNWT an opportunity to acquire some of the surplus units at the end of Construction for conversion by GNWT to permanent housing; and
- negotiate an arrangement with the Northwest Territories Housing Corporation to document the mutual commitments of the parties and cost reimbursement mechanisms related thereto.

Overall, the Proponents did not identify any significant adverse impacts on housing as a result of the Project. In its Environmental Impact Statement, the Proponents submitted that two influences — i.e. the capacity for housing and accommodations, and funding of housing assistance programs — would determine changes in the availability and quality of housing and accommodation. Further, Project-induced changes in population

size and income levels could be important driving forces that affect housing availability and conditions in the Regional Study Area communities. The Proponents also examined the potential impacts of the Project on housing region by region. As housing in many communities in the NWT is extremely limited, any substantial number of in-migrants, even those moving in with relatives for the short term, could have adverse impacts on housing. However, the Proponents submitted that large numbers of in-migrants are not expected in most communities other than the larger regional centres.

It would not be possible to eliminate in-migration to communities within the Regional Study Area, and potential Project impacts on housing in these communities could be adverse. However, the Proponents submitted that these impacts would be predominantly limited to the Project's construction phase.

Most Project activity and associated interest by those seeking employment associated with the Project would be in Inuvik, Norman Wells, Fort Simpson and Hay River. An expansion of permanent housing units and temporary accommodation would be required to accommodate in-migration during construction in these communities in anticipation of increased demand. The Proponents noted that, based on available data, they expected that the market would make a substantial capacity adjustment in anticipation of increased demand in Inuvik, Norman Wells, Fort Simpson and Hay River. They also noted that much of the demand in these communities could be met through the use of temporary accommodation.

Most employment opportunities generated by the Project would end once construction and associated cleanup and site restoration activities were complete. Within the Beaufort Delta Region, there would be continued well-drilling activities, but the Proponents submitted that these activities, along with Project operations and maintenance jobs for residents of the area, would not be large enough to induce noticeable migration within the Beaufort Delta Region, excluding Inuvik.

In communities such as Inuvik, Norman Wells, Fort Simpson and Hay River, where operations workers might be housed over the period of the Project's operations and maintenance activities or as other factors lead to population growth, the Proponents submitted that the capacity of the local housing sector should be able to meet increased housing demands, particularly as northern trainees become qualified and displace southern-based workers. Further, the Proponents submitted that ongoing demand during operations and maintenance could lessen any decline in the market related to the drop-off from construction demand impacts, and that the resulting long-term tax base could also be a positive impact. The Proponents noted that, if housing demand and supply were not in balance, mitigation could include worker use of camp accommodations until such balance occurs.

Potential impacts of the Project on housing in the Dene Tha' First Nation communities were forecast to be negligible because it

was expected that the Project would create no additional demand for housing in its communities.

The Proponents submitted that potential Project impacts on housing in northwestern Alberta would be restricted to High Level as a result of substantially increased traffic during pre-construction and construction years. During this period, there would be increased demand for an already short supply of accommodations for hospitality industry workers. The Proponents stated that affordable housing would continue to be a problem in High Level because of high demand by low-income earners and the obstacles to satisfying this demand when construction costs are high. The Proponents submitted that this would be rectified by the market because a growing scarcity of hospitality workers would drive up their wages. Some workers would thus be able to afford higher rents, and new accommodations would be constructed. Therefore, market adjustment to the scarcity might be expected, and the residual impacts, although adverse, were expected to be of low magnitude. Traffic levels through High Level would subside with completion of construction and with it any expected elevated demand for housing. No residual impacts were expected in High Level during operations.

The Proponents stated that the only valued component considered relevant to cumulative impacts on infrastructure and community services was housing. At the time of their review, the Proponents stated that no cumulative impacts were predicted.

14.5.3 PARTICIPANTS' VIEWS AND RECOMMENDATIONS

During its Community Hearings, the Panel heard concerns from various participants regarding housing in NWT communities, including the limited supply, affordability and poor condition of some housing and how the Project might affect the situation. Concerns were also noted regarding Project impacts on an already short supply of housing.

The Northwest Territories Housing Corporation submitted that potential Project impacts on housing could include:

- short-term and long-term impacts as a result of population increases;
- short-term demand from people seeking employment on the Project; and
- an escalation in costs from competition for labour, rising material costs, and transportation and fuel costs due to Project construction.

The Corporation noted that its interests and those of the GNWT in providing housing relate to meeting existing needs for affordable, adequate and suitable housing while responding to Project impacts, as well as managing the delivery of housing programs in an environment of escalating costs and increasing competition for labour. The Corporation also outlined its Affordable Housing Initiative to improve housing conditions and

increase availability throughout the NWT. This initiative was to be delivered from 2006 to 2009, with the goal of delivering approximately 500 new dwellings.

The Northwest Territories Housing Corporation also noted its discussions with the Proponents regarding the potential conversion of camp accommodations to permanent housing. It submitted that convertible workforce housing could help address housing demands from population growth and core housing needs. Convertible home features incorporated into Project workforce housing structures would allow for conversion of workforce housing into cost-effective, affordable and energy-efficient new homes after the construction of the Project. The Corporation estimated savings of 30%–40% associated with the conversion of workforce housing as compared with construction of new housing. However, it also noted that, to proceed with converting workforce housing to permanent housing, it would require:

- a final agreement with the Proponents regarding the transfer of convertible workforce housing;
- secured federal funding commitments for acquiring the convertible housing;
- the successful award of convertible workforce housing through a competitive bid process; and
- confirmation of camp locations and configurations.

In summary, the Northwest Territories Housing Corporation submitted that self-contained work camps and related mitigation measures would address impacts on communities over the longer term and that its Affordable Housing Initiative would help reduce core housing needs in communities prior to the Project's peak construction phase. It also submitted that convertible workforce housing would mitigate indirect impacts by providing a long-term, cost-effective housing solution.

In its closing remarks, the GNWT outlined how its preliminary recommendations on housing-related issues had been fulfilled through the SEA. The GNWT stated that the Proponents had addressed short-term housing concerns and issues regarding convertible workforce housing through its commitment in the SEA.

The GNWT also noted that the sub-arrangement on convertible workforce housing had been placed on hold pending a review of the implications of the May 2007 *Supplemental Information — Project Update*. The Project Update introduced the strategy of movable camp units, which reduced the number of convertible units that could be available. However, the GNWT noted that Imperial Oil, on behalf of the Proponents, had stated its continued commitment to explore options with the Northwest Territories Housing Corporation for converting workforce camps into permanent homes. The GNWT did not file any housing-related recommendations with the Panel.

The Village of Fort Simpson offered its support for the Project, conditional upon the municipality's concerns being resolved to its satisfaction. It noted that land currently available for residential development in Fort Simpson is only sufficient to address Fort Simpson's foreseeable needs in the absence of the proposed Project. It stated that the Project and the anticipated oil and gas exploration it would induce would alter the pace, scale and nature of development in the region and impact the Village significantly more than is anticipated or currently planned for. The Village noted that it is far more rural in terms of its tax base than other tax-based communities in the Mackenzie Valley and that it is not well placed to benefit from Project-related industrial activity. There are no government programs available to assist tax-based communities with the cost of developing land, and Fort Simpson's status as the smallest tax-based municipality in the NWT severely impacts its ability to sustain significant capital spending from its own resources. Fort Simpson also noted that it can take up to two years to prepare a subdivision for housing development and, thus, it would prefer to have this amount of time prior to Project construction in order to prepare for potential additional housing requirements.

The Town of Inuvik stated that, although it looks forward to the economic stimulus and employment opportunities that the Project would bring to Inuvik and its residents in the long term, the Town wanted to ensure that the financial burdens that would arise from the construction phase and from forced growth were not unfairly carried by Inuvik's ratepayers. The Town noted that it is extremely important to receive accurate estimates of timing and magnitude of forced growth if the Project proceeds.

The Town of Inuvik also noted that it is responsible for land development within the municipality and that, if land is needed for residential, commercial or industrial use, the Town must develop and provide services to such land. The short construction season and high cost of construction in the North necessitates developing land one to three years before it is needed. These development costs are paid by the Town and are not recovered until this land is sold. It noted that financing these developments is extremely difficult for a small community such as Inuvik. Development costs include surveying, engineering, road construction, utility installation and drainage enhancement. The Town submitted that it had no option but to develop land within Inuvik to accommodate the predicted increased housing needs associated with the Project, which are beyond the normal growth anticipated for Inuvik. It noted that it is required to take the risk that the Project is not approved or that the Proponents decide not to proceed. The Town has been left with large inventories of lots in the past when proposed developments have not proceeded. The Town also stated that neither the federal nor territorial governments had come forward to provide any assistance for costs incurred by forced growth.

The Town of Inuvik noted that it is extremely important to have access to financing for land development at affordable terms, including consideration of risk. To address the risk of developing

lots prior to sale, the Town submitted that the Proponents should be required to provide bridge financing until properties are sold and costs recovered. However, the Town subsequently stated that it had not yet given any consideration to bridge financing with the Proponents. The Town also stated that it was then in a cash-deficit position due to being "pipeline-ready" and developing the necessary infrastructure to support additional housing. However, the Town noted that the infrastructure was not fully developed and that it would install the remaining services as lots were sold. The Town stated that this was its usual practice in trying to recover any infrastructure investment as far as land development is concerned.

The Town of Norman Wells noted that, despite some unresolved issues regarding availability of convertible housing units from the camp proposed for Norman Wells and how that might affect infrastructure needs, it continued to support the Project. It also noted that its negotiations with the Proponents were progressing well.

The Town of Norman Wells noted the challenge of financing the development of lots and associated infrastructure. The Town incurs increased capital expenses to develop lots with utilities, but to develop lots without utilities creates increased operational expenses. Most of Norman Wells is serviced by utilities such as piped water and sewage. However, a small part of the community relies on trucked water services, which are a major operational expense. The Town noted that, overall, the most efficient and economical way to transport water and sewage is through developed utilities. However, should it find itself in a situation where it has to build 25 to 40 new houses in a subdivision, it does not have the necessary funding to pay for such a development. The cost of the utilities would be attached to the cost of the lots, but the Town would incur the risk of the lots not selling. The Town stated that it takes approximately one to three years for it to develop a subdivision.

The communities of Inuvik and Norman Wells did not specifically note housing-related issues in their closing remarks, and Fort Simpson did not file closing remarks with the Panel.

The Town of Hay River's assessment of potential Project impacts on Hay River, including housing, was based on recent population growth and projected population growth associated with a Project construction period from 2008 to 2010. The Panel notes that this construction period is no longer attainable and, therefore, some of the quantitative information presented by the Town may no longer be relevant. Further, the Panel notes that the Town's original submission, dated June 9, 2006, was received prior to the May 2007 *Supplemental Information — Project Update*, and the Panel received no additional information from the Town regarding housing and development issues following its original submission. Nonetheless, the Town's original submission also provided the following general information related to housing and development needs and Project impacts within Hay River.

The Town of Hay River noted that it is the primary developer of land within its community and that development of land is largely driven by demand. It stated that development had been accelerated in recent years due to a strong demand for single-family housing and industrial lots. It stated that this development contributes very little to housing requirements related to Project construction but contributes to permanent growth. Hay River would still have to address a large population of temporary and transient labour associated with Project activities.

Overall, the Town submitted that the Project could have a significant impact on Hay River. It noted that, as more information regarding the Project became available, it would be better able to assess impacts and bring parties together to develop a strategy to mitigate these impacts. The Town also noted that it had already been meeting with the Proponents and other levels of government to discuss potential issues. In response, the Proponents indicated that they would continue discussions with the Town.

The Gwich'in Tribal Council noted that affordable housing in Inuvik and the Gwich'in communities was currently inadequate and submitted that the Project would exacerbate the situation. Therefore, the Council directed recommendations to the Proponents and the GNWT regarding rental officers, safe houses and shelters, education, and single-occupant units, with the timeframe for having these services and facilities in place being prior to and during construction and operations.

The Proponents did not agree with these recommendations and stated that, although they have mitigation measures to discourage migration to NWT communities during Project construction, they are not responsible for establishing the position of rental officer or housing advocate. They also noted their SEA commitment to provide the GNWT with the opportunity to acquire surplus camp units for conversion to housing at the end of construction.

The GNWT also disagreed with these recommendations and submitted that mediation of disputes between tenants and landlords is not within the mandate of the Panel. The GNWT noted that the NWT *Residential Tenancies Act* provides for a NWT rental office and allows the appointment of rental officers. The GNWT has established an interdepartmental committee to provide a coordinated approach to address the need for safe houses and shelters. The GNWT noted that it had recently approved new home ownership programs, which provide advice and support to new homeowners on budgeting, banking and credit, home purchasing, and home maintenance and repair. Housing for single people had been recognized as a priority.

The Pehdzeh Ki First Nation noted the great need for affordable housing in Wrigley and recommended that the Proponents donate some of their camp equipment and buildings to the community to be used as emergency housing. The Proponents did not agree with the recommendation and referred to their commitment in the SEA to make reasonable commercial

efforts to provide the GNWT with the opportunity to acquire surplus camp units for conversion to housing units at the end of construction.

14.5.4 PANEL VIEWS

The Panel is concerned with the impact that seasonal fluctuations of income will have on Project-related workers who occupy low-cost housing and is of the view that the Northwest Territories Housing Corporation should examine its policy so as to accommodate those workers who experience such fluctuations of income.

The Panel notes the Proponents' commitment to house the majority of their direct Project workforce in self-contained camps and their commitments regarding hiring policies and worker transportation strategies. These commitments are found in the SEA. The Panel is of the view that these commitments would likely mitigate significant adverse impacts from the direct Project workforce on housing availability in the Project Review Area during the construction phase. However, the Panel is also of the view that, despite the Proponents' best efforts, there may still be an influx of migrant workers into certain communities in markets that are already experiencing housing shortages, with resultant impacts on housing availability.

The Proponents attempted to estimate population increases and housing needs in regional centres during peak construction and predicted that approximately half of these in-migrants would leave the North after construction. The Panel notes that there is some uncertainty associated with these estimates. The Panel considers the Proponents' assertions with respect to housing needs for Project employees and induced or indirect in-migration to be somewhat speculative, particularly given the concerns the Panel heard from communities regarding the challenges they face in developing lots and associated infrastructure. With respect to the development of lots, municipalities face the challenges of a short construction season, the high cost of construction, and financial risk incurred by the municipality in the event that a proposed project does not proceed. The Panel notes that these challenges may be exacerbated under the Expansion Capacity Scenario and Other Future Scenarios. It may be necessary for tax-based municipalities to seek financial assistance from the territorial government in responding to Project-related housing demand.

Despite considerable discussion during the Panel's proceedings regarding the potential conversion of camp modules to permanent housing, the Panel is not persuaded that such conversion is a benefit that would actually be realized. The Panel recognizes the Proponents' and the GNWT's efforts in this regard, as captured in the SEA, but, as noted by the Northwest Territories Housing Corporation, several requirements must be in place in order for the GNWT to proceed with conversion of workforce housing. The Panel understands that, should any one of these requirements not be fulfilled, it would diminish



Inuvik

Source: Kevin Morin

the feasibility for conversion of workforce housing. The Panel has minimal evidence before it to indicate that all of these contingencies would be realized. Further, the Panel notes that the arrangement under the SEA on convertible workforce housing has been placed on hold pending the detailed planning phase of the Project.

The Panel is of the view that convertible workforce housing cannot be considered a benefit resulting from the Project given that an agreement on the issue had not been formalized at the close of the Panel's proceedings.

The Panel discusses the current housing shortage further in Chapter 16, "Social and Cultural Impacts."

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CHAPTER 15

ECONOMIC IMPACTS

15.1 INTRODUCTION

This chapter examines the economic impacts of the Proponents' capital expenditures and Project revenues. The Panel considers these impacts in terms of their effects on Gross Domestic Product (GDP) (the overall effect on the economy), and then specifically as they affect business, employment and labour income in the Northwest Territories (NWT) and revenues to governments. The Panel also considers the potential of the various benefits-capture measures to optimize these opportunities for the NWT — including training, benefits agreements, Proponents' commitments, the Socio-Economic Agreement (SEA) and the Aboriginal Pipeline Group (APG) — as well as existing barriers to realizing these opportunities.

In its concluding section, the chapter considers the economic impacts of the Project during the construction phase, the operations phase and the Expansion Capacity Scenario respectively, with emphasis on the degree to which the Project might leave the Project Review Area in the NWT with durable and tangible economic benefits. The focus throughout is on the NWT. Project economic impacts on the national economy are, with few exceptions, relatively small. The Panel was presented with relatively little information on economic impacts on northwest Alberta.

The Panel held nine days of hearings specifically devoted to the matters reviewed in this chapter and also heard the views of many participants throughout the hearing process.

15.2 METHODS AND APPROACH

15.2.1 SOURCES AND METHODS

DATA SOURCES

The starting point for estimating the economic impacts of the Project was the Proponents' revised Project estimates for:

- the construction phase including:
 - capital expenditure; and
 - direct capital employment and labour income;

- the operations phase including:
 - operating expenditure; and
 - corporate taxes and royalties for the Anchor Fields.

The Proponents provided a geographic breakdown of their construction phase capital expenditure estimates (within Canada) among the NWT, Alberta and the rest of Canada, and within the NWT by region as follows:

- Inuvialuit Settlement Region (ISR);
- Gwich'in Settlement Area (GSA);
- Sahtu Settlement Area (SSA);
- Dehcho Region (DCR); and
- industrial and commercial centres (ICCs) (Yellowknife and Hay River).

The Proponents also estimated their expenditures outside of Canada.

In addition, the Proponents submitted capital expenditure and direct employment and labour income estimates for northwest Alberta in connection with the NOVA Gas Transmission Ltd. (NGTL) facilities.

The Proponents presented two different estimates of Project expenditures:

- \$7.57 billion in its initial filings in 2004; and
- \$16.25 billion in the May 2007 Project Update.

The Panel notes that capital expenditure and employment estimates for a project of the Mackenzie Gas Project's (MGP's) magnitude and complexity may be subject to change for many reasons. Similarly, revenue and tax projections for the operations period are highly price-dependent and are necessarily uncertain. The Panel notes these limitations, but considers all of the Proponents' expenditure, employment, revenue and tax estimates as provided in May 2007 as a reasonable basis for assessing the economic impacts of the Project.

All dollar values provided by the Proponents in May 2007 were measured in constant 2006 Canadian dollars. NGTL expenditures were specified in constant 2003 Canadian dollars. All construction phase employment numbers were represented as number of jobs, "because most construction positions will last only twelve to sixteen weeks, and converting them to person-years would make them difficult to compare with the available labour supply." (J-IORVL-00954, p. 14)

IMPACT MODELLING

The Proponents predicted the economic impacts of these expenditure and employment levels in the NWT on the basis of an analysis prepared for them by Ellis Consulting Services (Ellis). These impacts are contained in a report entitled *Estimated*

Economic Impacts of the Mackenzie Gas Project — Construction and Operations Update with Revised Capital Expenditures, (the "Ellis Report"). This report relied on certain concepts and estimating procedures, which are briefly recounted here. Information on northwest Alberta was provided in a supplement to the Environmental Impact Statement (EIS) entitled *EIS Supplemental Information — Northwestern Alberta*.

The Ellis Report estimated the direct, indirect and induced effects of Project expenditure and employment by province and territory, and within the NWT by region. Direct effects consist of revenues to firms that expand production to satisfy increased demand. For the Project, this would consist of supplying major components, such as pipe, and hiring primary construction contractors. Indirect effects are the income flows resulting from primary suppliers land contractors purchasing additional required inputs from other firms. Induced effects are those related to the income flows generated when directly and indirectly affected firms expand production, hire more staff and pay out wages, thereby increasing the income received by households who spend this income. This, in turn, increases the demand for other goods and services.

In order to assess the impacts of Project expenditures, it is necessary to estimate how and where these direct, indirect and induced expenditures would occur. The Ellis Report used the Statistics Canada input-output model for this purpose. This model simulates the effect on the national economy by province and territory, when overall output of an industry changes in a specific region or when final demand for a particular commodity changes in a specific region, based on established patterns and location of production by industry. In the case of the MGP, aggregating Project-related construction and operations phase inputs and outputs across all industries generates an estimate of the overall effects on territorial, provincial and national GDP.

The economic impact of the Northwest Alberta Facilities was estimated using the Government of Alberta input-output model. The Alberta input-output model simulates direct, indirect and induced effects at the provincial level only. This model does not provide estimates at the regional level for northwest Alberta or impacts on the rest of Canada. The results from the Alberta input-output model simulations were added to those of the Statistics Canada input-output model to estimate the combined MGP and NGTL effects.

Ellis noted that a typical limitation of input-output models is that they are not subject to capacity constraints. That is, input-output models operate as if sufficient unused industrial and labour market capacity exists to meet all incremental demand resulting from new economic development projects. In reality, however, the NWT economy could not produce sufficient Project-related goods and services to meet Project demand. This means that goods and services would have to be imported from elsewhere. As the input-output model is not limited by capacity constraints, it would over-estimate the actual impact on the NWT economy. Therefore Ellis introduced a labour market supply constraint (further considered in Section 15.6) in estimating direct GDP

impacts for the NWT, but used the input-output model to estimate indirect and induced impacts.

As other participants noted, if the model has no supply constraints, then inputs are essentially assumed to be sourced from otherwise unemployed resources. In reality, however, if the national economy is operating at or near full employment, then the main impact of a large additional expenditure is to divert resources away from existing activities to the new activity, with little or no impact on overall output. Nonetheless, there was general agreement among participants that the Statistics Canada input-output model, while recognizing its limitations, is an appropriate means of estimating the economic impacts of the Project.

Estimates of Project economic impacts during the operations phase depend heavily on forecasts of the value of Project gas sales, that is, of the rate of production and the sales value of the gas. The Proponents based their revenue and tax estimates on a production rate of 1.2 Bcf/d for 20 years. This was unchanged in the revised estimates even though the construction required to achieve that level of throughput was deferred. The value of these sales is, more importantly, highly sensitive to the price of gas. The Ellis Report selected two gas prices for the purposes of forecasting: a 2003 forecast of approximately \$4.50/Mcf over the life of the Project, and a 2006 forecast of \$6.50/Mcf. The Panel observes that gas prices in the summer of 2009 were below \$4.00/Mcf, and at that price, all of the Proponents' (and participants') estimates of economic impacts would be over-stated.

ECONOMIC SCENARIOS

The Panel received a number of submissions forecasting the economic impacts of Mackenzie Valley Pipeline (MVP) gas throughput levels above the Proponents' forecasts, and for longer durations. These forecasts were based on a range of future scenarios about the pace and scale of developments that would bring MVP throughput to full capacity and beyond. These submissions included:

- *An Evaluation of the Economic Impacts Associated with the Mackenzie Valley Pipeline and Mackenzie Delta Gas Development — Extended Analysis and Update*, Wright Mansell Research Ltd., 21 November 2007, submitted by the Government of the Northwest Territories (GNWT) (the "WMR Report"); and
- *The Mackenzie Gas Project — A Financial Analysis Update*, Pacific Analytics Inc., September 2007, submitted by the Alternatives North Coalition (ANC) (the "PAI Report").

The WMR Report, for example, used four gas volume cases and two gas price scenarios to conduct their analysis of MGP economic impacts. Some of the scenarios used in these reports resembled the Panel's Expansion Capacity Scenario, others went well beyond that.

As noted in Chapter 3, "Potential Future Developments," the Panel regards such scenarios as the views of various participants on possible future developments that could follow from the MGP. The Panel has not assessed the likelihood of any of these scenarios coming to pass. The Panel therefore takes note of the various forecasts provided to it, but does not rely on them for determining the significance of Project impacts.

ESTIMATING GOVERNMENT REVENUES

The Proponents estimated their operations phase corporate taxes and royalties for the Anchor Fields at the 1.2 Bcf/d level for both the 2003 and 2006 gas price forecasts by undisclosed methods. All other personal and business taxes were estimated according to a model developed by Ellis based on information from the Canada Revenue Agency and the GNWT. The limitations of input-output modelling, and the sensitivity of estimates to the pace and scale of future production and to gas prices, as noted previously, apply to forecasts of government revenues.

15.2.2 PANEL APPROACH

The Panel notes that the estimated impacts can only be classed as economic benefits if they are an increment to employment and income, and so produce a net positive increase in economic well-being. If the impacts are simply displacements that produce no net increase in employment or income, then the Panel does not regard them as economic benefits. The Panel therefore regards the Proponents' estimates of Project-generated procurement, employment, labour income and tax revenues as upper-bound estimates of the real benefits that may accrue.

The Panel further notes that the extent to which Project contributions to employment and income are real increases, rather than displacements, would depend considerably on economic conditions at the time of construction. Consequently the actual magnitude and timing of the economic benefits of the Project, while positive under any scenario, cannot be stated with certainty. These are necessarily matters of conjecture, based on current information and informed assumptions.

Economic benefits might range from those that are substantial — going to a large number of people for a long time — to those that might benefit only a small number of people in a very few places for a short time. For each stated economic impact, the Panel has considered, as appropriate:

- magnitude (i.e. quantity or value of benefits);
- timing (i.e. when the benefits might become available);
- duration (i.e. how long the benefits might last);
- geographic extent (e.g. community, region, the NWT, and particularly if benefits would accrue to the regional centres, the smaller communities, or both);

- distribution (i.e. to which sectors of the population the benefits might accrue); and
- likelihood (i.e. how likely it is that a benefit will be achieved as predicted).

The Panel has also considered the barriers or constraints that may exist to realizing the potential benefits (e.g. capacity, costs, timing), and the institutional or policy arrangements that might need to be in place for the benefit to be fully realized, for example, with respect to education and training.

Unless otherwise specified, the source data for figures and diagrams in this chapter are in the Ellis Report. This report provided data separately for the ISR and the GSA: where possible, the Panel has combined these data for the Beaufort Delta Region to take account of Inuvik as the regional centre for both. The Ellis Report also provided data for what the Proponents characterized as industrial and commercial centres (ICCs), including Yellowknife and Hay River. The Panel has for the most part included data for Hay River in the DCR, but presented data for Yellowknife separately. Where it has not been possible to disaggregate the Proponents' data for ICCs, the Panel assumes that ICC values (labelled YHR in Panel tables and figures) can be very largely attributed to Yellowknife.

To compare Project contributions with existing levels of economic activity, the Panel has used information from 2006 and 2007, depending on availability, where the Proponents did not already provide such information. For the same purpose, the Panel has annualized some of the Proponents' data, where this was otherwise provided for the entire 4-year construction phase or the 20-year operations phase. The Panel cautions that estimating annual averages during the operations phase, such as with respect to employment, labour income or government revenues, entails some uncertainty. For example, as construction and development expenditures decline, sales volumes and values may increase. With respect to the operations phase data, the Panel has in some cases removed the first three years for the purpose of annual averaging, in order to eliminate the distorting effects of construction activities in those years. Where the Panel has averaged operations impacts on an annual basis, it is for illustrative purposes only, and the resulting values should not be understood as Panel forecasts.

It should be noted that the specific MGP construction phase and operations phase dates that were referred to by the Proponents and other participants in their filings are no longer achievable. Therefore, the Panel's review has proceeded on the assumption that the MGP would generally follow the sequence and number of years from receipt of Project approvals that are reflected in the information as filed with the Panel. This applies to all tables in this section adapted from the Ellis Report, which assumed a construction start date of 2010 and operations start-up in late 2014.

15.3 PROJECT EXPENDITURES AND GDP IMPACTS

The bulk of the Proponents' expenditures would occur during the four years of construction, followed by a smaller, but more extended, period of annual expenditure during the operations phase. The Proponents' revenue stream would begin only during the operations phase. This section examines these expenditure and revenue patterns, and their potential impacts on territorial and national GDP.

GDP is the standard measure of a nation's or a region's income. Canada's annual GDP is the equivalent of the cost of purchasing all of the output produced in Canada in a year. For a specific project or activity such as constructing a pipeline, its contribution to GDP is measured both as the total expenditure on goods and services required to construct it, but also as the total incomes that are generated by those expenditures.

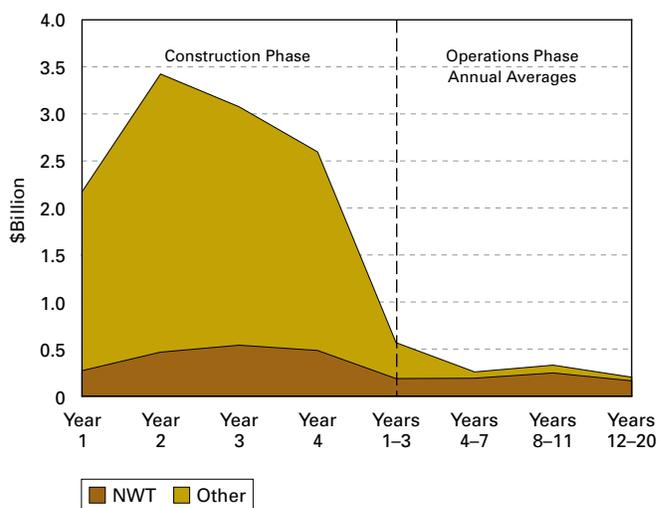
15.3.1 PROPONENTS' VIEWS

PROJECT EXPENDITURES

The Proponents estimated in 2007 that the capital cost of the MGP and NGTL facilities would be \$16.5 billion (all estimates provided in constant 2006 Canadian dollars). This includes \$4.9 billion for construction of the gas anchor field facilities, \$3.5 billion for construction of the Mackenzie Gathering System, \$7.85 billion for construction of the MVP and \$212 million for construction of the Northwest Alberta Facilities (See Table 2-4, in Chapter 2, "Project Description.")

Figure 15-1 shows the Proponents' proposed capital expenditures over time: year by year during the construction phase, and grouped annual average expenditures during the operations

Figure 15-1 MGP Direct Expenditures (Construction and Operations Phases)



Source: Adapted from J-IORVL-00981, p. 46

phase. Capital expenditures would exceed \$2 billion annually during the four-year construction phase.

Figure 15-2 shows the geographic breakdown of the \$11.7 billion to be spent during the initial four-year MGP and NGTL facility construction phase. Fifteen per cent (\$1.76 billion) would be spent in the NWT (Section 15.4). These amounts do not include \$2.7 billion in pre-construction expenditures, and \$2.2 billion in deferred construction expenditures that would take place during the operations phase, for which the Proponents did not specify the location.

Once construction, including deferred facility construction during the initial operations phase, is complete, the bulk of ongoing Project expenditures would be in the NWT, and as Figure 15-1 and Table 15-1 indicate, the annual rate of Project expenditures there during operations would be more or less steady. NGTL expenditures would amount to \$212 million, of which 58% would be spent in Alberta.

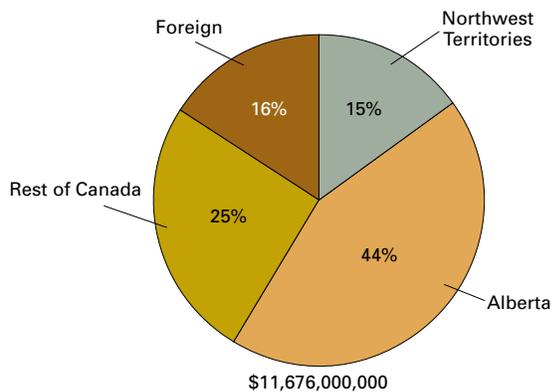
Table 15-1 shows annual operations expenditures for the first 20 years of operations.

PROJECT REVENUES

During Project operations, revenues would accrue to the Anchor Field operators from the sale of natural gas and natural gas liquids produced from the three Anchor Fields. Figure 15-3 shows the sensitivity of average annual revenues from production to gas price assumptions. Based on the 2003 gas price forecast (averaging approximately \$4.50/Mcf), revenue from Anchor Field gas production is expected to average \$1.4 billion each year. This revenue increases to more than \$2.5 billion per year when the 2006 gas price forecast (averaging approximately \$6.50/Mcf) is used.

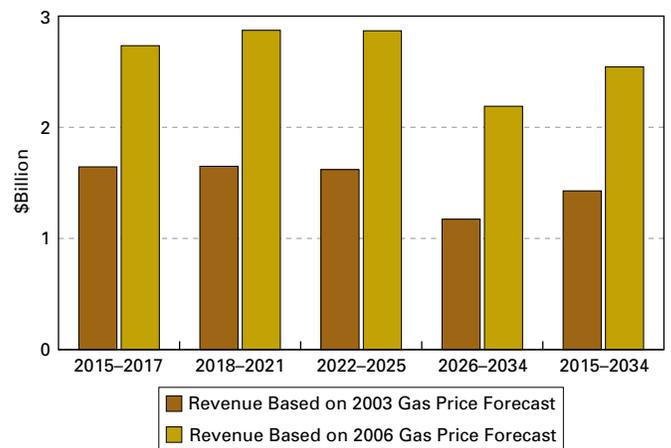
The Ellis Report does not disclose revenues to the MVP separately. One of the Proponents, the APG, has the right to secure up to a one-third ownership interest in the MVP once

Figure 15-2 MGP and NGTL Expenditures by Location (Construction Phase)



Source: Adapted from J-IORVL-00954, Table 2-1, p. 15

Figure 15-3 Anchor Field Average Annual Revenue Forecasts (Operations Phase)



Source: Adapted from J-IORVL-00954, Table 2-26, p. 35

Table 15-1 Average Annual Direct Expenditures (\$Million) (Operations Phase)

Operations Phase Expenditures	2015-2017	2018-2021	2022-2025	2026-2034	Average Annual 2015-2034
Operations	167	178	182	185	181
Construction and Drilling	40	78	147	15	58
Future Facility Construction	361	0	0	0	18
Total Costs	568	256	329	200	257

Notes:

1. These dates are no longer achievable. Therefore, the Panel’s review has proceeded on the assumption that the MGP would generally follow the sequence and number of years from receipt of Project approvals that are reflected in the above information as filed with the Panel.
2. Constant 2006 Canadian dollars.

Source: Adapted from J-IORVL-00954, Table 2-26, p. 35

it becomes operational, enabling it to receive benefits in the form of dividends payable to its Aboriginal shareholders. The proposed Aboriginal group ownership structure is Inuvialuit, 4%; Gwich'in, 20%; Sahtu, 34%; Dehcho, 34%; and other Aboriginal organizations, 8%.

Some parties were still considering their membership at the close of the Panel's record, with only the first three participants confirmed. TransCanada PipeLines Ltd. provided a loan to the APG for its costs during the pre-development period, forgivable if for any reason the Project does not proceed. APG's share of the equity ownership of the MVP would be 3% at the beginning of operations, rising to one-third equity ownership depending on increases in throughput within the first ten years of operations. If the MGP is approved, the APG would obtain loans to finance its share of the capital cost of constructing the MVP. At the initial equity share of 3%, dividends, once payable, would be \$2 million annually net of loan repayments to shareholders, in the proportions previously indicated. Dividends would increase once these loans are repaid and as gas throughputs increase.

Among the Proponents, only the APG estimated the effects of the Expansion Capacity Scenario on its revenues. As noted previously, with no incremental gas volumes (0.83 Bcf/d of throughput), the APG would own 3% of the MVP and would receive an estimated dividend benefit of \$2 million per year during the first 20 years of operations. Dividend levels increase substantially under the Expansion Capacity Scenario, as illustrated in Table 15-2. For example, with an additional throughput of 170 Mcf/d, APG's ownership increases to 18% and the annual dividend increases to \$12 million. If the MVP operates at full capacity (1.2 Bcf/d) the APG interest is maximized at 33.3% and the annual dividend flow would be an estimated \$20 million. If this level of ownership is achieved, the dividend flows to the APG after year 20 of MVP operations (after loan repayment) are expected to be about \$100 million per year. However, the additional gas transport volumes (above the base case of 0.83 Bcf/d) must be realized within 10 years of start-up of MVP operations for the APG to realize the add-on benefits. The APG would also have the opportunity to increase its ownership share beyond the initial one-third interest because it has the right of first refusal should another owner wish to sell its shares.

Table 15-2 Aboriginal Pipeline Group Estimated Benefits — Years 1–20

Mackenzie Valley Pipeline Throughput Volumes	Aboriginal Pipeline Group Equity Ownership	Annual Dividend Benefit (Years 1–20)
0.83 Bcf/d	3.0%	\$2 million
1.0 Bcf/d	18.0%	\$12 million
1.245 Bcf/d	33.3%	\$20 million

Source: Adapted from J-APG-00007, p. 16

PROJECT IMPACTS ON GDP

CONSTRUCTION PHASE IMPACTS

The Proponents' estimates of the Project's contribution to GDP during the four-year construction phase are shown in Table 15-3 and Figure 15-4. Direct GDP effects are estimated at approximately \$6 billion, of which 21% would accrue in the NWT (amounting to approximately \$320 million annually). However, only 9% of the indirect and induced GDP effects nationally would accrue in the NWT. Total Project contribution to GDP, including indirect and induced effects, would amount to over \$13 billion (or about \$3.4 billion annually), of which about 14% would accrue in the NWT (amounting to approximately \$488 million annually). As Figure 15-4 shows, other jurisdictions capture a greater proportion of indirect and induced expenditure, in relation to direct expenditure, than does the NWT. This illustrates the present limited capacity of the NWT economy to capture benefits beyond direct expenditures.

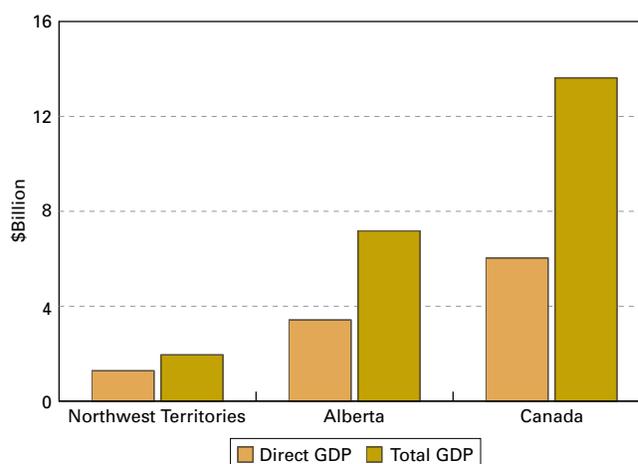
Table 15-3 Contribution to Gross Domestic Product (\$Million) (Construction Phase)

Location	Direct GDP	Indirect GDP	Induced GDP	Total GDP
Northwest Territories	1,281	259	412	1,952
Alberta	3,423	1,405	2,346	7,174
Rest of Canada	1,328	1,550	1,619	4,497
Canada Total	6,032	3,214	4,377	13,623

Note:
1. Constant Q2 2006 Canadian dollars.

Source: Adapted from J-IORVL-00954, Tables 2-2, 2-3 and 2-4, pp. 16–17; J-IORVL-00074, Tables 1.16-1 and 1.16-2, p. 54

Figure 15-4 Contribution to Gross Domestic Product (Construction Phase)



Source: Panel Table 15-3

OPERATIONS PHASE IMPACTS

The Proponents attribute all of the direct GDP impacts during the first 20 years of MGP operations to the NWT because the MGP gas anchor field facilities and pipelines are located there. The key elements of these GDP impacts are as follows:

- based on the 2003 gas price forecast, direct GDP contributions in the NWT would average \$1.3 billion per year during the MGP operations phase; and
- based on the 2006 gas price forecasts, MGP operations activity would generate more than \$2.1 billion in annual GDP in the NWT.

These annual direct GDP impacts relate to the production and sale of natural gas between 2015 and 2034. Total direct GDP impacts over this period would range from \$26 billion to \$42 billion. Indirect and induced GDP effects in the NWT are small.

15.3.2 PARTICIPANTS' VIEWS

The WMR Report estimated the economic impacts of the MGP using two gas price scenarios: US\$6/Mcf and US\$8/Mcf with the real price remaining constant over time. The WMR Report considered that these prices would “bracket the most likely levels for natural gas prices over the period of analysis.” (J-GNWT-00326, p. 10) Although these forecasts are higher than the forecasts used by Ellis, the GNWT explained that gas price assumptions must account for factors such as point of sale and dollar exchange rates (which the Ellis Report did not disclose) and the difficulty of comparing gas price forecasts directly without this information. The economic impact estimates provided in the final WMR and Ellis reports are similar in magnitude. However, the GNWT noted that direct comparisons of the Ellis and Wright-Mansell scenarios are difficult.

Under the US\$6 price scenario, WMR estimates the MGP would generate \$32.2 billion in direct revenues to the Proponents, and \$42.4 billion in total direct GDP over the first 20 years of MGP operations. Under the US\$8 price scenario, both values are substantially greater.

The PAI Report produced similar annualized results, although its forecast period extended to the year 2055, with GDP impacts declining in the last ten years.

15.3.3 PANEL VIEWS

PROJECT IMPACTS ON GDP

The Panel notes that GDP impact estimates can vary considerably, depending on input assumptions (e.g. natural gas prices, currency exchange rates, capital costs, costs of labour and materials). The operations phase GDP estimates are more sensitive to these factors than those in the construction phase.

The Panel notes that there was no substantial difference in participants' views about the appropriateness of using the input-output model for forecasting GDP effects, despite its acknowledged limitations, and further that there was no substantial difference among participants' GDP forecasts for the construction phase. The Panel therefore accepts the Proponents' forecasts as a reasonable basis for assessing Project impacts, subject to the limitations noted in the following discussion.

CONSTRUCTION PHASE IMPACTS

At the national level, the Proponents' GDP estimates for the construction phase are in effect an upper-bound estimate because the input-output model does not take capacity constraints into account and the possibility exists that the Project would simply displace other uses of resource inputs. It follows that Canada's GDP would not be increased by the full estimated amount in comparison to a “no project” scenario. The actual increment to national GDP would depend on national economic conditions at such time as the construction phase might occur. The Panel assumes that, at the national level, if the MGP were not to proceed in a particular time period, there would be other uses of most input resources. The further implication is that if the Project were to be constructed at a low point of the economic cycle, the incremental effect of capital expenditures on GDP would be greater. The Panel concludes that the incremental impact of Project construction on national GDP would be positive, but small. Construction expenditures would contribute a small fraction of one percent annually to the national GDP.

GDP impacts would accrue differently in the various regions of Canada, depending on their economic capacity. During the construction phase, although the great bulk of spending would occur outside the NWT, Project expenditures within the NWT (17.9% of expenditures within Canada) would be very substantial in relation to the current size of the NWT's economy. According to the Proponents' estimates, Project expenditures could contribute nearly \$500 million annually to territorial GDP for each year of construction — a potential increment of approximately 12% on current levels (\$4.2 billion in 2006).

These increments, although substantial, would occur early in the life of the Project and last for only four years, although a reduced level of construction expenditures would continue in the early years of the operations phase. The Panel recognizes the capacity limits of the NWT economy and its limited ability to capture indirect and induced impacts. In the Panel's view, little could be done to increase that capacity in time to capture one-off, short duration benefits of this type, even with respect to direct expenditures, much less prevent leakage of indirect and induced expenditures. Despite this leakage, the benefits of Project expenditures in relation to the size of the NWT's economy would be large, and they would involve the direct purchase of labour, goods and services from NWT residents and businesses.

OPERATIONS PHASE IMPACTS

The Panel observes that all forecasts of operations phase impacts are necessarily constrained by uncertainties with respect to future gas prices. For example, although participants considered that the range of forecasts used during the Panel's review bracketed reasonable expectations, the Panel notes that during the summer of 2009, the actual gas price was outside (and below) this range.

That said, the greatest impacts on NWT GDP would occur during the Project operations phase when, based on forecast gas prices, there could be a contribution of between \$1.3 billion and \$2.1 billion to NWT GDP annually. This translates to a 30–50% annual increase in NWT GDP over current levels (or four to seven times the direct GDP impact during construction).

However, while the sale of gas is technically assigned to the NWT in the national accounting system, these revenues accrue mainly to the Project's operators, who are not located in the NWT. Except for the delayed construction expenditures during the first three years of operations, the operators might spend very little of their revenues in the NWT, other than what would be required to maintain or enhance gas production there. Consequently, the actual benefits realized in the NWT from annual GDP increments during the operations phase would be proportionally much less than during the four-year construction phase, when GDP increments in the NWT accrue mainly to labour and business.

The revenue increments during operations would last for decades, however, and in the Panel's view, there is a greater potential for capturing these benefits within the NWT over the long term. The Panel notes that a particularly important capture mechanism in this regard has been created by the APG. The ownership arrangements and structure of the APG have the potential to provide substantial benefits to Aboriginal beneficiaries in each of the four regions in the NWT. According to these arrangements, the benefits of the Project to the APG, should MVP throughput not expand beyond 0.83 Bcf/d, would be modest. However, should throughput expand, even to the 1.2 Bcf/d level, both the ownership share and the dividend levels would rise sharply. Thus, the Expansion Capacity Scenario potentially yields very substantial benefits to APG shareholders, but only if sufficient additional gas is contracted to the shippers to expand throughput accordingly within ten years of start-up. The Panel regards the APG as a distinctive and innovative arrangement that would capture some operational revenues within the NWT, but also notes the importance to the APG of throughput on the MVP reaching 1.2 Bcf/d early in the life of the Project.

For the purposes of comparison, the Panel notes that in 2007, according to the NWT Department of Finance, diamond mining contributed about \$1.26 billion to territorial GDP. The Project

would contribute less than half of this amount as an increment during construction, but probably more than this amount during operations. However, ongoing expenditures by diamond mine owners during their operations phase involve substantial purchases of labour, goods and services within the NWT, in contrast to the likely outcome of the Project operations phase.

EXPANSION CAPACITY SCENARIO IMPACTS

Many participants commented on the economic impacts of developments that might follow the construction of the MGP. There is substantial uncertainty about what these scenarios might involve. All of these scenarios, however, involve more gas production over a longer period of time, and the key features likely include:

- additional exploration and field development;
- subsequent pipeline tie-in and capacity expansion construction;
- higher construction expenditures;
- larger and longer GDP effects;
- greater revenues to governments;
- enhanced local procurement and business opportunities;
- larger gas volumes that trigger greater revenues to the APG; and
- more employment and labour income.

In the different capacity cases, such as those specified in the WMR and PAI reports, the economic impacts are similar in structure to the base case; however, there are differences of scale for each economic variable. For example, the scenarios in the WMR report range from the base case up to one in which production is expanded to operate the pipeline at full capacity with added compression and continuing until 2040. This scenario would require substantial and sustained exploration and development activity over the long term. It would more than double increments to GDP and other core economic variables as compared to the base case (in effect, the Project as Filed).

Although positive impacts would accrue to territorial GDP under any scenario, the Panel observes that GDP increments are only very rough indicators of the real economic benefits that might accrue in the NWT. GDP numbers alone do not tell us much about the distribution of economic impacts among the factors of production (i.e. labour, capital and resources), or among sectors of the NWT population, or among the various regions of the NWT. Actual effects on jobs, labour income, business and revenues to governments are better indicators of the size and durability of Project benefits. It is to these matters that the Panel turns its attention in the following sections of this chapter.

15.4 PROCUREMENT AND BUSINESS OPPORTUNITIES

Most NWT businesses are located in the regional centres. In 2000 there were 2,046 companies of all sizes operating in NWT, and of these 1,588 or 78% were located in Yellowknife. 154 or 7.5% were located in the Beaufort Delta Region (mostly in Inuvik), 44 or 2.1% in the Sahtu Region and 51 or 2.5% in the Dehcho Region.

The report titled *Communities and Diamonds: Socio-economic Impacts in the Communities of Behchoko, Gameti, Whati, Wekweeti, Detah, Ndilo, Lutsel K'e, and Yellowknife 2005 Annual Report* suggests that between 1997 and 2002 there was a modest expansion of businesses in small communities in the diamond mining area, but most business growth had been in Yellowknife.

15.4.1 PROPONENTS' VIEWS

The Proponents stated that procurement opportunities would be a key benefit of the Project to northern businesses. At the same time, they cautioned that Project demands would greatly exceed northern business supply capacity.

The Project would generate a large demand for goods, services and workers at Project locations in the NWT. Qualified and competitive suppliers in northern communities and regions would respond to the demand if possible and within their capacity limitations. Where demand exceeds northern supply capacity, the Project would look beyond the NWT to meet supply requirements.

Although all of the Project components are physically located in the NWT, most of the capital spending on goods and services needed to construct the Project components would go to businesses located outside the NWT. This is because of capacity constraints of the regions in the NWT to undertake such a large Project, given the small population base and workforce, and the limited number, size and scope of local businesses and contractors.

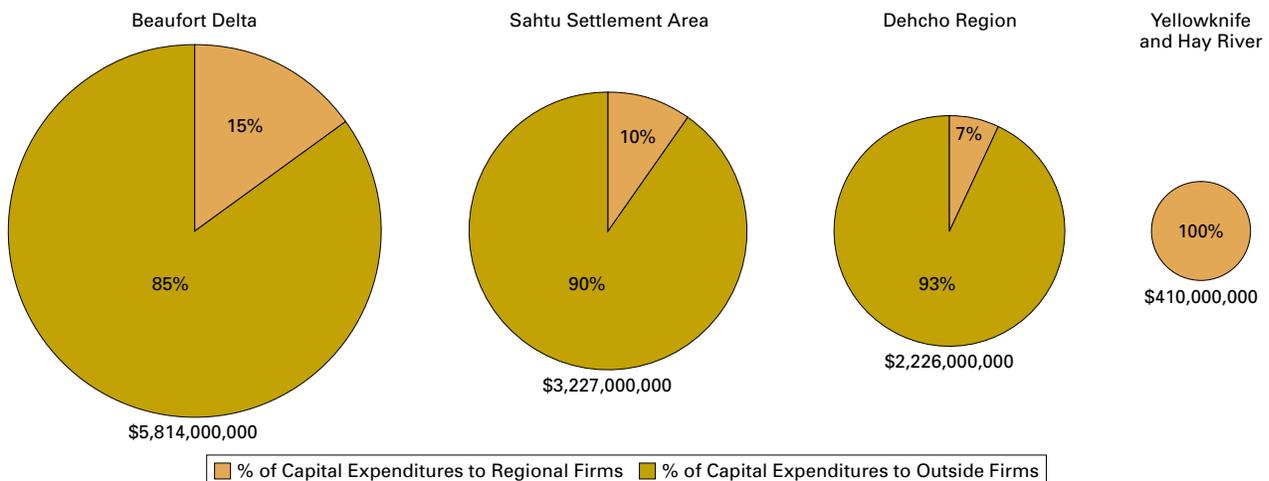
The Proponents estimate that their capital expenditures in the NWT would amount to about \$1.76 billion during the construction phase, or about 15% of total capital expenditures. The Proponents described policies and measures they would use to assist local businesses in capturing these benefits. The Proponents have entered or intend to enter into agreements with other parties to formalize their commitments regarding procurement and business opportunities in the Project Review Area. These agreements include:

- the SEA with the GNWT;
- Benefits Agreements with Aboriginal organizations; and
- Canada Benefits Plans with Indian and Northern Affairs Canada (INAC).

Figure 15-5 shows how the Proponents propose to distribute their capital expenditures within the NWT during the construction phase. Almost half of these expenditures would occur in the Beaufort Delta Region. Although no MGP facilities would be constructed in Yellowknife and Hay River, an estimated \$410 million of capital spending would flow to these communities as a result of demand, and leakages from the other NWT regions.

The Proponents noted that expenditures made within the NWT regions would be subject to further leakage of economic benefits, as the local businesses supplying these goods would have to purchase required inputs from businesses outside the region.

Figure 15-5 MGP Capital Expenditures by NWT Region (Construction Phase)



Source: Adapted from J-IORVL-00954, Tables 4-1, p. 64, Table 5-1, p. 72, Table 6-1, p. 80, Table 7-1, p. 88, Table 8-1, p. 96

At the Whitehorse public hearings, the Proponents stated that Yukon companies would be considered to be northern companies. That means when contract bids are evaluated and the bid contains a plan utilizing a Yukon company, it would be selected over an equivalent bid with only southern Canadian companies.

According to the Proponents, procurement strategies in northwest Alberta would be affected by:

- the supply of goods and services;
- the demand for goods and services;
- any Benefits or Access Agreements; and
- input from communities and other stakeholders.

NGTL did not provide a breakdown of the types of business procurement opportunities related to the construction of the Northwest Alberta Facilities, nor did NGTL provide an estimate of the value of business services and goods that would accrue to business firms in northwest Alberta.

MITIGATION MEASURES AND MANAGEMENT PLANS

The Proponents stated that their procurement principles would be to:

- provide full and fair opportunity for Aboriginal and other northern businesses to participate in business opportunities;
- comply with relevant land claim settlement agreements, and benefits and access agreements;
- ensure that Project procurement policies are consistent with INAC's *Northern Benefits Statement of Principles*, where applicable;
- foster development of Aboriginal and northern business and human capacity that provides long-term benefits to the Project Proponents; and
- ensure that suppliers of goods and services meet the Project Proponents' commitments to use Aboriginal and northern businesses.

In section 4.2.4 of the SEA, the Proponents committed to use reasonable commercial efforts to:

- a) procure at least 15% of their materials, supplies, equipment and services from NWT Businesses during Construction; and
- b) maximize procurement from NWT Businesses during Operations and Decommissioning (J-GNWT-00206, p. 23)

The Proponents are also committed to "give preference to qualified NWT Businesses...in contracting for Project Work, and...foster the development of NWT Businesses..." The Proponents would award Project Work on a "Best Total Value basis" (J-GNWT-00206, p. 23) based on criteria such as performance, quality, cost competitiveness, demonstrated capacity and content, as determined by the MGP. These

provisions would continue through the operations phase to decommissioning.

The Proponents stated, in response to a question from the Village of Fort Simpson about the Proponents' preference policies for northern businesses, that there is no provision for a monetary bid adjustment:

Preference means that if the proponents, or their contractors or subcontractors, determine that two or more proposals are equivalent, based on safety, quality, cost and ability to provide the goods and services on a timely basis, they will award the contract on a preferential basis to Aboriginal and other northern businesses. (J-IORVL-00252, p. 24)

The Proponents stated that an electronic bulletin board or clearinghouse is being developed to communicate MGP contract bidding opportunities to interested businesses. Interested businesses would also be able to register their business in the clearinghouse and relay their expressions of interest to the Proponents, contractors and subcontractors.

With respect to local business opportunities in relation to construction camps, the Proponents are committed to provide Aboriginal artisans a reasonable opportunity to display and sell their handicrafts in construction camps should the artisans request such an opportunity. The Proponents are also committed to "in accordance with applicable Regulations, periodically make country foods available in construction camps, where commercially available," most likely from local businesses, subject to those businesses meeting Health Canada requirements. (J-GNWT-00206, p. 21) The GNWT noted, in response to questioning, that their environmental health inspectors would have to inspect the premises with respect to food preparation in relation to the provision of country food, whether meat or fish.

In addition to the SEA commitments, the Proponents have been negotiating Access Agreements and Benefits Agreements with NWT Aboriginal groups. The Panel understands that these terms may vary from region to region. Generally the term "Access Agreements" refers to agreements negotiated by an Aboriginal authority regarding access to lands owned by its membership pursuant to a settled land claim agreement. The term "Benefits Agreement" refers to an agreement negotiated by an Aboriginal authority regarding benefits that will accrue to its membership from the use of their traditional lands by a third-party developer.

The Panel understands that the Proponents have combined both agreements in their negotiations and that Access and Benefits Agreements have been concluded with the Gwich'in and with Tulita and Déline in the Sahtu Region. The Proponents told the Panel they had agreed to principal terms with the Inuvialuit and were just finalizing the text of the Agreement. An agreement had been negotiated, but not ratified with the K'ahsho Got'ine. Negotiations were continuing with the Dehcho First Nations.

These Access and Benefits Agreements that the Proponents are negotiating with NWT Aboriginal groups are confidential documents that the Panel has not seen or reviewed. The Proponents stated:

Benefits and Access Agreements are confidential agreements between the Mackenzie Gas Project and regional Aboriginal groups. While these agreements are confidential, I can say that they address education and training, employment and business opportunities, advisory committees and access terms and compensation. (Randy Ottenbreit, HT V76, p. 7512)

While the specific contents of these agreements are confidential, the Proponents provided the Panel with copies of the table of contents of the Access and Benefits Agreements that had been concluded with the Tulita and Déline District Land Corporations. Key provisions include:

- an education fund;
- employment training;
- communication of employment opportunities;
- employment opportunity priority;
- opportunities for Petroleum Operators Training Course graduates;
- business development initiatives;
- communication of business opportunities;
- prequalification of beneficiary businesses; and
- set-aside work.

The set-aside work packages could include right-of-way clearing, catering and camp services, transport/logistics and the provision of other goods and services. Lists of these set-aside work scopes have been developed with regional Aboriginal groups. Set-aside work scopes are excluded from the major contractor bid packages and would be made available to regional Aboriginal businesses that are qualified and competitive.

In response to a query regarding the set-aside contracts, the MGP stated:

in the negotiation of benefits agreements, each agreement identifies work that would be set aside, and set aside means that qualified Aboriginal businesses would have the first opportunity to bid on that work. The content of what — the definition of what that work is varies from agreement to agreement, and so I'm not going to try and provide an exhaustive list. I did indicate in my remarks that the nature of set-aside work relates to early infrastructure development and long-term operations work. (Ottenbreit, HT V76, p. 7551)

With regard to the specific economic benefits associated with the Access Agreements, (which include monitoring and environmental plans) the MGP stated, "we're also of the view that the terms that we offered on access and the fees are at the

high end of what we see and what our experience has been. So we think it's a generous offer." (Ottenbreit, HT V23, p. 2152)

The Panel queried the Proponents as to whether the Access and Benefits Agreements were intended, in whole or in part, to mitigate Project impacts. The MGP indicated that they would not necessarily characterize them that way. The MGP noted that the Sahtu Dene and Métis Comprehensive Land Claim Agreement has provisions for developers to obtain surface access, and it refers to Access Agreements. However, there is no requirement in either the Sahtu or the Gwich'in land claims for a Benefits Agreement. The MGP stated that they would primarily characterize the Benefits Agreement as serving to enhance economic benefits and that, in some instances, the agreement might assist in terms of mitigating potential adverse impacts.

The Proponents are engaged in ongoing discussions with INAC with respect to Benefit Plans required under the *Canada Oil and Gas Operations Act* (COGOA). These plans, also known as "Canada Benefit Plans," focus on parts of the MGP that fall under that piece of legislation; that is, the three Anchor Fields and the Mackenzie Gathering System. Under COGOA, the National Energy Board (NEB) cannot approve the development plans for each of the three Anchor Fields or authorize the Mackenzie Gathering System until the Minister of INAC has approved or waived the requirement for the associated Benefit Plans.

The Canada Benefit Plans provide a framework of principles, strategies and procedures that would be followed by the Proponents in providing employment, training and business opportunities to Canadians within an internationally competitive environment, subject to provisions in regional Benefits Agreements and the SEA with the GNWT. The Benefit Plans focus on providing suppliers of goods and services with full and fair opportunities, ensuring priority for opportunities is given to qualified individuals resident in directly affected regions, and ensuring the economic viability and international competitiveness of the Project. The plans would also include monitoring and reporting requirements.

In addition, the COGOA provides that the Minister of INAC may require that the Benefit Plans contain affirmative action provisions to facilitate the ability of disadvantaged groups to access training, employment and business opportunities associated with these projects. As a matter of long-standing policy, INAC requires that Benefit Plans include provisions to facilitate the access of northerners to benefit opportunities.

While work on the Benefits Plans was ongoing, INAC did not expect that they would be finalized until after the Panel has completed its Report.

The Proponents would require their contractors, sub-contractors and labour providers to comply with all of the applicable commitments, terms and conditions in the Canada Benefits Plans, the Benefits Agreements with Aboriginal groups and the SEA. The Proponents indicated that they would also require that

contractors submit content plans describing their subcontracting employment and training plans. Contractors' and subcontractors' compliance with the employment and business commitments would be monitored. Payment of invoices submitted by contractors would be contingent on their providing the required reports and compliance information.

15.4.2 PARTICIPANTS' VIEWS AND RECOMMENDATIONS

Participants viewed the potential business opportunities during the construction phase favourably, but some also expressed concerns about the capacity and readiness of NWT businesses to take advantage of those opportunities. Participants called for the Proponents to ensure that contracting opportunities not be so large as to be beyond local capacity, to provide advance notification and advice to local businesses, and to ensure subcontractor adherence to Proponents' policies.

The NWT Chamber of Commerce identified the issue of business capacity as a potential barrier to participation in the proposed MGP. According to the NWT Chamber of Commerce:

As difficult as it is for us to state, we acknowledge that other than the transportation and telecommunication sectors of our membership, we currently do not have either the expertise or the capacity to handle any of the other major pipeline contracts during the construction phase of this project. Having said this, it is our expectation that one of the legacy items of this build will be the development of a northern based service industry that will not only have the capability; but also, be well-positioned to meet the needs of the next phase of industrial growth. (J-NWTCC-00005, p. 4)

The NWT Chamber of Commerce also stated that, wherever possible and appropriate, pipeline contracts must either be positioned or structured in a manner that would recognize and reward joint ventures between northern-based businesses and southern service and supply companies.

Ms. Ann Marie Tout, Mayor of Norman Wells, stated the town enjoys the benefits of living and working with the hydrocarbon industry. The current Imperial Oil facilities and Enbridge's Norman Wells Oil Pipeline contribute almost 80 percent of the taxation revenue for the community, and oil and gas exploration activity in the area further contributes to the local economy and that of the Sahtu Region. Mayor Tout concluded her remarks at the Norman Wells community hearing by stating:

the Town of Norman Wells is a strong supporter of the proposed project. The community will benefit from the construction-related employment and business opportunities and, more importantly, from the exploration and development activities to follow from construction of the pipeline. Approval of the project will provide Norman Wells with a continued supply of natural gas and extend the life of the existing oil

field production by a decade...Our community has lived and worked with the non-renewable resource industry for decades, and we welcome the proposed project as our opportunity to continue enjoying the benefits associated with industrial development. (HT V20, p. 1934)

The Inuvialuit Regional Corporation (IRC) stated that, in considering the extensive range of contracting opportunities associated with the Project, it is important to recognize that the Inuvialuit have interests across an extensive range of operating businesses. The IRC noted that the Proponents need to ensure that their purchasing practices make the Project contracting opportunities more accessible to the smaller and individual Inuvialuit enterprises. The IRC also stated that there needs to be a diligent effort to break down MGP contracts into smaller pieces, provide assistance to Inuvialuit businesses in navigating the procurement processes, and have sufficient lead time to acquire needed business capacity.

The IRC also commented on the issue of subcontractors. The IRC is of the view that this is an area where business objectives have not always been realized and where there is an opportunity for improvement. The IRC recommended that the Proponents must actively supervise their contractors to ensure their commitments to providing subcontracting opportunities to Inuvialuit businesses are fully implemented. This includes ensuring that the commitments made to the Inuvialuit on economic participation are properly reflected in the subcontract agreements and that the agreed upon processes to address a problem are diligently implemented before an economic participation opportunity is lost. The IRC also requested that local harvesters be provided the opportunity to supply country food to Project employees at the construction camps.

The Tuktoyaktuk Community Corporation stated that they expected the MGP to provide "an even playing field for local contractors and businesses." (J-OHP-00160, p. 17) Local contractors need a chance to develop the skills they need to participate more fully in the Project, and in future projects in the region. The Tuktoyaktuk Community Corporation was also concerned that many of the best contracting opportunities would be secured by larger firms, either from outside Tuktoyaktuk or joint venture companies with only token Inuvialuit representation.

Similar concerns were expressed to the Panel by Mr. Roger Gruben at the Tuktoyaktuk community hearings. He also emphasized the need for on-site job training, noting that industry was, in his experience, seldom willing to pay for such in contracting bids, and he called for more vigorous promotion of career opportunities by industry, including study tours of work sites that could be incorporated into school curricula. The Proponents did not disagree in principle with the idea of such study tours, although noted that it was not up to them to determine curriculum content.

The Sachs Harbour Community Corporation also noted the business capacity issue facing small northern communities:

Our local businesses are small and primarily focused on meeting the local needs. We acknowledge their size and capacity, the high cost of transportation, and the nature of the requirements for the gas project will limit their participation overall. That being said, we would like a serious effort be made to communicate the opportunities for the supply of products and services to all communities in the ISR. (Manny Kudlak, HT V52, p. 5009)

The 2005 report entitled *The Gwich'in Views of the Mackenzie Gas Project* was based on a survey of a number of Gwich'in beneficiaries. Those surveyed ranked an increase in business opportunities as the second most positive impact that the MGP could offer, but also expressed concerns that local businesses might not be ready for the opportunities that could develop from the MGP. Survey participants also had suggestions on how to better involve the Gwich'in in the business opportunities:

Make sure aboriginal people are notified about private business opportunities. Suggestions and recommendations on business opportunities should be given to community-based people. The people should be assisted with proposal writing and the CIBC should be more open to funding aboriginal businesses. (J-OHP-00014, p. 47)

The Deh Cho Business Development Centre (DCBDC) identified some 115 businesses in the Project Review Area communities of Fort Simpson, Wrigley, Jean Marie River, Nahanni Butte, Fort Liard and Trout Lake. Based on surveys with these Dehcho businesses, the DCBDC stated the Proponents' EIS:

fails to provide sufficient detailed information in regard to the proponent's procurement policies and procedures that could provide a basis for predicting, with any degree of certainty, the effects of the project on Deh Cho business...while 43% of respondents believe that the procurement policies of the proponent give their business, at best, a moderate chance of obtaining work with the Project, 57% of respondents believe their chances of obtaining work are, in fact, either poor or very poor. (J-OHP-00033, p. 7)

The DCBDC also noted the survey responses showed the top four constraints that would reduce the ability of Dehcho businesses to take advantage of MGP business opportunities were lack of notice of opportunities, financing, competition and training.

The DCBDC recommended that the Proponents should develop a business capacity-building plan in conjunction with the Dehcho business community, governments, business financing and development agencies. The plan should be designed with the intent of maximizing regional business involvement in the MGP by timely identification and reduction of potential barriers to regional Dehcho businesses. In response to questioning, the Proponents stated that they do not intend to develop a database detailing local business capacity and aspirations in any community in the NWT. The Proponents intend to use existing sources of documentation of existing business capacity and

capability, such as those provided by Chambers of Commerce, including that of Fort Simpson, and land claim settlement groups.

The Status of Women Council of the NWT (SWC) stated:

there could be many opportunities for northern business women to provide services to camps and work sites; for example, in areas such as workshops, counselling, financial management training or conflict resolution training. Women want procurement staff to work specifically with local women to assist in the establishment of businesses, understanding of bidding procedures with the MGP and business plans. Commitments by the proponents are noted but are not specific to women other than providing opportunities for artisans to sell their work in camps. (Sharon Thomas, HT V78, p. 7688)

The SWC recommended that the Proponents present a plan to promote procurement opportunities to women and businesses operated by women.

The GNWT, in response to questioning about its staffing resources to assist Project Review Area communities and businesses, stated:

There's no question that the staff in economic development at ITI will be hard pressed...there are approximately 15 of those economic development officer transfers in existence at this time. In addition to that, the Department also supports a program which is operated — called "Community Futures"... It provides the resources for those organizations which are then run by local boards from the region, and there is one of those in each of the regions of the NWT...We do not have an economic development officer resident in every community in the NWT. The volume of activity in some of the smaller, more traditional communities is lower so, generally speaking, we have an economic development officer in every community that has a population of about 350 or more. (Doug Doan, HT V87, pp. 8664–67)

The GNWT stated that, for the fiscal year 2005–2006, small business loans and contributions totalled almost \$10 million. GNWT support for the Community Futures program, Aboriginal capacity building and funds to support the community transfer economic development officers totalled about \$2.5 million in that same time period.

According to the GNWT, the SEA would help achieve several northern business objectives:

- maximize northern procurement during construction, operations and decommissioning;
- report annually on purchases;
- foster local business development and provide preference for businesses in the region where the work is taking place;
- assist businesses in understanding opportunities, bidding processes and other requirements;

- align procurement with the capacity of NWT businesses;
- provide advance notice so that NWT businesses can better prepare to compete for project work; and
- purchase northern manufactured products.

The Dehghah Alliance Society expressed concerns regarding the negotiation of Access and Benefits Agreements for the Dehcho First Nations. The Dehghah Alliance Society recommended that the Panel recommend the NEB not issue the MGP certificate of public convenience and necessity until the Dehghah Alliance communities and the Proponents have agreed to an Access Agreement and a Benefits Agreement.

The Yukon Chamber of Commerce stated that Yukon business must receive preference over southern business firms with respect to MGP procurement opportunities. The Chamber also requested the MGP to hold a series of procurement, employment and business opportunities workshops in the Yukon.

The Dene Tha' First Nation (DTFN) asked the Panel to recommend that Canada ensure that DTFN are able to benefit from programs established to address social and economic issues associated with the Project (e.g. Resource Pre-Development Fund, NWT Oil and Gas Aboriginal Skills Development Strategy, Aboriginal Skills and Employment Partnership and Resource Access Negotiation), in order to ensure that the DTFN are treated equitably with respect to the Project. The DTFN subsequently withdrew all of its recommendations to the Panel.

The Settlement Agreement between the Government of Canada and the Dene Tha' commits Canada to pay to the DTFN Trust Fund a total of \$25 million, which may, among other things, be used to enhance DTFN participation in the northern economy.

15.4.3 PANEL VIEWS AND RECOMMENDATIONS

The Proponents have committed to use reasonable commercial efforts to procure at least 15% of materials, supplies, equipment and services from NWT businesses during construction. The Panel infers that the Proponents set this objective based on their best estimates of the capacity of local businesses to supply this level of goods and services. The Panel assumes, in the absence of evidence, that implementation of this objective is at least in part supported by procurement commitments contained in the Benefits Agreements with Aboriginal organizations, but the Panel is unaware of the value of these commitments, or of applicable compliance provisions.

The Panel notes that no specific numerical objectives have been stated by the Proponents with respect to the procurement levels in the Project Review Area related to the \$2.2 billion they expect to spend during the operations phase, and that these are not specified in the SEA. The Panel can only speculate that the Benefits Agreements might include procurement commitments that would apply to the operations phase.

The small size of the NWT workforce and the small number of businesses now operating in the ISR, GSA, SSA and DCR contribute to the limited capacity to benefit commercially from such a large one-time project as the MGP. These capacity constraints would necessarily require construction contractors to hire workers and purchase goods and services from outside the NWT.

All participants agreed that the capacity limitations of NWT businesses constitute an important barrier to maximizing participation in Project-related business opportunities. This concern is especially prevalent in the smaller communities of the NWT. Currently, construction-related business capability is concentrated in the larger regional and industrial centres such as Inuvik, Norman Wells, Fort Simpson, Hay River and Yellowknife, and also in Tuktoyaktuk. The Panel anticipates that the bulk of MGP-related business contracting and procurement opportunities would go to firms in those communities, although the Proponents did not provide community-specific information in this regard.

The Panel considers that Project-related business opportunities would likely last longer in proximity to the Anchor Fields, and that as a consequence, firms located in the Beaufort Delta Region would be more likely to benefit over a longer period than firms located in the Sahtu or Dehcho regions.

The Panel considers that, although the Proponents' commitments imply an 85% leakage to the rest of Canada, the potential benefits to NWT businesses are still very large in relation to existing levels of activity. The Panel considers the 15% objective to be reasonable in view of the existing capacity of NWT businesses and the fact that the construction period is restricted mainly to a four-year window. The Panel also considers that the Proponents' procurement policies, including northern purchasing priorities, business opportunities support and contract structuring, are reasonable measures in aid of achieving this objective.

Many businesses have neither the capacity to gear up for a short window of opportunity, nor would they necessarily consider it prudent to do so. In the longer run, the procurement and business opportunities provided by the construction period would have long-run benefits only if there are further opportunities in the operations phase, or under an Expansion Capacity Scenario. To the extent that NWT firms gain successful experience and enhance their capacities in the construction phase, they would be better-positioned to participate actively in the later phases of Project-related developments. The Panel therefore concludes that NWT business would benefit to a much greater degree under an Expansion Capacity Scenario than from the Project alone, in terms of both capacity building and secure, long-run growth.

The Panel considers that both the Benefits Agreements and the Canada Benefits Plans have the potential to provide important procurement and business opportunities within the NWT. However as their contents were not disclosed to the Panel, the Panel is unable to determine the magnitude and likelihood of these benefits. The Panel assumes that if negotiated agreements

are acceptable to both parties, then the implied benefits in those agreements must also be acceptable to those parties.

The Panel notes that, at the close of its hearings, negotiations of Access and Benefits Agreements between the Proponents and land claim organizations were well advanced in all regions that had settled land claims. The Dehcho First Nations had not yet determined which entity or entities within the region would be the party to enter negotiations with the Proponents.

RECOMMENDATION 15-1

The Panel recommends that, should the Project proceed, the Proponents and the Dehcho First Nations make best efforts to finalize a Benefit Agreement with respect to the Mackenzie Gas Project and that this agreement be concluded at least six months prior to the commencement of construction in the Dehcho Region. If the Proponents and the Dehcho First Nations are not able to conclude the Benefit Agreement negotiations in that time frame, the Panel recommends that the Proponents negotiate infrastructure and construction “set-aside” contracts with Dehcho First Nations business entities and that these negotiations be concluded prior to the commencement of construction in the Dehcho Region.

In terms of Project procurement and business opportunities, the overall view provided in a number of submissions to the Panel is that, for Aboriginal persons in the NWT, especially those living in small communities, the important long-run benefits, in terms of employment, working conditions and the ability of workers to live in home communities, will come not so much from direct employment on the Project as from working for local and Aboriginal businesses and agencies that can better accommodate local needs. This assumes that the Proponents’ commitments and, more generally, the pace and scale of Project and related developments, would be conducive to the promotion of Aboriginal businesses and agencies in the communities as well as in the regional centres.

Three specific economic opportunities related to the construction phase were identified and considered during the hearings: sale of arts and crafts to individual employees at construction camps; sale of country food to caterers for consumption at construction camps; and sale of locally manufactured wood products to the Proponents for their construction needs. The Panel heard various reasons why the sale of country food and wood products for the purposes specified might not be feasible, or if feasible, be limited in quantity and value. These issues may be captured by the Benefits Agreements.

Most importantly, the Panel heard that the benefits potentially available to Aboriginal people through Access and Benefits Agreements and through their own economic institutions and businesses are enabled in large part by the land claim agreements. The Aboriginal groups that have had these land claim agreements in place for some time (particularly the Inuvialuit and the Gwich’in) are confident that their land claims institutions and business enterprises provide them with the capacity to deal with the Project and benefit from it. These groups want to ensure that

both industry and governments are aware of the requirements of their land claim agreements and will respect them.

15.5 LABOUR FORCE DEVELOPMENT

15.5.1 INTRODUCTION

This section considers the potential barriers to realizing the full extent of employment opportunities for the labour force of the NWT, and the various measures that may reduce or eliminate these barriers. The Proponents, governments and community residents have all emphasized the importance of education and training of the northern workforce in order to take advantage of Project construction and operations jobs. However, individuals who want to work during the Project construction phase may face a number of barriers, not only related to training but also to hiring practices, conditions of work (such as rotational employment at remote sites), and work place policies and conditions. Other social and cultural barriers, including family and community commitments, are considered in Chapter 16, “Social and Cultural Impacts,” while those related to training, hiring, and travel to work are considered here.

Many MGP construction jobs would require specific trades or other skilled job training. This requires higher education standards. The cost of training and location of the training may present additional barriers to participation by northerners. Training initiatives are particularly important and are discussed in more detail in the next section. Potential hiring barriers and how to reduce them are related to the rules and policies that would be pursued by the Proponents and, if worksites are unionized, by the unions.

The extent to which these barriers are dealt with effectively by the various parties will determine the magnitude of the employment and income outcomes in the NWT that are discussed in the following section. Labour force development key issues include identification of NWT trainees for MGP construction and operations positions; management and implementation of training programs; and management of training and hiring barriers. The distinction between the types of jobs and types of training required for the construction phase compared with the operations phase is important in assessing these barriers. Identifying such barriers and establishing effective programs and policies to reduce them is a critical element in ensuring that Project employment and income benefits in the North are maximized. The Panel notes that the Proponents’ employment and income projections discussed in the next section assume that training has already been offered to the potential Project workforce.

15.5.2 EXISTING CONDITIONS

Labour force development in relation to the Project would be strongly shaped by the existing circumstances and qualifications of the NWT labour force and its previous experience with resource development activities.

The most detailed baseline information obtained by the Panel was from the *2004 NWT Community Survey*. The labour force component of this survey provided key labour force characteristics by community in the Project Review Area. However, the data do not provide direct comparisons between Aboriginal and non-Aboriginal persons. The EIS contained no comparable data for earlier years, and thus it was not possible for the Panel to identify recent employment trends in the NWT.

For the purposes of its labour force surveys, the GNWT includes all persons, male and female, aged 15 years and over. The survey counts as employed those who worked during the week prior to the survey, including persons who during the week prior to the survey:

- did any work at all, excluding housework, maintenance around the home and volunteer work; or
- were absent from their job or business because of vacation, illness, strike, or being locked out.

Table 15-4 and Figure 15-6 show that there are substantial differences in employment rates between the communities and the regional centres, and that these differences are consistent throughout the regions. The employment rate in the regional centres ranges from 69 to 86%, similar to Yellowknife's employment rate of 80%. The employment rate in the communities, regardless of region, is in the 40 to 50% range (individual community rates vary from 33 to 57%). It is clear that most jobs are in the regional centres.

Table 15-4 also indicates that there is a very substantial difference in educational attainment between the communities and the regional centres. High school graduation rates among persons aged 15 years and over range from 65 to 85% in the regional centres. Graduation rates in the communities, by contrast, are about 35 to 40%. High school graduation rates of men and women are similar, regardless of location. There is a clear correlation between high school graduation and employment rates. To the extent that getting a job, and particularly a permanent, well-paying job, depends on education, residents of the regional centres are better positioned.

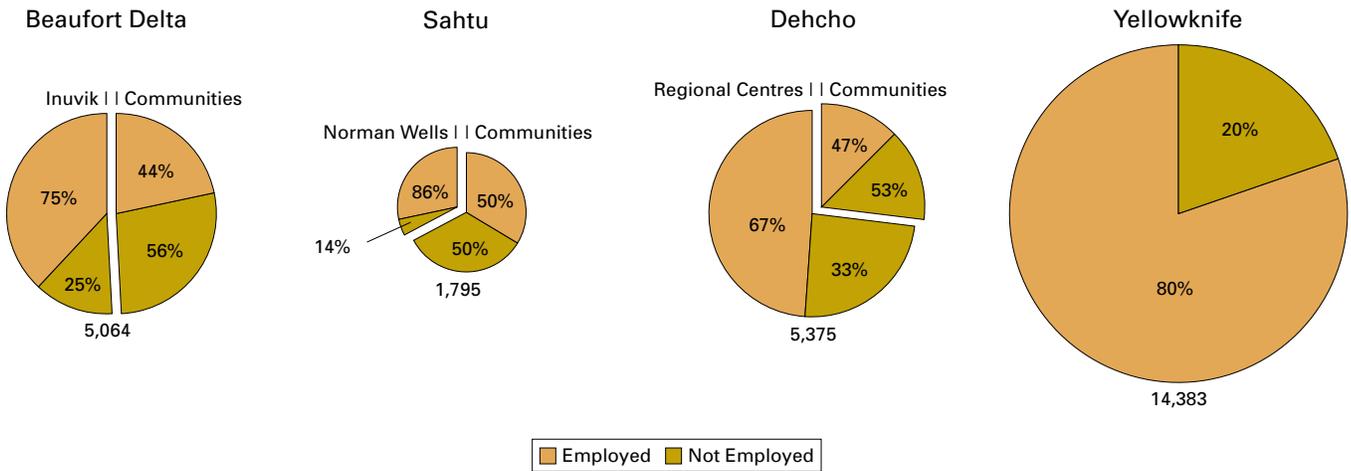
Table 15-4 Labour Force — Employment and Secondary Education: NWT Project Area, 2004

		Labour Force	Employed ¹	Not Employed ^{1&2}	High School Graduation ^{1&3}	
					Male	Female
Beaufort Delta	Inuvik	2,569	75%	25%	70%	72%
	Communities	2,495	44%	56%	38%	41%
	Total	5,064	60%	40%	n.a.	n.a.
Sahtu	Norman Wells	588	86%	14%	84%	82%
	Communities	1,207	50%	50%	43%	41%
	Total	1,795	62%	38%	n.a.	n.a.
Dehcho	Regional Centres	3,917	67%	33%	67%	65%
	Communities	1,458	47%	53%	35%	35%
	Total	5,375	62%	38%	n.a.	n.a.
NWT (Project Area)	Regional Centres	7,074	71%	29%	n.a.	n.a.
	Communities	5,160	46%	54%	n.a.	n.a.
	Total	12,234	61%	39%	n.a.	n.a.
	Yellowknife	14,383	80%	20%	77%	78%

Notes:

1. All percentages are of the labour force (defined as all persons aged 15 years and over).
 2. Not Employed includes all persons in the labour force not currently employed, for whatever reason, and is a more inclusive category than "unemployed."
 3. High School Graduation — the Proponents provided percentages only, rather than numerical values. As this was done separately for the ISR and GSA, and for Hay River and Fort Simpson, the Panel has estimated the combined values in this table on a weighted basis.
- n.a. — means not available.

Figure 15-6 Labour Force Size and Status: NWT Project Area, 2004



Source: Panel Table 15-4

Less detailed information provided by the Proponents for various years between 1994 and 2001, from Statistics Canada and NWT Bureau of Statistics sources, convey a similar impression, although they suggest some improvement in educational attainment in the communities over that time. In the Dene Tha' communities in northwest Alberta, 27% of the potential labour force had completed high school, as compared to 74% of the potential labour force in the regional centre of High Level.

The low level of formal education of the labour force in the small communities is exacerbated by poor literacy and numeracy skills. The Proponents noted that, although these skills are not specifically measured in the NWT:

the level of educational attainment is used as a measure of literacy. ...People who have achieved Grade 9 but less than Grade 12 are considered to have low literacy, and those with less than Grade 9 are considered to be of questionable literacy. A Grade 9 education is a minimum requirement for employment in many jobs. (EIS, V4, Section 4, p. 105)

Dr. Frances Abele, a consultant to ANC, stated that:

One of the issues in the Northwest Territories' labour force, if you look at unemployed people, is level of literacy and numeracy or last year of educational attainment. It's the biggest predictor of unemployment. (HT V76, p. 7518)

The Aklavik Community Corporation noted, with respect to previous experience with hiring policies in the oil and gas sector:

There are many locals who have had many years of hands-on experience in the heavy equipment operators' field and other areas including that but are unable to get employment due to the requirement of writing exams. These individuals feel worthless. It is unfortunate that we have to degrade these individuals who have had years of on-the-job experience knowing that they are quite familiar with safety, how to properly run the equipment in extreme conditions, and then being told that, because of the paper, they cannot work. (Carol Arey, HT V97, p. 9724)

A 1999 GNWT Bureau of Statistics survey showed that 68% of the potential labour supply in Aboriginal communities in the study area had less than high school education, and 53% required training in order to secure employment (although the survey did not define what is meant by "requires training"). These data suggest that some NWT residents have practical skills and therefore need no training but lack the literacy and numeracy skills needed to pass written examinations, although it is not possible to estimate their numbers.

The NWT Department of Education, Culture and Employment provided a count of NWT residents then (2007) working in the kinds of jobs required for pipeline construction. The response also provides counts of persons enrolled in relevant training programs between 2001 and 2007. The count of people currently working in the NWT in each of several job descriptions is not complete, but available figures indicate there were 1,960 individuals in the NWT trained to the level required for Project jobs by either the unions or the Proponents. In addition, there were 1,946 individuals enrolled in training programs at some time during the years 2001–2007. Allowing for overlap in these counts (some of the people enrolled in courses in the early years would have completed their training and gone on to be counted as

employed in their field) the available numbers make it clear that there are relatively few people in the NWT qualified to fill the majority of jobs on the Project that require advanced training.

Table 15-5 shows the characteristics of the 4,785 persons not employed in the Project Review Area in 2004, of which 2,767 or 58% are in the communities. This table shows that unemployment is higher in the communities than in the regional centres. Unemployed persons in the communities, relative to the regional centres, were more likely to have:

- wanted a job;
- looked for work; and
- been willing to do rotational work.

Table 15-5 Characteristics of Labour Force — Not Employed: NWT Project Area, 2004

		Number Not Employed	% Want a Job ¹	% Looked for Work ²	% Willing to do Rotational Work ³
Beaufort Delta	Inuvik	645	51%	27%	65%
	Communities	1,400	56%	31%	81%
	Total	2,045	55%	30%	77%
Sahtu	Norman Wells	80	46%	19%	39%
	Communities	601	60%	31%	78%
	Total	681	58%	30%	74%
Dehcho	Regional Centres	1,293	47%	30%	68%
	Communities	766	57%	31%	83%
	Total	2,059	51%	30%	74%
NWT (Project Area)	Regional Centres	2,018	48%	28%	66%
	Communities	2,767	57%	31%	81%
	Total	4,785	53%	30%	75%
	Yellowknife	2,913	43%	23%	52%

Notes:

1. % Wants a Job is as a percentage of "not employed."
2. % Looked for Work is as a percentage of those "not employed."
3. % Willing to do Rotational Work is as a percentage of "wants a job."

Source: Adapted from J-GNWT-00202, pp. 5–8

Clearly, a substantial proportion of the residents of the smaller communities is unemployed but wants and looks for work, and is willing to do rotational work. However, not all of these people are qualified for work. They may have insufficient training and education, and the number of individuals who may have drug or alcohol problems, criminal records, or suffer from physical handicaps would further reduce the size of the potential labour force upon which the Project could draw. There is also the question of mobility, not measured by willingness to engage in rotational labour but rather willingness to move to regional centres where indirect and induced jobs are more likely to be generated. Willingness to move for employment was not measured by the Labour Force Survey.

It would appear that while residents of the small communities are most in want of work, they may be the least likely to get it without positive steps to reduce or remove the barriers, not least the timely provision of education and training related to both construction and operations jobs.

There are also social barriers apart from training, education or experience that might further limit the numbers of people willing to take up industrial employment, whether or not they are qualified to do so. These barriers include perceptions of cultural, race and gender bias. To the extent that these barriers actually exist, they could have the effect of discouraging some qualified people from seeking employment in resource development projects. While it is not possible to calculate the extent of this effect from the information provided in the EIS, a number of comments were made in the hearings.

The SWC drew attention to barriers to the participation of women in trades and technical occupations, including:

lack of appropriate training opportunities; lack of child care; workplace sexual harassment; lack of workplace support; community attitudes and gender stereotypes; and lack of personal hiring networks. ...lack of female role models and mentors; lack of prior life experience with trades and tools, and the following barriers specific to the worksite: discriminatory hiring practices; social isolation of women and sexist treatment in male-dominated worksites; lack of recourse to address harassment and inappropriate behaviour, lack of diversity training among co-workers, and lack of management/supervisor leadership in setting an appropriate tone for acceptance of women in male-dominated workplaces. (J-OHP-00241, p. 2)

The SWC also noted problems of safety and security, particularly in remote work locations or camps, such as “The lack of separate dormitories and washing facilities, poor lighting, [and] the distance of sleeping quarters from common areas.” (J-OHP-00241, p. 2)

Barriers to female employment in resource development persist in spite of the fact that in all the Aboriginal communities in the study region more women than men have completed high

school and have more post-secondary education, suggesting women would be better suited for employment than men. The unemployment levels for women in the Aboriginal communities of the study area are lower than that of men, suggesting that women may be more experienced employees than men.

The Proponents’ own analysis notes that:

women were under-represented in trades and transport, primary industry, and processing and manufacturing occupations. Women were over-represented in management and business, clerical, government services, and sales and service occupations. (EIS, V4, Section 2, p. 48)

In other words, women are under-represented in exactly those occupations most in demand for the Project. Furthermore, “the gender-specific data shows that female earned incomes were substantially lower than male incomes.” (EIS, V4, Section 2, p. 60)

Some participants suggested that racism in the workplace is a barrier to employment.

I was reading [the Proponents’] presentation. The project will take such measures as enforcing a zero tolerance policy against racism and harassment in the workplace. This has been around since development has been around. We’ve experienced this again when they had the winter program out on the site. They had people quitting, being harassed by southerners; racism. We can’t put up with that anymore... racism is a dangerous thing. (Abe Wilson in Fort McPherson, HT V4, pp. 320–21)

Another concern that has been brought to me was racism: racism at work sites, at work camps. People from our community have gone to work at work camps and all they had to deal with was racist comments. So instead of putting up with that, they quit and they go home because they don’t know how to deal with racism. And in return they are stereotyped as lazy people, people who don’t want to work, so all they do is come home. (Jessie Campbell in Tulita, HT V17, p. 1755)

Participants also identified certain institutional and policy barriers to employment, attributed to various parties.

In response to questioning about pre-employment drug testing, Northern Pipeline Projects Ltd. (NPPL) acknowledged drug testing could have the effect of excluding a relatively large number of potential local workers, but insisted there was no place for drugs in pipeline construction where job safety is paramount.

In response to Panel questioning about whether criminal records might preclude individuals from taking certain kinds of training and, therefore, from taking certain kinds of employment, a representative of Aurora College stated that:

there are some programs where it is a requirement. In other areas, it can be a bit more complex where we know, for example, in heavy-duty — or heavy equipment operator,

where some companies may require a criminal record check and others may not.

What we do is make sure that students are aware — before they enrol in a program, that they are aware that some companies may require you to pass a criminal record check or some companies may require you to pass a drug and alcohol check.

We do that so that we're not putting up any barriers for students and saying: Because some companies won't — some companies do this, we're not going to let you into the program.

So we just make them aware of basically what the environment is. (Kerry Robinson, HT V87, pp. 8719–20)

Several northern residents expressed negative views towards the pipeline unions based on their experiences during construction of the Norman Wells Oil Pipeline in the mid-1980s. In their view, union hiring and seniority rules, and membership and dues requirements, were barriers to employment.

Mobility is also a potential barrier to employment, not least in relation to the location of training:

Education is so important and then post-secondary, but most of our young children don't want to leave the community, their home, to go into a strange place unless they have foster parent or somebody who cares about them listen to them and give them back. (Theresa Remy-Sawyer in Fort McPherson, HT V5, p. 414)

All or most of your training for the young — the youth to get a job with the pipeline is all like out of town, away from their community, away from their families. Like I said, there's all kinds of young families, young mothers and young fathers that have to pick up their kids and go move to another community, like I had to earlier this year to go get training. And I think you guys should probably look at having training in communities so that they don't have to leave their families and their homes. (Kandace Thomas, HT V36, p. 3324)

PANEL VIEWS

Based on information provided chiefly by the GNWT and in the EIS, the Panel understands the following with respect to the Project Review Area.

The smaller communities have:

- a potential labour force most in want of work;
- a potential labour force in greatest need of training;
- a potential labour force with the least formal education, and likely the lowest levels of literacy and numeracy;
- the lowest participation rates;

- the highest unemployment rates; and
- the least experience at employment.

The regional centres:

- are home to those members of the labour force most in demand for the Project workforce; and
- are the best prepared to take advantage of Project opportunities.

Women:

- of any age have slightly more formal education than men of similar age;
- are confined in their career choices by child, family and community responsibilities; and
- especially in the communities, are chronically under-employed, given their skills and training.

The data also suggest the following conditions or trends:

- low performance in terms of formal education has been chronic over the last decade;
- population continues to migrate from fringe to centre; and
- as young, skilled and educated people migrate, the population remaining in the rural communities displays declining indicators of employability.

However the Panel believes that in recent years, young people have been staying in school longer.

The Panel observes that a substantial but unknown proportion of the regional labour force would by virtue of these attributes be unlikely to benefit in the near term from remote site industrial employment, or from employment requiring a long-term move to a larger centre, without positive efforts to overcome barriers to employment. Dealing with barriers is the primary lever to affect jobs in the NWT and the resulting distribution of incomes.

15.5.3 PROPONENTS' VIEWS

The Proponents described 78 job categories available during the construction phase. Only a small number of job categories would require a university education and more than five years of experience, and some of these would require ten or more years of experience. About 75% of the job categories would require technical or trades education, and at least five years of experience. A smaller number of job categories would require high school, rather than a technical education, but in that case workers would need considerably more than five years of experience. Just over 40% of the job categories could be filled by people with a Grade 9 education, but in most instances they would need more than five years of experience. Only 12 job

categories could be filled by people with Grade 9 and less than five years of experience.

The Proponents defined semi-skilled workers as:

- having a Grade 9 education or less;
- having up to five years of relevant experience; and
- might require upgrading or training.

The Proponents stated that trainable workers must have at least one of the following:

- a minimum of Grade 11, including Adult Basic Education math and English;
- successfully completed a Pre-Technology Program offered at Aurora College leading to eligibility for the technical training program; or
- successfully completed a trades entrance exam to become eligible for the electrician or heavy duty mechanic trades training programs.

The Proponents made several commitments to reduce existing barriers in the NWT to Project employment, chiefly with respect to support for training and education, and hiring policies, but also (as noted in Chapter 16, “Social and Cultural Impacts”) working conditions that would reduce social and cultural barriers to Aboriginal employment. The Proponents stated they would support direct training, including apprenticeships, on-the-job training and summer jobs for students (in some cases continue the support they had already been providing). The Proponents have also established a Human Resource Training and Employment Database for the MGP. The Proponents further indicated that they would provide education and training funds through the various Benefits Agreements they have negotiated with Aboriginal groups in the Mackenzie Valley and Beaufort Delta regions.

The Proponents stated that they, in partnership with the GNWT, the federal government and regional Aboriginal organizations, have pooled resources to address northern training issues with an Aboriginal Skills and Employment Partnership (ASEP) training budget of \$13.3 million that was spent during 2004–2008. The ASEP program was administered through the Aboriginal Futures program. As of October 2006, approximately 900 northern residents had received training through this program. However the Panel was also told that there was no commitment for further funding beyond 2008.

As part of the SEA, the Proponents and the GNWT would provide matching funds for training, a total of \$1 million per year, for the first 10 years of the training fund. After the first 10 years, the GNWT and the Proponents agree to provide a total of \$500,000 annually until the last Anchor Field is decommissioned. The oil and gas training program is to commence within 90 days of the “Decision to Construct” by the Proponents.

The Proponents noted several other means by which training could be provided, including the Benefits Agreements they are negotiating with regional Aboriginal organizations and the Canada Benefits Plans (see Section 15.4), and the Mackenzie Gas Project Impacts Fund (MGPIF) (see Chapter 16, “Social and Cultural Impacts”).

The Panel was informed that Benefits Agreements with the regional Aboriginal organizations would include provisions for training and provide for the creation and operation of education funds to encourage higher education over the life of the MGP. However, as these agreements are confidential, the Panel has no information on the magnitude of these benefits, or what barriers to implementation might exist. As well, these agreements would not come into effect until the Proponents make a decision to proceed with the construction of the Project.

The Canada Benefits Plans could contain affirmative action provisions to facilitate the ability of disadvantaged groups to access training and employment opportunities. However, details were unavailable to the Panel. The Proponents also noted that the MGPIF could be used to promote specific training initiatives.

The Proponents stated that they have supported and encouraged young people to stay in school and consider career opportunities that would be available to them if they complete their education. The Proponents also stated that “it is not the intention of the project to target qualified labour in existing northern businesses, and community and territorial government and service agencies during the project recruitment process.” (EIS, V6A, Section 6, p. 5)

During construction, most employment would be at remote sites on a fly-in fly-out basis from designated points of hire. The Proponents committed to:

- pay for the cost of transportation for all NWT resident Project workers to travel to and from their respective home communities to a designated point-of-hire for each work rotation;
- implement appropriate policies and procedures to discourage Project workers in transit between camps and their home communities, whether in the NWT or elsewhere, from entering other NWT communities; and
- implement appropriate policies and procedures to discourage non-NWT residents from migrating to the NWT to seek Project employment.

The Proponents also noted certain requirements on their part for prospective employees. For example, in response to questioning about the role of pre-employment testing and a “fitness-to-work test,” the Proponents responded:

With respect to pre-employment testing, that can include a variety of things. Part of it could be including a medical questionnaire that an individual fills out assessing physical capability to complete work duties. We’ve indicated in response to other information requests that we would look for

opportunities for people who may be physically handicapped for work. That's an example of somebody who would be fit to do a certain type of work and not other types of work.

So yes, the assessment around the degree of fitness is a function of the type of work that they are seeking to do....But in response to your specific question, the degree of fitness required is a function of the type of work that the individual would do. (Ottenbreit, HT V88, p. 8763)

OPERATIONS PHASE IMPACTS

The Proponents stated that the operations phase of the MGP would require, overall, a more skilled and highly trained workforce than the construction phase. Operations phase jobs would be more technical in nature and, therefore, require higher entry-level education and literacy. As well, there are relatively few (but long-term) jobs available in the operations phase (about 150 full-time jobs), as compared to the significantly higher number of short-term jobs available during construction.

The Pipeline and Facilities Operations Training Program (PFOTP) was established in 2002 with a budget of \$1.3 million to contribute to training northerners for operations phase employment. This program is a partnership of industry, governments and Aboriginal organizations, delivered by community colleges in Alberta and the NWT. The PFOTP focuses on training Aboriginal and non-Aboriginal NWT residents for long-term pipeline or production operations phase jobs. The program has a technical stream and a trades stream. The goal of the technical stream is to train 38 people to fill long-term operations jobs. The trades stream is working toward hiring and training 13 apprentices for different trades: electrician, heavy-duty mechanic and millwright.

The Proponents acknowledge that the PFOTP has faced a variety of challenges. The technical stream faces retention and completion challenges related to the ability of candidates to meet program entrance requirements, the length of the program, distance from home and family, and finances. Interest in the technical stream may also be affected by competing job opportunities in the NWT and the uncertain start-up date of MGP operations. However the Proponents are committed to "making employment available to graduates," should there be a gap between training completion and Project employment. (J-GNWT-00206, p. 15)

15.5.4 PARTICIPANTS' VIEWS AND RECOMMENDATIONS

LITERACY, NUMERACY AND RELATED EDUCATION ISSUES

Dr. Abele proposed that the MGP implement a literacy track program, including paid time off work to study, to improve their literacy while on the job. Dr. Abele also stated that the Proponents should consider implementing a co-op work/study

program as a measure to provide high school students with an opportunity to gain some workplace skills and earn a modest stipend. The co-op students would be required to return to school on completion of the work assignment. Dr. Abele stated that this co-op program would be best suited for the MGP operations phase.

The Proponents stated that it was not up to them to decide whether a co-op work student program would be appropriate for high schools:

If the Department of Education, Culture and Employment saw fit to provide or to introduce co-op programs in a high school setting, I think we would respond to whatever was put forward to us at that time. (Ottenbreit, HT V76, p. 7554)

The GNWT provides funding for adult literacy programs delivered by Aurora College and the NWT Literacy Council. Both the GNWT and the Yukon Government noted that the federal government had, in the fall of 2006, announced more restrictive criteria and reduced funding for literacy programs, and that as a consequence both territorial governments anticipated having to increase their funding for such programs.

Yukon College, supported by the Yukon Government, advocated the use of their facilities for training purposes. It has experience working with First Nations and industry to set up trades training, pre-employment, programs, computer and management studies, and safety training.

Several participants, particularly in the smaller communities, asked that training be provided locally rather than at a central location. Aboriginal Futures provided a list of training courses and the number of male and female students funded by the Aboriginal Skills and Employment Partnership from September 2004 to November 2006. The list shows that 267 separate programs were run, training 756 men and 356 women during that period. The courses were given in both the large and small communities as well as in Fort Smith and Alberta communities. The training outside the Mackenzie Valley communities was usually for trades or technical training.

UNION INVOLVEMENT IN TRAINING

NPPL stated that if the construction of the pipeline were a union job, all workers would have to participate in the safety training provided by the pipeline craft unions. NPPL also noted that the unions could provide job-specific training, stating that:

to have northerners take full advantage of jobs during the construction period, job-specific training should happen well in advance of construction. It's too late and opportunities are missed if training doesn't start for job-specific training until after the pipeline has already started construction. And that was one of the problems with the IPL line when it was built from Norman Wells to Zama....The delivery of some of the training can be done in communities. Other training, it's more effective to be done in larger centres. And yet, in other

cases, it's better to go to the training facility that's set up to specifically do that type of training...Another very key point about training through our organization...is job assurance... When we train people, they're assured of a job during pipeline construction because they're trained, and then the work is a continuum of the training that is actually provided. (Doug Anguish, HT V77, p. 7604)

NPPL provided a list of pipeline jobs which would require advanced training. The Panel also heard that the pipeline craft unions have offered to take the lead in providing job-specific, pipeline construction training for northerners. At this time, there is no project labour agreement in place between the MGP and the pipeline craft unions, so it is not known whether the pipeline construction training would, in fact, be conducted by the pipeline craft unions. The key point in the extended testimony of NPPL before the Panel was its commitment to provide the necessary training and access to pipeline employment for residents of the NWT. It emphasized the importance of establishing who is responsible for what training as early as possible in the planning process. The GNWT noted in response that it was planning to hold a training forum to coordinate training.

NPPL also noted that almost all the training provided to pipeline workers is done by the unions. In the mainline agreement between the four craft unions and the Pipe Line Contractors Association of Canada, there is a check-off levy that puts money into a fund, and that fund is used for training members for the skills they need for pipeline construction.

TRADES TRAINING FOR WOMEN

The SWC stated its concerns regarding the need for specific strategies to increase the participation of women in trades, technology and operations occupations in the mining, oil and gas sectors. It was concerned with a lack of direct commitments by the Proponents and governments to ensure NWT women have access to training and employment opportunities related to the proposed MGP. A lack of child care was pointed out as a significant barrier to training and employment. Key recommendations from this group included a request that the Panel recommend the development and implementation of a comprehensive gender equity plan, that child care be made more available and that gender issues should be included in procurement plans.

Day care as a potential barrier to women's employment was also noted by community residents.

Some members of this community do not work due to inadequate daycare. This will also apply to us — to members who will gain employment with the MGP. (D'arcy Moses in Wrigley, HT V27, p. 2467)

You mentioned that there is going to be a lot of work that is going to be — might happen. If myself, or someone that has a family, would be interested in working, there will be a concern because we don't have full-time day care. So,

I'm just telling you that this is going to be a concern in the community if the development does happen. (Kimberly McPherson in Tulita, HT V18, p. 1815)

The issue of childcare is addressed further in Chapter 16, "Social and Cultural Impacts."

15.5.5 PANEL VIEWS AND RECOMMENDATIONS

The preparedness of the labour force in the Project Review Area will be critical to reaping advantage of Project opportunities. The baseline conditions of the resident labour force strongly suggest that considerable training and skill development, especially for Aboriginal northerners, will be required for that to happen.

As a starting point, the Panel notes that basic literacy and numeracy skills are required for virtually all Project jobs, yet these skills are in substantial need of improvement, especially in the smaller communities. These skills are so essential to any type of skilled employment that their enhancement cannot help but be beneficial not only to the specific needs of the construction phase but for practically all potential employment, whether direct, indirect or induced. Because the benefits of enhancing literacy and numeracy skills would not be restricted to the Project construction phase, the timing of such training is not critically linked to Project start-up in order to produce benefits.

RECOMMENDATION 15-2

The Panel recommends that the Government of Canada immediately restore funding to at least previous levels for literacy programs in the Northwest Territories and Yukon Territory.

The Panel notes the efforts already made by industry, government and Aboriginal authorities in identifying the education and training needs of the northern workforce in advance of MGP construction and operations. These parties have also provided significant resources already to upgrade the educational levels and provide Project-related training to unemployed northerners.

The Panel also notes that the SEA (section 2.6.1) requires the MGP to collaborate with the GNWT, the Aboriginal authorities, the communities, contractors, unions and other labour organizations, educational institutes and other relevant organizations to develop training programs, courses, stay-in-school initiatives and work experience programs. In the Panel's view, these provisions are appropriate, but much will depend on their successful implementation. The GNWT's proposal to hold a training forum is a first step towards the development of an implementation plan.

However, the time lapse between when the training is completed and when these trained northerners might access Project employment opportunities (up to four or five years) might mean that those previously trained have found other, permanent jobs in the interim. As a result, there may be a need for additional training of northerners. The major constraint on

the effectiveness of training in reducing barriers to employment is timing uncertainty. Training is an investment, and the less certain the returns, the smaller the investment. If the Project proceeds, these activities would have to be put in place quickly for construction employment.

While all parties acknowledge a shared responsibility, and either have programs in place or intend to provide them, what appears to be missing is an implementation plan that would produce results on a timely and coordinated basis following a decision to construct. The Panel is not persuaded that under prevailing circumstances the Project's construction phase is likely to provide widespread and durable enhancement of NWT labour force capacity. Such benefits are more likely to result from longer-term and more diverse economic opportunities that may come about during operations and further developments. Nonetheless the Panel considers that current efforts to maximize the employment of NWT residents during construction should continue and be enhanced.

RECOMMENDATION 15-3

The Panel recommends that the Government of the Northwest Territories immediately assume the responsibility for coordinating implementation of training plans related to the construction phase of the Mackenzie Gas Project.

RECOMMENDATION 15-4

The Panel recommends that governments and industry collaborate to further fund the Aboriginal Skills and Employment Partnership program so as to deliver transferable construction trades training for Northwest Territories residents and that this program re-commence immediately following a Decision to Construct by the Proponents.

The pipeline craft unions have offered to take the lead in providing job-specific, pipeline construction training for northerners. However there is no Project labour agreement in place, and without a Project commitment, there is no implementation plan. If these education and training efforts are to be effective, any decision to proceed will require an implementation plan to ensure that these barrier-reducing initiatives take place on a timely basis. Based on the NPPL's stated commitments during the hearings, the Panel is of the view that the pipeline craft unions would have a positive role to play in promoting and providing training for pipeline employment, in promoting northern hire and in contributing to positive and equitable working conditions during the construction phase.

The role of labour agreements is discussed later in this chapter in Section 15.6. Based on the Panel's considerations in Sections 15.5 and 15.6, the Panel makes the following recommendation:

RECOMMENDATION 15-5

The Panel recommends that the Proponents, following their Decision to Construct, and should the Proponents decide that the Mackenzie Valley Pipeline and the Mackenzie Gathering System be a union project, require their contractors as soon as practical to enter into a project labour agreement with the pipeline craft unions that includes commitments made by Northern Pipeline Projects Ltd. during the Panel's hearings to:

- *streamline and simplify the process for northerners to join the pipeline craft unions, including the lowering of initiation fees;*
- *promote and provide training of northerners for pipeline employment;*
- *promote northern hire, including preferential hiring of union trained northerners; and*
- *contribute to positive and equitable conditions during the construction phase of the Mackenzie Gas Project.*

The Panel further recommends that the craft unions consult with the Government of the Northwest Territories in relation to the coordination of training plan implementation as referred to in Panel Recommendation 15-3.

For operations jobs, training could begin during the early phases of construction so that timing constraints are less critical.

RECOMMENDATION 15-6

The Panel recommends that the Proponents and their partners re-commence, as soon as practical following the Proponents' Decision to Construct, the Pipeline Facilities Operations Training Program to deliver operations training for Northwest Territories residents and that this program continue for as long as the parties to the program deem necessary.

The Panel also notes the commitment by parties to the SEA to establish a funding program for employment training in the oil and gas industry for the life of the Project, and also notes the Proponents' commitment to support and promote gender equity and diversity that would apply. In the Panel's view, these commitments are reasonable in relation to the Proponents' responsibilities and beneficial to northern residents.

The Panel notes that the Benefits Agreements negotiated between the MGP and the various Aboriginal organizations provide for education, training and employment benefits. These will no doubt enhance the prospects for Aboriginal people, and perhaps especially those residing in the smaller communities, to benefit from the Project. However, as these are private documents, the Panel has no information regarding the details or the magnitude of education or training benefits that the Proponents have negotiated with the Aboriginal authorities in the Project Review Area. As a result, it is not clear how these activities might be coordinated with the related activities described in this chapter.

15.6 EMPLOYMENT AND LABOUR INCOME

Project construction would require a large labour force, much of it working at remote sites on a fly-in fly-out basis. This workforce would need a variety of technical skills and experience. During Project operations, a much reduced labour force would be required, but for a longer time. Much of this workforce would require specific gas field and/or pipeline technical training and expertise.

The extent to which NWT residents are able to access Project employment opportunities will depend on individual training, skill levels and previous experience. As noted in the previous section, in many cases NWT residents would require upgrading of some skills and specific training in other skill areas. The magnitude and distribution of employment and labour income benefits would also depend on a variety of factors including the effectiveness of recruitment measures for NWT resident employees and on how construction phase employment barriers are managed, including the role of pipeline craft unions.

15.6.1 PROPONENTS' VIEWS

The Proponents estimated, based on factors and assumptions in the EIS and associated filings, that:

up to 16% of direct employment opportunities during Construction and up to 72% of direct employment opportunities during Operations could be filled by Aboriginal Persons and NWT Residents. The Parties acknowledge that developing qualified workers for the Project is a shared responsibility of the MGP Parties, GNWT, Aboriginal Authorities, Contractors, labour organizations, individuals, communities, educational institutions, government agencies and industry. (J-GNWT-00206, p. 11)

The Proponents' employment and income projections that follow assume that training has already been offered to the potential workforce, and thus that their own measures as well as those of other parties, as outlined in the previous section, are successfully implemented.

The Proponents based their employment and labour income estimates for the construction phase on labour force information from the GNWT Bureau of Statistics, the Statistics Canada input-output model and additional economic modelling assumptions. To apply labour supply constraints, the Proponents assumed that there are significant numbers of people in the NWT who are not actively seeking work, but who "want a job." The "want a job" definition expands the number of unemployed because it draws into the labour force persons who want a job but have given up looking for one. This applies in many of the small communities where, according to the Proponents, people have given up looking for work because of perceived and real education barriers, and the small number of jobs that are available. The Proponents' analysis assumes that some of those people would

be attracted back into the active labour force market by the opportunities presented by the Project, and therefore the "want a job" definition is the more suitable measure for estimating the potential size of the labour force.

A further labour supply requirement in the Proponents' analysis is that most of the Project workforce must be willing to undertake rotational work, that is, employment at a location or under circumstances that make it necessary for an employee to work away from home for a specified period. The adjustment for willingness to do rotational work was applied to about half of the unemployed workforce because this condition only applies to direct Project jobs, which make up about half of the total number of Project-related jobs created.

After applying these conditions to the GNWT Bureau of Statistics data, the Proponents estimated that, during construction, an annual average of 3,153 people would be available to seek Project work and Project-related work. This estimate of persons available to seek work on the Project would barely satisfy the workforce requirements in the first year of construction, and would not come close to meeting the demand for labour once construction is fully underway. Even under the most favourable NWT labour supply assumptions, additional workers from outside the NWT are required. Therefore, a large-scale but temporary in-migration of labour from other regions in Canada would occur during the MGP construction phase.

The Proponents provided all employment estimates in terms of the number of jobs rather than person-years, because most jobs, especially direct employment during the construction phase, would be seasonal. The effect is to understate the number of operations jobs in relation to construction jobs, because a higher proportion of the operations jobs would be full-time.

EMPLOYMENT AND LABOUR INCOME IMPACTS: CONSTRUCTION

The Proponents estimate that the construction phase of the Project would create an annual average of 5,707 direct jobs. About 20% of these jobs (1,162) would go to NWT residents. Total Project employment, including indirect and induced employment, would create an annual average of 28,145 jobs. However, 60% of these jobs would be filled by Alberta residents, and only 6% (1,747) of these jobs would go to NWT residents. Again this is reflective of the small size of the NWT labour force, which even if fully employed on the Project could not meet Project demands. Nearly 75% of the jobs created in the NWT would be in the construction industry and about 10% in transport and warehousing.

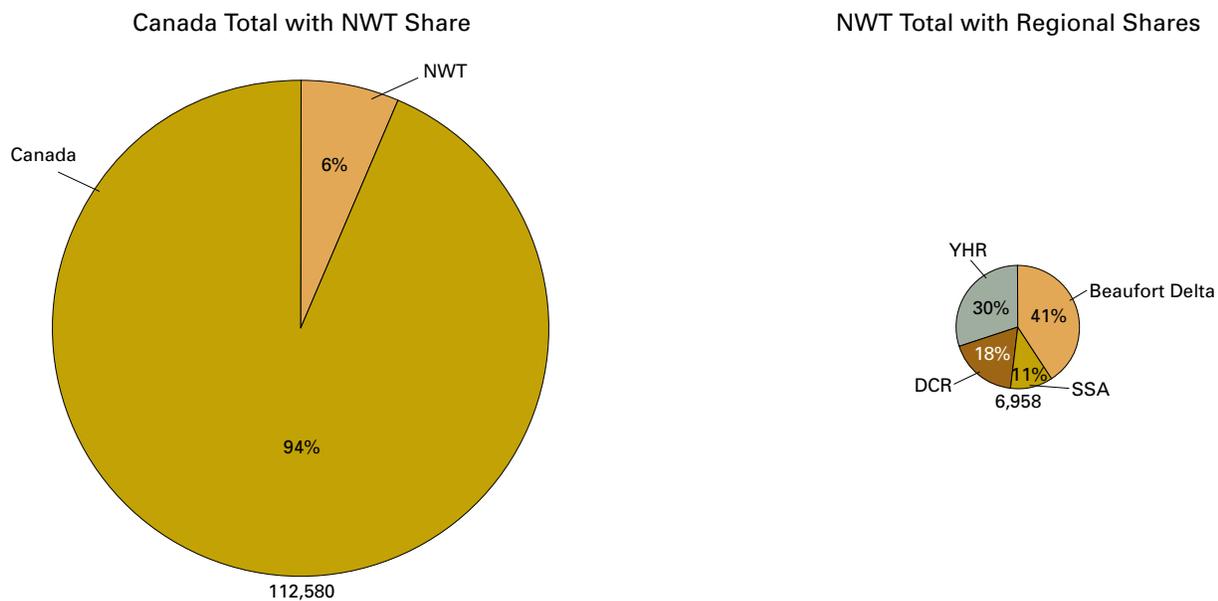
Most direct jobs would be seasonal, mainly in winter for pipeline construction. Many of these jobs may last only several weeks to a few months. The Proponents estimate that the average number of days per job in the construction phase would be 84. Some jobs, especially in the Anchor Fields and facility construction, would be year-round. This employment pattern would be repeated for the three years of MGP construction.

Figure 15-7 and Table 15-6 show the breakdown of the jobs associated with the construction phase of the proposed MGP at the national, territorial and regional levels. Much of the direct employment would be seasonal, amounting to four to five months per individual. Of the total employment generated by the Project, most would be in Alberta and other Canadian provinces where it would displace some quantity of other employment.

Table 15-6 indicates that on average over the four-year period, 40% of NWT construction phase jobs would go to residents of the Beaufort Delta Region, and 30% to residents of Yellowknife and Hay River.

Employment totals in Table 15-6 provide the sum of direct, indirect and induced employment during construction. For the NWT, 66% of this employment is direct, 22% is indirect and 12% is induced. For regions within the NWT, these employment proportions are similar, with the largest employment share being in the direct category. The data cannot be disaggregated to show differences between regional centres and small communities by region.

Figure 15-7 Total Employment (number of jobs), by Residence (Construction Phase)



Source: Panel Table 15-6

Table 15-6 Total Employment (number of jobs), by Residence (Construction Phase)

Region	2010–2011	2011–2012	2012–2013	2013–2014	Total
Canada	16,242	33,197	31,902	31,239	112,580
NWT	998	2,116	1,989	1,885	6,989
Beaufort Delta	398	817	843	826	2,852
SSA	167	204	205	202	778
DCR	164	359	365	362	1,250
YHR	270	736	576	495	2,078

Notes:

1. These dates are no longer achievable. Therefore, the Panel’s review has proceeded on the assumption that the MGP would generally follow the sequence and number of years from receipt of Project approvals that are reflected in the above information as filed with the Panel.
2. Employment estimates are the sum of direct, indirect and induced part-year jobs.
3. Numbers might not add up due to rounding.

Source: Adapted from J-IORVL-00954, Table 2-10, p. 21, Table 4-6, p. 68, Table 5-6, p. 76, Table 6-6, p. 84, Table 7-6, p. 92, Table 8-6, p. 100

Table 15-7 indicates that a total of \$5.86 billion in labour incomes would be generated from direct, indirect and induced employment during the four-year construction period of the MGP. Of this amount, \$478 million would accrue to NWT residents, again mostly in the Beaufort Delta Region, Yellowknife and Hay River. The NWT share would thus amount to 8% of the national total. The Proponents' data indicate that the average annual wage for direct employment in the NWT would be more than \$69,000.

NGTL estimates that its construction activities would generate 400 direct jobs, 1,096 indirect jobs and 414 induced jobs, and \$75 million in labour income.

EMPLOYMENT AND LABOUR INCOME IMPACTS: OPERATIONS

MGP operations and maintenance jobs are more technically-oriented positions requiring a higher level of education (typically a minimum Grade 12 education) and literacy than construction phase jobs. Operations jobs are typically longer-term and year-round. The majority of direct operations phase jobs would be located in the NWT. There would also be some rotational jobs associated with future years' drilling and compressor installation at the Taglu and Parsons Lake gas fields.

Workforce estimates for the MGP's operations phase are for an initial requirement of about 150 direct full-time and part-time jobs per year. Initially, each Anchor Field would be staffed continuously. Later, as operations stabilize, some sites would be monitored remotely, with staff visiting the site as required. The natural gas liquids and gas pipelines would be continuously monitored from a pipeline control centre in Calgary. The gathering pipelines and the Inuvik Area Facility would be continuously monitored by staff located in Inuvik. The number of operations and maintenance personnel would decline as the operations stabilize. The Proponents expect that, approximately five years after start-up, between 100 and 130 people would be required. The 2015–2017 time period also includes completing the deferred installation of two compressor stations and a heater station.

Table 15-7 Labour Income (\$Million), by Residence (Construction Phase)

Region	2010–2011	2011–2012	2012–2013	2013–2014	Total
Canada	\$860.0	\$1,672.0	\$1,699.0	\$1,629.0	\$5,860.0
NWT	\$75.9	\$139.3	\$136.6	\$126.4	\$478.2
ISR	\$29.3	\$56.2	\$60.6	\$58.2	\$204.2
SSA	\$13.4	\$13.0	\$13.5	\$13.0	\$52.9
DCR	\$12.1	\$22.6	\$23.7	\$22.9	\$81.3
YHR	\$21.1	\$47.4	\$38.8	\$32.5	\$139.9

Notes:

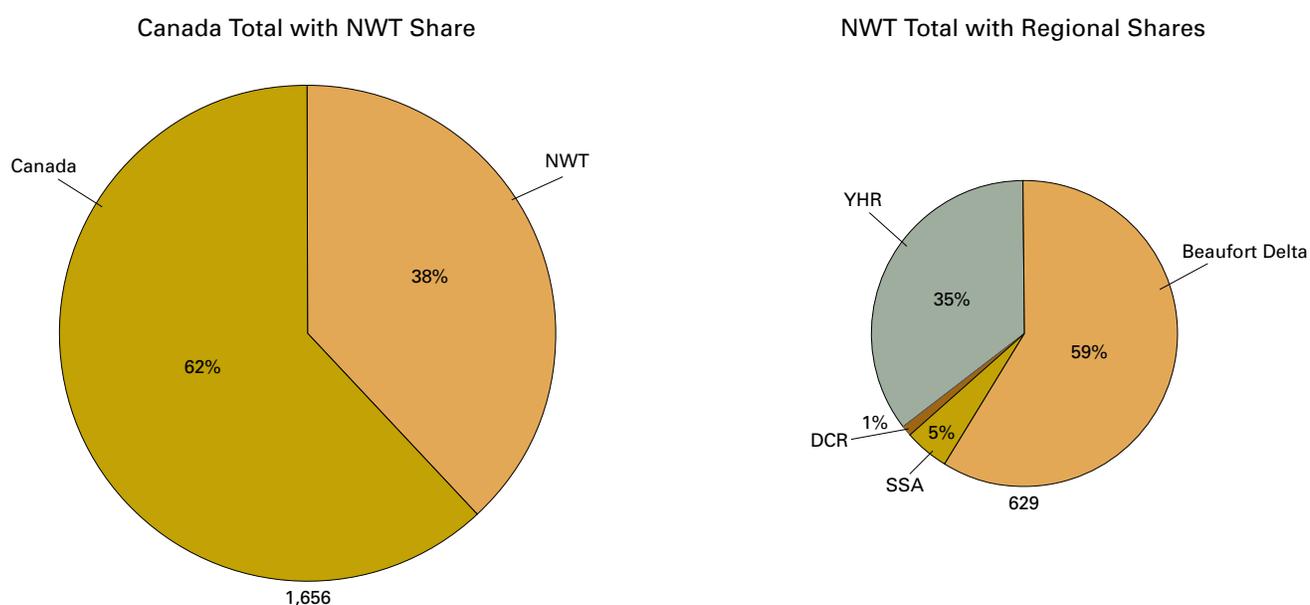
1. These dates are no longer achievable. Therefore, the Panel's review has proceeded on the assumption that the MGP would generally follow the sequence and number of years from receipt of Project approvals that are reflected in the above information as filed with the Panel.
2. Labour income estimates are based on the sum of direct, indirect and induced part-year jobs.
3. Numbers might not add up due to rounding.

Source: Adapted from J-IORVL-00954, Table 2-15, p. 24, Table 4-7, p. 68, Table 5-7, p. 77, Table 6-7, p. 85, Table 7-7, p. 92, Table 8-7, p. 100

The Proponents estimate that a total of 42,000 direct, indirect and induced jobs would be generated over the 20 years of operations (calculated as the sum of the number of jobs generated each year). Thirty-two percent of NWT employment would be direct, 53% indirect and 16% induced. Figure 15-8 and Table 15-8 indicate that 38% of these jobs would go to NWT residents, providing an annual average of \$48 million in labour income.

For regions within the NWT, these employment proportions differ substantially. For Yellowknife and Hay River, there is no operations employment but substantial indirect employment. For the other regions in Table 15-8, most employment is direct with indirect and induced being much smaller.

Figure 15-8 Average Annual Employment (number of jobs), by Residence (Operations Phase)



Source: Panel Table 15-8

Table 15-8 Total Employment (Average Annual Jobs), by Residence (Operations Phase)

Region	2015–2017	2018–2021	2022–2025	2026–2034	Total
Canada	4,615	1,828	2,101	1,382	42,000
NWT	753	657	840	524	12,960
ISR	220	445	651	215	6,982
SSA	150	27	31	31	960
DCR	91	6	8	8	400
YHR	292	180	151	271	4,640

Notes:

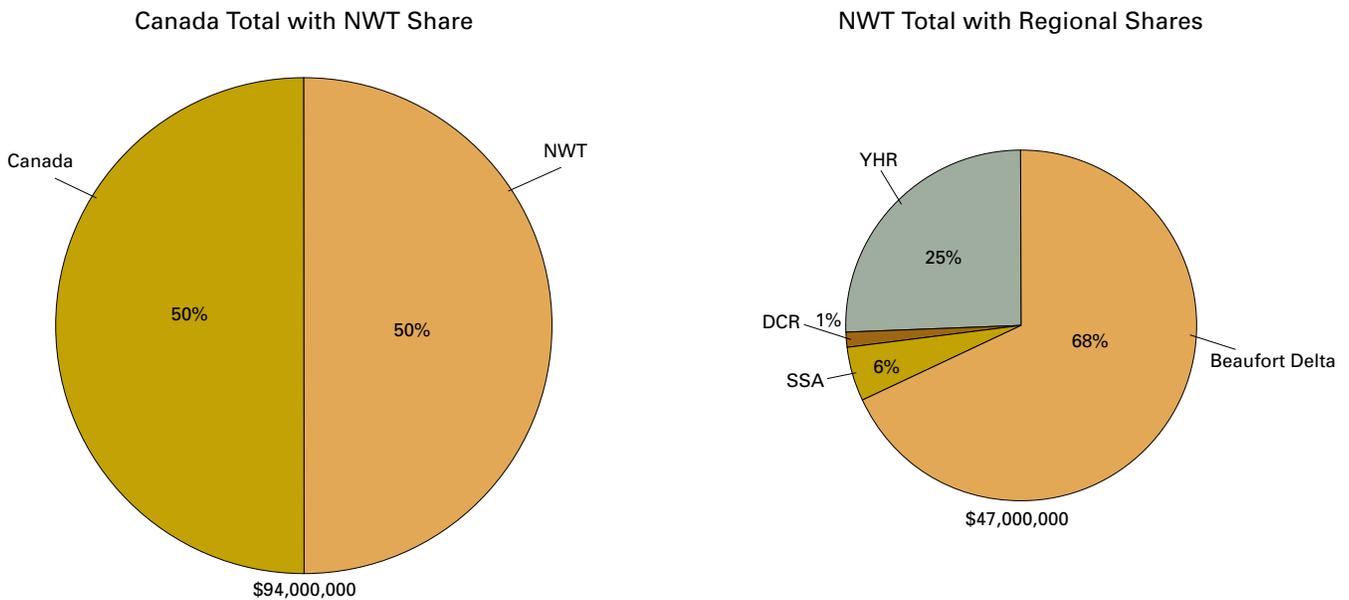
1. These dates are no longer achievable. Therefore, the Panel’s review has proceeded on the assumption that the MGP would generally follow the sequence and number of years from receipt of Project approvals that are reflected in the above information as filed with the Panel.
2. Employment estimates are the sum of direct, indirect and induced part-year jobs. Note that columns refer to variable numbers of years so that a simple horizontal summation is not possible.
3. Numbers might not add up due to rounding.

Source: Adapted from J-IORVL-00954, Table 2-35, p. 40, Table 4-9, p. 70, Table 5-9, p. 78, Table 6-9, p. 86, Table 7-9, p. 94, Table 8-9, p. 102

During the first three years of operations, both employment and labour income are augmented by the construction activities associated with the additional compressor stations and heater station that would be built after the four-year construction phase. Figures 15-8 and 15-9 therefore show average annual employment and income for the 17-year period following those construction activities, which better represent the situation during the operations phase. During that 17-year period there would be an average of 629 total jobs generating an annual average labour income of \$47 million, or about \$74,700 per job.

Figure 15-9 and Table 15-9 show the estimated labour incomes that would be generated by the operations phase of the MGP. Annual averages range from \$247 million in 2015–2017 to approximately \$74 million in 2026–2034. In total, the Proponents have estimated that more than \$2.3 billion in labour income would be generated during the operations phase of the MGP.

Figure 15-9 Average Annual Labour Income by Residence (Operations Phase)



Source: Panel Table 15-9

Table 15-9 Average Annual Labour Income (\$Million), by Residence (Operations Phase)

Region	2015–2017	2018–2021	2022–2025	2026–2034	Total
Canada	\$247.0	\$110.0	\$124.0	\$74.0	\$2,346.0
NWT	\$53.2	\$50.9	\$67.6	\$36.4	\$962.0
ISR	\$18.1	\$38.3	\$55.9	\$18.4	\$595.4
SSA	\$11.2	\$2.6	\$2.9	\$2.9	\$80.2
DCR	\$7.8	\$0.5	\$0.7	\$0.7	\$34.0
YHR	\$16.0	\$9.6	\$8.1	\$14.4	\$248.0

Notes:

1. These dates are no longer achievable. Therefore, the Panel’s review has proceeded on the assumption that the MGP would generally follow the sequence and number of years from receipt of Project approvals that are reflected in the above information as filed with the Panel.
2. Labour income estimates are based on the sum of direct, indirect and induced part-year jobs.
3. Numbers might not add up due to rounding.

Source: Adapted from J-IORVL-00954, Table 2-39, p. 42, Table 4-10, p. 70, Table 5-10, p. 78, Table 6-10, p. 86, Table 7-10, p. 94, Table 8-10, p. 102

PROPOSERS' COMMITMENTS AND MITIGATIONS

The Proponents made several commitments regarding employment and working conditions that are encapsulated in the SEA. These address priority hiring, employment equity, points of hire and transport to work, and flexible work schedules. The Proponents further elaborated on these commitments in response to questioning during the hearings.

HIRING PRIORITY

Under section 2.2 of the SEA, the Proponents have committed to give hiring priority to Aboriginal persons and other NWT residents. This commitment would be subject to, and consistent with, human rights legislation, the Canadian Charter of Rights and Freedoms, INAC's "Northern Benefits Statement of Principles," access and benefits agreements and land claims settlement agreements. The Proponents have committed to consider equivalencies in hiring by recognizing that knowledge and competencies may have been acquired through work experience, unrecognized training or other volunteer activities.

Through the SEA, the GNWT plans to ensure sustainable employment through on-the-job training, the promotion to more highly skilled positions, and the acquisition of transferable skills.

PREFERENTIAL EMPLOYMENT AND GENDER EQUITY

The SEA includes a number of measures to support diversity in Project recruitment and employment. These policies support the participation of women on an equal basis with men, the provision of work sites that are safe and free from harassment and the provision of opportunities for individuals with disabilities who are qualified to perform job requirements. The Proponents have committed to undertake measures such as:

- providing cultural and gender awareness training for all Project employees;
- seeking skilled females as role models;
- developing mentoring programs for women in non-traditional jobs during the construction phase;
- promoting women's job market understanding;
- requesting education and training providers to develop training programs specially targeting women;
- making reasonable efforts to enable people with disabilities to perform job functions; and
- considering education and training equivalencies to meet qualification requirements for some jobs.

The Proponents acknowledged the federal *Employment Equity Act* and said that, if applicable, they would abide by its provisions when operating the Mackenzie Gathering System and the MVP.

POINTS OF HIRE AND TRANSPORT OF NORTHERN WORKERS TO AND FROM JOB SITES

The Proponents have committed to providing transportation for northern workers to and from their home communities. During construction, the Project would pay the cost of transporting Project workers who are NWT residents from their home communities to designated points of hire and from points of hire to Project work sites. Workers would be transported to regional hubs at Inuvik, Norman Wells and Fort Simpson, and then transported to nearby camps by bus or small aircraft. The Proponents had not yet determined if employees who are residents of communities located near camps or work sites would be permitted to live at home and commute to work on a daily basis. The Proponents also committed to pay for the cost of transporting rotational NWT workers during the MGP operations phase.

ROTATION SCHEDULES AND FLEXIBLE WORK ARRANGEMENTS

With respect to the May 2007 Project Update, the Proponents stated that their transportation plans for workers had not changed. However, the updated plans provide for a window of about 90 days available for construction in the south and about 150 days in the north. The workday is expected to be about 12 hours long with shifts and work schedules established by work requirements. Some of the specialized pipeline crews would be required for a period of up to 70 days. This is an increase from the Proponents' previous estimate of 40 to 50 days.

In response to questioning regarding the types of staff that might be on rotational work schedules, the Proponents stated that camp staff and other "non-specialized" staff associated with pipeline construction could be rotational. However those involved in actual construction, such as welders and side-boom operators, would be in continuous activity for the entire season and would not be on rotation. Work on facilities such as compressor stations, and much of the work in the Anchor Fields, would be year-round and rotational.

Work schedules, including rotation, had not been established, and could only be established based on discussions with selected contractors and their workers. In response to questioning, the Proponents indicated that (at least in the case of Shell Canada) travel days would not be included in the rotational shift but come out of the employee's time off. Depending on circumstances, travel between a small community and a work site could require an overnight stay en route and involve a mix of charter and scheduled flights.

The Proponents committed to providing flexible work schedules where practical to accommodate traditional harvesting and other cultural, family and community needs. Questioned on the meaning of "where practical" in this context, the Proponents stated work schedule flexibility would balance the importance of these activities to northerners with Project needs. In particular, work flexibility would be limited during the peak winter

construction seasons. Practicality would depend on instances where there is work that could only be done during a certain period of time, and that would be more difficult to provide a flexible work schedule.

PROJECT LABOUR AGREEMENTS

Project labour agreements are a common means of managing labour relations on large construction projects in Canada. They are used to promote labour harmony and stability, ensure compliance with project standards and policies and to establish a framework for cooperation between the contractors and labour organizations.

The Proponents stated that there would be project labour agreements between contractors and labour providers during the MGP construction phase. The Proponents would not be signatories to these agreements. The Proponents acknowledged that negotiations towards a project labour agreement would not likely commence until after a Decision to Construct was made, and the main contractor identified.

15.6.2 PARTICIPANTS' VIEWS AND RECOMMENDATIONS

EMPLOYMENT IMPACTS

Dr. Abele, addressing the Panel on behalf of the ANC, stated:

the construction phase of this project is only going to last for two years, and in each of those years, the actual duration of work...is very small. So, although the construction will be a period of very, very high activity, there will be lots of action... it's the wrong place to put our focus. ...It's going to happen too fast to have any lasting benefit, to have the hope of achieving any lasting benefit. Of course people should — it should be made as easy as possible for people who need work to work on the construction, but I don't think we should focus our attention on that. It's going to be over soon. It doesn't last long enough for people to get any significant work experience or training that will improve their prospects in the labour market. (Dr. Abele, HT V78, p. 7662)

Dr. Abele also noted concerns some northerners have had regarding rotational work schedules. She stated that:

when I asked why they left, they would either say: Well, I wasn't able to keep up with the things I have to do at home. You know, I was supposed to get wood for my granny and I didn't do it because...I couldn't do it — I couldn't manage it with the rotation and there just wasn't time. And the stress of not doing that becomes great, and people leave for that reason. Another reason is they left because in the workplace they felt almost like they were in jail, they weren't free; they didn't have discretion over the terms of their work. And a lot of the jobs that are industrial jobs are like that, and they're not jobs that everybody can flourish in; some people do, some people don't. (Dr. Abele, HT V78, p. 7676)

A study of the Alaska Inupiat experience with North Slope oil development, filed by the Proponents, noted that prolonged development of that region had brought many economic benefits. This study noted, however, that:

only a handful of Inupiat have actively sought to work in the oil fields. Residents preferred to work in their own villages on projects, which would benefit them directly and for Inupiat-controlled employers like the North Slope Borough and the ASRC. (J-IORVL-00919, p. 20)

Participants speaking in or on behalf of several smaller communities, including Enterprise, Nahanni Butte and Paulatuk, expressed concern that Project jobs would attract current municipal workers, which could leave the communities without the work force necessary to maintain community services.

EMPLOYMENT AND GENDER BARRIERS

The SWC noted that although NWT women are well educated and could potentially create a stable workforce, they have been largely untapped by resource development projects due to historic stereotypes and systemic barriers. The SWC has developed a three-year pilot project to increase the participation of NWT women in trades and technical employment in the mining, oil and gas sector. This project has been supported by BHP Billiton, Diavik Diamond Mines Inc., De Beers Canada Inc., the Department of Indian Affairs and Northern Development, and the GNWT. Aurora College has also committed to financial support. The SWC also sought a commitment from the Proponents to actively participate and contribute financially to a pan-Canadian initiative: the Northern Women in Mining, Oil and Gas Project. The Proponents declined to participate, stating that they were participants in the Pipeline Operations Training Committee.

The SWC also noted that application of the federal *Employment Equity Act* to the MGP was not addressed in the EIS or in the Proponents' Gender Analysis Report. The *Employment Equity Act* applies to federal and federally regulated employers, including interprovincial pipelines that have 100 or more employees. The Act requires that these employers develop employment equity action plans and report annually on the representation in their workforce of persons from four designated groups: Aboriginal people, women, visible minorities and persons with disabilities.

The SWC expressed their concerns that, in order to successfully increase the involvement of women in MGP training, employment and procurement, the Proponents need to have a clear, concrete strategy and plan with measurable targets and outcomes and management commitment at the highest level. The SWC recommended that the federal government and other responsible authorities must develop and implement a comprehensive gender equity plan for both construction and operations phases of the MGP. The SWC referred to the pro-active gender equity measures in the White Rose Project Diversity Plan developed by Husky Energy for offshore Newfoundland and the

employment equity and employment training provisions used in the building of the Vancouver Island Highway as appropriate models. The White Rose Plan was a requirement of the Canada–Newfoundland and Labrador Offshore Petroleum Board. The Vancouver Island Highway provisions resulted from the Provincial Cabinet’s decision to make employment equity a requirement for the project.

WHITEHORSE AS POINT-OF-HIRE

The Yukon Government noted that, unless north Yukon gas is linked to the MGP, MGP benefits to Yukon would largely be limited to service and procurement opportunities and through labour migration from the Yukon to MGP-related employment opportunities in the NWT.

The Yukon Government stated that the Proponents’ use of the Statistics Canada input-output model was inappropriate for estimating economic and employment impacts of the Project on Yukon, and had the effect of omitting employment estimates. The Yukon Government further noted that there had been substantial employment of Yukon residents during construction of the Norman Wells Oil Pipeline, and that there would likely be so with the MGP should it proceed. The Yukon Government’s concern was, therefore, to ensure that such employment benefits for Yukon residents be maximized, and that without such steps, residents might have to migrate to the NWT to seek employment.

The Yukon Government and the Yukon Chamber of Commerce urged the Proponents to establish Whitehorse as a “point-of-hire” for the MGP. The Proponents responded that they would establish points-of-hire in consultation with their Project contractors in advance of commencement of construction. The Proponents stated:

We have not designated points of hire beyond locations in the Northwest Territories at this point. Our expectation is that there will be additional points of hire outside of the Northwest Territories, but we believe that it’s best for us to work with the contractors in terms of selecting the appropriate points of hire. So at this point in time, we have not designated Whitehorse as a point-of-hire, but clearly it will be given consideration as one. (Ottenbreit, HT V57, p. 5553)

The Proponents stated, with respect to the construction of the Norman Wells Oil Pipeline that:

At the outset, Whitehorse was not designated as a point of hire. Later, during the development of the project, they were added as a point of hire. And the situation that gave rise to that was during the construction itself, it became apparent that additional trades people would be required at the work site...In order to attract those people, the arrangements were made such that people who were hired in Whitehorse were in fact transported to Norman Wells to work on the project. (Ottenbreit, HT V113, p. 11348)

In concluding, the Yukon Government stated:

If maximizing employment benefits for Northerners is a key objective, then it’s in the public interest to require at least one designated point of hire in Yukon, and we respectfully ask the Panel to recommend this. (Ron Sumanik, HT V115, p. 11471)

The “without” north Yukon oil and gas activity scenario sees as many as 159 Yukon residents migrating to the NWT during each year of construction.

FLEXIBLE WORK SCHEDULES

At the Tuktoyaktuk community hearings, Mr. Roger Gruben stated that the Proponents should consult with workers to define time periods for traditional activities and offer flexible work shifts to accommodate those activities. Mr. Vince Teddy of Tuktoyaktuk also described his experience with CanMar Contracting Ltd. during the period of Beaufort exploration activity. He stated that workers had a variety of shifts at that time, such as one week on and one week off and three weeks on and one week off. Mr. Teddy noted that when workers went home during the spring hunt, they might not return to the job until the hunt was done and workers lost their jobs because of that.

Participants at community hearings expressed various preferences for a rotation schedule, including two weeks on and two off (particularly considering child care needs) or three week rotations. Four weeks was considered the longest acceptable from a safety perspective. A key concern was to be able to get key seasons off for harvesting, especially in spring.

PIPELINE CRAFT UNIONS AND NORTHERN WORKERS

During the Panel’s review, NPPL represented the Pipe Line Contractors Association of Canada, the United Association of Journeymen and Apprentices of the Plumbing and Pipe Fitting Industry of the United States and Canada (welders on pipeline jobs), the International Union of Operating Engineers (equipment operators), the Laborers’ International Union of North America (skilled labour), and Teamsters Canada (truck drivers).

According to NPPL, each of the four craft unions has initiation fees that they charge to new members. For example, the International Union of Operating Engineers has an initiation fee of (as of 2006) \$590. NPPL stated this cost could be prohibitive to a young person starting out or an unemployed person. NPPL indicated that the four craft unions have agreed that there would not be a fee for northerners and the Aboriginal workforce that will be preferentially hired in the NWT. NPPL stated the initiation fee for Northerners would be nominal. On questioning from the Panel, NPPL stated the initiation fee “would be somewhere between \$100 and \$50...it’s been significantly reduced to enable people to become members without it being a financial burden on them.” (Doug Anguish, HT V31, p. 2762)

NPPL stated “the normal process” for union hiring would not apply for the MGP. NPPL stated “if we’re awarded the work, people are referred to us to train for specific job skills in pipeline construction. As soon as they complete that training successfully, they will be hired on a preferential basis before that union hall hiring process comes into effect.” (Anguish, HT V31, pp. 2778–79)

NPPL commented on concerns expressed about experience with the Norman Wells Oil Pipeline project:

We want to also overcome the past. It was not a good experience for people on the IPL line that was built from Norman Wells down to Zama, Alberta. We believe that we have learned from that experience, and as our culture evolves, the things that happened on the IPL pipeline, given the proper time and the training and the interaction, those same experiences will not occur again. (Anguish, HT V77, p. 7603)

In response to a query from the Panel regarding concerns that experienced northerners were not given an opportunity to work on the Norman Wells pipeline, the NPPL stated:

One of the problems that happened during the construction of the IPL line is that there wasn’t enough advance time to do things properly. We do have enough advance time now. If there’s qualified equipment operators and they go through the safety course and are qualified...they’ll be hired as a priority on those jobs to do the actual work. (Anguish, HT V77, p. 7618)

15.6.3 PANEL VIEWS AND RECOMMENDATIONS

The Proponents based their recruitment estimates on the sector of the NWT labour force wanting a job. As noted in the previous section, this sector may have a variety of barriers to overcome in order to obtain Project employment. There is presently a significant gap between what the Project would demand in terms of an educated, skilled and experienced workforce and the existing capacity of the potential labour force available throughout the Project Review Area.

The Project construction phase would pose substantial challenges to maximizing participation of the northern labour force.

The majority of core direct employment would be filled by a mobile and highly skilled pipeline and field development labour force. Given the scale of the Project, many other employment opportunities would be available but most of these would also have relatively high skill and experience requirements. Education and training for the northern labour force would deal with some of the barriers to their employment but the extent and timing of these education and training efforts is not straightforward to manage.

The Panel acknowledges that all parties have made substantial efforts and commitments to overcome this gap. The Panel also

notes, however, that there would likely be a narrow window between the Proponents’ Decision to Construct and the actual commencement of construction, and that the actual period of construction is relatively short. The Panel is therefore not persuaded that the Proponents’ estimate of the available NWT work force is the number of residents who could actually find work on the Project, despite the best efforts of all parties. The Proponents’ estimates of direct employment levels (and hence labour income) in the NWT, especially in the construction phase, may be excessive. In view of the large number of construction phase positions and the limited number of northern residents qualified to obtain those jobs, many jobs would necessarily be filled by Canadians from elsewhere. As most direct jobs during the construction phase would be seasonal, the Proponents’ estimates of annual wages (which appear to be based on full-time employment) appear to overestimate actual earnings which, in the Panel’s view, are unlikely to exceed \$30,000 per year for seasonal workers in unskilled or semi-skilled trades.

The Panel notes, however, that there would also be indirect and induced job opportunities. The Proponents did not specify what types of work might be involved, where such jobs might be located, or whether they would be full-time or part-time. To the extent that a greater proportion of these jobs were year-round rather than seasonal, and did not require working at remote sites on a rotational basis, they may offer more potential benefits to NWT residents than direct jobs.

The proposed MGP would present an important opportunity for northerners, not only those presently unemployed, to gain valuable training and workplace experience. The opportunity is tempered by the short duration of the construction phase. It is possible that many of the job skills learned on the MGP would be transferable to other sectors of the NWT economy such as construction and transportation. Only if the Expansion Capacity Scenario were to create continuing exploration, construction and operations opportunities, would the job skills gained in the construction phase continue to be useful in the oil and gas industry close to home. It may be more likely that job skills developed in relation to indirect and induced employment would be of more lasting benefit, but the Panel heard no firm information to that effect.

The Panel notes that, without a project labour agreement in place between the pipeline craft unions and the Proponents, there may be additional, but as yet unknown, barriers created for non-unionized northerners to access pipeline construction jobs. This concern was expressed by several northern residents and the Panel has made Panel Recommendation 15-5 to address these concerns. The Panel notes that the NPPL representative (acting on behalf of the pipeline craft unions) acknowledged some of the short-comings of the Norman Wells Oil Pipeline experience, and stated that the pipeline craft unions intend to work toward

streamlining and simplifying the process for northerners to join the pipeline craft unions.

The Panel notes the efforts of the MGP to establish and maintain the Human Resource Training and Employment Database. The Panel encourages the Proponents to continue to promote the database throughout the NWT and the Yukon.

The Panel also notes the large difference in the extent to which employment and labour income accrues to NWT residents in the construction and operations phases. Total employment and total labour income from the MGP would be higher during the construction phase. However, the construction phase is of much shorter duration and the bulk of employment and labour income would accrue outside the NWT. Operations totals are smaller but longer-lasting, and a larger fraction of jobs and labour income accrues to residents of the NWT. Lasting employment and income benefits in the NWT would occur only if NWT residents are trained to occupy these jobs. In the case of operations jobs, the time available to train NWT residents is longer and the incentive to train should be greater since the returns from training would be generated for a much longer time period than in the case of training for pipeline construction jobs. As noted previously, larger and longer lasting employment and income opportunities would be generated if the Expansion Capacity Scenario increases the scale and time frame of the Project.

The Panel regards the prospective employment and labour income impacts as substantial relative to current conditions in the NWT, even if the more optimistic projections were not fully realized during the construction phase. Operations phase employment would also be beneficial. Although direct employment of northern residents in operations positions located in the NWT would likely amount to no more than a few dozen jobs, these would likely be well-paid and long-lasting. Clearly however, it is some version of the Expansion Capacity Scenario that would provide long-lasting benefits of significant magnitude and duration for territorial residents.

The projected distribution of employment opportunities suggests that the Beaufort Delta Region would be the chief beneficiary of the operations phase, mainly in relation to the Anchor Fields and the Inuvik Area Facility (IAF). It is not possible to forecast the distribution of benefits among regional centres and smaller communities or among Aboriginal and non-Aboriginal persons. The Benefits Agreements are presumably a means of weighting employment and income benefits towards the smaller communities and to Aboriginal persons, but the Panel does not know the extent of this.

The Panel considers that it would be appropriate to ensure that priority for Project employment opportunities are extended to the Yukon Territory. This could be of particular benefit to the considerable number of NWT land claims beneficiaries who reside in the Yukon, as well as to Yukon residents generally. To that end, the Panel recommends the following:

RECOMMENDATION 15-7

The Panel recommends that the Proponents immediately expand their Human Resource Training and Employment Database for the Mackenzie Gas Project to include the Yukon Territory.

RECOMMENDATION 15-8

The Panel recommends that the Proponents, immediately following their Decision to Construct, designate Whitehorse as a point-of-hire from which Mackenzie Gas Project employees would be transported to and from worksites at the Proponents' expense, or at the expense of their contractors.

The Panel notes the Proponents' commitments in the SEA to provide employment opportunities to achieve equity and diversity. To ensure effective implementation of these commitments, the Panel recommends the following:

RECOMMENDATION 15-9

The Panel recommends that the National Energy Board, as a condition of any certificate or approvals it might issue in relation to the Mackenzie Gas Project, require the Proponents to file, three months prior to the commencement of construction, diversity plans, inclusive of gender equality, for both the construction and operations phases of the Mackenzie Gas Project. The plans should include:

- *methods for determining goals;*
- *identification of goals;*
- *methods of employee recruitment, selection, and development to achieve the identified goals;*
- *commitments to the provision of a healthy and safe work environment;*
- *steps to create a Diversity Management Committee;*
- *a monitoring and reporting system; and*
- *a communications plan.*

The Panel further recommends that the Proponents require their contractors and subcontractors to comply with the Proponents' diversity plans and that this compliance be made a term of the contract between Proponents and their contractors.

The Panel concludes that the foregoing recommendations, as well as Panel Recommendations 15-4 and 15-6, should increase the number of NWT residents likely to benefit from Project and Project-related employment, particularly in the construction phase. Nonetheless, there would inevitably be uncertainties in ensuring that job-specific training was well-timed in relation to employment availability. This situation, combined with the short duration of the construction phase and the demands of rotational employment, suggests that the greater potential for durable skills and employment must lie elsewhere than in direct employment in construction. Indirect and induced employment, especially if created by Aboriginal enterprises and local governments and agencies, and especially if such employment lasts beyond the construction phase, may prove of greater and more lasting

benefit to NWT residents, especially those living in the smaller communities.

In the Panel’s view, the Proponents’ commitment to pay for the cost of transportation for all NWT resident Project workers to travel to and from their respective home communities to a designated point-of-hire for each work rotation is a very positive inducement to employment. In order to ensure continuity of this benefit, and to avoid loss of employment in small communities after the construction period, the Panel recommends that all proponents involved in the Expansion Capacity Scenario adopt this policy.

RECOMMENDATION 15-10

The Panel recommends that the National Energy Board, as a condition of any certificate or approvals it might issue in relation to a facility that would enable the throughput Mackenzie Valley Pipeline to be increased above 0.83 Bcf/d, require the proponent of such facility to pay for the cost of transportation for all project workers who are NWT residents to travel to and from their respective home communities to a designated point-of-hire for each work rotation.

15.7 REVENUES TO GOVERNMENTS

The Project could generate a substantial annual revenue stream to territorial, provincial and federal governments during the construction and operations phases. Government revenues

would consist of personal and corporate taxes, employee pension contributions, fees for permits and licences, property taxes, royalties on production from the three gas Anchor Fields, and indirect taxes such as the Goods and Services Tax, gasoline and other sales taxes. Government revenues during the MGP operations phase would be highly sensitive to prevailing natural gas prices.

15.7.1 PROPONENTS’ VIEWS

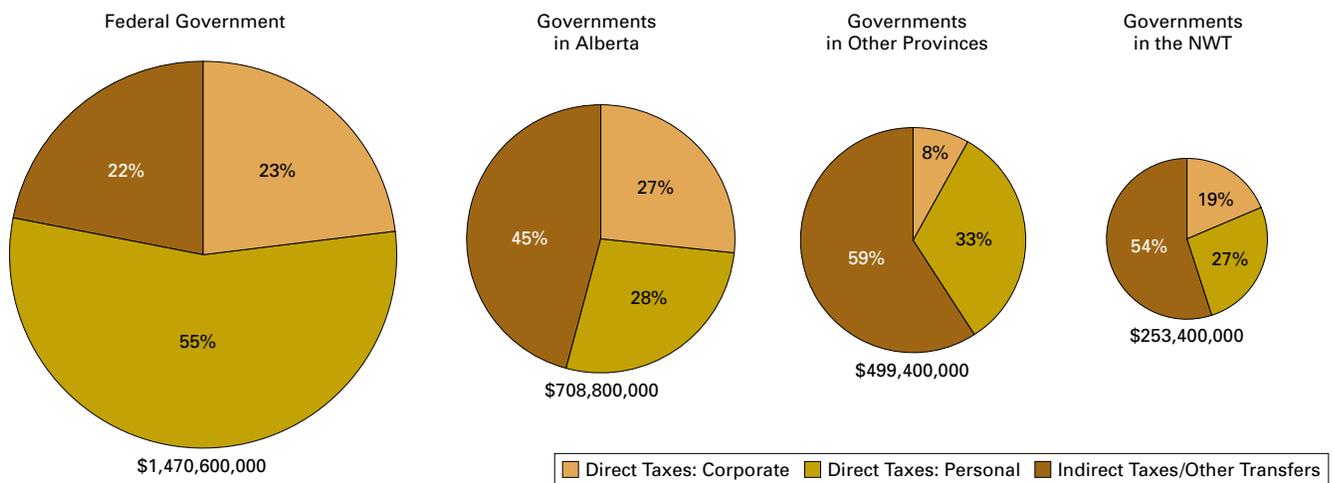
CONSTRUCTION PHASE

The Proponents predicted that the four-year initial construction phase of the proposed MGP would result in more than \$2.93 billion in tax revenues:

- 42% (\$1.24 billion) would be paid in direct personal taxes;
- 34% (\$997 million) would be paid in indirect taxes; and
- 21% (\$622 million) would be in the form of direct taxes paid by corporations.

Figure 15-10 shows that 50% (\$1.47 billion) in tax revenues would go to the Government of Canada; 24% (\$709 million) in revenues would be generated for provincial and local governments in Alberta, 18% (\$499 million) to governments in other provinces, and just under 9% (\$254 million) in tax revenues would accrue to the GNWT and NWT tax-based local governments.

Figure 15-10 Government Tax Revenues — Four-Year Total (Construction Phase)



Source: Adapted from J-IORVL-00954, Table 2-21, p. 31

OPERATIONS PHASE

Figure 15-11 compares the distribution of estimated MGP operations phase taxes by jurisdiction over the first 20 years of operations, based on the 2003 and 2006 gas price forecasts respectively. The federal share would include royalties on gas production, which are payable only to the federal government.

Total Project royalties to Canada over the first 20 years of operation would amount to \$529 million based on the 2003 gas price forecast. However, under the 2006 gas price forecast, the federal government would collect a total \$1.846 billion in MGP royalties. A 35% increase in gas prices would thus result in a 350% increase in royalties due.

The direct corporate taxes paid to all governments during the first 20 years of MGP operations increase from about \$5.9 billion based on the 2003 gas price forecast to \$8.2 billion under the 2006 gas price scenario. In total, \$8.8 billion in total taxes would be paid to governments under the 2003 gas price scenario and \$12.5 billion would be generated under the 2006 gas price scenario, a difference of about \$3.7 billion.

Revenues to the GNWT would increase by nearly 40% under the 2006 price scenario, and for both scenarios would consist roughly equally of corporate and personal taxes. However, the Proponents noted that their estimates for corporate taxes

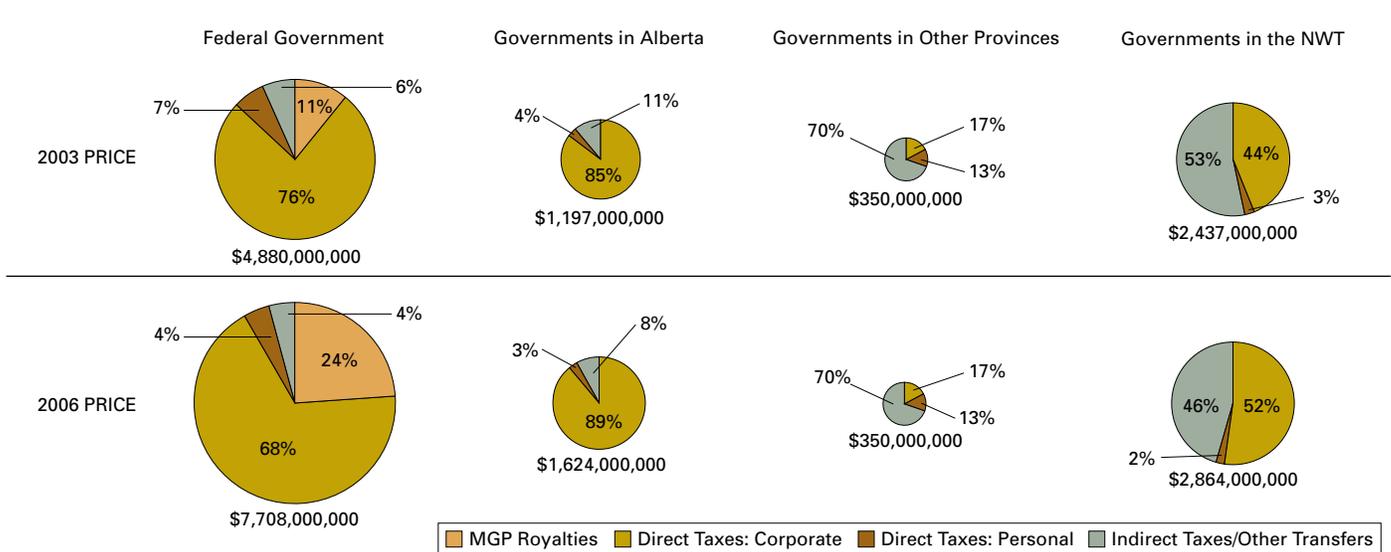
payable to the GNWT assume a gas sales point in the NWT. In response to questioning, the Proponents noted that many factors influence where corporations pay their corporate taxes, chiefly where the economic activity occurs but also taking account of relative tax rates among jurisdictions. The Proponents noted that applicable tax rates in Alberta were currently lower than in the NWT.

IMPACT OF THE TERRITORIAL FORMULA FINANCING GRANT ON NET GNWT REVENUE DURING MGP CONSTRUCTION AND OPERATIONS

Much of the GNWT's annual operating expenses are provided by the federal government in the form of a Territorial Formula Financing (TFF) grant. This grant is reduced on a pro-rated scale (approximately 75% depending on the revenue source) as territorial revenues from other sources increase.

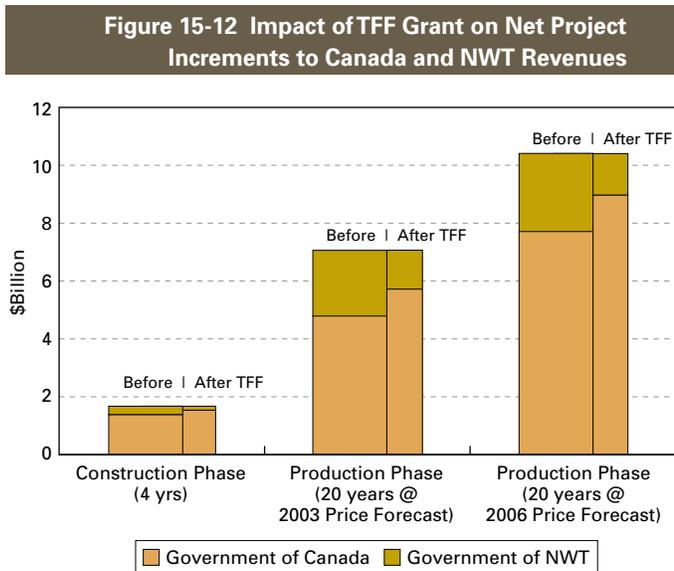
The construction of the MGP would generate substantial additional tax revenues to both the federal government and the GNWT. Because the GNWT's financial grant from Canada would be proportionately decreased, however, the GNWT would not benefit from the full amount of this increment. The TFF arrangement thus has the effect of raising the federal government's share of tax revenues and reducing the GNWT share.

Figure 15-11 Royalties and Tax Revenues (2003 and 2006 Gas Price Forecast) — 20 Year Total (Operations Phase)



Source: Adapted from J-IORVL-00954, Table 2-44, p. 48 and Table 2-46, p. 50

Figure 15-12 shows federal and territorial shares of tax revenues paid in the NWT, before and after the application of the TFF grant. On a gross basis, during the four-year construction phase, the GNWT would receive more than \$200 million (12% of the total), while the federal government would receive almost \$1.5 billion (88%). After the impact of the TFF grant is calculated, the GNWT net tax revenues would decrease to \$50 million and federal government net tax revenues would increase by \$150 million.



Source: Adapted from J-IORVL-01000, p. 2

Project operations would generate an estimated \$2.3 billion in tax revenues to the GNWT over the first 20 years, based on the 2003 price forecast. However, this figure is decreased to a net value of about \$1.3 billion in tax revenue to the GNWT after the TFF grant offset is taken into consideration. Federal tax revenues would increase correspondingly from the estimated gross value of about \$4.8 billion to more than \$5.7 billion. Under the 2006 price forecast, the equivalent figures for the first 20 years of Project operations would be \$2.7 billion in tax revenue to the GNWT, decreased to a net value of about \$1.44 billion. The federal government’s share would increase from the estimated gross value of about \$7.7 billion to more than \$8.9 billion after the TFF grant is factored in.

15.7.2 PARTICIPANTS’ VIEWS AND RECOMMENDATIONS

ESTIMATING GOVERNMENT REVENUES

INAC commented on the difficulties in estimating federal government revenues in a national economy that is near full productive capacity. In INAC’s view, it is not reasonable to assume that all economic activity associated with a particular project is incremental to the national economy. More likely, in the absence of the project, some of the project labour force and

capital would have been employed elsewhere in the national economy. INAC advised the Panel that federal government officials had estimated that, based on preliminary analysis, about 20% of the tax revenues from the Project would amount to a net increment to federal tax revenues. (This estimate did not include royalty revenues, which would be fully incremental.)

The GNWT-commissioned WMR Report presented several estimates of cumulative government revenues that could be generated by the construction and operation of the proposed MGP, based on various scenarios noted in Section 15.2. To the extent that the WMR estimates and the Ellis estimates employed similar assumptions, they produced broadly similar results.

The GNWT also filed a report (the RDI Report) on the cumulative impact of non-renewable resource developments over the next 15 years on its operating expenditures required to maintain existing levels of service (characterized as “forced growth expenditures”). This report estimated that of the additional expenditures required over the next 10 years, \$365 million would be attributable to the MGP. The RDI Report notes that its forecasts do not take into account the impacts of either the SEA or the MGPIF, or infrastructure costs.

The ANC’s PAI Report calculated that federal royalties from the Anchor Fields would total \$3.3 billion, federal income tax revenues would total \$2.5 billion and NWT income tax revenues would total \$1.5 billion over a 45-year operating period. The PAI Report noted that:

given that the MGP Pipeline ends in Alberta, there is a good possibility that income taxes could be payable in Alberta rather than in the NWT, resulting in a lower overall tax burden to the proponents (since Alberta’s corporate tax rate is lower than the NWT’s) and far less revenues accruing to the Government of the NWT. (J-ANC-00065, p. 7)

The PAI model was also used to run a scenario based on an alternate royalty system. PAI examined the Norwegian Government’s system which, PAI notes, is not strictly a royalty system. Rather, it is a “special tax” system based on net operating revenues where eligible write-offs include exploration costs, depreciated investment and uplifted investment costs. The special tax rate is 50% and the marginal tax is estimated at 75%. According to PAI, MGP production royalties under a Norwegian system would reach \$24.6 billion compared with \$16.3 billion under the existing Canadian royalty regime over a 45-year operating period.

DEVOLUTION AND RESOURCE REVENUE SHARING

The GNWT noted that:

While the GNWT does not currently receive royalty revenues, the GNWT is confident that current devolution and resource revenue sharing discussions will lead to a fair sharing of resource revenues.... It is clear the completion of a devolution and resource revenue sharing agreement that

provides northern governments with adequate resources to mitigate development impacts is an important component in ensuring the benefits of northern development accrue to NWT residents....we believe that this project represents enormous opportunities for our residents and that the fair sharing of resource revenues is an important mechanism to ensure Northerners are the primary beneficiaries of Northern resource development. (Margaret Melhorn, HT V66, pp. 6607–08)

We have been negotiating devolution for a number of years. The federal government has recently just appointed a new chief negotiator, and we expect to restart the discussions fairly soon, and we would like to advance those discussions as quickly as possible because we see...devolution and resource revenue sharing as one way for northerners to benefit from northern development, but we are not linking devolution and the conclusion of an agreement to the pipeline project. (Melhorn, HT V66, p. 6649)

The GNWT filed with the Panel a *Resource Revenue Sharing Agreement-In-Principle* between four Aboriginal groups and the GNWT, which set aside up to 25% of the net fiscal benefit (the amount of revenues not offset by the TFF) by the GNWT from any resource revenue sharing agreement it arrived at with the federal government for transfer to the Aboriginal authorities.

INAC stated that, with respect to the treatment of natural resource revenues, the federal government, the GNWT and the Aboriginal Summit have been working since 2001 to negotiate the devolution of legislative powers, programs and responsibilities for the management of land, waters and on-shore natural resources in the NWT. These powers would include the authority to levy and collect resource royalties and other revenues from natural resource development. INAC stated that these fiscal matters would continue to be dealt with through negotiations, but INAC was unable to specify when those negotiations might be concluded.

In response to questions about the status of any discussions that might lead to possible changes to the oil and gas royalty regime in the NWT and, if such discussions might affect the calculation of revenues that would accrue to the federal government from MGP gas Anchor Field operations, INAC's representative responded "I'm not aware of any such discussions at the moment." (Michel Chenier, HT V66, p. 6637)

The ANC recommended that a revenue sharing and devolution agreement be put in place before the Project begins operations. The ANC's recommendation also stated that, if these agreements are not in place, that the federal government hold whatever revenues it gets from the MGP in trust for the NWT.

The NWT Chamber of Commerce also noted that, given that the federal government would receive the significant bulk of the revenue from the MGP, and given that the majority of the GDP growth would take place within the NWT, there is an immediate

necessity to negotiate a comprehensive and fair resource revenue sharing agreement with the GNWT.

RESOURCE REVENUES TO NWT ABORIGINAL CLAIMANT GROUPS

The IRC stated its concerns regarding a devolution and resource revenue sharing agreement that would include northern Aboriginal governments. The IRC is concerned that, when the MGPIF initiative (see Chapter 16, "Social and Cultural Impacts") comes to an end, there could be negative consequences throughout the Mackenzie Valley, stating:

With this recognition, it is imperative that, before this occurs, the federal and territorial governments work diligently, in full partnership with northern aboriginal governments, to finalize a Devolution and Resource Revenue Sharing Agreement that will provide for the additional funding required to both continue those initiatives that have been successfully developed throughout the ten year period and also to support the ongoing growth of capacity within the aboriginal community. It is our strong recommendation that both the Joint Review Panel and the National Energy Board give due recognition to the importance of this matter. (J-IRC-00014, pp. 17–18)

In response to questions about the share of resource revenues that flow to Aboriginal governments in the NWT, INAC noted that, as part of the comprehensive claims in the Mackenzie Valley (and exclusive of the Inuvialuit Final Agreement), the Government of Canada has entered into agreements to provide payments to NWT Aboriginal claimant groups that stem from royalty flows. The percentages are based on formulas that differ for each claimant group, but they are about 37% on the first \$2 million per year of oil and gas royalties, and 7.5% of subsequent royalties over and above \$2 million.

The issue of taxation of MGP facilities and pipeline right-of-ways by First Nations was raised by the K'ahsho Got'ine District Land Corporation (KGDLC) at the Fort Good Hope community hearings and the Dehgha Alliance Society at the Fort Simpson community hearings. Both groups noted that they were working with the Indian Taxation Advisory Board on whether provisions of the *First Nations Fiscal and Statistical Management Act* could apply to the proposed MGP.

The KGDLC stated:

Approximately three years ago, K'ahsho Got'ine developed a revenue model. The proposal called on the Mackenzie Gas Project to make an annual payment for the rights to cross our land. The foundation for the proposal is our inherent right to self-government and our right to tax the use of our land. In order to cover the cost of governing our land and people, we remain committed to our proposals and the two principles.... The community is unlikely to accept any proposals unless there are enhancements and some progress in the property tax issue. (Arthur Tobac in Fort Good Hope, HT V22, p. 2034)

The Dehghah Alliance Society stated:

The Dehghah Alliance will continue with our work to ensure that the DAS communities along the pipeline corridor are able to obtain a stable annual revenue stream by applying a fair and defensible level of property taxation on the project. We have demonstrated excessive amounts of patience in trying to work with the territorial and federal governments on this issue, but our patience does have a limit. At the end of the day, the Deh Cho will be imposing a property tax on this project, with or without the support of the territorial and federal governments. (Joe Acorn in Fort Simpson, HT V26, p. 2388)

The DTFN in northwest Alberta requested certain taxes and fees be paid by NGTL for access to DTFN traditional lands. Lands under discussion are currently Alberta Crown lands within the DTFN traditional territory. NGTL stated that it would not pay fees to the DTFN for access to these lands, but would pay the appropriate taxing authority.

ESTABLISHMENT OF A DEDICATED FUND FOR PUBLIC BENEFIT

The ANC raised two issues with respect to government revenues. One was whether governments would obtain a sufficient or fair share of the Anchor Field operators' revenues under Canada's existing oil and gas royalty regime. ANC drew particular attention to the Norwegian regime, by way of suggesting that there might be "alternative ways of capturing rent that would, in our view, perhaps reflect a fair return to the public purse." (O'Reilly, HT V65, p. 6488)

The ANC also recommended that the federal and territorial governments establish a permanent fund or heritage fund from revenues from the MGP and other non-renewable resource development, to provide for impact mitigation and economic diversification. Dr. David Leadbeater, consultant to the ANC, suggested that in addition to the MGPIF, a development or "heritage" fund should be established for general economic development purposes throughout the NWT and not necessarily tied to the immediate geography or potential impacts of the Project.

The GNWT responded that, while there is nothing to prevent the Legislative Assembly of the NWT from doing this, the matter is not on its agenda. INAC noted that royalty revenues for the Project's gas production would accrue to the federal government as general revenue and the Government of Canada's practice does not target project revenue to a specific fund.

The SWC also recommended that the Proponents invest in a trust fund to cushion the negative effects of employment loss after the construction boom is over.

IMPACTS ON YUKON

The Yukon Government presented two economic impact scenarios on government revenues through Project taxes

and royalties "with" and "without" north Yukon oil and gas activity. The scenario "with" oil and gas activity forecasts the development of the gas resources in the Southern Eagle Plain via a pipeline along the Dempster Highway to tie in with the MVP. Royalty revenue to the Yukon Government and Yukon First Nations could reach \$143 million yearly. The scenario developers found that the major benefit of this development would not be in the royalty payment but rather in direct investment, local business development and ensuing taxes.

15.7.3 PANEL VIEWS AND RECOMMENDATIONS

RELIABILITY OF REVENUE FORECASTS

The Panel notes that forecasts of revenues to governments from the Project rely on a number of assumptions. The Ellis Consulting Services tax model is driven by the Statistics Canada input-output model results. It follows that not all of these taxes would be fully incremental because the taxed Project activity would have displaced, to some extent, other activities that would have also generated tax revenues. For example, INAC indicated that about 20% of the federal tax revenues from the MGP could be considered incremental. The Panel observes that the precise nature of this relationship would depend on overall macroeconomic conditions at the time of construction, and would not likely be the same for the NWT as for Canada.

The Panel notes that the portion of the projected revenues to the GNWT consisting of corporate taxes assumes a gas sales point in the NWT. However, the Proponents indicated they had not yet determined where that sales point would be. If the Proponents select Alberta as the gas sales point, GNWT corporate tax revenues from the Project could be substantially reduced. The Panel also notes the large volatility in estimated operations phase tax revenues (especially direct corporate tax payments) and royalties, depending on the gas price forecast used.

The Panel notes, however, that the revenue estimates by WMR and PAI did not differ substantially from those of the Proponents, where similar production scenarios and price forecasts were applied. The Panel therefore considers the Proponents' forecasts of revenues to governments as a reasonable basis for assessing the impacts of the Project. The Panel also considers the WMR and PAI revenues to governments forecasts to be reasonable for the scenarios and price forecasts specified (especially those resembling varying versions of the Expansion Capacity Scenario), hypothetical as those forecasts might be.

CONSTRUCTION PHASE IMPACTS

The impact on GNWT revenues during the Project construction phase would be positive although relatively small, once the offsetting effects of the TFF are taken into account. The net result is that the GNWT would receive approximately \$12 million per year in tax revenue during the four-year construction phase. This would constitute an increment of about 1% over 2006 total

GNWT revenues of \$1.24 billion. Project tax revenues payable to the federal government after TFF effects would amount to a gross increment of \$406 million annually (of which as previously noted, much less would be a net increment to federal revenues). For comparison, total federal government revenues in 2006 were \$222 billion.

The Panel notes that, offsetting these incremental revenues, would be incremental costs to governments. The GNWT forecasts that these would amount to \$365 million over 10 years in operating expenses alone. The Panel assumes, for the purposes of its analysis and in the absence of other information, that the beneficial effects of the SEA and MGPIF on GNWT forced growth expenditures are offset by the additional demands on infrastructure. Further, in the absence of an expenditure profile, the Panel assumes that this expenditure would be equally distributed over the 10-year period. Thus the GNWT's annual expenditure increment of \$36.5 million could exceed net revenue increments from the Project during the construction phase by an average of about \$25 million each year. Canada has committed to spending \$50 million per year on the MGPIF (see Chapter 16, "Social and Cultural Impacts") for 10 years, and this too could be regarded as "forced growth expenditure" in relation to net revenues.

OPERATIONS PHASE IMPACTS

The impact on GNWT revenues would become more positive during the operations phase. Based on the Proponents' assumptions about price and throughput at 1.2 Bcf/d for 20 years, and after TFF impacts are taken into account, the average annual increment to GNWT revenues could be approximately \$70 million per year (similar under both price forecasts). This would amount to an increment of nearly 6% over 2006 total GNWT revenues. As well, net revenue increments from the Project would substantially exceed forced growth expenditures during operations.

With respect to federal government revenues, higher gas prices lead to much higher revenues. For example, using the 2006 gas price forecast, the federal government would collect more than \$1.8 billion in Project royalties during the first 20 years of operations. This represents a 350% increase in collected royalties with a 35% increase in gas prices over the 2003 gas price forecast. Gas prices, which are unpredictable, are obviously a critical parameter in determining the revenue and tax impacts of the proposed Project. The Panel notes, however, that Anchor Field owners would not pay royalties in full until their gas revenues have recovered their initial investment costs, i.e. until after Project payout.

Revenues accruing to the NWT from the Project could be outweighed by forced growth costs during construction, but would be positive during operations. Net revenues to Canada would likely be positive during construction. They would certainly be positive during operations and especially after payout, when royalties would be paid in full, and when costs associated with the MGPIF are no longer incurred.

EXPANSION CAPACITY SCENARIO

The magnitude and duration of incremental revenues to governments from the Project would be substantially greater under an Expansion Capacity Scenario than for the Project alone, although again the federal government would be the chief beneficiary under existing revenue sharing arrangements. Under any scenario, incremental revenues from the Project would increase over time, and up-front forced growth costs would diminish, so that in the long term substantially increased revenues for both levels of government would be assured.

REVENUE SHARING AND DISTRIBUTION

The Panel notes that devolution and resource revenue sharing negotiations between the federal government and the GNWT have been ongoing for several decades, and in recent years these have included the Aboriginal Summit. The Panel considers that an agreement on resource revenue sharing (quite apart from whether such an agreement involved "devolution") would provide tangible and long-term benefits to northerners, in particular by providing a greater and more secure level of funding to governments in the NWT. Uncertainty with respect to the gas sales point, and thus the proportion of Project corporate taxes payable in the NWT, underscores the need for the enhanced revenues to the GNWT that would accrue from such an agreement. The Panel concurs with the GNWT and other participants who stated that such discussions should continue to be a high priority. The Panel is of the view that an agreement on resource revenue-sharing should be in place before operations begin.

RECOMMENDATION 15-11

The Panel recommends that the governments of Canada and the Northwest Territories and the Aboriginal Summit continue negotiations towards settlement of a NWT-based resource revenue sharing agreement on a priority basis, and that such an agreement be finalized in advance of the National Energy Board granting the Proponents Leave to Open. If an agreement is not concluded by that time, the Panel recommends that the Government of Canada set aside 50% of the non-renewable resource royalty revenues it receives from the Mackenzie Gas Project to be held in trust for the Government of the Northwest Territories and Aboriginal authorities until such time as a resource revenue sharing agreement has been concluded among the three parties.

Regarding ANC's concerns about whether the existing oil and gas royalty regime in the NWT provides an appropriate return to the public, and whether other models might be investigated, the Panel expresses no view. The Panel questioned ANC on why this issue would be relevant to the Panel's mandate, but did not obtain a persuasive response. The Panel does not consider it has either the mandate or the expertise to comment on royalty regimes and did not solicit further information on this topic.

BRIDGING, TRANSITION PLANNING AND FUNDING

Another issue, raised chiefly by ANC but also by others, is whether some portion of government revenues from the Project should be directed to a separate fund, segregated from general revenues. The Panel understands that the concept underlying such a fund would be that the revenues from the exploitation of a non-renewable resource should be used, at least in part, to fund the transition or bridging to a sustainable future. The Panel agrees with this concept in principle, but is of the view that the establishment of a segregated fund is not the only means of supporting it.

The essence of sustainability is not compromising the opportunities of future generations, a principle consistent with the objectives of the land claim agreements in the NWT. The wealth generated from the use of non-renewable resources such as natural gas should therefore be used not only to meet on-going needs during the lifetime of the Project, but also to build a bridge to a more lasting future. Reliance on a single resource or industry for wealth creation risks creating dependency and vulnerability to forces beyond local or regional control. While the Project could be a springboard to a better economic future, the challenge is to ensure that at least a portion of the revenue benefits that would flow from the Project are used to help bridge towards a sustainable future and to promote self-reliance and resilience. In the Panel's view, this would not necessarily require the establishment of a segregated fund. It would, however, require that effort and funding be committed to transition planning.

There will be a need for bridging and transition planning in the Beaufort Delta Region and the Mackenzie Valley, and the Project would enhance the possibilities of meeting that need. Project revenues and capacity building could provide opportunities to:

- meet present needs and address present and emerging problems in ways that ensure no significant and lasting burdens;
- ensure a revenue stream and other capacities for continuing transition initiatives (including a transition from the termination of the MGPIF), as well as maintaining public services in the post-Project period; and
- plan and invest during the life of the Project in other economic opportunities and livelihood options, to promote initiative, resilience and self-reliance through skills and educational development and economic diversification, in aid of avoiding adverse impacts of either temporary downturns in Project activity or of the eventual winding up of the Project.

In the Panel's view, the GNWT would be best situated to assume a lead role and responsibility for transition planning and implementation, recognizing that both the federal government and Aboriginal authorities would also be involved. The GNWT has demonstrated forethought and capability with respect to long-term strategic economic planning and scenario development

and assessment. The Panel notes in particular the GNWT's labour force development strategies, various strategic plans and assessment of the cumulative impact of non-renewable resource development and related forced growth impacts on government programs. A lead role for the GNWT should not, however, undermine the principle of shared authority in guiding transition planning and shared engagement in implementation.

Under current arrangements, the GNWT would have very little incremental revenue from the Project to contribute to initiatives directed at transition planning and bridging. Hence the Panel considers implementation of Panel Recommendation 15-11 essential to enable the GNWT to adequately plan for the future and to fund its plans from a portion of the revenues generated by the Project.

In the Panel's view, the establishment of a segregated fund with a portion of the revenues from development of a non-renewable resource is only one possible mechanism for funding the transition to a sustainable future. In the case of the MGP, it would not likely be feasible to establish such a fund for many years, chiefly because Project royalties would not become payable in significant amounts until several years after the start of operations. Further, the Panel observes that such funds are not usually established to capture all resource revenues as soon as they are generated. Initial revenues from resource developments typically become part of general government revenues, to be allocated by the appropriate legislature to meet general public requirements and priorities. It is often only when there is a widespread perception that resource revenues exceed immediate public expenditure requirements that a special fund is created to capture what are perceived to be "excess" revenues, whether to save or invest these revenues for a future purpose or to distribute them to citizens as "dividends."

In the Panel's view, the essential requirement is to provide for a transition from Project dependence and to support financially the transition planning and bridging initiatives previously identified. In part, these are initiatives to enhance regional and local capacity, community resilience and economic self-reliance and diversity in the NWT. The proper source of funding for initiatives to provide for transition and diversification is the revenues generated by the Project. It is essential, however, that such initiatives be planned for and established early in the life of the Project and not be left to an unspecified future date.

RECOMMENDATION 15-12

The Panel recommends that, immediately following the Proponents' Decision to Construct, the Government of the Northwest Territories begin establishing mechanisms for transition planning and implementation associated with the Mackenzie Gas Project in combination with future developments to accomplish the following purposes:

- *set long-term economic diversification objectives to ensure lasting benefits from the Mackenzie Gas Project with related indicators and targets;*

- *develop and assess alternative future scenarios and adjust objectives in light of the findings;*
- *determine immediate and longer-term priorities;*
- *plan initiatives in partnership with other governments, regional Aboriginal authorities and other partners; and*
- *monitor, respond and review.*

RECOMMENDATION 15-13

The Panel recommends that, within 10 years of the National Energy Board granting the Proponents Leave to Open, the Government of the Northwest Territories identify and allocate a specific portion of its share of non-renewable resource royalty revenues to the funding of the mechanisms established pursuant to Panel Recommendation 15-12.

15.8 OVERALL PANEL FINDINGS ON ECONOMIC IMPACTS

This section summarizes the Panel findings on economic impacts by Project phase (construction and operations), as well as for the Expansion Capacity Scenario, keeping in mind that this scenario includes non-proponent activities to support throughput on the MVP between 0.83 and 1.2 Bcf/d, as well as non-proponent and further Proponents' activities beyond 1.2 Bcf/d. The regional distribution of Project economic benefits, and the economic legacy and durable benefits of each Project phase, are also noted.

15.8.1 CONSTRUCTION PHASE

GDP

Construction expenditures would contribute \$500 million to the NWT's GDP annually for four years. Much but not all of this would be incremental, contributing up to a 12% increase in the 2006 GDP level of \$4.2 billion. Despite the fact that considerable leakage would occur, in the sense that the NWT would capture relatively little of the indirect and induced expenditures, this GDP increment would provide a substantial if short-lived boost to resident labour and business. The increment to Canada's GDP would be much less than 1%, much of it accruing to Alberta.

PROCUREMENT AND BUSINESS

The Proponents estimated that their procurement of goods, services and labour in the NWT would amount to \$1.76 billion over four years (\$440 million per year), or 15% of total construction phase expenditures. Most of this expenditure would occur in the Beaufort Delta Region and a considerable amount in Yellowknife and Hay River. The Proponents did not estimate the location of their procurement below the regional level, and hence there is no basis for estimating the distribution of procurement benefits as between the regional centres and the communities. Past experience suggests that the great bulk of business opportunities will be in the regional centres. With the

likely exception of Tuktoyaktuk, there may be little durable Project-induced business development in the smaller communities. Aboriginal businesses would benefit from the provisions of Benefits Agreements negotiated with the Proponents, as these provide for business assistance and set-aside work; however, no details about these arrangements were disclosed to the Panel. The Panel is therefore unable to determine the magnitude or distribution of these benefits or the likelihood that they might promote business development in the smaller communities. The Panel notes that negotiations toward a Benefit Agreement had not been completed with the Dehcho First Nations as of the close of the Panel's hearings, and has recommended (Panel Recommendation 15-1) that the parties make best efforts to conclude an agreement before construction begins.

Overall, Project requirements would vastly exceed the current capacity of northern business to meet them. The construction period is so short that investment in expansion would be of limited benefit without adequate prospects for continued markets. In the Panel's view, the Proponents have put in place reasonable steps to maximize their procurement in the NWT, both as provided for in the SEA and in relation to Aboriginal business through the Benefits Agreements.

EMPLOYMENT AND LABOUR INCOME

The Panel notes that the number of jobs created by the Project is not necessarily fully incremental to national or territorial employment levels. To the extent that individuals leave existing jobs for Project employment, there is no net gain in employment. However the percentage increment to employment would likely be higher for NWT residents than for Canadians nationally. It should be noted that the Proponents' data include both full-time and part-time jobs. Based on the range of wage rates cited by the Proponents, northern residents with low qualifications who obtain general labour and unskilled seasonal jobs might earn less than \$30,000 over a four-month construction period. This is well below the average annual income per job of \$68,700 implied by the Proponents' data.

The Panel has recommended (Panel Recommendations 15-7 and 15-8) that employment and income opportunities be extended to the Yukon on a basis similar to the NWT, by ensuring that the Proponents identify potential workers there and ensuring that Whitehorse is designated as a point-of-hire.

The Panel notes that although the Proponents took account of labour supply constraints in generating their employment estimates, these estimates also assumed that the entire potential labour pool had been offered training opportunities. In the Panel's view, uncertainty as to whether and when the Proponents would make a decision to construct, the likely short window between such a decision and the actual commencement of construction, and the short duration of the construction phase itself, give rise to uncertainty about whether such training opportunities, even if provided, could be effectively implemented in a timely way despite all good intentions.

Whether this incremental employment and income would actually come about in the NWT would depend in part on the success of training and the reduction of other employment barriers in a sufficiently timely and effective manner. The greatest need and desire for Project employment appears to be in the smaller communities, and the Proponents' estimates are based in part on targeting those who are not employed but seek work. However, low levels of literacy and educational attainment in the communities may be difficult to overcome quickly enough to maximize benefits from construction phase employment.

The Proponents have already made substantial efforts to identify potential workers and to overcome employment barriers (particularly with respect to work-related travel costs at remote sites) within the limits of what, in the Panel's view, they should be responsible for. The Panel also regards their future intentions, as encapsulated in both their general policies and in the SEA commitments, as appropriate and beneficial. The same likely applies to the provisions of the Benefits Agreements with Aboriginal authorities, which include provisions for education, training and employment. However, as the details were not disclosed, the Panel is unable to determine the magnitude, distribution or likelihood of these benefits.

Of greater concern to the Panel is whether the implementation of government training programs in terms of their timing, coordination and the numbers of people enrolled, would mesh with and serve the needs of Project construction. Training is an investment, not only on the part of the providers of training but also of the people who enrol in it. That investment has to be perceived as likely to produce results or many otherwise interested persons might not make that investment and the impact would be reduced. The Panel is not persuaded that, despite best intentions, construction-related training and construction employment opportunities could or would be sufficiently coordinated to produce optimum results. In the Panel's view, therefore, attention to training and education that would enable northern residents to take advantage of the more durable employment opportunities that would likely follow Project construction would be as important or more so than focusing on the short-run opportunities in the construction phase. The Panel has made recommendations concerning literacy training (Panel Recommendation 15-2), the coordination of training (Panel Recommendation 15-3) and the continuation of Proponent-funding for training programs (Panel Recommendations 15-4 and 15-6).

The Panel notes that the pipeline construction unions have potentially an important role to play in both training for the construction phase and the promotion of a safe, equitable and diverse working environment. Both of these benefits would be promoted by a project labour agreement, should the Proponents decide to proceed. The Panel has also recommended that the Proponents prepare a project diversity plan for both the construction and operations phases before construction begins. These recommendations are to be found in Panel Recommendations 15-5 and 15-9 respectively.

REVENUES TO GOVERNMENTS

The Proponents estimated that revenues to governments from Project activity during the four-year construction period (taking into account the offsetting effects of the TFF grant), would be:

- \$12 million annually to NWT (1% increment on 2006 revenues); and
- \$406 million annually to Canada.

The Panel notes, however, that possibly only 20% or \$80 million annually would be a net increment to Canada.

The GNWT forecasts that \$365 million in forced growth expenditures over 10 years would be required in relation to the Project. If incurred at an average rate of \$36.5 million annually, then GNWT expenditures in relation to the Project would exceed revenues from it during construction.

Aboriginal authorities with land claims agreements and who own lands that would be traversed by the Project would benefit from Access Agreements. As the contents of these were not disclosed to the Panel, the Panel is unable to comment on the magnitude of any benefits.

15.8.2 OPERATIONS PHASE

The Proponents included in the first three years of the operations phase further construction activities to provide for two additional compressor stations and a heater station. These activities, intended to complete the construction of the MGP at its applied for capacity of 1.2 Bcf/d, are similar in character and effect to those of the construction phase, although they would occur at a much lower level of intensity. As well, the operations phase requires on-going development activity at the Anchor Fields to maximize gas extraction over time.

GDP

The Proponents predict that, at gas prices ranging from \$4.50 to \$6.50/Mcf, the Project could contribute \$1.3 to \$2.1 billion annually to territorial GDP (an increment of 30 to 50% over 2006 GDP). This would amount to four to seven times the direct GDP increment during construction, and is at least equivalent to the incremental contribution of the operating diamond mines in the NWT to territorial GDP. These increments are, on the face of it, very substantial and would continue for at least 20 years. However, the Panel notes several cautions in understanding the effects of this increment.

First, gas prices are highly volatile and their forecasts are, even if well-informed, necessarily speculative. Although participants considered that the range of forecasts used during the Panel's review bracketed reasonable expectations, the Panel notes that since the close of the hearings actual gas prices have fluctuated below that range.

Second, the Panel notes that much of the GDP increment during operations is due not to Project expenditures on goods and services in the NWT, but rather to the value of gas production. The attribution of production revenues to the NWT is an artefact of the national accounting system for GDP. These revenues go to the field operators, who are not located in the NWT. In this respect, the operations phase of the Anchor Fields (after the first three years of continuing construction) is quite different from, for example, the situation with the diamond mines where production requires substantial ongoing inputs of labour and materials, and hence ongoing procurement and employment in the NWT.

There is an important exception to this observation, however. The APG is part owner of the MVP and is in a position to capture the benefits of increased gas throughput for Aboriginal residents of the Project corridor in the NWT. These benefits are modest at throughput levels of 0.83 Bcf/d, but would rise markedly as production expands to 1.2 Bcf/d, so long as this is achieved within ten years of start-up. As these benefits are derived from throughput volumes rather than the value of gas sales, they are largely independent of gas prices. Given the regional allocation of APG shares, the Panel notes that these benefits would accrue mainly to the Sahtu and Dehcho regions. These regions are otherwise less likely to benefit from ongoing employment and business opportunities during operations, thus offsetting regional disparities to some extent.

PROCUREMENT AND BUSINESS

In view of the much lower procurement requirements during operations, especially after the construction of two additional compressor stations and a heater station is complete, the Project without other developments would offer substantially less business opportunity than during construction. This would not necessarily imply a downturn for northern businesses because Project demand might still exceed regional business capacity. The Panel notes that the SEA provisions for procurement continue through the operations phase, with the exception of a specified percentage target. Even without specified targets, there would almost certainly be less leakage than during the construction phase, and thus much continued opportunity for northern business. Project-generated expenditures in relation to Anchor Field development requirements should continue to generate substantial business opportunities in the Beaufort Delta Region (mainly Inuvik and Tuktoyaktuk), and probably also Yellowknife. The Project Benefits Agreements with Aboriginal authorities might promote business opportunities in the smaller communities during the operations phase, but the details of how they might do so were not disclosed to the Panel.

EMPLOYMENT AND LABOUR INCOME

The Proponents estimate that the operations phase would generate an annual average of over 600 jobs for NWT residents, of which just over 30% would be directly with the Proponents. Annual labour income would be \$48 million (nearly \$75,000 per job). This additional labour income would be an increment of about 3% over current levels in the NWT. In this respect the

benefits of the Project's operations phase on the economy of the NWT would be substantially less than those resulting, for example, from ongoing diamond mining. The regional distribution of operations employment would be heavily weighted to the Beaufort Delta Region and to Yellowknife. The Proponents estimate that the Sahtu and Dehcho regions combined would likely obtain only a 6% share of the Project's NWT employment.

Both the ASEP and PFOTP training programs would contribute to NWT residents gaining durable skills and employment during the operations phase, and the Panel has recommended that these be continued (Panel Recommendation 15-4 and 15-6).

REVENUES TO GOVERNMENTS

The Proponents estimated that revenues to governments from Project activities and revenues during the first 20 years of operations (taking into account the offsetting effects of the TFF grant), would be:

- \$70 million annually to NWT for 20 years (6% increment on 2006 revenues); and
- \$285–\$445 million annually to Canada.

Federal revenues are rough approximations, in part because the royalty portion of federal revenues is highly sensitive to gas prices, and would not be payable in full for at least the first 6 years of the 20-year period.

These revenues would consist primarily of corporate and personal income taxes and, in the case of the federal government, royalties. The Proponents based the NWT revenue forecasts on the assumption of a gas sales point in the NWT, but this was not confirmed by the close of the Panel's record. To the extent that some portion of the Proponents' corporate taxes on their gas revenues generated in the NWT become payable in some other jurisdiction, the potential benefits to the GNWT would be reduced.

If the Proponents' estimates are correct, then revenues to both the GNWT and to Canada would exceed forced growth expenditures by a substantial margin, and these revenues would continue for a minimum of 20 years. However the Panel notes that the Proponents' estimates were based on a throughput of 1.2 Bcf/d. At a throughput of 0.83 Bcf/d (a scenario for which the Proponents did not provide an estimate), net revenues to the GNWT might or might not exceed its predicted forced growth expenditures.

15.8.3 PROJECT LEGACY

The key Project legacy would be the gas processing and delivery system itself — the IAF, the Mackenzie Gathering System, and particularly the MVP — which provides essential infrastructure for future gas development in the NWT. As with mining operations, the Anchor Fields have a more or less defined life after which they are depleted. Construction of the pipeline on the other hand

is an investment in infrastructure. The life of the MVP would likely exceed the life of the Anchor Fields, perhaps by a significant factor.

With the MVP, there would likely be more development of gas resources in the Mackenzie Delta and off-shore, and perhaps in the Colville Hills, the Eagle Plains and the Peel Plateau areas of the northern Yukon. Without it, such developments are much less likely, at least in the foreseeable future. In the Panel's view, it is the pipeline infrastructure that holds the promise of continuing exploration and development and the possibility of sustained and durable economic activity throughout much of the Project Review Area. The pace and scale of exploration and development are of concern, and the Panel has made recommendations to modify them (Panel Recommendations 11-7 to 11-11 and 18-19). The alternative, however, is a continuation of the current pattern of episodic, unpredictable bursts of short-term exploration activity followed by economic slowdowns.

The durable net benefits of the construction phase itself — in terms of labour force development, the development of business capacity and government revenues — may be relatively small. Construction-phase economic benefits are mainly short-term and non-durable: a brief window of employment and business opportunities. This is not to suggest that the economic benefits of the construction phase are inconsequential, but rather to point out that they would be of limited duration and also of limited geographic distribution. The short-term benefits to both business and labour in the Beaufort Delta Region would be substantial. This would be not only because that is where most construction activity would occur, but also because both business and labour in that region already have more capacity based on experience and training to take advantage of those benefits. There would be some further development of labour force skills and experience, but the magnitude, transferability and durability of that development is uncertain. Direct employment in the construction phase would be mostly seasonal and would require rotational work at remote sites. For many residents, perhaps especially in the smaller communities, that seasonality of employment may be desirable and beneficial in the short term with respect to employment and income. It might not necessarily be beneficial in terms of durable labour force capacity, as the longer-term utility of the skills acquired in training or on the job might be limited. More promising, although the specifics are unclear, might be the longer-term benefits arising from procurement and indirect employment opportunities, more likely in the regional centres than in the smaller communities.

The operations phase of the Project would provide sustained benefits to the NWT for at least twenty years. Procurement and business opportunities would be enhanced for the entire period. Training initiatives would more likely lead to employment because as job opportunities become available on a continuous basis, the timing constraint of a single, limited opportunity disappears, and possibly also as the demand for skills becomes more diverse. In this regard, the training fund that would be

jointly established by the Proponents and the GNWT under the SEA would be a significant legacy of the Project, because it is not directed primarily to the needs of construction or operations but rather to employment that could become available under the Expansion Capacity Scenario. The program would endure through to decommissioning and the potential benefits would likely be more evenly distributed throughout the Project Review Area in the NWT.

Durable construction phase legacies of local infrastructure, incidental Project business opportunities or government revenues would be limited. The legacy of camp facilities to the NWT housing stock, despite the provisions of the SEA, appears to the Panel to be unlikely on balance. There would be no long-term benefits to the NWT's road and highway infrastructure as a consequence of Project construction, although some airports might be upgraded. Short-term demands would be placed on both rail and river transport, which would likely involve some upgrades to both systems. This would include some dredging at critical points in the Mackenzie River Delta, although as this is required chiefly for the Project's Very Large Modules, there is no obvious legacy for the regular river transport system from Project dredging. However there would be some long-term benefits from wharf construction and improvements.

The Project's draw on the region's granular resources would be substantial, particularly in the ISR. However in some locations, including the ISR, this might be offset by the Proponents' development of new sources and access roads, which could make new supplies of granular resources economically accessible to both territorial and community authorities. On balance, the legacy with respect to granular resources may be neutral at best.

Project construction would necessitate the clearing of a very large amount of merchantable timber along the right-of-way. A limited amount of this timber might become available as decked timber for potential use as fuelwood by some communities near the right-of-way, chiefly in the Dehcho and to some extent in the Sahtu. In the Panel's view, however, the economic viability of retrieval appears marginal. The Proponents' demand for lumber for construction purposes, although substantial, would be for the most part filled by imported material. With neither effective commercial demand for harvested merchantable timber, nor much possibility of its economic use for domestic purposes, much of the timber would be burned or left to rot. Whether this timber harvest would result in stumpage fees for the territorial government was unconfirmed at the close of hearings.

A positive likely consequence of the pipeline infrastructure would be to enhance the value of oil, gas and mineral rights in the Project Review Area. This would be of benefit to both Canada and to private land owners in the region, specifically those Aboriginal groups that have land claims agreements in place. However the Panel was provided no specific information on this matter.



Workforce

Source: David Watt

Over the long term, Project increments to government revenues would more than offset ongoing costs to governments associated with the Project, and probably by an increasing margin over time. In the Panel's view, some portion of these funds should be dedicated to planning and investing in a transition from the eventual winding down of the Project. The Panel has recommended that the GNWT establish mechanisms for funding transition programs, based on revenues it would obtain from non-renewable resource royalties (Panel Recommendations 15-12 and 15-13).

The Proponents suggested that one possible legacy of the Project's operations would be a supply of natural gas to communities. The Project would very likely extend and increase gas supply to those communities already dependent on gas such as Inuvik and Norman Wells. However in the Panel's view, very few other communities are likely to realize this benefit in view of the costs of providing the necessary infrastructure.

15.8.4 EXPANSION CAPACITY SCENARIO

The Panel was provided relatively little information about the potential impacts of the Expansion Capacity Scenario, except insofar as the Proponents' quantitative estimates of the impacts of the operations phase in fact included elements of the Expansion Capacity Scenario. Consequently the foregoing assessment of the operations phase applies in large measure to the effects of increased activity leading to a throughput of 1.2 Bcf/d. The Panel's observations on the impacts of continued development of gas fields to bring the MVP up to its full potential throughput of 1.8 Bcf/d are therefore necessarily speculative.

The Panel expects that the impact of the Expansion Capacity Scenario on the GDP would be larger and last longer than for the Project as Filed because, as more gas fields are brought on stream over time, both the effective life of the Project and the duration (and likely the durability) of benefits would be extended. The magnitude of GDP benefits would depend to a significant extent on gas prices. Increased gas production over time would likely benefit northern business, increase employment and labour income, and increase government revenues. The APG would also be a key beneficiary of such a scenario but the magnitude of those benefits would depend on timing.

The Panel is reasonably confident that there would be enhanced economic benefits offered by the Expansion Capacity Scenario. In the Panel's view, however, it does not necessarily follow that other future developments at an unrestrained pace and scale would be similarly beneficial at the regional scale. Optimum and sustainable long-run benefits are more likely to be achieved if economic growth and economic and social capacity move ahead consistently. It is conceivable that the pace and scale of future developments could be so large and so rapid as to outstrip the capacities and resilience of northern people, firms and governments to adapt and to ensure that economic benefits continue to outweigh fiscal and other costs.

The GNWT would carry the chief burden of costs in dealing with the Project, other than the MGPIF. However, the GNWT would receive little Project revenue directly and, to the extent that its revenues are increased, much of this increase would be offset by the TFF. Under any scenario, a revenue sharing agreement between Canada and the GNWT is needed to increase the revenues flowing directly to NWT governments (Panel Recommendation 15-11).

CHAPTER 16

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CHAPTER 16

SOCIAL AND CULTURAL IMPACTS

16.1 INTRODUCTION

Many participants in the Panel's hearings, regardless of their position on the Project, consistently raised concerns with the existing state of social conditions in the communities in the Project Review Area and the potential for the Project to make matters worse. A particular concern was that there would be an increase in alcohol and drug abuse resulting from an influx of migrant workers and of money, with adverse effects on social and personal well-being in the communities. Another was that the existing system of health, social and policing services in the Northwest Territories (NWT) would not be able to cope with the added demands of the Project. These concerns were acknowledged by the Proponents.

These concerns were also noted in submissions and statements by organizations and individuals during the Panel's hearings, and in the reports of regional workshops conducted by the Government of the Northwest Territories (GNWT) and filed with the Panel. The need to address social conditions was recognized by the federal government in its establishment of the Mackenzie Gas Project Impacts Fund (MGPIF) which is intended to address both the existing situation and the impacts of the Project.

The Panel held five days of hearings specifically on socio-cultural issues. These matters were also raised in hearings devoted to economic impacts, harvesting and land use, and in every community hearing.

This chapter begins with a consideration of the approaches and methods for assessing socio-cultural impacts, and a review of existing conditions based on the information received by the Panel. The chapter then considers, separately, the direct and indirect impacts of the Project.

The Proponents have committed to mitigating the direct impacts of construction activities through hiring, transport and workplace policies. The Proponents acknowledge that there may be indirect impacts to which the Project might contribute, relating to social well-being and the delivery of health, social and protection services. In the Proponents' view, addressing these impacts is the shared responsibility of governments, organizations and individuals, as well as themselves, and the Proponents have proposed, or in some cases jointly established, mechanisms for addressing these issues.

The Panel has considered both the Proponents' mitigations and the proposed measures by other parties in assessing indirect impacts. In the Panel's view, it is difficult or virtually impossible to measure the Project's indirect social and cultural impacts, or to specify whether they would in fact exacerbate existing conditions. The Panel has therefore focused on considering how the Project might provide an opportunity to ameliorate these conditions.

The chapter concludes with a consideration of the key measures proposed to address indirect impacts, including the Socio-Economic Agreement (SEA) between the Proponents and the GNWT, and the MGPIF.

16.2 APPROACH AND METHODS

16.2.1 PROPONENTS' VIEWS

The Proponents identified the key challenges as:

- preventing Project construction phase effects from adding to the severity of existing conditions; and
- developing measures that would reduce adverse social effects and increase opportunities for cultural development.

The Proponents' approach to assessing social and cultural impacts included the identification of the key Project forces or "drivers" that would affect social conditions, and an overall focus on wellness and well-being.

In the Proponents' view, the primary analytically-relevant driving forces affecting well-being conditions include:

- income levels, particularly how individuals spend increased disposable income;
- duration of work period separations from home;
- family and community levels of stress; and
- availability of alcohol.

The Proponents stated that the purpose of the Environmental Impact Statement (EIS) was to describe recent historic and current circumstances of the communities and people potentially affected by the Project. The Proponents focused on:

community wellness, which is a deliberately broad term that includes the physical, emotional, social, cultural and economic well-being of a community, including individuals, families and the community as a whole. ...Community wellness is often the most highly valued aspect of community life. The state of community wellness depends on the well-being of all aspects of a community — individuals, families, and the community as a whole. (EIS V4, Section 1, pp. 1–2)

The Proponents stated that wellness may be significantly enhanced by Project benefits and vulnerable to its adverse effects.

The wellness indicators selected related chiefly to mortality and morbidity, alcohol-related illness, violence, criminal offences, youth crime and children taken into care. The Proponents noted that these indicators are often negative measures which together can paint an unattractive picture of any community. The Proponents stated that, although more positive indicators of well-being exist, they are not routinely collected and analyzed on a broad geographic basis. The Proponents further stated that the routinely collected administrative data that can be analyzed is largely of negative indicators because these measure problem conditions that various administrative and helping agencies need to deal with. The Proponents indicated that in such situations there was an advantage to using those indicators because it leads directly or more directly to potential mitigation if it is discovered that there may be a potential effect on a negative wellness indicator, then it also suggests certain actions are possible to lessen that effect.

The Proponents derived quantitative measures of their wellness indicators from the following official sources:

- the Census of Canada;
- special surveys conducted by the GNWT and especially the NWT Bureau of Statistics;
- GNWT Health and Social Services; and
- RCMP administrative records.

Some of the data are for a single year, others cover varying periods of five to eight years between the early 1990s and early 2000s.

In response to questioning about why they did not also use more detailed, community-specific quantitative economic data, the Proponents stated that "we had to have a consistent basis across the territories for all regions...we had to establish data sources that were available for each region." (Roy Ellis, HT V66, p. 6587).

The Proponents acknowledged several limitations in the use of the data, in particular the problem of low-frequency data at the community level. These limitations included frequencies being too low to be reported or held confidential because of low frequencies, and random rounding of small numbers.

The Proponents obtained qualitative information from "interviews with community and territorial officials and other knowledgeable people," as well as a public participation program intended among other things to identify key issues and concerns. (EIS, V4, Section 1, p. 13) Both quantitative and qualitative information were supplemented by literature reviews.

The Proponents stated:

At every stage, the assessment benefited from informed source input from the public, community and regional leadership, and local and regional professional service delivery personnel. ...the assessment...depended heavily on the professional judgment of the analysts, and this was based on their training, experience and the qualitative information provided in these consultations. (J-IORVL-00119, p. 262)

In assessing community wellness, the Proponents stated that they considered how Project impacts may affect the well-being of individuals, families and communities as well as the effectiveness of family and social service delivery. The Proponents submitted that the emphasis was on family and community as generally, if family and community relationships are caring and supportive, the well-being of individuals is ensured. The Proponents also noted that social services are delivered in many of the smaller communities in the NWT through community wellness centres and that the most frequent and persistent problem that these centres must address is substance abuse, primarily alcohol abuse. In the Proponents' view, Project impacts on community wellness would depend in part on the responses of individuals to the key Project forces or "drivers," the choices they make, and the behaviours they engage in.

The Proponents also relied on several case studies that examined the effects of early petroleum development in Alaska, the Beaufort Delta Region and Norman Wells, in support of their hearing presentation on socio-cultural impacts. In the Proponents' view, these studies were relevant because they examined the kinds of influences the Project would represent, and were consistent with their own assessment of Project impacts. The Proponents stated that an important purpose of the case studies was to demonstrate resilience in Arctic communities, that is, "an ability to respond and accommodate or adapt to change." The case studies provided compelling evidence "about the resilience of Arctic peoples to a long period of acculturation and change influences." (Gord Rozon, HT V85, pp. 8461–64)

In response to questioning, the Proponents acknowledged that in analyzing these studies, they had not examined the limits of resilience or the varying circumstances of the communities selected. They also characterized the case study information as indicative rather than conclusive, in part due to the complexity and wide-ranging nature of the factors influencing culture and social change.

16.2.2 PARTICIPANTS' VIEWS

Few participants commented directly on the Proponents' approach and methods. However, Indian and Northern Affairs Canada (INAC), for example, noted that:

the EIS...only appears to describe discrete information, rather than patterns, on the existing socio-cultural environment. In addition, little or no information appears to be provided on the aspects of community socio-cultural patterns and

social organization. ...As a result, there is little demonstrated understanding of social stability and cohesion within the communities. While the EIS...provides information on social indicators, an evaluation of the potential impacts of the Project on social and cultural patterns and cohesion... appears to be absent. ...Due to the lack of information in the EIS...regarding social and cultural patterns and cohesion, it is therefore not possible to determine the impacts, and their significance, on social and cultural patterns and cohesion. (J-INAC-00002, p. 107)

The GNWT indicated that it analyzes and reports on health and social conditions in the NWT using a range of data sources. The analyses it performs enable the GNWT to understand and address the health challenges it faces in the North and to compare its progress against other territories and provinces. The GNWT stated that the indicators that illustrate the overall health of the population in the NWT include:

- life expectancy;
- infant mortality;
- self-rated health; and
- social support.

The GNWT also stated that the following indicators of health and social well-being could be exacerbated by the Project:

- injuries;
- alcohol consumption;
- drug abuse;
- depression;
- suicide;
- sexually transmitted infections;
- gambling;
- child abuse and neglect;
- family violence; and
- crime.

Health Canada stated that it approaches socio-economic impact assessment through the lens of the social determinants of health. Health Canada indicated that a Federal, Provincial and Territorial Advisory Committee on Population Health had examined the issue of what makes people healthy and had identified the social determinants of health as including:

- income and social status;
- personal health practices and coping skills;
- education;
- social support networks;

- housing;
- employment and job security;
- food security; and
- culture.

16.2.3 PANEL VIEWS

The Terms of Reference for the EIS required the Proponents, in describing the existing environment, to consider “its current state, including trends and recent changes,” to “recognize the dynamic nature of the environment,” and to “predict the condition of the environment within the expected lifespan of the Project, if the Project did not proceed.” The Proponents were further directed that “an important objective is to distinguish between the Project’s effects on the environment and the effects of other factors.” (TOR, pp. 23–24) “The description of the human environment shall [take] full account of the distinctive ways of life of local communities, the critical requirements for their maintenance and enhancement, and [their] aspirations and plans,” and shall have “due regard for the distinctive economic and social role of subsistence and commercial harvesting, and other uses of lands and resources for traditional purposes by aboriginal and other local persons.” (TOR, p. 33) The EIS was to also “consider the status, health, persistence, vulnerability and resilience of those features of the local economy.” (TOR, p. 33) The Proponents were also directed to describe their public participation program and how this informed the EIS.

The Panel understood these requirements to mean that a sound baseline requires not simply a snapshot of the current situation, but also an understanding of the essential characteristics, dynamics and trends of society and economy in the Project area, and how these might evolve in the absence of the Project. Further, the baseline should rely not only on quantitative data, such as might be derived from government or other agencies, but also on the views and information of residents of the Project area. While the baseline must be informed by the issues and concerns identified by the consultation program, as a basis for the selection of valued components, issues identification alone does not constitute a baseline description of the environment.

As a result of its initial review of the EIS, the Panel directed the Proponents to provide further justification and explanation, along with additional information, with respect to their baseline account of socio-cultural and socio-economic conditions, and to provide a community-specific presentation of this information. Similar concerns about both the quality and sufficiency of information in the socio-economic baseline were expressed by numerous interveners in their information requests. In the Panel’s view, it was important to understand the differences in socio-economic circumstances and trends not only among regions but among communities, and particularly between the regional centres and the smaller communities, in order to assess Project impacts.

The Proponents’ tables generally summarized data from a variety of official sources that were non-standard with respect to geographical coverage, reporting date or interval. Consequently the variables are often non-comparable and not amenable to cross-tabulation for the purpose of establishing associations and relatedness. Further, as none of the data cover a period longer than ten years (and often much less), it is rarely possible to establish either the range of variation or the trends in any particular indicator with any confidence.

The Proponents made little attempt to explain any of the trends described by the data. Without explanations it is very difficult to make plans for enhancement or mitigation of the Project’s effects. With neither explanation nor cross-correlation among variables, the mere provision of numerical tables does not and indeed cannot constitute an assessment of the current situation and dynamics of the regional economy and society, nor can it address such matters as resilience, vulnerability, social cohesion or social capital. Furthermore, although the Proponents asserted that they used both professional opinion and community consultation for qualitative information to supplement the quantitative data provided, there is rarely any attempt to use this information to ground or explain the quantitative data. Neither are the qualitative data specifically attributed or brought to bear as reasoned arguments to explain any particular fact or issue.

In the Panel’s view, the result is a quantitative record of limited utility, a paucity of qualitative data and information with which to describe conditions that do not yield to numbers, and the absence of explanation of existing conditions or the relationships among key variables. The Proponents did not provide an evidence-based assessment of resilience or vulnerability, or of trends and of likely trajectories in the absence of the Project. However, the GNWT provided helpful supplementary information on general trends and comparative rates.

As noted in Chapter 5, “Approach and Methods,” a sound baseline understanding of existing socio-cultural conditions is required for the review process itself and to provide a basis on which to verify impact predictions, to monitor the effectiveness of project mitigations and enhancements, and to modify them as necessary. These two rationales would apply to any project environmental assessment, but in this case there is a third and more specific reason. Should the Project proceed, the Government of Canada is committed to providing \$50 million a year for ten years specifically to address the social impacts of the Project. The parties responsible for implementing the MGPIF would need this baseline to identify the problems that need attention, establish priorities and evaluate success.

In the Panel’s view, the socio-cultural baseline provided by the Proponents, in combination with the information from the GNWT, and as supplemented by the oral and written submissions of participants, provided a sufficient basis for the Panel to judge the likely significance of the effects on socio-cultural conditions.

However, the Panel is of the view that, if the Project were to proceed, there would need to be substantial effort applied to the design of the monitoring program to ensure that the impact predictions are accurate, that proposed mitigations are working and that unanticipated Project effects are detected, all in sufficient time to enable adjustments as required. There would also be a need to ensure that socio-economic baseline information be adequate for this purpose. The Panel notes that the SEA includes provisions for monitoring, reporting and adaptive management, but none specifically for the development of the required socio-economic baseline.

In the Panel's view, the requirement for adequate baseline information applies to all those who will be responsible for monitoring effects, testing effectiveness of mitigations and for implementing follow-up programs. This means that it would be in large measure the responsibility of governments, organizations and communities, not the Proponents, to ensure that an adequate baseline of information becomes available. The Proponents should, however, contribute information that they themselves generate or capture to that larger project.

The Panel has made recommendations concerning these matters in Chapter 18, "Monitoring, Follow-up and Management Plans."

16.3 EXISTING CONDITIONS

16.3.1 HEALTH, SOCIAL WELL-BEING AND COMMUNITY CONDITIONS

PROPONENTS' VIEWS

The Proponents provided numerous tables showing the incidence and rates of health conditions such as respiratory diseases, infectious and parasitic diseases, sexually transmitted infections, accidents, injuries and poisoning, and mental disorders. Indicators of family and community wellness included alcohol and drug consumption, hospitalization for alcohol-related illness, incidents of spousal assault, child abuse, sexual abuse, numbers of teen pregnancies, family violence, rates of children taken into care, numbers of *Young Offender Act* offences, and numbers of violent crimes and crimes against property. These tables suggest that many of these rates are higher than the national average and that within the NWT, in many cases, these rates are higher in the smaller communities than in the regional centres. The Proponents stated that the NWT has long-standing, challenging socio-cultural conditions.

PARTICIPANTS' VIEWS

The GNWT provided a summary of health and social baseline conditions. Over the last two decades, improvements in health status have extended the life expectancy of persons in both the NWT and Canada as a whole. The infant mortality rate in the NWT has improved slightly in recent decades and is approaching national rates.

The GNWT noted that in 2005, 63% of the population self-rated their health to be excellent or very good, above the national average of 60% and a total of 89% of NWT residents rated their health as good or better. 80% of NWT males and 84% of females reported a high level of social support in their lives in 2000–2001.

The GNWT noted that injuries are the third leading cause of death in the NWT, after cancer and cardiovascular disease, and the leading cause of premature death. While the NWT injury death rate had decreased by about half during the 1980s and remained stable in the last decade, it was still more than double the Canadian rate in 2001.

The GNWT noted, with respect to alcohol consumption, that the percentage of persons 15 years of age or older who reported drinking heavily during 2003 (33%) was about double the percentage in Canada as a whole. This percentage was slightly higher in smaller communities, and males and persons aged 15 to 29 reported significantly more heavy drinking (being defined as having 5 or more drinks at one time, 12 or more times per year).

The GNWT reported that in 2003, 5% of NWT residents 12 years of age or older reported a major depressive episode. This rate was slightly lower than the rate for Canada as a whole (7%). The NWT suicide rate was 2.2 per 10,000, about double the rate for Canada as a whole. These rates were significantly higher in the small communities as compared to Yellowknife. Although the rates fluctuate substantially from year to year due to the small population, suicide rates have been continually and significantly higher for males and for persons aged 15 to 24.

The GNWT observed that the rate of sexually transmitted infections in the NWT between 1999 and 2003 was 161 cases per 10,000, compared to 18 cases per 10,000 for Canada as a whole. In the smaller NWT communities, the rate rose to 288 cases per 10,000, approximately 16 times the Canadian rate.

According to the GNWT, these indicators reflect persistent health and social problems in the NWT which may be exacerbated by the Project and other non-renewable resource development activities.

Statistics presented in *Communities and Diamonds: Socio-economic Impacts in the Communities of: Behchokö, Gamèti, Whati, Wekweèti, Detah, Ndilo, Lutsel K'e, and Yellowknife, 2005 Annual Report* indicate that in recent years the trend has been in the direction of declining human health in small, rural NWT communities. In particular, indicators of incidence of potential years of lost life, sexually transmitted infections and suicides in small communities have been rising in the past decade.

The NWT's reported crime rate in 2004 was approximately 5.2 times the overall Canadian crime rate. Rates of drug offences and youth crime are well above national rates, and GNWT expects these rates will increase in the near future whether or not the Project proceeds.

In its submission to the Panel, the GNWT stated:

In 2004, alcohol was recorded as a contributing factor in 54% of all Criminal Code offences reported in the NWT. It plays a prevalent role in the majority of the NWT's violent crime. Typically, heavy consumption of alcohol leads to serious crimes such as assaults, sexual offences and even murders. These incidents predictably coincide with paydays or other flows of cash into a community. (J-GNWT-00214, p. 12)

In 2006, the GNWT Department of Justice commissioned a report entitled *Policing in the Territories: Report on a Public Consultation Process* that stated:

Community participants frequently expressed the view that alcohol and drug abuse underlie much of the criminal and anti-social behaviour they witness in their communities. In particular, property crime, domestic violence, assault, and creating a disturbance are seen as directly linked to alcohol or drug abuse in almost every case. Police generally agree with community assessments that substance abuse is strongly linked to property crimes and personal violence. (J-GNWT-00228, p. 25)

This report also attributed high crime rates to inadequate community programs, loss of parenting skills, loss of culture and respect for Elders and a lenient youth justice system.

The GNWT suggested that crime rates are high in the NWT due to the high proportion of youth and young adults, the age groups most likely to become involved in crime. However, the GNWT also pointed to the "consequences of the residential school system and the resulting illnesses and cultural loss, including patterns of addictions, disrupted attachment, loss of nurturing parenting models and suicide...[and] lack of education and employment [as] key contributing factors to a high crime rate. (J-GNWT-00214, pp. 9–10)

Some participants linked drug and alcohol abuse to increasing incomes:

[S]ince Fort Liard got some money, there has been a little bit of increase, alcohol and violence since the little bit of the money that we got. Like ten years ago, we got a little bit of money, so some of the violence went up. I was wondering, if the pipeline is built and if we get some money, would it increase even more? (Shawn McLeod in Fort Liard, HT V28, p. 2564)

Money brings a lot of destruction: alcohol, drugs. So money brings all that destruction. (Gabe Kochon in Fort Good Hope, HT V22, p. 2060)

Lack of preparation to manage increase in income. Result has been increased alcoholism, drug abuse and results in tension in the individual and family unit. Aklavik is currently dealing with anticipated social problems. (Carol Arey in Aklavik, HT V97, p. 9723)

It is historically evident that along with increased income, northern communities will experience an increase in alcohol abuse. Aklavik presently struggles with the effects of drug and alcohol-related crime and socially unacceptable behaviour. Alcohol abuse will result in various forms of family abuse and violence, creating serious adverse effects on family and community relationships and well-being. (Mayor Knute Hansen in Aklavik, HT V97, p. 9713)

[W]hat I saw happened to close friends and family is that they worked hard for that money, in a very short time. They knew that job wasn't going to last for a long time; you know, that the oil companies are not going to be there for the next 20 years so they could work long enough and retire from being in the jobs that they are, whether you're working in the kitchen or you're a labourer or you work on the rig. It was... during a very short period. After two weeks, you come to town with lots of bucks and your friends know you got lots of bucks and, if you weren't taught how to manage money, if you never even had a bank account before, most times you would spend that money until it was gone. And you'd be glad to go back to work because you know you're going to get up and go to work every day and you're going to have your three meals a day after putting in a hard day's work and you're accumulating your money again for the next time. So I'd say a lot of people during that time were unprepared to handle that money. They didn't have the financial know-how that they needed to have. Not many people thought about investing that money, putting it away for the future. A lot of the workforce then was young. I know people that invested in a vehicle but a vehicle only lasts three or four years if you can afford it. All of that and plus, culturally, we didn't go to a bank. We didn't put money away, you know, because we didn't have banks. My parents didn't have banks in their day. It was done through the stores and so our people went from fur as being their trading commodity. You know what I mean there, bartering, from using that to getting cash. So it wasn't all that long ago. So there's the history to how money was handled in our past because we don't come from a past like you. (Yvonne Camsell-Kisoun in Edmonton, HT V83, pp. 8300–8301)

Drugs, that seem to be a big problem in the North. It's getting into the hands of 10-year-old kids, and you know — in small communities, and you know it's coming from development. Wherever there's money, we're going to have problems. (Chief Ronald Pierrot in Fort Good Hope, HT V22, p. 2044)

Dr. Brenda Parlee, a consultant to the Deh Gah Go'tie Dene Council, disagreed with the Proponents' focus on individual choice, stating that structural determinants of social health include "income and equality, self-determination, cultural continuity, education," that contribute to individual decision making. (HT V80, p. 7919) She stated that these factors contribute particularly to youth vulnerability to potential adverse effects of development, and that the Project would constitute

a short, sharp spike of change. She referred to studies that emphasized self-determination and cultural continuity as possibly more important factors than income and employment with respect to youth wellness, and related this to unfinished self-government negotiations in the Dehcho region.

Health Canada also pointed to loss of land and culture and cultural discontinuity as contributors to poor health status, and also cited studies of youth suicide pointing to similar factors.

Yukon Government representatives blamed the problems of family violence and substance abuse on increased income and the stress of rotational labour.

Some community leaders suggested that the Project could bring improvements in social conditions:

Every community has its share of problems with alcohol, drugs, Elder, spousal and family abuse, and Aklavik is no different. Many people will say that the pipeline will increase social problems in the community, and maybe it will for a time. And maybe the pipeline will also give communities the opportunity to face and address these social problems. The Mackenzie Gas Project, if approved, has committed the Government of Canada to flow \$500 million to the communities to address and set up preventive measures through a social agenda. This money will give the Gwich'in communities the flexibility and the opportunity to educate themselves on social abuse and to build the necessary infrastructure. We must also remember that alcohol and drug abuse will be with us whether there is a pipeline or not. Our world is changing every day, and with new technology and means of travel, new drugs and stimulants are flowing into the major centres where our people are exposed, and this trickles down to the smaller communities. Our future generations, who are educated and given choices and the opportunity, through development, can challenge and address alcohol and drug abuse with more responsibility and efficiency. (Chief Charlie Furlong in Aklavik, HT V97, p. 9754)

Without development, things can probably stay the same. We will still have to face the alcohol and drugs and lack of jobs, lack of teachers, lack of police, lack of the necessary infrastructure to counsel our people who are having problems. That kind of life will continue, but I think with development and conditioning it, we will be able to open new opportunities, and opportunities that I believe will allow choices for our younger generation. (Furlong, HT V97, p. 9756)

We will never beat alcoholism and drug use and the social difficulties we have. We will never turn around the loss of the language and the languages that we have. We will never be able to put our families back together and work on the internal divisions that we have as communities and have any capacity to do that, and the pride and the dignity with which to treat one another and come back together, until we are given our resources back and the shared resources from the

development of the resources of this country. We need a share of that revenue and we need it now. (Stephen Kakfwi in Fort Good Hope, HT V23, p. 2126)

PANEL VIEWS

The Panel heard many different views on the reasons for current conditions, including past experience with resource development, the residential school experience and the lack of self-determination. The Panel is not in a position to pass judgement on these views or to determine the chief contributing causes of current conditions. At the same time, however, the Panel notes that the absence of sound diagnosis of these conditions makes the choice of strategies to correct them more difficult, and also makes follow-up programs related to Project impact more challenging.

16.3.2 HEALTH CARE, SOCIAL SERVICE AND PROTECTION FACILITIES AND SERVICES

PARTICIPANTS' VIEWS

GNWT Health and Social Services stated that the department's goals are to promote healthy choices and responsible self-care, to protect public health and prevent illness and disease, to protect children and vulnerable individuals from abuse, neglect and distress, and to provide integrated, responsive and effective health services and social programs for those who need them.

The department pursues these goals through the implementation of the Integrated Service Delivery Model (ISDM), a team-based, client-centred approach to providing health and social services. Three levels of care are offered in this model — primary care provided at the first point of contact with the health and social services system; secondary care which involves referred services within the NWT that respond to advanced and/or specialized needs; and tertiary care involving more specialized diagnostic and treatment services that normally must be accessed outside the NWT.

The GNWT described the ISDM as "a work in progress":

depending on what community you're in, all the building blocks may or may not be in place yet, which doesn't mean the collaboration doesn't occur, but maybe not all the pieces are there yet. So if you were to take a snapshot at a point in time, I would say we're probably 65 percent there. In some communities, you know, you might be 85, 90 percent there. Other communities you're only 50 percent there. (Warren St. Germaine, HT V84, p. 8391)

The GNWT stated that almost all communities with more than 100 people have a health centre staffed by registered nurses (some with nurse practitioners) providing emergency and acute care services. Some health centres have the capacity to provide basic radiology, and some provide non-inpatient observation and stabilization beds. Once the ISDM is fully implemented,

every community will have access to a basic team of primary health and social services care providers and to some diagnostic services. All communities will have access to clinical assessment and treatment, front-line counselling, first aid, emergency care, after care, and monitoring of a plan of care. In very small communities, some of these services will have to be offered through visiting staff (a team of providers) with a system of referral and consultation for advanced assessment, care and treatment.

With respect to shortages, stresses and budget constraints across the region, the GNWT indicated that there are ramifications throughout the region, stating that:

If it's a staffing shortage or...a budgetary problem within the region, because the region has to work within the resource envelope that it has, and in trying to manage its resources or if there's a budgetary or a human resource pressure, then it does create stresses within the region or outside the region. So if you have a staffing shortage at a health centre...or at a hospital, let's say the Inuvik hospital has a shortage in staff, it may require a patient to be shipped outside the region and put a service delivery pressure outside the region. So the pressure is not only within the region but outside the region. (St. Germaine, HT V84, p. 8328)

In 2007, the health and social services system in the NWT operated on a budget of \$265 million, with a workforce of 1,370 active positions, including 77 physicians, 408 nurses and allied professionals, and 129 social workers. There are four hospitals in the NWT located in Yellowknife, Inuvik, Hay River and Fort Smith.

Environmental health programs deal with issues around safe water, safe food, air quality, environmental contaminants, waste and sewage disposal, infectious disease outbreak control and emergency preparedness. There are seven environmental health officer positions in the NWT, with four incumbents located in Yellowknife, one in Hay River and two in Inuvik.

Mental health and addiction services are provided by 45 community wellness workers and 32 mental health and addiction counsellors and clinical supervisors. There is one alcohol and drug treatment centre in the NWT, a twenty-bed facility located on the Hay River Reserve. The GNWT indicated that the Hay River facility was not operating to full capacity.

Withdrawal management programs are offered at Stanton Territorial Hospital, Inuvik General Hospital and at the Fort Smith Health Centre on an inpatient basis. The Salvation Army in Yellowknife provides a social withdrawal inpatient unit. Alcohol and drug treatment services are also provided in southern settings, when the needs exceed NWT capacity.

Child and family protection services are provided by community social workers under the authority of the *Family and Children's Services Act*. Family violence shelters are located in Tuktoyaktuk, Inuvik, Yellowknife and Hay River.

The GNWT intends to improve health services, whether the Project proceeds or not, by creating over 100 new positions territory-wide, developing new programming in health promotion and Aboriginal wellness, and providing new public health units.

The GNWT also described other initiatives undertaken to advance health care in the NWT, such as improved training for workers in the area of mental health and drug and alcohol addictions, moving from an institutional approach to treatment to a community-based approach and closer geographic integration of services.

In its submission to the Panel, entitled *A Report to the Deh Gah Got'ie Dene Council of Fort Providence: Perspectives on the Socio-Cultural Effects of the Proposed Mackenzie Gas Project, January 2007*, the Council pointed out the insufficient drug and alcohol services in the region.

The GNWT Health and Social Services report, *GNWT Beaufort-Delta Regional Workshop on the Social Impacts of the Mackenzie Valley Gas Project*, listed the following constraints on health services:

- Demand already exceeds capacity
- Emergency response is inadequate
- Lack of services and resource people in small communities; not all communities have full-time nurses/staff
- Retention of [Health and Social Services] staff is short
- Lack of mental health workers, Drug and Alcohol counselors, psychiatrists, treatment centres and detox centres
- Lack of addictions aftercare/support programs
- Change of diet — stores not selling country food/reduced quality and pride in food — increased diabetes
- Lack of information/awareness around nutrition and healthy lifestyle
- Lack of suicide prevention and intervention, counseling
- Lack of traditional knowledge specialists working with health care system/professionals (J-GNWT-00040, p. 5)

Some of these comments were repeated at other regional workshops. The report *Sahtu Regional Workshop on the Social Impacts of the Mackenzie Valley Gas Project* indicated that there are "inadequate numbers [of] health and wellness staff to respond to social issues and meet the current demand for services, and a lack of action on health and wellness issues." (J-GNWT-00060, p. 8)

Many community participants asserted that there were not enough nurses, doctors, drug and alcohol counsellors, mental health workers and health professionals, and expressed concern

that the Project would overburden an already inadequate health care system.

The GNWT has responsibility for the administration of justice and public safety in a manner that respects community and Aboriginal values and encourages communities to assume increasing responsibilities, including policing, courts, corrections and community justice.

The GNWT has a Territorial Police Service Agreement with the Government of Canada, and under this agreement, the Royal Canadian Mounted Police (RCMP) provides a full spectrum of law enforcement and community policing services. The RCMP must also assist with unexpected major events such as multiple fatality incidents or natural disasters, and provide protection for visiting dignitaries. The majority of criminal cases are dealt with in the courts, although an increasing number of minor offences are handled through extra-judicial measures that are outside of the court system.

The GNWT, in consultation with the RCMP, has identified a number of pressing community safety and security issues as policing priorities. These priorities, which will be addressed whether or not the Project proceeds, include policing in small communities (ten small communities in the study region do not have full-time police presence), a strategy to combat drug and alcohol abuse (alcohol abuse is the most important adverse influence on family and community relationships), strengthening ties between the RCMP and the community, strengthening support services to victims of crime, expanding response to family violence and sexual assault (family violence is an unhealthy and dangerous way family members maintain power and control), and increasing First Nations Policing.

In addition to these specific programs, the GNWT described its plans for legislative and policy changes, including a proposed *Safer Communities and Neighbourhoods Act*, improving Legal Aid services, enhancing victim support services, revitalizing community justice and creating a modern northern correction system.

The GNWT stated that “Currently the RCMP in the NWT is operating at capacity with limited ability to absorb any increases in workload.” (J-GNWT-00214, p. 15)

In a report entitled *Government of the Northwest Territories Response to the NWT Action Plan on Family Violence (2003–2008): A Framework for Action*, the GNWT noted a heavy and rising use of family shelters, and related this to substance abuse. However these shelters exist in few communities.

Resident police are either absent from some communities or overburdened in others. Jails are overcrowded.

Never mind talking about taking care of industry when they come through that we need a nurse, we need RCMP, we need it today, whether industry comes or not. But most

importantly, we need them. We need those services when you have a mega project of this size that crosses our territory. (Tim Lennie in Wrigley, HT V27, p. 2517)

There are a lot of things that aren't very good for us. We don't have — we don't have the RCMP, and we don't have doctors that are taking care of us and a lot of things like that. (Albert Moses in Wrigley, HT V27, p. 2500)

The *GNWT Beaufort-Delta Regional Workshop on the Social Impacts of the Mackenzie Valley Gas Project* pointed out the following shortfalls with respect to the criminal justice system:

- Lack of RCMP in smaller communities
- System now — criminals get programs in jail — good but the resources have to be at the community level
- Young offenders falling through the cracks — 16–17 yr olds are not adults and not youth — social envelope departments need to work together — policy prevents them from getting proper help
- Backlog leads to untimely addressing of issues. (J-GNWT-00040, p. 8)

PANEL VIEWS

The GNWT information, along with participants' comments, indicate that the NWT's health, social service and policing institutions are understaffed and overburdened. Without advance preparation, the Project could overwhelm these services. The Panel addresses the need for these preparations in the following sections.

16.4 DIRECT PROJECT IMPACTS

In proposing mitigation measures to address potential Project impacts, the Proponents took responsibility for the measures related to minimizing interaction between their southern workforce and communities in the NWT. The Proponents also took responsibility for the possibility that people would move to the NWT to try to improve the likelihood of obtaining employment with the Project. Potential Project impacts on services provided by the GNWT are addressed in Section 16.5.

16.4.1 SOUTHERN WORKERS AND POTENTIAL INTERACTIONS WITH COMMUNITIES IN THE PROJECT REVIEW AREA

PROPONENTS' VIEWS

The Proponents submitted that there would be significant movement of Project-related employees from their designated points of hire in southern Canada to camps in the NWT and that the impacts associated with the spending of their wages and

salaries would occur in their home communities in the south. Workers would stay in camps, periodically returning to their families. Spending patterns, migration trends and work camp life could affect the quality of life and well-being of individuals, families and communities, and affect demands on family, social and policing services.

To avoid creating additional burdens on housing, local community services and infrastructure, the Proponents stated that they would accommodate the construction workforce in self-contained camps. The Proponents also noted that some specialist employees would need to be located in a regional centre.

The Proponents further stated that a condition of employment would require Project workers to stay in the camps. The Proponents noted that security personnel would check people leaving and entering camps and, if a Project worker refused to comply with restrictions on community interactions, the worker could lose his or her job.

The Proponents submitted there would be a substantial difference in impacts between those communities located adjacent to the pipeline right-of-way and those more distant. Those latter communities, such as Sachs Harbour, Holman, and Paulatuk in the Inuvialuit Settlement Region (ISR), Deline and Colville Lake in the Sahtu Settlement Area, and Trout Lake and Kakisa in the Dehcho region, would experience Project impacts on community wellness only if residents accept Project-related employment.

BEAUFORT DELTA REGION

Tuktoyaktuk would be the closest community to the development of the Anchor Fields and gathering lines and, according to the Proponents, its workforce is well experienced with oil and gas development. Inuvik would probably experience the greatest Project impacts among the Beaufort Delta Region communities given the proximity of two camps, and the number of employment opportunities and elevated income levels that many Inuvik residents would enjoy. The Proponents also noted that workers at both camps would arrive and depart via the Inuvik airport. This could increase the opportunities for interactions between camp-based workers and residents which could adversely impact community wellness.

SAHTU SETTLEMENT AREA

The Sahtu Settlement Area communities of Norman Wells, Fort Good Hope and Tulita would have the greatest exposure to the pipeline construction process. Norman Wells would be exposed to a proposed construction camp and a fuel, equipment and pipe storage depot, as well as an increase in arrivals and departures at the Norman Wells airport. Fort Good Hope would be close to another construction camp and various other construction-related facilities, with workers arriving and departing from the Fort Good Hope airstrip. Tulita would be close to the horizontal directional drill of the Great Bear River, the compressor station at Great Bear River, and the barge landing

and stockpile sites. As a result, the Proponents submitted that it would be more difficult to insulate these three communities from construction workers and their influences than it would be in other study area communities, with the exception of Inuvik. The Proponents also submitted that there would be little concern for Norman Wells given its long exposure to non-Aboriginal influences. However, they submitted this would not be the case with Fort Good Hope, which is an Aboriginal community that has had little experience with intense industrial activity close to the community.

DEHCHO REGION

Three Dehcho Region communities would be near Project facilities, including Fort Simpson, Wrigley and Jean Marie River. Project requirements in Fort Simpson would include fuel storage, pipe stockpile facilities and the use of the existing airport and barge landing. A construction camp would be located about 50 km south of Fort Simpson. The Proponents noted there would be substantial amounts of Project-induced highway, airport and perhaps barge traffic through Fort Simpson and that similar but smaller levels of traffic would be expected for Wrigley.

REGIONAL CENTRES: HAY RIVER AND YELLOWKNIFE

The Proponents indicated that substantial numbers of transient business or government agents would be attracted to both Yellowknife and Hay River. There are no construction camps planned near Hay River and Yellowknife.

NORTHWEST ALBERTA

The Proponents submitted that, because of the distance to Project construction sites and the abundance of local job opportunities, it would be unlikely that many people from this area would be interested in obtaining direct Project employment. The Proponents submitted that, aside from the substantially increased truck and railroad traffic passing through the communities, the Project would not be a source of significant intrusions or disruptions.

MITIGATION MEASURES

To reduce the potential that adverse impacts as a result of in-migration of southern workers to communities in proximity to the Project, the Proponents, as required by the SEA, would:

- institute closed work camps and house Project workers in these self-contained camps;
- implement measures to discourage Project workers in transit between camps and their home communities from entering other NWT communities, and discourage non-NWT residents from migrating to the NWT;
- implement and enforce policies and practices directed to ensuring that all Project work sites, including camps, would be alcohol and drug-free. Such policies and practices would include reasonable enforcement mechanisms, which may

include lawful inspections, searches and testing for alcohol and drugs;

- provide and fund cultural sensitivity and cross-cultural awareness training to all Project workers; and
- provide gender training to all Project workers.

The Proponents submitted that, as Project impacts would be restricted to construction, there would be no need for mitigation and no residual impacts during operations.

PARTICIPANTS' VIEWS AND RECOMMENDATIONS

The majority of participants' views related to measures at camps in relation to alcohol and drug policies, cultural awareness training and flexible work schedules to accommodate harvesting activities. In order to minimize the potential adverse impacts associated with interactions between construction camps and communities, community members expressed a strong desire during the Community Hearings for the construction camps to be closed. Representatives of Norman Wells expressed an interest in having the camp close to Norman Wells remain open.

Representatives of the Status of Women Council of the NWT (SWC) stated that they have seen the negative impacts of contact between southern workers and women. The SWC noted that young women in communities in close proximity to large camps are of particular concern. Accordingly, the SWC submitted that construction camps must not be located near communities, there must be strictly enforced zero tolerance of contact with communities and camps must be fenced and gated with security at all times.

PANEL VIEWS AND RECOMMENDATIONS

The Panel notes that there was wide support for the Proponents' use of closed camps to house their workforce, the measures proposed to restrict interactions with the communities, and the gender and cultural sensitivity training that the workers would be required to take. The Panel further notes that there was substantial examination of the Proponents' alcohol and drug policies, which is discussed in section 16.5.1. The Panel is of the view that the Proponents have committed to reasonable measures to avoid negative interactions between the Project workforce and communities in the NWT. The Panel notes that the Proponents' assessment of potential Project impacts has relied on closed work camps as a principal mitigation measure. Accordingly, the Panel is of the view that, as part of any authorization of the Project, the Proponents must be held to their commitment to use closed work camps.

RECOMMENDATION 16-1

The Panel recommends that the National Energy Board, as a condition of any certificate or approvals it might issue in relation to the Mackenzie Gas Project, require the Proponents to implement closed work camps. This requirement should apply to all new work camps proposed by the Proponents, their contractors and subcontractors.

The Panel notes that there are existing open construction camps and that there would be a range of services provided indirectly to the Project by existing established businesses, and not necessarily through a contractor or subcontractor relationship. If it is the intention to leave these camps open, and the Panel recognizes that this may not be in the Proponents' complete control, then, in the Panel's view, further measures would be necessary to address the potential adverse impacts of interactions between workers and the communities in proximity to those open camps.

RECOMMENDATION 16-2

The Panel recommends that the National Energy Board, as a condition of any certificate or approvals it might issue in relation to the Mackenzie Gas Project, require the Proponents to identify whether any of the existing open construction camps will be used, either directly or indirectly, in relation to Project construction. Where existing open camps are to be used and are to remain open, the Panel further recommends that the National Energy Board, as a condition of any certificate or approvals it might issue in relation to the Mackenzie Gas Project, require the Proponents to develop a plan to minimize and address adverse impacts of any interactions between workers in the open camps and the communities in proximity to those camps. The plan should comply with the commitments made by the Proponents, identify the specific measures to be employed and be developed in consultation with, and to the satisfaction of, the affected communities. The final plan should be filed with the National Energy Board at least six months prior to the commencement of construction.

The Panel further observes that the Proponents noted that both Fort Good Hope and Tulita, having limited previous experience with intense activities that pipeline construction would bring, could be impacted differently than other communities. However, the Proponents have not proposed any additional mitigation measures to reflect this. In the Panel's view, increased vigilance is required to monitor the interactions between the closed camps in proximity to Fort Good Hope and Tulita and those communities, and to ensure that there is capacity to respond to adverse interactions promptly and effectively.

RECOMMENDATION 16-3

The Panel recommends that the National Energy Board, as a condition of any certificate or approvals it might issue in relation to the Mackenzie Gas Project, require the Proponents to file, at least six months prior to the commencement of construction, a plan to monitor the interactions between construction workers and the communities of Fort Good Hope and Tulita and to identify the specific actions to be taken should the monitoring identify unanticipated adverse interactions. The plan should be developed in consultation with the leadership of Fort Good Hope and Tulita and provide for regular consultation with and follow-up reporting back to the leadership of both potentially affected local communities.

Provided that the Panel's Recommendations are implemented, the Panel is of the view that the impacts due to the interactions between construction workers and local communities in relation to the Project would not likely be significant. The Panel does not have sufficient information before it with respect to the

Expansion Capacity Scenario or Other Future Scenarios, so it is unable to make a determination of significance for these two scenarios.

16.4.2 PROJECT-INDUCED MIGRATION TO REGIONAL CENTRES

PROPOSONENTS' VIEWS

The Proponents stated that changes to population are a key link between Project opportunities and socio-economic impacts, as increases in population would increase demand on a range of public services and affect social conditions. The Project would employ many people, and might attract transient job seekers from the south and northern residents from other areas. Project impacts on employment are discussed in Chapter 15, "Economic Impacts," and the potential impacts to housing are discussed in Chapter 14, "Physical Infrastructure and Housing."

To discourage in-migration, the Proponents stated that southerners who want to work on the Project would be hired in southern locations only. The Proponents would advertise to let people know that if a person from the south wants to work on the Project, he or she would need to apply for that work in the south.

The Proponents submitted that not many people would permanently relocate to the NWT when they could secure direct jobs on the Project from their primary residence in the south. Nonetheless, the Proponents acknowledged that the demand for labour, goods and services for field development and Project construction would result in the in-migration of workers from south of the NWT, some with their families. This would include both those with contracts and those looking for work.

The Proponents estimated that over 800 people might move to the regional centres for Project-related work during construction, with over half going to Inuvik. About half of these would leave after construction. Some would come from the south, some from the smaller communities. The Proponents estimated that 25% of in-migrants would bring their families and the rest would be single. The Proponents noted that an influx of in-migrant workers might add to tension within communities and create some competition for jobs.

The Proponents also noted that there would be temporary specialist workers coming into the regional centres, who along with indirect and induced workers, would create a high demand for hotels. This would induce an additional demand for hospitality service workers. The Proponents predicted that these jobs would be filled predominantly by women.

In-migration during operations would be associated with stable, long-term employment opportunities. The Proponents' estimates of Project construction and operations employment are provided in Chapter 15, "Economic Impacts."

BEAUFORT DELTA REGION

In the Proponents' view, it would not be possible to eliminate the movement of Inuvialuit to Tuktoyaktuk and Aklavik given the proximity of a sizable part of activities related to the Project (Anchor Field, gathering lines, borrow site development and logistic activity). This movement is expected to be moderate in Tuktoyaktuk and impacts would be largely limited to the winter periods. The Proponents stated that southern job seekers would likely avoid the Aboriginal communities knowing that work would be found in the larger communities that are more easily accessible by road. As a result, there would be little to no migration of southern workers to the ISR communities. The Proponents noted that the population of Fort McPherson might increase and attributed the potential increase to travelers on Project-related business, southerners exploring business opportunities, and those attracted by the activity and opportunities.

SAHTU SETTLEMENT AREA

The Proponents submitted that Project sites and related activities in the Sahtu Settlement Area are not expected to attract substantial migration from outside or within the NWT, as the communities are accessible only by air or winter road from Wrigley. They noted that this would be less true of migration within the Sahtu Settlement Area. For example, residents of Colville Lake and Deline, who used to live in Fort Good Hope or Norman Wells, might be attracted to return. Given the closeness of Fort Good Hope to sites for a construction camp and compressor station, the Proponents noted that some previous residents or locals might be attracted to the area.

DEHCHO REGION

The Proponents expected that purchasing and contracting opportunities in the Dehcho Region would be largely met by existing or new northern businesses, and would not be substantial enough to trigger noticeable in-migration from outside the region.

Fort Simpson would be a transportation hub for the southern NWT part of the pipeline. The network of roads and highways, unparalleled elsewhere in the NWT, would accommodate other opportunity seekers from the Dehcho Region and facilitate the arrival of southern transient job seekers. Construction would thus likely add to the temporary population of Fort Simpson. Some transients from Alberta might proceed to Hay River. Dehcho Region residents would also see Fort Simpson as the centre of activity and some with relatives might also be attracted to Fort Simpson, though they could be similarly diverted to Hay River. In the case of other Dehcho Region communities, located near Project facilities (Wrigley, Jean Marie River and Trout Lake), it is likely that only previous residents would be attracted to them.

NORTHWEST ALBERTA

Because of the abundance of job opportunities, facilities and services found in northwest Alberta, the Proponents submitted that Project opportunities are expected to be less noticeable than in other regions. This, together with the distance to Project construction sites, would make it unlikely that many people from this area would be interested in obtaining direct Project employment. Accordingly, the Proponents predicted that Project construction would have marginal impacts on the populations of northwest Alberta communities.

The Proponents stated that none of the operations and maintenance employment positions would be located in northwest Alberta. The Proponents submitted that purchasing and contracting opportunities would likely only represent a marginal addition to the local economy and should not be large enough to trigger in-migration.

MITIGATION MEASURES

The Proponents' measures to discourage the potential in-migration of southern job seekers would include:

- hiring southern workers in selected provincial cities from contractor lists and via media advertising; and
- restricting hiring in the north to Aboriginal and other northern residents, including women, from the NWT, Nunavut and Yukon who meet the definition of a northern resident and have a territorial medical card.

To discourage potential migrants from within the NWT, the Proponents' measures would include:

- emphasizing that the prospect of employment would be as good in their home communities as in the more central locations to which they might be attracted;
- working with and visiting every community in the study area to describe employment opportunities available; and
- providing transportation to and from the point of hire on a rotational work schedule as well as accommodation at job sites.

PARTICIPANTS' VIEWS

Health Canada expressed concerns about the high number of workers that the Project would recruit, the characteristics of the worker population (young, male and single), the potential impact on services already overloaded, and the possible conflicts between migrant workers and local communities. The same concerns were raised by other participants, particularly regarding gender issues.

Lois Little submitted that the Proponents' gender analysis lacked data and depth of analysis on the demographic changes associated with the Project, and the implications of this change for northern women. Ms. Little further submitted that it is not

good enough to say that in-migration would closely approximate the makeup of previous immigrants and that a comprehensive assessment of anticipated demographic changes is needed. Ms. Little also questioned the accuracy of the Proponents' statement that less than 850 people could migrate to the NWT and half of these would leave the region when construction ends.

PANEL VIEWS

The Panel accepts that the Proponents have taken reasonable measures to avoid speculative in-migration to the NWT as a result of the Project. Notwithstanding those measures, the Panel notes that, with the exception of direct employment, whether in-migration would occur or not is largely beyond the control of the Proponents. Should in-migration occur beyond that predicted by the Proponents, there may be long-lasting changes in the population and demographics of the NWT and added demand on services in the NWT. In the Panel's view, in-migration from southern Canada remains a concern and could represent an additional burden to the GNWT if not properly anticipated and addressed. The Panel considers the potential impacts of in-migration on services in the NWT in subsequent sections of this chapter. The Panel is also of the view that the design of the Proponents' follow-up program should determine the effectiveness of the mitigation measures proposed by the Proponents to address in-migration.

16.4.3 HEALTH IMPACTS

PROPOSERS' VIEWS

The Proponents identified various activities during construction and operations of the Project that could potentially affect human health and the local environment through the production and release of potentially detrimental substances affecting air, water and soil. This could include substances that are not ordinarily present in the environment or increased levels of substances that are already present in the environment.

The Proponents submitted that the first and most direct exposure to Project emissions would be occupational. These exposures are regulated and the regulatory requirements would be met.

The Proponents noted that participants in their regional technical workshop and community sessions were concerned that emissions from Project vehicles and activities could affect the food chain and human food sources, and could possibly be linked to an increased risk of developing cancer. The potential impacts of the Project on air and water quality are discussed in Chapter 8, "Air and Water Quality." Issues related to accidents, malfunctions and emergency response are discussed in Chapter 7, "Accidents, Malfunctions and Emergency Response."

Noise and unwanted sound from the Project could change environmental sound levels in the Project area, which the Proponents described as being quiet and dominated by natural sounds.

The Proponents identified two pathways by which noise associated with the Project could result in increased environmental sound levels:

- intermittent noise associated with:
 - construction of the Anchor Field facilities and the pipeline facilities;
 - drilling and well-test flaring;
 - infrastructure such as borrow sites, construction camps, stockpile sites, communications centres and fuel storage sites;
 - transportation such as road traffic, barge traffic and air traffic during both construction and operations; and
 - flaring and venting at facility sites during upset conditions.
- continuous noise associated with the operation of the Anchor Field and pipeline facilities.

The Proponents noted that most scientific evidence for human health impacts from noise comes from occupational exposure where noise exposure tends to be of greater intensity and over longer periods than in community settings. Health impacts related to noise include hearing loss after an exposure of many years to sound levels greater than 85 dBA. The Proponents also noted that there are several non-auditory physiological impacts of noise exposure, including a possible increase in cardiovascular disease and physiological reactions involving the endocrine system, and that noise has been shown to adversely affect sleep, communication and mental health.

The Proponents also noted that Project noise could result in sensory disturbance, which could change habitat effectiveness. Sensory disturbance on wildlife, birds and aquatic species is discussed in Chapter 9, "Fish and Marine Mammals," and in Chapter 10, "Wildlife."

In the absence of a noise bylaw, the Proponents submitted that the GNWT *Air Quality Code of Practice, Upstream Oil and Gas Industry, Consultation Draft* (RWED 2002) endorsed the use of the Alberta Energy and Utilities Board (EUB) *Directive 038: Noise Control Directive User Guide*. The Proponents submitted that these documents deal specifically with energy-related noise sources and have been used in Alberta to ensure that energy facilities are compatible with surrounding land uses, and were the *de facto* noise guideline in the NWT, having been used in impact assessments for both oil and gas and large mining projects.

With respect to noise from normal operations, the Proponents indicated that the production area and pipeline corridor facilities would be designed to meet a noise guideline limit of 40 dBA at 1.5 km from their facilities. The Proponents submitted that they would use this noise level given that it:

- is consistent with GNWT noise guidelines and those in other parts of Canada (e.g. Alberta);
- is applicable to remote areas; and
- provides a noise level that is still audible at some times and locations, but that is perceived to be faint by people.

With respect to intermittent noise, the Proponents noted that while noise from site construction activities would be exempt from noise guidelines, they were included in the environmental assessment to show the extent of potential noise impacts. The Proponents noted that the proposed Project facilities are remote, with no dwellings within several kilometres of the compressor station and block valve sites. The Proponents concluded that the noise limits for the temporary activities, such as planned maintenance or operational events, such as blowdowns, are not required under Guide 38. The Proponents further noted that there are no nearby residents to inform about blowdown events.

The Proponents have no plans to monitor environmental impacts from noise and submitted that, under the EUB guidelines, noise monitoring during operations is not required unless noise complaints are received.

In order to address potential adverse impacts due to noise from the Project, the Proponents put forward the following key commitments and mitigations:

- design facilities using standard engineering noise control to meet Guide 38 noise guidelines for remote sites, such as 40 dBA at 1.5 km;
- schedule discretionary activities in sensitive areas to reduce impacts resulting from noise;
- reduce the volume, duration and frequency of noise-producing activities, where practical;
- manage Project activities in sensitive areas to reduce the impacts of noise;
- maintain a maximum noise level of 40 dBA at 1.5 km from any Project facility during operations; and
- include measures for managing Project-related noise emissions in the Air Quality and Emissions Management Plan.

The Proponents indicated that they would ensure that work and camp site noise levels meet the appropriate occupational guidelines, and undertake monitoring on an as-needed basis. The Proponents noted that they would also address community issues, including increases in continuous noise levels from the Project that disrupt community and lifestyle activities, although no specific additional actions were identified.

The Proponents predicted that the sound levels from Anchor Field facilities would range from 20 to 40 dBA at 1.5 km and that, based on their modelling, the guideline limit of 40 dBA at 1.5 km would be met. The Proponents further submitted that sound

levels were predicted to range between 30 dBA and 42 dBA from drilling, and 38 dBA to 41 dBA from test-well flaring at 1.5 km. The Proponents noted that these activities were considered to be part of production area construction. At the Inuvik Area Facility, the Proponents predicted that sound levels would also meet the EUB guideline of 40 dBA at 1.5 km. The Proponents stated that sound levels from pipeline facilities were predicted to range from 23 dBA to 38 dBA at 1.5 km from any facility. The Proponents predicted the sound levels at the NGTL interconnect facility to be 27 dBA.

The Proponents submitted that no noise impacts on human or environmental health are expected from Project operations.

PARTICIPANTS’ VIEWS

Health Canada stated that it was satisfied with the Proponents’ commitment to monitor noise in sleeping quarters.

Several participants at the hearings raised concerns that increased road, rail, barge and air traffic due to the Project would increase noise levels, thereby affecting communities and displacing wildlife.

The Dehcho First Nations recommended that noise around busy transportation corridors be monitored by Environment Canada and Transport Canada, and not exceed acceptable noise limits to ensure biological productivity and reduced stress on the ecosystem (both terrestrial and aquatic). The K’atlodeeche First Nation stated that transportation protocols are required for the mitigation of transportation and other industrial noise.

The Pehdzeh Ki First Nation suggested that the Proponents should use the most advanced information and technology required to reduce the noise level from the proposed compressor stations to a level that is acceptable to the community and reflective of the low ambient noise level currently present on the land. The Pehdzeh Ki First Nation also recommended that the Proponents take active measures to reduce noise from air traffic.

PANEL VIEWS AND RECOMMENDATIONS

The Panel notes that the Proponents have committed to design their facilities to meet EUB *Directive 038: Noise Control Directive User Guide* for remote sites and maintain a maximum sound level of 40 dBA at 1.5 km from any facility. Furthermore, the Panel notes that the Proponents have also made a number of other commitments to mitigate potential noise impacts from construction and operations. The Panel is satisfied that the Proponents’ actions would not create any significant adverse noise impacts on humans.

The Panel further observes that the Proponents have not proposed any monitoring to confirm noise levels at the compressor stations. The Panel understands that this is inconsistent with the National Energy Board (NEB) practice of requiring monitoring to confirm noise predictions.

RECOMMENDATION 16-4

The Panel recommends that the National Energy Board, as a condition of any certificate or approvals it might issue in relation to the Mackenzie Gas Project, require the Proponents to file, prior to the commencement of construction, a program to monitor noise emissions in relation to the Mackenzie Gas Project and to confirm that the Project is meeting the noise levels to which the compressor stations will be designed.

Provided that the Panel’s Recommendations are implemented, the Panel is of the view that the noise-related impacts on human health as a result of the Project would not likely be significant. The Panel does not have sufficient information before it with respect to the Expansion Capacity Scenario or Other Future Scenarios, so it is unable to make a determination of significance for these two scenarios.

16.5 IMPACTS ON COMMUNITIES AND GOVERNMENT SERVICES

Potential changes or impacts that are expected to occur in communities and on the delivery of government services include:

- increased use of alcohol and drugs, and increased gambling;
- changes in well-being conditions, and social and health service delivery;
- increased demands on police, and impacts to community and individual security;
- increased demands on child care;
- increased levels of homelessness;
- increased demands on family and women’s shelters;
- increased demands on Elder care;
- increased rates of suicide; and
- changes in traditional language and culture.

For three of the changes or impacts that would be expected to occur in communities — increases in the use of alcohol and drugs and increased gambling, increased rates of suicide, and adverse changes in traditional language and culture — the information before the Panel suggests that the relationship between the Project and these impacts is unclear. The several opinions and perspectives about those relationships pointed to the complexity of these issues, and the urgency of addressing them. As noted in section 16.3, the Panel makes no judgment on the contributing causes of these conditions. Nor does the evidence before it provide the Panel sufficient basis to determine the nature and extent of Project-specific impacts on alcohol and drug use, gambling, suicide or changes in language and culture as distinct from the effects of a variety of other factors.

The Panel has instead focused on identifying the measures that could be taken by all involved, consistent with the Shared Responsibility Model, to address these problems as they exist now and as they might develop in the future.

16.5.1 ALCOHOL, DRUGS AND GAMBLING

PROponents' VIEWS

The Proponents submitted that alcohol abuse is the most common root source of many of the problems that the RCMP, nurses and social services workers must try to address. The problems seen by each of the groups were noted as:

- RCMP:
 - people so impaired that they put themselves and others at risk, including spouses and children; and
 - increased social disorder and conflict.
- nurses:
 - injuries from alcohol-related incidents;
 - injuries from violence and abuse; and
 - fetal alcohol syndrome/fetal alcohol babies.
- social services workers:
 - spousal, sexual and other forms of abuse;
 - alcohol-related problems of family relationships and adolescents, children and babies with fetal alcohol syndrome/fetal alcohol impacts; and
 - mental and emotional disorders.

Increased alcohol consumption was further identified as a major factor in:

- hospitalizations for alcohol-related illness;
- accidental deaths;
- increased consensual or non-consensual sex, teenage pregnancies and sexually transmitted infections (STIs); particularly among women; and
- increased gambling.

The Proponents observed that alcohol abuse by males is frequently associated with sexual abuse and family violence.

The Proponents noted that Project-related increases in income that most NWT communities would experience would lead to increased alcohol consumption, abuse and the consequences noted above, and that these impacts might challenge community resources. The Proponents outlined measures that they would take and also identified those measures that government should adopt in order to address alcohol and drug abuse and gambling.

To plan realistically for potential Project impacts, the Proponents submitted that it must be assumed that impacts would likely be more severe in those communities where indicators of existing problems are high. They submitted that it appears for these communities that social controls and support are relatively weak.

In assessing the potential for adverse impacts related to alcohol abuse, the Proponents considered the proximity of communities to Project activities (and therefore the likelihood of Project employment), existing indicators of wellness, and the availability of alcohol in each community. The Proponents predicted that small communities located further away from Project activities (such as Deline and Colville Lake) would be less vulnerable to adverse effects on community wellness unless the residents of those communities accept Project-related employment.

The Proponents noted that only seven communities in the study area have restrictions on alcohol imports or purchases. The Proponents indicated that, as a first step toward enacting bylaws limiting the volume of alcohol imports, hamlet or band councils could inform their communities of the costs of substance abuse and the control measures available to communities.

BEAUFORT DELTA REGION

The Proponents submitted that the elevated indices of spousal and other violence likely indicate that, with higher income, the well-being of some Tuktoyaktuk and Aklavik families would be made worse. The Proponents submitted that the considerable distances separating Holman, Paulatuk and Sachs Harbour from centres of activity and the lower availability of alcohol might moderate possible ill effects of elevated income in those communities.

The Proponents submitted that Inuvik would probably experience the greatest Project impacts among the Beaufort Delta Region communities given the proximity of two camps, the number of employment opportunities and elevated income levels that many Inuvik residents would enjoy.

As all Gwich'in Settlement Area communities would be close to relatively intensive Project-related activity in the Beaufort Delta Region, all would experience high levels of Project-induced increased incomes and all would be vulnerable to the consequent adverse impacts.

The Proponents noted that at open-house meetings in Fort McPherson and Tsiigehtchic, participants stated that there should be consultations with local communities relative to programs and strategies to control substance abuse.

SAHTU SETTLEMENT AREA

Based on the indicators, the Proponents submitted that some increased earnings would be spent on alcohol and there might be some resulting increase in adverse social impacts. The Proponents stated that this increase would be expected

to be minor for most of the Sahtu communities, including Norman Wells.

In the Proponents' view, more substantial adverse impacts could occur in Fort Good Hope because of interactions between the construction camp and the community, which might increase tension, and local consumption of drugs and alcohol. This combination might lead to increased conflict and violence. Similar but more muted impacts are possible for Tulita, given its proximity to activity that would be associated with crossing the Great Bear River and the construction of the Great Bear River Compressor Station.

The Proponents stated that Tulita and Colville Lake might be able to curtail alcohol abuse by having band councils inform residents about the costs of alcohol abuse and the control measures that they could impose, such as the enactment of bylaws limiting the volume of liquor imports, similar to those passed in Fort Good Hope and Deline.

DEHCHO REGION

The Proponents submitted that, despite having some experience in the Dehcho Region with diamond mine employment, the social services of these communities might experience a variety of impacts from increased alcohol abuse and perhaps increased gambling, an additional impact identified by community members.

Given the moderate indicator standings and some prior experience with high income levels, the Proponents suggested that much of the Project earnings might be spent on improving traditional and non-traditional lifestyles. They submitted that this would likely be particularly true of the smaller and more isolated Dehcho Region communities. They submitted that some of the increased earnings would also be spent on alcohol and there might be some increase in adverse impacts. The Proponents stated that these would likely be minor in most Dehcho Region communities.

The Proponents submitted that in Fort Simpson, although the liquor store has a restriction on the amount of alcohol that can be bought at one time, restricting the alcohol supply is not a possibility as there are also two restaurant lounges. The Proponents suggested that Fort Providence, Jean Marie River, Trout Lake and Wrigley, which have no restrictions on importing alcohol, could look at options for curtailing abuse.

At a Dehcho regional technical workshop, the Proponents stressed the need for communities to police themselves regarding alcohol and drug use.

HAY RIVER AND YELLOWKNIFE

The Proponents submitted that substantial numbers of transient business or government agents would be attracted to both Yellowknife and Hay River. The Proponents submitted that all of the wellness indicators for Yellowknife and Hay River are

in the middle- to low-range of indicators and that, because of differences in standards of living and lifestyles, these rates are lower for non-Aboriginal residents in these communities.

According to the Proponents, restricting alcohol supply is not an option in Hay River and Yellowknife, although they stated that measures such as the enforcement of the *Liquor Act* are available to the GNWT.

NORTHWEST ALBERTA

The Proponents noted that the Project and the Northwest Alberta Facilities might be a source of increased construction employment for the Dene Tha' First Nation. The Proponents submitted that the increased income would have beneficial impacts through increased sharing and likely adverse impacts from socially disruptive spending behaviours, and that these impacts might balance.

MITIGATION MEASURES

The Proponents indicated that they would implement and enforce policies and practices directed to ensuring that all Project work sites, including camps, would be alcohol- and drug-free. Such policies and practices would include reasonable enforcement mechanisms, which might include lawful inspections, searches, and testing for alcohol and drugs. They also noted that the alcohol and drug policy would apply to their contractors.

To avoid negative impacts in communities, primarily those associated with alcohol abuse, the Proponents stated that they would implement three equally important measures. Firstly, the Proponents would establish on-the-job resources and guidance to:

- Help prevent alcohol and substance abuse through access to life skills guidance, such as money management, and alcohol and substance abuse prevention. (SEA 3.2.2) The Proponents would include a gender component in finance and money management courses, and programs that pertain to the management of household resources. The Proponents noted that they would also use reasonable commercial efforts to encourage their contractors to provide resources, as well as support and guidance to encourage money management. (SEA 3.2.3)
- Provide NWT residents who are Project workers with employee assistance programs, that are generally consistent with the employee assistance programs ordinarily provided to employees employed in comparable positions by their respective employers. These programs might include mental health services, substance abuse programs, money management courses, gambling programs and family counselling. Contractors would be encouraged to develop their own or participate in an employee assistance program. (SEA 3.2.7) The Proponents also noted they would, from time to time and in a manner consistent with their respective

principles and practices for community involvement, provide funding for GNWT and community programs by:

- Promoting healthy lifestyles, for example, alcohol and drug awareness, active living, fitness and participation in sport and recreation activities, family violence prevention, and parenting and family support programs; (SEA 3.2.8 a)
- designing programs, for example, to support youth in making healthy and productive choices, building self-confidence, and developing life skills to enable them to become productive workers; and (SEA 3.2.8 b)
- encouraging and supporting efforts by the GNWT, and perhaps collaborating or otherwise supporting by various means and from time to time to set up community-based programs for:
 - personal finance and money management training, focusing on informed consumption, savings and investment choices for increased incomes, and (SEA 3.6.2 a) including a gender component that pertains to the management of household resources in the personal finance and money management programs; and
 - controlling alcohol and drug abuse. (SEA 3.6.2 b)

Secondly, the Proponents would initiate a program that would enable workers to assign part of their wages to a savings account to reduce the potential for negative lifestyle choices.

Thirdly, the Proponents would emphasize to local communities, the RCMP and the GNWT Health and Social Services that prevention of alcohol abuse is a shared responsibility. Effective prevention would depend on steps being taken not only by themselves, but also by the communities and the GNWT and, most important of all, by individual Project employees. Prevention measures the Proponents identified included:

- Having communities inform residents about the costs of alcohol abuse and the control measures that they could impose, including enacting bylaws limiting the volume of liquor that can be imported at one time.
- Taking alcohol abusers into preventative detention to forestall the home or community violence such abusers might precipitate. The Proponents submitted that this should be a high priority for the RCMP. They also suggested that RCMP adopt a policy of zero tolerance of violence.
- Establishing the practice, before construction, of firmly enforcing the provisions of the *Liquor Act*. They also suggested enforcement of the *Alberta Alcohol and Drug Abuse Act* against over-serving alcohol and taking persons into preventative detention who are so intoxicated as to be a danger to themselves and others.

- Enabling the GNWT Health and Social Services to act quickly and decisively to improve training and effectiveness of alcohol and drug counsellors.
- Having the GNWT change selection and training of substance abuse counsellors, and ensure that there are adequate treatment capacities in substance abuse treatment centres.
- Widely publicizing the dangers of unprotected sex.
- Having individuals share the responsibility of preventing substance abuse.

The Proponents stated that they are committed to developing a shared responsibility approach to controlling alcohol abuse with local communities and with the GNWT Health and Social Services.

The Proponents submitted that mitigation measures for wellness threats would be less effective than those described for social service delivery as behaviours, such as alcohol and drug abuse, are dependent on the decisions and actions of many individuals whereas service delivery measures could be implemented administratively. The Proponents further submitted that most wellness problems are alcohol-related, and alcohol and other substance abuse are behaviours for which western social science does not have cures.

The Proponents stated that, for people to abuse alcohol, money must be available. The Proponents observed that although some workers would be employed all year, the construction period in each year would be brief for most construction workers. Therefore, they submitted that any increase in alcohol consumption would be for short intervals, should have limited impact on physical health conditions, and should primarily occur during the Project construction phase. The Proponents agreed with Health Canada that, for some individuals who were exposed to alcohol abuse, one could envisage that the impacts for that individual might be longer-term. However, the Proponents believed that the influences that would produce noticeable impacts in the community would be short-term in duration.

PARTICIPANTS' VIEWS

The GNWT noted that Proponents concluded that alcohol abuse is the root cause of the majority of health and social problems seen in NWT communities and that these problems could be solved solely with greater personal responsibility. The GNWT noted that although other social impacts were mentioned briefly, it was only in the context of their relationship to alcohol abuse. However, the GNWT submitted that alcohol abuse does not arise in a vacuum, and current theories recognize that there is a combination of biological, psychological and social factors that interact in a complex way to cause problem drinking. By way of example, the GNWT noted that, during the construction of the Trans Alaska Pipeline System, the underlying causes of substance abuse in Fairbanks were related directly to social

change processes brought about by project activities, such as demographic and population changes in the communities and disruption of family life from rotational work.

The GNWT agreed with the concerns raised regarding the exacerbation of existing alcohol and drug abuse. The GNWT submitted that early mitigation measures are preferred rather than a purely reactive stance. It further submitted that there are no quick or easy solutions to these problems, but impacts could be minimized with proactive and coordinated planning between stakeholders.

The GNWT indicated that a review of the community-based alcohol and drug programs in place in the territories showed that they were not effective. The GNWT indicated that the programs have gone through and are still in the process of a major restructuring. The key elements identified through the review were generally a lack of skills and training. The GNWT has since taken steps to increase the training level of the mental health and addiction workers in the field, improve the clinical supervision and increase the number of workers. The GNWT also indicated that it was in the process of negotiating with Aurora College to put in place a two-year diploma program for community-based community wellness and addiction workers. The review also identified some significant weaknesses in the GNWT's community-based program, in particular that people who returned from treatment centres basically came home to no support. Without support in their home communities, those individuals were very easily falling back into substance abuse. It was the GNWT's view that it had to strengthen, and is still continuing to strengthen, the community support system.

Health Canada submitted that the association between social and economic deprivation is well-supported, and national and international literature show that wage income or income increase at a community or individual level can be associated with alcohol abuse, or abuse of other legal or illegal substances. Health Canada further submitted that it should not be neglected that communities and individuals have resilience mechanisms that allow them to cope with harsh circumstances and that there can be positive uses of new earnings. Health Canada observed that there can be strong social networks that help a community to counterbalance negative impacts, and social support that helps individuals fighting or avoiding alcohol dependence. Health Canada also stated that it considers social problems, such as alcohol and drug abuse, to be long-term impacts because these have impacts on children, families and communities.

As two of its projects to improve physical fitness, and community wellness and mental health, the Inuvialuit Regional Corporation (IRC) has proposed using its funds from the MGPIF for sexual education and addiction prevention programs in schools, and for a comprehensive regional addiction strategy.

The SWC submitted that existing alcohol abuse would be exacerbated and bootlegging would greatly increase. The SWC stated that it is very concerned that the Proponents did not pay

enough attention to potential increases in drug use and related increases in the informal sex trade and youth crime. The SWC submitted that, as families experience more dysfunction, more children would be taken into care.

The SWC submitted that the Proponents must collaborate with regional Aboriginal organizations to financially support prevention programs and infrastructure in communities for youth and families so that residents would be better able to deal with higher incomes and increases in drugs and alcohol in the community. The Pehdzeh Ki First Nation and Jean Marie River First Nation expanded on these needs in their recommendations that there be funding for the development of a community action plan addressing alcohol and drug abuse, family counselling, health services and policing. Participants noted that it was important that these plans address these issues at municipal and territorial levels and that the Proponents coordinate with the First Nations when implementing any social service programs to offset unfavourable social behaviour within the communities. Participants were of the view that the Proponents and the GNWT should be responsible for funding these activities.

The Gwich'in Tribal Council (GTC) recommended that a holistic alcohol and drug treatment facility be established or reopened (Ti'oondih Healing Centre) in the Beaufort Delta Region with follow-up services that would allow individuals, including youth, seeking treatment to reintegrate successfully into the community. It also recommended a stronger approach to utilizing the education system to aggressively work toward educating youth on the destructive force of alcohol and drugs.

In response, the Proponents submitted that they are not responsible for health and social services or programs, or for police services. The GNWT also disagreed with these recommendations being directed to only the Proponents and the GNWT, given that elements of the recommendations would be dealt with through the implementation of the MGPIF, the SEA, the Proponents' mitigation measures, and GNWT or federal programs and services.

The Sambaa K'e Dene Band recommended that government and industry must provide additional resources to the Band to address potential alcohol and drug issues.

Residents of Norman Wells were sufficiently concerned that they would experience drastic changes in their lifestyles, leading to increased use of drugs and alcohol, that they produced a report entitled *Breaking Down the Barriers, a Proposal for Community Partnership and Action*. The report addressed a range of problems, including impacts of substance abuse on youth, sexual assault and poor money management.

The Tulita District Land Corporation (TDLC) observed that Deline, which is not directly on the pipeline route, is not expected by the Proponents to experience as significant a degree of Project impacts as Norman Wells and Tulita. Deline residents, on the other hand, show the same hopes and fears concerning potential

Project impacts as people in the other two communities. It submitted that the close connections between the three communities make it difficult to predict that Deline might not feel the same degree of impacts. For example, bootlegging of alcohol obtained in Norman Wells has major impacts in Deline at present. Likewise, other impacts could spread to Deline in unexpected ways. It noted that community members' *perceptions* of what would happen are important, which, in itself, is an impact.

The TDLC proposed to use part of the MGPIF for a healing and wellness centre that would be based on Dene/Métis cultural values and modes of healing, which would include substance abuse treatment, whole family healing and wellness promotion, and on-the-land programs.

The Deh Gah Go'tie Dene Council observed that, in general, the issues that were raised in the community of Fort Providence are consistent with those that were addressed or raised in the impact assessment. However, it submitted that the community disagrees with the Proponents' interpretation of impacts, particularly as it relates to youth populations and the potential for increased drug and alcohol abuse. It submitted that concerns raised in the community overwhelmingly focused on drug and alcohol abuse and related social and health problems among youth in the community, and that youth might bear a more significant burden of adverse impacts from the pipeline than any other group in the community. The Council observed that youth were engaging in risky behaviours at ever younger ages, and expressed concern that this problem would be exacerbated with pipeline construction.

PANEL VIEWS AND RECOMMENDATIONS

Increases in alcohol and drug abuse were the primary social-cultural concern raised during the Panel's hearings. There was considerable discussion of the potential causes and effects of alcohol and drug abuse, and gambling, and of the complex nature of these social problems. There remain many questions about the causes of the high levels of alcohol and drug abuse currently experienced in some communities, whether and how the Project may impact the current situation, and whether the Proponents, communities or governments would be able to distinguish between Project-induced effects and other effects and causes.

The Panel considers that the Proponents' impact predictions, which focused on increased earnings as the key driving factor, were simplistic. As many participants pointed out, the causes and consequences of alcohol and drug abuse are multi-faceted and complex and do not yield to straight-forward explanations. In particular the Panel considers that the attributes of Project-related employment itself, especially where jobs are seasonal and rotational at remote sites, also deserve consideration. However, on the basis of the information before it, the Panel is not in a position to determine the magnitude, duration and extent of Project impacts on the current pattern of use of and impact from substance abuse. The Panel observes that there was general

agreement that the situation would get worse, without each of the Proponents, communities and governments taking significant steps to both address the current situation and prepare for any Project-induced changes.

The Panel acknowledges the Proponents' commitment to develop a shared responsibility approach to controlling alcohol and drug abuse with local communities and with the GNWT Health and Social Services. The Panel further accepts that the focus should be on preventive measures rather than reactive measures. However, in accepting this, the Panel is not satisfied that all preventive measures have been fully identified and addressed. In this respect, the GNWT, the RCMP and the communities did not provide positions in response to the measures that the Proponents suggested that those parties could implement, or any alternative measures that they may propose.

RECOMMENDATION 16-5

The Panel recommends that the Government of the Northwest Territories and the Proponents, consistent with provision 3.6.2(b) of the Socio-Economic Agreement, and prior to the commencement of construction, further develop and make public their plan for preventing Project-related drug and alcohol abuse. The plan should incorporate input from the Royal Canadian Mounted Police, responsible agencies and affected communities in the Project Review Area regarding the measures proposed by the Proponents and any other preventive measures. The plan should also identify government resources (human and financial) required to implement the plan and include the Government of the Northwest Territories' plans for applying those resources.

The Panel notes that the Proponents indicated that their drug and alcohol policies would also apply to contractors working on the Project. In the Panel's view, this is an essential requirement of plans to control drug or alcohol abuse. In the Panel's view, a uniform approach needs to be applied across the spectrum of participants in the Project, be they employees, contractors or subcontractors. All must meet the same standard proposed by the Proponents. The Panel is concerned that contractors and subcontractors could become weak links in the defence against drug and alcohol abuse. There remain concerns that the simple extension of the Proponents' policies to contractors and subcontractors might be ineffective because compliance could be difficult to enforce.

RECOMMENDATION 16-6

The Panel recommends that the Proponents, prior to the commencement of construction and as part of the plan required by Panel Recommendation 16-5, outline the means by which they will apply their drug and alcohol policies to Mackenzie Gas Project contractors and subcontractors. This should include a description of the mechanisms by which the Proponents will enforce compliance and the consequences of non-compliance.

In accepting that preventive measures are preferred, the Panel recognizes that alcohol and drug use is a more complex matter than individual choice, it is an existing problem and would likely be exacerbated by the Project. In this regard, the Panel accepts

that lack of access to treatment and follow-up support would be a barrier to those seeking treatment. The Panel further recognizes that additional efforts and resources appear to be necessary, not only to address any incremental changes as a result of the Project, but also to help address existing alcohol and drug concerns in the absence of the Project.

RECOMMENDATION 16-7

The Panel recommends that the Government of the Northwest Territories, within six months of the Proponents' Decision to Construct, and consistent with provision 3.7.2(c) of the Socio-Economic Agreement, file with the Northwest Territories Oil and Gas Socio-Economic Advisory Board a submission that identifies alcohol and drug abuse prevention programs in place for communities in the Project Review Area, an assessment of whether these programs are adequate, and a plan to secure sufficient capacity to accommodate both existing treatment needs for alcohol and drug abuse and the increased demand that would be related to the Mackenzie Gas Project. The programs could include reopening of, and support for, existing treatment centres in the Northwest Territories and the negotiation of arrangements with treatment centres outside the Northwest Territories.

RECOMMENDATION 16-8

The Panel recommends that the Proponents and the Government of the Northwest Territories, prior to the commencement of construction and consistent with provision 3.6.3(b) of the Socio-Economic Agreement, reach an agreement whereby spaces for Mackenzie Gas Project employees who may need access to mental health, drug and alcohol treatment facilities under the Proponents' employee assistance program will be assured without reducing the level of service available to residents of the Northwest Territories.

RECOMMENDATION 16-9

The Panel recommends that over the life of the Mackenzie Gas Project Impacts Fund the Government of the Northwest Territories coordinate the provision of its addiction and abuse treatment services and follow-up support with related projects, such as the Inuvialuit Regional Corporation's proposed regional addictions strategy and the Tulita District Land Corporation's healing and wellness centre, that are carried out by regional organizations under the Mackenzie Gas Project Impacts Fund.

RECOMMENDATION 16-10

The Panel recommends that the Proponents and the Government of the Northwest Territories, prior to the commencement of construction, work with communities, the Royal Canadian Mounted Police, bylaw officers, community social workers, alcohol and drug counsellors, individual and family counsellors, community health representatives, mental health workers, school counsellors and schools to provide addiction prevention and sexual education programs. The Panel further recommends that the Government of the Northwest Territories coordinate its programs with projects that are carried out by regional organizations under the Mackenzie Gas Project Impacts Fund.

RECOMMENDATION 16-11

The Panel recommends that, within six months of the Proponents' Decision to Construct, the governments of Alberta and the Northwest Territories provide sufficient resources to enable the Royal Canadian Mounted Police, the Northwest Territories' Liquor Board and the Alberta Liquor Control Board to enforce the Northwest Territories Liquor Act and the Alberta Alcohol and Drug Abuse Act, respectively, during the construction phase and, in particular, to enforce those provisions related to the over-serving of alcohol and to preventive detention of intoxicated persons who may be a danger to themselves and others.

RECOMMENDATION 16-12

The Panel recommends that, within six months of receipt of the plan referred to in Panel Recommendation 6-5, communities potentially impacted by the Mackenzie Gas Project review and adopt alcohol and drug control measures and make the necessary provisions to enforce those measures. These measures should be consistent with the plan provided in Panel Recommendation 16-5 and with the projects being carried out by regional organizations under the Mackenzie Gas Project Impacts Fund.

16.5.2 WELL-BEING CONDITIONS AND SOCIAL SERVICE DELIVERY

PROPONENTS' VIEWS

In the Proponents' view, the Project would likely pose sizable challenges to the well-being of communities and residents in the study area. The Proponents noted that concerns were raised as to whether existing agencies could deal with the increase in problems that might result from the Project. The Proponents submitted that any incremental problems might thus be seen as seriously disruptive, unless they are forestalled by implementing suitable mitigation measures.

The Proponents submitted that well-being conditions and social services delivery likely to be affected by the Project already represent considerable challenges to the study area communities and residents. Therefore, any Project-induced incremental impacts could be perceived as particularly disruptive, unless prevented by implementing suitable mitigation. The Proponents also submitted that the most important responses to potential Project-induced impacts can only be made by governments and communities themselves.

Increased workloads in relation to health care and social services delivery would result from increased:

- demands from camp and contract workers;
- increased population resulting from in-migration;
- associations with others, on and off the job, which might adversely affect health through:
 - exposure to contagious diseases, including STIs;
 - increased consumption of unhealthy food;

- possible influences on how Project earnings are spent; and
- lessons learned from dangerous behaviour of role models;
- demands associated with workers who experience lost-time illnesses or incidents at a camp returning to the communities for convalescence or continuing treatment;
- stresses of long work shifts, and long periods of lone household management and child-rearing; and
- alcohol abuse resulting in:
 - various forms of family abuse and violence in the community, and emotional and family relationship problems experienced by victims of abuse and violence;
 - gambling; and
 - snowmobile and all-terrain vehicle accidents.

The Proponents noted that social services are delivered in many of the smaller NWT communities through community wellness centres, and the most frequent and persistent problem that these services must address is substance abuse, primarily alcohol abuse. The Proponents also noted that Project impacts on health could increase waiting times for patients and the workload of health care workers, resulting in stress, potential burnout and reduced system effectiveness.

The Proponents also submitted that the health of individuals and communities could be positively affected when Project revenues result in a higher standard of living, and the opportunity for communities to enhance health and social support and infrastructure.

The Proponents attributed the substantial increase in nursing workloads and the difficulties in recruiting nurses to work in the NWT as two important influences on the delivery of services in health centres. The Proponents noted that many nurses are dissatisfied and their turnover rate is high, which is attributed to low salaries and frequently unsatisfactory housing conditions.

The Proponents predicted that geographic variation in Project impacts on the delivery of health and social services would be similar to their predictions of alcohol impacts noted in the previous section. Where the impacts of alcohol consumption on wellness rise, so would the demands on health and social services. The Proponents also noted that communities that experience in-migration, such as Fort Simpson, Hay River and Yellowknife, could see somewhat increased health care workloads and likely ill-health conditions during construction.

BEAUFORT DELTA REGION

The Proponents submitted that Inuvik might be a site of increased disease contagion from association of many local people with transients and workers, and from travel between

communities. The Proponents also noted that Inuvik might be the scene of increased casual sexual encounters, which might increase the rates of STIs. As a result, the Proponents submitted that many of the wellness issues would be apparent in Inuvik and effective mitigation would represent a serious challenge, requiring a concentrated effort by all.

The Proponents submitted that, if a serious incident or illness affected several people, any overloading of the Inuvik hospital could be resolved by airlifting patients to the Yellowknife or Hay River hospitals. If these too were overloaded, patients could be airlifted to Edmonton or Calgary. This would ensure that Project impacts would not jeopardize health service delivery in the NWT.

The Proponents suggested that physical and mental health conditions might deteriorate, particularly in Tuktoyaktuk and to a lesser extent in Aklavik and Paulatuk, where stress levels of Project-related employment and alcohol abuse might be relatively high. Tuktoyaktuk might gain in-migrants, adding to workloads in the Tuktoyaktuk health centre. Moderate magnitude impacts on social services delivery should be expected in Tsiigehtchic and Fort McPherson.

In the Proponents' view, stable employment and income in the Beaufort Delta Region would tend to lessen the impacts from the construction activity downturn and wellness would tend to improve there. As there tends to be a service provision time lag between demand and response because of government funding processes, the capacity of social services delivery agents and programs should be higher after construction.

SAHTU SETTLEMENT AREA

The Proponents submitted that Norman Wells and the constructions camps might be areas of elevated disease contagion and increased rates of STIs, similar to Inuvik. Substantial adverse impacts could occur in Fort Good Hope because of interactions between workers in the construction camp and residents of the community. Similar but more muted impacts are possible for Tulita given its proximity to activity associated with construction of the Great Bear River pipeline crossing.

DEHCHO REGION

The Proponents submitted that in both Fort Simpson and Wrigley the health care service could be easily overwhelmed by the needs of several patients requiring care during a brief period of time. In general they considered that the impacts on social services delivery in the Dehcho Region would be similar to those in the Beaufort Delta Region.

HAY RIVER AND YELLOWKNIFE

The Proponents stated that workers with health conditions that could not be dealt with at camp health care facilities would be evacuated to the Yellowknife or Hay River hospitals, which in

turn would likely experience some Project-induced increase in workload.

NORTHWEST ALBERTA

The Proponents stated that there is no reason to expect that Project employment would give rise to substantial increases in illness for the Dene Tha' First Nation members employed on the Project. The Proponents submitted that both Chateh and Meander River have adequate health centres and that Bushe River is close to the health care facilities in High Level. The Proponents submitted that the health care facilities in this region would be expected to have little difficulty in dealing with any adverse impacts on health that the Dene Tha' First Nation might experience because of Project employment.

The Proponents also submitted that the Dene Tha' First Nation communities and High Level have well-staffed social service offices, which should be adequate to handle any increase in demands induced by the Project.

MITIGATION MEASURES

The Proponents submitted that the management of community wellness is a shared responsibility among community residents, various levels of government and the Proponents. They stated that the number of GNWT health and social services staff would need to be increased to address the increased demand for their services. The Proponents further submitted that, given the size of the Project, the number of construction camps and construction workers, and the need to comply with both regulatory requirements and the Proponents' corporate standards, there would be a need for a coordinated and consistent health plan for the Project.

The Proponents would:

- Provide health and counselling services in construction camps.
- Be responsible for the cost of health care coverage for Project workers who are not eligible for provincial or territorial health care coverage. (SEA 3.2.9)
- In consultation with the GNWT and communities, as applicable, develop, on a timely basis prior to the commencement of construction activities, plans for Project-related mass casualty evacuations and for quarantine/isolation of Project workers in the event of an outbreak of infectious disease for the construction phase and develop such plans on a timely basis for the other Project phases as appropriate. (SEA 3.2.10)
- At their own cost, require a fitness-to-work assessment for every newly hired Project worker prior to arriving at the Project work site. Fitness-to-work assessments would help identify medical conditions that may prevent the performance of essential job tasks or may preclude assignment to a remote northern work environment. (SEA 3.2.11)

- Take reasonable measures to protect Project workers from the spread of infectious disease in camps. Such measures may include appropriate immunization programs as recommended by Health Canada's Canadian Immunization Guide, and health promotion and illness prevention programs. The Proponents would provide access to details of such measures and programs to the Chief Medical Health Officer appointed under the *Public Health Act* (NWT). (SEA 3.2.12)
- Not make unsolicited job offers to employees of the GNWT or of a "health facility" or a "social services facility" as defined in the *Hospital Insurance and Health and Social Services Administration Act* (NWT) for Project work in the areas of health care or social services. They would also make reasonable commercial efforts to discourage their contractors from doing so. (SEA 3.2.13)
- Provide transportation from the nearest location accessible by public means for GNWT health officers who may be required by regulation to attend a camp that is not reasonably accessible by public means. (SEA 3.2.14)
- Help prevent alcohol and substance abuse through access to life skills guidance, such as money management, and alcohol and substance abuse prevention. (SEA 3.2.2)

The Proponents also stated that, to decrease the risk of persistent or increased levels of STIs among women and men in the study area, they could consider:

- providing condoms free-of-charge in construction camps through camp health facilities;
- encouraging local and territorial government authorities to provide condoms free-of-charge through municipal and community health centres and facilities; and
- working with contractors, communities and the relevant regional organizations and territorial departments to promote safe sex through appropriate public education campaigns in camps and communities.

The Proponents, together with the GNWT, would negotiate arrangements for access to GNWT health and social services during construction, including procedures to access the medical travel system, and hospitals and health centres in the NWT. (SEA 3.6.3)

In addition to the mitigation measures that the Proponents recommended could be undertaken by the GNWT, RCMP and communities to help address alcohol and drug use, as discussed above the Proponents also submitted that the GNWT could:

- initiate community-based training programs in personal finance and money management, focusing on informed consumption, savings and investment choices for increased incomes;
- ensure that all community wellness centres in the study area are adequately staffed;

- implement the recommendations to improve treatment services contained in the Chalmers & Associates (2002) study of substance abuse;
- plan for the likely increases in the stresses and family conflicts associated with employment absences, and provide additional training to health care and social service personnel to help them better prevent and effectively deal with these conditions; and
- promptly act on the health care and social services initiatives that address the frustrations, concerns and professional needs of service providers in communities to improve morale and effectiveness of personnel.

The Proponents submitted that the Project on its own poses minimal risks to health and is expected to involve low levels of incidents or demands on public health services. Adequacy of services is an existing concern in the NWT, and the GNWT is focused on wellness needs and the delivery of its services.

The Proponents submitted that mitigation measures for wellness threats would be less effective than those described for social services delivery as wellness-threatening behaviours are dependent on the decisions and actions of many individuals, whereas service delivery measures can be implemented administratively.

The recommended measures for health care staff would increase the effectiveness of health care centres in dealing with Project impacts on health conditions, but an increase in the workloads of the predominantly female health personnel must be expected.

The Proponents suggested that increased workload on health care centres might be substantial in the regional centres of Inuvik, Norman Wells, Fort Simpson, Hay River and Yellowknife, and in other centres of Project activities, notably Fort Good Hope and possibly Tulita. The Proponents also noted that health care centres in other communities supplying Project workers would also likely experience workload increases. The Proponents recognized that gender-differentiated Project impacts would occur, including specific potential impacts on women. The Proponents submitted that, although the impacts described above are considered serious concerns, application of significance criteria results in a conclusion that impacts are not expected to be significant in the ISR, Gwich'in Settlement Area and Dehcho Region.

The Proponents submitted that Project impacts on social service delivery in Inuvik, Norman Wells, Fort Simpson and possibly Fort McPherson could be exacerbated when construction ceases in circumstances where local individuals, who become unemployed, do not find another job or have not saved money during their employment. Otherwise, the Proponents submitted that Project-induced impacts should last only during construction. The Proponents further submitted that, as Project impacts would be limited to construction, there would be no need for mitigation and no residual impacts during operations.

PARTICIPANTS' VIEWS AND RECOMMENDATIONS

The GNWT stated that it agreed with the Proponents' views regarding shared management of socio-cultural impacts and that it would continue to work with industry, governments, and Project-affected people and communities to ensure the health of NWT residents.

As noted in the previous section, the GNWT has already begun investing in increased capacity by creating over 100 new positions territory-wide. The GNWT also stated that it was developing new programming that would contribute to the mitigation of health and social impacts from the Project. Programs include:

- Commencing in 2006–2007 and continuing for three years, an additional \$1 million annually would be invested in health promotion and disease prevention programs targeted at STIs, drug and alcohol abuse, and fetal alcohol spectrum disorder awareness. This prevention-orientated funding would serve to reduce future illnesses and decrease public health care system costs. In addition, these investments would help contribute to a safe and healthy workforce that is capable of participating in the Project when pipeline construction commences.
- The Department of Health and Social Services, in collaboration with the Departments of Education, Culture and Employment and Municipal and Community Affairs, has developed the GNWT Healthy Choices Framework with an investment of \$350,000 in 2006–2007. The framework targets six key areas to promote healthy lifestyles, including physical activity, healthy eating, mental health and addictions, tobacco harm reduction and cessation, injury prevention and high-risk sexual activities. Investments in healthy choices, particularly mental health and addictions, and injury prevention, would serve to help mitigate health and social impacts from the Project and future oil and gas development.
- A new Aboriginal Wellness Program was being developed at the Stanton Territorial Hospital with funding of \$234,000 in 2006–2007 and \$360,000 in 2007–2008. The hospital currently provides a number of Aboriginal services, including country foods, language services and an Aboriginal diabetes program. The new program would add traditional healing practices and a number of staff, including a coordinator, three health and social liaison workers, a child life worker, a cultural teacher, a traditional healer and a community liaison worker. The incorporation of traditional Aboriginal healing into an acute care setting would contribute to positive Aboriginal health and well-being in the face of accelerating resource development in the NWT.
- Beginning in 2005–2006, funding was provided to the authorities in the Sahtu and Dehcho regions to create new public health units to serve communities within their respective catchment areas.

- Beginning in 2007–2008, 23 new positions would be created to staff new rehabilitation teams in the NWT.

The GNWT submitted that, as resource development expands in the NWT, the Department would continue to include all projects in its planning processes to ensure the effective delivery of health and social programs and services to residents of the NWT.

The GNWT noted that the challenge with new positions is that there is always a delay in staffing even though the position is funded. It further noted that the new programming would not necessarily be influenced by the life of the Project and, based on other influences, would continue beyond the life of the Project.

With respect to whether additional community-based drug and alcohol workers would be hired if the Project was to proceed, the GNWT indicated that there was no plan to hire more community wellness workers. The GNWT did point out that there are a number of existing vacancies and that there are always ongoing efforts to fill those vacant positions. However, the GNWT indicated that, as part of the ongoing monitoring program envisioned as part of the SEA, it would monitor the need for additional workers. If the monitoring indicates an increased need for programming, the GNWT would respond with increased resources.

The GNWT submitted that it is impossible to tell if the Project would increase STI rates. However, the risks are high now and the GNWT is focusing on finding ways to reduce transmission of sexually transmitted infections.

With respect to the strategy to respond to child and family services, the GNWT indicated that it is very focused on community-based solutions, including having children remain in their home communities and, as much as possible, with extended family when there are child protection concerns. The GNWT further indicated that there is a major emphasis on the recruitment, training and support of foster homes at the community level throughout the NWT.

The GNWT noted that in the area of specialized care, such as for dual addictions, there is a need for specialized care facilities. However, because the frequency of patients presenting for treatment services becomes fewer in such cases and the economies of scale associated with being able to provide the services becomes more difficult, patients are referred south for these services.

The GNWT indicated that with respect to any new programs or services that might be funded through the MGPIF, the regional health authorities would participate in and facilitate partnerships with Aboriginal regional organizations, where those organizations considered it appropriate. The GNWT also stated that it was confident that the manner in which it allocates funds by region would address any additional Project-related burden on GNWT programs. The GNWT noted the importance of formalizing the health services requirements of the Project so that the

health care system can maintain a high level of service to NWT residents in the face of resource development activity.

In summary, the GNWT indicated that there are no quick or easy solutions to these problems, and it is important to note that taking steps to mitigate the negative impacts of the Project would not eliminate all of the social issues that communities face today. However, in the GNWT's view, these impacts could be minimized with proactive and coordinated planning among stakeholders.

Health Canada stated that an important concern identified in the EIS and submissions to the Panel is that social and mental health problems already overload the existing social and health services. Health Canada stated that it shares the concerns of participants regarding the lack of front-line service capacity to meet increased needs.

The SWC made a number of recommendations, including:

- the Proponents must contribute to the costs of increasing child care services in the communities;
- service delivery in communities must not be reduced because Project camps and work sites need services;
- in collaboration with Aboriginal organizations and the GNWT, the Proponents and the federal government must jointly fund community-based workshops to provide opportunities for residents to discuss and plan for possible social and cultural impacts;
- approval of the Project must not be considered unless the Proponents commit to shared financial support for incremental costs to wellness programs and front-line services in the communities;
- the Proponents must collaborate with regional Aboriginal organizations to financially support prevention programs and infrastructure in communities, for youth and for families, so that residents would be better able to deal with higher incomes and increases in drugs and alcohol in the community;
- the Proponents must establish an employee and family assistance plan to offer family support and individual counselling programs for workers at work sites, and for Project workers and their families in the community;
- the Proponents must share the cost of providing life skills programs in the communities;
- governments must develop a plan with funding to address health and well-being issues before any more development projects are approved; and
- the Panel should apply the precautionary approach to the prediction of impacts on community well-being.

The Hamlet of Fort Providence considered it critical that funding be made available to hire more nurses, social workers, family

violence specialists and other support personnel for a period of no less than five years following onset of the construction period. The Hamlet was of the view that it was essential that these support staff be located in Fort Providence.

The Pehdzeh Ki First Nation recommended that funding be provided for the development of a community action plan to address alcohol and drug abuse, family counselling, health services and policing.

The West Point First Nation recommended that the Proponents support community development programs, particularly for youth.

Many participants indicated a need for assistance to develop and implement community plans to address the potential for increased alcohol and drug abuse and family and community problems associated with increased drug and alcohol abuse.

The IRC indicated that it planned to use funds from the MGPIF to undertake a number of projects aimed at improving the health and wellness of Inuvialuit, including:

- development and implementation of sexual education and addiction prevention programs in schools;
- development of a comprehensive regional addictions strategy;
- hiring of social workers for Paulatuk and Sachs Harbour, and a psychologist for Tuktoyaktuk;
- development of a “healing place” (a cabin or facility out on the land for people to deal with mental health issues);
- development and implementation of an orientation and awareness program for new health workers in Tuktoyaktuk;
- development of a strategy for filling of vacant health-related positions;
- development of a healthy lifestyles promotion strategy; and
- development of wellness programming in all communities and life skills programs in Ulukhaktok and Tuktoyaktuk.

The TDLC indicated that the priority projects it might undertake with funding from the MGPIF included:

- attracting and retaining health and social services staff in the Norman Wells community, and addressing the issues of affordable housing and food in Norman Wells in support of attracting workers;
- development of a healing and wellness centre for Tulita, based on Dene/Métis cultural values and modes of healing, which would include substance abuse treatment, whole family healing and wellness promotion;
- development of crises services for Tulita; and

- development of a treatment centre for Deline, which incorporates traditional ways, on-the-land programs and family-centred healing (could be located in a central area).

PANEL VIEWS AND RECOMMENDATIONS

Some participants expressed concern that health care and social services in the NWT would not be able to accommodate the additional demands that would be imposed by the Project. The Proponents did not quantify the additional workload that could be imposed by the Project either by community or by region. Similarly, the GNWT presented its plan for increasing services, but did not set this out by community or region. The Proponents and the GNWT agreed to enter into a Memorandum of Understanding addressing access to GNWT healthcare and social services. However, there was no mention of avoiding reductions in the level of health care and social services available within communities, provisions that may be necessary to meet Project-related changes.

Participants noted the difficulties encountered in staffing positions and retaining staff in northern communities, as well as concerns regarding the effectiveness of addiction counselling and the lack of accessible treatment options.

Given these considerations, it is the Panel’s view that the ability of health care and social services to respond to the increased demands resulting from the Project has not been demonstrated. While the GNWT’s efforts to increase its capacity and address existing shortcomings are important steps towards a sustainable health care system, a consistent message relayed to the Panel in each of the communities was the need for additional resources to meet their current needs, let alone the increased needs as a result of the Project. With respect to the delivery of health and social services, the Panel is of the view that the GNWT is not yet prepared for the Project. The Panel recognizes that not all communities in the Project Review Area would be affected to the same extent. Accordingly, the GNWT would need to address, as a priority, those communities that would be most affected by the Project. Factors include the current needs and service shortfalls, proximity to camps and Project activities, potential interactions with communities, such as travel through the community, and the number of people to be hired from the community. Consideration of these factors would assist the GNWT in estimating the resources and services required to be in place in order to respond to Project demands.

RECOMMENDATION 16-13

The Panel recommends that the Government of the Northwest Territories, in consultation with the Proponents, community governments and Aboriginal organizations, within six months of the Proponents’ Decision to Construct, prepare a coordinated health care plan that demonstrates that adequate and appropriate health and social services would be in place and available to meet both existing and increased demands in the communities that would be affected by the Mackenzie Gas Project. The plan should indicate for each community affected by the Mackenzie Gas Project:

- *the current and planned resource allocations by position, including but not limited to physicians, nurses, community social workers, individual and family counsellors, Community Health Representatives, mental health workers and drug and alcohol counsellors;*
- *the strategy to be employed to staff both current vacant positions and any new positions to be created to respond to Project demands;*
- *the contingency plans for addressing shortfalls in staffing;*
- *monitoring requirements to ensure resource alignment with service demands; and*
- *progress reporting/communication plans.*

The plan should be made public and shared with the regions and communities affected by the Mackenzie Gas Project.

Given that both the IRC and the TDLC have proposed projects under the MGPIF to help address the attraction and retention of staff, and that the IRC has proposed using part of the MGPIF funds to staff health and social service positions, it is imperative that efforts be coordinated between the GNWT, Aboriginal organizations and the Proponents in order to respond to the evolving needs of the communities. Coordination of health and social services would be important to ensure that all efforts are mutually supportive and demonstrate that existing program funds were not being replaced or supplemented by MGPIF projects.

RECOMMENDATION 16-14

The Panel recommends that the Government of the Northwest Territories, over the life of the Mackenzie Gas Project Impacts Fund, coordinate its health care plan and the delivery of health and social services with the related projects and activities being carried out by regional organizations under the Mackenzie Gas Project Impacts Fund.

In addition to improved coordination, the Panel recognizes the need for a robust monitoring approach to ensure that service delivery responds to evolving community needs, particularly in the regional centres where the largest impacts are predicted. Further views on monitoring are provided in Chapter 18, "Monitoring, Follow-up and Management Plans."

16.5.3 POLICING AND SAFETY

PROponents' VIEWS

The Proponents stated that key concerns with respect to policing and protective services relate to increases in population and in crime that might be linked to alcohol abuse and increased income during Project construction. The Proponents stated that many RCMP detachment commanders reported that up to 90% of their calls for service were alcohol-related.

The Proponents submitted that RCMP detachments are under-resourced and correctional facilities are operating close to capacity. During construction, the Proponents indicated that RCMP workloads might increase substantially, especially in regional centres or communities near construction camps, given

the number of camps and the very large number of workers. The Proponents suggested that RCMP workloads could also increase as a result of Project-related traffic. The Proponents noted that, if the workload increases affected the ability of RCMP officers to perform their duties, relationships with community residents might be compromised. The Proponents also noted that the Project could impinge on police protection through the resignation of RCMP officers in response to elevated stress and burnout.

The Proponents submitted that, according to experienced camp managers, it is possible to administer a safe, secure and productive camp by providing good camp conditions and a broadly representative camp relations committee. They noted that increased workload for the RCMP would, in part, be determined by the:

- ability of camps to respond to issues and concerns central to worker contentment;
- effectiveness of alcohol and drug control policies; and
- arrangements for camp security.

The Proponents noted that, despite the presence of uniformed security personnel, even camps that are well-administered might encounter challenges to security, including theft, violence, and alcohol and drug abuse. The Proponents noted that many of these incidents would require police investigation and would need to be dealt with promptly to reduce the number of incidents.

The Proponents submitted that more significant than the camp-based calls would be Project impacts on calls from local communities. The Proponents indicated that Project employment would increase the level of stress in some families, as employment-induced separation leads to conflicting needs for workers and their stay-at-home spouses. The stresses resulting from these needs might lead to family conflict and violence. The Proponents further submitted that the major gender-related public safety issue is the greater vulnerability of women, and the frequency with which they experience abuse and violence, typically when the abuser is under the influence of alcohol. The RCMP frequently has to respond to such incidents of domestic violence.

BEAUFORT DELTA REGION

The Proponents stated that Inuvik, as the transportation hub for the northern-most part of the Project, would experience increases in policing workload. The Proponents attributed this to a temporary population increase from transient job seekers and opportunity seekers from other Gwich'in Settlement Area communities.

The Proponents submitted that policing services in Inuvik are expected to experience adverse impacts of high magnitude during construction, but these would not be significant. The population of Inuvik is expected to stabilize at 200 people above

pre-Project levels and should generate no substantial demand for policing service delivery. There might be some increase in policing burdens in Fort McPherson and Tsiigehtchic because of increased substance abuse during construction. The Proponents stated that impacts are expected to be restricted to individual communities and last only during construction.

SAHTU SETTLEMENT AREA

The Proponents submitted that Fort Good Hope and Norman Wells might experience moderately adverse Project impacts associated with temporary in-migration and elevated income levels that would last only during construction.

DEHCHO REGION

The Proponents stated that Fort Simpson, as a transportation hub for the southern NWT with easy highway access, would attract opportunity seekers from within the Dehcho Region communities, many of whom have relatives in Fort Simpson, and from the south. The increased populations and income in Fort Simpson, combined with the availability of alcohol and drugs, would lead to heightened substance abuse which, along with increased highway traffic, would add to policing burdens during construction.

The Proponents noted that the proximity to construction camps might be an occasional source of policing problems in Wrigley, Jean Marie River and Trout Lake. The Proponents noted that Wrigley and Jean Marie River are policed by the Fort Simpson RCMP detachment and Trout Lake is policed by the Fort Liard RCMP detachment, and therefore recommended that the needs of these communities be consistently monitored and backup arrangements be put in place. The Proponents stated that the increased employment income and substance abuse might lead to substantial increases in policing problems. Project-induced policing burdens in RCMP detachment communities might adversely affect protection in small communities that are dependent on policing by these detachments.

NORTHWEST ALBERTA

The Proponents noted that the Dene Tha' First Nation tribal police force cooperates with the High Level and Assumption RCMP detachments. The Proponents expected that the responsibilities of the High Level RCMP detachment would increase with increased highway and stop-over traffic associated with the Project.

The Proponents expect additional burdens on the High Level RCMP to be moderate, adverse and short-term with lesser impacts on the Assumption RCMP and the communities of Rainbow Lake, Zama City and Chateh, which are policed by the detachment.

MITIGATION MEASURES

The Proponents stated that they would be responsible for safety and security at all work sites. The Proponents' mitigation measures to address safety and protection services included:

- Setting policies regarding behaviour in project camps, including particular attention to the safety and protection of women, including:
 - gender awareness training with a focus on promoting a workplace that is respectful of gender;
 - separation of women's quarters from men's quarters; and
 - a security force in larger camps.
- Collaborating to develop incident response, access and reporting procedures to promote Project worker and public safety and security relating to the Project. (SEA 3.5.2)
- Prior to the commencement of construction activities, negotiating a memorandum of understanding relating to the services of the RCMP. The purpose of the memorandum would be to set out an administrative process for collaborating and addressing public safety needs related to the Project, which may include provisions for cost-recovery of services determined to be outside of the scope of the existing policing mandate. (SEA 3.5.3)
- Discussing Project activities and plans with the RCMP that could influence RCMP workloads, and methods of communications between camp management and the RCMP.

The Proponents noted that Project transportation activities could also affect RCMP workloads. In order to improve transportation safety, the Proponents would ensure that:

- safety is the highest priority;
- transportation equipment is regularly inspected for safety; and
- safety is taken into account when planning contractor delivery schedules.

As part of the shared responsibility between the Proponents and the GNWT, the Proponents stated that the GNWT should ensure adequate and timely short-term funding for incremental staffing of RCMP detachments to deal with increased demands on policing services.

In respect of increased traffic in northwest Alberta, the Proponents suggested that:

- more frequent and visible highway patrols would lead to slower, more careful driving and to fewer injury incidents; and
- widening of the highway where it passes through High Level, and upgrading highway and railroad crossing points would also reduce injury and other incidents.

The Proponents also noted that the measures they would undertake to help address alcohol and drug abuse, in addition to those they recommended be undertaken by the GNWT and communities, as outlined in Section 16.5.1, would reduce the potential increases in policing burdens. The Proponents further submitted that one of the most effective measures to reduce Project-induced overburdening of police services in all the centres having a liquor store would be to establish the practice, before construction, of firmly enforcing the provisions of the *Liquor Act*.

PARTICIPANTS' VIEWS AND RECOMMENDATIONS

The GNWT stated that it has the overarching responsibility for the administration of justice and public safety in the NWT. This mandate includes policing, courts, corrections and community justice. It submitted that increased worker income from the Project, with expected increases in alcohol and drug abuse, would increase social disorder and conflict, in turn increasing policing burdens for the already heavily burdened RCMP.

The GNWT has a *Territorial Police Service Agreement* with the Government of Canada. Under this agreement, the RCMP provides a full spectrum of law enforcement and community policing services. The RCMP must also assist with unexpected major events, such as multiple fatality incidents or natural disasters, and provide protection for visiting dignitaries. The majority of criminal cases are dealt with in the courts, although an increasing number of minor offences are handled through extra-judicial measures through Community Justice Committees, which are outside of the court system. With respect to the Community Justice Committees, the GNWT indicated that:

We have Community Justice Committees in almost every community in the Northwest Territories. It's a program that has been around since 1994. And the Justice Committees, they basically deal with — offenders that have committed a minor offence would come before them and to resolve the matter outside of the court system before any charges are laid. The Justice Committees deal with many young people. They provide guidance and allow the young people or the offenders to make amends and resolve the issue in a — sort of a non-adversarial way. They also are involved in community crime prevention types of initiatives. They are involved in bringing awareness — putting on workshops within the community for a greater awareness about Justice issues. They play a fairly integral role in the communities. They consist of volunteers. They receive a per diem, and they are — they are very effective in that they deal with Justice issues at a local level. (Guenther Laube, HT V82, pp. 8158–59)

The GNWT, in consultation with the RCMP, has identified “a number of pressing community safety and security issues as policing priorities.” (J-GNWT-00214, p. 10) These priorities, which will be addressed whether or not the Project proceeds, included:

- policing in small communities (ten small communities in the study region do not have full-time police presence);

- developing a strategy to combat drug and alcohol abuse (alcohol abuse is the most important adverse influence on family and community relationships);
- strengthening ties between the RCMP and the community, and strengthening support services to victims of crime;
- expanding response to family violence and sexual assault; and
- increasing Aboriginal representation within the RCMP in the NWT to better represent the communities.

In addition to these specific programs, the GNWT also described plans for legislative and policy changes, including a proposed *Safer Communities and Neighbourhoods Act*, improving legal aid services, enhancing victim support services, revitalizing community justice and creating a modern northern correction system.

In its submission to the Panel, the GNWT stated that: “Currently the RCMP in the NWT is operating at capacity with limited ability to absorb any increases in workload.” (J-GNWT-00214, p. 15)

The GNWT stated that police and other justice personnel would be challenged by their ability to access camps and work sites, some of which would be located in isolated areas and a considerable distance from host detachments. The ability to conduct investigations and perhaps remain at these locations would require proper access and support from the Proponents.

The GNWT undertook an assessment to determine the extent of pressures on policing services and the need for more resources. Based on this analysis, it determined that five communities could manage with current levels of policing services. However, it noted that, should there be unexpected changes in Project-induced impacts to these communities, adjustments to policing resource levels might be necessary. To reduce such a possibility, careful planning would need to take place between the GNWT and the Proponents. The remaining 20 communities, which receive service from ten detachments, were identified as likely requiring additional resources to mitigate the increased pressures created by the construction of the Project and its spin-off impacts. The GNWT also identified five support units as being potentially “severely impacted by the net effects of the Project.” The GNWT noted that its assessment did not include the communities that would “feel indirect effects, such as community members moving closer to the Project so that they can participate in rotational shifts.” (J-GNWT-00214, p. 16)

The GNWT stated that the policing burden in Yellowknife has increased because of the increased population and income levels associated with diamond mining. RCMP detachments in other regional centres face similar stressful scenarios because of the high number of cases per officer. In some instances, this has resulted in focusing police response on the most serious and urgent crime and protection investigations, whereas less serious calls for service are delayed or not investigated at all.

The GNWT expects more front-line and support resources would be required in order to respond effectively to the anticipated impacts of the Project on police services in the NWT, ensure community safety, and maintain appropriate levels of health and safety for police personnel. It further stated that the RCMP has advised that an additional complement of regular police officers, civilian specialists in operational communications, and information technology and support staff would be required to bolster the staff currently in place. The GNWT stated that, as part of the annual review of police resource needs, the RCMP submitted requests for resources directly related to Project impacts that would be phased in over a three-year period to correspond with the construction stage and the period of transition into the operations phase. The burden rests on the GNWT to obtain and provide the funding to enable the necessary augmentation.

As part of the SEA, the GNWT stated that it would consider the following, subject to and in accordance with GNWT policy and programming in effect from time to time:

- reinforcing existing public programs and initiating new or revised programming; (SEA 3.7.2 a)
- funding of policing services; and (SEA 3.7.2 d)
- strategies to deal with the possible increase in stress and family conflict in NWT communities. (SEA 3.7.2 e)

The GNWT indicated that, in considering the implications on the territorial justice system, it is important to appreciate two key principles: "The real impacts of the Project on the people of the NWT will extend beyond the communities which fall within the proposed Project area...the effects of the development will continue long after the construction phase of the Project is completed." (J-GNWT-00214, p. 5)

The GNWT concluded that the Project presents unknown challenges for justice and policing and that public safety issues would evolve, requiring the Proponents, the GNWT and communities to collaborate, share information and work together proactively. The GNWT further concluded that it would be able to manage public safety risks effectively if the Proponents fulfill their JRP and SEA commitments related to public safety.

In the regional workshops conducted by the GNWT and in the Panel's Community Hearings, participants recommended that the number of officers and resources provided to the RCMP be increased to address additional demands that would result from the Project, and to protect the safety and security of people in the communities.

The GNWT also stated that the RCMP and the Department of Justice have visited some communities to get ideas and suggestions on increasing or supporting the RCMP. There were suggestions around employing community/special constables, as it had in previous years. The RCMP stated that the special constable program in the NWT is non-existent at the present time

but it is involved in preliminary discussions with the GNWT that might enable the reintegration of a special constable program in the NWT. The RCMP observed that there is desire in NWT communities to see the special constable program reinstated and that there are certain activities that fall within the police mandate that might not require a fully trained RCMP officer.

The SWC recommended that, in addition to the Proponents, the federal government, through financial support to the GNWT, share the incremental costs to meet the additional demands that would be placed on the RCMP from the Project. The Proponents noted that they are not responsible for funding policing services.

During the Community Hearing in Hay River, the West Point First Nation recommended that the Proponents provide funding for the training of special constables and peace officers for the West Point First Nation.

The IRC indicated that it proposed to use part of its MGPIF funds to reinstate the community constable program and to develop an Aboriginal Policing Policy.

PANEL VIEWS AND RECOMMENDATIONS

The demand on policing services provided by the RCMP is expected to increase as a result of increased traffic through regional centres and transportation hubs, increased problems due to increased alcohol and drug abuse, criminal matters at the construction camps and increases in regional centre populations. The Panel notes that the RCMP and the GNWT have a plan to address the expected increases in demand and the Panel notes that the resources requested by the RCMP would require additional financial support from the GNWT.

RECOMMENDATION 16-15

The Panel recommends that the governments of Canada and the Northwest Territories, within six months of the Proponents' Decision to Construct, ensure that the Royal Canadian Mounted Police has sufficient financial resources to implement its plan to address expected Project-related increases in demand for police and public security services. The Panel further recommends that those resources be provided in a manner that addresses existing community demands for police services and does not reduce the levels of police and public security services provided in the other communities in the Northwest Territories.

The Panel notes that the SEA provides that, prior to the commencement of construction activity, the Proponents and the GNWT would negotiate a Memorandum of Understanding relating to RCMP services to set out an administrative process for collaborating and addressing public safety needs arising out of or related to the Project. The Panel further notes that the Memorandum may include provisions for agreement on cost-recovery or compensation measures for services determined to be out of the scope of the existing policing mandate. The Panel recognizes that ongoing coordination would be required between the Proponents and the RCMP to respond to the evolving policing

and public security needs due to the Project. The Panel further recognizes the importance of a proactive approach to addressing those needs, especially in the regional centres where the largest impacts are predicted. The Panel further recognizes that community leadership should be included in this approach and in identifying evolving policing needs resulting from the Project.

RECOMMENDATION 16-16

The Panel recommends that the Government of the Northwest Territories, the Proponents and the Royal Canadian Mounted Police, pursuant to provision 3.5.3 of the Socio-Economic Agreement, and in consultation with the leadership of the communities potentially affected by the Mackenzie Gas Project, ensure that coordination of police and public safety services be done in a manner that avoids the reduction of these services in the communities.

The Panel accepts that mitigation measures discussed in Section 16.5.1 could help to offset alcohol and drug abuse and related problems. The Panel highlights the importance of collecting information on the effectiveness of these programs to both adaptively manage these mitigation measures and to ensure that there is information available to inform the use of these mitigation measures, both at camps and in communities. Further commentary on monitoring is provided in Chapter 18, “Monitoring, Follow-up and Management Plans.”

The Panel notes the interest expressed by participants in the reactivation of the special constable program. The program, while not currently active, appears to have some potential to assist in providing certain public safety services in communities.

RECOMMENDATION 16-17

The Panel recommends that the Government of the Northwest Territories, the Royal Canadian Mounted Police and the affected communities, within six months of the date of the Government Response to the Panel’s Report, determine whether the special constable program can play a public safety service role to help address Project-related impacts on the communities. Where it is determined that the special constable program can play an effective role, the Panel further recommends that the Government of the Northwest Territories, the Royal Canadian Mounted Police and the affected communities take the steps necessary to reinstate the program prior to the commencement of construction.

16.5.4 CHILD CARE

PROPONENTS’ VIEWS

Obtaining good child care was one of the barriers to employment identified by the Proponents. The Proponents submitted that they do not see child care as being their responsibility, so they proposed no mitigation measures regarding child care.

The Proponents acknowledged that, for mothers of young children who work outside the home, integrating work and family life is often stressful and that married pipeline workers

might resemble mine worker couples in terms of the needs and tensions that workers and their at-home spouses experience from rotation and at-a-distance employment. Access to child care services is a condition for employment for women with child care responsibilities. The Proponents indicated that child care services would need to be responsive to the demands of seasonal shift rotation work in addition to providing weekend care.

PARTICIPANTS’ VIEWS AND RECOMMENDATIONS

The GNWT stated that it is responsible for provision of programming in the area of child care throughout the NWT. The GNWT further stated that it is reviewing all of its programming with regard to the Project, including current programming dealing with child care supports, and anticipates that those programs would continue and be adjusted as required to respond to the Project.

The GNWT also advised that it is increasing the funding available for operators to start up and operate child care facilities. It also noted that it is undertaking a review of all its income security programs to come up with a coordinated policy approach to support individuals in need, which would include child care support. The GNWT clarified that the funding it provides goes towards paying operating costs, such as rent or leasing a facility, and not for the construction or purchase of a building. INAC noted that the Aboriginal Skills and Employment Partnership Program does not include child care or Elder support for people that are working.

At the GNWT workshops conducted in preparation for the hearings, each region identified child care needs related to the Project, including:

- the need for increased and alternative child care support was noted at the Beaufort Delta Regional Workshop;
- the requirement for enhanced daycare with comprehensive services and flexible hours for shift workers was noted at the Dehcho Regional Workshop; and
- the need for enhanced child care facilities and programs was noted at the Sahtu Regional Workshop.

The TDLC also included, as two of the projects identified in its Summary Report of Phase 1 work on the MGPIF, child care programs for both Norman Wells and Tulita.

The SWC submitted that employment on the Project would take parents away from their family for a long time, contributing to relationship problems and family stress. It further submitted that a lack of stable child care in communities would be especially stressful for lone-parent families employed by the Project.

The SWC observed that the Proponents did not attempt to estimate the current and potential demand on existing child care services and instead stated that the GNWT should give priority

to providing child and Elder care support in communities with a substantial number of women employed in rotational positions. The SWC submitted that the Proponents' failure to address child care, although raised many times in public consultations, was an example of a gender equity perspective not being well integrated into the Project. The SWC further submitted that the Gender Analysis report did not indicate any awareness of the GNWT early childhood program, which has been in existence since 1989. The program provides financial support for operating grants and start-up grants for daycare centres and day homes, and user subsidies (depending on income) for parents using daycare.

The SWC submitted that, as part of a gender equity approach, the Proponents should examine potential child care supply and demand due to the Project, and contribute to increasing its availability. In the SWC's view, current problems contributing to an undersupply of child care services in the NWT include inadequate operator subsidies, low staff salaries and lack of suitable buildings in some communities. It also noted that, in larger communities, high child care fees are also a challenge.

The SWC recommended that the GNWT and the Proponents, without waiting for the federal government, should institute a child care program that is adequate, affordable, accessible and inclusive of support for shift work on a 24-hour basis.

In its closing remarks, the GTC recommended that practical options and resources be made available for child care arrangements to allow family members to accrue the benefits of employment by the Project without placing unmanageable stress on the family unit.

The Proponents responded to these recommendations by indicating that they are not responsible for providing child care or home care services, and that providing child care is at the discretion of governments. The GNWT responded that a specific Panel recommendation on child care is not required as the GNWT's Department of Education, Culture and Employment provides support to NWT families through the Child Care User Subsidy Program. The program is designed to assist families in making child care more affordable so that they can participate in the labour force, or pursue educational and training opportunities in the NWT.

PANEL VIEWS AND RECOMMENDATION

The Panel notes that the GNWT is responsible for child care and that the GNWT is planning a review of its child care programs. The Panel accepts the Proponents' view that they have no responsibilities to provide for day care in the communities. The Panel agrees that lack of access to child care services in the communities would be a barrier to employment.

Participants expressed concerns that the current level of child care services is inadequate or non-existent, and that the Project would increase demand for child care services. The Proponents, by not predicting or quantifying the potential impacts that the

Project could have on child care at either a regional or community level, have provided no information to assist the GNWT in meeting its responsibilities in this area. The Panel observes that child care services would need to be responsive to the demands of seasonal work, shift work and rotational work in addition to providing weekend care. To this end, the Panel recognizes that the GNWT's current programs may not be flexible enough to meet the expected Project-specific needs. The Panel notes that projects related to the provision of child care services have been proposed for funding under the MGPIF and further notes that the Fund could be used to fund other projects related to child care.

RECOMMENDATION 16-18

The Panel recommends that the Government of the Northwest Territories, within six months of the Proponents' Decision to Construct, as part of its Project-related program review:

- *identify the community-specific demands the Mackenzie Gas Project would place on child care services based on information supplied by the Proponents and by communities;*
- *identify the actions necessary to respond to those Project-related demands, including considerations such as rotational work, seasonal work, weekend care and day homes;*
- *develop and fund a program to implement the actions required to respond to the identified Project-related demand for child care services;*
- *coordinate its programs with projects to address Project-related demands for child care services being carried out by regional organizations, under the Mackenzie Gas Project Impacts Fund and by other organizations; and*
- *to be consistent with the provisions of the Socio-Economic Agreement, develop and implement a plan for:*
 - *monitoring Project-related demand for child care services;*
 - *determining the adequacy of the measures implemented to respond to that demand; and*
 - *determining for actions necessary to address, in a timely manner, any inadequacies or unintended consequences.*

16.5.5 HOMELESSNESS

PARTICIPANTS' VIEWS

The potential for the Project to contribute to homelessness was raised in the regional workshops conducted by the GNWT. At the Dehcho regional workshops, concerns were expressed that the housing supply would not meet Project demands, leading to crowding, transience and increased homelessness. At the Beaufort Delta Regional Workshop, it was said that Project-related in-migration to Inuvik from communities and transient people from the south would increase the already high level of homelessness.

The GNWT indicated that it does not fund homeless shelters. It submitted that homelessness programs are the shared responsibility of various departments in the GNWT, including the NWT Housing Corporation. The GNWT further indicated that the Department of Health and Social Services provides some funding to a coalition of non-governmental organizations in Yellowknife that provides short-term shelter and overnight shelter through the Salvation Army. The GNWT stated that, in its experience, when people come to larger centres, such as Inuvik and Yellowknife, and find themselves homeless because they are away from extended family and support, one solution is to provide them with airfare to return home. The GNWT further stated that for other people, homelessness is their lifestyle. The GNWT indicated that it has only recently focused attention on homelessness. The GNWT noted that it has relied upon non-governmental organizations to respond to homelessness needs and very little GNWT funding is being focused in that area.

The GNWT anticipates that there could be federal money available for homeless shelters through the Supporting Communities Partnership Initiative grants, provided by Human Resources and Skills Development Canada.

PANEL VIEWS AND RECOMMENDATION

As noted in Chapter 14, “Physical Infrastructure and Housing,” it is the Panel’s view that, notwithstanding the Proponents’ best efforts, there may still be an influx of migrant workers into certain communities, with resultant impacts on housing availability in markets that are already experiencing housing shortages. While relatively few participants raised the issue of homelessness before the Panel, the Panel is of the view that homelessness needs to be addressed if the regions are to be ready for the Project. The Proponents have proposed mitigation measures to avoid people moving into the regional centres and workers from the south moving to the NWT looking for work. However, in the Panel’s view, it would be unrealistic to expect this mitigation to be completely effective and the Proponents have predicted an increase in the populations of the regional centres related to the Project. The issue of homelessness is a complex one and is not simply a question of housing availability. In the Panel’s view, sudden but temporary increases in incomes, the migration of workers to regional centres (both southern and NWT residents), and increased drug and alcohol abuse are factors that may contribute to increased homelessness as a result of the Project. Notwithstanding the commitments of the GNWT and the Proponents to provide workers with financial management training, address migration of workers, and prevent drug and alcohol abuse, the Panel is of the view that the proposed mitigation cannot be expected to be completely effective. Consistent with the provisions of SEA, the responsibility to respond to and address potential homelessness issues related to the Project is that of the GNWT. The GNWT indicated that it has only recently begun to focus on homelessness.

RECOMMENDATION 16-19

The Panel recommends that the Government of the Northwest Territories, within six months of the Proponents’ Decision to Construct, as part of its Project-related program review:

- *determine, for the regional centres that have been identified by the Proponents as being the likely destinations for both transient workers from the south and for residents from the smaller communities, the capacity of the existing homeless shelters;*
- *forecast the likely Project-related increase in demand for those existing shelter spaces;*
- *where forecasted demand exceeds existing capacity, address the need for additional shelter spaces; and*
- *develop and implement a plan for:*
 - *monitoring Project-related demand for shelter space;*
 - *determining the adequacy of the measures implemented to respond to that demand; and*
 - *determining the actions necessary to address, in a timely manner, any inadequacies or unintended consequences, consistent with the requirements of the Socio-Economic Agreement.*

16.5.6 WOMEN’S SHELTERS

PROPONENTS’ VIEWS

The Proponents noted that there are shelters for women and children in Tuktoyaktuk, Inuvik, Yellowknife and Hay River and that a shelter in Fort Smith is sometimes used as an overflow facility on a space-available basis. They also noted that these shelters are often filled to capacity and sometimes overfilled. The Proponents acknowledged that there is a need to provide shelters for women in communities that lack such facilities, or where they are filled to capacity, to address violence against women and children associated with the potential increase in alcohol and drug use and stresses associated with rotational labour related to the Project.

Based on their Shared Responsibility Model, the Proponents submitted that they would encourage the GNWT to consider possible ways to provide shelter for the protection of women and children seeking escape from unsafe, violent homes, including providing:

- temporary shelter arrangements, including cost-free hotel or motel accommodation for abused women and children until they can be transported to an established women’s shelter elsewhere;
- cost-free transportation to shelter facilities with unused capacity; and

- secure, local, informal shelter arrangements in all communities where no formal shelters or hotel accommodation options exist.

PARTICIPANTS' VIEWS

The GNWT submitted that there are no plans to increase the number of women's shelters or to expand existing shelters. The GNWT stated that there was a review process underway to evaluate the programming in relation to shelters. The GNWT also indicated that a Family Violence Coalition had been organized and was setting objectives. Part of the GNWT's review would look at access to services in areas where there is no shelter. The GNWT submitted that, with only five shelters across the NWT, people who require protection might need to access services outside their community.

The Government of Yukon observed that the women's shelters in Dawson City and Whitehorse experienced increased usage by women from the NWT. It submitted that, based on the pre-existing relationship between women in the NWT and shelters in Yukon, and that those fleeing a violent situation might not want to stay in their home community, usage of Yukon shelters might increase if family violence occurs. The Government of Yukon also submitted that follow-up programs might be necessary to track any increases in the use of Yukon women's shelters by NWT women and additional support might be necessary for any significant increase in use.

The SWC submitted that women felt there would be many negative social impacts from the Project. Because of more employment and higher incomes from resource industries, SWC was already seeing an increase in women coming to family violence shelters, and an increase in the use of alcohol and drugs. The SWC also submitted that individuals would suffer long-term impacts if they were victimized through a Project-induced increase in family violence or sexual abuse. In SWC's view, violence does not have to occur over a long period of time for a victim to suffer long-term impacts. The SWC stated that the Proponents and the federal government, through financial support to the GNWT, must share the incremental costs of increasing and maintaining front-line services to meet additional demand due to the Project, including the development of more shelter capacity and the establishment of family violence counsellor positions in each community.

The TDLC indicated that it would undertake the following projects with funds from the MGPIF:

- safe houses or emergency shelters for children who are in temporarily unsafe situations are planned for Norman Wells and Tulita; and
- a safe house or emergency shelter for victims of family violence is planned for Deline.

PANEL VIEWS AND RECOMMENDATION

The Panel observes that there are no shelters within the Sahtu region. While the Proponents indicated that they would encourage the GNWT to consider possible ways to expand the number and capacity of family and women's shelters, there is no indication that this has been discussed with the GNWT or that the GNWT would be willing to consider their suggestions. The Panel also recognizes the need for family violence counsellors, as suggested by the SWC, and highlights the need to not only address the requirement for a safe place but also the need to ensure that there would be ongoing support services available. As with homelessness, the issue of family and women's shelters is a far more complex issue than simply the number and capacity of shelters. Many factors contribute to the need for shelters and ongoing support services for those who require shelter. As the Project would bring increased income levels, increased family stress due to extended periods away from home, increased availability of drugs and alcohol, and migration of workers into the regional centres, there is a need, in the Panel's view, to have adequate services in place before construction of the Project commences in order to be able to respond to the stresses the Project would bring.

RECOMMENDATION 16-20

The Panel recommends that the Government of the Northwest Territories, within six months of the Proponents' Decision to Construct, as part of its Project-related program review:

- *determine, for each of the regions affected by the Mackenzie Gas Project, the capacity of the existing family and women's shelters and the services necessary to provide ongoing support to those who need sheltering, including the provision of counselling services;*
- *forecast the likely Project-related increase in demand for both shelters and ongoing support services;*
- *where predicted demand exceeds existing capacity, address the need for additional shelter spaces and ongoing support services;*
- *coordinate its programs with similar projects being carried out by regional organizations under the Mackenzie Gas Project Impacts Fund; and*
- *develop and implement a plan for:*
 - *monitoring Project-related demands on family and women's shelters and related services and the capacity to meet those demands;*
 - *determining the adequacy of the measures implemented to respond to those demands; and*
 - *determining the actions necessary to address, in a timely manner, any inadequacies or unintended consequences, consistent with the requirements of the Socio-Economic Agreement.*

16.5.7 ELDER CARE

PROponents' VIEWS

The Proponents noted that increased demands for delivery of services during Project construction, including Elder care, are a key concern. The lack of options for Elder care would be a barrier to employment for those who currently provide Elder care or would be required to provide it during Project construction.

PARTICIPANTS' VIEWS

The GNWT stated that it provides a range of assistance in caring for Elders depending on the nature of the individual's situation, including home support, home care, supportive living facilities where Elders live independently (similar to a group home setting), long-term care and public guardianship. The GNWT stated that the desire and preference is to keep the individual in their home setting with support from family and home care workers, for as long as possible because it has benefits for the both the individual and their family.

The SWC observed that the Proponents did not address Elder care and, instead, stated that the GNWT should give priority to providing Elder care support in communities with a substantial number of women employed in rotational positions. The SWC submitted that the concept of job readiness must be redefined to address access to support, including Elder care. In addition the SWC submitted that, in addressing where services should be made available, there needs to be a collaborative effort to identify solutions. The SWC also indicated that the issue of whether these services should be provided on the work site or in the person's community would also need to be determined.

INAC noted that funding under the Aboriginal Skills and Employment Partnership program is not designed to cover Elder care while caregivers are at work.

A number of projects related to Elder care were proposed, using funds from the MGPIF, including:

- the IRC proposed that home care workers assist Elders and disabled persons with housework and personal care in Sachs Harbour; and
- the TDLC proposed that Elder centres be established with programming for Tulita and Deline and long-term care for Elders in Tulita.

PANEL VIEWS AND RECOMMENDATION

Though the issue of Elder care was raised during the hearings, the Panel observes that participants were not specific on the needs that they thought should be addressed. In the Panel's view, the nature of employment opportunities (seasonal, shift and rotational work) provided by the Project would require employees to be away from home for extended periods. For those who provide care for their Elders, this has the potential to become a barrier to employment on the Project if other options for Elder

care are not available. The Panel notes that the Proponents did not quantify, on either a regional or a community level, the degree to which access or the lack of access to Elder care could be a barrier to employment in the Project.

The GNWT currently maintains home care and support programs. However, as in the case of child care, the Panel observes that Elder care services would need to respond to the demands of seasonal, shift and rotational work in addition to providing weekend care. The Panel further recognizes that long-term care facilities are not available in every community and that the goal is to keep Elders in their home setting as long as possible. To achieve this, it is the Panel's view that, because of the nature of the employment opportunities, additional home care support would be required for evenings and weekends while Project workers are on shift or rotational work.

The Panel acknowledges that projects are being planned under the MGPIF to support Elders and that primary responsibility for addressing potential impacts on Elder care services in relation to the Project, consistent with the Shared Responsibility Model, rests with the GNWT.

RECOMMENDATION 16-21

The Panel recommends that the Government of the Northwest Territories, within six months of the Proponents' Decision to Construct, as part of its Project-related program review:

- *determine the community-specific demands that the Mackenzie Gas Project would place on Elder care services, including the specific needs of those who may be working on the Project, such as those related to shift work, seasonal work and weekend care;*
- *identify the current range of community-specific Elder care services that are available to meet the predicted demand;*
- *where forecasted Project-related demand exceeds existing capacity, address the need for additional capacity and ongoing support services;*
- *coordinate its programs with similar projects being carried out by regional organizations under the Mackenzie Gas Project Impacts Fund; and*
- *develop and implement a plan for:*
 - *monitoring Project-related demands on Elder care services and the capacity to meet those demands;*
 - *determining the adequacy of the measures implemented to respond to those Elder care demands; and*
 - *determining the actions necessary to address, in a timely manner, any inadequacies or unintended consequences, consistent with the requirements of the Socio-Economic Agreement.*

16.5.8 SUICIDE

PROPOSERS' VIEWS

The Proponents identified suicide rates as a key indicator of community well-being, health care conditions and health care services. They cited the final report of the Forum on Health and Social Services to the GNWT Minister of Health and Social Services, which stated that "substance abuse problems in our communities are deeply rooted and of long standing. People are beset with feelings of hopelessness, despair and impotent rage. From this comes violence, suicide and sexual abuse." (EIS, V6B, Section 5, p. 12)

PARTICIPANTS' VIEWS AND RECOMMENDATIONS

The GNWT submitted that large resource development projects are accompanied by activities that might act as stressors on individuals, families and communities. It submitted that the social impacts observed from past resource development projects in rural, Aboriginal and northern communities include substance abuse, psychosocial illness and suicide, disruption of families, violence and crime.

The GNWT cited a study of the impacts of construction of the Trans Alaska Pipeline System that indicated an increase from 29 to 49% in the number of crisis calls to a Fairbanks community referral line, and a five-fold increase in the number of calls that were suicide-related. In addition, there was an increased need for counselling services. The Alaska State Mental Health Clinic saw an increase of 40 to 50% of new clients during pipeline construction. Clinic staff confirmed that these clients were long-time residents of the community as opposed to newcomers.

The GNWT submitted that these impacts can be the direct result of stress caused by community change resulting from development. The GNWT submitted that there are no easy solutions and that the Proponents, Department of Health and Social Services, regional authorities and community residents would have to work together to collaboratively mitigate the potential health and social impacts of the Project.

Health Canada filed a study with the Panel that suggested evidence of a link between the degree of control held by a community and individual health status. The Canadian Institute of Health Information 2004 study, entitled *Improving the Health of Canadians*, cited research by Chandler and Lalonde, which examined youth suicide in British Columbia First Nations. The study found that communities that have taken active steps to preserve and rehabilitate their own cultures are shown to have lower youth suicide rates.

Health Canada endorsed the hypothesis that self-determination through means such as governance; control of education, health and other social services; and cultural continuity would contribute to decreased social problems and, therefore, to increased health of First Nations. Health Canada also noted that other surveys on

First Nations and Inuit communities show the similar associations between poorer health status and loss of culture, cultural discontinuity and loss of land. In response to questioning, Health Canada was not in a position to say whether the same factors influencing health indicators in the British Columbia study were influencing Aboriginal communities in the NWT.

In commenting on the Chandler and Lalonde study, the GNWT noted that the connection between the level of suicides and variables such as cultural continuity and self-government, or the sense of being in control, is still hypothetical. The GNWT noted that further studies are planned in Manitoba to test the hypothesis.

Dr. Frances Abele, consultant to the Alternatives North Coalition (ANC), submitted that a plot of the boom-and-bust cycles against indicators, such as suicide and interpersonal violence, suggests that there is a correlation between suicide and development. Dr. Abele hypothesized that suicide rates are linked with the disturbances of people's expectations of each other that come with large cash infusions and either periodic absences from the community or long-term absences and returns.

Dr. Abele also observed that research about high levels of suicide in indigenous communities is starting to yield some results. Although it is early on in the process, it seems clear that people require a certain amount of predictability from their environment, and a certain sense of control or efficacy. Dr. Abele submitted that hopelessness comes when people encounter problems and can see no way to resolve them. Stress is created when the terms of work or the terms of life are constantly changing or are impossible to figure out. Dr. Abele suggested that problems with rotational work could be avoided by finding ways of organizing employment for people who do not want to permanently leave smaller communities but who need occasional wage labour. This would avoid problems associated with uncertainty because the individual would retain some sense of control over their circumstances. Dr. Abele further suggested that part of the solution is that the home that the individual is going back to has to be there as a refuge and a healthy place to go back to.

Dr. Parlee submitted that youth might be more adversely affected than the adult population. In Dr. Parlee's view, research on youth suicide and self-continuity suggests that youth are already suffering from discontinuity because of the changes they are going through physically, socially and economically, which are the very types of changes that would also be associated with the Project. Dr. Parlee further submitted that, given the short construction phase, there would be potentially significant changes of short-term duration, rather than a steady incremental level of change, which could help explain why youth populations might be of key concern.

Dr. Parlee further submitted that the Chandler and Lalonde study that examined youth health, specifically suicide in Aboriginal communities in British Columbia, suggests that income and employment are not ways to overcome concerns in terms

of youth well-being. Rather, other issues around stability and continuity are more important. Dr. Parlee submitted that added employment and income in the community might exacerbate problems of youth well-being, as they do not see youth being employed directly or necessarily gaining long-term benefits. Dr. Parlee further submitted that, to be considered mitigation, there would need to be some way of structuring benefits so that employment opportunities would be long-term, not only for a two-year period.

The GTC, the K’atlodeeche Youth Council and SWC recommended increased resources for suicide prevention programming and counselling for youth and their families.

PANEL VIEWS AND RECOMMENDATION

As in the case of alcohol and drug abuse and gambling, many views were presented with respect to the potential causes of suicide, the potential for the Project to impact suicide rates and the complexity of factors involved. The GNWT, Health Canada, the ANC and the Deh Gah Go’tie Dene Council raised concerns that there could be a correlation between potential Project impacts and suicide rates for youth. Many questions remain regarding the impact the Project may have on current rates of suicide and whether any Project-induced changes would be discernable from other factors. However, on the basis of the evidence before it, the Panel is not in a position to determine the extent to which the Project might affect the current situation, or how it might do so.

Given the seriousness of the concerns surrounding any potential suicides, the current stresses on health and social services, and the fact that suicide cannot be attributed to a single factor, the Panel is of the view that it is of the utmost importance to minimize Project impacts that could contribute to suicide, such as increased drug and alcohol use, and increased family and community stress leading to violence and family breakdown. Many of the measures to minimize Project impacts on communities, families and individuals are discussed elsewhere in this chapter. However, the Panel is of the view that additional measures are required to address any potential Project contributions to suicide.

RECOMMENDATION 16-22

The Panel recommends that the Government of the Northwest Territories, in cooperation with the Proponents and communities, within six months of the Proponents’ Decision to Construct:

- *determine community-specific needs for suicide prevention programs, awareness programs and health care workers and address those needs with specific programs;*
- *coordinate its programs with similar projects being carried out by regional organizations under the Mackenzie Gas Project Impacts Fund; and*

- *develop and implement a plan for:*
 - *monitoring Project-related needs for those suicide prevention and awareness programs and counsellors;*
 - *determining the adequacy of the measures implemented to respond to those needs; and*
 - *determining the actions necessary to address, in a timely manner, any inadequacies or unintended consequences, consistent with the requirements of the Socio-Economic Agreement.*

16.5.9 TRADITIONAL LANGUAGE AND CULTURE

PROponents’ VIEWS

Recognition of the responsibility taken by Aboriginal communities to protect the land, and the importance that community residents place on retaining traditional values and practices was highlighted by the Proponents as being of particular importance for the Project.

The Proponents stated that concern about the Project’s potential impacts on traditional culture included two specific issues:

- potential Project impacts on traditional harvesting (hunting, fishing and trapping), which in turn could affect Aboriginal cultures; and
- potential Project impacts on language and cultural preservation.

The Proponents noted the possibility that cultural retention might be affected by increased southern influences. The Proponents considered the strong traditions and spiritual values that underlie NWT Aboriginal cultures, including the high value placed on stewardship of the land, and the respect and honour for Elders. Consultation undertaken by the Proponents showed that traditional culture is extremely important to Aboriginal residents. The Proponents emphasized that both harvesting and language are mutually reinforcing economic and cultural influences. The education system and mass media have great impacts on language and culture retention, which are greater impacts than the Project. Two Project-related impacts were noted:

- employment income would be available to invest in harvesting equipment and activities; and
- during the peak periods of the construction phase, workers would have less time to harvest.

The Proponents further stated that the Project would increase employment of Aboriginal people and increase their on-the-job associations with non-Aboriginal workers. The Proponents observed that these influences would reduce the time workers spend in their home communities with their families, and might change the influence of the family and community on

workers. Collectively, these influences, as well as the direct Project impacts on Traditional Knowledge practices and skills and harvesting, which gives them functional importance, could affect Aboriginal language use and cultural education.

The Proponents submitted that the Project would make positive contributions to social and cultural well-being, including:

- integration of community interests into Project plans;
- Project-sponsored Traditional Knowledge Studies that help the communities to collect, document, retain and share their Traditional Knowledge;
- mitigation measures, such as flexible work schedules where possible, cultural and gender awareness training for all workers, and life skills and money management training; and
- implementation of policies banning drugs and alcohol, and racial, sexual and other forms of harassment at work sites.

In addition, the income from Project-related employment would give workers the resources to increase lifestyle options. Together, these measures would help Northerners to be involved in resource development, while maintaining a stable social and cultural life in their communities.

The Proponents suggested that, given the moderate indicator standings and some prior experience with high income levels, much of the Project earnings might be spent on improving traditional and non-traditional lifestyles. The Proponents submitted that this would likely be particularly true of the smaller and more isolated Dehcho Region communities.

The Proponents further submitted that employment could lead to increased spending on harvesting equipment, with full-time and seasonal harvesters being the most eager to invest in upgrading their equipment.

The Proponents would develop details of programs to support traditional culture and traditional harvesting as Project plans are refined and as construction contracts are awarded. The Proponents stated that they would consider supporting gender-differentiated community involvement activities if necessary.

The Proponents stated that impacts on traditional culture, including harvesting, would be mitigated by providing flexible work schedules where practical to accommodate northern workers' wishes to participate in traditional harvesting and other cultural activities. Increases in disposable income through Project employment would enhance harvesting, which requires monetary support.

The Proponents indicated that they would continue to consult with communities and use Traditional Knowledge to avoid impacts to sites that are culturally, spiritually and traditionally important.

The Proponents also indicated that, in order to support and encourage the promotion of cultural preservation, sustainability and understanding, they would:

- provide cultural awareness training to facilitate smooth, friendly interaction between Aboriginal and non-Aboriginal employees at work and in camps and to promote appreciation and respect for Aboriginal people and their culture;
- support cultural activities and events, including community-based traditional lifestyle initiatives promoting traditional culture and positive relationships with communities (such as Aboriginal language proficiency demonstrations and competitions), in a manner that is consistent with their principles and practices for community involvement; (SEA 3.3.2 a)
- assist with financial support for community-based culture or language programs or agencies in the NWT from time to time, in a manner that is consistent with their principles and practices for community involvement; (SEA 3.3.1 b)
- to the extent commercially reasonable, provide flexible work schedules to accommodate traditional harvesting, and cultural, family and community needs in balance with the requirements of the Project, recognizing that flexibility would be limited during winter construction seasons; (SEA 3.4.1)
- provide, if requested by Aboriginal artisans, a reasonable opportunity for them to display and sell their handcrafts in construction camps; (SEA 3.4.1 b)
- periodically provide country foods in the construction camps; (SEA 3.4.1 a)
- support community-based traditional lifestyle initiatives that promote traditional harvesting (such as traditional harvesting camps for young people, and traditional skill proficiency demonstrations and competitions) from time to time, in a manner that is consistent with their respective principles and practices for community involvement; (SEA 3.4.1 c)
- use reasonable commercial efforts to provide advance notification of Project activities, locations and schedules to traditional land users who are either recognized as such pursuant to applicable regulations or who have identified themselves as such in the community consultation process; (SEA 3.4.2)
- provide interpreters at community meetings where required; (SEA 3.3.1 b)
- encourage Aboriginal language use by providing access to Aboriginal language reading material, radio and television broadcasts, tapes, CDs and/or other media at camps, where commercially available; and (SEA 3.3.1. c)

- use appropriate communication, including interpreters and translators, where required in the human resource processes for all Project workers, such as interviewing and hiring. (SEA 3.3.1 d)

The Proponents submitted that the following GNWT efforts should also continue:

- facilitating traditional harvesting;
- encouraging local school boards to provide Aboriginal language instruction; and
- providing courses at Aurora College designed to help perpetuate traditional skills and activities.

With respect to their plans for mentoring programs to support and encourage Elders in teaching youth the importance of the land and harvesting, the Proponents indicated that they have funded a number of cultural events, including on-the-land activities. The Proponents further indicated that they would continue to be responsive to requests from communities for these types of activities.

The Proponents, in providing additional information on their Access and Benefits Agreements stated that the title to section 5.13 of those agreements — “No Interference with Tuliata Dene and Activities” — identifies that the Proponents would use reasonable efforts to minimize any interference with or adverse impacts on the lands for which access rights have been granted, and would use reasonable efforts to minimize any interference with the Dene and Métis use or peaceful enjoyment of the lands.

PARTICIPANTS’ VIEWS AND RECOMMENDATIONS

Health Canada, in its review of the Project, focused on culture as reflected in the traditional use of the land and the traditional way of life, the number of communities affected and the capacity of communities to deal with those impacts. Health Canada was of the view that the Project would affect the fragile balance of what it characterized as the dual economy in Aboriginal communities by encouraging monetary jobs to the detriment of the traditional in-kind economy. Health Canada indicated that traditional harvesting and trapping are still very important from a diet, economic and cultural perspective, and the percent of households consuming country foods has been increasing since 1993. In Health Canada’s view, the Project’s potential social and cultural impacts have to be analyzed from a historical perspective. In this sense, the Project impacts should be added to other historic transformations that affected northern communities as well as to the impacts of climate change. Health Canada further stated that the Proponents’ mitigation measures focus mainly on the construction phase. It submitted that the Proponents are assuming that the Project would help to maintain the dual economy balance because younger, non-harvesting family members would contribute Project-related income toward needed harvesting inputs of their older relatives and friends. Health Canada stated that this hypothesis assumes that young

people would want to work on the Project, accommodate to wage-work conditions and maintain the tradition of sharing. Health Canada raised concerns regarding the post-construction phase and what young workers would do upon returning to their communities without income, and having lost skills and interest in traditional activities.

Health Canada submitted that lessons learned from the past and from other projects allowed it to conclude that significant adverse social and cultural impacts on those communities would occur not only during construction, but also after construction. Health Canada submitted that research on impacts from Canadian mega-projects, such as mines, hydroelectric projects, pipelines, and oil and gas development, has concluded that those projects have been, in part, the reason for the profound changes accelerating the loss of traditional ways of life in Aboriginal populations. Health Canada disagreed with the Proponents’ determination that impacts would be short-term and not significant. Health Canada’s view, based on the evidence it has reviewed, is that the social and cultural impacts would be long-term, deeply affecting community and individual identity, self-esteem and well-being.

INAC recommended that the Proponents include clear strategies in its Socio-Economic Effects Management Plan to:

- address opportunities for Aboriginal employees to practice and maintain traditional economic activities;
- include traditional economic activities in monitoring and impact management plans;
- identify any alternative means to address impacts on traditional economy; and
- demonstrate how any data collected on the impacts to the traditional economy could be consistent with and contribute to other monitoring programs.

The IRC submitted that there is a trend towards decreased consumption of country foods and increased consumption of store-bought foods as people enter the wage-based economy and have less time to participate in traditional activities. This trend has been linked to increased rates of obesity and incidence of diabetes as well as a general decline in overall health. The IRC further submitted that, based on its experience, increased employment in the wage-based economy would see a decline in the teaching of traditional skills and language, and a decrease in the prominence of the traditional harvesting-based lifestyle. To counteract these potential impacts, there would need to be an increase in the teaching of these skills in a formalized setting. As participation in a wage-based economy increases, new programs will be necessary to address the inclusion of Aboriginal languages, culture and heritage.

The IRC indicated that its strategies related to culture, environment and traditional economy included:

- increasing availability of formalized programs teaching traditional activities, culture and language;

- implementing on-the-land programs, including support and traditional training;
- enhancing culture and language programming;
- developing programs to support the consumption of locally harvested foods; and
- implementing programs to support the traditional economy and the purchase of locally harvested country foods.

Specific projects identified in support of those strategies included:

- a multi-purpose on-the-land facility to run a variety of on-the-land programs, including for youth and Elders;
- funds to create an archive and to record traditional activities; and
- a strategy to support people going out on the land.

The Dehcho Harvesters Council recommended that INAC, the GNWT, the Proponents and their subsidiaries be required to take cultural awareness training workshops and on-the-land activities with harvesters so that their work would take into consideration the reality of Dene culture to ensure its continued existence. In response, the GNWT indicated that the responsibility for cross-cultural training of employees rest with each employer. The GNWT indicated that paragraph 3.3 of the SEA promotes cultural understanding and preservation. The Proponents agreed with the recommendation, with variation. The Proponents indicated that all Project construction workers would receive cross-cultural awareness training. The awareness training would not include on-the-land activities.

The Dehcho Harvesters Council recommended that the Proponents, INAC, the GNWT, the Panel and the NEB undertake a thorough review of its traditional economy and research the potential impacts on its physical, cultural and spiritual well-being. In response, the GNWT indicated it did not agree with the recommendation as the Panel has the role of determining the extent and significance of potential Project impacts. In the GNWT's view, a further review of the traditional economy should not be required prior to Project approval. The GNWT indicated that any negotiations regarding compensation for impacts on the traditional economy should occur between Aboriginal authorities and the Proponents. The Proponents also disagreed with the recommendation, submitting that the EIS determined that there would be no significant adverse impacts on the traditional economy of the Dehcho or any of the other Project area regions.

The Dehcho Harvesters Council further recommended that proper, culturally appropriate programs be adequately funded and established to provide First Nations with the capacity to work with their people to develop financial and economic capacity to become more self-sustaining. In response, the GNWT submitted that such programs are not required to be addressed as a Panel recommendation. The GNWT indicated that the Proponents

have committed, under paragraph 2.5 of the SEA, to provide on-the-job support for employees. The GNWT also indicated that it provides ongoing support for life skills training through community learning centres. The Proponents also disagreed with the recommendation, submitting that First Nations in the Project area would be able to increase financial and economic capacity by taking advantage of the Proponents' commitments regarding employment and business opportunities, and promotion of cultural activities.

The GTC recommended that on-the-land family and individual support be offered informally to families and individuals who are seeking a reconnection with culture. Employment should be arranged to facilitate workers participating in certain traditional activities without the threat of job loss. The Proponents agreed with the recommendation, with variation. The Proponents submitted that they would offer programs only for its workers. The Proponents further indicated that they would, to the extent commercially reasonable, provide flexible work schedules to accommodate traditional harvesting and cultural, family and community needs in balance with the requirements of the Project. In addition, the Proponents indicated that each proponent would support and encourage the promotion of cultural preservation, sustainability and understanding by supporting cultural and community wellness activities and events in a manner that is consistent with its principles and practices for community involvement, as described in paragraphs 3.2.8 and 3.3.2 of the SEA.

The Gwich'in Social and Cultural Institute submitted that, throughout the Project but especially during the construction phase, teaching young people bush skills would be harder due to school and work requirements, consumption of store-bought food and cultural changes. It noted that the Proponents should support practices that allow Gwich'in Elders and adults to take youth to the land. The Proponents agreed with this recommendation, with variation. The Proponents submitted that they would support and encourage the promotion of cultural preservation, as described in the SEA.

The Gwich'in Social and Cultural Institute also recommended that the Proponents recognize that country foods are very significant and important for the Gwich'in. Gwich'in employees should have the opportunity to hunt and fish at appropriate times without penalty. The Proponents agreed, with variation, submitting that they recognize the importance of country foods to residents in the Project study area. However, the Proponents stated that Project workers would not be permitted to hunt or fish while at work sites. The Proponents indicated that they would provide flexible work schedules to accommodate traditional harvesting and other Aboriginal cultural, family and community needs, when practical, recognizing that work flexibility would be limited in the peak winter construction seasons.

The North Slave Métis Alliance recommended that, prior to construction, the Proponents, Canada and the GNWT provide cross-cultural training for immigrant workers, industry

representatives and government employees. This training should include Métis history and culture. The GNWT disagreed with the recommendation, indicating that it should be directed to the Proponents and that cross-cultural training for other sectors was not within the mandate of the Panel. The Proponents agreed with the recommendation, with variation. The Proponents indicated that cultural awareness training would be provided to all Project workers. The Proponents further indicated that, before construction, local or region-specific information would be integrated into the training. The Government of Canada indicated that its standard policies include cross-cultural training opportunities for employees.

The Dehcho Elders Council, Dehcho Harvesters Council and Dehcho First Nations submitted that the Panel must:

recognize that cultural life is generated by the daily experiences of people as they struggle to meet economic needs and celebrate their spiritual beliefs in ceremony. It is these two fundamental aspects of culture which generate the experiences on which the intellectual knowledge and emotive actions and responses to life are based, and in which the culture sustains itself. (J-DFN-00027, p. 3)

They further submitted that the Panel must recognize that “the economy of industrial cultures are in many ways...confrontational and destructive to the Dene culture, impacting in a very negative way on its’ capacity to cope with required adjustments at personal, family, and community levels.” (J-DFN-00027, pp. 3–4)

The TDLC submitted that the three communities of Norman Wells, Tulita and Deline were consistent in their reporting that culture, in the form of the traditional economy, language, values and laws, has been under threat for some time and that this threat will intensify with the opening up of the area to further development. The TDLC submitted that priorities for keeping cultures and communities strong include passing on Traditional Knowledge in various ways. These include on-the-land programs where Elders can teach youth; Traditional Knowledge centres; language classes; promotion of arts and crafts; and revival of Dene laws. Strategies for keeping communities strong include local development, greater control of resources, and protection of the economic and social viability of communities.

The TDLC indicated that it was planning a number of projects aimed at preserving, protecting and passing on Traditional Knowledge and way of life, utilizing funds from the MGPIF. These included:

- Traditional Knowledge centres and programming for Tulita and Deline;
- a museum in Tulita;
- on-the-land programs and activities;
- support to youth who practice the traditional economy (hunting, trapping and fishing); and

- promotion of local arts and crafts such as beading, tanning hides and weaving snow shoes.

The Sambaa K’e Dene Band recommended that it be acknowledged that the Project would have (and is already having) socio-economic impacts on the community. It indicated that, in order to reduce negative impacts and increase community benefits, government and industry must provide additional resources to the Sambaa K’e Dene Band to teach, encourage and support traditional land use, use of the Dene Yati language and other important cultural practices.

The SWC submitted that Project employment and Project-related use of the land would weaken traditional use of the land, including resource harvesting, such as gathering plants for food and medicinal purposes. The SWC indicated that the link between cultural values and harvesting is illustrated by research in the Fort McPherson area that documented the socio-cultural importance of berry picking to women and families, including aspects of individual and family health, social connectivity, cultural continuity and spirituality. The SWC suggested that decreases in harvesting of animals would have a negative impact on the production of traditional arts and crafts, including traditional clothing, by women. The SWC indicated that the land is the wellspring of Aboriginal culture, history and identity. In the SWC’s view, the overwhelming focus on Project employment and the nature of rotational work would contribute to weakening cultural continuity and cohesion, and the transmission of Traditional Knowledge. It is the SWC’s view that “people will have less time or focus for working together and sharing as a community in ways that reflect traditional values. Individuals will become more isolated from each other.” (J-OHP-00134, p. 8)

The SWC further suggested that greater dependence on the wage economy and lifestyle would accelerate the current trend of loss of Aboriginal languages, and widen the gap between youth and Elders. The SWC indicated that the large influx of southern workers and the values of the Project might diminish Aboriginal language, culture and sense of identity for individuals and communities.

The SWC recommended that the Proponents must:

- collaborate with other organizations and communities to support and encourage individuals and families to remain connected, and practice and celebrate their languages, cultures and traditions;
- financially support initiatives to increase the use of Aboriginal languages in schools and communities, and support the practice of Aboriginal culture; and
- ensure that cultural initiatives put forward by women’s groups, including the traditional culture and pursuits of women, receive adequate financial support.

The SWC submitted that women have expressed concern about potential impacts on the land. The SWC indicated that women

are also concerned about the potential impacts on fish and water from increased barge traffic, river crossings and other construction activities. Women Elders in the Sahtu expressed great concern about the potential socio-economic impacts and potential impacts on the environment, animals and plants since many women gather medicinal plants as well as berries for food. SWC indicated that women have said that the influx of southern workers to the Project would further stress the already fragile language and culture. The family unit becomes fractured and traditional values change when members work away from the community or in industrial settings. Communities are already concerned with the lack of volunteers and participants in social, cultural, sport, recreation and other community events. It would only get worse with Project employment. Every effort must be made by the Proponents, government, leaders and community groups to support and encourage individuals and families to remain connected, and to celebrate and practice their language, culture and traditions.

The SWC submitted that the Proponents, in assessing potential impacts on traditional culture, provided no discussion of the potential impacts on Aboriginal women's production of fine traditional clothing, an important part of cultural maintenance and Traditional Knowledge that might be affected by changes in harvesting or increased Project employment.

Randall Pokiak in Tuktoyaktuk submitted that Traditional Knowledge is acquired continually over a lifetime. He submitted that, when there are periods where harvesting is not practised or practised at a reduced level, the Traditional Knowledge that could have been learned in that period can never be recovered. He went on to state:

For the harvester, each of the four seasons on a yearly basis are essential for income, food and gaining practical experience as well as passing on or learning TK and a life skill. To a harvester a season lost is unretrievable, to gain experience or learn more about that season a harvester has to wait the whole year before their given another chance to enhance themselves properly in the harvesting lifestyle on that particular season. (J-POKIA-00005, p. 42)

Mr. Pokiak stated that a training program is needed to ensure that, during the period of the Project, and associated oil and gas development, the Traditional Knowledge of harvesters continues to be passed on to younger generations. He noted that the current language, culture and trapping training programs of the IRC and government are a good start and should be continued. However, Mr. Pokiak indicated that a year-round training program is required to address the potential loss of Traditional Knowledge resulting from Project impacts and impacts of future induced development. This training program would allow experienced harvesters to train the generation of interested, younger Inuvialuit in "way of life and life skills...while there is still that traditional expertise available and there are young Inuvialuit interested that will not be involved with the O/G industry." (J-POKIA-00005, p. 43) In order to transfer Traditional Knowledge required for

harvesting to the younger generation, Mr. Pokiak stated that the training program must operate through the cycle of a harvesting year, and in the varying environments in which harvesting and trapping take place.

Mr. Pokiak recommended to the Panel that the Proponents and the oil and gas industry compensate for the potential loss of Traditional Knowledge and the harvesting way of life by setting funds aside annually for such a harvesters training program. This year-round training program would best be administered by a non-profit organization representing harvesters. Mr. Pokiak noted:

I would suggest that the MGP and the Proponent find a way to make a deal with a collective group or individual harvesters or through a pilot project that would try reach the next generation so the wildlife, wildlife habitat and environment issues could also be properly addressed in the future as the O/G activity develop and expand into the different areas of the ISR, keeping in mind the impacts that will be caused by their mega project.

I am focusing and stressing this social need in the ISR out of my concern for maintaining the value of the land, offshore with their resources, training Inuvialuit to be knowledgeable about the environment so there will be something for the future generations, so they can continue to be true custodians of their heritage. ...

It had taken Inuvialuit harvesters that were made up of both men and women that survived those situations to take the leadership role to pass on their land based skills at that era, and today my family has benefited. Now a harvester's way of life is threatened by the O/G activity unless the present generations of Inuvialuit get the training of those same land based skills to make them continue to have a true and secure future in the ISR. (J-POKIA-00005, pp. 84-85)

Mr. Pokiak recommended that there be royalty sharing to keep Inuvialuit culture and traditions alive in the ISR. He recommended that:

one percent (1%) royalty is set aside for harvesters to access through an agency controlled by the Inuvialuit. Harvesters through access to these funds can keep the TK, customs and traditions active, funds from the royalty can also preserve the history and heritage of the Inuvialuit. I would suggest for example that this 1% royalty be split 60% for harvesters to access and 40% for heritage. (J-POKIA-00007, p. 2)

PANEL VIEWS

The maintenance of traditional harvesting practices, traditional language and cultural preservation, and the potential impact of the Project on these traditions were important issues for many participants. The Panel notes that there were many views with respect to maintaining and protecting traditional language and culture, and the overlap of responsibilities between the Proponents, governments and communities. However, in the Panel's view, there was not sufficient evidence to distinguish

between what may be Project-induced impacts on traditional harvesting, language or culture, and other factors and influences. The Panel is of the view that there are likely considerations, other than oil and gas activities, that are affecting levels of harvesting, use of language and traditional culture. On the basis of the information before it, the Panel is not in a position to determine the extent to which the Project might affect the current situation, or how it might do so.

In the Panel’s view, the Proponents are responsible for avoiding harm or impairment to traditional harvesting, language and culture. The Proponents have proposed a number of measures and actions directed primarily at their activities and their employees, many of which have been embodied in the SEA with the GNWT. With respect to the Project as Filed, the Panel is of the view that those measures, provided they are implemented and adjusted as and when necessary, are adequate.

The Panel observes that initiatives proposed under the MGPIF to address language and traditional culture could help to offset potential impacts of the Project on communities. In the Panel’s view, the primary responsibility for protecting and maintaining traditional language and culture rests with Aboriginal organizations and communities. In the Panel’s view, it is particularly important that communities have the capacity and resources necessary to do so. This will become increasingly important as activities occur beyond the Project as Filed and bring with them the resulting risks to the protection and maintenance of traditional language and culture. The Panel is of the view that rather than relying on a project-by-project approach, a more formal mechanism is needed to ensure that sufficient capacity and resources exist for communities to develop a more comprehensive and long-lasting approach to maintaining and protecting their traditional language and culture. In the Panel’s view, the MGPIF could provide communities with an opportunity to create such a comprehensive and permanent approach, if they so choose. The Panel notes that Aboriginal organizations in the Mackenzie Valley with settled land claims already receive a percentage of the royalty collected by the Crown on mining and oil and gas production in the NWT. The Panel is also of the view that a more permanent solution, whether through royalty sharing, as was suggested to the Panel, or some other mechanism, is also worth exploring, notwithstanding the significant opportunity that the MGPIF represents.

The Panel is of the view that the Project would not likely result in significant adverse impacts on language and traditional culture, given the mitigation measures proposed by the Proponents together with the duration of employment for most workers and the limited opportunities that the Project would present. The Panel is also of the view that the Proponents should not be responsible for addressing language and traditional cultural matters beyond their Project workers and contract workers. The primary responsibility for protecting traditional language and culture rests with the Aboriginal organizations and communities.

16.6 SHARED RESPONSIBILITY MODEL

16.6.1 PROPONENTS’ VIEWS

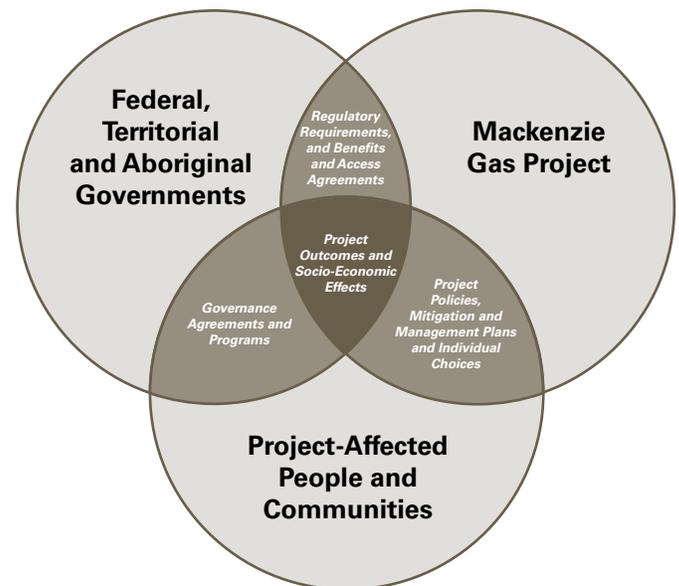
The Proponents presented their Shared Responsibility Model (the “Model”), which is a concept that describes the roles of Proponents, governments, Aboriginal authorities, communities and individuals affected by the Project in managing and mitigating the potential socio-cultural impacts of the Project.

The Proponents stated that most social impacts would depend on how people choose to spend income earned from the Project or Project-related activities. The Proponents submitted that most of the socio-cultural impacts would be expressed as marginal changes in levels of existing community conditions that involve many issues directly influenced by individual, community and government decisions related to public services.

Under the Model, the Proponents would work with other parties to manage these impacts. The Proponents submitted that they could not and should not make unilateral decisions in areas that are the responsibility of others. They submitted that the measures set out in their EIS, in conjunction with a commitment to shared responsibility among all parties, would result in the effective management of adverse impacts on health and social services, and improved wellness outcomes.

Figure 16-1 illustrates the Proponents’ Model in relation to socio-cultural impacts.

Figure 16-1 Shared Management of Socio-Cultural Effects



The Proponents stated that the Model was their approach to express conceptually the various regulatory authorities, agencies, boards and individuals involved, and how they come to the process and interrelate with one another. They stated that the focus in the Model is the overlapping segments of the circles in which they have listed the kinds of things where both parties to those overlapping segments have a contribution to make. The centrepiece where all three circles overlap is the Project outcomes and impacts.

The Proponents identified the following mechanisms as forming part of their proposed Model:

Proponents–government cooperation mechanisms

- Project–GNWT planning and cooperation, for example:
 - Socio-Economic Agreement
- Project commitments, for example:
 - Worker health care planning and services
 - Substance abuse prevention
 - Self-contained camps

Proponent–community cooperation mechanisms

- Ongoing public participation
- Infrastructure arrangements
- Project commitments to worker and community programs, for example:
 - Money management and life skills training
 - Support to cultural programs
 - Flexible work schedules, where practical, for harvesting and cultural purposes

Community–government cooperation

- Federal commitment to address existing problems and prepare for project effects
 - Mackenzie Gas Project Impact Fund
- Public institutions and processes in place to meet the challenge, for example:
 - GNWT policies and plans, especially Health and Social Services programs
 - regional health authorities
 - Aboriginal organizations and regulatory and management agencies
 - inter-agency coordinating committees
 - resource development impact groups

The Proponents stated that bilateral or multi-party agreements could identify the intersection of responsibilities of the Proponents, governments and communities on specific impacts. The intent was to show the complexity and the need for everyone to work together toward shared objectives.

The Proponents submitted that various governments have acknowledged that they share the responsibility for mitigating Project impacts and have entered into arrangements for mitigation measures. Mechanisms to coordinate and manage shared responsibility would include initiatives such as the SEA, regulatory requirements and agreements between governments. The Proponents stated that the SEA describes actions that both they and the GNWT would take to manage Project impacts. The Proponents submitted that it would be the responsibility of individuals in communities and governments to help address current problems, and that the federal government has provided the MGPIF to address some of the current issues. The Proponents also stated that they had discussed actions to address potential Project impacts in Yukon with the Government of Yukon. The Proponents documented these discussions and the Proponents' understanding of the government's planned responses.

The Proponents observed that there is no one place where parties can go to address all Project-related matters. However, they expressed the hope that parties with concerns about the Project would contact the Proponents. The Proponents stated their intent to establish regional working groups in the Beaufort Delta, Sahtu and Dehcho Regions to monitor the implementation of their commitments. The Proponents stated that people with concerns would be able to contact their regional working group, which would be in place during the construction phase. They have already held meetings in some communities regarding the creation of these working groups. The Proponents stated that people could take their concerns to their regional Project office and noted other mechanisms, such as joint advisory committees under the Access and Benefits Agreements, and the NWT Oil and Gas Socio-Economic Advisory Board under the SEA.

16.6.2 PARTICIPANTS' VIEWS

The GNWT stressed that shared responsibility is required to ensure developments occur in a responsible and sustainable manner. The GNWT submitted that its current regulatory regime reflects this need and puts the onus on all parties to work cooperatively. It stated that the work done before and during the hearing process by governments, the Proponents and other parties has resulted in improvements in regulatory cooperation, the ongoing development of best practices, and increased collaboration on baseline data and research.

The Government of Yukon submitted that it fully supports the principle of shared responsibility.

In the Sahtu Regional Workshop Report submitted by the GNWT, participants suggested that "Communities need to take control

and responsibility for managing social impacts. Communities can hold their own workshops where people come together, listen and help one another. People need to admit responsibility and find solutions together. They can do this by involving Elders and reducing barriers to working together, for example issues between families and groups.” (J-GNWT-00060, p. 11)

One participant submitted that a major flaw in the Proponents’ Gender Analysis Report is that it bases mitigations and management strategies on the principle of shared responsibility:

Shared responsibility is a term that we, here in the North, have come to understand as it is someone else’s responsibility or it is no one’s responsibility. In other words, the term shared responsibility is code for everyone standing in a circle and pointing left. No one is responsible and no one takes responsibility. (Little in Yellowknife, HT V69, p. 7011)

Ms. Little submitted that social, economic and monitoring agreements have been agreed to by diamond mining companies, the territorial government and, in the case of Diavik Diamond Mines, with affected communities, based on the notion that there is shared responsibility among those parties to monitor, manage and mitigate socio-economic impacts. She stated that the GNWT’s Communities and Diamonds reports provided data on an agreed set of indicators to show the impacts of the mining industry on local communities. She submitted that the most recent report published in January 2006 shows high and, in many cases, increasing rates of STIs, violent crime, youth crime, housing issues, child welfare investigations and language loss, and is an example of the failure of the principle of shared responsibility.

Health Canada recommended that the Proponents, the GNWT, the Government of Canada and local communities work together to attenuate social problems and economic inequalities, including disruption of family and community life.

16.6.3 PANEL VIEWS AND RECOMMENDATION

The Panel notes that the GNWT supported the Proponents’ Shared Responsibility Model. This was also generally the case with other participants, although some participants were of the view that the Proponents should also share responsibility for services provided by both the GNWT and the communities. The Panel notes that the Model would apply in principle to any project with the potential to affect the services provided by provincial or territorial governments and by communities themselves. Accordingly, in the Panel’s view, the concern is not with the Model itself, but rather with the methods that the Proponents have chosen to implement the Model. The Panel is of the view that there are four key issues with respect to implementation of the Model: provision of information, mitigation, complaint resolution and coordination.

The Panel notes that the Proponents did not provide information on potential Project impacts relating to issues such as child care and shelters, as the Proponents asserted these issues were not their responsibility. The fact that the Proponents would not have direct responsibility for an issue does not, in the Panel’s view, mean that the Proponents would not have an obligation to provide any information they may have on the issue. The Panel is of the view that, regardless of who has responsibility for a social or cultural matter, if there is the potential for a change resulting from the Project, the information related to that potential change should be provided to the parties who have responsibility for managing that matter, in order to allow the change to be properly assessed, mitigation measures to be identified and implemented, and follow-up actions to be determined.

As noted elsewhere in this chapter, the Proponents proposed that certain mitigation measures be implemented by other parties, without providing any indication whether those measures had been discussed with those parties or were even acceptable to those parties. In the Panel’s view, proposing mitigation to be undertaken by others and not providing confirmation that the mitigation was discussed or whether it would be likely or possible is not consistent with the Model. Mitigation measures that nobody has committed to or discussed are of little use to the Panel in addressing Project impacts. For example, the Proponents proposed, without providing the results of any discussions with hamlet or band councils, that, as a first step toward enacting bylaws limiting the volume of alcohol imports, hamlet or band councils could inform their communities of the costs of substance abuse and the control measures available to communities.

The Panel recognizes that the Proponents have committed to a range of mechanisms to engage local communities during Project construction and operations, including their regional working groups. The Panel also notes that the Proponents indicated that issues of concern to local communities could be raised through local Project offices and work sites, and that these local issues would be dealt with promptly. It was not clear to the Panel how these local issues would be resolved, particularly if they touched on issues of shared responsibility. Given that the regional working groups are expected to meet only two or three times a year, the potential exists that certain concerns could be overlooked in a shared responsibility situation. Furthermore, there is not a similar regional committee proposed for the Alberta portion of the Project. In the Panel’s view, there is a need for a formal complaint or issue resolution program that provides transparency in receiving, allocating, treating and resolving issues arising during construction and operation of the Project.

RECOMMENDATION 16-23

The Panel recommends that the National Energy Board, as a condition of any certificate or approvals it might issue in relation to the Mackenzie Gas Project or the Northwest Alberta Facilities, require the Proponents or NOVA Gas Transmission Ltd., as appropriate, to file, no later than six months prior to the commencement of construction or as otherwise directed by the

National Energy Board, their plans for a formal issue resolution program that would be implemented during construction and operations. The program should be prepared in consultation with the governments of the Northwest Territories and Alberta, and Aboriginal authorities, and should include the following:

- *a description of the process by which any complaints or issues related to the Mackenzie Gas Project would be raised with the Proponents or governments;*
- *a description of the process by which any received complaints or issues would be allocated among those with responsibility for action and a description of the roles and responsibilities of any party involved in assessing or responding to any complaint or issue;*
- *a description of the process by which any received complaints or issues would be resolved;*
- *a description of any protocols developed for referral and resolution of any complaints or issues;*
- *a description of the recourse mechanisms for any unresolved complaints or issues or any unsatisfactorily resolved complaints or issues; and*
- *a description of the process for communicating and informing communities about the complaint resolution program.*

In the Panel's view, key challenges of the Shared Responsibility Model in managing the adverse socio-cultural impacts of the Project are the overlapping interests and responsibilities. Measures such as the SEA assist in determining responsibilities, yet the myriad of programs and participants with interests and responsibility in relation to actions to address adverse socio-cultural impacts suggest, in the Panel's view, potential for inefficiencies, and duplication of effort and costs.

16.7 SOCIO-ECONOMIC MANAGEMENT SYSTEM

16.7.1 PROPONENTS' VIEWS

The Proponents stated that the:

implementation of the socio-economic management system is expected to result in the execution of our socio-economic commitments so that there will be enhanced positive socio-economic effects and no significant adverse socio-economic impacts from the project. (Dr. Alan Kennedy, HT V92, p. 9240)

The Proponents also stated that the manner in which they would operate would be guided not only by the commitments made during the review, but also by their individual corporate policies, contractual arrangements, cooperative work with other parties with socio-economic responsibilities, and legislative and regulatory requirements.

The Proponents stated that stakeholder engagement has been and would continue to be included in each component of their management system and that, consistent with the Shared Responsibility Model, the system would also identify the needs and opportunities for Project-related impacts to be addressed by other parties.

The Proponents' proposed management system consists of four main components — planning, implementation, monitoring and adaptive management and review — each of which would be influenced by both stakeholder engagement and the Proponents' socio-economic policies.

The planning component would consist of:

- potential impacts that were identified and assessed in the EIS and that continue to be identified through the regulatory processes and stakeholder engagement;
- mitigative measures proposed to address adverse impacts, enhance positive impacts and meet regulatory requirements;
- collaboration between the Proponents and other parties to refine mitigation and enhancements, and document the collaboration and relationships; and
- incorporation of any conditions and measures that arise from the Panel's proceedings as well as those of the NEB.

The planning component was used to refine the goals and plans for managing socio-economic impacts, and the Proponents have developed and completed arrangements with other parties to further define the goals and strategies for mitigation.

The implementation component involved:

- establishing responsibilities, accountabilities and reporting relationships among the Proponents, contractors and other stakeholders;
- executing the Project by creating detailed commitment implementation plans; and
- tracking implementation and adapting implementation activities as required.

Through implementation, records would be maintained and results reported, based in part on capturing socio-economic information supplied by contractors and subcontractors. The Proponents also indicated they would engage stakeholders, and receive and respond to feedback from construction camps and work sites, Project regional offices, regional working groups and the NWT Oil and Gas Socio-Economic Advisory Board.

The Proponents stated that they would be proactive in developing other socio-economic management measures. Project execution plans would incorporate not only the specific activities of the Proponents, but also how the Proponents would interact with other parties who share responsibility for managing Project

impacts. The Proponents stated that they would record how and when mitigation measures were implemented and collect information to monitor the effectiveness of the management system, in order to assess the effectiveness of mitigation measures being managed, and to provide reports to internal and external stakeholders. The Proponents further indicated that timely reporting of information from the Project was required by the SEA, Access and Benefits Agreements and group monitoring of the socio-economic impacts of the Project. The Proponents stated that it was their:

job to receive information, to communicate it internally and to react to information in an appropriate and timely fashion...If an issue involves other responsible parties, we will ensure that the issue is raised with that party as well. (Kennedy, HT V92, p. 9234)

The monitoring and adaptive management component of the Proponents' Socio-Economic Management system is discussed in Chapter 18, "Monitoring, Follow-up and Management Plans."

Review is the final component of the Proponents' proposed management system. The Proponents explained that they intend to regularly review the effectiveness of the management system and to address any deficiencies in the system and areas for potential improvement. The Proponents noted that the review component would not focus on the effectiveness of specific mitigation measures, but would evaluate the system to ensure expectations and requirements were met, determine if appropriate corporate resources were available, and identify opportunities to improve the effectiveness and efficiency of the system.

NGTL stated that it would manage the socio-economic impacts related to the Northwest Alberta Facilities by using community agreements, the historical resource impact assessment, Traditional Knowledge, their trapper compensation program and contracting strategies to maximize local and Aboriginal participation, employment, training and skills transfer. In order to develop and implement socio-economic management programs suited to the specific considerations in northwest Alberta, NGTL would discuss proposed mitigation plans with their primary stakeholders — the Dene Tha' First Nations members, local residents and elected officials in the neighbouring communities. NGTL explained that it had negotiated several agreements with the Dene Tha' and they will fulfil their commitment to the Dene Tha' to review the Panel's report with them. NGTL indicated that it intends to measure, monitor and respond to socio-economic concerns through adaptive management as appropriate.

16.7.2 PARTICIPANTS' VIEWS

The GNWT indicated that its approach to major projects is to provide certainty about project outcomes in collaboration with industry and affected governments. The approach has resulted

in capacity building, and employment and business opportunities for residents in the NWT.

The GNWT indicated that there are already a number of mechanisms in place or required by regulation that can be used to manage the impacts of projects, but noted a gap with respect to follow-up to socio-economic predictions and commitments. In its view, the SEA fills the gap by providing certainty with respect to the findings of the environmental impact review and would also inform other future environmental assessments. In the GNWT's view, the SEA would result in the monitoring of expected outcomes and the Proponents' mitigation commitments. The GNWT further suggested that the SEA would encourage and facilitate a cooperative ongoing relationship between public government and the Proponents.

The GNWT told the Panel that "the SEA captures and verifies commitments made by the proponents" as well as capturing "mitigations the GNWT felt were necessary following its review of the proponents' material." (Peter Vician, HT V93, p. 9334) In its experience, the GNWT indicated that it is important to monitor impacts and commitments in five key areas:

- employment and business opportunities;
- cultural well-being;
- community, family and individual well-being;
- net effect on government; and
- sustainable development.

In the GNWT's view, the SEA addresses these five key areas. The GNWT also stated that the key ingredient that makes the arrangements work is ongoing cooperation. In the GNWT's view, the intent of the SEA is to ensure that the parties commit contractually to the obligations that are set out in the SEA.

INAC stated that it recognizes that the Proponents and the GNWT have the primary mandate to deal with Project-related socio-economic matters in the NWT and that the SEA includes provisions for socio-economic monitoring, adaptive management and follow-up. INAC indicated that it was working with the GNWT and other federal departments to review the SEA.

16.7.3 PANEL VIEWS

In the Panel's view, the Proponents' proposed management system is appropriate. The Panel further considers the Proponents' plans for impact management, monitoring and follow-up with respect to socio-cultural issues in Chapter 18, "Monitoring, Follow-up and Management Plans."

16.8 SOCIO-ECONOMIC AGREEMENT

The Proponents and the GNWT view the SEA as a central component of the system for managing the adverse socio-economic and socio-cultural impacts of the Project.

16.8.1 PROPONENTS' VIEWS

The Proponents indicated that they and the GNWT worked together to develop the SEA and that it was an important voluntary initiative. It is not a legislative requirement but an example of planning and coordination to address areas where both the Proponents and the GNWT have contributions to make to the mitigation of Project impacts. The Proponents submitted that the SEA is a contract between themselves and the GNWT, and is enforceable, as are other contracts.

The Proponents stated that they and the GNWT recognize that mitigation measures to reduce potential Project-induced adverse impacts on individuals, families, communities and cultural well-being are a shared responsibility and that the Proponents and the GNWT would work together on mitigation measures, collaborating with third parties as appropriate.

The SEA addresses training and employment, social and cultural well-being, business opportunities, potential impacts on government, sustainable development, monitoring, reporting and adaptive management. The SEA describes actions that both the Proponents and the GNWT would take to:

- promote individual, family and community well-being;
- promote health;
- reduce impacts on health and social services;
- avoid the spread of disease; and
- promote cultural preservation and sustainability.

The SEA also sets out collaboration between the Proponents and the GNWT and the support that would be provided by the GNWT. It also articulates commitments made in the Proponents' EIS. The SEA includes requirements for the Proponents to enter into various arrangements with the GNWT before construction begins regarding access to health and social services, safety and security. There is a dispute resolution mechanism in the agreement should negotiations falter.

The SEA also provides for the creation of an NWT Oil and Gas Socio-Economic Advisory Board consisting of the Proponents, the GNWT and Aboriginal authorities that accept an invitation to participate. The role of the Advisory Board would be to consider information received from the Proponents, the GNWT and other sources, and to provide advice to the Proponents and the GNWT.

16.8.2 PARTICIPANTS' VIEWS AND RECOMMENDATIONS

The GNWT submitted that the SEA acknowledges socio-economic impacts predicted in the environmental review process and formalizes the related mitigations and commitments. The GNWT stated it is confident that the SEA would address NWT interests regarding the implementation of the Proponents' (referred to as "Operators" in the SEA) mitigation measures.

Section 3.7 of the SEA also outlines the measures that the GNWT would take on socio-cultural matters, subject to and in accordance with GNWT policy and programming in effect from time to time. GNWT would:

- Provide the Operators with information on social and cultural programs and health services delivered by the GNWT;
- Provide the Operators with information on social and cultural programs delivered by the GNWT for sharing with Project workers; and
- Meet the Operators, on reasonable request by the Operators, to review program and service delivery plans to identify areas for collaboration related to social and cultural well-being. (J-GNWT-00206, p. 22)

The GNWT would also consider other actions and measures, including:

- Reinforcing existing public programs and initiating new or revised programming;
- Initiating community-based training programs in personal finance and money management, focusing on informed consumption, savings and investment choices for increased incomes;
- Provision of community wellness and health programs and services;
- Funding of policing services;
- Strategies to deal with the possible increase in stress and family conflict in NWT communities. (J-GNWT-00206, p. 22)

The GNWT stated that its current health and social services programming, in combination with Canada's contributions to the MGPIF and the Proponents' confirmed commitments in the SEA, would be adequate to adaptively manage the potential health and social impacts of the Project. In the view of the GNWT, with these actions the Project would not cause significant residual impacts and the health and well-being of the people in the Mackenzie Valley would be protected. The GNWT recommended that the SEA be adopted as the follow-up program for the Project.

The ANC submitted that there was no involvement of Aboriginal authorities, municipal governments, or the general public in the negotiations, drafting or review of the SEA. ANC characterized the SEA as little more than a consolidation of the socio-economic commitments made by the Proponents. It further stated that there was a lack of specific commitments to affirmative action for women, including child care services.

ANC and the North Slave Métis Association recommended that the Proponents and the GNWT be required to renegotiate the SEA to include parties in addition to the Proponents and the GNWT. ANC submitted that the commitments in the SEA were unenforceable and that the Panel should give no evidentiary weight to the SEA. Both the Proponents and the GNWT opposed these recommendations.

In addition, ANC recommended that, prior to construction, the renegotiation of the SEA include changes to address the numerous concerns that it has raised, such as making the SEA commitments binding and enforceable upon the Proponents, and providing independent oversight. The GNWT disagreed with the recommendation and indicated it was not prepared to renegotiate the SEA to include additional parties and that the GNWT was confident that the SEA is an enforceable contract.

16.8.3 PANEL VIEWS

The Panel notes that the SEA provides for negotiation of Memoranda of Understanding, consistent with the Shared Responsibility Model. These were sought by the GNWT to help manage potential impacts on health care and policing services and would include the Proponents as parties.

The SEA forms an important component of the overall management system to address the potential adverse socio-economic and socio-cultural impacts of the Project. The Panel accepts that the SEA fills a gap with respect to ensuring that the Proponents' socio-economic and socio-cultural commitments are implemented. The Panel notes that, consistent with the Shared Responsibility Model, the SEA also requires the GNWT to take actions or implement measures to address potential adverse impacts. While concerns may exist regarding the enforceability of the elements of the SEA, it was negotiated in good faith and the Panel accepts the intentions of the two parties to take collective action to address potential adverse socio-economic and socio-cultural impacts.

The Panel further considers the SEA, including the role, mandate and function of the NWT Oil and Gas Socio-Economic Advisory Board with respect to monitoring, in Chapter 18, "Monitoring, Follow-up and Management Plans."

16.9 MACKENZIE GAS PROJECT IMPACTS FUND

16.9.1 PURPOSE, OBJECTIVES AND SCOPE

The MGPIF was established by the enactment of the federal *Mackenzie Gas Project Impacts Act* in 2006. The Act establishes the Corporation for the Mitigation of Mackenzie Gas Project Impacts (referred to as the "Corporation") as the single entity to provide and be accountable for contributions to five regional organizations. The Act states that "the Corporation may only provide contributions to regional organizations in respect of a project if the project...mitigates the existing or anticipated socio-economic impacts on communities in the Northwest Territories arising from the Mackenzie gas project." (J-INAC-00123, p. 3)

The MGPIF is designed to fund and develop programs before construction commences on the Project, thereby avoiding impacts before they happen. The MGPIF is also designed to give affected regions in the NWT the opportunity to participate directly in planning and mitigating the potential direct and cumulative socio-economic impacts of the Project so that local people have a measure of control over the impact mitigation process. Canada's contribution of \$500 million to the MGPIF is equal to almost two full years of GNWT spending on health and social services, and represents the single largest funding commitment from the Government of Canada to the NWT, outside of Territorial Formula Financing.

INAC has been the lead on behalf of Canada in making the Corporation operational and helping the impacted regions of the NWT begin to prepare plans and administrative structures that will be required to deliver the MGPIF.

INAC submitted that Canada's commitment to the establishment of the MGPIF represents a key mitigation measure related to the potential socio-economic impacts associated with the Project. Funding would be conditional on the Project proceeding.

In February 2007, INAC stated that there was no contemplation at that time of any comparable MGPIF type of fund for the Dene Tha' First Nation in northern Alberta. Subsequently, the Government of Canada and the Dene Tha' First Nation reached a Settlement Agreement in relation to the Dene Tha' First Nation's judicial review application. The Settlement Agreement provided \$25 million to the Dene Tha' First Nation to:

- assist the Dene Tha' First Nation to address the socio-economic, cultural and heritage impacts of the construction and operations of the Project, as well as potential impacts on asserted or existing Treaty or Aboriginal rights; and
- assist the Dene Tha' First Nation to take advantage of economic opportunities as Project development proceeds.

16.9.2 KEY FEATURES AND PRINCIPLES

INAC explained that Canada's contribution of up to \$500 million would occur over ten years. The intent of the Fund is to mitigate and prevent adverse socio-economic impacts of the Project. The funded initiatives could serve to alleviate some existing socio-economic problems that would be exacerbated by the Project and would prepare residents to participate in Project-related opportunities. Funds would be allocated to five regional organizations, based on the following formula determined by the Aboriginal partners:

- Inuvialuit region — 30%
- Deh Cho region — 30%
- Gwich'in region — 16.4%
- Tulita-Deline district — 12.2%
- Kahsho-Got'ine district — 11.4%

Contributions would be dependent upon the Project proceeding and the five regional organizations would have some flexibility to use the funds at different rates, according to their needs. Contributions would also be incremental to existing funding and, while the funds would be used primarily at the regional and community level to deal with regional and community socio-economic impacts, inter-regional collaboration and joint initiatives would be possible. INAC confirmed that the intent is to keep administrative costs to a minimum, and Canada's auditing and reporting requirements would apply to the MGPIF.

INAC clarified that the MGPIF has been committed as a result of the passage of the legislation, it would not be subject to annual budget processes and it would be available upon release by the Minister of Finance and the Minister of INAC.

INAC stated that the amount of the MGPIF was the subject of discussions between the five Aboriginal groups in the study area and the Government of Canada. INAC noted that the level of funding was not the subject of a discrete needs assessment. However, INAC submitted that, based on work undertaken to negotiate Access and Benefits Agreements, the Aboriginal groups had information on their needs to assist in determining the allocation of the MGPIF.

INAC noted two requirements that needed to be in place prior to the release of money in advance of construction — the Proponents' announcement of a decision to construct, and the completion of regional investment plans and regional organizations' administrative structures. INAC highlighted its concern that there might not be a lot of time between an announcement to construct and the beginning of construction. An important consideration in INAC's view is that funds would be needed in advance of construction to ensure they could be used effectively to mitigate potential impacts.

INAC further indicated that, technically, the Minister could release the entire \$500 million prior to an approval by the NEB or a final decision to construct, and that the discretion is left with the Minister to determine how much of the MGPIF, if any, is released in advance of the commencement of construction. INAC noted that there has been discussion about "milestones" or "triggers" for release of funding, but it is still in the early stages of the process and the Minister has not made a decision on the triggers. INAC indicated that the triggers being contemplated include the submission, review and approval of the Panel's Report, Project approval by the NEB, and the Proponents' decision to construct. INAC stated that it would obtain further direction from the Minister on when the first instalment of the MGPIF would be released.

INAC noted that there were three events that would constitute the termination of the Project under the Act: the NEB denying a certificate, the Proponents deciding not to construct the Project and the coming into effect of a sunset clause in an NEB certificate.

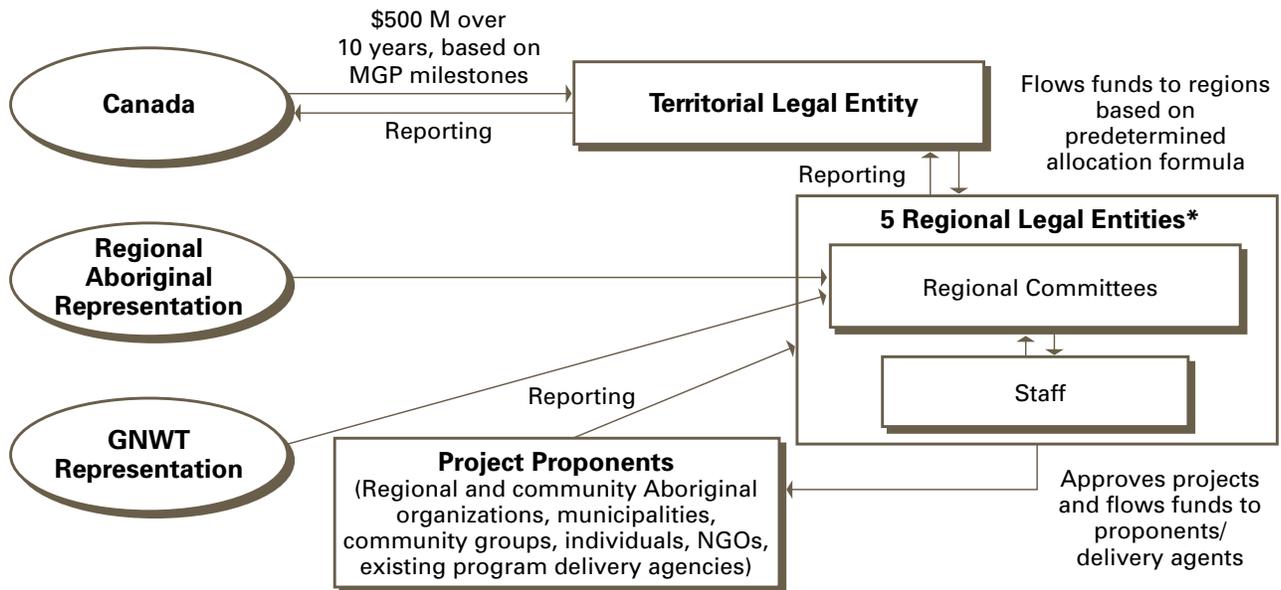
It was the GNWT's understanding that the MGPIF is not a substitute in any way for GNWT expenditures in the areas of social and health care programs and services.

16.9.3 STRUCTURES AND INSTITUTIONAL FRAMEWORK

INAC described the two processes it was undertaking to establish the MGPIF. The first process related to establishing the Corporation. The purpose of the Corporation is to provide and be accountable for contributions to regional organizations for eligible projects. The Corporation would have three or five board members appointed by the Minister of INAC. INAC noted that it had solicited names from the Aboriginal groups in the study area for consideration by the Minister of INAC for appointment to the Corporation's board. The board would be responsible for hiring a Chief Executive Officer and, eventually, reviewing the regional plans and administrative structures developed by the regions.

Prior to the release of funds under the MGPIF, the regional Aboriginal authorities would need to work with INAC and the GNWT to develop regional investment plans and establish regional organizations. Figure 16-2 illustrates the proposed management structure. The purpose, function and structure of these regional organizations would be developed by the regional Aboriginal authorities and so might be slightly different in each region. INAC noted that it had committed a further \$2.5 million, beyond the \$500 million in the MGPIF, to assist with this important planning work. INAC expected the regional investment plans to be completed, at least in draft form, by March 2008.

Figure 16-2 Proposed Management Framework for the MGPIF



* Each of the 5 RLEs would consist of a Regional Committee and Staff. The Regional Committee sets regional priorities, approves regional MGPIF plans, and approves projects. Staff perform the project administration functions.

* Flexibility will allow the regional Aboriginal organizations to decide which form of RLE best suits their needs.

Source: Adapted from J-INAC-00051, Appendix A, p. 7

16.9.4 IMPLEMENTATION

INAC submitted that it had learned from its experience with the Norman Wells oil pipeline of the importance of preparing well ahead of a project to ensure resources are available to build capacity, and manage and mitigate potential impacts in communities. INAC stated that it is committed to ensure that, where appropriate, the linkages between the MGPIF and the SEA be established or enhanced.

The IRC and the GTC, in filing updates on the progress that had been made on regional investment plans, were concerned about the Corporation being ready to provide funds prior to the commencement of the Project. INAC submitted that work was underway on the Corporation, the Corporation’s internal policies and procedures, and the manner in which INAC would oversee the MGPIF.

Based on regional planning workshops conducted in March 2007, INAC submitted that common areas for priority MGPIF projects included alcohol and drug addictions, and training. Based on input from participants, sustainability of projects after the MGPIF wound-up would be an important consideration in regional investment plans. INAC noted that work with regional groups would define eligible activities under the MGPIF.

16.9.5 PARTICIPANTS’ VIEWS

The GNWT submitted that notable developments related to the Project include the successful negotiation of the SEA, progress on Access and Benefits Agreements, and the creation of the MGPIF. The GNWT believes that programs resulting from these Agreements and the MGPIF would help to maximize the positive benefits and minimize the negative impacts of the Project, and ensure that NWT residents are the primary beneficiaries should the Project proceed. The GNWT submitted that it is committed to working with the Aboriginal authorities, communities and the federal government in preparing to implement the MGPIF, and some of the necessary steps are already underway.

The GNWT, in addressing the goals for the Beaufort Delta, Dehcho and Sahtu regional workshops, stated that there is a need to ensure that communities and the GNWT have the capacity to collaboratively manage the potential social impacts of the Project, and the related exploration and development activities in the short-, medium- and long-term. The GNWT stated that, in the medium-term, communities would need to develop local plans for managing the potential impacts during construction. In the longer-term, the Project would stimulate economic activity and demographic changes, which would have wide-ranging and long-lasting social impacts, and communities would need strategies to manage these changes.

Some participants stressed the urgency of advance preparation to deal with the social impacts of the Project:

Social impacts is a concern for me, and it seems like everyone else. We see alcoholism; drugs, harsh drugs, on our streets; violence; break and enters. How many more other problems out there that are not visual? And nobody seems to be addressing them. They're waiting until the pipeline is approved before we get this big Social Impact Fund. By that time, it's going to be too late.

We need to prevent. We need to be prepared. That's why our people are saying we need to be prepared; not wait until the pipeline is here and then it's too late. (Carolyn Blake in Inuvik, HT V71, p. 7204)

The Panel requested an update from the five regional Aboriginal authorities on the progress that had been made in respect of the MGPIF, including a copy of the implementation plan that might have been prepared for their region. Preliminary reports were received from the IRC and the TDLC, and a progress summary from the GTC.

The IRC submitted that there is a significant cause for concern over the current levels of education and employment skills, and the resulting restrictions on positive economic participation and growth, higher incidences of poor health and increased negative social impacts.

The IRC stated that the objectives in its report flow from the predicted impacts of the Project and are linked to the larger goals of the Inuvialuit. The Inuvialuit objectives for the MGPIF are to:

- address current issues in communities;
- address impacts related to the Project;
- coordinate, integrate and enhance programs and services;
- build capacity among residents and organizations; and
- build sustainable communities.

The IRC submitted that, unless there is a coordinated approach to addressing potential Project impacts, there would be a net negative impact on the region. While the MGPIF makes a positive step to offset impacts, it would be insufficient, in the IRC's view, unless it is backed up with support and collaboration from the GNWT and other regional bodies.

The IRC observed that, although Inuvialuit communities are reluctant to prioritize many initiatives, it is clear that residents have made the health of future generations a priority and, in turn, most of the initiatives relate to their children's development.

The IRC has worked with communities to identify projects to both mitigate the potential impacts of the Project and achieve the larger community, social, cultural and economic objectives which would allow Inuvialuit communities to grow in strength, health and resilience. The overarching goals include:

- reducing dependency on government for both individuals and institutions;
- developing education and skills as the critical elements for skills development and generation of wealth;
- continuing the traditional economy and strengthening cultural values through traditional skills and languages;
- ensuring the environment is protected and wildlife populations continue to provide for subsistence harvesting requirements;
- promoting healthy people and lifestyles; and
- increasing the capacity of the Inuvialuit to adapt and manage change.

The IRC submitted that its observations on social, cultural and economic conditions highlight the necessity for the MGPIF to provide this funding at least two years prior to construction so that it can address pre-existing social issues and build its capacity to respond to the additional social and economic challenges from the Project.

The IRC also raised concerns that the MGPIF could involve the displacement of existing government services. It was the IRC's view that existing programs and services are insufficient to meet the needs of its people. The MGPIF would allow the IRC to address the incremental impacts of the Project. However, it would not address the existing shortfall in the services people require. The IRC is very concerned that governments may point to the MGPIF as a windfall through which they can pull back from their existing levels of service delivery. Despite assurance that government funding would be maintained, this risk remains very real to IRC. To minimize this risk, the IRC would like to see government funding levels, intervention activities and the results added to a common system of measurement.

The GTC identified four priority areas for MGPIF projects:

- social wellness:
 - alcohol and drugs;
 - family and social dynamics; and
 - housing and homelessness;
- education and skills training;
- culture and language; and
- community social infrastructure.

The GTC submitted that there is still considerable effort required to complete its plan and that it is working closely with both the IRC and the GNWT to complement existing programs and avoid any duplication. The GTC also stated that its research and planning of mitigation measures justifies the need for the MGPIF and the necessity to provide this funding at least two years

prior to construction to address pre-existing social issues and to respond to potential Project impacts.

The TDLC stated that comments of community members fall under four main themes:

- strong cultures and communities;
- community healing and wellness;
- investment in youth; and
- education, training and employment.

The TDLC stated that Norman Wells, Tulita and Deline were consistent in their views that culture, in the form of the traditional economy, language, values and laws, has been under threat for some time and that this threat would intensify with the opening up of the area to further development. Priorities for keeping cultures and communities strong include passing on Traditional Knowledge in various ways, including on-the-land programs where Elders can teach youth, Traditional Knowledge centres, language classes, promotion of arts and crafts, and revival of Dene laws. Strategies for keeping communities strong include local development, greater control of resources, and protection of the economic and social viability of communities.

The TDLC's consultations showed that residents are concerned about individual, family and community wellness and anticipate Project impacts in all of these areas. Alcohol abuse, with its associated social problems, was cited as a major existing impact, which is expected to worsen with an increased population, opening up of the region and increased pressures on daily life. Each community identified a regional treatment facility as a high priority.

The high cost of housing and low rate of home ownership is a financial stress that leaves people feeling that they have lost control and that they fear the future. Communities want to develop a strategy to increase home ownership, deal with the issue of rent arrears and, in general, make safe, affordable housing more accessible for their members. The TDLC submitted that a healthy community is one that looks after its most vulnerable members. Communities expressed the desire to do this by providing for both child care and good parenting, and Elder care where necessary.

The TDLC stated that the issue most often stressed in its consultations was concerns regarding both the existing and expected impacts on the young people of the region. These concerns included the desire to find healthy and constructive things for youth to do, and the need for youth to be prepared for opportunities. To address this, communities want to focus on improving the quality of education, finding ways to support those who are "between two worlds" and need help finding their way, and making sure youth get the preparation and training they need to be able to access not just the pipeline jobs, but to have a secure future based on essential skills.

The TDLC stated that pipeline employment opportunities are seen as a positive impact and a way of addressing some of the existing socio-economic impacts in the region. However, communities are convinced that they will miss out on these opportunities if they are not prepared now in terms of upgrading, job readiness preparation and training in the needed trades. The support and facilities are not in place to provide this now, when it is needed. More than just facilities, though, there are existing impacts in terms of personal capacities that need to be addressed as part of preparation for employment, such as dealing with grief and loss, self-esteem and substance abuse. Communities are planning to access the MGPIF to mitigate these impacts and to position their members for successful futures.

The Dehcho First Nations stated that it sees the MGPIF as a positive response to development if industry, governments and First Nations work in partnership with each other.

The Dehcho Naxehcho (Elders) recommended that funds be provided for Dene language and cultural programs, including:

- the Naxehcho (Elders) should be provided resources so that they can pass on their knowledge and wisdom to Dene youth through wilderness, cultural and language programs managed by the Dehcho First Nations; and
- community cultural programs should be implemented.

ANC observed that the plans filed do not give a great deal of specific detail or socio-economic analysis. ANC submitted that the arguments underlying most priorities and project proposals appear to be that the pre-existing problems would be made worse by the Project if measures were not taken to deal with them, and local communities would not be in a position to fully benefit from the Project if actions related to education and training were not taken. ANC suggested that drawing a clearer connection between the Project and the specific negative impacts might help in advancing preventive projects that have been demonstrated to be more effective against them. ANC also suggested that the same should be done to ensure that any positive impacts from the Project are enhanced.

ANC submitted that the socio-economic problems identified are not exclusive to communities impacted by the Project and would deserve attention or funding support whether or not the Project was approved. ANC was concerned with the implication that government support could be conditional on Aboriginal or other peoples' accepting resource mega-projects. ANC observed that the MGPIF could be read as an indicator of the magnitude of impacts that could be associated with the Project. ANC also commented that it was not clear how the end of MGPIF funding in ten years would affect communities. Dr. David Leadbetter, consultant to the ANC, suggested that two funds should be established — an impact fund and a development or "heritage" fund. The impact fund would be tied specifically to the Project and address specific impacts. The second fund would be for general economic development purposes throughout the NWT

and not necessarily tied to the immediate geography or potential impacts of the Project.

The SWC observed that while the MGPIF could potentially support valuable community-based prevention or treatment programs or used for education and training, it was not to be used to enhance front-line social and health services delivered by the GNWT and its agencies, or to increase RCMP staff.

Health Canada recommended that mitigation measures, such as those developed under the MGPIF, should attack causes of social problems and not only impacts (e.g. alcoholism). Mitigation measures should be adapted to cultures, and encourage western and traditional healing methods. Health Canada also recommended that stakeholders should work together to ensure that, after construction, alternative job sources to counteract Project job losses would be found, including community economic development.

16.9.6 PANEL VIEWS AND RECOMMENDATIONS

The creation of the MGPIF is a recognition that resources far beyond those currently available to the GNWT and communities would be required to address the combination of potential Project impacts and the existing conditions of social well-being. This recognition is entirely consistent with what the Panel was told repeatedly during the hearings. The Panel agrees that the Project would be a source of additional stress on communities, families and individuals. In the Panel's understanding, the MGPIF as an advance response to the potential impacts of a large project in Canada is unprecedented both in magnitude and design.

The Panel strongly endorses the decision to create the MGPIF as a means of planning for social impacts, and the decision to allocate MGPIF funds directly to the five regional organizations, thereby giving those affected by the Project some control in the mitigation process. Because the program would be in place in advance of construction it provides a basis for planned expenditures to anticipate as well as respond to Project impacts. The MGPIF is not a compensation fund requiring proof of effects or the cause of those impacts, after the fact.

The Panel notes the concerns raised by participants regarding the timing of the release of funds, and the discretion of the Minister in determining when and how much funding should be released in advance of construction. The Panel notes that, for the MGPIF to fulfill its objectives, funds must be released in sufficient time prior to the commencement of construction activities to enable communities to be fully prepared.

RECOMMENDATION 16-24

The Panel recommends that the Corporation for the Mitigation of Mackenzie Gas Project Impacts, in consultation with the governments of Canada and the Northwest Territories, determine the priority projects that need to be completed and in place in advance of the commencement of

construction. The Panel further recommends that the Minister of Indian Affairs and Northern Development consider recommending that adequate funds be requisitioned to develop and implement those priority projects sufficiently in advance of the commencement of construction and that the Government of Canada advance the requested funds as soon as practical thereafter.

The Panel notes the GNWT's commitment to work with the parties to the MGPIF in preparation for its implementation. The Panel also notes the intent of the GTC to work closely with both the IRC and the GNWT to complement existing programs and to avoid any duplication. The Panel observes that, with the number of parties involved, there is potential that needed initiatives may fall through the cracks and not be realized. To make the best use of the MGPIF, it would be important for all of the Aboriginal organizations, INAC and the GNWT to work together to complement existing programs, and to avoid duplication and gaps.

The Panel notes that it would be important for INAC and the GNWT to ensure that monies are not unnecessarily tied up or left unused. The Panel also notes the need to address the possibility that all projects may not be as successful as anticipated. Furthermore, the Panel notes that the results of projects would be of interest to others and that sharing this information could, following the completion of a project, enable improvements to be made to the delivery of services. The Panel notes that section 15 of the *Mackenzie Gas Project Impacts Act* requires the Corporation to enter into an agreement with a regional organization prior to making a financial contribution respecting, among other things, the manner in which advances will be made and the timing of advances, the terms or conditions on which the contributions will be provided and "the evaluation of the regional organizations' performance in achieving the objectives associated with the provision of contributions for eligible projects and the evaluations of the results of the projects that are funded." In view of the innovative nature and the magnitude of the MGPIF, the Panel considers that it would be important to monitor and evaluate its contribution to social well-being closely to ensure its success.

RECOMMENDATION 16-25

The Panel recommends that projects funded through the Mackenzie Gas Project Impacts Fund be included in the monitoring and follow-up programs referred to in Panel Recommendations 18-1 and 18-2.

The IRC highlighted that its investment plans would address funding of projects that continue beyond the end of the MGPIF. The Panel notes the views of others, including the ANC, that consideration be given to those projects that may help regions and communities beyond the end of the Project. The Panel also considers this to be an important issue that should be addressed in the design of the Fund, in addition to the transition planning discussed in Chapter 15, "Economic Impacts." The Panel heard consistently of the:

- inadequacy of existing services and programs;
- existing socio-cultural conditions;
- challenges in preventing potential Project impacts from exacerbating the severity and extent of those existing conditions;
- relatively short period during which the majority of Project-related activities would be undertaken;
- uncertainty of what Project-related changes would bring to regions and communities; and
- lag in government services being in place to respond to needs.

In the Panel's view, these observations suggest the need for the MGPIF to be flexible in both its design and application, so that adjustments could be made to address unforeseen or unanticipated impacts, the failure of mitigation measures, and the operational realities of administering the funds and developing and implementing projects in five regions across the NWT. Importantly, in the Panel's view, this points to the need for the regional organizations to also consider their long-term objectives and needs. In the Panel's view, not only should there be some provision to release funds sufficiently in advance of construction, as is addressed by Panel Recommendation 16-24, but there should also be some provision for the regional organizations to use their funds to invest in activities that would extend beyond the life of the MGPIF and to enable an orderly transition at the end of the MGPIF. In the Panel's view, this could be achieved in a number of ways, such as allocating a percentage of funding on an annual basis to an investment fund to be available to respond to unanticipated or unforeseen issues or to provide funds to the regional organizations following the expiry of the MGPIF.

RECOMMENDATION 16-26

The Panel recommends that the Corporation for the Mitigation of Mackenzie Gas Project Impacts, in establishing its criteria as required by section 5.(2)(b) of the Mackenzie Gas Project Impacts Act, include provisions that would enable the regional organizations to set aside funds to address unanticipated and unforeseen issues as well as funds to extend some programs beyond the expiration of the Mackenzie Gas Project Impacts Fund.

The GNWT stated its understanding that the MGPIF would not be used to offset the GNWT's responsibilities. Given the concern raised by other participants in the hearings that the MGPIF could be used by the GNWT to reduce service levels, the Panel highlights the importance of the GNWT, in working with the parties to the MGPIF, to address this concern should there be any decisions that would either reduce, or could be seen as reducing, service levels to residents of the Project Review Area.

16.10 OVERALL VIEWS

16.10.1 PROPONENTS' VIEWS

The Proponents stated that, while they expect the Project to improve socio-cultural conditions in the long-term, there would be some short-term adverse impacts on social and cultural well-being in the Project area communities. During Project construction, some existing problems would be aggravated.

The Proponents submitted that near-term risks would be reduced but not eliminated by their mitigation measures. The Proponents also noted that they are working on Canada Benefits Plans and have negotiated a SEA with the GNWT. The Proponents noted that they would extend applicable measures to their contractors and subcontractors. In the long term, the Proponents anticipate that opportunities associated with the Project would generate social and cultural benefits. The Proponents further observed that the federal government has committed the \$500 million MGPIF to address socio-economic impacts in the Project regions.

The Proponents submitted that, when looking at potential impacts on a community or regional level, adverse socio-cultural impacts would not be significant and, after construction, Project impacts would decrease. The Proponents submitted that enhancements to mitigation would be in place and there should be additional capacity among the service delivery agencies to deal with them.

16.10.2 PARTICIPANTS' VIEWS

The GNWT submitted that current health and social services programming and planning by the GNWT, Canada's contribution of the MGPIF, and the Proponents' commitments confirmed in the SEA would be adequate to adaptively manage the health and social impacts of the Project. Under these circumstances, there would not be significant residual impacts, and the health and social well-being of people in the Mackenzie Valley would be protected.

Health Canada submitted that it considered social problems, especially alcohol and drug abuse, to be long-term impacts because they have impacts on children, families and communities.

The SWC concluded that front-line services would be overwhelmed by the potential negative social impacts of the Project, given the lack of GNWT progress with the federal government on resource revenue sharing, and that the MGPIF would not be used to enhance front-line social and health services delivered by the GNWT and its agencies, or to increase RCMP staff.

The SWC stated that it believes there would be major adverse impacts on the social fabric of NWT communities that would

extend well beyond the four-year construction period. It submitted that the widespread and long-term potential negative impacts on individual and community well-being should be considered significant by the Panel.

Many participants questioned the Proponents' finding that the Project would not create adverse social impacts on a large number of people or for a long time. One participant in Tulita noted that whatever affects one youth or happens in the community affects everyone, and commented further that the Project is not the only project that would be happening nearby.

16.10.3 PANEL VIEWS

The Panel expects that the Project would likely have some adverse impacts on social well-being in the Beaufort Delta and Mackenzie Valley communities. Some impacts, such as rising homelessness and shortages of care facilities and services, would likely occur in the larger communities that would be transportation hubs and to which some residents within the regions would likely relocate. Other impacts would likely occur in the smaller communities, particularly ones related to the stress of rotational labour on family and community life.

While these adverse impacts would occur mainly in the construction phase, some might persist for an indefinite time afterwards, notably those involving addictions or trauma. In the longer run, however, the Panel is of the view that both the increases in employment and personal income, and the increases in government revenue likely to be generated by the Project over its life, could serve to improve conditions of personal, social and community well-being in the Project Review Area.

In the Panel's view, existing health, social and policing services in the region are already over-extended in relation to current needs, and are at further risk during the construction phase from indirect Project impacts, notwithstanding the provisions of the SEA and the policies and commitments of the Proponents to minimize these impacts. That is why the Panel has recommended that, prior to the commencement of construction, the GNWT demonstrate that there is capacity, in each of the social service areas identified in Section 16.5, for those communities that would actually be impacted by the Project, to meet both existing demand and the incremental demand that would be imposed by the Project.

The Panel is not confident that the GNWT has the fiscal or social infrastructure capacity to address these challenges on its own. Reallocation of services to meet Project demands, without additional funding, would risk adversely affecting services to communities outside of the Project Review Area. There will be a need for substantial cooperation among the Proponents, the Government of Canada and Aboriginal authorities in delivering the necessary increases in service levels in the impacted communities.

The Panel notes the importance of the MGPIF in providing very substantial additional resources to address these problems, and in providing for the direction of those funds to regional organizations to deal with these problems. It will be necessary, however, to ensure that MGPIF funding, which is time-limited, not be seen as a substitute for resources required by the GNWT on a continuing basis. That is in part the basis for Panel recommendations in Chapter 15, "Economic Impacts," to ensure that a larger share of Project revenues accrues to the GNWT, and that the GNWT make appropriate transition plans in relation to the termination of the MGPIF.

Some adverse impacts are likely unavoidable, at least during the construction phase. However the Panel heard no evidence to suggest that, without the Project, either the current conditions of social well-being, or the current provision of health and social services, would improve. Without mitigation, the Project could exacerbate current conditions, but the Panel considers that the Project also provides an opportunity to improve them. If all of the Panel's recommendations are implemented, in addition to the mitigations and measures proposed by the Proponents and governments, it is likely that Project impacts on social well-being could at least be minimized, and that vulnerable sectors of the population would not be without treatment or support. If so, then in the Panel's view, the Project's adverse impacts on social and cultural well-being in the near term would not be significant, and in the long term the impacts of the Project as Filed and of the Expansion Capacity Scenario could be positive.

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CHAPTER 17

DECOMMISSIONING AND ABANDONMENT

17.1 INTRODUCTION

As set out in the *Joint Review Panel Agreement* under the Panel Mandate, the Panel is to include in its review the “decommissioning and abandonment” of facilities.

The Panel understands **decommissioning** to refer to the steps that would be taken at the end of the operating life of any specific facility to permanently remove that facility from service, including steps to ensure the safety of the facility, to mitigate any anticipated environmental impacts, and to reclaim the biophysical environment.

Abandonment refers to the permanent relinquishment of control over or responsibility for a facility, subject to any ongoing monitoring requirements and potential financial liability. The Panel’s discussion of decommissioning and abandonment does not include site clean-up and reclamation after construction, which are discussed under other specific topics.

17.2 PROPONENTS’ VIEWS

The Proponents indicated that the Project would continue to operate as long as there is economic gas production in the region — the duration of which is expected to be at least 20 years. Development of other natural gas fields in the Mackenzie Delta and the Mackenzie Valley has the potential to extend the life of the pipelines and gas conditioning facilities.

At the end of the commercial life of a gas field, Project facilities and infrastructure would be “decommissioned and abandoned according to the regulatory requirements in effect at the time.” (J-IORVL-00953, Section 1, p. 12) Surface facilities would be removed and the surface reclaimed “to an acceptable condition.” Abandonment and reclamation plans would consider:

- input obtained through public consultation; and
- potential alternative uses of the sites being abandoned.

17.3 PARTICIPANTS' VIEWS AND RECOMMENDATIONS

The views of participants with respect to decommissioning and abandonment addressed two areas of concern:

- the lack of plan details, including when such plans should be in place; and
- the various aspects of financial liability.

In its written submission and in its role as land manager, Indian and Northern Affairs Canada (INAC) stated:

INAC requires that the Proponent integrate decommissioning and reclamation activities planned over the life of the project within the project design. A decommissioning and closure plan should be designed to minimize environmental impacts and prevent unwanted liabilities to the Crown. (J-INAC-00024, pp. 34–35)

INAC acknowledged that detailed planning and reclamation research could be developed on a site-by-site basis after regulatory consultation and be further refined during operations. However, it pointed out that conceptual plans “will be required prior to issuance of any land tenure authorizations” by the Department. (J-INAC-00024, p. 22) It recommended that the Proponents “submit to regulators for approval...conceptual plans for the decommissioning and abandonment of project facilities including the timing of demolition, site clean-up and rehabilitation activities” and that they be submitted “as early as possible and prior to the issuance of any land tenure authorizations by INAC.” (J-INAC-00024, pp. 34–36)

The Alternatives North Coalition urged the Panel to recommend a set of “guiding principles” for “closure and reclamation” of the Mackenzie Gas Project (MGP), to be incorporated into all project approvals. Conceptual plans should be submitted before any construction or operation of any MGP component commences. In addition:

There should be full financial security for all MGP components and related activities to ensure that there is full cost accounting, no hidden subsidies, zero public liability, and no double-counting of liabilities. (J-ANC-00048, p. 4)

Some participants also recommended that financial security for the costs and impacts of abandonment should be required. However, none of these submissions elaborated on the details of the form of such security or the administrative arrangements that would be required to support such a scheme.

17.4 PANEL VIEWS AND RECOMMENDATIONS

The Panel acknowledges the concerns expressed regarding the absence of detail about the Proponents’ decommissioning and abandonment plans. It also understands the concerns about financial liability for any impacts from the Project that might be identified after abandonment.

Regarding the concern about the lack of plan details, the Panel notes the intention of INAC to require that the Proponents submit a conceptual decommissioning and abandonment plan before INAC issues any land tenure authorizations to the Project. The Panel notes that the Northwest Territories Water Board, the Mackenzie Valley Land and Water Board and the regional Mackenzie Valley boards have the authority to include in their licences or permits, conditions relating to any future closing or abandonment of the facility or activity that is the subject of their licence, permit or authorization.

In a letter from the National Energy Board (NEB), the Panel was told about the NEB’s authority and the steps the NEB would take before the Project — if it were to be built — could be decommissioned and abandoned. The NEB stated:

Paragraph 74(1)(d) of the *NEB Act* requires a pipeline company to request leave of the Board to abandon a pipeline. This section appears on the CEEA Law List Regulations and would trigger the requirement for an environmental assessment. The NEB would therefore provide regulatory oversight during the abandonment phase. (J-NEBREG-00001, p. 3)

The Panel is aware that the NEB is responsible for a similar requirement in relation to production facilities on Canada lands.

The Panel is satisfied that the legal and regulatory authority is in place to address the requirement for both:

- conceptual decommissioning and abandonment plans at the earliest stages of Project authorization; and
- detailed plans at the final stages of the Project, before authorizing the Proponents to decommission and abandon the Project or any of its components.

These plans could encompass site-specific facilities or Project-wide components. In addition, the Panel notes the Proponents’ commitments to decommission and abandon Project facilities according to the regulatory requirements in effect at the time. Given that abandonment is not likely to occur until at least 20 years from Project start-up, and that such abandonment would require the approval of the NEB at that time, the Panel is of the view that requiring detailed plans at this time would be of little value.

With respect to the concern about financial liability and financial security, the Panel agrees that, in principle, project proponents should be required to provide adequate financial security for the costs of abandoning their projects in an environmentally acceptable manner. The Panel notes that under the *Northwest Territories Water Act*, the *Territorial Lands Act*, the *Mackenzie Valley Resources Management Act* and their respective regulations, northern boards have the authority to require financial security for restoration, abandonment and post abandonment costs associated with particular activities licensed, permitted or authorized by them. The Panel is not, however, in a position to make specific recommendations on the scope or structure of a regulatory scheme to impose and administer such a requirement in relation to the MGP, as legal and other elements could be complex.

The Panel is aware of a recent decision of the NEB that addresses this matter directly. In the Board's decision of May 2009, *Land Matters Consultation Initiative (LMCI) Stream 3: Pipeline Abandonment — Financial Issues (RH-2-2008)*, the Board addressed the financial issues associated with pipeline abandonment and adopted a Framework and Action Plan. Under this plan, pipeline companies are required to provide to the Board, in accordance with a prescribed timetable, estimates of funds needed for abandonment and proposals for the mechanism and timing of the collection and setting aside of those funds. The Panel understands that this decision is part of a broader ongoing initiative by the Board — the LMCI — which also includes consideration of the physical aspects of pipeline abandonment.

However, it is not known to the Panel if the Board's RH-2-2008 decision would apply to the Mackenzie Valley Pipeline. Also, the decision appears to apply only to facilities under the *National Energy Board Act*, and not to those under the *Canada Oil and Gas Operations Act*, which include the Anchor Fields and the Mackenzie Gathering System. Therefore, the Panel makes the following recommendation:

RECOMMENDATION 17-1

The Panel recommends that the National Energy Board take the steps necessary to extend application of the principles underlying its RH-2-2008 decision, and any other relevant elements of the Board's Land Matters Consultation Initiative, to all components of the Mackenzie Gas Project and the Northwest Alberta Facilities.

The Panel further recommends:

RECOMMENDATION 17-2

The Panel recommends that Indian and Northern Affairs Canada, the National Energy Board, the Northwest Territories Water Board and the relevant land and water boards of the Mackenzie Valley convene a meeting within six months of the date of the Proponents' Decision to Construct to establish a coordinated approach, within the mandate of each agency, for:

- (a) *the development and submission of decommissioning and abandonment plans by the Proponents, including:*
- *the timing for submission of conceptual plans;*
 - *procedures and timing for developing final plans; and*
 - *a description of the Project facilities and activities to which the plans apply; and*
- (b) *establishing the form and amount of financial security the Proponents will be required to submit for decommissioning and abandonment, including:*
- *the timing and procedure for obtaining estimates of funds needed for abandonment;*
 - *the mechanism and timing for the collection and setting aside of those funds; and*
 - *identification of the facilities to which the security applies.*

CHAPTER 18

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CHAPTER 18

MONITORING, FOLLOW-UP AND MANAGEMENT PLANS

18.1 INTRODUCTION

Monitoring, follow-up and adaptive management are essential tools for ensuring that a project is implemented as planned, that mitigation measures are successful and adverse impacts avoided, and enhancement measures are effective.

Many participants, both government and non-government, stressed the importance of monitoring, follow-up and adaptive management with respect to the Project. Many of these participants expressed views on how and why these things should be done, who should be involved and the framework within which they should be done. The Panel observes that while there was substantial agreement on the need for monitoring, follow-up and adaptive management, there was much less consistency on the details, and some inconsistency in the use of basic terms and concepts. Many participants spoke of the need for both Project monitoring and cumulative impacts monitoring, without necessarily distinguishing between the two or identifying their potentially separate roles, functions and methods. Notwithstanding this lack of clarity, or perhaps because of it, many participants looked explicitly to the Panel to articulate a vision of monitoring and follow-up that would ensue from the Project.

This chapter considers the issues of monitoring, follow-up and adaptive management in two broad frameworks: Project-specific and cumulative impacts. While the basic principles and elements are similar for both, the geographical and temporal scope, and program roles and responsibilities, differ.

The Panel held six days of hearings on these matters.

18.1.1 PURPOSE AND IMPORTANCE OF MONITORING AND FOLLOW-UP

The *Joint Review Panel Agreement* (JRPA) requires the Panel to consider the need for any follow-up program in respect of the Project and the requirements of such a program. Both the *Canadian Environmental Assessment Act* (CEA Act) and the *Mackenzie Valley Resources Management Act* (MVRMA) require a follow-up program when a project has been reviewed by a panel; despite minor

differences, both acts specify that the purpose of a follow-up program in respect of a project is to:

- verify the accuracy of the environmental assessment of a project; and
- determine the effectiveness of any measures taken to mitigate the adverse environmental effects of the project.

In addition, the Canadian Environmental Assessment Agency's Operational Policy Statement (OPS), entitled *Follow-up Programs under the Canadian Environmental Assessment Act* (originally published in 2002 and updated in 2007), states that a follow-up program is also used to:

- support the implementation of adaptive management measures to address previously unanticipated adverse environmental effects;
- provide information on environmental effects and mitigation that can be used to improve and/or support future environmental assessments including cumulative environmental effects assessments; and
- support environmental management systems used to manage the environmental effects of projects. (OPS, p. 1)

The overall responsibility for a follow-up program under the CEA Act and the MVRMA is that of a Responsible Authority in relation to a project under the CEA Act. Although the Responsible Authority may delegate responsibility for the design of a follow-up program to the proponent, a government, an agency of government or an agency established under an Aboriginal land claim agreement, the Responsible Authority must ensure the implementation of the follow-up program. (OPS, p. 3)

The OPS goes on to state that "a responsible authority is not limited by its own departmental legislation when designing and implementing a follow-up program" (OPS, p. 2) and that:

A responsible authority may also include conditions in authorizations, permits, contracts, leases or other binding documents. These conditions can relate to specific mitigation and follow-up measures, environmental thresholds or reporting and compliance monitoring schedules. In many cases, conditions from other federal authorities may also be included in these binding documents. The ultimate responsibility to enforce those conditions, however, rests with the responsible authority(ies).

Financial assurances may also be a valuable tool for ensuring the implementation of the follow-up program and of any additional mitigation measures determined to be necessary during the follow-up program. (OPS, p. 3)

With respect to the role that a follow-up program plays in adaptive management, the Operational Policy Statement states:

A follow-up program creates an information base for determining whether systems (both physical and procedural) for mitigating adverse environmental effects of a project work

as intended. Follow-up is an integral step of any adaptive management approach to project implementation. (OPS, p. 6)

Monitoring that is specifically designed to meet the purposes set out above provides the information that is essential to implementing a follow-up program. It is through the follow-up program that monitoring results are analyzed and any unanticipated adverse environmental impacts that are discovered can be mitigated.

The Panel understands that a follow-up program is an essential part of the process that leads ultimately to identifying and implementing the appropriate remedial measures (i.e. adaptive management). The objectives of adaptive management are to ensure that proponent commitments are fulfilled, regulatory and other requirements are met, adverse effects are avoided or minimized, and benefits are enhanced. The importance of ensuring that monitoring leads effectively to adaptive management was urged upon the Panel by many participants, including governments.

18.1.2 TYPES OF MONITORING

The specific objectives and scope of monitoring can vary according to scale and purpose. For a project the magnitude of the Mackenzie Gas Project (MGP), there would be a need for compliance monitoring, project impact monitoring and cumulative impacts monitoring.

- **compliance monitoring** verifies that the required mitigation measures, including the Proponents' environmental and social commitments, are implemented, and that work proceeds in compliance with regulations and authorizations.
- **impact monitoring** (sometimes referred to as effects monitoring) is intended to verify Project impact predictions, determine the effectiveness of the mitigation measures and identify any unanticipated impacts that may arise from the Project.
- **cumulative impact monitoring** is a continuing process, generally broader in scope than project monitoring, and intended to determine the effects of the Project in combination with other developments or factors, particularly in relation to general public policy objectives such as land use plans, environmental legislation or the maintenance of valued components (VCs).

Each type of monitoring introduces new elements of complexity. Compliance monitoring can be as straightforward as determining if a specific target was met. For example, did the proponents employ the number of persons they committed to; or did siltation from in-stream construction activities remain within prescribed limits? Where compliance monitoring is pursuant to regulatory requirements, such as emission or effluent standards, clear thresholds are usually already in place. Alternatively, where compliance monitoring is in relation to commitments or policies,

there may be no enforceable standards — only targets or thresholds.

Project impact monitoring is more complex than compliance monitoring because the connection between Project impacts and actual outcomes (as indicated by changes in VCs) is more difficult to determine with certainty. More indicators may be needed to determine the accuracy of predictions or the effectiveness of mitigations. These indicators may be less precise, even if they are measured carefully and consistently. There may be more confounding factors, which even if reasonably anticipated are difficult to measure or evaluate. The connection between Project activities and measured change in a VC, especially if unanticipated, may not be obvious. Project impact monitoring must be able to address uncertainty and surprise to a much greater extent than compliance monitoring.

As a change in a VC may or may not be the result of Project activity, two things are required to make such a determination. One is a testable research question or hypothesis. The other is an adequate baseline record of conditions and trends without, or prior to, the Project. It is of course possible to take corrective action where undesirable trends in VCs emerge over time, whether or not these trends can be definitively linked to the Project. However, in the absence of a clear diagnosis of the problem, practical solutions may be less obvious and attempted remedial action less effective.

Cumulative impacts monitoring is even more complex than the other two types of monitoring. In combination with the Project, several factors may be at work, and the relative contribution of each type of monitoring and the connections and interactions among them are inherently more difficult to specify and measure. The objective of cumulative impacts assessment is to determine, at a regional level, whether conditions are getting better or worse as indicated by the status of selected VCs. By its nature, the design and framework of cumulative impacts monitoring must be primarily the responsibility of governments, although individual proponents can and should contribute to it.

18.2 PROJECT MONITORING AND FOLLOW-UP

The Proponents explained that they have an overarching management system with respect to each of the biophysical and socio-economic environments. Under each management system, there are management plans and processes to ensure that Project commitments and regulatory requirements are met, including mitigation, monitoring and reporting measures required by regulators or other authorities that make recommendations to regulators. Each of the Proponents' operators will have its own company-wide management systems and plans that reflect its corporate policies and that apply to the particular component of the Project for which it is responsible. At the time of the Panel's

hearings, these plans and processes were broad, conceptual and evolving.

The Proponents indicated that prior to construction and drilling, they and "their contractors will prepare detailed, functional plans that will incorporate feedback obtained through the regulatory review process." (EIS, V7, Section 1, p. 3) Similarly, detailed operations plans would be prepared and submitted prior to commissioning and start-up of production facilities and the pipeline, and decommissioning plans would be submitted prior to well shut-in, decommissioning and abandonment. The Proponents expected that these plans would be revised and updated to meet the needs of the Proponents, requirements of regulators, and expectations of the public and northern residents. NOVA Gas Transmission Ltd's (NGTL's) approach is also based on a management system that embodies similar attributes to those described by the Proponents of the MGP. Like the Proponents', NGTL's management system reflects corporate policies and a suite of specific plans for NGTL's Dickens Lake and Vardie River projects which would extend as required and as appropriate through all phases of the Project life through to decommissioning and abandonment when the facility is no longer needed.

The Panel's comments with respect to monitoring and adaptive management apply generally to both the biophysical and the socio-economic management systems because the fundamental monitoring and adaptive management measures are inherent in each management system.

18.2.1 BIOPHYSICAL MONITORING

The MPG falls under a comprehensive regulatory regime. Regulated plans are specifically required by legislation or by the terms and conditions of permits, licences or authorizations. There are numerous plans which apply to environmental management and monitoring and adaptive responses in the biophysical environment. In some instances there is overlap and redundancy in the treatment of certain issues. This is explained by the fact that a number of these plans address various combinations of VCs and are in response to the overlapping requirements of more than one regulator, government department or agency, management board or community authority.

PROPONENTS' VIEWS

The Proponents described the Environmental Management Systems that each would apply to its specific operating component of the Project. A key component of these systems is a suite of environmental management plans which are expected to be required by legislation or by the conditions attached to the permits, licences or authorizations issued for Project construction, operations, and decommissioning and abandonment. Figure 18-1 describes the environmental management plans that will be developed by the Proponents and that will continue to be refined as Project engineering advances.

Figure 18-1 Environmental Management Plans to be developed by the MGP Proponents

Environmental Management Plan	Environmental Issues Addressed	Regulatory Authorities and Others Involved
Environmental Protection Plan	Environmental protection program Instream works Fish and fish habitat Integrity management Permafrost Decommissioning and abandonment	NEB
Heritage Resources Protection Plan	Archeological sites Heritage and culturally important sites	GNWT (PWNHC) ILA, GLWB, SLWB, MVLWB
Vegetation and Reclamation Management Plan	Vegetation species Clearing and timber resources Permafrost thaw and related effects Vegetation and wildlife habitat Reclamation Harvesting	INAC ENR ILA, GLWB, SLWB, MVLWB
Water Resources Management Plan	Groundwater quality and flow Hydrology, water withdrawal and disposal, channel morphology Water and sediment quality Fish and fish habitat Marine activities and dredging	INAC, DFO, TC, HC, EC GNWT NWTWB, GLWB, SLWB, MVLWB
Waste Management Plan	Waste generation, handling and disposal	INAC, TC, EC GNWT NWTWB, GLWB, SLWB, MVLWB
Chemicals and Fuel Handling Plan	Transportation, storage and containment	INAC, TC, DFO, EC GNWT
Emergency Preparedness and Response Plan	Spill response Contingency planning	NEB, INAC, TC, Coast Guard GNWT
Ballast Water Management Plan	Handling and disposal of ballast water	TC, DFO
Air Quality and Emissions Management Plan	Emissions reporting Ambient air and source monitoring Fugitive emissions management Noise management	EC GNWT
Wildlife Management Plan	Caribou protection Grizzly bear and wolverine protection SARA species protection Birds and habitat protection Marine mammal protection Harvesting Protected areas	EC ENR HTCs, RRCs Wildlife Management Boards
Access Management Plan	Safe access for traditional harvesting Access control for safety and environmental protection Restrictions on employee and contractor off-site travel	EC, DFO ENR HTCs, RRCs Wildlife Management Boards
Decommissioning and Abandonment Plan	Future land use Waste handling and disposal Final reclamation	NEB, INAC Others to be determined

Source: Adapted from J-IORVL-00942, pp. 12–14

Note: See List of Abbreviations and Acronyms

A number of these plans have already been considered in previous chapters. The focus here is on the Proponents' approach to compliance and impact monitoring and to adaptive management.

COMPLIANCE MONITORING

Compliance monitoring, as proposed by the Proponents, would be conducted to ensure that all environmental mitigation outlined in the environmental management plans is implemented and that work proceeds in compliance with both regulations and the Proponents' environmental policies. The Proponents proposed that compliance monitoring would include inspections during construction and any compliance monitoring that would be required for licences that are issued for the Project.

IMPACT MONITORING

The Proponents proposed to monitor the impacts of the Project during construction, operations, decommissioning and abandonment to determine whether the observed impacts are consistent with predictions laid out in the Environmental Impact Statement (EIS). Impact monitoring would be performed through formal environmental monitoring programs, as well as community feedback programs.

The Proponents committed to making the results of their impact monitoring programs publicly available, although they did not commit to any specific mechanism, such as publishing the information on a website.

The Proponents noted that monitoring could be used to support reporting requirements and to demonstrate compliance with regulatory requirements and commitments to regulators and communities. The Proponents also indicated that effects monitoring was the key component of the Project's overall environmental management system, and that it would provide a framework for adaptive management practices. These practices would be developed in response to any issues identified through the effects monitoring programs.

The Proponents stated that they did not distinguish follow-up programs from monitoring activities and noted that it was their intent to put a monitoring program in place that not only collected data, but also provided for analysis and interpretation of the data. If needed, adaptive management responses would follow.

The Proponents committed to acquiring the data necessary to support Project-related monitoring programs listed in their Environmental Compliance and Effects Monitoring Plan for all Project phases and components. The Proponents noted they would be responsible for ensuring that the contractors and key staff apply and maintain the principles and procedures outlined in the impact monitoring, follow-up and management plans during construction and operations.

The Proponents also committed to consulting with applicable regulators and local communities during development of follow-up programs and monitoring plans, and noted that monitoring programs would be developed as Project execution planning, scheduling and the footprint advanced. More specifically, the Proponents indicated that details of program content and design, including the parameters to be measured, thresholds, reference and baseline data and control sites, would be finalized during this consultation period.

The selection of specific mitigation measures for follow-up, as defined under the CEA Act and the MVRMA, would be available as Project planning advances.

ADAPTIVE MANAGEMENT

The Proponents indicated that adaptive management would be a component of their approach to environmental management. The Proponents defined adaptive management as "a process that involves changing mitigation that is not achieving the desirable effect or the predicted result." (David Kerr, HT V89, p. 8802) The Proponents stated that the EIS employed established standard assessment techniques to determine the magnitude of Project effects. The Proponents' confidence in the EIS predictions was based on their view that the Project involves proven technology, follows industry standard practices and complies with the Canadian Standards Association pipeline engineering standard.

The Proponents stated that adaptive management would be applied during inspections, surveillance and other monitoring activities and would be used as a means to respond to different or changing field conditions encountered during construction. In addition, the Proponents stated that monitoring results that show desired outcomes are not being achieved will be used to identify where adaptive management would be appropriate.

The Proponents proposed adaptive management components of their proposed programs that include:

- evaluating the effectiveness of mitigation measures;
- reporting the results of monitoring to responsible parties; and
- adapting mitigation measures as required.

PARTICIPANTS' VIEWS

A panel representing the federal government departments at the hearings (the federal panel) stated that Project impacts, whether covered by a regulatory authorization or not, must be monitored and follow-up action must occur. The federal panel stated that greater detail and certainty must be provided at the regulatory phase to ensure that the Proponents' environmental management, monitoring and follow-up plans would be effective.

The federal panel recommended that the Proponents' monitoring, follow-up and adaptive management programs should:

- be able to confirm the degree and nature of MGP effects;

- support the objectives of the Northwest Territories (NWT) environmental management framework, particularly the NWT Cumulative Impact Monitoring Program (CIMP); and
- provide a coordinated approach to analysis and interpretation of monitoring data and, where applicable, facilitate collaboration with government agencies, regulators and others in these efforts.

The federal panel recommended that monitoring and follow-up programs be housed in regulatory authorizations, wherever possible, and that if regulatory authorizations cannot encompass required monitoring and follow-up programs, that consideration be given to establishing an environmental agreement.

Indian and Northern Affairs Canada (INAC) recommended that the Proponents be required to submit comprehensive monitoring, follow-up and adaptive management plans and programs to regulators for approval for each phase of the Project that would:

- incorporate sound adaptive management principles and methodologies;
- include detailed information regarding the type, frequency, duration and methods proposed for monitoring; and
- include appropriate provisions for Aboriginal and local participation.

Approved monitoring, follow-up and adaptive management plans and programs should be in place prior to right-of-way clearance. Further, these plans and programs should be periodically reviewed and approved by regulators as part of an effective overall adaptive management regime.

COMPLIANCE AND IMPACT MONITORING

Although the National Energy Board (NEB) was not a participant in the hearings, it submitted information in response to a Panel request. The NEB has direct regulatory authority over all aspects of the construction, operation and abandonment of all of the components of the Project, from the wells and production facilities at the Anchor Fields, through the Mackenzie Gathering System (including the Inuvik Area Facility), the natural gas liquids pipeline to Norman Wells and the Mackenzie Valley Pipeline (including its compressor stations and other ancillary sites) from Inuvik to its interconnection with the Northwest Alberta Facilities. The Panel understands that the Northwest Alberta Facilities would also be under the jurisdiction of the NEB. This comprehensive jurisdiction would extend throughout the life of the Project, from the commencement of construction to the eventual abandonment of any Project facilities, from “cradle to grave.”

The NEB stated that should the MGP be approved, it would assign an Operations Project Manager to coordinate communications between the NEB, the Proponents and appropriate regulatory authorities involved in the Project. The NEB would also ensure compliance monitoring and evaluation

of the effectiveness of approval conditions, and monitor and coordinate post-approval submissions required by the *National Energy Board Act* (NEB Act) and its regulations.

The NEB advised that it has a staff of approximately 300, with more than 60 engineers, inspectors and environmental professionals whose primary responsibility is safety and environmental protection. If necessary, the NEB would augment its existing resources to ensure that it fulfills its responsibilities on the MGP.

Inspections would be focused on the pipeline right-of-way and above ground facility locations; however the NEB endeavours to work with other regulators to ensure that there are no regulatory gaps and to minimize overlap. The NEB indicated that an inspector would be present on each construction spread and that frequent spot inspections of station facilities and right-of-way clearing activities would occur.

Following construction, the NEB would continue to monitor the right-of-way to verify the ongoing success of environmental and geotechnical mitigation measures. This is usually done using a combination of inspections and condition-prescribed monitoring reports provided by the licensee. The facilities would continue to be monitored using a combination of above-ground facility inspections and management system audits at a frequency based on the licensee’s performance.

Because the MGP involves facilities which, if approved, would be regulated pursuant to the NEB Act and the *Canada Oil and Gas Operations Act* (COGOA), the NEB would train its inspectors so that they may be designated officers under both Acts. Inspection officers appointed under the NEB Act can issue an order where there are reasonable grounds to believe that a hazard to the safety of the public or employees of a company, or a detriment to property or the environment is being or will be caused by the construction, operation, maintenance or abandonment of a pipeline. Orders may direct the Proponents to undertake certain work and stop its construction until that work has been completed. The NEB Act provides the NEB with the ability to make its orders and decisions enforced in the same manner as a court order.

INAC, Environment Canada (EC), Natural Resources Canada (NRCan) and the Government of the Northwest Territories (GNWT) indicated that environmental monitoring programs should be designed:

- to answer clearly stated questions concerning environmental performance;
- to include targets for environmental performance that are established before the program begins;
- to test impact predictions, including predictions of *no impact* or *no significance*;
- to assess effectiveness of mitigation and support adaptive management approaches;

- to attribute the causes of, not simply document, observed changes;
- to encompass areas beyond the Project footprint and be able to track environmental change at the landscape level;
- with clear specifications for frequency, timing, duration and location of measurement;
- to be carried out through all phases of the Project including operations and abandonment;
- to be initiated before construction, where necessary, to obtain baseline conditions as a reference against which to measure change;
- to support and contribute to improving baseline data at a regional and territorial level; and
- contribute to cumulative effects monitoring.

INAC's consultant, Dr. Chris Burn, stated that a monitoring program should consist of three distinct elements: data collection, data compilation and data analysis. The program should focus on a few high-level variables that indicate environmental status. Data collection protocols should ensure long-term continuity of measurements, but also be flexible, so that new opportunities or unanticipated questions can be incorporated. Data collection and analysis should be aimed at answering clearly stated questions on environmental performance, with targets for such performance established before the program begins.

Both NRCan and EC drew attention to the importance of control or reference sites as a basis for identifying Project-induced changes. NRCan stated that follow-up programs must contain adequate descriptions of the decision-making process that would be followed to determine whether and what action would be required, should observed environmental conditions deviate from those predicted. NRCan also recommended that development of and participation in follow-up monitoring programs, including reviewing results and reports, should engage government agencies with relevant scientific expertise.

Several participants stated that a critical component of an impact monitoring program is the communication of results and proposed adaptive management to regulators and local stakeholders, based on a stated reporting and communications strategy. This would include providing access to baseline information collected by the Proponents during Project design and construction, which is integral to assessing changes, verifying impact predictions and effectiveness of mitigation measures. A regular reporting schedule (including data submission information, written reports and technical meetings) would need to be established for government review of the follow-up program results to provide an ongoing assessment of the effectiveness of the programs and to make any necessary modifications.

NRCan suggested that the Proponents had not indicated with sufficient clarity how they would utilize the information obtained through their impact monitoring program. In particular, no information was available on the definition of thresholds/triggers that would be utilized to determine when and where mitigation would be required. The Proponents responded that specific threshold values, detailed decision trees and associated criteria for selection of mitigation techniques were not required for preliminary engineering and would be developed in the detailed engineering phase.

EC recommended that regulators and affected stakeholders agree to a coordination mechanism that would:

- define the scope of monitoring and follow-up programs including the selection of specific EIS predictions and mitigation to be evaluated;
- define potential tools, including regulatory and non-regulatory approaches, that might be used to collect relevant information; and
- develop an adaptive management strategy to act in response to the findings of the monitoring and follow-up programs.

In EC's view, with successful implementation of proper mitigation, effective monitoring and follow-up programs that include an adaptive management approach, it would be possible for the Project to proceed without significant impacts on the VCs.

ADAPTIVE MANAGEMENT

Fisheries and Oceans Canada (DFO) stated that an adaptive management program that includes monitoring the success of mitigation measures and Project effects on the aquatic ecosystem needs to be developed by the Proponents. The program should address all phases of the Project, from pre-construction (i.e. Geotechnical Verification Program) through decommissioning and reclamation. Where monitoring demonstrates that future monitoring may no longer be necessary, then the adaptive management aspects of the plan could provide for reduced monitoring requirements. The overarching goal of the adaptive management program developed by the Proponents should be to improve on existing mitigation techniques and minimize risk to the environment.

DFO recommended that adaptive management and monitoring requirements of the Proponents be combined in a coordinated approach with those of government, such that monitoring programs related to the MGP are fully integrated to provide the greatest amount of information for the adaptive management processes to evolve and for cumulative effects assessment and management.

In EC's view there remained inadequate detail concerning predicted effects, specific mitigation measures, strategies, proposed monitoring and the Proponents' commitments to related follow-up activities and adaptive management. Further, it noted substantial uncertainty with respect to many of the

predictions in the EIS and surrounding the nature and potential effectiveness of some proposed mitigation measures.

EC suggested that as a result of the lack of details regarding mitigative measures, regulators would need to take a precautionary approach and require more comprehensive monitoring and follow-up programs to be developed in collaboration with stakeholders.

18.2.2 SOCIO-ECONOMIC MONITORING

The Proponents' socio-economic management system is an overarching system which encompasses the Proponents' approaches to socio-economic management, monitoring and adaptive management. Some of the components of this system are considered in Chapter 16, "Social and Cultural Impacts." An important instrument which provides a legal basis for regional-scale socio-economic monitoring is the Socio-Economic Agreement (SEA).

THE SOCIO-ECONOMIC AGREEMENT

The Socio-Economic Agreement between the GNWT and the Proponents provides for monitoring, reporting and adaptive management with respect to the socio-economic impacts of the Project.

Monitoring would focus on Project-related effects to:

- determine the accuracy and completeness of the predicted socio-economic effects;
- determine the effectiveness of mitigation measures; and
- identify necessary adjustments of existing mitigation measures and the development of new measures as necessary.

The SEA would establish the NWT Oil and Gas Socio-Economic Advisory Board (SEAB). The primary role of the SEAB would be to consider monitoring information received from the Operators, the GNWT and other sources, and to provide advice to the Parties regarding the predicted socio-economic effects, the effectiveness of mitigation measures and the adjustment or creation of mitigation measures as required.

The Board would consist of representatives from each of the Operators and the GNWT, as well as any Aboriginal authorities that accept an invitation to participate in accordance with the terms of the SEA. The Board would meet three times annually during construction and once annually during operations. During the operations phase of the Project, third parties, such as other oil and gas operators in the region, would be offered the opportunity to participate in the Board.

The Proponents committed to reporting the following categories of Project-related data each year by July 1:

- Project-related employment;

- Project-related training initiatives;
- the number of NWT residents listed in a human resources employment and training database;
- Pipeline Operators Training Committee enrolment, intakes and graduates, during construction;
- gross value of all goods and services purchased for the Project, including the aggregate of goods and services produced in the Northwest Territories and goods and services produced outside the Northwest Territories but purchased through NWT Businesses;
- the number and percentage of Project Workers who receive gender awareness and cross cultural training;
- the number of cultural events and activities that are financially supported by the Operators;
- the number of community-based cultural or language programs or agencies in the NWT supported by the Operators; and
- lists of Aboriginal language material available to Project Workers at camp sites during construction.

The GNWT committed to producing a report each year by July 1 that would include information about:

- employment;
- educational attainment;
- economic effects;
- health and social well-being;
- income;
- population;
- traditional practices;
- net effects on government; and
- sustainable development.

In their respective reports, which would be made available to the public within 30 days of submission to the SEAB, the Operators and the GNWT would include information describing actions taken to optimize beneficial opportunities and mitigate negative impacts arising from the Project.

The SEAB would also prepare an annual report to the Operators, the GNWT and the members of the Advisory Board. The report would include recommended changes to indicators, actual versus predicted effects, effectiveness of mitigation measures and any recommendations for adjustments to or development of new mitigation measures. The SEA does not indicate that the annual report would be made public.

The Parties to the SEA would review the reports and recommendations included in the Board’s annual report. Each of the Parties would respond to the various recommendations and report on any changes it had made to its activities as a result of the recommendations. This response would be made directly to the Advisory Board during the subsequent meeting.

The SEAB would be funded in aggregate by its members in the amount of \$200,000 annually during construction and \$75,000 annually thereafter. The SEAB would not maintain permanent staff or premises, but rely on administrative and other support from its members.

PROPONENTS’ VIEWS

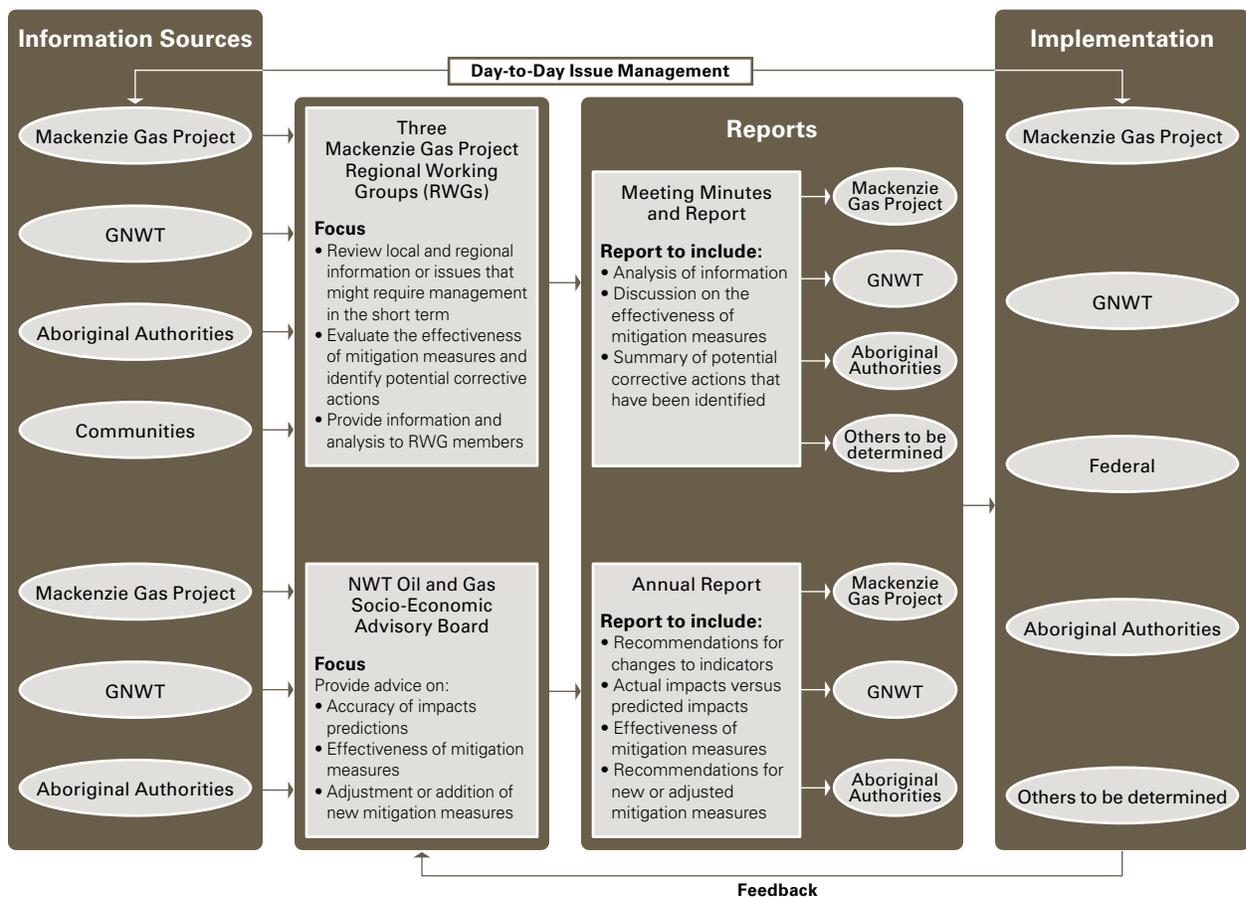
The Proponents indicated that the purpose of their socio-economic management system was to ensure that “we do what we said we would do, that we confirm the effects as predicted and that we adjust mitigation measures that are not working.” (Dr. Alan Kennedy, HT V92, p. 9229) The system includes: planning; implementation of socio-economic management measures and commitments; monitoring and adaptive management; and internal review. The purpose of the monitoring

and adaptive management component is to measure actions and adapt those actions as required. The internal review procedure is to evaluate the completed management system to ensure it is meeting its purpose. There is a feedback loop between implementation and monitoring: if monitoring efforts show that mitigation and management measures are less effective than anticipated, there is a link back to the implementation component to adjust the management effort. Figure 18-2 describes the scope of that system and key components and processes within it.

This system is formalized by the Proponents in a Socio-Economic Effects Monitoring System. The Proponents acknowledged that a project of this magnitude would generate a range of positive and negative effects during construction and stated:

Because of the nature, scope and magnitude of the expected project-related effects, and in recognition of shared responsibility for effects management, the mitigation measures, management plans and programs that address the effects will require a coordinated and collaborative response from the Proponents and their contractors, affected communities, and territorial and federal government

Figure 18-2 Mackenzie Gas Project Socio-Economic Management and Monitoring System



agencies. Mitigation measures, management plans and programs will need to be monitored throughout Project construction and initial operations to:

- determine their effectiveness in reducing adverse effects and enhancing positive effects
- enable adjustments to be made where necessary
- develop new mitigation plans and programs, where required (EIS, V6B, Section 10, p. 1)

The Socio-Economic Effects Monitoring System incorporates monitoring, reporting and adaptive management at various geographic levels:

- local: Project sites
- community and study area regions: Regional Working Groups (RWGs)
- regional and territorial: NWT Oil and Gas Socio-Economic Advisory Board
- national and northern: Canada Benefits Plans

At the local level (i.e. Project sites), community members would raise issues that arose related to environmental or social impacts with a Project representative, who would be responsible for contacting the appropriate person to deal with the concern promptly.

At the regional level, Project operators would form three regional working groups — one each in the Beaufort Delta, Sahtu and the Dehcho regions — to monitor socio-economic impacts. The members of the working groups would provide relevant and current information that is local or regional in nature. The Proponents indicated that members of the regional working groups would be local, knowledgeable people who could provide the Proponents with the necessary information to look at the impacts in the short term. These groups would use the available information to evaluate the effectiveness of the measures taken to manage Project socio-economic impacts. The Proponents stated that the focus of these groups would be local and regional issues that require management in the short term (for example, within a construction season or between construction seasons).

The Proponents indicated that these regional groups would meet at least three times per year during construction and would produce an annual report. The Proponents had not yet determined if the annual report from the working groups would be made public. The Proponents expect the regional working groups to be established at least six months prior to the beginning of construction. The Proponents stated that they would ensure that the recommendations from the regional working groups were effectively communicated to their contractors and subcontractors through provisions in contracts.

The territorial-wide tier of the system would be the SEAB. The SEAB would operate at a territorial level and deal with longer-

term issues and provide recommendations for changes on larger, longer-term mitigation measures. The Proponents indicated that their management system is intended to monitor the impacts on the valued components identified in the EIS, but is not designed to test specific hypotheses. The Proponents stated that they would record how and when mitigation measures were implemented. They would also collect information to monitor the effectiveness of the management system in order to assess the effectiveness of mitigation measures being managed and to provide reports to internal and external stakeholders.

The Proponents indicated that they had not yet identified the specific thresholds that would trigger an adaptive management response. It was expected that the regional working groups and the SEAB would help the Proponents to establish those thresholds.

Finally, at the national level, the Proponents would provide information to INAC regarding socio-economic indicators that have been defined in the benefits plans required under the COGOA. Stakeholders would be engaged in the monitoring and adaptive management component of the system.

The Proponents explained that the monitoring and adaptive management portion of the management system would provide multiple points of access for input; involve a wide variety of participants (individuals, communities, Aboriginal authorities, governments, and other interested organizations); provide a number of monitoring activities that complement each other through overlap in geographic areas of interest and in time periods considered; and be comprehensive.

The Proponents indicated that there would be a variety of ways, both formal and informal, in which they would be able to react and adapt to socio-economic impacts during the construction period and, in particular, during the periods of peak construction activity. They committed to responding to issues identified through their complaint process or by issues raised at camp or Project offices. The Proponents stated that by being on the front line at the Project offices, leading the regional working groups and participating in the SEAB, they would receive feedback very quickly and would be able to react and adapt. NGTL indicated that it would have on-site personnel, representatives from the Dene Tha' and a constant presence in the communities, and consequently would be able to respond to any concerns in a timely manner.

The final component of the Socio-Economic Effects Management System is the review process which is intended to:

- regularly review the effectiveness of the management system and to address any deficiencies in the system for areas for potential improvement. It does not focus on the effectiveness of specific mitigation measures but, alternatively, is intended to evaluate the system, to ensure that expectations and requirements are met, to determine if appropriate corporate resources are available and to identify opportunities to improve effectiveness and efficiency of the

system. This type of review is common for management systems within our companies. (Bruce Vincent, HT V92, p. 9237)

PARTICIPANTS' VIEWS

The GNWT noted that although there are a number of mechanisms in place or required by regulation that can be used to manage Project impacts, there is a gap with respect to follow-up of socio-economic predictions and commitments. In the view of the GNWT, the SEA fills the gap by providing certainty with respect to the findings of the environmental impact review and would also inform other future environmental assessments. The SEA would result in the monitoring of expected outcomes and the Proponents' mitigation commitments.

The GNWT recommended that the SEA for the Project be considered the follow-up program in this case, as it accounts for the verification of socio-economic impacts, as well as the verification of mitigation effectiveness. The monitoring provisions embodied in the SEA incorporate data gathering, analysis and assessment, and would be used to determine whether the GNWT should pursue further action with the Proponents or the SEAB, recommend changes or make changes itself to the way it responds to the Project. In response to questioning, the GNWT stated that the level of funding for the SEAB was reasonable for its operational requirements.

The GNWT indicated that it had not yet identified any triggers for key indicators for which further actions might be necessary. The GNWT regarded the valued components identified by the Proponents as a starting point. It had held regional workshops to obtain community views on what indicators would be important to monitor. The GNWT suggested that the criteria for selecting indicators should include comparability over space and time, relevance, timeliness and availability, keeping in mind the cost of collection.

The GNWT also noted that it was in discussions with INAC and regional Aboriginal organizations regarding the Mackenzie Gas Project Impacts Fund (MGPIF) and the types of socio-economic indicators that might be needed to help assess priorities for funding. Some data-sharing arrangements have also already been worked out.

INAC supported efforts to develop a comprehensive monitoring program and stated that socio-economic monitoring and management plans should be compatible with the requirements for federal and territorial governments and existing programs, such as the CIMP. INAC also noted the need for monitoring to be linked to other aspects of the Project, such as the Canada Benefits Plans under the COGOA and the MGPIF. INAC noted that the Benefits Plans would provide for quarterly and annual reporting on the implementation of each Benefit Plan and on the results achieved during the construction phase of the Project and during the first few years of operations. Later in the operations

phase, INAC might require only annual reporting. INAC indicated that it has worked with the GNWT and the Proponents to ensure that all parties are reasonably aligned and the information under Benefits Plan reporting would be, in large part, comparable with the reporting requirements under the SEA.

INAC noted that all five MGPIF regions were in the process of developing preliminary regional socio-economic investment plans that would outline, among other things, ways in which the implementation of the fund itself could be monitored and evaluated. However, INAC did not anticipate that the corporation established to oversee the contributions to regional organizations under the MGPIF or the regional organizations themselves would conduct Project impact monitoring. INAC expected that these organizations would use the information gathered by other Project-related monitoring or follow-up activities, such as the SEA. INAC expected that the monitoring framework as outlined in the SEA would be the primary means to provide MGP monitoring information to the MGPIF regional organisations and the Corporation for the Mitigation of the Mackenzie Gas Project Impacts. INAC anticipated that the Project monitoring information would be incorporated into the annual regional planning process for the MGPIF.

INAC's consultant, Dr. Peter Homenuck, suggested that monitoring in communities could serve as a trigger for identifying other changes, adaptations and adjustments that might be needed. In Dr. Homenuck's view, there are two other important objectives of monitoring, beyond compliance and effects monitoring. One would be public assurance or credibility in demonstrating that predictions are in fact occurring or adaptations have been successful. The second would be to facilitate understanding in communities and among affected people about the possible relationships between particular actions and the resulting impacts.

The Government of Yukon specified the need to collaborate and monitor the impacts of spill-over of NWT residents into Yukon's women's shelters, and address confidentiality issues associated with the monitoring proposed by Yukon. It recommended that a monitoring committee be established, consisting of the Proponents and Government of Yukon. In its view, it would be appropriate to monitor Project-related regional impacts outside of the study area in order to address the Government of Yukon's interests.

The Government of Yukon recommended that:

The Proponents and YG establish a committee to oversee the six following areas as they apply to Yukon: transportation, training, employment, procurement, socio-cultural and wildlife impacts. The committee shall have a mandate to exchange and discuss the type of information being monitored, assess the predicted results set out in the Proponents' EIS against actual results, and develop, where necessary, any adaptive

management programs designed to mitigate adverse effects and enhance positive effects on Yukon. (J-YG-00068, p. 2)

The Proponents agreed, with variation.

The Status of Women's Council of the Northwest Territories stated that the establishment of gender equity programs that provide a mechanism for ongoing consultation and communication between stakeholders would be essential. The Status of Women's Council indicated that it would be crucial to establish reporting procedures, provide guidance in interpreting requirements and ensure that all data provided is routinely disaggregated by sex for the purposes of gender-based analysis. The Status of Women's Council indicated that progress on gender equity goals would need to be monitored at critical milestones in the life of the Project and that monitoring is the only way to ensure satisfactory outcomes over the entire Project period.

The North Slave Métis Alliance stated that they would like to see baseline data and monitoring specific to each cultural community, disaggregated by Aboriginal group and by place of residence, to enable them to differentiate between impacts on their cultural communities and other cultural communities.

18.2.3 GOVERNMENT AND OTHER INSTITUTIONAL ROLES

ROLE AND CAPACITY OF GOVERNMENTS

PROponents' VIEWS

The Proponents committed to developing Project-specific compliance and monitoring plans and to abide by regulatory requirements. They made no comment on the capacity of government to set or enforce policy, regulatory or legislative requirements in relation to the Project. In the context of cumulative impacts monitoring they were of the view that it would be the role of governments to be responsible for the coordination of standardized compliance and monitoring programs for other projects in the region.

PARTICIPANTS' VIEWS

INAC noted that the magnitude and complexity of the MGP requires that the Proponents involve, cooperate and coordinate with many parties at different levels. These would include different levels of governments, Aboriginal groups, communities, non-governmental organizations and individuals. In order to maximize the potential of these initiatives and agreements (including monitoring and follow-up), it would be important to develop and maintain a high degree of cooperation among all of the parties. Such cooperation works to reduce conflicts, ensure successful progress that is supported by all parties and to put forward a community-based, balanced approach to Northern resource development.

DFO stated that there are few regulatory mechanisms that are broad enough in scope to encompass all monitoring components likely to be required for the MGP. Two such mechanisms are the Proponents' Environmental Protection Plans and the Environmental Protection Programs required by the NEB prior to construction. DFO considered that this approach could be an inclusive adaptive management program for the MGP. EC recommended that monitoring and follow-up programs are made conditions of any NEB certificate that might be issued.

Federal departments identified instances where the Proponents' Environmental Protection Plan is not the appropriate instrument to include various monitoring and adaptive management requirements. DFO indicated that it may require the Proponents to include an aquatic effects adaptive management program as a condition of the *Fisheries Act* authorizations. EC noted the COGOA and other regulatory authorizations could also be used for the purpose of ensuring adaptive management considerations. Where monitoring and follow-up programs would not be appropriate to include as a condition of regulatory authorizations, EC recommended that equivalent commitments be made through Environmental Agreements.

Federal departments noted that much of their funding for monitoring of environmental issues in the north was derived from three- to five-year funding commitments, rather than permanent sources. NRCan indicated that short-term funding limits the ability of the department to hire highly skilled staff, as positions are only available on three- to five-year funding cycles. This results in decreased program continuity as well, due to staff turnover. Other federal departments also indicated that funds were available for five-year periods, and therefore might not be in place at the time of construction.

DFO observed that the monitoring requirements related to the Project would generate an enormous amount of data related to Project impacts throughout all Project phases. This data and information would be of potential value to the Proponents, stakeholders, regulators and governments, but no single party would have overarching responsibility to ensure its integration and accessibility. In DFO's view, it would be necessary to establish an integrated information management system prior to construction. DFO suggested a "monitoring portal" for the MGP that would:

- enable sharing of and access to information generated from a comprehensive and coordinated MGP monitoring program;
- ensure that all MGP project impacts are described and understood;
- ensure the effectiveness of mitigation is assessed and that appropriate follow-up action is taken;
- incorporate regional environmental effects monitoring under the NWT CIMP; and

- provide environmental management advice as partners with the NWT Cumulative Effects Assessment and Management Framework and Strategy (CEAMF) as captured in the CEAMF Blueprint.

To this end, INAC, DFO and the GNWT had already collaborated on the development of an “MGP Monitoring Portal,” which would build on the existing partners’ tools and datasets to promote connectivity and interoperability with other monitoring databases via a common framework, standards and specifications.

The target audiences for the MGP Monitoring Portal include those that could *contribute* data and information and those that would view or access data and information for decision making. Other government agencies (EC, NRCan, Transport Canada, Parks Canada and Health Canada), regulatory boards, Aboriginal organizations, co-management and planning boards and communities, MGP Proponents and future developers as well as non-governmental organizations and academia were encouraged to participate in this initiative by making data and information accessible through the MGP Monitoring Portal.

The long-term vision is that the MGP monitoring portal would provide the foundation for an NWT-wide system for supporting environmental and social/economic monitoring activities, cumulative effects assessment and management, and future decision making on new development in the north. DFO considered that the Proponents would have a very important role to play in a monitoring portal, and DFO sought their unconditional commitment to participate at all levels from funding to contributing information.

The Proponents were of the view that the scope of a monitoring portal described by DFO would go well beyond the needs for Project monitoring, and stated that “If such a program were to be implemented, we would expect that it would be managed and maintained by an appropriate regulatory body. If established, the Project Operators would provide monitoring data to the appropriate coordinating agency.” (HT V91, p. 9073)

The Aklavik Hunters and Trappers Committee (HTC) questioned the capacity of government bodies to effectively monitor and regulate all of the effects of the Project. A particular concern was the high rate of staff turnover and the lack of continuity at some government departments, which can disrupt the continuity of any monitoring program and result in the loss of knowledge. The Aklavik HTC noted that the use of community monitors in a monitoring program would help to offset the knowledge loss in government bodies, ensure consistency in the program and maintain knowledge gathered over the Project life cycle.

NEED FOR AN INDEPENDENT MONITORING AGENCY AND ENVIRONMENTAL AGREEMENT

PROponents’ VIEWS

The Proponents were of the opinion that monitoring and follow-up programs should be housed in regulatory authorizations wherever possible and that an environmental agreement would be considered only if those regulatory authorizations could not encompass the required monitoring and follow-up programs. They noted that governments would ultimately consider the need for an environmental agreement but concluded that this could not be done prior to the release of Panel’s report.

PARTICIPANTS’ VIEWS

Some participants, such as the Alternatives North Coalition (ANC), expressed concern that the Proponents’ monitoring commitments would not be maintained after the first few years of pipeline operation. The ANC questioned whether there would be a continuing requirement for the Proponents to monitor or even cooperate with a government sponsored monitoring plan, beyond their own normal day-to-day monitoring activities after permit terms and conditions have been successfully fulfilled.

The ANC cited the case of the Norman Wells Pipeline where an Environmental Agreement was signed, contracting the proponents of that project to cooperate in the development and implementation of a monitoring program. The Environmental Agreement committed those proponents to a number of initiatives including:

- long-term monitoring;
- continued responsibility for environmental problems along the pipeline right-of-way;
- cooperative efforts to improve on impact evaluation and mitigation;
- an assessment of the effectiveness of regulation on pipeline construction and operation; and
- a commitment to develop an approved restoration/abandonment plan.

Although the Proponents had indicated a willingness to negotiate environmental monitoring as a component of an Impact Benefits Agreement, no negotiations were underway at the time of the hearings in the Dehcho Region. As a result, the recommendation of the Sambaa K’e Dene Band was that the Panel require the Proponents to contract independent environmental monitoring services to the Sambaa K’e Dene Band within its area of interest, including all reporting functions related to regulatory infractions.

The Panel heard presentations from the following two existing NWT environmental monitoring agencies:

- the Independent Environmental Monitoring Agency (IEMA), which was established for the Ekati diamond mine; and

- the Environmental Monitoring Advisory Board (EMAB), which was formed through an environmental agreement respecting the Diavik diamond mine.

The IEMA stated that it operated on a budget of approximately \$570,000 per year. The agency monitors and reviews environmental management plans and reports by the company and by government agencies. The IEMA analyzes issues related to the management of environmental impacts and facilitates the integration of Traditional Knowledge into the management plans. The IEMA participates in technical workshops and meets regularly with the company, regulators and government agencies. It reviews and comments on regulatory approvals and participates as an intervener where appropriate. In addition, the IEMA maintains a publicly accessible library and website, and provides a brochure and annual reports to Aboriginal organizations and the public. The IEMA indicated that its annual recommendations can be directed at either government or the operators of that project and, unless otherwise stated, it is expected that recommendations will be acted upon and implemented according to the existing environmental agreement.

The EMAB has funding through to the final reclamation of the Project site. In its first two years, it received \$800,000 in funding from the Proponents, the federal government and the GNWT. EMAB's role is to be an independent "watchdog" — to protect the Lac de Gras area around the Diavik mine project by working with Diavik, the regulators, and Aboriginal groups and to assist all parties in implementing the environmental agreement. Board decisions with respect to monitoring and management actions are taken by consensus.

In the case of the IEMA, technical professionals are appointed to the board level and its "independent" nature excludes Aboriginal parties. For the EMAB on the other hand, the communities are entitled to appoint their own people at the board level.

INAC told the Panel that it had not taken a position on whether an independent monitoring agency would be required for the Project or whether there was a need for an environmental agreement. Rather, INAC preferred to use the existing regulatory instruments such as land use permits, water licences, NEB authorizations or other regulatory tools as much as possible to capture monitoring and follow-up requirements. It noted, however, that if elements of environmental monitoring or management did not fit in to those instruments they could possibly be captured in an environmental agreement.

Environment Canada recommended that the design and implementation of monitoring and follow-up programs should be a condition of the National Energy Board certificate, *Canadian Oil and Gas Operations Act* and other regulatory authorizations wherever possible and appropriate. It noted that if this was not possible, equivalent commitments could be made through an environmental agreement.

The GNWT noted that environmental agreements have been implemented in the NWT to consolidate follow-up programs not covered by regulatory authorizations, to establish a process for managing financial securities, and to establish the basis for monitoring agencies for diamond mines. However, in the case of the MGP, the GNWT indicated that the diamond mine environmental agreement model may not be applicable, given that many areas, such as environmental plans and monitoring programs, would be included within regulatory authorizations or tenure agreements as appropriate.

LOCAL PARTICIPATION IN MONITORING

PROONENTS' VIEWS

The Proponents committed to employing local residents as monitors in many facets of Project construction activities, particularly as a means for reducing or avoiding adverse environmental impacts directly on wildlife and marine mammals and important habitat, avoiding interference with harvesting activities, and as a precautionary safety measure to avoid human-wildlife conflicts. The Proponents also committed to assigning a sufficient number of environmental inspectors to each pipeline construction spread or construction site to ensure compliance and to inspect activities that have a greater chance of causing environmental impacts. The Proponents stated that environmental inspectors would be required to have at least five years experience in environmental inspection, the ability to identify solutions to problems and to establish a good rapport with other inspection and construction personnel, community members and government representatives.

The Proponents proposed to have qualified resource specialists either on site or on call to assess and monitor Project activities and ensure that proven environmental management measures would be applied. The roles and responsibilities of staff hired to implement the monitoring programs would be fully developed prior to the commencement of construction.

The Proponents recognized that, in addition to their own formal monitoring systems, community members are likely to be aware of problems that might develop on their lands during all phases of the Project. Therefore, the Proponents committed to maintaining a relationship with the communities throughout the construction and operations phases, so that concerns could be identified and addressed as appropriate.

NGTL noted it would develop Project-specific environmental plans using industry best practice to ensure mitigation objectives are met and all environmental commitments and regulatory requirements are fulfilled. NGTL committed to receiving input from local communities in order to implement adaptive management and ensure mitigation measures are appropriate to protect the environment.

PARTICIPANTS' VIEWS

INAC, DFO, EC and the GNWT each emphasized the importance of community-based information in monitoring.

The Aklavik Community Corporation, with the assistance of the Inuvialuit Land Administration, has facilitated the training of approximately seven community monitors, but indicated that there are more individuals who were interested in becoming community monitors in the future. The Aklavik Community Corporation stated its intention to continue this training program and it sought assurance from the Proponents that the Inuvialuit-trained environmental monitors would be included across the Project.

The Aklavik HTC indicated it had been assisting various co-management boards under the Inuvialuit Final Agreement to assess wildlife, fish and marine mammal populations in the area. It noted its involvement in the Arctic Borderlands Ecological Knowledge Co-op — an organization that interviews hunters and trappers annually to catalogue changes observed on the land. The Aklavik HTC recommended that knowledgeable hunters and trappers play a central role in monitoring the potential negative impacts to wildlife and the environment within the region.

Other communities also told the Panel that they were creating training programs for monitors in areas that might be impacted by the Project.

18.2.4 PANEL VIEWS AND RECOMMENDATIONS

The Panel understands the systematic approach the Proponents' have taken to monitoring and is generally satisfied with the method and the commitments undertaken for implementation of the system.

The Panel provides the following views with regard to different components of the management and monitoring system.

THE NEED FOR A FOLLOW-UP PROGRAM

The requirement for a follow-up program is prescribed by both the CEA Act and the MVRMA. The purpose of a follow-up program is to establish the necessary measures to verify the accuracy of a project's predicted impacts and to determine the effectiveness of mitigation measures. While these steps are incorporated into the management plans under both the environmental management system and the socio-economic management system of the Proponents, this requirement must be clearly addressed at a Project-specific level by the government responsible authority.

In the Panel's view, the legislative requirement for a follow-up program is reinforced with respect to the Mackenzie Gas Project by the following considerations:

- the Project would likely lead to further related developments;

- the Proponents' design and management programs were, at the stage of the Panel's review, largely conceptual;
- there was insufficient confidence in the Proponents' cumulative impact predictions;
- proposed mitigations are in part untested in the Project environment; and
- a cumulative impact assessment proved to be an important and contentious component of the environmental assessment.

For these reasons, in addition to the legislative requirement, the Panel concludes that a follow-up program is required for the MGP.

RECOMMENDATION 18-1

The Panel recommends that there be a follow-up program to verify the accuracy of the environmental assessment and determine the effectiveness of the measures to mitigate the adverse environmental impacts for all phases of the Mackenzie Gas Project. The Panel recommends that the Department of Indian Affairs and Northern Development be designated as the lead Responsible Authority under the Canadian Environmental Assessment Act for overseeing the design and implementation of the follow-up program, and that the program be in place prior to the commencement of construction.

RECOMMENDATION 18-2

The Panel recommends that the follow-up program for the Mackenzie Gas Project consist of, but not be limited to, the provisions for Project-specific impact monitoring, adaptive management and cumulative impacts monitoring set out in Panel Recommendations 18-3, 18-4, 18-5, 18-16, 18-18, 18-19, 18-20 and 18-22.

The requirements for and implementation of the follow-up program are considered further in Section 18.3 of this chapter.

The Panel further considers that there is a need for an integrated approach to monitoring, follow-up and adaptive management. This integration must take into account:

- the several different operators within the Proponents and the geographic and temporal overlap that may occur among them;
- the overlap that could occur as between communities and regions and among regions; and
- the overlapping requirements of regulators, government departments and management bodies.

Integration must also take place to ensure a given follow-up program provides the essential information for determining whether predictions are verified, mitigation measures are working, and above all, that remedial action is taken that is clearly informed by the results of monitoring and follow-up.

KEY ELEMENTS OF MONITORING AND ADAPTIVE MANAGEMENT

In the Panel's view, regardless of scope or scale, monitoring programs must be designed at the very minimum to detect changes in valued components. They should also be designed to determine, to the extent possible, if the detected changes are linked to project activities. Compliance monitoring and impact monitoring at a project scale, as well as cumulative impacts monitoring at a regional scale, all require the following elements:

- identification of clear research questions that are capable of guiding remedial action and formulated as testable hypotheses that are capable of answering these questions — this should include consideration of the geographic scales and time periods appropriate to each question;
- identification of key indicators (variables) that are most likely to identify trends and that can be linked to project activities and are measurable;
- baseline information for these key indicators on existing conditions and trends, against which change can be measured;
- establishment of reference levels or thresholds at the outset of the program for determining if the research question has been answered and if action is required;
- strategies and protocols for data collection (including sampling procedures and measurement precision) and quality control;
- provision for flexibility in adapting the data collection program to unexpected findings or opportunities without compromising the integrity of the research design;
- data compilation, storage and access protocols;
- a process for data analysis and assessment and for review of results; and
- reporting procedures that provide the Responsible Authorities and the public with the information necessary to guide action.

These key elements of monitoring are required for compliance, effects and cumulative impacts monitoring, although in differing degrees and with a different stringency in each case. Compliance monitoring rarely involves hypothesis testing because the relationship between cause and effect is generally already clear. Project-level and cumulative impacts monitoring are necessarily hypothesis-driven, otherwise adaptive management is nothing more than a process of trial and error.

These key elements must be integrated to ensure that monitoring information is not simply compiled, but analyzed and used to inform corrective management actions as needed. Monitoring programs must go beyond data collection and storage. Investment in sound research design at the outset and continual analysis and assessment of findings are essential to obtaining reliable results and guiding appropriate action. A sound

monitoring program must be designed and put in place before the activity it is intended to monitor begins.

Follow-up programs must include an analysis of the information generated by monitoring programs — whether related to project compliance and effects or to cumulative impacts — and include an effective means of using this information to modify existing proponent mitigations and government measures or develop new ones. This is most likely to occur if there are thresholds that trigger action, either as a regulatory or policy requirement.

As discussed in Chapter 5, "Approach and Methods," the Panel identifies four activities that would be important for adaptive management for the Project:

- establishment of plans, methods, capacities and resources for impact monitoring and management responses;
- use of monitoring findings to inform judgements about mitigation effectiveness and enhancement of mitigation measures;
- determination of what identified problems and opportunities deserve response; and
- ensuring that appropriate responses are undertaken, monitored and further acted upon as necessary.

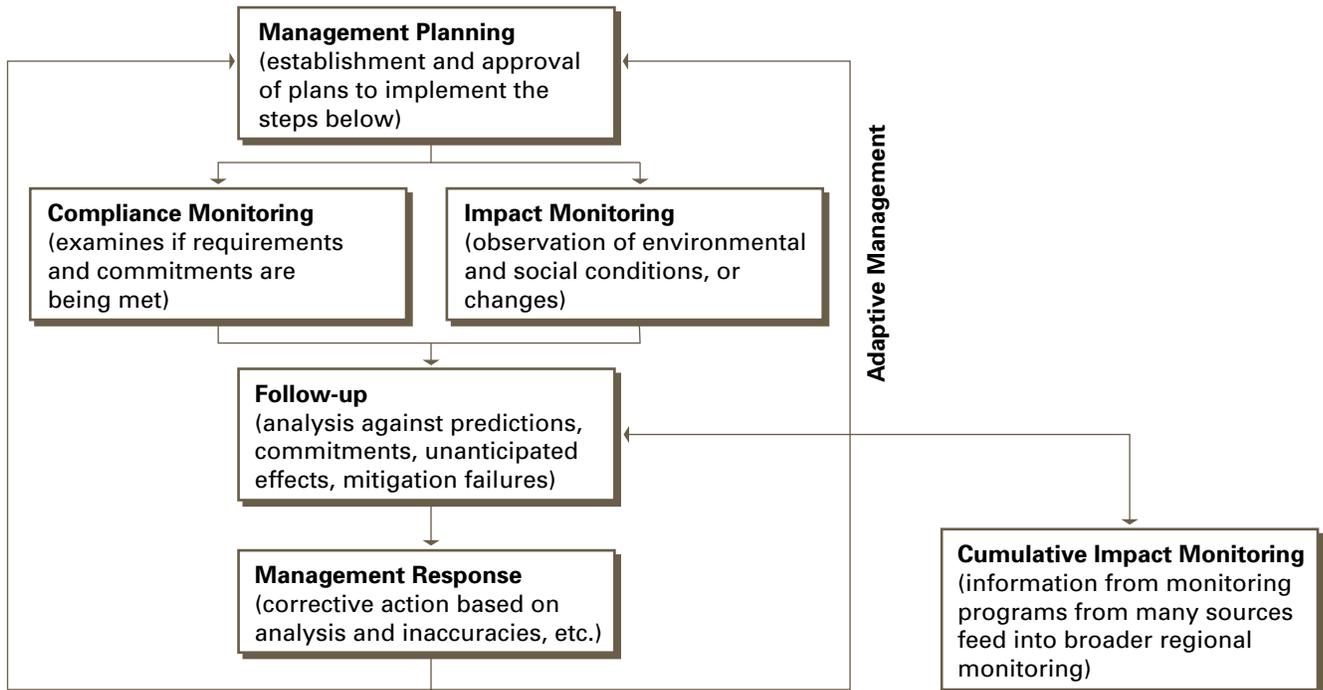
It is therefore necessary to ensure that there are clear and appropriate linkages between monitoring results and adaptive management. Governments and the Proponents must anticipate the potential for incorrect predictions, and failure of mitigation measures must be anticipated and possible responses considered in advance. The monitoring program and the methods of adaptive management need to be transparent. The information used for decision making should be available to the relevant parties and to the public, and the basis for decision making should also be transparent.

Although the Panel heard many specific suggestions about what should be monitored and how, the Panel's views and recommendations are directed primarily to ensuring that whatever is monitored is effectively used to ensure that those responsible for the management of Project and cumulative effects are actually guided by the information generated by monitoring. Monitoring information does not speak for itself; it requires competent analysis and assessment in order to guide adaptive management.

Adaptive management, and the steps required to fulfill it, must be implemented not only with respect to the Project itself, but also to the Project in combination with other reasonably foreseeable developments that may in combination produce impacts that are different (perhaps better, perhaps worse), than those resulting from the Project alone.

Figure 18-3 illustrates the Panel's view of how monitoring and follow-up activities relate in an effective impact management regime.

Figure 18-3 Monitoring, Follow-up and Adaptive Management



Source: Panel Figure

RECOMMENDATION 18-3

The Panel recommends that all Project-specific impact monitoring programs and related cumulative impact monitoring programs, whether conducted by the Proponents, governments, other agencies or in combination, include the following elements:

- identification of monitoring objectives and means of achieving verifiable results capable of guiding remedial action;
- formulation of clearly stated research questions capable of testing impact predictions;
- key measurable indicators linking Mackenzie Gas Project activities to outcomes, and thresholds or reference levels to identify Project effects;
- strategies and protocols for data collection and quality control;
- a design that is compatible with and able to contribute to the Cumulative Impact Monitoring Program;
- protocols for data compilation, storage, control and access;
- provision for data analysis and assessment; and
- reporting procedures and schedules.

RECOMMENDATION 18-4

The Panel recommends that the Department of Indian Affairs and Northern Development, as the lead Responsible Authority responsible for the Mackenzie Gas Project follow-up program, require the Proponents to provide monitoring data collected in their environmental monitoring program, as appropriate, to and in a form acceptable to the following recipients: downstream regulators, government agencies, Land Use Planning bodies, the Northwest Territories Oil and Gas Socio-Economic Advisory Board, the Corporation for the Mitigation of Mackenzie Gas Project Impacts and the Cumulative Impact Monitoring Program.

RECOMMENDATION 18-5

The Panel recommends that adaptive management for Project-specific or cumulative impacts, whether conducted by the Proponents, governments, other agencies or in combination, include the following components:

- provision for regular review of adaptive management effectiveness, adjustment of related monitoring and responses to focus on significant continuing concerns;
- collaboration with participants in related assessment, planning and adaptive management work, especially where cumulative impacts may be involved;

- *sharing of findings among participants in monitoring and among stakeholders and others involved in selecting, designing and applying adaptive responses;*
- *a transparent process for setting and adjusting monitoring and management priorities;*
- *implementation and contingency plans and resources to enable responsive action especially in areas where effect predictions are thought to be uncertain and where predictive errors may have serious consequences; and*
- *clearly defined impacts thresholds, where possible, to clarify where and when adaptive responses will be necessary.*

The Panel recommends that the design of adaptive management approaches pay particular attention to the valued components identified as priorities through the scenario-based cumulative impacts assessment exercise.

RESPONSIBILITIES AND CAPACITIES FOR MONITORING AND FOLLOW-UP

In the Panel's view, the Proponents' environmental and socio-economic management systems, while at the conceptual stage, are sufficiently comprehensive and flexible to accommodate the complexity of a project the size and magnitude of the MGP. The methodological approach to each of the management systems and the Proponents' commitment to developing Project-specific compliance and impact monitoring plans is appropriate. Both compliance monitoring and Project-specific impact monitoring, at or adjacent to Project activities, are in the first instance the responsibility of the Proponents, subject to the direction, approval and verification of the regulators. It is the responsibility of regulators and other public agencies to monitor Project impacts at a regional scale (i.e. at locations other than where Project activities are occurring) or at reference sites. As noted in previous chapters, the establishment of regional level baselines for monitoring, whether biophysical or socio-economic, is also the responsibility of governments. Such monitoring is envisaged in the Panel's recommended follow-up program.

The Proponents' approach to Project-level impacts monitoring and follow-up programs remained highly conceptual throughout the Panel's review, notwithstanding the importance that was placed on these programs by the Proponents and other participants. This lack of specificity would place an additional burden on regulators and regional Aboriginal authorities to work with the Proponents in the future development of these programs. In view of the short but intense construction phase, which would occur over a large geographic area, the institutional capacity of regulatory agencies would be greatly tested to ensure that all inspection and monitoring activities would occur as planned. If there is not a carefully designed and tested monitoring program in place prior to construction, adverse impacts may be detected too late for effective remedial action to occur.

The Panel notes the unique role of the NEB in compliance monitoring, which offers an opportunity and a means to establish

a level of coordination between northern regulatory authorities and other bodies that have no supervisory experience with a project of this magnitude. The Panel understands that the NEB has a staff of more than 60 engineers, inspectors and environmental professionals whose primary responsibility is safety and environmental protection, and that this staff complement would be augmented as required. The Panel is satisfied that the NEB has the technical expertise and, if required, the ability to obtain additional resources to comprehensively monitor Project compliance with other regulators that have responsibilities with specific aspects of the Project.

However, it appears to the Panel that not all government departments and agencies, and other bodies with responsibilities for the Project, have the same ability to augment their resources to match the volume-driven increases in workload, especially during the permitting and construction phases of the Project. If additional financial and human resources are not available, the potential for approval delays or inefficient regulation would increase. In turn this could affect the adequacy and effectiveness of Project impacts monitoring, mitigation and follow-up programs.

RECOMMENDATION 18-6

The Panel recommends that the governments of Canada and the Northwest Territories commit long-term dedicated funding, for a period no less than the duration of the Mackenzie Gas Project, to departments, regulatory agencies and Aboriginal authorities to enable implementation of compliance and impact monitoring and follow-up programs for the duration of the Mackenzie Gas Project.

NEED FOR AN INDEPENDENT MONITORING AGENCY AND ENVIRONMENTAL AGREEMENT

Some participants submitted that, notwithstanding the role of the NEB, the Panel should recommend that an "environmental agreement" be put in place for the Project and that an independent monitoring agency should be established to oversee the Project, as has been done with respect to diamond mine developments in the NWT.

The Panel is not persuaded of the need for an "environmental agreement" for the Project. The Panel notes that environmental monitoring agencies for diamond mines in the NWT were put in place in direct response to regulatory gaps in relation to mining. In view of the comprehensive regulatory responsibilities of the NEB with respect to the Project, especially when combined with the regulatory responsibilities of other agencies over certain aspects of the Project, the Panel is not persuaded that there are remaining "gaps" that would necessitate such an agreement. The only specific regulatory "gap" that was identified to the Panel was with respect to the regulation of emissions from compressor stations. Even there, it appears that the matter could be addressed, at the request of Environment Canada and with its input, by an appropriate condition attached to any certificate or approvals the NEB might issue for the Project.

The Panel is also not persuaded of the need for an "independent monitoring agency" for the Project. With respect to monitoring

Project impacts on the biophysical environment, the Panel notes the comprehensiveness of the NEB's jurisdiction, which is complemented by the authority of other regulators with responsibilities over impacts on the biophysical environment of specific aspects of the Project and associated activities. The Panel understands that the NEB requires, as a standard condition of approvals, that proponents include monitoring plans as part of their Environmental Protection Plan. Thus, although the NEB itself would not conduct Project impact monitoring, it could require the Proponents to do so. A need for the establishment of further monitoring agencies, at least with respect to biophysical impacts of the Project, has not been demonstrated.

The Panel notes the NEB statement that it would augment its resources as necessary to ensure it could fulfill its responsibilities for the Mackenzie Gas Project. However, the Panel heard from some parties that the NEB is not visible in the North, and that its roles and responsibilities are not well known in the communities that would be most directly impacted by the Project. The Panel understands this concern.

The Panel notes that the NEB has been and continues to be active in the NWT as the primary regulator of existing pipeline projects (the Norman Wells Oil Pipeline and the Ikhil pipeline) and of all oil and gas exploration, development and production operations. In the Panel's view, however, the scope and magnitude of the MGP, and possible future developments in the distinctive environment of the North, would present new challenges to the Board.

Furthermore, northern communities understandably expect to be reassured that the Project would be constructed and operated according to all the conditions of any approvals and conform to the Proponents' undertakings and commitments. It was the lack of an accountable, independent organization that resulted in the creation of independent environmental management agencies for the mining sector in the North. While the NEB's authority over the Project eliminates the need for such an agency, northerners should not need to look to the NEB's offices in Calgary to find such reassurance. The NEB's activities with respect to regulatory supervision of the construction and operation of the Project should be visible, and information on such activities should be readily available and reported upon in the North.

In the Panel's view, the scope of the NEB's jurisdiction over the Project — extending as it does to all components of the Project for the life of the Project — provides a unique opportunity for comprehensive monitoring of the impacts of the Project as a whole, at least with respect to impacts on the biophysical environment.

The Panel notes that the NEB stated, in its letter to the Panel, that it "conduct[s] socio-economic assessments of proposed projects." However, the Panel understands that, after a project is approved, the Board's role focuses on the safety and environmental aspects of the Project. The Panel's foregoing views on the role of the NEB with respect to inspection and

monitoring of the Project therefore apply only to its role *vis-à-vis* the impacts of the Project on the biophysical environment. Furthermore, the NEB's role is focused on the Project and its impacts, not on the broader effects that the Project may contribute to. At the same time, information gathered by the NEB through its primary monitoring role of Project impacts could be a useful input to broader monitoring initiatives, as discussed elsewhere in this and other chapters.

RECOMMENDATION 18-7

The Panel recommends that, prior to the commencement of construction, the National Energy Board establish an office in the Northwest Territories to serve as the centre for the National Energy Board's inspection and monitoring activities with respect to the Mackenzie Gas Project.

RECOMMENDATION 18-8

The Panel recommends that the National Energy Board publish reports on its inspection and monitoring activities with respect to the Mackenzie Gas Project, twice yearly during the construction of the Project and annually thereafter. Such reports should be made available in the regional centres in the Northwest Territories and in the communities directly affected by the Mackenzie Gas Project.

COMPLIANCE MONITORING

The Proponents outlined a broad range of management and monitoring plans, some of which have already been considered in previous chapters of this Report. In the Panel's view, the Proponents' programs and commitments for compliance monitoring are appropriate. Although these management and monitoring plans were largely conceptual at the time of the hearings, the Panel has, in previous chapters, recommended that the Proponents produce more detailed monitoring plans in advance of construction, to the satisfaction of the regulators.

The National Energy Board would, by virtue of its authority, be uniquely positioned to serve as the coordinator for compliance monitoring by other bodies and agencies with responsibilities for specific aspects of the Project. The Panel is aware that the NEB and other regulators have already been meeting to discuss the coordination of their respective responsibilities with respect to the Project. The Panel also notes that, if the Project is approved, the NEB proposes to appoint an Operations Project Manager to act as the primary NEB contact with the Board for the Proponents and for other regulatory agencies.

Project compliance, impact monitoring and adaptive management would be particularly challenging during the construction phase of the Project because of the size, scope and intensity of the undertaking, especially during the short winter construction season. Regulatory authorities would need to be especially vigilant during this period.

Given the long-term nature of the Project, it would be important that monitoring continue throughout all phases of the Project life cycle (i.e. pre-construction, construction, operation,

decommissioning and abandonment). Since many regulatory approvals would deal only with the construction phase, conditions of approval for the operating phase should be included in any certificate or approvals issued by the NEB, which has the jurisdiction to ensure that they could be applied over the lifetime of the Project and to all Project components. As is discussed further in this section, the NEB has a comprehensive oversight responsibility over all components of the Project, from cradle to grave.

RECOMMENDATION 18-9

The Panel recommends that the National Energy Board, as a condition of any certificate or approvals it might issue in relation to the Mackenzie Gas Project, require the Proponents and, where applicable, each of the Project Proponents, to file a complete complement of detailed and comprehensive plans within its environmental management system including the Proponents' plans for:

- *environmental management;*
- *environmental protection;*
- *contingency and emergency response; and*
- *environmental compliance and effects monitoring.*

Each plan should describe how it is compatible with the comparable plan of each of the other Proponents, especially where there is the potential for overlapping Project-related impacts, and identify linkages and connections between it and the comparable monitoring and management plans of the other Proponents.

RECOMMENDATION 18-10

The Panel recommends that the National Energy Board, downstream regulators and other bodies with monitoring responsibilities for the Mackenzie Gas Project continue to develop a coordinated approach to compliance monitoring among themselves and in cooperation with the Proponents, and that the National Energy Board lead the development of a protocol among the various agencies and other bodies to implement this approach.

PROJECT IMPACT MONITORING

The Panel observes that, with respect to biophysical impacts, there are generally clear regulatory responsibilities assigned to various government bodies. The role and capacity of these bodies have been considered in previous chapters as well as above in this section. This clarity of regulatory content and accountability seldom exists for socio-economic impacts. The Socio-Economic Agreement provides for increased certainty and accountability in this regard.

The Panel considers that the socio-economic monitoring provisions of the SEA are satisfactory with respect to compliance monitoring, i.e. verification of implementation of the Proponents' commitments. Further, the three-tiered structure of the Proponents' Socio-Economic Effects Management System and

the respective functions of those tiers at the Project site level, the regional working groups and the SEAB, provide a sufficient basis for communication between the Proponents, the GNWT and local residents, about the implementation and effectiveness of Proponents' commitments on an ongoing basis during construction.

The SEAB would have the capacity to verify if the Proponents had fulfilled their commitments, and if not, consider the reasons for non-fulfillment and what should be done to correct the situation. However, the Panel does not regard the SEAB as a satisfactory mechanism for socio-economic impact monitoring. The SEAB is charged with, among other things, receiving information from the Proponents about the fulfillment of their commitments, and from the GNWT on a wide array of socio-economic data about conditions in the NWT. The relationship between the fulfillment of the Proponents' commitments, and any changes to the socio-economic indicators provided by the GNWT, would not necessarily be obvious; nor would the short-term trends in these two sets of information be likely to co-vary in a manner conducive to establishing association, let alone cause and effect among variables.

It is evident to the Panel that the SEAB as constituted would have neither the competence nor the resources to analyze, assess and provide ongoing advice about the complex relationship between these two sets of information. Nor is there any evidence that the SEAB would have an adequate socio-economic baseline available to engage in those tasks. More importantly, however, the Panel considers that the assumption of any directly discernable relationship between the two sets of data is ill-conceived. Many other factors besides the Project could affect such indicators as education, health, employment, income and the like, and distinguishing between Project impacts and the impacts of other factors may be neither possible nor helpful. It follows that the SEAB would unlikely be able to provide useful advice to the parties about what the connection between these two sets of data might be, and as a consequence, what remedial action might be required. Nor, in view of its limited budget and the absence of a secretariat, would it be in a position to seek advice, even if it could determine what advice would be appropriate and where to get it. It is a further difficulty with the arrangements envisaged under the SEA that there is no commitment to make the SEAB annual report public; consequently, the Panel's requirement for transparency noted above would not be met.

In the Panel's view, most socio-economic impacts monitoring (separate from compliance monitoring), would best be done on a regional and continuing basis, as provided for by the CIMP, as discussed in more detail in Section 18.3. To the extent that the SEAB engages in impact monitoring, its focus should be on direct economic and employment benefits generated by the Project itself, particularly during the construction phase.

COMMUNITY PARTICIPATION IN PROJECT MONITORING

The Panel heard in many community hearings that residents seek to be involved in Project monitoring. The Panel observes that the term “monitor” is broadly familiar to residents of the Project Review Area and may denote several different functions. For example, developers often hire local “wildlife monitors” to ensure employee safety from bears at remote work camps, and the Proponents would likely do this at some of their work sites. Some field operations also rely on local residents to monitor compliance with environmental requirements, whether of operator commitments or as specified in Access and Benefits Agreements. In the context of the Project, this could involve local monitors on pipeline spreads or major work sites, although the Proponents made no specific commitments to this effect.

There is also a less formal type of monitoring that is common in the region. Local residents, when travelling for harvesting and other purposes, routinely observe what is happening on the land. These observations typically include signs of exploration and development activity, and changes in wildlife and the environment. Although these observations are often circulated within the community, there is seldom any formal mechanism by which the resultant concerns are reported to Proponents or governments and responded to and acted upon. Follow-up programs should be able to detect unanticipated events or trends, including those identified by local people, and to formulate and test these developments as research questions.

The Panel notes that the Proponents indicated a willingness to include community monitors as a component of various programs. In the Panel’s view, the involvement of community monitors would be an important component of the overall monitoring program and would complement the monitoring activities of regulators who would also be on site ensuring that the requirements of the various regulatory approvals are met.

For these types of monitoring to be effective, the Panel expects the Proponents would ensure that members of the community who are hired as monitors are provided with clear job descriptions and appropriate orientation and training as required.

RECOMMENDATION 18-11

The Panel recommends that the National Energy Board, as a condition of any certificate or approvals it might issue in relation to the Mackenzie Gas Project, require the Proponents to file, prior to the commencement of construction, information related to the hiring of local residents as monitors to carry out compliance and environmental impact monitoring for the Mackenzie Gas Project including:

- *the nature of the activities to be monitored;*
- *clearly defined job descriptions for the positions as monitors;*
- *identification of the training that will be offered to monitors to enable them to perform their duties; and*
- *confirmation that monitors have been hired.*

18.3 CUMULATIVE IMPACTS MONITORING AND MANAGEMENT

18.3.1 EXISTING CONDITIONS

The *Mackenzie Valley Resource Management Act* sets out a regime to manage and regulate, in an integrated manner, the uses of land and water in the Mackenzie Valley. The major components of that regime include land use planning, land and water regulation, environmental impact review, environmental monitoring, and periodic audits to, among other things, review the effectiveness of the regime. These components reflect the provisions of the comprehensive land claim agreements that have been negotiated during the past 30 years and concluded between the Government of Canada and each of the Inuvialuit, the Gwich’in, and the Sahtu Dene and Métis, respectively. These same components inform the land claim negotiations that are currently taking place in the Dehcho Region.

Some components of the regime, such as the establishment of boards to conduct environmental impact review and land and water regulation, have been established and are fully functional. Some components, such as land use plans as in Chapter 11, “Conservation Management and Protected Areas,” are at various stages of being completed. Still other components, such as arrangements for cumulative impacts monitoring, have been the focus of a substantial planning exercise. It is this CIMP, as well as the MVRMA requirement for environmental audits, that are discussed in this section.

Against this backdrop of an unfinished management regime, the Panel heard from many parties that expressed anxiety about the future and concerns about “what the Project would bring.” The Proponents’ assessment of cumulative impacts and the governments’ ability to manage those impacts were a dominant theme before the Panel and are reflected throughout the chapters of the Panel’s Report.

NORTHWEST TERRITORIES ENVIRONMENTAL AUDIT

The MVRMA requires the Minister of INAC to have an independent environmental audit conducted at least once every five years. The purpose of such an audit is to evaluate information, including information collected by the CIMP, so as “to determine trends in environmental quality, potential contributing factors to changes in the environment and the significance of those trends.” It must also review the effectiveness of both the methods used for carrying out the CIMP and the land and water regulation “on the protection of the key components of the environment from significant adverse impact.”

One such audit has already taken place under the MVRMA and the 2005 report of the independent auditor was filed with

the Panel. While the auditor found that the regulatory system is generally addressing the management of environmental issues, it found that the lack of enforceable land use plans and the absence of the CIMP were two gaps that “constrain the performance of the system.” The report entitled *Northwest Territories Environmental Audit 2005* (2005 audit) pointed out that “the integration of the NWT’s regulatory regimes requires that all of their components be fully operational; the absence of a single component has the potential to diminish the ability of the total system to adequately protect the environment.” (J-INAC-00065, p. 8)

NORTHWEST TERRITORIES CUMULATIVE IMPACT MONITORING PROGRAM AND THE CUMULATIVE EFFECTS ASSESSMENT & MANAGEMENT FRAMEWORK

A critical component of the regime set out in the MVRMA is what has come to be known as CIMP. The MVRMA requires that a responsible authority be designated as the body responsible for analyzing data “for the purpose of monitoring the cumulative impact on the environment of concurrent and sequential uses of land and water and deposits of waste in the Mackenzie Valley.” (MVRMA, s. 146.) The data can be data collected by the responsible authority or it can be scientific data, Traditional Knowledge or other pertinent information.

The CIMP has not been formally established. Since 1999, its development has been guided by a working group composed of members or observers of regional Aboriginal authorities and the federal and territorial governments. Planning for the CIMP has also taken place within a broader strategic initiative referred to as the Northwest Territories Cumulative Effects Assessment and Management Strategy and Framework (CEAMF). The CEAMF is a voluntary initiative to examine resource and environmental management in the NWT and to provide ‘refusable advice’ to decision makers concerning improvements to existing programs, agencies and processes. The slow progress toward implementation of the CIMP was noted in the 2005 audit, which stated:

In 1992, the Government of Canada committed to the Gwich’in that a method to monitor cumulative impacts would be provided. Since then, similar commitments have been made to the Sahtu, Tlicho and, through the MVRMA, to all residents of the Mackenzie Valley. Today, thirteen years after the implementation of the Gwich’in claim, despite years of planning, a comprehensive cumulative impact monitoring program has not been implemented and limited environmental baseline and cumulative impact data are available to decision makers in the NWT. During the same period, the level of development activity in the NWT has grown significantly and current trends are expected to continue well into the future. (J-INAC-00065, p. 139)

The 2005 audit recognized that these gaps had complicated and delayed environmental assessments and regulatory reviews

in part because “regulatory decision-makers lack the tools necessary to make informed planning and approval decisions based on the regional/territorial cumulative effects of projects.” (J-INAC-00065, p. 68)

The 2005 audit also noted that the lack of secure, multi-year funding was a limiting factor in the ability to support activities that require advance planning and continuity. It recommended that a source of stable, long-term funding would be required, with periodic reviews to account for program changes, given that CIMP activities were likely to extend in perpetuity.

With respect to the application of the CIMP, the 2005 audit noted that, although the Inuvialuit Settlement Region (ISR) is not included in the MVRMA, the CIMP and the Part 8 environmental audit include the ISR by design. The ISR was included in the 2005 audit based on the terms of reference for the audit and a 2003 Memorandum of Understanding enables Inuvialuit participation as full members in the CIMP. The auditor also found that the CIMP must use a broad definition of the environment that includes biophysical, social, economic and cultural aspects of the NWT environment.

18.3.2 CUMULATIVE IMPACTS MANAGEMENT

PROPOSERS’ VIEWS

The Proponents had no particular plan for the monitoring of cumulative impacts beyond their programs to monitor and evaluate impacts arising from the Project for the purpose of informing the management of Project-specific and cumulative impacts and the application of regulatory requirements. The Proponents stated that, while the management and regional monitoring of cumulative impacts was not their responsibility, they would collaborate with other industry and government-sponsored monitoring programs occurring in the Mackenzie Delta and Mackenzie Valley during operation of the Project.

The Proponents committed to contributing Project monitoring information to the NWT CIMP. They indicated that they would not participate directly in programs such as the CEAMF, CIMP and the NWT Protected Areas Strategy, but would contribute through the participation of industry organizations such as the Canadian Association of Petroleum Producers. However, the Proponents were confident that Project-specific mitigation measures and adaptive management, in combination with regional monitoring programs such as the CEAMF and the CIMP would “ensure that any adverse cumulative effects detected in the future are identified and appropriately addressed.” (J-IORVL-01050, p. 188)

PARTICIPANTS’ VIEWS

A panel of federal government departmental representatives stated that the management of cumulative impacts requires a three-part strategy that includes:

- project-specific cumulative impacts assessment with mitigation led by the Proponents through a comprehensive monitoring, follow-up and adaptive management program;
- regional cumulative impacts that are largely the responsibility of government; and
- impacts of future projects should be addressed through project-specific environmental assessments and mitigations when those projects are at the implementation stage.

Environment Canada stated that the analysis provided by the Proponents in the EIS did not take into account significant interactions that the Project may have with other developments. For example, the Proponents have deferred the construction of two compressor stations and a heater station for three years to allow time for additional sources of gas, from other explorer groups, to become available to operate the pipeline at its level of 1.2 Bcf/d.

With regard to cumulative effects and the MGP, it is EC's view that:

- the cumulative effects of past, present and reasonably foreseeable projects and activities that could interact with effects caused by the MGP must be taken into account in the planning and implementation of the Project (including design of mitigation, monitoring and follow-up programs);
- the analysis and management of cumulative effects of the MGP should take into account potential effects on (or interactions with):
 - all valued components (VCs),
 - climate variability and long-term climate change — along with other effects associated with the Project, and
 - other developments or related activities.
- the MGP proponents and future operators should contribute to and participate in the implementation of the CEAMF and relevant Blueprint recommendations and actions.

While EC recognized the importance of CIMP, it was concerned that CIMP, as it currently existed, would not meet all monitoring requirements for the MGP or subsequent development. To maximize the effectiveness of CIMP and the efficiency of monitoring overall, EC suggested that CIMP must be designed to strike a balance between the need for western science-based monitoring, community-based monitoring and the incorporation of Traditional Knowledge. EC recommended that all of these sources be used effectively to ensure the information collected contributes appropriately to fully informed decision making.

INAC indicated that if ongoing funding is established for the CIMP that the department would endeavour to make participation of Traditional Knowledge holders more effective. The Panel heard from several government departments (INAC, DFO, EC

and GNWT) that to incorporate Traditional Knowledge into a monitoring program the department has, in the past, included the holders of that knowledge directly in the program. All of these departments noted that this was in fact occurring in many cases.

The Fisheries Joint Management Committee (FJMC) submitted that the Proponents' separation of the cumulative impact monitoring and management responsibilities between the various parties assumed that tools such as CIMP are already in place and are adequate to address the concerns around the management of cumulative impacts. However, FJMC identified that many of the tools described in CIMP were still a work-in-progress or had not been tested for developments of the magnitude of the MGP. The FJMC raised the concern that CIMP implementation and funding were subject to the politics and whims of government funding, whereas cumulative effects management and monitoring and assessment need long-term commitments.

The FJMC recommended that government, co-management bodies and industry establish an integrated long-term aquatic monitoring program for the Mackenzie River watershed and that the MGP Proponents should be a major partner and funder of this overall aquatic monitoring program.

In the view of the FJMC, several key elements of an effective aquatic monitoring program warranted consideration:

- The program could be established under ongoing mechanisms, such as NWT CIMP or CEAMF, or established as an independent entity. Government, industries and co-management bodies should provide funding for the program.
- Program research and monitoring should be led by a single scientific leader or a small scientific team that would be directly responsible for ensuring program coordination and integration, rather than reliance on bureaucratic oversight.
- The approach should integrate regional monitoring design with a decision-making program that incorporates development specific needs across a number of disciplines.

The Sierra Club of Canada, along with several other interveners, noted that although plans exist to implement the CIMP, concerns remain regarding its implementation and questioned the ability to manage cumulative MGP impacts from induced developments. The ANC concluded that gaps in land use planning and the past failure to effectively implement CIMP would impair the ability to manage cumulative impacts from the MGP.

To assist in developing an understanding of cumulative impact analysis for socio-economic issues, the Panel commissioned a report from a specialist adviser, Dr. Jack Kruse, on *Indicators of Social, Economic, and Cultural Cumulative Effects Resulting from Petroleum Development in Alaska: A Review* (Kruse Report). This Report was placed on the Panel's Public Registry and was available for comment by the Proponents and Interveners at the Panel's hearings.

The Kruse Report was intended to inform the discussion concerning the prediction and monitoring of cumulative social, economic and cultural changes in the NWT as a result of the MGP and its associated developments.

The Kruse Report examined the range of socio-economic indicators that have been used in Alaska. The Social Indicators System for the Alaska Outer Continental Shelf was presented as a key example that was developed to produce hard, basic data on the human environment that, over time, could measure social change based on cumulative impacts. The system was designed to:

- be comprehensive — in that it covered all important areas of well-being;
- be limited — by relying on a small set of indicators for each aspect of well-being;
- be coherent — by organizing data so that it makes intuitive sense;
- directly measure well-being — by placing a high value on an indicator to represent a high level of well-being;
- report average levels and distributions of well-being; and
- include objective and subjective measures.

The Alaska Outer Continental Shelf Social Indicators System was developed to address social concerns viewed by community resident as important to their own well-being. Specific indicators were developed using a set of rules that included the following:

- indicators must directly measure well-being;
- indicators must accurately reflect reality;
- indicators must be sensitive to actual change;
- indicators should be expressed both as average and as distribution of well-being; and
- indicators should represent both objective and subjective measures.

The Kruse Report further discussed the achievements and limitations of the use of indicators in the Alaskan context of petroleum developments on the North Slope. The report suggested that the Alaskan experience and the types of tools it utilized for monitoring socio-economic change resulting from petroleum developments could be valuable for cumulative impact assessment of socio-economic impacts resulting from the MGP.

18.3.3 CUMULATIVE IMPACTS OF FUTURE DEVELOPMENTS

Many participants submitted that the MGP, if approved and built, would likely act as a catalyst for unprecedented further development in the North. The Panel heard many opinions on what the future might look like; however, there was no consensus on a reasonably foreseeable future group of projects or the subsequent cumulative impacts on the region. The Panel found that the analysis surrounding the assessment of cumulative effects, particularly of potential future effects, was largely speculative.

To assist in understanding the use of scenario analysis as a tool for cumulative impact assessment, the Panel commissioned a report from specialist advisers, Mr. Lorne Greig and Dr. Peter Duinker, entitled *Scenarios of Future Developments and Cumulative Effects Assessment Approaches for the Mackenzie Gas Project* (Greig-Duinker Report).

The Greig-Duinker Report observed that the Mackenzie Valley may witness a plethora of potentially stressing developments over the next few decades. They suggested that scenario-based cumulative effects assessment could be utilized as a promising way to prepare governments, proponents and others for the immense challenges of securing valued component sustainability under such circumstances. The Greig-Duinker Report observed that ultimate control over the pace, locations and types of future development rests with the governments and regulators. The authors suggested that scenarios of future development that had been developed by the Proponents and other participants could contribute to this planning and discussion as long as the scenarios are plausible and apply reasonable assumptions.

The authors proposed several conditions to guide the application of scenario development to the assessment of future cumulative impacts arising from the MGP:

- a scenario-based cumulative effects assessment should be undertaken prior to permitting future developments in the Mackenzie Valley;
- all relevant stakeholders should be engaged in this exercise;
- analysis should focus on the sustainability of valued components at the landscape level;
- scenarios should be plausible and have a possibility of occurrence; and
- a process of scenario development and assessment should be conducted by an independent facilitator.

The authors noted that scenario-based analysis and cumulative effects monitoring are not alternatives, but rather complementary parts of a complete system. The utility of the scenario development analysis is anticipatory — considering what the

future consequences of possible development might be, and what kind of appropriate management response may help in reducing cumulative effects under each. Adaptive management and monitoring programs such as the NWT CIMP would help to confirm if cumulative effects, as predicted in the scenario-based analysis, are occurring as anticipated or expected. In anticipating future cumulative effects, scenario analysis would provide guidance for design of a cumulative impact monitoring program.

The authors observed that, regardless of whether the MGP proceeded, other projects in the area are likely and therefore recommended that scenario analysis be conducted at this relatively early stage of development.

PROPOSERS' VIEWS

In the Proponents' view, scenario analysis is a useful tool for resource managers to develop a framework in which development can occur, but that it is not accepted as a best practice for project-specific cumulative effects assessment.

Furthermore, the EIS Terms of Reference (EIS TOR) did not specifically require that the Proponents develop scenarios as part of their cumulative impact assessment. The Proponents were of the view that if a scenario analysis for cumulative impact assessment was to be undertaken, it should not be required of the Proponents and that the Project should not have to wait for this analysis to be completed before approval and construction.

The Proponents noted the scarcity of information on other potential projects, which made it difficult to perform a cumulative effects assessment. However, they indicated that many considerations such as hypothetical land uses, including exploration, leases or activities, which had been included in the original cumulative effects assessment received further elaboration in the additional information provided for hypothetical development scenarios and also in responses to information requests on hypothetical exploration and development scenarios.

PARTICIPANTS' VIEWS

The Sierra Club of Canada and other participants raised many concerns about the Proponents' approach to the assessment of future cumulative impacts that would result from development induced by the MGP. It argued that while the Proponents had identified additional gas reserves that would be required to fill the pipeline, they had not identified the environmental impacts that would arise from development of those same reserves. The impacts of seismic exploration were also a major concern of the Sierra Club of Canada. It indicated that these are long-term impacts and should be considered in any cumulative effects analysis. The exclusion of seismic activities from a scenario analysis would mislead the public about the potential impacts of future developments.

The Sierra Club of Canada identified two studies that detailed the amount of potential gas available for extraction and transport by the MGP — the GLJ report and the Sproule study. It was noted

by the Proponents that while both of these studies were used as references in the NEB hearings on the economic feasibility of the Project, they were not specifically commissioned as potential scenarios of future gas development.

The Canadian Arctic Resources Committee, the Pembina Institute and several other participants presented various analyses of possible cumulative impacts of induced developments resulting from a range of possible expansions of the Mackenzie Valley Pipeline. Some of the analyses were prepared as mapped information. This and other information on possible future expansion and other future development scenarios is presented and described further in Chapter 3, "Potential Future Developments." Although a number of parties acknowledged the limitations of the models they had employed to generate their analysis of future development scenarios, they generally observed that their models demonstrated that landscapes in the Mackenzie Delta, Colville Hills and Peel Plateau would be intensively developed and greatly modified with the full depletion of reserves.

The Gwich'in Renewable Resources Board recommended that the Proponents, governments, the Gwich'in Renewable Resources Board and other co-management boards be required to cooperate to conduct a scenario-based cumulative effects assessment. The purpose of such an assessment would be to develop effective, pro-active management and mitigation plans to deal with cumulative effects. The Gwich'in Renewable Resources Board stated that ideally a scenario-based cumulative effects assessment would be conducted before the decision of the Panel so that this information would be on hand to support their decision.

The Canadian Parks and Wilderness Society (CPAWS) presented evidence that scenario analysis has been used in other jurisdictions to assess possible consequences of development pressure at a regional scale. They also argued that scenario analysis is a best practice for assessing the cumulative impact of resource development projects and associated induced development. CPAWS recommended that a scenario-based cumulative impacts assessment be done prior to a regulatory decision for the MGP. CPAWS also recommended that this scenario-based cumulative impact assessment be required of the Proponents of the Project.

The World Wildlife Fund (WWF) suggested that development of the NWT's Mackenzie Basin fossil fuel deposits was reasonably foreseeable if the Project was built. Moreover, they stated that there were likely to be some undesirable cumulative impacts on valued components of the environment as a result of this development. The WWF suggested that adequate preparations had not been made to successfully manage these cumulative impacts so as to result in net benefits to the North in the long-term and to sustain valued environmental components.

The WWF suggested that experience in Alaska (1972 Trans-Alaska Pipeline Environmental Impact Assessment) indicated

that initial predictions of development intensity and impacts were an underestimate of what actually occurred. The Alaskan case demonstrated the failures of regulators to protect valued wildlife resources when a project-specific (case-by-case) regulatory approach with a focus on the immediate project footprint (similar to the approach taken by the MGP Proponents) was taken.

The WWF pointed to adverse impacts on wildlife in Alberta (e.g. woodland caribou, grizzly bear, other species at risk) as an example of the consequence of an improper cumulative impact assessment or planning for sustainability of VCs.

In the WWF's view, a moratorium on development should be recommended while land use plans were developed. This approach would encourage governments to give attention and priority to these matters. Alternatively, WWF proposed that project approval could be given, conditional upon the completion of work to address future cumulative effects, such as scenario development and cumulative effects analysis.

Participant Ms. Tasha Stephenson commented on the failures of the Proponents' cumulative impacts assessment. She expressed the view that the Proponents had avoided discussion of the impacts of Project-induced developments except when they could be presented as a benefit of the Project. As a basin opening activity, the MGP was presented in the context of economic development and revenues generation. However, Ms. Stephenson suggested that in the context of adverse cumulative effects, the Proponents indicated that the prediction of induced development was difficult and unlikely to occur. She expressed concern that, in the absence of planning, the scale and pace of unbridled pipeline development would be devastating to the area. Additionally, she agreed with a number of other parties that scenario assessments must be performed to evaluate the full cumulative impacts of the MGP.

Sierra Legal Defence Fund on behalf of the Sierra Club of Canada and the World Wildlife Fund filed a motion requesting the Panel to:

- commission an independent scenario-based cumulative effects assessment (CEA) in accordance with the Greig and Duinker report; and
- ensure that the scenario-based CEA report was distributed in advance of the Panel's hearing on cumulative effects.

Many participants filed positions in favour of and against the motion. The Panel denied the motion on two grounds. Firstly, the Sierra Legal Defence Fund had misinterpreted the recommendations made in the Greig-Duinker report with respect to timing. Secondly, although the Greig-Duinker Report had been commissioned by the Panel, it had not been fully tested in a hearing before the Panel. A future hearing was already scheduled to focus specifically on the issue of cumulative impact assessment and many of the matters raised in the Sierra Legal Defence Fund motion. The Panel was of the view that it would not be proper for it to make a ruling on a recommendation that had not been fully tested.

18.3.4 PANEL VIEWS AND RECOMMENDATIONS

IMPLEMENTATION OF THE CUMULATIVE IMPACTS MONITORING REGIME

The Panel heard widespread concerns about the regional cumulative impacts that could result from the Project in combination with other developments, particularly developments that might be induced by the Project and the ability to manage those cumulative impacts. In many respects, this was the central issue of the Panel's hearings.

The Panel notes that the purpose of the MVRMA is to provide for an integrated system of land and water management in the Mackenzie Valley. The government is required to undertake a number of activities for the purpose of monitoring the cumulative impacts on the environment of developments in the NWT. Although preliminary work has been undertaken for the NWT CIMP, this program is not yet fully established or funded. While it is a work-in-progress and continues to evolve, the implications associated with continued failure to implement CIMP were succinctly stated in the 2005 audit report:

The absence of systematic approaches to identify, evaluate and respond to regional/territorial cumulative effects was identified as one of the most common reasons that projects are referred to Environmental Assessment. Regulatory decision-makers lack the tools necessary to make informed planning and approval decisions based the regional/territorial cumulative effects of projects. This gap is tied directly to the absence of land use plans and a fully implemented CIMP. (J-INAC-00065, p. 7)

Many participants called on the Panel to provide substantive direction on matters of design and implementation related to cumulative impacts assessment, management and monitoring in the Beaufort Delta and Mackenzie Valley.

In the Panel's view, the foundation already exists in the MVRMA to manage, on a comprehensive and integrated basis, the land and water of the Mackenzie Valley. Significant effort has been devoted to the planning for the CIMP and the linkages it would have with other programs. Some of those other programs, such as land use plans, are under the provisions of the MVRMA. Other programs, such as protection of areas of high conservation values, are outside the regime created under the MVRMA but are under the purview of other legislation, and equally critical to the overall northern expectations for maintaining ecological integrity throughout the NWT. The need for completion of these latter two initiatives has been noted and is the subject of recommendations from the Panel in Chapter 11, "Conservation Management and Protected Areas."

The Panel heard extensively about the uneven and incomplete implementation of this regime and how the absence of some of the components is compromising the effectiveness of the management system as a whole. The Panel is of the view that

it is imperative that all components of the regime be in place and functional so as to effectively manage the impacts and cumulative impacts arising from a project of the magnitude and geographic scope of the Mackenzie Gas Project. If the Project were to proceed in the absence of the entirety of this system, there is a strong risk that neither the necessary baseline against which to monitor Project impacts and cumulative impacts nor the monitoring programs necessary for adaptive management would be in place for effective management of the Project's cumulative impacts.

For the CIMP to be fully effective, a strong government commitment to the program is required. The Panel observes that the key hurdles to the full implementation of the MVRMA include the following:

- **Establishment of CIMP** — while there has been a great deal of time and resources devoted to the preliminary planning for the CIMP, the focus must now shift to the formal establishment and implementation of the CIMP.
- **Delegation of a responsible authority for CIMP** — the Minister of DIAND has not yet designated a Responsible Authority under the MVRMA, to undertake activities for the purpose of monitoring cumulative impacts on the environment. Without a responsible authority designated to be responsible and accountable for its successful implementation, CIMP will not be able to achieve its monitoring and management goals.
- **Application of CIMP to the ISR** — the Panel notes that the application of CIMP has been extended to the ISR by a Memorandum of Understanding and that the Inuvialuit currently participate as full members in the CIMP working group. However, given that many of the cumulative impacts would occur within the ISR, the Panel questions whether an administrative agreement is a sufficiently robust instrument to ensure the implementation of CIMP within the ISR. Ideally, the application of CIMP would be extended to the ISR by legislation so that it would apply on the same legal footing throughout the Northwest Territories.
- **Fulfillment of legal obligation to enable CIMP** — the lack of secure long-term funding for CIMP is another obstacle that has impeded the establishment and implementation of CIMP.
- **Contents of the CIMP program** — establishment of the CIMP would benefit from clear guidance with respect to the program design. It would also benefit if the design of the CIMP research were informed by the analysis of scenarios of possible future development in the NWT. CIMP's effectiveness would also be enhanced through the establishment of thresholds, as discussed in Chapter 11, to determine if and when management actions were needed.

In the Panel's view, monitoring of regional cumulative impacts requires a dedicated, focused and integrated program of activity over many years. This must be the work of competent

professionals, but in the context of the Project Review Area, local involvement in program design and execution is also essential. It follows that such a program requires a long-term and secure source of funding, consistent direction and management, the retention of key personnel and the use of expert advisory personnel as required. These conditions are unlikely to be met by simply adding responsibilities to personnel or units within government agencies that are primarily responsible for the delivery of ongoing programs or that have ongoing regulatory responsibilities. Initial funding allocations with no secure continuity are also likely to be counterproductive. Public confidence in monitoring results and assessment will likely be enhanced if the responsible agency is at arm's length from day-to-day policy or regulatory activity.

The CIMP should have, in addition to a governing board, a technical committee of experts from such federal agencies as EC and DFO, and from such territorial agencies as Environment and Natural Resources and the NWT Bureau of Statistics that could also obtain external expert advice as required.

The Panel therefore makes the following recommendations:

RECOMMENDATION 18-12

The Panel recommends that, within six months of the date of the Government Response to the Panel's Report, the Minister of Indian Affairs and Northern Development take the steps necessary to complete the establishment of the Cumulative Impact Monitoring Program and appoint a Responsible Authority as required under the Mackenzie Valley Resource Management Act.

RECOMMENDATION 18-13

The Panel recommends that the Minister of Indian Affairs and Northern Development consider appointing, as the Responsible Authority for the Cumulative Impact Monitoring Program under the Mackenzie Valley Resource Management Act, a corporate entity with a board consisting of one representative from each region in the Northwest Territories and representation from the appropriate government departments of Canada and the Northwest Territories. The Panel also recommends that the Responsible Authority for the Cumulative Impact Monitoring Program have a technical committee and a full-time secretariat to support the board.

RECOMMENDATION 18-14

The Panel recommends that, within six months of the date of the Government Response to the Panel's Report, the Minister of Indian Affairs and Northern Development take all reasonable steps to extend the legal application of the Cumulative Impact Monitoring Program into the Inuvialuit Settlement Region, thereby making the program a legal requirement throughout the Northwest Territories.

RECOMMENDATION 18-15

The Panel recommends that, within six months of the date of the Government Response to the Panel's Report, the Government of Canada make available sufficient long-term stable funding to implement

the Cumulative Impact Monitoring Program as specified in Panel Recommendation 18-16 and as required by law.

RECOMMENDATION 18-16

The Panel recommends that when establishing the Cumulative Impact Monitoring Program (CIMP), the Minister of Indian Affairs and Northern Development authorize the CIMP Responsible Authority to do the following:

- *establish an integrated set of biophysical and socio-economic indicators for the entire Northwest Territories;*
- *establish an integrated set of thresholds for evaluating cumulative impacts and levels of acceptable change in the biophysical and the socio-economic environments;*
- *establish a program for conducting scenario-based cumulative impacts assessments;*
- *establish a program for monitoring the interaction of cumulative impacts on multiple valued components;*
- *establish Traditional Knowledge study programs;*
- *provide guidance to impact assessment monitoring programs of the Mackenzie Gas Project and other activities regarding the form in which data is to be collected and provided to the CIMP;*
- *establish protocols for data access, control and release;*
- *establish a program for reporting monitoring results to appropriate agencies at a time and frequency that meets the need of the particular agency including the provision of results of the CIMP to the Mackenzie Valley Environmental Impact Review Board, Land Use Planning Boards, NWT Oil and Gas Socio-Economic Advisory Board, Corporation for the Mitigation of Mackenzie Gas Project Impacts, regulators, government departments and renewable resource management agencies for the purpose of informing the decisions of those agencies; and*
- *provide guidance to the Land Use Planning bodies on cumulative impact thresholds.*

During the hearings one particular area of cumulative impacts monitoring was brought forward by the Fisheries Joint Management Committee. The FJMC recommended an integrated long-term aquatic monitoring program for the Mackenzie River watershed. The Panel agrees and considers that it would be properly housed within the CIMP. Therefore the Panel makes the following recommendation.

RECOMMENDATION 18-17

The Panel recommends that the Cumulative Impact Monitoring Program establish a program for integrated long-term aquatics monitoring of the Mackenzie River watershed that is consistent with and contributes to the Canadian Aquatic Biomonitoring Network.

18.3.5 FOLLOW-UP PROGRAM FOR CUMULATIVE IMPACTS MANAGEMENT AND MONITORING

In considering the requirements of a follow-up program for the MGP, the Panel has taken into account CEEA's Operational Policy Statement, which gives attention to the management of cumulative impacts. Pursuant to the CEA Act and the MVRMA, the purpose of a follow-up program is to establish the necessary measures to verify the accuracy of a project's predicted impacts and to determine the effectiveness of mitigation measures.

Of particular relevance to the MGP are the following provisions of the OPS that state that a follow-up program is also used to:

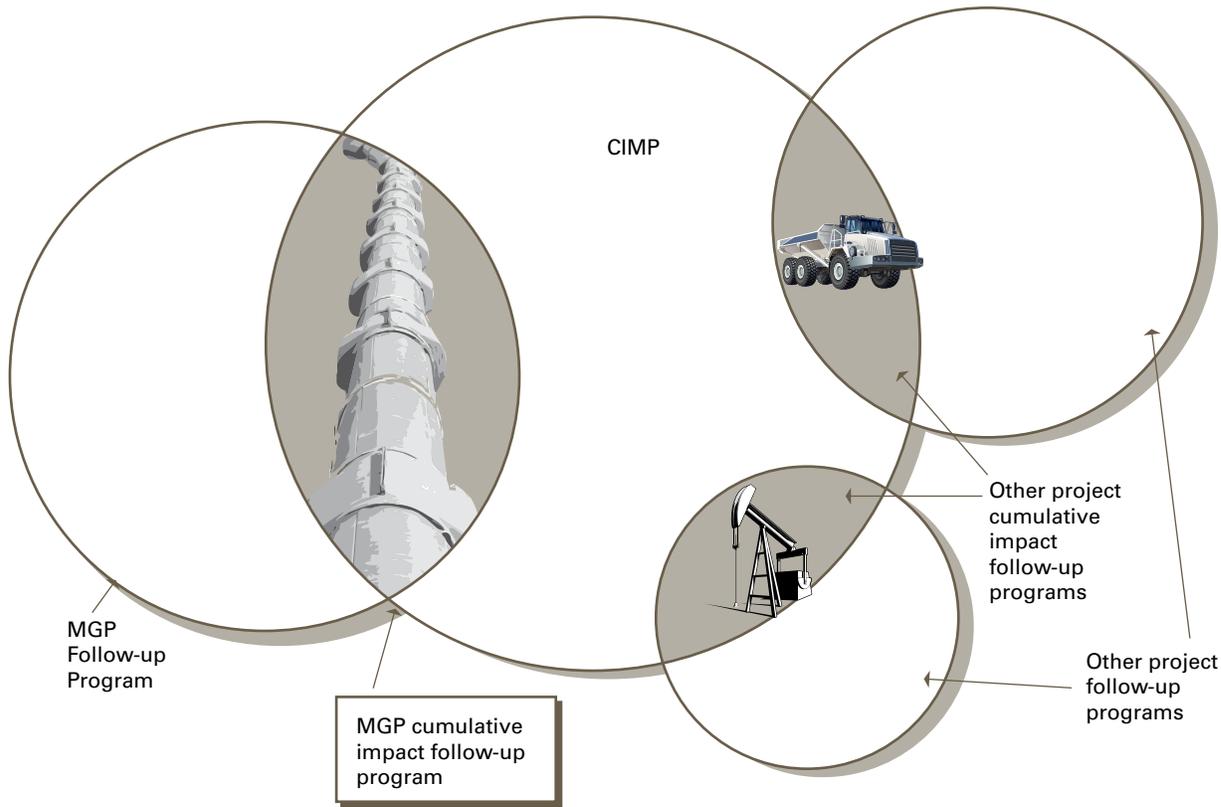
- support adaptive management measures;
- provide information on environmental effects and mitigation that can be used to improve and support environmental assessment of future projects and their cumulative effects; and
- support environmental management systems in the management of environmental effects. (OPS, p. 2)

The demands on cumulative impacts management are particularly challenging for the MGP given its scale, the possibilities for further developments that might follow, the limited capacity of regional management agencies, and the lack of established cumulative impacts thresholds and sources of monitoring information. These elements are all criteria listed in the OPS for consideration of a follow-up program. The Panel has considered the ability of governments and other agencies to anticipate, monitor and manage the cumulative impacts of the Project. This includes the impacts associated with the pace and scale of development and climate change, and applies at a Project-specific and cumulative, regional scale.

In the Panel's view, CIMP provides a logical platform from and within which to implement the recommended follow-up program for the assessment, monitoring and management of the MGP's cumulative impacts. This view assumes the acceptance of the Panel's recommendations for the full implementation of CIMP as presented above.

While individual Proponents have a role to play in contributing Project-specific impacts monitoring results to the Panel's recommended follow-up program, the key responsibility for collecting and analyzing the results from the Project's cumulative impacts would rest with the CIMP Responsible Authority. Actual management actions in relation to cumulative impacts identified through such analysis, would be the responsibility of the appropriate regulators, including the regulators that would oversee implementation by the Proponents of the appropriate adaptive management measures to accommodate and make adjustments in response to these results. Figure 18-4 shows the relationship between the follow-up program for the Project, the CIMP and project-specific follow-up programs for other projects in the NWT.

Figure 18-4 Relation of follow-up program to CIMP



Source: Panel Figure

SCENARIO CUMULATIVE IMPACT ASSESSMENT

Throughout the Panel’s Report, the Expansion Capacity Scenario and Other Future Developments Scenario describe the scope of future developments identified by many participants in the Panel’s hearings as developments that might generate cumulative impacts induced by, or in addition to, the MGP. The Panel heard many concerns with respect to the uncertainty of the pace, scale and distribution of future developments in the NWT and recognizes that future developments on too large a scale or too rapid a pace could have detrimental impacts. Similarly, further development activities beyond the Project as Filed will be needed at appropriate times to maintain sustainable benefits to the people of the NWT.

At the same time, the Panel notes that the Canadian economic and political system is fundamentally one that responds to development initiatives of non-government entities. The current Canadian regulatory framework, generally speaking, is not

intended to dictate or to control the pace and scale of resource developments except where there is a determination that the adverse environmental or socio-economic impacts of such developments are likely to be significant and cannot be justified.

Given this essentially reactive role of regulators, it is critical that they be aware of potential development scenarios and can anticipate them by being prepared and equipped to respond to proposed specific developments when they are proposed. In the Panel’s view, the scenario-based cumulative effects assessment that is recommended by the Panel is an essential anticipatory undertaking to ensure that the regulators are so prepared.

The Panel views a scenario-based cumulative impacts assessment of the MGP as an important tool in the identification of potential cumulative impacts as well as the suite of corresponding management measures that can be deployed to enhance positive effects or avoid or minimize negative

cumulative impacts that might arise from the Project and other future developments. The Panel understands scenario-based cumulative impacts assessment to be an important planning exercise that could inform the design and focus of the MGP's cumulative impact monitoring program. In addition, in later years it could provide important information to the transition planning and bridging initiatives contributing to sustainability as discussed in Chapter 15, "Economic Impacts." As scenario-based assessments are not a prediction of an exact future development scenario, but an anticipatory planning tool for identifying plausible scenarios, review and revision of these scenarios periodically would assist in confirming the priorities and guiding the scope of the MGP's cumulative impact monitoring program.

RECOMMENDATION 18-18

The Panel recommends that the cumulative impact components of the follow-up program for the Mackenzie Gas Project be conducted within the operational framework of and under the guidance of the Responsible Authority for the Cumulative Impact Monitoring Program.

RECOMMENDATION 18-19

The Panel recommends that the follow-up program for the Mackenzie Gas Project include a scenario-based cumulative impacts assessment for the Mackenzie Gas Project in combination with other developments that:

- *identifies plausible scenarios of development that could be induced by the Mackenzie Gas Project, including consideration of those formally presented to the Panel by hearing participants, and that give explicit attention to impacts from climate change;*
- *focuses on the sustainability of valued components in the human and biophysical environments and identifies anticipated cumulative impacts (positive and negative);*
- *identifies priority valued components to be monitored in the follow-up program;*
- *includes the full spatial extent of the Mackenzie Valley from the Proponents' Anchor Fields and adjacent areas in the Mackenzie Delta to the Alberta border and reflects the geological potential of areas for future development;*
- *includes as its temporal scale the anticipated life of the Mackenzie Gas Project and beyond decommissioning;*
- *is informed by relevant audit reports;*
- *is conducted by an independent facilitator and designed with the appropriate expertise; and*
- *includes the participation of the appropriate stakeholders.*

The Panel further recommends that the first scenario-based cumulative impacts assessment for the Mackenzie Gas Project be initiated within six months of the designation of the Responsible Authority for the Cumulative Impact Monitoring Program and that it be reviewed and revised every three years thereafter for the life of the Mackenzie Gas Project.

CUMULATIVE IMPACTS MONITORING AND MANAGEMENT

In the Panel's view an effective follow-up program for the monitoring and management of cumulative impacts depends on a number of key elements that, taken together, constitute a coordinated approach for anticipating, monitoring and managing the cumulative impacts of the MGP. Those elements include:

- the results of a scenario-based cumulative impacts assessment of the MGP to guide the design of an MGP cumulative impact monitoring program;
- the use of the Proponents' Project-specific impacts monitoring data, and related monitoring data from other projects, which may be induced by the MGP, and its integration with other cumulative impact monitoring data gathered by governments and other entities; and
- the application of the results of the scenario-based cumulative impacts assessment and the MGP cumulative impact monitoring program to inform the regulators, the environmental assessment and permitting of future developments, and future transition planning.

RECOMMENDATION 18-20

The Panel recommends that the Department of Indian Affairs and Northern Development require the follow-up program for the Mackenzie Gas Project to establish and conduct a Mackenzie Gas Project cumulative impact monitoring program that:

- *reflects the priority valued components and indicators identified by the scenario-based cumulative impacts assessment;*
- *requires governments, Aboriginal authorities and the Proponents to develop and design integrated research protocols for the Mackenzie Gas Project that meet the monitoring needs for Project impact monitoring and cumulative impact monitoring;*
- *identifies the indicators for which data will be required for the Mackenzie Gas Project cumulative impacts follow-up program;*
- *includes as appropriate:*
 - *select regional or community Traditional Knowledge studies;*
 - *Project-specific impact monitoring information provided by the Mackenzie Gas Project and regulators;*
 - *interaction of cumulative impacts on multiple valued components; and*
 - *is designed in conformity with the provisions of Panel Recommendation 18-3.*

The results of the Mackenzie Gas Project scenario-based cumulative impacts assessment and monitoring programs should be transmitted to downstream regulators, government agencies, Land Use Planning bodies, the NWT Oil and Gas Socio-Economic Advisory Board, and the Corporation for the Mitigation of Mackenzie Gas Project Impacts for the analysis of cumulative impacts and, for the purpose of transition planning, the Government of the Northwest Territories.

RECOMMENDATION 18-21

The Panel recommends that regulators, as a condition of any approvals or permits they might issue for activities and projects, require all proponents of future developments that would enable the throughput of the Mackenzie Valley Pipeline to be increased above 0.83 Bcf/d to provide relevant impact monitoring data to the cumulative impacts monitoring program.

EFFECTIVENESS OF CUMULATIVE IMPACTS ASSESSMENT, MONITORING AND MANAGEMENT

The Panel heard a high level of concern throughout its hearings about the management of cumulative impacts resulting from the MGP, particularly those that may result from future induced developments and the unfulfilled requirements of the MVRMA for a cumulative impact monitoring program in the Mackenzie

Valley. The Panel is of the view that it is crucial that there be independent oversight and evaluation of effectiveness of the MGP's cumulative impact monitoring program. In the Panel's view, the Audit established under the MVRMA is well-suited to this purpose.

RECOMMENDATION 18-22

The Panel recommends that the Minister of Indian Affairs and Northern Development, as part of the follow-up program, require a Project-specific audit pursuant to section 148 of the Mackenzie Valley Resource Management Act each year during construction and at least once every five years for the life of the Mackenzie Gas Project to assess the effectiveness of the impacts monitoring regime for the Project. There may be more than one audit in any given year and an audit may focus on one or more component of the Mackenzie Gas Project.

CHAPTER 19

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CHAPTER 19

SUSTAINABILITY AND NET CONTRIBUTION

19.1 INTRODUCTION

The Panel has concluded that, assuming full implementation of the Panel's recommendations, the Mackenzie Gas Project (MGP) and the Northwest Alberta Facilities are likely to make a positive contribution to sustainability. The Project is likely to:

- make a positive contribution to the human environment, with implementation of measures to support effective capture of benefits, equitable distribution of risks and adverse impacts, and equitable opportunities for participation;
- lead to improved protection of the biophysical environment through strengthened conservation measures, with adverse Project impacts mitigated to an acceptable degree; and
- provide an opportunity to invest in building a positive Project legacy through Project enhancements, and through transition planning and funding.

Achieving a net positive contribution would depend on the preparedness of governments and other institutions to undertake the monitoring, anticipatory planning, adaptive management and enforcement needed to ensure that the cumulative impacts of the Project and future developments are positive. The Panel's findings are contingent upon the timely adoption and successful implementation of its recommendations. In the absence of Panel recommended actions and commitments of the Proponents and governments, supported by the necessary resources and funding, the Project's impact on the environment would likely be significant and adverse.

This chapter presents the Panel's overall conclusions about the Project, including the nature and significance of its impacts on the environment and its net contribution to the existing and future social, cultural and economic well-being of residents and communities.

19.2 APPROACH

The Panel developed a sustainability-based framework (the Framework) for reviewing the Project proposal. This Framework has four key components:

1. A **core question** based on principles and objectives to achieve sustainable development as set out in the *Canadian Environmental Assessment Act* (CEA Act) and in the land claim agreements that gave rise to the *Mackenzie Valley Resource Management Act* (MVRMA), which are incorporated into the *Joint Review Panel Agreement* (JRPA) and reflected in the Terms of Reference for the Environmental Impact Statement (EIS).
2. A **defined scope of developments to be assessed**. In this case, the appropriate scope included the Project as Filed and reasonably foreseeable expansions given the design capacity of the proposed pipeline and other infrastructure, along with its cumulative impacts and reasonably anticipated future development.
3. **Five key sustainability issue categories**, to be assessed that cover the main general sustainability criteria and more particular requirements for measuring progress towards sustainability. The five categories identified by the Panel that incorporate the major issues raised with respect to the MGP are:
 - Cumulative impacts on the biophysical environment;
 - Cumulative impacts on the human environment;
 - Equity impacts;
 - Legacy and bridging; and
 - Cumulative impacts management and preparedness.
4. **Explicit treatment of the interaction among impacts and of trade-offs**. The consideration of interactions among individual Project impacts provides a more comprehensive understanding of areas of mutually reinforcing gains and losses and likely overall impacts. By ensuring that trade-offs are recognized and evaluated, the foundation for weighing options can be enhanced.

The Framework was applied by reviewing the cumulative impacts of the Project on each of the five sustainability issue categories and across a range of possible developments, including the null (no project) alternative. As areas with inadequately mitigated adverse impacts or the potential for greater positive contributions were identified, the Panel developed recommendations. The Panel then conducted a final analysis, assuming the full implementation of the Panel's recommendations and the Proponents' proposed mitigations and commitments. The Panel reached its overall conclusion and answer to the core question after review of these impacts and their interactions and with an understanding of the trade-offs demanded.

19.3 THE CORE QUESTION

The Panel considered that key sustainability objectives are to ensure net gains without significant adverse impacts during the life of the Project and effective use of the Project and associated opportunities as a bridge to a desirable and durable future, especially in the Project Review Area. In light of these objectives, the core question asked by the Panel was:

Can we be reasonably confident that the Project as Filed, if built and operated with full implementation of the Panel's recommendations, would deliver valuable and lasting overall benefits, and avoid significant adverse environmental impacts?

As discussed in more detail in Chapter 5, "Approach and Methods," the JRPA and the Terms of Reference for the EIS reflect the desires of the responsible parties to promote contributions to sustainable development and identify sustainability objectives as key to the evaluation of the proposed Project. The Terms of Reference for the EIS set as a fundamental test for the environmental impact review process "the extent to which a project makes a positive overall contribution towards environmental, social, cultural and economic sustainability." (EIS TOR, p. 8)

Accordingly, the Panel stated early in its review that it would evaluate "the specific and overall sustainability impacts of the proposed project and whether the proposed project would bring lasting net gains and whether the trade-offs made to ensure these gains are acceptable in the circumstances." (J-JRP-00162, p. 5) The Panel retained this focus throughout the hearings and in its subsequent review and analysis of the cumulative impacts of the Project as Filed and of a range of possible developments (characterized in Chapter 3, "Potential Future Developments," as the Expansion Capacity Scenario induced by the Project and Other Future Scenarios which may combine with the Project).

19.4 THE SCOPE OF DEVELOPMENTS TO BE ASSESSED

The Project as Filed implies a range of possible developments and associated cumulative impacts.

The Project centres on a gas pipeline from Inuvik to northwest Alberta, a natural gas liquids pipeline from Inuvik to an existing oil pipeline at Norman Wells, and development and production from three Anchor Fields. These components are the focus of assessment in the Proponents' EIS. However, while the three Anchor Fields and associated gathering facilities are capable of delivering 0.83 Bcf/d, the gas pipeline in the Project as Filed has three compressor stations and a heater station to provide an initial capacity of 1.2 Bcf/d. It also includes participation of

the Aboriginal Pipeline Group (APG) under an agreement with the Proponents that provides for significant APG ownership and revenue only after the throughput surpasses 0.83 Bcf/d. Production for that higher throughput would entail development of one or more additional, but so far unspecified, fields and gathering facilities. APG ownership and revenue would increase significantly as throughput increases up to 1.2 Bcf/d (with revenues continuing to increase as throughput increases from additional developments under the Expansion Capacity Scenario).

The Project as Filed is designed (with a 30-inch diameter pipe and block valves at the anticipated locations of 11 additional compressor stations) to enable expansion above a capacity of 1.2 Bcf/d to a capacity of 1.8 Bcf/d. The Panel has not reviewed the activities required for either these additional compressor stations or the development of gas fields that would be required for that purpose.

Many submissions at the Panel hearings reflected expectations that the Project would be “basin opening” — that the Project and associated infrastructure and services would directly facilitate and indirectly induce considerable further development of resources in the Northwest Territories (NWT) and possibly in the north Yukon (not necessarily limited to one basin) beyond the maximum throughput of 1.8 Bcf/d in the Mackenzie Valley Pipeline (MVP), resulting in further pipeline construction and associated initiatives.

The Panel has considered the potential cumulative impacts that could be induced by the full range of these possible

developments. The Panel has done so because of the nature of the Project as Filed, in which possible future developments in the throughput range from 0.83 to 1.2 Bcf/d are likely and in the throughput range from 1.2 to 1.8 Bcf/d are reasonably foreseeable. Such future developments are implicit in the proposal and the Project design. Pace and scale issues were widely recognized throughout the hearings as key to concerns and conclusions about what would and would not be desirable. The Panel’s Mandate requires it to assess the Project’s anticipated cumulative impacts on the environment, including the full range of environmental impacts from the Project as Filed through the range of possible future developments implicit in the proposal and the Project design.

In its assessment of these possibilities, the Panel has consistently focused its attention on cumulative impacts. As explained in Chapter 5, “Approach and Methods,” the Panel has approached cumulative impacts as the impacts of the proposed undertaking in combination with the impacts of other existing and reasonably foreseeable activities. In the case of the MGP, that approach applies to the cumulative impacts that are likely to increase through the range of the Project as Filed at 0.83 Bcf/d and, inclusive of other development possibilities, up to 1.8 Bcf/d (the Expansion Capacity Scenario).

The range of possible developments and associated cumulative impacts reviewed by the Panel in considering the Project’s contribution to sustainability includes the null alternative (the Project not proceeding in the foreseeable future), and is summarized in Table 19-1.

Table 19-1 The range of development and cumulative impacts reviewed by the Panel

1. *The null alternative* is the option where the Project does not proceed in the foreseeable future either because the proposal is rejected or the Proponents choose not to proceed.
2. *The base Project as Filed with a throughput of 0.83 Bcf/d* assumes production only from the three Anchor Fields identified and assessed in the EIS and subsequent Project updates. This possibility includes, in addition to all Project components at this level, the cumulative impacts of the Project at that scale with related infrastructure and any other reasonably anticipated induced or other activities, over its lifetime and beyond, including its legacy. It also includes implementation of all mitigation and enhancement measures to which the Proponents are formally committed, government commitments and full implementation of the Panel's recommendations. Assessment information provided to the Panel on this possibility was considerably more detailed than information provided on the other development possibilities.
3. *The Project as Filed with an initial capacity of 1.2 Bcf/d plus additional supply for expected throughput in the range of 0.83 to 1.2 Bcf/d* assumes development of one or more additional source fields and related additional facilities and activities, the specifics and impacts of which are not known and which were not assessed in the EIS and could not be reviewed in detail or with certainty by the Panel. The Panel expects that the additional source fields would be in the vicinity of the Mackenzie Delta. This range of possible development covers in addition to the considerations in the base Project case above:
 - various possibilities for the additional field or fields to be developed;
 - various means for assessment, selection, regulatory review and approval of the additional field or fields to be developed, considering also the additional cumulative impacts that may be involved;
 - various possibilities for timing, including approval and commitment of production from additional fields in time for an increase in throughput from 0.83 to 1.2 Bcf/d at or soon after pipeline start-up, or a more gradual expansion (with different implications for boom and bust impacts); and
 - various sizes of the income stream for the APG in the increments between 0.83 and 1.2 Bcf/d.

In addition to all Project components, Proponent commitments, government measures and implementation of the Panel's recommendations, this scenario includes the cumulative impacts of the Project in the 0.83 to 1.2 Bcf/d throughput range, with related infrastructure and any other reasonably anticipated induced or other activities, over the Project's lifetime and beyond, including its legacy.
4. *The Project expanded in the range from 1.2 Bcf/d to its potential design capacity of 1.8 Bcf/d* would be achieved chiefly through addition of up to 11 more compressor stations, more source fields and related facilities, plus other Project components, related infrastructure and other activities and reasonably anticipated induced and other impacts of the Project at that scale over its lifetime, and including its legacy. The additional source fields could include ones in the Mackenzie Delta, the Beaufort offshore and the Colville Hills. This range in the Expansion Capacity Scenario covers in addition to the considerations in the initial expansion case above:
 - different expansion possibilities between 1.2 and 1.8 Bcf/d;
 - different possibilities for the additional fields to be developed;
 - different means for assessment, selection, regulatory review and approval of the additional fields to be developed, considering also the additional cumulative impacts that may be involved; and
 - different possibilities for timing of approval and commitment of production from additional fields including more and less gradual expansion of production approvals and commitments.
5. *Other Future Scenarios* would include additional pipelines and other reasonably anticipated additional associated, induced and concurrent activities. The scenarios centre on activities beyond those addressed in relation to the cumulative impacts of the Project expanded to its potential design capacity of 1.8 Bcf/d. Relevant activities include hydrocarbon exploration, development, production and transportation undertakings, and other activities in the region that may be reasonably anticipated in plausible future scenarios given the Project's scale and its role in facilitating the opening of production in the region. The scenarios cover a range of activities and intensities as well as a range of affected areas, the specifics of which are speculative but the overall character and broad implications for major issues (e.g. stresses on ecosystems, speed of resource depletion, demands on governance capacity and nature of legacy impacts) may be anticipated. Information submitted to the Panel on further developments under the Other Future Scenarios was largely speculative mostly in the form of broad depictions and widely held expectations.

19.5 KEY SUSTAINABILITY ISSUES

The Panel began by developing a sustainability-based listing of key issues that recognizes the general requirements for progress towards sustainability based on the Gibson Report. The final classification was updated throughout the hearings, and reorganized into five categories in the Panel’s review and analysis. The five key sustainability issues categories and questions were used throughout the Panel’s review and deliberations and underlie the major impact assessment concerns reported in Chapter 6, “Project Design, Construction and

Operations,” through Chapter 18, “Monitoring, Follow-up and Management Plans.”

The five categories, and the sets of particular questions in each issue category, are summarized in Table 19-2, with the specific key issues listed in Table 19-3.

Table 19-2 The Five Key Sustainability Issues Categories

1. **Cumulative Impacts on the Biophysical Environment:** Impacts on the longer-term resilience of ecosystems and what they provide (as recognized in special conservation areas, protected areas and land use plans) and on the wildlife harvesting and other traditional land-based cultural and livelihood activities that they support during Project life and beyond.
2. **Cumulative Impacts on the Human Environment:** Impacts on community economic and socio-cultural well-being during the stages of the Project life and beyond, including vulnerability to cumulative impacts on community economic and socio-cultural well-being, and vulnerability to boom and bust impacts.
3. **Equity Impacts:** The distribution of positive and negative impacts (especially concerning access to opportunities and resources, revenue flows, and exposure to burdens and risks) within and among communities, and between men and women, youth and Elders, and present and future generations, including the impacts of the anticipated use of hydrocarbon resources (upstream and downstream impacts of product life cycle from gas exploration to end use of gas and greenhouse gas (GHG) loadings).
4. **Legacy and Bridging:** Impacts from use of the Project and associated revenues and other impacts as a bridge to more sustainable livelihoods and generally more sustainable futures for the Beaufort Delta and Mackenzie Valley regions. They also include use of the Project and associated activities for building capacities of individuals, communities, agencies and other organizations to manage impacts, and to obtain and retain benefits from Project-related opportunities.
5. **Cumulative Impacts Management and Preparedness:** The preparedness of government agencies and other responsible authorities to manage the cumulative impacts of the Project and associated activities in a way that ensures lasting, multiple, mutually reinforcing gains, including their capacity and preparedness to apply, monitor, enforce and adjust necessary terms and conditions. They also include carrying out the design and delivery of impact mitigation or enhancement programs, planning and management for acceptable development scale and pacing, and dealing with uncertainties and surprises, positive and negative.

Table 19-3 Key Issues by Category	
Cumulative Impacts on the Biophysical Environment	Equity Impacts
<ul style="list-style-type: none"> • Migratory Bird Habitat in the Mackenzie Delta • Conservation and Land Use Plans and Protected Areas • Important Wildlife Habitat in the Mackenzie Delta and Adjacent Areas • Fish Habitat and Watercourse Crossings • Woodland Caribou • Polar Bear • Marine Mammals • Air Quality • Invasive Species from Ballast Water 	<ul style="list-style-type: none"> • Federal, Territorial, Aboriginal Equity • Regional Equity • Regional Centres and Smaller Communities • Gender Equity • Intergenerational Equity
Cumulative Impacts on the Human Environment	Legacy and Bridging
<ul style="list-style-type: none"> • Boom and Bust • NWT Employment and Income • Revenues net of costs to the Government of the Northwest Territories (GNWT) • Revenues to the APG (net after loan payments) • Aboriginal Benefits Agreements • NWT Business Procurement • NWT Labour Force Development • Harvesting and Traditional Knowledge • Social Well-Being • Community Infrastructure and Services • Housing • Granular Resources Supply • Local Access to Gas Supply 	<ul style="list-style-type: none"> • Regional Labour Force Development • Regional Transition Planning and Funding • Gas as Transition Fuel • Conservation Legacy • Decommissioning and Abandonment
	Cumulative Impacts Management and Preparedness
	<ul style="list-style-type: none"> • Pace and Scale/Boom-Bust Mitigation planning • Regional Cumulative Impacts Monitoring and Management • Project Follow-up, Compliance and Impacts Monitoring and Response • Climate Change Mitigation

The results are presented in the tables that follow, organized to cover the major issues in each of the five categories identified in Table 19-3. The summary tables for each category are reproduced and discussed below. The tables summarize the more detailed evaluations reported in other chapters.

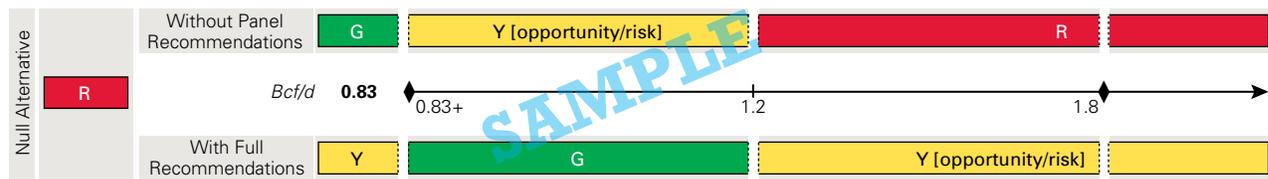
19.6 SUMMARY OF PANEL ANALYSIS OF THE FIVE KEY SUSTAINABILITY ISSUES CATEGORIES

The Panel has applied its Framework to the major issues it identified as organized under five key sustainability categories. These categories have been used for assessment of the

cumulative impacts of the Project. This analysis required consideration of the null alternative, and the possible future development implicit in the Project represented as a continuum of throughput possibilities from 0.83 to 1.8 Bcf/d and beyond. Across the range, the Panel distinguished between the impacts with and without the additional requirements or government measures recommended by the Panel.

In order to present the findings in a concise summary format, each table contains a three-colour bar chart.

Figure 19-1 Sample Sustainability Chart



The null alternative and the throughput levels specified on the axis are defined in Table 19-1.

The two horizontal bars depict the differences in assessed impacts with and without the Panel’s recommendations, as described below.

“WITHOUT PANEL RECOMMENDATIONS” BAR

This bar presents assessments of the cumulative impacts along a range of possible developments. The assessments summarized on the “Without Panel Recommendations” bar assume implementation of all of the Proponents’ impact enhancement and mitigation commitments and recognize the major existing (federal, territorial and Aboriginal) government commitments and agreements (the legislated Mackenzie Gas Project Impacts Fund (MGPIF), Access Agreements, Access and Benefits Agreements, Canada Benefits Plans and the formally contracted Socio-Economic Agreement (SEA)), which are firmly in place and would be acted upon, but do not assume implementation of the Panel’s recommendations.

“WITH FULL RECOMMENDATIONS” BAR

This bar presents assessments of the same range of possible developments as the “Without Panel Recommendations” bar, but assumes full implementation of all of the Panel’s recommendations as terms and conditions of Project regulatory approvals and all the Panel’s recommendations for government measures.

The colours are used in the bar graphs to summarize sustainability impacts using three visual categories.

G (green) *Beneficial lasting cumulative impacts* — there are firm grounds for expecting positive contributions to sustainability with no significant damages or risks. Possible beneficial impacts include substantial improvements over currently undesirable conditions and trends.

Y (yellow) *Area of opportunity and risk* — contributions to sustainability are expected but depend on the effectiveness of future decisions and actions to enhance positive impacts and/or mitigate adverse impacts. These areas are characterized by the co-existence of opportunities to make positive contributions to sustainability and the risk of adverse impacts. In these areas, continued vigilance in navigating opportunities, risks and trade-

offs would be required to respond to changing conditions, events and enhanced information as it becomes available.

R (red) *Net losses* — significant adverse impacts or risks of significant adverse impacts and/or failure to make positive contributions to sustainability, especially where current conditions are undesirable and trends are negative.

The five summary tables follow. Each is accompanied by a summary discussion highlighting some of the key considerations that contributed to the summary assessment, along with a short description of the sustainability judgement associated with the category’s key issues.

19.6.1 CUMULATIVE IMPACTS ON THE BIOPHYSICAL ENVIRONMENT

The Panel has considered impacts on the health and resilience of ecosystems and what they provide. The Panel has recommended measures to maintain ecosystems so they can continue to provide valued goods, services and functions, including the basis for fish and wildlife harvesting and other land-based cultural and livelihood activities, during the Project’s life and beyond.

To assess the impact of the Project and its cumulative impacts on the biophysical environment, the Panel identified the ecosystem components that may be particularly vulnerable to cumulative development impacts, and reviewed the likely effectiveness of the existing mitigation measures and other commitments made by the Proponents. Expected impacts of the increased levels of human activity include habitat and sensory disturbance during construction and operation, with stresses on the biophysical environment increasing with Project expansion. Concerns arise with expansion of Project throughput beyond 1.2 Bcf/d, given the increased scope and level of activity and potential inclusion of offshore development.

Based on its review of existing conditions and Proponent commitments, the Panel has made recommendations to mitigate adverse impacts of the Project and its cumulative impacts, and to strengthen the region’s conservation and protection measures. These include:

- a requirement that the federal government fulfill its obligations under the *Species at Risk Act (SARA)* to produce recovery strategies and action plans for Listed species;

- habitat offsets in the Mackenzie Delta as compensation for habitat disturbance and loss in the Kendall Island Bird Sanctuary (KIBS);
- the development of cumulative impacts thresholds and associated measures to keep impacts below these thresholds;
- interim and permanent land withdrawals to complete the Five Year Action Plan under the NWT Protected Areas Strategy;
- the creation of a special conservation regime for the Mackenzie Delta;
- the updating and completion of conservation and land use plans; and
- commencement of associated monitoring and management to ensure effective implementation of these measures, and

a review of cumulative impacts on Listed species prior to permitting future expansion.

With implementation of the full set of its recommendations relevant to biophysical impacts, the Panel has concluded that significant adverse impacts can be avoided and that a neutral contribution to sustainability is likely to result from the strengthened conservation measures and habitat offsets. Concerns and uncertainties still exist regarding the effectiveness of these measures to protect fish habitat, woodland caribou, polar bear and whales (assuming offshore development occurs with Project expansion), particularly with the cumulative impacts of any Project expansions beyond 1.2 Bcf/d. Broader scale concerns about contributions to climate change are addressed in Section 19.6.5.

Table 19-4 Cumulative Impacts on the Biophysical Environment

Assessed Impact



Summary

- With Panel recommendations, the Project would provide a basis for managing cumulative impacts and for maintaining the capacity of renewable resources that are likely to be significantly affected by the Project to meet existing and future needs.
- The Project would involve and likely induce increased levels of industrial activity but also provide an opportunity for effective action on measures to address continuing declines in Listed species and measures to prepare for the management of future cumulative environmental impacts.
- Avoidance of significant adverse cumulative impacts from the Project depends on full implementation of the Panel’s recommendations.
- The pace and scale of future developments are unknown and the potential effectiveness of the Panel’s recommendations is therefore uncertain beyond 1.2 Bcf/d.

Panel Analysis

- The null alternative would not increase current stresses on the biophysical environment but might not include Panel-recommended actions on woodland caribou recovery, establishment of a special management regime for the Mackenzie Delta, or completion of land use plans and a protected areas network.
- Without Panel recommendations, the likelihood of significant adverse impacts from the Project would increase due to the activities required to expand throughput from 0.83 to 1.2 Bcf/d especially because of impacts on KIBS and potential adverse impacts on woodland caribou (already Listed as “threatened” under SARA).
- Without Panel recommendations, developments beyond 1.2 Bcf/d would further increase the likelihood of significant adverse impacts for the reasons above plus concerns about cumulative impacts on terrain, hydrology, polar bears and whales, other species of concern (e.g. barren ground caribou, yellow rail, grizzly bear, peregrine falcons), invasive species and overall pressures on important wildlife habitat, especially in the Mackenzie Delta.
- The Project would have no significant adverse impacts in the range from 0.83 to 1.2 Bcf/d if all Panel recommendations were implemented effectively.
- Beyond 1.2 Bcf/d, confidence about the potential adequacy of the recommendations to prevent cumulative adverse impacts may decline depending on the pace and scale of development because of potentially greater stresses on the biophysical environment.

Table 19-5 Key Issues — Cumulative Impacts on the Biophysical Environment	
Migratory Bird Habitat in the Mackenzie Delta	<p>With recommendations, the Project is likely to make a neutral contribution overall at 0.83 Bcf/d because habitat loss would be offset. Immediate actions are required to establish habitat offsets and other conservation measures for the protection of migratory bird habitat. Potential significant adverse impacts could be avoided and associated uncertainty reduced for throughput and other developments beyond that range by: establishing habitat offsets based on conservative assumptions; implementing a Mackenzie Delta-wide special management regime; adding to the protected areas system; and implementing a formalized regulatory regime for KIBS.</p> <p>References <i>Chapter 6</i> Section: 6.4.3; Recommendation: 6-4 <i>Chapter 10</i> Section: 10.11.4; Recommendations: 10-21 to 10-26 <i>Chapter 11</i> Section: 11.10; Recommendations: 11-12, 11-13, 11-14</p>
Conservation and Land Use Plans and Protected Areas	<p>With Panel recommendations, the Project, with additional developments up to 1.2 Bcf/d, is likely to make a positive contribution to sustainability and is not likely to result in significant adverse impacts. Immediate actions are required to establish interim land withdrawals for existing areas of interest, candidate areas and proposed conservation zones. As a condition of authorizing new developments that would enable throughput beyond 1.2 Bcf/d, cumulative impacts thresholds should be established, conservation and land use plans updated, and the Five Year Action Plan under the NWT Protected Areas Strategy completed. With recommendations, the Project with developments up to 1.8 Bcf/d would likely continue to make a positive contribution to sustainability.</p> <p>References <i>Chapter 11</i> Section: 11.10; Recommendations: 11-1 to 11-4, 11-6 to 11-10</p>
Important Wildlife Habitat in the Mackenzie Delta and Adjacent Areas	<p>With Panel recommendations, the Project is likely to make a neutral contribution to sustainability with no significant adverse impacts up to 1.2 Bcf/d. With developments beyond 1.2 Bcf/d, the prospects are mixed and depend on the establishment of Mackenzie Delta-wide conservation and special management measures and arrangements.</p> <p>References <i>Chapter 10</i> Sections: 10.6, 10.10.4; Recommendations: 10-11, 10-12, 10-21 to 10-26 <i>Chapter 11</i> Sections: 11.5, 11-10; Recommendations: 11-12, 11-13, 11-14</p>
Fish Habitat and Watercourse Crossings	<p>With Panel recommendations, the Project is likely to make a neutral contribution to sustainability with no likely significant adverse impacts on fish habitat at throughput levels from 0.83 to 1.2 Bcf/d; however, the combined impact on the general quality of fish habitat encompassed by hundreds of watercourse crossings is a concern. Beyond 1.2 Bcf/d, the likelihood of adverse impacts and the reliability of mitigation measures are uncertain.</p> <p>References <i>Chapter 9</i> Sections: 9.3.4, 9.5.3; Recommendations: 9-2 to 9-6</p>
Woodland Caribou	<p>With Panel recommendations, the Project is likely to make a neutral contribution to sustainability with no significant adverse impacts on woodland caribou up to 1.2 Bcf/d. Most woodland caribou range lies outside of the Project footprint and of likely associated induced developments. Immediate actions are required for Canada to meet its obligations under the SARA to approve and implement a national woodland caribou strategy and action plan, and to identify critical habitat. Beyond 1.2 Bcf/d, cumulative impacts thresholds for development are required to maintain conditions for sustainability.</p> <p>References <i>Chapter 10</i> Sections: 10.2.2, 10.3.7, 10.4.4; Recommendations: 10-1, 10-3 to 10-6 <i>Chapter 11</i> Section: 11.10; Recommendations: 11-2, 11-8, 11-13, 11-15, 11-18</p>

Polar Bear	<p>With Panel recommendations, the Project is likely to make a neutral contribution to sustainability and unlikely to have significant adverse impacts on polar bears at throughput levels from 0.83 to 1.2 Bcf/d. With developments beyond 1.2 Bcf/d, the potential for significant adverse impacts on polar bears and polar bear habitat increases due to potential future offshore developments, especially combined with the impacts of climate change.</p>
	<p>References <i>Chapter 10</i> Sections: 10.2.2, 10.7.4; Recommendations: 10-1, 10-13, 10-14, 10-15 <i>Chapter 11</i> Section: 11.10; Recommendation: 11-11</p>
Marine Mammals	<p>With Panel recommendations, the Project would likely make a neutral contribution to sustainability and would be unlikely to have significant adverse impacts on marine mammals at throughput levels from 0.83 to 1.2 Bcf/d. With developments beyond 1.2 Bcf/d, the potential for adverse impacts increases. The impact of the Project, together with induced development, is a concern, the level of which would depend on effective management of cumulative impacts, possible increased shipping and the pace and scale of future development in the offshore.</p>
	<p>References <i>Chapter 9</i> Section: 9.8.4; Recommendations: 9-10, 9-12, 9-13</p>
Air Quality	<p>With Panel recommendations, the Project is likely to make a neutral contribution to sustainability and unlikely to have significant adverse impacts on air quality at throughput levels of 0.83 Bcf/d. Beyond 0.83 Bcf/d, the likelihood of adverse impacts and the adequacy of cumulative impacts management are uncertain and dependent on future mitigation and management measures. Initiatives are required to better define NWT air quality standards.</p>
	<p>References <i>Chapter 8</i> Sections: 8.2.4, 8.3.3; Recommendations: 8-1 to 8-5</p>
Invasive Species from Ballast Water	<p>With Panel recommendations, the Project would likely make a neutral contribution to sustainability and unlikely to have significant adverse impacts at throughput levels from 0.83 to 1.2 Bcf/d. With developments beyond 1.2 Bcf/d, possible increased shipping, when combined with the uncertain effectiveness of current ballast water regulations in the Beaufort Sea, could introduce non-indigenous aquatic species to the Beaufort Sea. The magnitude of resulting adverse impacts from invasive species, if any, is not known.</p>
	<p>References <i>Chapter 9</i> Section: 9.9.3; Recommendations: 9-14 to 9-16</p>

19.6.2 CUMULATIVE IMPACTS ON THE HUMAN ENVIRONMENT

The Project has the potential to transform the economy of the NWT, providing direct and indirect employment and human capital development, along with substantial potential benefits to NWT businesses. However, capturing these benefits is not assured. It would be dependent on the capacity of the NWT's labour force and supply infrastructure, and would require specific measures to maximize the reach of the Project's benefits into smaller communities.

Along with these potential benefits would come burdens with potential adverse impacts on social well-being. Speculative in-migration and the cash spill associated with a construction boom have the potential to exacerbate existing social concerns such as alcohol and drug abuse and mental health problems, and to further disadvantage the vulnerable by increasing housing scarcity. Without enhancements to services and infrastructure, these impacts have the potential to be significantly adverse. The importance of effective value capture and protection of social well-being in building a self-reliant, sustainable economic future is recognized in a number of commitments from the Proponents and governments. Important commitments include:

- The MGPIF: the Government of Canada would provide authorities in the regions of the NWT impacted by the Project \$500 million over a ten-year period to mitigate adverse socio-economic impacts of the Project.
- The SEA between the Proponents and the GNWT: the Agreement includes measures to improve training, employment and business opportunities and to mitigate adverse socio-cultural impacts. It also includes specific commitments from the Proponents (e.g. additional training, closed and dry work camps, conditions for use of infrastructure) and creates an oil and gas industry training program funded at the level of \$1 million per year for the first 10 years and then \$0.5 million per year until decommissioning of the last Anchor Field.
- Access and Benefits Agreements: although the specifics of these agreements remain private, they are expected to provide enhancements for Aboriginal people via indirect employment and business preferences.
- The equity stake of the APG in the MVP: the APG will hold a stake in the MVP (between 3 and 33.3%, depending on throughput) that would provide a flow of revenues to

designated organizations in the Inuvialuit Settlement Region (ISR) and Gwich'in, Sahtu and, potentially, Dehcho regions.

The Panel's recommendations would augment these commitments with measures to enhance and protect social well-being, and the expedited completion of a resource revenue sharing agreement between the federal and territorial governments.

The eventual contribution of the Project to the long-term sustainability of the human environment would also depend on the success of programs to anticipate, monitor and manage the cumulative impacts of the Project and additional activities, and on steps to foster the longevity, transferability and diversification of benefits through transition and legacy planning. The protection of the biophysical environment, which contributes to the maintenance and protection of social well-being in each region, is also a requirement for sustainability of the human environment.

Concerns remain for the Panel regarding the capacity and ability of governments and Aboriginal authorities to monitor and adaptively manage immediate Project impacts as well as the extent and impacts of other associated and induced activities. This concern is based on the difficulties in defining indicators and setting thresholds, ensuring adequate resources and other requirements for indentifying emerging problems and ensuring the effective delivery of needed services. These capacity concerns are modest with respect to the Project as Filed, but increase with the level of further development associated with throughput expansions in the ranges examined.

These challenges notwithstanding, the magnitude of the potential economic benefits to the people of the region and the substantial efforts and funding dedicated to mitigating adverse socio-cultural impacts are such that the Panel would expect that the Project would make a positive contribution to sustainability, particularly considering the likely cumulative impacts of activities associated with throughput expansions up to 1.8 Bcf/d. The Panel's recommendations for cumulative impacts management initiatives (monitoring, scenario building and attention to cumulative impacts in subsequent project planning and regulatory approvals) address needs for ongoing attention to the pace and scale of further development to ensure net positive impacts. Similarly, for the longer term, the Panel's recommendations on legacy and bridging focus on using the opportunities represented by the Project to make a positive transition to a more sustainable future.

Table 19-6 Cumulative Impacts on the Human Environment

Assessed Impact					
Null Alternative	Without Panel Recommendations	Y	G	Y [opportunity/risk]	
	With Full Recommendations	Y	G	G	Y

Null Alternative	Y	Bcf/d	0.83	0.83+	1.2	1.8
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Summary

- Without Panel recommendations, the Project would bring important economic opportunities along with some negative impacts and risks.
- With Panel recommendations, the Project would distribute resource revenues more equitably among governments and Aboriginal authorities, and would improve labour force development in the NWT.
- With Panel recommendations, the Project would assist governments and regulators to respond to future developments at the Project level and at the regional and local levels.

Panel Analysis

- The null alternative would be characterized by continuing undesirable conditions and negative trends in many aspects of community well-being, including limited formal education, low levels of labour force participation and employment, and insufficient employment opportunities, especially in small communities compared to regional centres. Additional concerns involve alcohol and drugs, mental health problems and economic disparities. Overall, the NWT economy has shown continuous growth over the last decade, largely as a result of mining, but without the Project, there would be no increase in revenues to northern governments and Aboriginal organizations from the development of hydrocarbon resources in the Mackenzie Valley.
- In the range from 0.83 to 1.2 Bcf/d, the Project would offer significant short-term construction-related employment, education and training, and other economic benefits for communities, more limited but higher quality longer-term employment during operations, mixed positive and adverse impacts for harvesters and for other elements of community well-being. Beyond 1.2 Bcf/d, future developments would offer additional prospects for longer-term employment but could increase stresses on community well-being, on capacities for capturing potential gains and on the resources for mitigating adverse impacts.
- The Project would bring substantial overall revenues to governments. Without Panel recommendations in the range from 0.83 to 1.2 Bcf/d, the Project would provide some revenue gains for the GNWT but these would be offset to some extent by increased costs. Beyond 1.2 Bcf/d, the GNWT would gain net revenues. APG revenues would become greater as throughput rises. Stresses on government management capacities could increase.
- With recommendations, the Project would include improved resource revenue sharing in support of services to communities.
- There are uncertainties about the adequacy of services and mitigation of adverse impacts subsequent to the winding up of the MGPIF.

Table 19-7 Key Issues — Cumulative Impacts on the Human Environment	
Boom and Bust	With recommendations, the Project would likely make a neutral contribution to sustainability and would not likely have significant adverse impacts at throughput levels from 0.83 to 1.2 Bcf/d. As recommended by the Panel, careful attention to impacts associated with an unrestrained pace and scale of future developments would likely enable positive contributions to sustainability up to 1.2 Bcf/d. At 0.83 Bcf/d, with no subsequent activity, there is a risk that the brief construction boom would be followed by a decline in employment and business in some regions and communities. Beyond 1.2 Bcf/d, the effectiveness of management measures would likely be mixed, particularly in vulnerable areas and communities.
	<p>References</p> <p><i>Chapter 11</i> Section: 11.10.2; Recommendations: 11-7, 11-8, 11-10, 11-11</p> <p><i>Chapter 15</i> Sections: 15.4, 15.5, 15.6; Recommendation: 15-11</p> <p><i>Chapter 18</i> Section: 18.3; Recommendations: 18-12, 18-19, 18-20</p>
NWT Employment and Income	The Project would make a positive contribution to sustainability by way of employment and income opportunities which would be enhanced through a range of Aboriginal and NWT resident employment preferences. The construction period would provide short-term benefits and, with recommendations, dampen any bust effect, especially for small communities. The distribution of benefits beyond 0.83 Bcf/d would accrue largely to the Beaufort Delta Region, possibly the Sahtu and some regional centres. The Panel's recommendations on transition planning and funding would likely enhance employment and income opportunities and capacities beyond the life of the Project.
	<p>References</p> <p><i>Chapter 15</i> Section: 15.5, 15.6.3; Recommendations: 15-6, 15-7, 15-8, 15-9, 15-10, 15-12, 15-13</p>
Revenues net of costs to the GNWT	With Panel recommendations, the Project would likely make a positive contribution to sustainability at 0.83 Bcf/d and improve with expansion to 1.8 Bcf/d. However, uncertainties associated with the magnitude of the net benefit include: the price of gas; the sales point of the gas; the pace and scale of development; and the service demands on the GNWT.
	<p>References</p> <p><i>Chapter 15</i> Section: 15.7; Recommendation: 15-11</p>
Revenues to the APG (net after loan payments)	The Project impacts on the APG would likely make an initially small but, as throughput increases, an increasingly positive contribution to sustainability in the NWT through the capture of an important economic benefit: an interest in pipeline ownership and associated revenues.
	<p>References</p> <p><i>Chapter 15</i> Section: 15.3</p>
Aboriginal Benefits Agreements	The Project's associated Aboriginal benefits agreements would likely make a positive contribution to sustainability, especially through business preferences and associated indirect employment. The magnitude of that contribution is not known to the Panel as these are private agreements.
	<p>References</p> <p><i>Chapter 15</i> Section: 15.4; Recommendation: 15-1</p>
NWT Business Procurement	The Project impacts would likely make a positive contribution throughout the Project life at 0.83 Bcf/d, and beyond if additional gas fields are developed. The Panel's recommendations on transition planning and funding would likely enhance business and procurement opportunities beyond the life of the Project.
	<p>References</p> <p><i>Chapter 15</i> Section: 15.4; Recommendations: 15-12, 15-13</p>

<p>NWT Labour Force Development</p>	<p>With Panel recommendations, Project enhancement measures and government and union participation would likely make a positive contribution to sustainability at 0.83 Bcf/d and beyond by providing the basis for industry-specific and transferable skills. The opportunities for enhancement of NWT labour force development would depend on future resource development opportunities, the adoption of training commitments and measures comparable to those in the SEA and the capacity of and preparedness of governments to plan for and take advantage of labour force development opportunities.</p>
	<p>References <i>Chapter 15</i> Section: 15.5.4; Recommendations: 15-2, 15-3, 15-4, 15-5, 15-6, 15-12, 15-13</p>
<p>Harvesting and Traditional Knowledge</p>	<p>With Panel recommendations, the Project would likely make a neutral contribution to sustainability and would not likely have significant adverse impacts on harvesting and traditional knowledge at throughput levels up to 1.2 Bcf/d. Beyond 1.2 Bcf/d, uncertainties associated with future development may compromise the adequacy of existing mitigations and compensation arrangements.</p>
	<p>References <i>Chapter 12</i> Section: 12.3.4; Recommendations: 12-1 to 12-5 <i>Chapter 16</i> Section: 16.5.9</p>
<p>Social Well-Being</p>	<p>Key issues of social well-being focus on alcohol and drug abuse, mental health problems and other key influences. The contribution to sustainability from the Project and associated mitigation and government measures to sustainability would likely be mixed but perhaps positive overall at least for the duration of the MGPIF. The pace and scale of development that supports an increase in throughput beyond 1.2 Bcf/d would be a determining factor in affecting the significance of cumulative impacts on social well-being from future development.</p>
	<p>References <i>Chapter 11</i> Section: 11.10.2; Recommendations: 11-7, 11-8, 11-10, 11-11 <i>Chapter 16</i> Sections: 16.4, 16.5, 16.9; Recommendations: 16-1, 16-2, 16-3, 16-5 to 16-22, 16-24, 16-25, 16-26 <i>Chapter 18</i> Section: 18.3; Recommendations: 18-12, 18-19, 18-20</p>
<p>Community Infrastructure and Services</p>	<p>The Project with Proponents' mitigation and commitments, the implementation of the SEA and the negotiation of local agreements governing the use of community infrastructure should result in minimal or adverse impacts but with some opportunities for improvement. The SEA also makes provision for the protection of municipal, health and protection services at the community and regional level from direct Project demands. During the operations phase, with additional government revenues, the opportunity would arise for improvement to community services and programs.</p>
	<p>References <i>Chapter 14</i> Section: 14.3.4; Recommendation: 14-2 <i>Chapter 15</i> Section: 15.7.3; Recommendation: 15-11 <i>Chapter 16</i> Sections: 16.5, 16.8; Recommendations: 16-13 to 16-22</p>
<p>Housing</p>	<p>The contribution of the Project as Filed and associated mitigation and government measures to sustainability would be mixed and uncertain, especially during the construction period when housing availability, affordability and quality in the regional centres could be negatively impacted. The pace and scale of development that supports an increase in throughput beyond 1.2 Bcf/d would be a determining factor in affecting the significance of adverse cumulative impacts on housing conditions in the regional centres, and especially Inuvik.</p>
	<p>References <i>Chapter 14</i> Section: 14.5.4</p>

Granular Resources Supply	The long-term sustainability of accessible granular resources in the ISR and Gwich'in Settlement Area is a concern, given their relative scarcity. The contribution of the Project to sustainability would be uncertain, particularly in the event of induced and other development in the Delta and offshore. A granular resources management plan to address this uncertainty is needed in advance of future developments so that granular resources can be sustainably managed.
	References <i>Chapter 13</i> Section: 13.3.4; Recommendations: 13-1; 13-2
Local Access to Gas Supply	The contribution of the Project to sustainability would be positive, but limited in the short term to Norman Wells and possibly Inuvik.
	References <i>Chapter 14</i> Section: 14.4.4

19.6.3 EQUITY IMPACTS

The Panel has considered the distribution of Project benefits and burdens among the region's current residents, and between current and future generations. Although the Project would have different equity impacts for different regions and demographics at different times, it is important for the sustainability of the region that the Project: make full use of the limited capacities and resources throughout the Mackenzie Valley; distribute benefits relative to costs borne by communities and regions; and serve to reduce existing barriers to opportunities so that benefits flow also to those who are currently disadvantaged. The Panel recognizes that there is currently limited access to economic opportunity for many people in the NWT outside of Yellowknife, particularly in smaller communities and, in the resource sector especially, for women. The Panel also recognizes that, without special effort, benefits from the Project would accrue predominantly to the Beaufort Delta Region, regional centres and men. The benefits of non-renewable resource extraction and transportation during the life of the Project could be at the expense of future generations if Project-related revenues and other opportunities were not used to support transition to durable future livelihoods.

Many of the commitments in the MGPIF and the SEA would play an important role in mitigating inequities during the life of the Project. Particularly important would be the improvements in social services and maintenance or improvements to housing and other infrastructure, as well as the transportation commitments to serve employees from small communities. Additionally, the Proponents' commitment in the SEA to support and promote gender equity and diversity has been augmented by Panel recommendations for a diversity plan.

The Aboriginal ownership arrangements in the APG would distribute a greater share of the MVP net income to the

Sahtu, Gwich'in and, potentially, Dehcho regions which would experience fewer economic opportunities from the longer-term operations phase of the Project. This should help to spread the economic benefits of the Project beyond the Beaufort Delta Region. The specific contents of the Aboriginal Benefits Agreements are unknown; however these may help distribute some economic opportunities to smaller communities in each region, depending on the decisions of the responsible Aboriginal authorities.

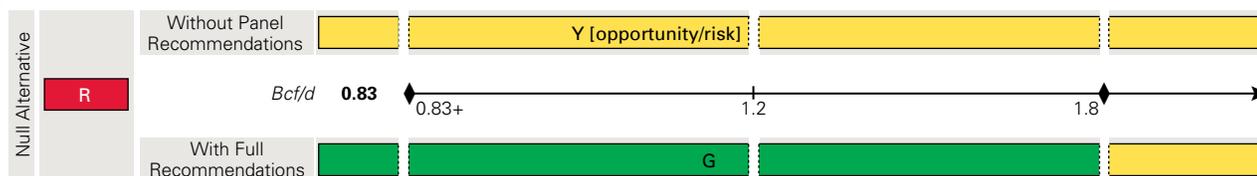
The capacities of territorial and Aboriginal authorities to take effective action on Project opportunities and concerns, including equitable distribution of benefits and risks, would depend in part on the successful establishment of a resource revenue sharing agreement as recommended by the Panel.

There are currently no explicit provisions in place to serve the interests of future generations by using the Project and related hydrocarbon development activities as a means of supporting a transition to more sustainable and desirable future options for the Mackenzie Valley. The Panel has therefore recommended measures for transition planning and funding to set long-term economic diversification objectives to promote lasting benefits.

The net contribution to equity during and beyond the life of the Project remains an area of uncertainty and risk, though the promised measures and potential funding offer positive opportunities and are likely to distribute the benefits of the Project more widely than the Beaufort Delta Region where Project activities would be concentrated. The end results are likely to depend on the ability of the relevant authorities to anticipate and avoid negative impacts from future developments and ensure careful monitoring and effective response to emerging impacts. The end results would also depend on the success of the planning and transition measures to enhance and protect the legacy left to future generations.

Table 19-8 Equity Impacts

Assessed Impact



Summary

- The null alternative would continue and perhaps deepen existing disparities between regional centres and small communities.
- Without Panel recommendations, the Project may have a mixed impact on the reduction of territorial, regional and community disparities based on Proponent commitments and certain established government measures. These disparities could be reduced depending on the future investment of Project-related revenues received by the GNWT and Aboriginal authorities.
- With Panel recommendations, positive equity impacts are likely to be enhanced in areas concerning federal–territorial resource revenue disparities, diversity plans, especially for gender equity, and transition planning and funding, especially for future generations.
- With Panel recommendations, risks are reduced and opportunities are enhanced for a positive Project contribution to sustainability.

Panel Analysis

- The null alternative would leave the Mackenzie Valley with existing disparities between regional centres and small communities.
- The Project and associated agreements should enhance the implementation of land claim agreements and, with Panel recommendations, should promote territorial and regional self-reliance.
- Some regional disparities would likely increase with the Project, due to the greater flow of opportunities to the Beaufort Delta Region. Some mitigation can be expected from the MGPIF, APG income beyond 0.83 Bcf/d (notably to the Gwich'in, Sahtu, and potentially the Dehcho regions), and resource revenue sharing agreements.
- Some disparities between regional centres and smaller communities may be reduced if the Project were allowed to proceed without Panel recommendations. In such a case impacts would be mixed between 0.83 and 1.2 Bcf/d and negative beyond 1.2 Bcf/d. The treatment of inter-community disparities would depend largely upon future decisions by the GNWT and Aboriginal authorities.
- Without Panel recommendations, the Project would likely continue gender-based inequities in employment and other opportunities, especially given the historical structural barriers in extractive industry and construction. The Project with recommended diversity planning could contribute to reducing gender inequities.
- The Project without recommendations does not directly address intergenerational equity issues. The Project with recommendations, especially in bridging to more diverse and lasting future options, would allow benefits for present generations and substitution for future generations' loss of non-renewable resources, protection of ecologically and culturally important areas and wildlife, and the management of cumulative impacts.

Table 19-9 Key Issues — Equity Impacts	
Federal, Territorial, Aboriginal Equity	<p>The Project could provide a positive contribution to sustainability because it would provide opportunities to reduce territorial and regional economic dependence and to build self-reliant capacity. However, effective use of the opportunities would depend on implementation of Panel recommendations, especially on resource revenue sharing and transition building for lasting post-Project gains.</p> <p>References <i>Chapter 15</i> Section: 15.7.3; Recommendations: 15-11, 15-12, 15-13</p>
Regional Equity	<p>With Panel recommendations, the Project would provide positive contributions to sustainability in each affected region. However, with and without Panel recommendations, regional disparities are likely to increase because of greater procurement and employment opportunities that would accrue to the Beaufort Delta and, to a lesser extent, the Sahtu Region. These would be mitigated somewhat by the MGPIF, a future agreement on resource revenue sharing and if the Dehcho First Nations (DCFN) accept an APG ownership interest. An agreement reached between the Government of Canada and the DCFN in relation to the Project would provide measures and funds to enhance the participation of the DCFN in the mitigation of community socio-economic impacts and the capture of economic opportunities associated with the MGP. The Panel encourages a Dehcho land claim settlement. Along with the economic benefits that may accrue to some regions more than others, there are elevated environmental risks. Panel recommendations would contribute to reducing those risks in all regions, particularly from adverse cumulative impacts in the Beaufort Delta Region.</p> <p>References <i>Chapter 15</i> Sections: 15.2.2, 15.8.1, 15.8.3; Recommendation: 15-10</p>
Regional Centres and Smaller Communities	<p>Without Panel recommendations, the Project would likely make a minimal contribution to sustainability by providing enhanced opportunities for residents of smaller communities to participate in Project-related employment, especially during the construction phase, and make an even smaller one (with the likely exception of Tuktoyaktuk) during the operations phase at throughput levels up to 1.2 Bcf/d. The regional centres, especially Inuvik, and less so Norman Wells, Fort Simpson and Hay River, would see continued substantial economic benefits during the operations phase. With expansion up to 1.8 Bcf/d, existing disparities between regional centres and smaller communities with respect to employment and income, and labour force and institutional capacity could worsen without plans and investments by the GNWT and Aboriginal authorities to address these matters. The Panel has recommended that as a condition of future authorizations associated with Project expansion, proponents be required to adopt the MGP's transportation commitments which enhance NWT community participation in Project employment opportunities.</p> <p>References <i>Chapter 15</i> Section: 15.6.3; Recommendation: 15-10</p>
Gender Equity	<p>The Project with recommended diversity planning could reduce gender inequities sufficiently to make a positive contribution to sustainability.</p> <p>References <i>Chapter 15</i> Sections: 15.5.2, 15.6.3; Recommendation: 15-9</p>
Intergenerational Equity	<p>With Panel recommendations, the Project is likely to make a positive contribution to sustainability. The Panel's recommendations would provide an opportunity to build an economic base for a lasting future from the exploitation of these non-renewable resources, especially in bridging to more lasting future options. Recommendations for the protection of ecologically and culturally important areas and wildlife, and the management of cumulative impacts would provide the basis for mitigating the loss and impairment of the capacity of renewable resources to provide for the needs of future generations.</p> <p>References <i>Chapter 15</i> Section: 15.7.3; Recommendations: 15-12, 15-13</p>

19.6.4 LEGACY AND BRIDGING IMPACTS

The Panel has considered the impacts of the Project and associated revenues on the creation of more sustainable livelihoods and a generally more sustainable future for the Beaufort Delta and Mackenzie Valley regions. The Panel has also addressed long-term impacts on the human and biophysical environments and has proposed specific measures to deal with emerging possibilities and risks. The Panel considers the Project and associated activities to be a major opportunity to use non-renewable resource development to help build a bridge to a more diverse and sustainable future. Accordingly the Panel has made recommendations on transition funding and initiatives to ensure a positive legacy from the Project.

With the Proponents' commitments, along with Panel recommendations, the Project is likely to contribute positively to the business capacity and labour force capability of the Project Review Area. Efforts to mitigate adverse social and cultural impacts may leave the region with improved social services and management ability. Similarly, efforts to mitigate adverse biophysical, social and cultural impacts should result in enhanced conservation and land use plans that in turn would enable more effective cumulative impacts management and monitoring. Together these impacts increase the potential of the Project Review Area to obtain and retain benefits from future opportunities.

The Project would also have residual adverse impacts, obligations and dependencies that would persist and evolve past the end of its life, and the expiry of the MGPIF and SEA commitments for funding.

To ensure that the overall opportunity represented by the Project is used effectively to build a more diverse and sustainable future, the Panel has recommended that funding for the management of transition and Project legacy be provided by dedicating a portion of resource revenue to funding transition mechanisms. The transition funding is intended to provide a revenue stream and other capacities for mitigating ongoing burdens, and promoting and investing in initiatives that would enhance regional and local capacity, community resilience, and economic self-reliance and diversity.

The Panel is also of the view that transition initiatives need to be planned and undertaken in a way that is closely linked to the recommended cumulative impact assessment activities, including scenario building and GNWT strategic planning capabilities.

The Panel recognizes that the eventual legacy of the Project could be influenced by factors that are not manageable at a Project or even a regional level, such as climate change, future resource discoveries and the price of gas. For this reason, the Panel's recommendations are designed to expand, diversify and extend the region's capacities to adapt to future challenges and provide the means to build a more desirable and durable future.

Table 19-10 Legacy and Bridging

Assessed Impact



Summary

- Without recommendations, the Project has valuable labour force development components which should enhance lasting capacities, but is otherwise not accompanied by measures to promote economic diversification beyond exploitation of the region's non-renewable hydrocarbon resources to a more diverse, flexible and lasting basis for livelihoods in the region.
- With Panel recommendations, the Project would make a more positive contribution to a transition to a sustainable future, though some uncertainties would remain, especially with expansion beyond 1.2 Bcf/d if this occurred at an unrestrained pace and scale of development.

Panel Analysis

- The null alternative would benefit from Project-related labour force development already initiated, but would leave the region with existing problems and no new opportunities to build a more sustainable future, though existing resources would remain for future use.
- The cumulative long-term impacts of the Project without Panel recommendations in the range from 0.83 to 1.2 Bcf/d include benefits from the SEA provisions for building labour force capacity for the longer term and from some residual Project infrastructure of possible use. Abandonment and reclamation plans should mitigate the most serious potential adverse physical impacts. However, the Project is not accompanied by any evident preparations for transition planning by the federal and territorial governments, and no legacy-related commitments have been made for throughput expansion beyond 1.2 Bcf/d.
- The cumulative impacts of the Project with recommendations would include steps to ensure timely completion of land use and conservation plans, the establishment of cumulative impacts thresholds and monitoring arrangements to better prepare regulators to anticipate and respond to a possible increased pace and scale of development with Project expansion. The recommendations would also establish transition planning and funding for transition investments throughout and beyond the life of the Project. This could help to build lasting foundations for sustainable livelihoods in the region. The adequacy of transition planning could be compromised by the challenges of overall cumulative impacts management at an unrestrained pace and scale of development.

Table 19-11 Key Issues — Legacy and Bridging	
Regional Labour Force Development	The Project would likely make a positive contribution to sustainability through labour force enhancement measures which extend for the life of the Project under the SEA. Panel recommendations would reinforce and supplement these measures and would ensure transition planning for additional labour force capacity building during and beyond the life of the Project.
	<p>References <i>Chapter 15</i> Sections: 15.5.5, 15.6.3; Recommendations: 15-2 to 15-6, 15-10</p>
Regional Transition Planning and Funding	With recommendations, the Project would likely make a positive contribution to sustainability. Implementation of the Panel’s recommendations on transition planning and funding could assist in increasing prospects for using the non-renewable resource exploitation opportunities and revenues to foster a transition to a more diverse and lasting economic base.
	<p>References <i>Chapter 15</i> Section: 15.7.3; Recommendations: 15-12, 15-13</p>
Gas as Transition Fuel	With Panel recommendations, some steps to encourage gas use as a bridge to more sustainable energy systems would be introduced; however, the Project’s contribution to sustainability remains uncertain. Without Panel recommendations, Mackenzie gas would be used for current market-determined uses, which would not necessarily lead to significant dedication of gas in substitution for higher carbon-content fuels.
	<p>References <i>Chapter 8</i> Section: 8.4.4; Recommendation: 8-9</p>
Conservation Legacy	With Panel recommendations, the Project, within the Expansion Capacity Scenario, would likely have a positive conservation legacy through completed and implemented land use plans, protected area systems, and species at risk recovery strategies. Without recommendations, land and resource managers would not have the management tools and capacity necessary to anticipate, control and mitigate impacts of an accelerated pace and scale of development supporting throughput beyond 1.2 Bcf/d.
	<p>References <i>Chapter 10</i> Section: 10.3.7; Recommendations: 10-3, 10-4 <i>Chapter 11</i> Sections: 11.10.1, 11.10.2; Recommendations: 11-1 to 11-4, 11-6, 11-7, 11-8, 11-10</p>
Decommissioning and Abandonment	The Project’s contribution to sustainability would be neutral assuming the adoption of Panel recommendations. The Panel’s recommendation would increase the likelihood of consistent regulatory standards applying to decommissioning and abandonment planning and implementation.
	<p>References <i>Chapter 17</i> Section: 17.4; Recommendation: 17-1</p>

19.6.5 CUMULATIVE IMPACTS MANAGEMENT AND PREPAREDNESS

The Panel has considered the ability of governments and other agencies to anticipate, monitor and manage the cumulative impacts of the Project. This includes the impacts associated with the pace and scale of development and the management of GHGs, and applies both at a Project-specific and cumulative regional scale.

The demands on cumulative impacts management are particularly challenging for this Project, given its scale, the potential range of further developments that might follow, the limited capacity of regional management agencies, and the lack of established thresholds and sources of monitoring information.

Effective cumulative impacts management requires both sufficient information for decision making and a sufficient ability to respond. Acquiring sufficient information would require the ability to gather data, to add meaning to the data by understanding relationships to targets and thresholds, to analyze trends and interactions, and to project future scenarios. Sufficient ability to respond would involve anticipatory actions to avoid adverse cumulative impacts resulting from future developments at an unrestrained pace and scale as well as remedial actions to enforce and adjust necessary terms and conditions and to carry out any necessary complementary activities including the design and delivery of impact mitigation or enhancement programmes. Impact management activities would include ensuring well-informed landscape-level cumulative impacts analyses to assist planning and decision making on potential Project expansions and other undertakings, well-designed Project-specific impact and compliance monitoring programs and other Project-level follow-up actions.

The Panel has made recommendations for the full implementation and funding of the NWT's Cumulative Impacts Monitoring Program (CIMP) established pursuant to the MVRMA. CIMP would provide the logical platform to implement the follow-up program as the focal point for the monitoring and management of the Project's cumulative impacts. Panel recommendations focus on incorporating scenario-based cumulative impacts assessment and monitoring into CIMP, the refinement of cumulative impact thresholds, and clear integration with land use plans linked to regional land use planning boards and regulatory bodies responsible for project authorizations. Although this regime has the potential to avoid significant adverse cumulative impacts and to enhance the Project's contribution to sustainability, the Panel recognizes the complexity of the monitoring and modelling efforts, and finds cause for concern in the delays in CIMP implementation to date. These delays have hindered timely project reviews and fuelled public anxieties about the pace and scale of future developments, and left unfulfilled commitments in land claim agreements which were agreed to by governments in order to address these concerns.

Climate change and GHG emissions are an outstanding concern. Although the direct contribution of Project emissions from construction and operations would be relatively small, the Project would become another contributor to a global issue that has disproportionate impacts in northern regions. Panel recommendations for Project-specific GHG emissions are constrained by the absence of clear federal policy and regulations. The Panel's recommendations depend heavily on federal action at a national and global scale to adequately address the issues surrounding the end use of Mackenzie gas and suitably effective overall measures for emissions abatement.

Table 19-12 Cumulative Impacts Management and Preparedness

Assessed Impact



Summary

- With Panel recommendations, the management of the cumulative impacts of the Project would be enhanced, especially in anticipating, monitoring, and responding to uncertainty associated with the pace and scale of future development, transition and legacy planning, and management. The adequacy of the recommended measures would need to be subject to regular review and improvement.
- Effective mitigation of the GHG emissions of the Project remains an area of uncertainty in the absence of federal government policy, legislation and regulation.

Panel Analysis

- The null alternative would bring no new challenges or need for capacity but existing problems would remain.
- Without Panel recommendations, in most areas of needed preparedness (including species and habitat protection, land use planning, social programs and services, effective regulatory review to avoid negative impacts of future developments at an unrestrained pace and scale, transition planning, GHG emissions mitigation, cumulative impacts anticipation and monitoring), the major needs for management of cumulative impacts have not yet been met. While some of these deficiencies are related to the lack of information about the Project components supporting throughput beyond 0.83 Bcf/d, continuing weaknesses in these areas suggest there could be insufficient capacity to deal with emerging and especially unanticipated problems. These concerns and risks increase with Project expansion beyond 1.2 Bcf/d.
- With recommendations, the Project would increase: preparedness for cumulative impacts management, especially in establishment of conservation and protected area plans; anticipatory measures for addressing impacts associated with the pace and scale of development; transition planning; and impacts monitoring and response.
- In both cases, developments beyond 1.2 Bcf/d may add to the challenges of ensuring appropriate capacities in governments and communities to manage development, to take advantage of Project-related opportunities and to respond to expected and emerging problems.
- The Panel recognizes the global issue of GHG emissions and climate change. Even if the Panel’s recommendations are fully implemented, the Project’s contribution to sustainability in this regard is uncertain, largely as a result of unresolved matters associated with the end use of Project gas, an issue that is better addressed by broader federal government initiatives. Although the Panel has recommended industry-wide policies with respect to gas as a transition fuel and the regulation of GHG offsets, it is not confident that the likely results would deal adequately with the use of Mackenzie gas as a transition fuel for sustainability purposes.

Table 19-13 Key Issues — Cumulative Impacts Management and Preparedness	
Pace and Scale	With Panel recommendations, the Project would likely make a positive contribution to sustainability. The Panel has identified a variety of means for anticipating (scenario-based cumulative impacts assessment) and managing (land use plans, thresholds, protected areas and CIMP) the pace and scale associated with future Project expansion and other possible developments.
	<p>References</p> <p><i>Chapter 11</i> Section: 11.10.2; Recommendations: 11-7, 11-8, 11-10, 11-11</p> <p><i>Chapter 18</i> Section: 18.3; Recommendations: 18-12, 18-19, 18-20, 18-22</p>
Regional Cumulative Impacts Monitoring and Management	With Panel recommendations, the Project would likely make a positive contribution to sustainability. Implementation of the Panel's recommendations is needed to establish a sufficiently well-conceived cumulative impacts management system that provides effective guidance for decisions by environmental assessment and planning boards and authorizations by regulatory boards associated with future Project expansion and other possible developments.
	<p>References</p> <p><i>Chapter 18</i> Section: 18.3; Recommendations: 18-12 to 18-22</p>
Project Follow-up, Compliance and Impacts Monitoring and Response	With Panel recommendations, the Project would likely make a positive contribution to sustainability. Implementation of the Panel's recommendations is needed to establish a sufficiently well-conceived cumulative impacts management system that provides effective guidance for decisions by environmental assessment and planning boards and authorizations by regulatory boards associated with future Project expansion and other possible developments.
	<p>References</p> <p><i>Chapter 18</i> Section: 18.2; Recommendations: 18-1 to 18-11</p>
Climate Change Mitigation	If the Panel's recommendations are fully implemented, the Project's contribution to sustainability would be uncertain. While emissions of GHGs from the Project's upstream activities and subsequent expansions could be mitigated somewhat, these emissions represent a small percentage of the Project's total lifecycle emissions. End use of Project gas, including implications for GHG emissions, and transition to low or non-carbon energy alternatives, are matters to be determined by federal government policy, but policy and legislation have not yet been implemented. In the absence of ambitious government legislation and regulation of GHGs including the end use of gas, the Panel expects the Project would contribute to the adverse global cumulative impacts of GHGs.
	<p>References</p> <p><i>Chapter 8</i> Section: 8.4.4; Recommendations: 8-6, 8-8</p>

19.6.6 INTERACTION OF PROJECT IMPACTS

In addition to the review of key issues in determining the Project's contribution to sustainability, the Panel considered the potential interaction of Project impacts, and the implications for implementation of Panel recommendations. This consideration, referenced in Chapter 5, "Approach and Methods," examines how the interaction of the Project's impacts on a combination of two or more Valued Components (VCs) may result in mutually reinforcing gains or losses for sustainability. Potential interaction of Project impacts among VCs and among key issues of public interest and concern include both positive and negative possibilities, and instances where impacts might not just add together but compound the impacts on ecosystems

and communities. In considering the interaction of the Project's various impacts on a combination of VCs and key issues, the overall objective is the achievement of multiple, mutually reinforcing and lasting net gains in ways that avoid risks of significant adverse impacts, especially ones that undermine prospects for future generations.

POSITIVE INTERACTION OF PROJECT IMPACTS

The Project presents an important opportunity to utilize gas resources, and associated revenues and other opportunities to build foundations for improved capacities and lasting benefits to the NWT. Success in building such foundations would depend on how the Project and other developments that it might induce are managed, if the Project proceeds. The Project with a capacity

and throughput of 1.2 Bcf/d would contribute to increased employment and business opportunities, especially in the NWT. Beyond the construction phase, employment and business opportunities would include indirect jobs for NWT residents, preferences for NWT businesses, and similar benefits for Aboriginal people under Access and Benefits Agreements. These opportunities would benefit from and contribute to enhanced labour force development, which in turn should facilitate a strengthened and more diversified economic base, more diverse and lasting livelihoods, increased wages and revenues for community well-being and a generally improved quality of life if the gains are not undermined by the potential adverse impacts. Enhancement of these opportunities, establishment of greater economic diversity, and increased self-reliance would rest on the effectiveness of recommended and future measures to anticipate and manage future developments in a manner that reduces the leakage of potential NWT benefits to other parts of Canada, and ensures that growth does not outstrip government, community, labour force and business capacities.

The Project, especially with its potential for expansion beyond a throughput of 1.2 Bcf/d and associated cumulative impacts, would greatly increase needs to complete and update regional land use plans and community conservation plans. With Panel recommendations, these needs would be met and the Project would enhance preparedness for induced development across the Expansion Capacity Scenario throughput range and for Other Future Scenarios. This would be complemented by implementation of the Panel's recommendation for periodic scenario-based cumulative impacts assessments conducted in the context of a fully developed comprehensive cumulative impacts monitoring regime in the Mackenzie Valley and Beaufort-Mackenzie Delta. Moreover, the planning and cumulative impacts monitoring and management efforts should strengthen community engagement, expand the base for ecosystem stewardship and strengthen collaboration among government agencies and communities.

Attention to the distribution of Project opportunities and economic benefits would build confidence in the fairness of arrangements for sharing resources and responsibilities between the federal and territorial governments and Aboriginal authorities, ensure more equitable access for people in small as well as larger communities, and contribute to more participation by women in the resource sector. In turn these improvements would lead to a broadening of governance capacity, greater diversity and resilience in the management of development, and greater attention to and capacity for cumulative impacts monitoring and management.

ADVERSE INTERACTION OF PROJECT IMPACTS

The Project presents risks which, if not effectively managed, could jeopardize the achievement of the opportunities presented by the Project. The interaction of adverse impacts could exacerbate negative social conditions and trends in small communities and increase the likelihood of significant adverse

impacts in vulnerable areas, particularly the Mackenzie Delta. This is of heightened concern with respect to the interaction of adverse cumulative impacts from developments associated with future Project expansions above a throughput of 1.2 Bcf/d and Other Future Scenarios.

With the Project as Filed, unhealthy social conditions would be exacerbated during the construction phase as a consequence of a combination of adverse impacts associated with a higher incidence of housing shortages, drug and alcohol and mental health problems, fetal alcohol impacts, and disruptions to formal education associated with the opportunistic pursuit of short-term, high-paid employment opportunities. If adverse boom and bust impacts during and after pipeline construction were not sufficiently mitigated, some communities in regions more distant from operations phase employment and business opportunities would likely experience additional strains with spikes and declines in income associated with short-term, high-paid seasonal employment over the limited construction period.

Speculative labour in-migration plus the possible departure of key community members and employees could combine with additional community strains due to the demands of rotational work and a Project-induced "cash spill" to destabilize family and community life. The interaction of these adverse impacts, while greatest during the construction phase, would likely be repeated and further exacerbated during periods of rapid large-scale Project-induced development. As the regional centre most exposed to the full-scale convergence of many of these interactive adverse impacts during the life of the Project and under the Expansion Capacity Scenario, Inuvik would be particularly challenged in managing these "boomtown" impacts, even with a high level of community and institutional preparedness.

The MGPIF could ameliorate the interaction of adverse impacts during the ten-year life of the fund. After this period, the interaction of adverse impacts could be exacerbated if regional authorities have not developed and established follow-up measures or programs to extend or substitute for MGPIF, especially if this coincides with a period of Project expansion and heightened levels of development activity.

Project expansion beyond 1.2 Bcf/d and associated activities, at an unrestrained pace and scale, could contribute a suite of biophysical and socio-economic cumulative impacts, that, without careful regulatory review, could overburden the capacity of communities and regional authorities, as well as the territorial and federal governments to avoid negative impacts. This burden would increase the difficulties in capturing benefits in communities and, in the NWT, add to challenges in managing the adverse community impacts noted above. It would also strain the capacities of regulators to render sound decision making on required environment protection and permitted conditions for development. Potential failings at this stage would contribute to increased difficulties in establishing effective mitigation, and

remediation of adverse cumulative impacts and enhancement of positive cumulative impacts.

MANAGEMENT OF INTERACTION OF PROJECT IMPACTS

The scope of the positive and negative interaction of Project impacts underlines the importance of careful attention to full and effective implementation of the Panel's recommendation. Even with dedicated efforts, optimizing the significant opportunities for mutually reinforcing positive impacts, and avoiding significant risks of similar negative impacts, pose major challenges to federal, territorial, regional, Aboriginal and local authorities and the Proponents. Typically the responsibilities and core expertise of these bodies are narrower than the combined sources of the problems or benefits resulting from interactive impacts. The coordination and cooperation necessary between agencies and organizations to manage these types of problems and enhance benefits would be challenged by the complexity of the interaction of impacts themselves. The Panel considers it important that regulatory agencies with limited mandates give special emphasis to effective ongoing collaboration with other agencies.

19.7 EVALUATION OF THE PROJECT'S CONTRIBUTION TO SUSTAINABILITY

19.7.1 THE PROJECT AS FILED WITH A THROUGHPUT OF 0.83 BCF/D

The Project as Filed with a throughput of 0.83 Bcf/d is the Project including development of the Proponents' three Anchor Fields, the gathering system, and a pipeline with an initial capacity of 1.2 Bcf/d supported by three compressor stations. This does not include development of additional fields to supply gas to the full capacity of 1.2 Bcf/d, or any other expansions. The Panel's overall analysis of the Project as Filed indicates reasonable grounds for expecting small net positive sustainability impacts from the Project, if all of the Panel's recommendations and Proponents and governments commitments are implemented. Without full implementation of the Panel recommendations, the analysis indicates that the Project's overall contribution to sustainability would be negative.

Without the Panel's recommendations, significant adverse impacts would include net losses of migratory bird habitat in the Mackenzie Delta, especially due to activities in KIBS. In the absence of management plans, recovery strategies and action plans, for which governments are responsible, that would identify and protect critical habitat as required by the SARA, the potential remains for adverse impacts on woodland caribou and other Listed species.

To reduce the likelihood of adverse impacts on the biophysical environment, the Panel has recommended higher standards of mitigation and the establishment of habitat offsets as compensation for significant adverse impacts on migratory bird habitat in KIBS, the completion of a woodland caribou recovery strategy and action plans, and wildlife protection and management plans for woodland caribou, barren ground caribou, polar bear, grizzly bear and marine mammals.

No significant adverse impacts on fish and fish habitat are anticipated, if the Proponents' proposed mitigation tool box and decision trees are implemented subject to a Fisheries and Oceans Canada (DFO) agreement, and are ameliorated by a phased approach to construction over four winter seasons. To address the combined adverse impacts of pipeline construction activities on fish habitat over hundreds of streams and rivers, the Panel has recommended that DFO develop a strategic approach for cumulative impacts management of all water crossings on a regional basis, and for inspection and enforcement authorities to review existing arrangements to ensure they can address Project demands.

In considering the adverse cumulative impacts of Project-related GHG emissions on global climate change, the Panel has recommended measures for the Proponents and government to reduce upstream emissions further as regulatory instruments become available. However, these emissions represent a small part of total Project lifecycle emissions. How MGP gas is used would be a major contributing factor to GHG emissions. The Panel has recommended the establishment of Project-specific targets for GHG emissions and national measures that would encourage the use of natural gas as a transition fuel and reduce national GHG emissions.

The Project would bring a short-term economic boom during pipeline construction with numerous, but mostly temporary, construction-based jobs and business opportunities (for most regions and communities), an improvement in direct and indirect employment (although fewer jobs in number) and income opportunities during operations, additional new revenues to governments relative to the additional servicing and management burdens introduced by the Project, some expected (but not quantified) economic benefits to regional Aboriginal organizations through access and benefits agreements with the Proponents, and a small economic benefit to designated Aboriginal organizations in each region through their pipeline ownership interest in the APG.

Proponent commitments to the use of rotational labour in the NWT would provide improved employment opportunities for workers in small communities in facilitating their travel to work sites over the life of the Project. An out-of-court settlement agreement reached with Canada in 2005 would assist the Dehcho First Nations in participating in the economic opportunities associated with the Project. The Panel has recommended completion of a Benefits Agreement with

the Dehcho First Nations which would likely enhance this participation.

Due to the limitations of business and labour force capacity in the NWT in relation to the magnitude of the Project, a very large proportion of the economic benefits of the Project would be captured by Alberta and the rest of Canada. In the NWT over the life of the Project, the Beaufort Delta Region would experience the greatest proportion of the economic benefits, particularly during the operations phase, and the Dehcho and Sahtu regions the least. The northern regions would also experience higher social costs commensurate with a higher level of development activity. The size of the revenue stream to the GNWT is uncertain, and it would be significantly affected by the sales point of gas determined by the Proponents and the absence of any revenue sharing agreement with Canada guaranteeing the GNWT a share of Project royalties.

Implementation of the Panel's recommendations would enhance Project-related training opportunities for the improvement of labour force capacity in the NWT and the participation of women and other groups in the Project. A Panel recommendation for the establishment of a federal-territorial resource revenue sharing agreement would improve the revenue stream and net benefit from the Project to the GNWT and to regional Aboriginal authorities.

The Project would result in a mix of positive and negative social impacts that would be unevenly distributed across communities and regions and among sectors of the population. Regional centres would experience a burst of economic activity but also bear the brunt of social problems and increased demands on health and social services and housing associated with speculative in-migration from within and from outside the NWT. Smaller communities would experience an infusion of wage income but also social problems associated with the destabilizing effects of rotational labour, increased cash income and the risk of loss of local capacity during the construction phase. These problems would be attenuated for most regional centres and smaller communities during the operations phase, although Inuvik, and possibly Tuktoyaktuk, would likely continue to experience a measure of social disruption in adjusting to the operations phase. The Panel has made recommendations to ensure adequate services and support to sectors of the population vulnerable to addictions, abuse, violence and lack of care and shelter.

The Panel had no definitive basis on which to distinguish Project-specific impacts from other factors that affect various indicators of social well-being. The Panel could not determine the significance of Project-specific impacts, especially given the mix of anticipated positive and negative impacts on social well-being. The Panel is generally satisfied with the Proponents' mitigation measures to address many of the direct social impacts of the Project. For a period of ten years, extending through the pre-construction and construction periods and into the early years of Project operations, a major investment of federal funds

through the \$500 million MGPIF would contribute significantly to the mitigation of many of the direct and indirect adverse social impacts that would be associated with the Project, and to the provision of treatment services for existing health and social conditions.

The SEA entered into by the GNWT and the Proponents would provide for measures to mitigate increased direct Project demands on local and regional public infrastructure and programs and services. However, the Panel is less confident about the adequacy of existing and enhanced programs and services or the capacity of organizations to meet the increased demands that would result from the Project. Uncertainty exists with respect to the duration of Project impacts introduced during the construction phase, and the consequences of the termination of the MGPIF after ten years. Proponents and governments have relied on monitoring and adaptive management measures, the effectiveness of which is uncertain.

With the Panel's recommendations, the Project would improve the potential for bridging and transition planning in the Beaufort Delta Region and the Mackenzie Valley. Project revenues and capacity building could provide opportunities to meet present needs and emerging problems in ways that ensure no significant and lasting burdens.

Compared to the null alternative, the Project as Filed, with the implementation of Panel recommendations, would likely introduce some new but manageable adverse impacts on the biophysical environment and at least modest improvements for economic development and growth. At this scale, a government commitment establishing the MGPIF introduces an important means for mitigating impacts on conditions which may be adversely affected by the Project as well as improving other conditions which may not be directly affected by the Project. Most importantly, at this scale, the Project as Filed provides an important foundation for improving conditions for sustainability in each of the NWT regions affected by the Project, particularly compared to the null alternative.

19.7.2 THE PROJECT AS FILED WITH EXPANDED THROUGHPUT IN THE RANGE OF 0.83 TO 1.2 BCF/D

The Panel's analysis of the cumulative impacts of the Project as Filed with anticipated expanded throughput of 1.2 Bcf/d includes the development of additional gas fields required to take advantage of the initial capacity proposed by the Proponents.

At this scale, and with implementation of Panel recommendations, the foundation for improving conditions for sustainability in the NWT established with the Project as Filed is enhanced overall. Without the implementation of the Panel's recommendations, the Project's net contribution to sustainability would be negative.

Additional increased pressures on land and wildlife resources are likely to be modest. Further developments could compound adverse impacts from subsidence, noise and habitat disturbance in the outer Mackenzie Delta. These could be mitigated by the proposed program of habitat offsets recommended by the Panel and the formal establishment of development thresholds. The likelihood of significant adverse impacts would also be reduced with implementation of the Panel's recommendations for marine management and wildlife protection and management plans, and the completion of the Five Year Action Plan under the NWT Protected Areas Strategy for the identification and interim protection of areas of ecological and cultural importance.

At this scale, overall cumulative impacts on people, communities and governments would likely be more positive. Preparations and measures for mitigating the adverse social impacts of the Project through the Proponents' commitments, the MGPIF, the SEA and Panel recommendations would be in place and continue to play a key role in addressing additional cumulative adverse social impacts. The increase in demands for needed services at this level would likely be modest relative to the initial construction phase of the Project.

The additional gas field developments associated with the increase in throughput to 1.2 Bcf/d would extend the employment, business and training opportunities associated with the Project, particularly in the Beaufort Delta Region. They would increase the net revenues for governments, particularly for the GNWT with implementation of the Panel's recommendation for a resource revenue sharing agreement.

The increase in throughput in this range would significantly improve the economic benefits to the APG. The ownership interest of the Aboriginal partners in the MVP could rise to as much as one third if throughput increases within ten years of the commencement of Project operations. Throughput from the initial three Anchor Fields and additional fields within this range that extends beyond the initial twenty years of operation — after APG loans are paid — would increase the net revenue gains to the APG. Based on the potential ownership share structure, these gains would largely benefit the Dehcho and Sahtu regions, followed by the Gwich'in region. This distribution of APG benefits to these regions would represent an important regional equity consideration, given that much of the future Project-related expansions and associated employment and business benefits would occur in the ISR. However, the benefit to the Dehcho Region is contingent on Aboriginal authorities in that region approving the ownership interest reserved by the APG for the Dehcho.

Effective action on Panel recommendations on transition planning and funding would be enhanced with increased net revenues to governments.

Implementation of Panel recommendations for cumulative impacts monitoring and management would be important under this scenario as well.

19.7.3 THE PROJECT AS FILED EXPANDED IN THE RANGE FROM 1.2 BCF/D TO ITS DESIGN CAPACITY OF 1.8 BCF/D

The Panel's analysis of the cumulative impacts of the Project as Filed with anticipated and possible expansion to deliver throughput above 1.2 Bcf/d and up to 1.8 Bcf/d includes unspecified additional gas fields, 11 compressor stations and any additional facilities and ancillary developments required to fully utilize the design capacity for the MVP proposed by the Proponents.

In this throughput range, the limited information and other uncertainties make prediction and evaluation challenging. There would be important additional opportunities both for livelihoods and capacities to deliver improvements in other areas, including transition to a more sustainable future. But there would also be potential for additional adverse cumulative impacts and to overburden community and government capacities. Accordingly the Panel has recognized a need for preparation especially by linking cumulative impacts anticipation and management to ongoing planning and decision making. Without the implementation of the Panel's recommendations, the Project at this expansion level would likely make a net negative contribution to sustainability. With the Panel's recommendations, the Project would likely make a positive net contribution to sustainability. Important determining factors influencing either of these outcomes would be the commitments and performance of the federal and territorial governments to which most of the Panel's recommendations for the management of cumulative impacts in this range are directed.

In this range of development, uncertainties about the location and severity of additional biophysical stresses, and about community and institutional capacities to take advantage of new opportunities introduced by the Project or to deal with additional development pressures and management needs associated with an accelerated pace and scale of resource development, raise concerns about the likelihood of positive overall sustainability contributions.

Without implementation of Panel recommendations, developments beyond a throughput of 1.2 Bcf/d could increase the likelihood of adverse cumulative impacts on terrain, hydrology, polar bears, whales and other species of concern (e.g. barren ground caribou, grizzly bear and peregrine falcons), and disturbance and fragmentation of important wildlife habitat, especially in the Mackenzie Delta. Cumulative impacts thresholds for woodland caribou would likely be exceeded by, among other things, the location of additional gas field developments and gathering lines from the Colville Hills area.

Project-induced developments within this range of throughput would offer additional prospects for longer-term stable employment, enhanced labour force development and business development in the NWT, as well as increased economic growth

and strengthening of the territory's economic base. Bridging initiatives and transition planning could result in improvements to economic diversification. Effective regulatory oversight and periodic review to avoid negative impacts of future developments at an unrestrained pace and scale would be an important determining factor affecting stresses on community well-being, capacities for capturing these potential economic gains, and the resources for mitigating adverse impacts.

At higher throughput volumes above 1.2 Bcf/d, the net revenues to the APG and to governments, especially the GNWT, would increase significantly and provide increased financial resources for programs and services in the NWT. Regional disparities could be further mitigated by the distribution of APG revenues to the Sahtu region and, potentially, the Dehcho region, offsetting higher levels of development activity in the Beaufort Delta Region and possible developments in the Sahtu region and the north Yukon.

Current preparations for the overall challenges of Project expansions and other developments at this level of activity are not adequate, although such scenarios have been anticipated in the MVRMA through requirements for regional land use plans and the establishment of a cumulative impacts monitoring regime. No means have been established to manage the pace as well as scale of Project expansion and other development in ways that recognize available community and institutional capacities, facilitate capture of opportunities and benefits, inform planning to meet overall needs for services (e.g. housing, health provision, education, drug and alcohol counselling, policing), assist impact anticipation and response, and links to programmes for labour force and business development.

Panel recommendations are focused on establishing conditions which would improve the likelihood that the proposed Project at this level, inclusive of cumulative impacts, would make a positive contribution to sustainability. With the implementation of Panel recommendations, range management plans would be completed for select wildlife species, land use plans and community conservation plans incorporating cumulative impacts thresholds would be updated and completed in all affected regions in the NWT, implementation of the Five Year Action Plan under the NWT Protected Areas Strategy would be completed, a special management area would be established in the Mackenzie Delta, and the proposed strategic environmental assessment of future oil and gas exploration and development in the Beaufort Sea would be completed.

In addition, Panel recommendations would establish conditions prior to this level of foreseeable development which would require full implementation of the CIMP as provided for under the MVRMA, including specific means and responsibilities for anticipating pace and scale challenges and transition planning. Anticipation of challenges associated with pace and scale would be identified through scenario-based cumulative impacts assessment and planning, cumulative impacts thresholds and application of adaptive management responses. Transition

planning would maintain and enhance community and institutional capacities for successful adaptation to emerging opportunities and challenges and facilitate efficient provision of social services, planning and ecological protection measures. As the Panel has noted, these steps need to be linked effectively into planning, evaluation and decision making on proposed projects and other activities beyond the Project as Filed.

At this expanded level of development, the Panel is not confident that future opportunities would outweigh the risks unless governments have collectively made a systematic, timely and ongoing effort to establish a comprehensive cumulative impacts assessment, management and monitoring regime that would provide clear guidance for the issuance of new authorizations for development. The Panel views this as critical to realizing the opportunity to build a lasting and diverse economic base and more positive long-term social conditions in the NWT.

19.7.4 THE PROJECT AS FILED AND OTHER FUTURE SCENARIOS

The Panel has approached the Project as Filed in combination with cumulative impacts resulting from other additional hydrocarbon exploration, development, production and transportation undertakings, and other activities in the region as hypothetical future developments (the Other Future Scenarios). In this case, the cumulative impacts that might occur in combination with the Project and their contribution to sustainability cover a wide spectrum of scenarios.

The Panel has little substantive ground for assessing the Project's contribution to sustainability in this case. However, the Panel would generally observe that even with full implementation of the Panel's recommendations, the pace and scale of future developments beyond the Expansion Capacity Scenario could undermine confidence in the potential effectiveness of land use and conservation plans, protected areas and cumulative impacts assessment, management and monitoring, because their effectiveness would not have been tested in the context of industrial development at that level.

In the Panel's view the cumulative impacts of other hypothetical future developments that may combine with the Project at lower levels of throughput may or may not make a positive net contribution to sustainability in the NWT. Again, much would depend on the effectiveness of cumulative impact monitoring and management measures that do not currently exist or are underdeveloped, although they are required by legislation.

The widespread concern and anxieties that were expressed to the Panel about the uncertainty and unpredictability of the cumulative impacts from the proposed Project in combination with other possible future developments have informed the Panel recommendations for ongoing future scenario building and assessment work. The Panel has recommended that this work be done in the context of the CIMP and that special attention

be paid to anticipating and responding to the pace and scale of future developments.

19.7.5 THE NULL ALTERNATIVE

If the Project were not to proceed there would be fewer threats to the biophysical environment. Progress towards the completion of regional land use plans and a protected areas system in the NWT would likely continue without the Project, although with little prospect of an accelerated pace. Climate change would continue to be a threat to the northern environment. As a consequence of limited employment and income prospects and inadequate public revenues, unhealthy social and economic conditions would likely continue and possibly worsen, especially in the small communities.

Private sector-driven economic growth and government revenues in the NWT would likely continue to depend heavily on the mining industry. The benefits of existing labour force development strategies would be constrained by limited economic opportunities, and thus limited incentives for individuals to obtain training and education. However, existing gas resources would remain for future use. Existing disparities between regions and communities would likely continue in the absence of new economic opportunities and the distribution of associated benefits. Existing efforts to implement a cumulative impacts assessment and management framework would continue with no new challenges, other than those which have delayed progress to date.

19.8 TRADE-OFFS

Throughout its review and its development of recommendations, the Panel has sought measures that enhance the positive cumulative impacts of the Project and minimize trade-offs between opportunities and risks to the extent possible. Some trade-offs have nevertheless been unavoidable. From its analysis of the Project, the null alternative and the future development scenarios for cumulative impacts, the Panel concludes that the unavoidable trade-offs resulting from approval of the Project with full implementation of the Panel's recommendations would be acceptable in the circumstances.

The Project presents an exceptional opportunity for long-term beneficial impacts, especially in the NWT. With the recommended measures to use this opportunity to address current problems and to build a foundation towards a more sustainable future, the Project should produce a positive legacy as well as deliver more immediate gains. But there are also risks.

The Panel has made many recommendations to address specific concerns about adverse cumulative impacts that could or would arise from the Project. The Panel recognizes that implementation of its recommendations, in combination with Proponents commitments and government measures, is unlikely to eliminate

all adverse impacts, to substitute fully for all losses, or to build sufficient management or servicing capacity to anticipate or respond well to all emerging problems. While the Panel is confident that full implementation of its recommendations should provide adequate means of avoiding significant adverse impacts from the Project and acceptable further developments, it recognizes that some of its recommendations require innovative and demanding initiatives. The past record of government implementation of such recommendations is not reassuring. The tension between these opportunities and these risks is the key trade-off in the case of the MGP.

The Panel's position on the acceptability of opportunities versus risks trade-offs is based on the following points:

- The null alternative is not acceptable. Current trends, especially in socio-economic well-being, are not encouraging and continuation along the current trajectory does not promise progress towards sustainability.
- The Project could be implemented in a way that would contribute to sustainability, especially if its cumulative impacts are anticipated and managed effectively and if the opportunities involved are used to foster transition to a more desirable and durable legacy for future generations.
- The Proponents and the relevant government authorities and organizations, including Aboriginal authorities and organizations, have or are capable of building the capacity to implement the recommendations made by the Panel to make best use of the opportunities and to minimize the risks of adverse impacts.

The Panel's conclusions on trade-offs centre mostly on impacts within the regions most directly affected by the Project and possible subsequent developments. A further, special concern is raised by the matter of climate change impacts due to GHG emissions associated with the full life cycle of the hydrocarbon resources involved. The Panel's recommendations on this matter go beyond the Project and would inevitably be challenging to implement fully and successfully.

19.9 CONCERNS REGARDING THE IMPLEMENTATION OF THE PANEL'S RECOMMENDATIONS BY GOVERNMENT

Each of the Panel's determinations of significance and sustainability has been carefully stated to have been made on the assumption that the Panel's recommendations are fully implemented. This is the case with respect to both the conclusions on specific impacts and the Panel's overall conclusions on the significance of impacts and the contribution to sustainability of the Project as a whole. Without full implementation of its recommendations, the Panel's

determinations of significance and sustainability have no validity. The Panel cannot stress too strongly the importance of the phrase “subject to the full implementation of the Panel’s recommendations.” Absent such implementation, the Panel does not expect the Project to make a positive contribution to sustainability or to justify approval and permitting. The Panel has therefore considered carefully the mechanisms for ensuring that the Panel recommendations are accepted and would be implemented.

Mechanisms available to ensure that the Proponents would comply with the conditions of approvals, and otherwise fulfill their commitments, have been discussed in Chapter 18, “Monitoring, Follow-up and Management Plans,” and in other specific sections of the Report. The Panel is generally satisfied that these mechanisms would be effective in ensuring that the Proponents meet their obligations under approval conditions and their other commitments, assuming due diligence by the relevant monitoring and enforcement authorities.

Many other recommendations are directed to governments. The Panel is generally satisfied that, if these recommendations are adopted and implemented, governments would be effective in addressing the concerns to which the recommendations are directed. The Panel is also satisfied that, if governments accept and act on the recommendations that are directed to them, governments would be ready and prepared, in the sense of being **able** to respond to the challenges that the Project would present. In this narrow meaning of “government preparedness,” the Panel is satisfied that implementation of its recommendations would address the issue.

In the Panel’s view, however, the issue of “government preparedness” has a broader, systemic dimension, to do with the degree of government **commitment to implementation** of the recommendations that it accepts. It is one thing for governments to accept recommendations. It is another to ensure their timely and effective implementation, and to provide the funding and other resources that a serious commitment to implementation would entail. Just as many participants were sceptical about delivery of the Proponents’ commitments, so is the Panel concerned that acceptance of its recommendations by governments may itself not be enough to ensure delivery of effective implementation. In the Panel’s view, this dimension of the concern about government preparedness was the real underlying concern of many participants.

Addressing the concern about government preparedness in this systemic sense is a particular challenge in the context of the MGP, because of both the magnitude of the Project and its potential to bring profound change to the North. Unfortunately, the record of governments in delivering on their expressed commitments, and indeed their legal obligations, does not engender confidence. For example, the Government of Canada has failed to meet its legal obligations under the SARA. This was discussed in Chapter 10, “Wildlife,” and is the subject of specific Panel recommendations.

In the 2007 Report of the Commissioner of the Environment and Sustainable Development to the House of Commons, October 2007, the Commissioner reported:

Commissioners of the Environment and Sustainable Development have examined four sets of strategies over the past decade and have reported annually to Parliament on their implementation. The commissioners’ reports have consistently noted significant weaknesses in the content and implementation of departmental strategies and made many recommendations for improvement...As my report indicates this year, many of the significant weaknesses that have been noted over the past decade persist...The ambition and momentum that existed in the early stages of the government’s sustainable development strategy initiative has faded. In our view, the preparation and tabling of the strategies have become little more than a mechanical exercise, required to fulfill a statutory obligation. Departments may be meeting the letter of the law with their strategies but most are certainly not responding to the spirit of it...

Successive governments have committed to producing a federal sustainable development strategy...but this has not yet been done. (Emphasis added) (J-WWF-00148, pp. 11–12)

While the Commissioner was addressing the specific issue of the federal government’s commitment to the development and implementation of its overall sustainability strategy, his conclusion provides a glaring example of the sometimes wide chasm between a government commitment and delivering on that commitment.

The Commissioner has not been alone in his criticism. The NWT Environmental Audit 2005 conducted under Part 6 of the MVRMA observed:

Despite years of planning, a Cumulative Impact Monitoring Program (CIMP) has not yet been implemented...While a lengthy planning process for implementation of the CIMP has taken place, work remains. The identification and implementation of specific monitoring needs requires further detail and long term funding has not been secured. A detailed operational plan for the CIMP needs to be finalized, funded and implemented. This should be an immediate priority. (J-INAC-00065, p. 7)

As discussed in Chapter 18, “Monitoring, Follow-up and Management Plans,” the CIMP has still not been fully implemented, notwithstanding that it is a legal requirement under the MVRMA.

Criticism from such independent sources of government’s shortcomings in meeting its legal obligations and delivering on its commitments, and meeting the spirit of those commitments, has led the Panel to conclude that an additional measure is required in order to give confidence to the Panel and others that the Panel’s recommendations that are accepted would in fact be fully and effectively implemented. Specifically, the Panel recommends

the establishment of a mechanism to monitor the performance of governments in implementing the Panel's recommendations.

To be effective, such a mechanism should be independent of governments. Given the divided and overlapping jurisdictional responsibilities of the Government of Canada and the GNWT, the mechanism should be designed to monitor the performance of both levels of government in combination. Its findings should be published at regular intervals.

The obvious candidate to fulfill this role is the Commissioner of the Environment and Sustainable Development. However, by virtue of the very independence of that officer, under the *Auditor General Act*, the Government of Canada cannot commit the Commissioner. Even if both the Government of Canada and the GNWT were to accept the Panel's recommendation in this regard, neither government would be able to implement it. The Panel therefore makes the following recommendations in the alternative.

RECOMMENDATION 19-1

The Panel recommends that the Annual Report to Parliament of the Commissioner of the Environment and Sustainable Development include a report on the implementation of the Panel's recommendations by the governments of Canada and the Northwest Territories. The first report should occur no later than one year after the date of the Government Response to the Panel's Report and occur annually thereafter for the life of the Mackenzie Gas Project.

RECOMMENDATION 19-2

In the event that the Commissioner of the Environment and Sustainable Development does not accept Panel Recommendation 19-1, the Panel recommends that the governments of Canada and the Northwest Territories jointly establish an independent mechanism to review and publicly report annually on the implementation by the governments of the Panel's recommendations.

19.10 CONCLUSIONS

The Panel's review of the MGP concludes that there are reasonable grounds for expecting that the Project would make a positive contribution to sustainability provided that the Panel's recommendations are fully implemented. If the Project were permitted to proceed without full implementation of the Panel's recommendations, its contribution to sustainability would be negative.

The Panel finds the null alternative (continuation of present conditions and trends in the absence of the Project) undesirable. With implementation of Panel recommendations, the Project as Filed with an initial throughput of 0.83 Bcf/d would likely introduce some new but manageable adverse impacts on the biophysical environment and some modest improvements for economic development and growth. The federal government's

establishment of the MGPIF is an important and innovative instrument for maintaining and improving health and social conditions in all regions of the NWT that may be directly and indirectly affected by the Project. The Project at this scale would provide a foundation for improving conditions for sustainability in each of the NWT regions affected by the Project, particularly compared to the null alternative.

With the addition of gas fields and associated facilities to take advantage of the Project's initial capacity of 1.2 Bcf/d, the foundation for improving conditions for sustainability in the NWT established with the Project as Filed is enhanced overall, again with implementation of the Panel's recommendations.

If approved and undertaken, the Project would initiate the construction and operation of infrastructure capable of moving gas to markets and open the north end of the Mackenzie Valley to commercial hydrocarbon exploitation. In the Panel's view it is reasonably foreseeable that the Project would induce further gas exploration and development and other related undertakings. Together, the Project and whatever additional activities are approved and carried out would likely give rise to major cumulative impacts during the life of these activities and beyond.

Because of the lack of or unreliability of information about future developments, particularly those developments required to support an increase of throughput on the MVP beyond 1.2 Bcf/d, the Panel has made a number of recommendations. These recommendations are specifically directed towards anticipating the cumulative impacts of those developments, mitigating their adverse impacts, and maximizing use of the positive opportunities for lasting gains. With the full implementation of these recommendations, regulatory authorities responsible for reviewing and approving proposals for future developments would be better informed and better equipped to ensure that appropriate and effective enhancement and mitigation measures were in place before such developments were authorized to proceed.

In the Panel's view, the Project presents an opportunity at an early stage in the development process for governments to establish a solid foundation for anticipating, guiding, managing and monitoring cumulative impacts. Accordingly the Panel's analysis and recommendations centre not only on means of mitigating or enhancing the potential adverse impacts of the Project itself, but also on using this opportunity to develop capacities and mechanisms that would:

- establish anticipatory and continued protection of the biophysical environment;
- capture the socio-economic opportunities and address associated risks and problems;
- contribute to the equitable distribution of the benefits and challenges;

- use the resources and other opportunities from the Project and other activities for a transition to a more sustainable future; and
- manage the cumulative impacts of the Project and other activities by integrating anticipatory planning and management as well as responsive monitoring into decision making on Project implementation and approval of additional activities.

The Panel's recommendations cover a wide range of topics. They are, however, designed as a package and are meant to be mutually supporting. If the Project proceeds, and with implementation of the Panel's recommendations, an important opportunity to exploit a valuable non-renewable resource can be used to build a positive future for the NWT and contribute to overall progress towards sustainability in Canada.

The Panel acknowledges the uncertainty that is inherent in predicting the future. Accordingly, the Panel has given careful attention to the means of anticipating and managing cumulative

impacts and ensuring a positive legacy from the Project, possible expansions and other future developments. The Panel is confident that, with appropriate policy and regulatory initiatives and responses to manage future developments built on the implementation of the Panel's recommendations, the MGP, and future developments that might follow from the Project, could proceed in an acceptable manner.

Overall, subject to the full implementation of the Panel's recommendations, the Panel has concluded that the adverse impacts of the MGP and the Northwest Alberta Facilities would not likely be significant and that the Project and those Facilities would likely make a positive contribution towards a sustainable northern future.

In the Panel's view, the Mackenzie Gas Project and the associated Northwest Alberta Facilities would provide the foundation for a sustainable northern future. The challenge to all will be to build on that foundation.

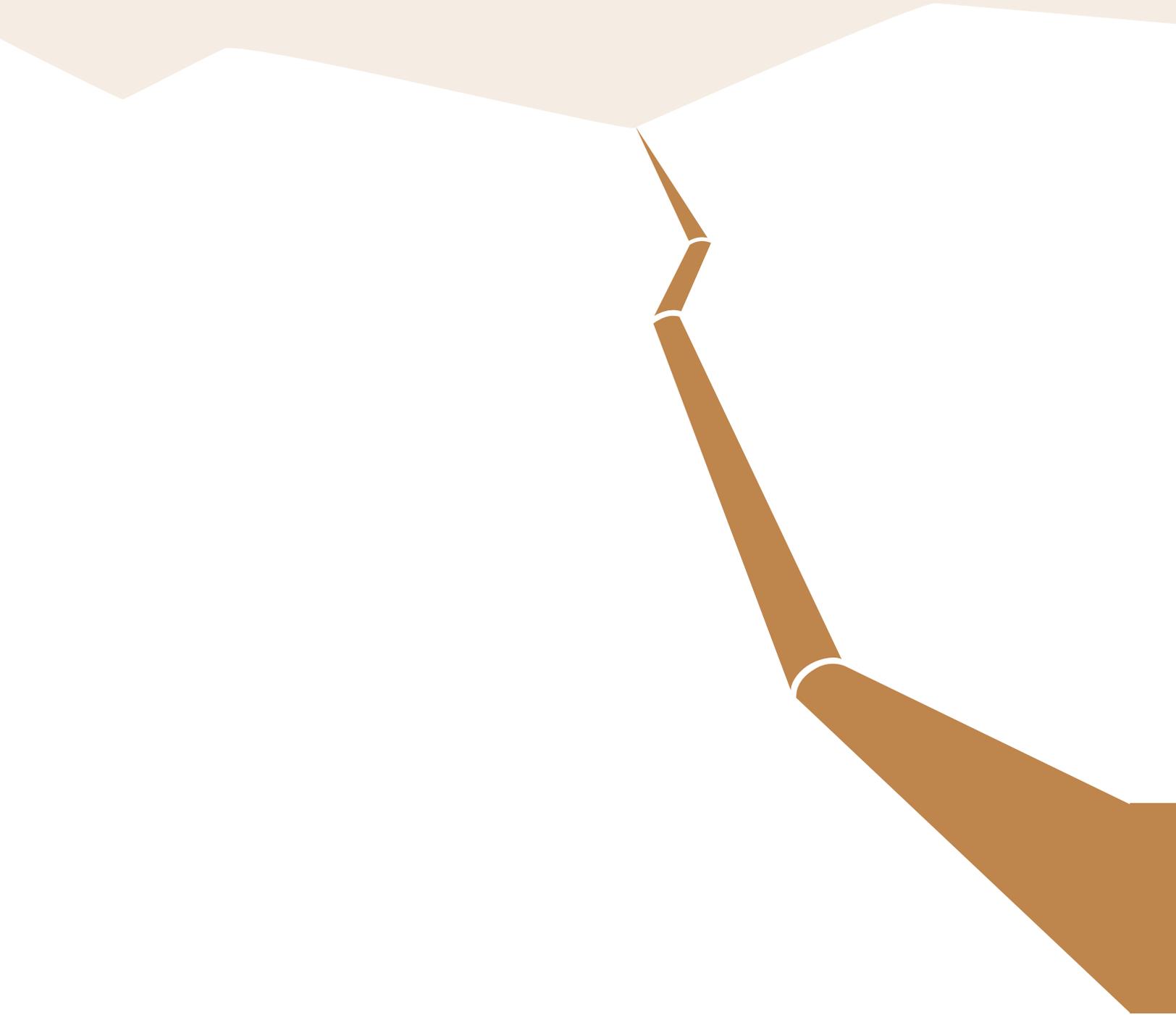
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APPENDICES



APPENDIX I

AGREEMENT ESTABLISHING THE JOINT REVIEW PANEL FOR THE MACKENZIE GAS PROJECT

AGREEMENT FOR AN ENVIRONMENTAL IMPACT REVIEW OF THE MACKENZIE GAS PROJECT

Between: The Mackenzie Valley Environmental Impact Review Board

And: The Inuvialuit as represented by the Inuvialuit Game Council

And: The Minister of the Environment

hereinafter referred to as the Parties

PREAMBLE

WHEREAS the Proponents have filed a Preliminary Information Package and applications for land use permits and water licenses in the Mackenzie Valley and has indicated its intention to file the necessary applications for the Mackenzie Gas Project;

AND WHEREAS the Parties have participated in the development of the *Cooperation Plan for the Environmental Impact Assessment and Regulatory Review of a Northern Gas Pipeline Project through the Northwest Territories* (Cooperation Plan);

AND WHEREAS the Inuvialuit Game Council (IGC) represents the collective interests of the Inuvialuit under the *Inuvialuit Final Agreement* (IFA) in the environment and wildlife;

AND WHEREAS the Minister of the Environment has the statutory responsibility for administering the *Canadian Environmental Assessment Act* (CEAA);

AND WHEREAS the Mackenzie Valley Environmental Impact Review Board (MVEIRB) has the statutory responsibility for administering Part 5 of the *Mackenzie Valley Resource Management Act* (MVRMA), including environmental assessment and environmental impact review;

AND WHEREAS the Parties wish to discharge their respective responsibilities respecting the review of the Project while meeting the needs and protecting the interests of the residents of the Northwest Territories and the rest of Canada;

AND WHEREAS the Parties wish to establish an Environmental Impact Review process consistent with the spirit and intent of their respective authorities;

AND WHEREAS the Parties agree that development should occur in a manner that protects the environment from significant adverse environmental impacts unless justified; and protects the social, cultural, and economic well-being of affected residents and communities;

AND WHEREAS the Parties wish to ensure that the biophysical; and social, cultural and economic effects of the Project will be thoroughly evaluated;

AND WHEREAS the Parties acknowledge the importance of incorporating traditional knowledge in the Environmental Impact Review of the Project;

AND WHEREAS on 17 July 2003, the Mackenzie Gas Project was referred to the Minister of the Environment for the establishment of a review panel under the CEAA;

AND WHEREAS on 21 August 2003, the Minister of the Environment referred the Mackenzie Gas Project to a review panel under the CEAA;

AND WHEREAS the Environmental Impact Screening Committee has made a determination, pursuant to subsection 11(15) of the IFA, that the Project could have significant negative impacts and has referred the Project to a review panel;

AND WHEREAS the Minister of the Environment has determined that a Joint Review Panel should be established pursuant to sections 40 and 41 of the CEAA with the MVEIRB;

AND WHEREAS the MVEIRB has ordered an environmental impact review of the Project and the Minister of Indian Affairs and Northern Development has granted the MVEIRB permission to enter into an agreement with the Minister of the Environment to establish a joint review panel pursuant to paragraph 141(2)(a) of the MVRMA;

AND WHEREAS the Parties have made a firm commitment through this Agreement and otherwise to ensure that the Joint Review Panel will have the authority and capacity to address the requirements of Sections 11 and 13 of the IFA as contemplated by subsection 11(15) of the IFA and will do so;

AND WHEREAS the Parties have considered comments received from the public on the draft Agreement;

AND WHEREAS the Parties wish to avoid the unnecessary duplication that might arise from carrying out the environmental impact review requirements separately under the IFA, the MVRMA and the CEAA.

NOW THEREFORE, THE PARTIES AGREE AS FOLLOWS:

1. DEFINITIONS

For the purposes of this Agreement and the Schedule:

Environmental Impact Review

means the examination of the Project undertaken by the Joint Review Panel in accordance with the process set out in this Agreement.

ISR

means the Inuvialuit Settlement Region as defined in section 2 of the IFA.

Joint Review Panel

means the panel established pursuant to this Agreement to conduct the Environmental Impact Review.

Project

means the proposed development described in Annex 1 of the Schedule to this Agreement.

Proponents

include, in respect of the Project or any part of it, Imperial Oil Resources Ventures Limited, the Aboriginal Pipeline Group, ConocoPhillips Canada (North) Limited, ExxonMobil Canada Properties, Shell Canada Limited and any other entity proposing to carry out a portion of the Project.

2. PURPOSE OF THE AGREEMENT

The purpose of this Agreement is to establish an Environmental Impact Review that meets the requirements of the CEAA, the MVRMA and the IFA.

3. RELATIONSHIP OF AGREEMENT TO REGULATORY PROCESSES

This Agreement is in furtherance of the relationship described in the Cooperation Plan.

4. THE JOINT REVIEW PANEL

- a. The Joint Review Panel will have the authority and capacity to meet the requirements of the relevant provisions of sections 11 and 13 of the IFA as contemplated by subsection 11(15).
- b. The Joint Review Panel will carry out its duties and conduct the Environmental Impact Review according to the mandate set out in the Schedule to this Agreement.

Joint Review Panel Membership:

- c. The Joint Review Panel shall consist of 7 members, including a chairperson, appointed according to the following process:
 - i. the MVEIRB will select 3 members;
 - ii. the Minister of the Environment will select 4 members, 2 of whom will be nominated by the IGC according to the Memorandum of Understanding for Inuvialuit participation in the environmental review of the Project between the Minister of the Environment and the Inuvialuit; and
 - iii. the Minister of the Environment, the MVEIRB, and the IGC shall approve the selection of the chairperson.
- d. The members shall be unbiased, free from any material conflict of interest relative to the Project, and have knowledge, including, as appropriate, traditional knowledge, or experience relevant to the anticipated impacts of the Project on the environment.
- e. The members shall be cross-appointed under the CEAA and the MVRMA concurrent with the execution of this Agreement.
- f. The Parties will consider appointing a member of the National Energy Board (NEB) as one of the 7 members of the Joint Review Panel, so as to allow that member to submit a report on environmental matters within the NEB's jurisdiction to the NEB pursuant to section 15 of the *National Energy Board Act*.

Replacing a Panel member

- g. In the event that a member of the Joint Review Panel is incapable of continuing to act as such, the Parties shall determine whether a replacement member should be appointed. Any such replacement member will be selected by the Party whose member has withdrawn, pursuant to subsection (c).

Joint Review Panel Orientation

- h. The Parties will provide the Joint Review Panel with an orientation.

Powers of the Joint Review Panel

- i. The Joint Review Panel shall have the powers provided for in section 35 of the CEAA, and section 25 and subsection 133(1) of the MVRMA.
- j. Joint Review Panel members shall enjoy the protection from liability outlined in section 35 of CEAA and section 20 of the MVRMA.

5. REPORTING AND DECISION MAKING

- a. The Joint Review Panel shall prepare and submit a report in accordance with subsection 4.8 of the Schedule to this Agreement.
- b. The Joint Review Panel report shall be made available to the public.
- c. Following the submission of its report, the Joint Review Panel shall remain available for further consideration and for consultation, as may be required under sections 135 and 137 of the MVRMA, or for clarification of any of the recommendations set out in the report, as may be required under subsection 37(1.1) of the CEAA.

Effect of the Decision

- d. In accordance with subsections 136(2) and 137(3) of the MVRMA, a first nation, local government, regulatory authority or department or agency of the federal or territorial government in the Mackenzie Valley and the NEB shall act in conformity with any recommendation accepted by the Minister of Indian Affairs and Northern Development or the NEB.
- e. In accordance with subsection 37(1.1) of the CEAA, responsible authorities shall act in conformity with the approval by the Governor-in-Council of their response to the Environmental Impact Review report.

6. OTHER

Secretariat

- a. A Secretariat to support and assist the Joint Review Panel will be established by the MVEIRB, the IGC and the Canadian Environmental Assessment Agency (Agency).

Public Registry

- b. A public registry will be established and maintained in accordance with the requirements of the CEAA, the IFA and the MVRMA to allow the public continued access to documents related to the Environmental Impact Review. Public registry locations will include Yellowknife, Inuvik, Calgary and any other location deemed appropriate by the Joint Review Panel. There will be electronic access to the public registry to the extent possible.

Change to the Project

- c. Upon reference from the Joint Review Panel pursuant to subsection 4.7 of the Schedule to this Agreement, the Parties may reconsider and amend this Agreement and may provide new directions to the Joint Review Panel as to changes to the Environmental Impact Review.

Participant Funding

- d. Participant funding will be provided by the Government of Canada.

Schedules and Annexes

- e. The Schedule and Annexes attached to this Agreement form a part of the Agreement.

7. FINANCIAL RESPONSIBILITY AND LIABILITY UNDER THE IFA

For greater certainty, the establishment of the Environmental Impact Review pursuant to this Agreement does not diminish any financial responsibility or liability for damages Canada or the Proponents may have under sections 13(13) to 13(16) of the IFA.

8. NOTICES

Notices with respect of any matter included in this Agreement shall be provided to:

For the Inuvialuit: the Executive Director, Joint Secretariat

For the MVEIRB: the Executive Director, MVEIRB

For the Minister of the Environment: the Director, Regional Liaison and Guidance, Agency

9. TERM OF THE AGREEMENT

- a. This Agreement may be signed in counterpart.
- b. The Agreement comes into force on the day it is signed by the last Party.
- c. This Agreement may be amended by the written consent of the Parties.
- d. The Agreement terminates upon agreement of the Parties.

IN WITNESS WHEREOF, the Parties have signed this Agreement.

The Mackenzie Valley Environmental Impact Review Board

Original signed by Todd Burlingame, Chairperson, on July 28, 2004

Signature Date

The Minister of the Environment

Original signed by the Honourable Stéphane Dion on August 3, 2004

Signature Date

The Inuvialuit as Represented by the Inuvialuit Game Council

Original signed by Frank Pokiak, Chair, on July 27, 2004

Signature Date

SCHEDULE: JOINT REVIEW PANEL MANDATE

1.0 DEFINITIONS

Environment

means the components of the Earth and includes:

- a. land, water and all layers of the atmosphere;
- b. all organic and inorganic matter and living organisms; and
- c. the interacting natural systems that include components referred to in (a) and (b).

Environmental Impact Statement (EIS)

means a report prepared by the Proponents according to the direction in the terms of reference referred to in section 4.3.

Impact on the environment

includes cumulative impacts and means, in respect of a project

- a. any change that the project may cause on the environment, and includes
 - i. any effect of any such change on health and socio-economic conditions, on physical and cultural heritage, on the current use of lands and resources for traditional purposes by aboriginal persons, or on any structure, site or thing that is of historical, archaeological, paleontological or architectural significance;
 - ii. any change it may cause to a listed wildlife species, its critical habitat or the residences of individuals of that species, as those terms are defined in subsection 2(1) of the Species at Risk Act;
 - iii. any change to present or future wildlife harvesting;
 - iv. any change to the social and cultural environment or to heritage resources; and
- b. any change to the project that may be caused by the environment.

Mitigation

means action for the control, reduction, or elimination of an adverse impact of the Project on the environment and includes restitution for any damage to the environment caused by such effects through replacement, restoration, compensation, remedial measures or other means.

Public Registry

means the registry established pursuant to subsection 6(b) of the Agreement.

2.0 SCOPE OF THE ENVIRONMENTAL IMPACT REVIEW

In carrying out the review, the Joint Review Panel will address the factors outlined in the Annex 2 to this Schedule. The Environmental Impact Review shall have regard to the protection of the environment from the significant adverse impacts of proposed developments, and to the protection of the existing and future social, cultural and economic well-being of residents and communities.

3.0 SPECIALIST INFORMATION TO THE JOINT REVIEW PANEL

The Joint Review Panel shall obtain relevant scientific, technical, traditional knowledge, social, and economic expert information, as available from government agencies and departments, in accordance with subsection 12(3) of the CEEA and section 22 of the MVRMA.

The Joint Review Panel shall make best efforts to promote and facilitate the contribution of traditional knowledge to the environmental impact review.

In addition, the Joint Review Panel may also retain the services of any other independent experts to provide advice on certain subjects within the Joint Review Panel's mandate.

4.0 STEPS IN THE REVIEW PROCESS

The main steps in the review by the Joint Review Panel are as follows:

4.1 Project Description

The Project is as described in the Project Description, as per Annex 1 to this Schedule.

4.2 Conduct of the Environmental Impact Review

Rules of Procedure

The Parties will submit rules of procedure to the Joint Review Panel concurrent with the execution of this Agreement. The conduct of the environmental impact review will be governed by the Joint Review Panel rules of procedure.

Public Participation

The Joint Review Panel will conduct its review in a manner that will promote and facilitate public participation and ensure that the concerns of aboriginal people and the general public are taken into account in that process.

Public Information

All information received during the conduct of the environmental impact review of the EIS will be placed on the public registry.

4.3 EIS Terms of Reference

The Parties will issue, concurrent with the execution of this Agreement, Terms of Reference for the Environmental Impact Statement (EIS). The Proponents will prepare an EIS in accordance with the Terms of Reference and submit the EIS to the Joint Review Panel.

4.4 Initial Review of EIS

The Joint Review Panel will make the EIS available for public review and comment. The EIS will be placed in the public registry.

The Joint Review Panel will expeditiously conduct a conformity check to determine whether the EIS contains sufficient information to proceed to the technical analysis. If the Joint Review Panel determines that the EIS does not contain sufficient information, it will issue instructions to the Proponents for the submission of the additional information.

The Proponents will submit any additional information necessary to satisfy the Joint Review Panel.

4.5 Technical Analysis

The Joint Review Panel will issue instructions, set a timetable for and supervise the conduct of a process of written Information Requests in order to secure any clarification, explanation or additional technical analyses required of the EIS.

The Joint Review Panel will review the information available on the public registry and comments received from the public and determine whether the information available is sufficient to proceed to the public hearing phase of the process. Once the Joint Review Panel has decided to proceed to public hearings, it will schedule and announce the hearings.

A 4 month period is provided for the initial review of the EIS, technical analysis and the completion of the public notice period for the public hearings, in addition to the time taken for responses to any information requests.

The Joint Review Panel may arrange for a prehearing conference in order to assist it in structuring and conducting the public hearings.

4.6 Public Hearings

The Joint Review Panel will hold public hearings, including community hearings, in a manner that ensures a thorough examination of matters relevant to its mandate. The Joint Review Panel will ensure that the public hearings afford an opportunity for the communities and people in the project area to present their views about the potential impacts of the Project on the environment.

To the extent possible, the Joint Review Panel will coordinate its hearings in time and place with those of the NEB.

The total time allowed for the public hearings process and submission of the Joint Review Panel's report is 10 months.

4.7 Changes to the Project

If, in the opinion of the Joint Review Panel, the Proponents have made a significant change to the Project, the Panel shall refer the change to the Parties as per subsection 6c) of the Agreement.

4.8 Interpretation, Translation and Transcription Requirements

During the Joint Review Panel's proceedings, interpretation services will be provided by the Panel where necessary.

The Joint Review Panel may require the Proponents to translate some documents into French and Aboriginal languages.

The EIS will be submitted to the Joint Review Panel by the Proponents in English. Key sections of the EIS, will be translated by the Proponents and made available in French and in Aboriginal languages, as determined by the Joint Review Panel. The Joint Review Panel will determine whether translated documents will be provided in audio and/or visual or in written form.

The Joint Review Panel's rules of procedure, public notices pertaining to its meetings and hearings, and any decision statements issued by the Joint Review Panel will be available in English, French, and Aboriginal languages and in audio and/or visual form, as it determines. Issuance of these documents will not be delayed more than one week for translation purposes.

The Joint Review Panel will make best efforts to use and encourage the use of, plain language suitable to the general public in the Project area.

The Joint Review Panel shall arrange for preparation of transcripts of its proceedings.

Reporting Requirements

The Joint Review Panel will prepare and provide the Minister of the Environment, the Minister of Indian Affairs and Northern Development, Responsible Ministers, the National Energy Board, the MVEIRB, the Inuvialuit and the Responsible Authorities, a report including, but not limited to, the following:

- a description of the public review process
- a summary of any comments and recommendations received from the public
- a rationale, conclusions and recommendations regarding the nature and significance of impacts on the environment including any mitigation measures and follow-up program, and
- any other matter as required under the CEAA, the MVRMA and the IFA.

ANNEX 1 TO THE SCHEDULE: PROJECT DESCRIPTION

For the purposes of the Joint Review Panel process the Project includes the construction, operation, maintenance, decommissioning and abandonment of:

Production Facilities at the Taglu, Parsons Lake and Niglintgak natural gas fields

- approximately 15 production wells at Taglu
- approximately 15 production wells at Parsons Lake
- approximately 10 production wells at Niglintgak
- connection facilities
- drilling waste disposal facilities including sumps and/or injection wells
- natural gas production top side facilities e.g. conditioning, dehydration and compression facilities, including temperature control, flare system, separators, control valves and piping, communications systems.

Gathering System

The gathering system consists of a network of pipelines and facilities to collect natural gas and Natural Gas Liquids (NGL) from the three fields and move them to the Inuvik Area Facility, including:

- approximately 15 kilometres (km) of pipeline to transport natural gas and associated liquids from the Niglintgak field to the Taglu junction
- approximately 82 km of pipeline to deliver natural gas and associated liquids from the Niglintgak and Taglu fields to the Parsons Lake junction
- approximately 28 km of pipeline to deliver natural gas from the Parsons Lake field to the Parsons Lake junction
- approximately 51 km of pipeline from the Parsons Lake junction to the Inuvik Area Facility
- valves, compression, connection and custody transfer meter facilities

Inuvik Area Facility

- a NGL facility to process and separate natural gas and NGLs from the gas stream, recover NGLs and process the natural gas and NGLs to the specifications of the transmission and NGL pipelines
- Associated facilities including inlet slug catcher, pumps, liquids handling equipment, meters, flare systems, natural gas handling equipment, control room, storage, maintenance areas, buildings

Natural Gas Liquids Pipeline

- approximately 480 km of single phase pipeline to transport natural gas liquids from the Inuvik Area Facility to the existing Enbridge Pipelines (NW) Inc. facilities at Norman Wells
- up to 4 pumping stations and associated facilities
- connection, custody transfer and metering facilities

Natural Gas Transmission Pipeline

- approximately 1,300 km of natural gas transmission pipeline from the outlet of the NGL facility near Inuvik to a connection with Nova Gas Transmission Limited (NGTL) pipeline facilities approximately 15 metres south of the Northwest Territories-Alberta border
- up to 15 compressor stations and associated facilities
- interconnect facilities, including temperature and pressure control, metering, custody-transfer, system isolation and in-line inspection

Nova Gas Transmission Limited Facilities

- Dickins Lake Section — approximately 65 km of pipeline from the existing Bootis Hill junction on the NGTL Northwest Mainline to interconnection facilities with the natural gas transmission pipeline
- Northwest Mainline (Vardie River Section) — a loop of a portion of the existing Northwest Mainline. This loop will occur between the Bootis Hill junction and the existing Thunder Creek Compressor Station (a distance of approximately 35 km)

General

- construction camps
- line heaters and block valves
- compression, connection and custody transfer meter facilities
- pipeline inline inspection facilities including receivers and launchers
- cathodic protection
- safety equipment, safety control systems, isolation and shutdown systems, and flare systems
- power generation facilities
- utilities, such as fuel gas, electrical power and instrument air
- service and accommodation buildings
- transportation infrastructure including access roads, barge landing sites, helicopter pads and airstrips
- various temporary construction workspace, construction lay down areas and access roads

The Project also includes any other undertakings in relation to the physical works identified above that are proposed by the Proponents or that are likely to be carried out, including:

- transport of material and personnel
- storage of material at locations in the vicinity of the Project
- construction and operation of various temporary construction work spaces, storage and work areas, borrow pits and quarries
- operation of various existing access roads and trails
- testing of the facilities prior to their being authorized for use
- inspection, maintenance and repair activities associated with the proposed facilities
- maintenance and use of existing access roads for the proposed facilities

Specific details in respect of the Project shall be provided by the Proponents, as required, including information to be provided in the Environmental Impact Statement.

ANNEX 2 TO THE SCHEDULE: FACTORS TO BE CONSIDERED DURING REVIEW

The Environmental Impact Review will have regard to the protection of the existing and future social, cultural and economic well-being of residents and communities and will include a consideration of the following factors:

1. The impact of the Project on the environment, including the impact of malfunctions or accidents that may occur in connection with the Project and any cumulative impact that is likely to result from the Project in combination with other projects or activities that have been or will be carried out;
2. The significance of any such impact;
3. Any comments from the public that are received during the Environmental Impact Review;

4. Measures that are technically and economically feasible and that would mitigate any significant adverse impact of the Project on the environment;
5. The purpose of the Project;
6. The need for the Project;
7. Alternatives to the Project;
8. Alternative means of carrying out the Project that are technically and economically feasible and the impact on the environment of any such alternative means;
9. The need for any follow-up program in respect of the Project, and the requirements of such a program;
10. The capacity of renewable resources that are likely to be significantly affected by the Project to meet existing and future needs;

In respect of the Inuvialuit Settlement Region, the Joint Review Panel will recommend:

- a. Terms and conditions relating to mitigation measures that would be necessary to minimize any negative impact on wildlife harvesting, as referred to in paragraph 13(11)(a) of the IFA, including, as far as is practicable, measures to restore wildlife and its habitat to its original state and to compensate Inuvialuit hunters, trappers and fishermen for the loss of their subsistence or commercial harvesting opportunities;
- b. An estimate of the potential liability of the Proponents, determined on a worst case scenario, taking into consideration the balance between economic factors, including the ability of the Proponents to pay, and environmental factors, as referred to in paragraph 13(11)(b) of the IFA.

APPENDIX 2

BIOGRAPHIES OF JOINT REVIEW PANEL MEMBERS

MS. GINA DOLPHUS

A resident of Deline, Northwest Territories, Gina Dolphus has spent many years working in a variety of areas, including politics, counselling, advocacy, lobbying, management and administration. She has successfully represented her community in various ways, including working as the Trustee for Inuvik Regional Health Board and acting as Vice-Chairperson for the Sahtu Divisional Board of Education. Ms. Dolphus was the first woman Mayor of Deline. Other notable accomplishments include serving as Vice-Chairperson for the Land and Finance Corporation in Deline, serving as the Sahtu Regional Director and subsequently President of the Native Women's Association of the Northwest Territories, and Vice President of Native Women of Canada. Most recently, Ms. Dolphus worked as Community Wellness Coordinator with the Deline Uranium Team for the Deline Dene Band Council. She was also Sub-Chief of the Deline Dene Band. Ms. Dolphus has been married for 40 years, has five children and ten grandchildren. She practices traditional sewing and beading skills in her designs of native clothing.

MR. BARRY GREENLAND

Barry Greenland is well known in his community where he has acted as Sub-Chief of the Inuvik Native Band in Inuvik, NWT for 10 years while working closely with the Gwich'in Tribal Council and Indian and Northern Affairs Canada. Mr. Greenland also acted as Director of the Gwich'in Tribal Council Board for two years and as Director of the Nihtat Gwich'in Development Corporation for six years. Mr. Greenland has also worked as community and projects coordinator for the Inuvik Native Band, which provides support to youth and the elders.

MR. PERCY HARDISTY

As a member of the Joint Review Panel, Percy Hardisty brings to the review nearly 25 years of leadership experience within his community. As well as being Chairperson for the Dehcho Friendship Centre located in the Dehcho Region of the Northwest Territories, Mr. Hardisty was twice elected as Chief of the Pehdzeh Ki First Nation. He also served as Coordinator with the Dene National Assembly. Other accomplishments include receiving the Queen's Golden Jubilee commemorative medal in 2002 and serving in the Canadian Armed Forces. Most recently, Mr. Hardisty worked as a fieldworker and counsellor for the Fort Providence Residential School Society. He holds a certificate in Management Studies from Aurora College in Fort Simpson, NWT.

MR. ROWLAND J. HARRISON, Q.C.

Rowland Harrison has been a member of the National Energy Board since 1997. Immediately prior to his appointment to the Board, he was a partner of one of Canada's largest national and international law firms, specializing in energy regulation. In the early 1980s, he was Director General with the Canada Oil and Gas Lands Administration responsible for negotiating exploration agreements for frontier lands, including the Beaufort Sea and the Mackenzie Delta. Mr. Harrison has been a professor of law at the University of Alberta, Dalhousie University, the University of Calgary and the University of Ottawa, teaching natural resources law, constitutional law and administrative law. He was the first Executive Director of the Canadian Institute of Resources Law, founded at the University of Calgary in 1979. He was appointed Queen's Counsel by the Province of Alberta in 2006.

MR. ROBERT HORNAL

Robert Hornal brings to the panel 40 years of experience in resource management, environmental and socio-economic assessment, land claim administration, land use, planning, and government and regulatory affairs. He is currently a principal of Robert Hornal and Associates Ltd., a Vancouver based consulting firm specializing in resource management, aboriginal, environmental and socio-economic issues. In the 1970s, Mr. Hornal served as Director for the NWT Northern Affairs Program and was later appointed British Columbia Administrator of the Northern Pipeline Agency in 1981. As a senior federal civil servant, he has chaired numerous committees and liaised extensively with federal, territorial and local politicians and other government representatives.

Mr. Hornal graduated with a Gold Medal in Geology from Queen's University in 1961. He then spent two years as a postgraduate student at Harvard University studying Geophysics.

MR. TYSON PERTSCHY

Tyson Pertschy graduated with a Diploma in Natural Resources from Arctic College in Fort Smith, Northwest Territories, and obtained a Certificate of Specialization in Fish and Wildlife Management from the University of Lethbridge. He also participated in a study of wildlife management and cultural anthropology in Kenya with Simon Fraser University. Mr. Pertschy has worked as a Federal Fishery Officer and National Park Warden, and has served as a member of the *Inuvialuit Final Agreement's* Arbitration Board, as Commissioner for the Inuvialuit Land Administration, and as a member of the Board of Directors for the Inuvialuit Investment Corporation.

DR. PETER J. USHER

Dr. Peter J. Usher is a geographer with graduate degrees from McGill University and the University of British Columbia. Dr. Usher worked in the western Arctic for several years between 1962 and 1976. He travelled widely in the Beaufort Sea and Mackenzie Valley region while involved in regional economic development, the Inuvialuit land claim, and the Mackenzie Valley Pipeline Inquiry. Since 1977, he has operated an independent consultancy based in Ottawa, specializing in social and environmental impact assessment, and resource and environmental management, with a broad client base across the North, from Labrador to Alaska. From 1991 to 1997, Dr. Usher was Director of Research at Inuit Tapirisat of Canada in Ottawa. He has subsequently been a member of the Joint Environmental Assessment Panel to review the proposed Voisey's Bay Mine and Mill Project in Labrador and has served as Chair of the Wildlife Management Advisory Council (NWT). Dr. Usher resides in Lanark County, west of Ottawa.

APPENDIX 3

DIRECTION ON PROCEDURES

The Joint Review Panel was issued Rules of Procedure for the conduct of the environmental impact assessment (the Rules) to ensure that the Joint Review Panel's environmental impact review would fulfill the spirit and principles of part 5 of the *Mackenzie Valley Resource Management Act* (MVRMA), the *Canadian Environmental Assessment Act* (CEA Act) and the Inuvialuit Final Agreement (IFA). It was under these Rules that the Panel notified participants of the proceeding, established a list of Interveners, created the Public Registry, considered the admissibility of information, facilitated rounds of Information Requests, ensured the distribution and service of information amongst the parties and processed motions filed by Interveners. The Rules were superceded by the Direction on Procedures for Hearings and are not included in this Report but can be found on either the Public Registry (www.ngps.nt.ca) or on the DVD contained with this Report.

JOINT REVIEW PANEL DIRECTION ON PROCEDURES FOR HEARINGS ("PROCEDURES")

This document outlines procedures for the public hearings phase of the environmental impact review being conducted by the Joint Review Panel for the Mackenzie Gas Project. These Procedures supplement the Rules of Procedure issued by the Joint Review Panel on September 14, 2004 (the "Rules"). For ease of use, the provisions of the Rules that pertain to hearings have been incorporated here for the purpose of having a single stand-alone document for the hearings phase of the Joint Panel's review.

INTRODUCTION

1. This document outlines procedures for the public hearings to be conducted by the Joint Review Panel appointed to review the proposed Mackenzie Gas Project (MGP) as defined in the Joint Review Panel Agreement signed by the Minister of Environment, the Mackenzie Valley Environmental Impact Review Board and the Inuvialuit Game Council effective the 3rd day of August, 2004 (the "Agreement").
2. The Joint Review Panel will conduct the public hearings in a manner that ensures examination of matters relevant to the Joint Review Panel's mandate while at the same time encouraging public input as directed by the Agreement.
3. The objective of the public hearings is to provide opportunities for:
 - individuals, organizations and government representatives to provide their views on the implications of the proposed Project,
 - the proponent of the MGP (the "Proponent") to explain the project and respond to concerns and questions raised by other Parties during the hearings, and
 - the Joint Review Panel to receive information that will help it address "The Factors To Be Considered During Review" defined in Annex 2 to the Schedule of the Agreement, a copy of which is attached to this document.
4. These Procedures are intended to ensure that the public hearings take place in a fair and equitable manner, with maximum co-operation and courtesy. The Chair of the Joint Review Panel (the "Chairperson") will maintain order and efficiency in a structured but informal atmosphere as indicated by the procedures outlined in this document. However, the hearings will not follow the strict rules of procedure and evidence required by a court. As a general rule, witnesses will not be sworn in. The Joint Review Panel encourages groups and individuals to speak on their own behalf and ask their own questions at the public hearings. Representation by legal counsel is not encouraged.
5. The Chairperson shall preside at the hearings and has the discretion to modify or waive specific procedures where the objectives of the hearings can be better achieved by taking a different approach.

SCHEDULING OF HEARINGS

6. The Joint Review Panel will schedule hearings by means of a public notice given in accordance with the Agreement.
7. Subject to the provisions of the Agreement, the Joint Review Panel reserves the right to cancel or change the date of a hearing at any time.

TYPES OF HEARINGS

8. Three types of hearings will be conducted by the Panel: Community, General and Technical. The Panel considers each type of hearing session to be an essential part of the review process, and will give careful consideration to all submissions, whether oral or written. General Hearings will be designated by the Panel as Open General or Topic-Specific Hearings. As the procedures for each are slightly different, please see Procedure 19 herein.

HEARING SPECIFIC PROCEDURES

COMMUNITY HEARINGS

9. Community Hearings are held to encourage the participation of people living nearest the location of the proposed project. At these hearings, priority will be given to people and organizations from the community.
10. As a general rule, presentations at Community Hearings will be limited to a maximum of fifteen minutes (not including the question and answer period). The Joint Review Panel recognizes the need to respect the customs of individual communities, and is therefore prepared to accommodate a more flexible approach to the community hearings if necessary, while still ensuring maximum public input and a thorough examination of the issues. The Chairperson may restrict presentations that are outside the mandate of the Joint Review Panel review, needlessly repetitive, or irrelevant.
11. More than one individual may participate in a presentation by an organized group. When a presentation is made by several persons, the collective presentation must take place within the maximum 15 minute time period. Additional time may be provided at the discretion of the Chairperson.
12. Written submissions are not required at Community Hearings but will be welcomed by the Joint Review Panel and placed on the public registry. Copies of written submissions, presented just prior to speaking, will assist in the preparation of verbatim transcripts of the hearings and in the language interpretation.
13. Persons wishing to make a presentation at a Community Hearing are asked to contact the Panel Manager at the address or phone number found at the end of this document. Alternatively, presenters may register with the Panel Manager at the beginning of the Community Hearing at which they want to speak. Registered Interveners who want to make recommendations to the Panel at a Community Hearing must provide 15 copies of their written submissions to the Panel Manager 15 days in advance of the Community Hearing. These will be posted to the Public Registry. This will allow the Joint Review Panel and others to review recommendations prior to the hearings.
14. For the purpose of maintaining the record at a Community Hearing, the Chairperson will require any person or organization wishing to make a presentation to identify themselves before they give their oral presentation or written submission.
15. The format of the Community Hearings will be as follows:
 - Opening remarks by the Chairperson.
 - Proponent's presentation. At the beginning of the hearing in each community the Proponent will give a presentation. The focus of the presentation will be on the proposed Project's activities and the predicted impacts in relation to that particular community.
 - Presentations by community members who have given notification to the Panel Manager that they wish to make a presentation. Each person's presentation will be limited to 15 minutes and may be followed by a question and answer period.
 - If time remains, there will then be an opportunity for others that wish to address the Panel to do so. The Chairperson reserves the right to give priority to persons appearing before the Joint Review Panel for the first time.

GENERAL HEARINGS

16. General Hearings will provide the opportunity for organizations, businesses or individuals to make presentations to the Joint Review Panel on any aspect within the scope of the review.

17. Presentations at General Hearings should be limited to a maximum of 15 minutes (not including the question and answer period). A longer period may be granted at the discretion of the Chairperson upon prior request. More than one individual may participate in a presentation by an organized group. When a presentation is made by several persons, the collective presentation must take place within the maximum 15 minute time period. The Chairperson may restrict presentations that are outside the mandate of the Joint Review Panel review, needlessly repetitive or irrelevant.
18. Registration with the Panel Manager is requested at least 30 days before the particular scheduled General Hearing session. Persons who have registered in advance will be given priority to speak. The opportunity for persons who have not registered to present will be at the discretion of the Chairperson. The Chairperson reserves the right to give priority to persons appearing before the Panel for the first time.
19. Persons registered to present at a General Hearing must provide 15 copies of their written submissions or slide presentation (including Power Point™ presentations) to the Panel Manager 15 days in advance of their scheduled presentation. These will be posted to the Public Registry. This will allow the Joint Review Panel and others to review submissions prior to the hearings.
 - a. Submissions for Open General Hearings must be filed 15 days in advance of the scheduled hearing.
 - b. Submissions for Topic-Specific General Hearings must be filed 20 days in advance of the scheduled hearing.
20. Copies of speaking notes provided just prior to speaking will be used to assist in preparation of the verbatim transcript of the hearings and in the language interpretation. These will not be posted on the public registry and will not form part of the Joint Review Panel record.
21. The format of a General Hearing will be as follows:
 - Opening remarks by the Chairperson.
 - Proponent's presentation.
 - Presentations by registered participants (Interveners and persons who have given notification to the Panel Manager). Each presentation will be limited to 15 minutes and may be followed by a question and answer period.
 - If time remains, those who have registered just prior to or during the session will have the opportunity to address the Joint Review Panel.
22. At the Joint Review Panel's discretion, a General Hearing may be devoted to specific topics. Any such General Hearings will be identified in the hearing schedule.

TECHNICAL HEARINGS

23. Technical Hearings provide an opportunity for Interveners to give a presentation on specific topics chosen by the Joint Review Panel in advance.
24. Participation in Technical Hearings is restricted to the Proponent and Interveners, including their technical experts, and specialist advisors called by the Joint Review Panel. Registration with the Panel Manager is required 30 days in advance.
25. Persons making presentations at Technical Hearings must submit a written version of their presentation 20 days in advance and will be subject to detailed questioning. The written submissions must include a brief statement regarding the presenter's experience related to the subject. Persons intending to present a summary of their written submission by way of a slide presentation (including Power Point™ presentations) must file a copy of the slide presentation with the Panel Manager 20 days in advance of the hearing at which the presentation is scheduled to be made.
26. All technical submissions will be placed on the public registry.
27. The format of the technical hearings will be as follows:
 - Opening remarks by the Chairperson.
 - Proponent's technical presentation. This will be limited to 45 minutes and will focus on the issue designated for that particular session. It will be followed by a question and answer period by the Joint Review Panel and Interveners.
 - Presentations by Interveners. Each Intervener's presentation will be limited to 30 minutes and may be followed by a question and answer period by the Joint Review Panel, the Proponent and other Interveners.

28. More than one individual may participate in a presentation by an organized group. When a presentation is made by several persons, the collective presentation must take place within the time period assigned for that presentation. As Parties are required to submit a written presentation, the Joint Review Panel encourages Parties to focus on the highlights of their technical papers in their oral presentation. The Chairperson may restrict presentations that are outside the mandate of the Joint Review Panel review, needlessly repetitive, or irrelevant.
29. Presentations at Technical Hearings will focus on the issue designated for that particular session. A longer period may be granted at the discretion of the Chairperson provided that a request is made to Panel Manager at least 10 days in advance of that particular session.

EXPERTS

30. A written curriculum vitae for each specialist advisor and for each person having technical or special knowledge who is providing specialized knowledge to the Joint Review Panel on behalf of a Party must be filed with the Joint Review Panel 20 days prior to the Hearing and must be referenced orally at the hearing prior to the person's presentation.
31. The curriculum vitae must set out the qualifications and experience of the expert or specialist advisor and must reference the special knowledge provided to the Party or the Joint Review Panel.
32. Any report received from a specialist advisor shall be disclosed to all Parties when it is received. The specialist advisor may be questioned by any Party to the proceeding.
33. If a Party's submission is based in whole or in part on the advice of an expert, it is the responsibility of that Party to make the expert available to answer questions by any Party at the hearing where the Party's submission is being presented to the Joint Review Panel.

GENERAL PROCEDURES

PRELIMINARY LEGAL ISSUES

34. Any preliminary legal issue to be raised at a hearing must be filed by way of Motion with the Joint Review Panel at least 30 days prior to the commencement of the Hearings Phase of the Joint Panel's review.

MOTIONS FOR RULINGS BY THE JOINT REVIEW PANEL

35. Any issue that arises in the course of the review that requires a decision from the Joint Review Panel shall be brought to the Joint Review Panel's attention by way of a written Motion.
36. A Motion shall include a clear, concise statement of the relevant facts, an indication of the decision being sought from the Joint Review Panel and the reasons why the decision should be made.
37. All Motions shall be filed with the Panel Manager and provided to all other Parties.
38. The Joint Review Panel will schedule a date for the Motion to be considered. This date shall be no less than five (5) business days after the Motion is filed.
39. A Party wishing to respond to a Motion shall provide a written response and supporting documents to the Panel Manager no later than two (2) business days before the Motion is scheduled to be considered by the Joint Review Panel. The Panel Manager shall ensure that all Parties are provided with any responses filed with the Joint Review Panel at least one (1) business day before the Joint Review Panel considers the Motion.
40. The Joint Review Panel may, in its discretion, vary any time period prescribed for the filing and considering of a Motion or a response and set the procedures by which it will consider and make a determination on a Motion.

MOTIONS FOR RULINGS MADE DURING A HEARING

41. Notwithstanding Rules 34 and 35 herein, the Joint Review Panel may agree to accept a Motion made orally in the course of hearings.
42. Motions made by a Party during a hearing will be dealt with in a timely way by the Joint Review Panel.

PANEL DISCRETION

43. Where any issue arises during the course of the review, the Joint Review Panel may take any action necessary consistent with the Rules and these Procedures, or permitted by law, in order to enable it to fairly and effectively decide on the issue.

CONFIDENTIAL AND SENSITIVE INFORMATION

44. Unless a Motion for a ruling to protect the confidentiality of information is filed with and approved by the Joint Review Panel, all information and documents received during the review proceeding will be placed on the public registry.

45. The Joint Review Panel may make a ruling or issue a direction on procedure to limit the introduction of or to prevent the disclosure of information or documents in order to protect information of a confidential or sensitive nature, including but not limited to matters involving security, business, personal or proprietary interests.

46. The Joint Review Panel will notify Parties of any Motion for a ruling involving the filing of confidential information and will follow the procedures set out in Rules 34 through 42 herein.

OPENING REMARKS

47. At the commencement of the Hearings phase, the Parties will have an opportunity to provide opening remarks. Opening remarks will be limited to 15 minutes and will allow the Party to introduce themselves and, if they so choose, a brief summary of their proposed participation in the hearings.

48. Parties wishing to make opening remarks shall advise the Panel Manager 20 days prior to commencement of the Hearings phase.

ADMISSIBILITY AND EXCHANGE OF INFORMATION

49. To the extent possible, the Joint Review Panel will emphasize flexibility and informality in its proceeding.

50. The Joint Review Panel will encourage submission of traditional knowledge relevant to the Project including oral history in its proceedings, and will fully consider any such information provided in accordance with the Rules or these Procedures.

51. The Joint Review Panel may make appropriate arrangements to obtain information from or hear the testimony of an elder or the holder of traditional knowledge at any time prior to the close of hearings.

52. In conducting its proceedings, the Joint Review Panel may admit information that would not normally be admissible under the strict rules of evidence.

53. All Parties must disclose any information to be relied on in accordance with the timeframes included in these Procedures or any schedule issued by the Joint Review Panel.

54. Any person seeking to persuade the Joint Review Panel to accept any point or position advanced during the Hearings is responsible for introducing supporting information.

55. Participants will be allowed to make one presentation to the Panel per hearing session. If participants wish to make additional presentations at other hearing sessions, they must be prepared to present information not covered in their previous presentation. In scheduling the public hearings, the Panel reserves the right to give priority to participants who have not yet appeared before the Panel.

56. Failure to disclose information as required by any request or direction on procedure issued by the Joint Review Panel, the Rules or these Procedures may result in the Joint Review Panel ruling that the information is inadmissible in the proceeding.

57. The Joint Review Panel may order an exchange of information among the Parties in order to ensure that the proceedings are focused, efficient and fair.

58. The Joint Review Panel may request information from any Party at any time during the proceedings orally or by way of a written Information Request.

59. The Joint Review Panel may, as it sees fit, exercise the powers granted to it under the Agreement to compel the attendance and examination of witnesses and the production and inspection of documents as provided for in section 35 of the *Canadian Environmental Assessment Act* and section 25 and subsection 133(1) of the *Mackenzie Valley Resource Management Act*.

60. Where proof of delivery of information is required, proof may be provided by affidavit, receipt for double registered mail or by a document showing electronic transmission and receipt by the other Party, or by any other reasonable means filed with the Panel Manager.
61. Documents submitted at the hearings and accepted by the Chairperson will be placed on the Public Registry.
62. Electronic aids to oral presentations, such as Power Point™ presentations, must be provided to the Panel Manager prior to the Hearing for which the presentation is scheduled. Presentations will be made on the Joint Review Panel computer therefore it must be provided in a format such as a memory stick or CD ROM for use on the Joint Review Panel computer.
63. Electronic presentations will be placed on the Public Registry. Please refer to the Joint Review Panel Protocol for Filing Submissions.

QUESTIONING

64. The Proponent and Interveners should pose their questions in a tone and style that are courteous to and respectful of others. Clarity and brevity are encouraged. The purpose of the questions should always be to elicit information that will help the Joint Review Panel understand more fully the issues which relate directly to its mandate. Each presenter may be questioned immediately following his or her presentation. The order of questioning will be at the discretion of the Chairperson but typically will be: the Proponent, Interveners, members of the public where applicable, and members of the Joint Review Panel. Joint Review Panel members may ask questions at any time during the hearings.
65. Questions should be directed through the Chairperson who may allow a Party to put questions directly to the presenter.
66. The Chairperson may limit or exclude questions or comments that fall outside the mandate of the Joint Review Panel, are needlessly repetitive, irrelevant, or immaterial.
67. The Chairperson may limit discussion that exceeds the time limit.
68. Where a person does not abide by the Rules, these Procedures or the direction of the Chairperson, the Chairperson has the authority to refuse to permit further questioning from that individual.

CLOSING REMARKS

69. The last session of the public hearings will be reserved for the Parties' closing remarks. Persons wishing to make closing remarks must register 30 days in advance with the Panel Manager. Closing remarks will be limited to the Proponent and Interveners and must be filed in writing 20 days in advance of the date scheduled for the Hearing. The Chairperson may limit the time available for oral closing remarks.
70. Closing remarks shall be included as part of the record.

WRITTEN COMMENTS

71. Persons may present their views or information directly to the Joint Review Panel at the hearings, or may file written comments. All written comments must be sent to the Joint Review Panel at least 20 days prior to the date scheduled for Closing Remarks so that the Joint Review Panel and Parties may consider the written comments within the hearings process.
72. Written comments filed pursuant to section 71 will be placed on the Public Registry.

CLOSING OF THE RECORD

73. At the conclusion of the hearing, the record for the purpose of the Joint Review Panel's deliberations shall be closed unless the Joint Review Panel directs otherwise. Once the record is closed, no additional information will be accepted unless the Joint Review Panel decides the information is material and that there was good cause for failure to produce it in a timely fashion.
74. In the event the Joint Review Panel allows additional information to be filed after the record has been closed, the Joint Review Panel will provide a copy of the newly filed additional information to the Parties and allow the Parties a reasonable period of time to review the information and file their response, if any, with the Panel Manager.
75. The Chairperson shall ensure that any additional information filed under clause 73 above and any responses to same as approved by the Panel, and any correction to the transcript are included in the record.

INTERPRETATION

76. Aboriginal language interpretation services will be provided at the hearings as appropriate following consultation with the representative aboriginal organizations in each region.
77. The Panel Manager will make every effort to accommodate requests for interpretation at a public hearing provided the request is received by the Panel Manager at least 30 days prior to the start of the hearings and where interpretation is required for the proper conduct of the hearing.

AUDIO VISUAL EQUIPMENT

78. If audio-visual equipment is required for a presentation, the presenter must inform the Panel Manager not less than 10 days before the presentation.

POSTED SCHEDULE

79. The Joint Review Panel will make available at the beginning of each hearing a list of the speaking order of participants who have notified the Panel Manager that they wish to make a presentation at that hearing.

MEDIA REQUESTS

80. Media requests regarding the Panel's activities must be directed to the Panel Manager.
81. Upon request, audio and visual recording equipment may be allowed at the discretion of the Chairperson.

TRANSCRIPTS

82. Written transcripts will be made of all hearings and will be posted on the Public Registry.

COSTS

83. The Joint Review Panel has no authority to award costs to those Parties participating in the environmental review. Any costs incurred by a Party to the proceedings are the responsibility of the Party.

CONFLICT

84. Where there is a conflict between these Procedures issued by the Joint Review Panel and the Rules, these Procedures prevail.

DEFINITIONS

"Agreement" means the Agreement establishing the Joint Review Panel signed by the Mackenzie Valley Environmental Impact Review Board, the Minister of the Environment and the Inuvialuit as represented by the Inuvialuit Game Council.

"clarification" means the process by which the Joint Review Panel requests an explanation of any document or information on the public registry without seeking new information.

"direction on procedure" means a direction issued by the Joint Review Panel at any time to clarify or supplement the Rules or these procedures.

"day" means a calendar day unless specifically designated in these Procedures as a business day. Where a time fixed falls on a holiday or a Saturday or a Sunday, the time fixed shall extend to the next business day.

"environmental impact review" means the examination of the Project referred to in the Agreement and includes submission of the joint review panel report in accord with the Agreement.

"Environmental Impact Statement" means the Environmental Impact Statement referred to in the Agreement.

"hearing" means that phase of the environmental impact review where the Joint Review Panel receives information orally.

"Intervener" means any person who has been granted Intervener status by the Joint Review Panel in the environmental impact review.

"Joint Review Panel" means the panel appointed pursuant to the Agreement.

“Party” or “Parties” means the Proponent, an Intervener participating in the environmental impact review proceeding, or any one of them.

“proceeding” or “proceedings” refers to the environmental impact review, or any part thereof.

“Project” means the Mackenzie Gas Project as defined in the Agreement.

“Proponent” includes, in respect of the Project or any part of it, Imperial Oil Resources Ventures Limited, the Aboriginal Pipeline Group, ConocoPhillips Canada (North) Limited, ExxonMobil Canada Properties, Shell Canada Limited and any other entity proposing to carry out a portion of the Project.

“public notice” means an announcement made through newspaper, radio, community poster or other public means deemed appropriate by the Joint Review Panel.

“specialist advisor” means any expert engaged at the request of the Joint Review Panel to prepare a report for the public record on a technical issue before the Joint Review Panel.

ANNEX 2 TO THE SCHEDULE: FACTORS TO BE CONSIDERED DURING REVIEW

The Environmental Impact Review will have regard to the protection of the existing and future social, cultural and economic well-being of residents and communities and will include a consideration of the following factors:

1. The impact of the Project on the environment, including the impact of malfunctions or accidents that may occur in connection with the Project and any cumulative impact that is likely to result from the Project in combination with other projects or activities that have been or will be carried out;
2. The significance of any such impact;
3. Any comments from the public that are received during the Environmental Impact Review;
4. Measures that are technically and economically feasible and that would mitigate any significant adverse impact of the Project on the environment;
5. The purpose of the Project;
6. The need for the Project;
7. Alternatives to the Project;
8. Alternative means of carrying out the Project that are technically and economically feasible and the impact on the environment of any such alternative means;
9. The need for any follow-up program in respect of the Project, and the requirements of such a program;
10. The capacity of renewable resources that are likely to be significantly affected by the Project to meet existing and future needs;

In respect of the Inuvialuit Settlement Region, the Joint Review Panel will recommend:

- a) Terms and conditions relating to mitigation measures that would be necessary to minimize any negative impact on wildlife harvesting, as referred to in paragraph 13(11)(a) of the IFA, including, as far as is practicable, measures to restore wildlife and its habitat to its original state and to compensate Inuvialuit hunters, trappers and fishermen for the loss of their subsistence or commercial harvesting opportunities;
- b) An estimate of the potential liability of the Proponents, determined on a worst case scenario, taking into consideration the balance between economic factors, including the ability of the Proponents to pay, and environmental factors, as referred to in paragraph 13(11)(b) of the IFA.

APPENDIX 4

LIST OF PARTIES

A

Acho Dene Koe
 Aklavik, Hamlet of
 Alberta Department of Energy
 Alliance Pipeline Limited
 Alternatives North Coalition
 Andre, Daniel – Individual
 Apache Canada Ltd.
 Arctic Energy Alliance
 Arctic Indigenous Youth Alliance
 Ayoni Keh Land Corporation

B

Bevington, Dennis – Individual
 Bromley, Robert – Individual
 BP Canada Energy Company

C

Canadian Arctic Resources Committee
 Canadian Association of Petroleum
 Producers
 Canadian Parks and Wilderness Society
 Chevron Canada Resources
 ConocoPhillips Canada (North) Limited
 ConocoPhillips Northern Partnership

D

Deh Gah Got'ie Dene Council
 Dehcho Elders Council
 Dehcho First Nations
 Dehcho Harvesters Council
 Dene Nation, Lands and Environment
 Dene Tha' First Nation
 Devon Canada Corporation
 DM Golden & Associates

E

Ecology North
 EnCana Corporation
 Enterprise Settlement Corporation
 Environment Canada
 ExxonMobil Canada Properties

F

Fisheries and Oceans Canada (DFO)
 Fisheries Joint Management Committee
 Fort Providence Métis Council –
 Local No. 57
 Fort Providence Resource Management
 Board

Fort Simpson Chamber of Commerce
 Fort Simpson Metis Nation
 Fort Simpson, Village of

G

Government of the Northwest Territories
 Gwich'in Renewable Resource Board
 Gwich'in Tribal Council

H

Hay River, Town of
 Health Canada

I

Imperial Oil Resources Limited
 Imperial Oil Resources Ventures Limited
 on behalf of Mackenzie Gas Project
 Indian and Northern Affairs Canada
 Inuvialuit Regional Corporation
 Inuvik, Town of

J

Jean Marie River First Nation
 Joint Secretariat

K

Ka'a'Gee Tu First Nation
 K'ahsho Got'ine Charter Community
 Council
 K'ahsho Got'ine Lands Corporation Ltd.
 Kaska Tribal Council
 K'atloodeeche First Nation
 Krutko, David – Individual

L

Liidlii Kue First Nation

M

Mackenzie Explorer Group
 Mackenzie Valley Aboriginal Pipeline
 Limited Partnership
 MGM Energy Corp.
 Montgomery, Shelagh – Individual
 Mosbacher Operating Ltd

N

Nacho Nyak Dun First Nation
 National Anti Poverty Organization
 Natural Resources Canada
 Nature Canada
 Nihtat Gwich'in Council

Norman Wells Land Corporation
 Norman Wells, Town of
 North Slave Métis Alliance
 Northern Pipeline Projects Ltd.
 NWT Association of Communities
 NWT Chamber of Commerce
 NWT Power Corporation
 NOVA Gas Transmission Ltd.

O

O'Reilly, Kevin – Individual

P

Paramount Resources Ltd.
 Parks Canada
 Pehdzeh Ki First Nation
 Petro-Canada
 Pokiak, Randal – Individual

R

Ritchie, Doug – Individual

S

Sahdae Energy Ltd
 Sahtu Renewable Resources Board
 Sahtu Secretariat Inc.
 Samba K'e Dene Band
 Saunders, Barbara – Individual
 Shell Canada Limited
 Sierra Club of Canada
 Stephenson, Tasha – Individual

T

Transport Canada
 Tuktoyaktuk, Hamlet of
 Tulita District Land Corporation
 Tulita, Hamlet of
 Tulita Yamoria Community Secretariat

W

West Point First Nation
 World Wildlife Fund – Canada

Y

Yakeleya, Norman – Individual
 Yellowknife, City of
 Yukon Government, Oil and Gas
 Development/Pipeline Branch

APPENDIX 5

LIST OF PUBLIC INFORMATION SESSIONS

DATE	LOCATION	TERRITORY/PROVINCE
November 15, 2004	Inuvik	NT
November 16, 2004	Norman Wells	NT
November 17, 2004	Yellowknife	NT
November 23, 2004	Fort Simpson	NT
December 13, 2004	High Level	AB
December 14, 2004	Enterprise	NT
January 13, 2005	Hay River	NT
February 8, 2005	Tulita	NT
February 9, 2005	Fort Good Hope	NT
February 28, 2005	Inuvik	NT
March 1, 2005	Norman Wells	NT
March 3, 2005	Yellowknife	NT
March 9, 2005	Meander River	AB
March 10, 2005	Fort Simpson	NT
March 15, 2005	Aklavik	NT
March 16, 2005	Wrigley	NT
March 23, 2005	Tuktoyaktuk	NT
October 12, 2005	Trout Lake	NT
October 13, 2005	Jean Marie River	NT
October 19, 2005	Colville Lake	NT
October 20, 2005	Inuvik (Elders' Session)	NT
October 20, 2005	Tsiigehtchic	NT
November 14, 2005	Fort Liard	NT
November 15, 2005	Nahanni Butte	NT
November 21, 2005	Fort Providence	NT
November 24, 2005	Kakisa	NT
November 25, 2005	Deline	NT
November 29, 2005	Fort McPherson	NT
November 30, 2005	Tsiigehtchic	NT
January 19, 2005	Hay River Reserve	NT

APPENDIX 6

LIST OF HEARINGS, DATES AND LOCATIONS

DATE	LOCATION	HEARING
2006		
February 14	Inuvik	Opening Statements
February 15	Inuvik	GH – Project Description
February 16	Inuvik	TS/GH – Project Description
		Open GH – Any matter related to the mandate of the Panel
February 16	Fort McPherson	CH – Any matter related to the mandate of the Panel
February 20	Tsiigehtchic	CH – Any matter related to the mandate of the Panel
February 21 to 23	Inuvik	GH – Approaches to and methods for evaluating the information in the Environmental Impact Statement and Supplementary Submissions
March 14 to 17	Inuvik	TH – Physical Environment – Land, Water and Air – Mackenzie Valley Pipeline and Mackenzie Gathering System Routing and Design
March 20 to 22	Inuvik	TH – Physical Environment – Land, Water and Air – Anchor Field Design
April 3	Deline	CH – Any matter related to the mandate of the Panel
April 4 and 5	Tulita	CH – Any matter related to the mandate of the Panel
April 6	Norman Wells	CH – Any matter related to the mandate of the Panel
April 7	Norman Wells	Open GH – Any matter related to the mandate of the Panel
April 10	Colville Lake	CH – Any matter related to the mandate of the Panel
April 11 and 12	Fort Good Hope	CH – Any matter related to the mandate of the Panel
May 8 and 9	Fort Simpson	CH – Any matter related to the mandate of the Panel
May 10	Fort Simpson	Open GH – Any matter related to the mandate of the Panel
May 11	Wrigley	CH – Any matter related to the mandate of the Panel
May 12	Fort Liard	CH – Any matter related to the mandate of the Panel
May 15	Jean Marie River	CH – Any matter related to the mandate of the Panel
May 16	Trout Lake	CH – Any matter related to the mandate of the Panel
May 17 and 18	Fort Simpson	TS/GH – Biological Environment – Fish and Wildlife and Their Habitat; Conservation Measures – Conservation Areas and Measures
		TS/GH – Human Environment: Socio-cultural Impacts – Harvesting and Other Land Use
June 6 and 7	Hay River	TH – Continuation of Project Routing and Design in Relation to the Physical Environment – Mackenzie Valley Pipeline and Gathering System Routing and Design
June 8	Hay River Reserve	CH – Any matter related to the mandate of the Panel
June 9	Hay River	Open GH – Any matter related to the mandate of the Panel
		CH – Any matter related to the mandate of the Panel
June 12	Hay River	TS/GH – Human Environment: Economic Impacts – Project-related Economic Costs and Physical Infrastructure Impacts (focus on transportation)

Legend: Community Hearing (CH), General Hearing (GH), Technical Hearing (TH), Topic Specific (TS)

DATE	LOCATION	HEARING
June 13	Kakisa	CH – Any matter related to the mandate of the Panel
June 14 and 15	Fort Providence	CH – Any matter related to the mandate of the Panel
July 5	High Level	CH – Any matter related to the mandate of the Panel
July 6	High Level	Open GH – Any matter related to the mandate of the Panel CH – Any matter related to the mandate of the Panel
August 15 and 16	Yellowknife	TH – Physical Environment – Land, Water and Air – Mackenzie Valley Pipeline and Mackenzie Gathering System Routing and Design
August 18	Yellowknife	Open GH – Any matter related to the mandate of the Panel
August 21 and 22	Norman Wells	TS/GH – Biological Environment – Fish and Wildlife and Their Habitat; Conservation Measures – Conservation Areas and Measures TS/GH – Human Environment: Socio-cultural Impacts – Harvesting and Other Land Use
August 23 and 24	Norman Wells	TH – Physical Environment – Land, Water and Air – Water Quality and Quantity, and Fish and Aquatic Habitat (excludes effects of gas field subsidence)
September 7	Paulatuk	CH – Any matter related to the mandate of the Panel
September 8	Ulukhaktok	CH – Any matter related to the mandate of the Panel
September 9	Sachs Harbour	CH – Any matter related to the mandate of the Panel
September 11	Tuktoyaktuk	CH – Any matter related to the mandate of the Panel
September 13 and 14	Tuktoyaktuk	TH – Physical Environment – Land, Water and Air – Marine Environment, Marine Habitat and Marine Mammals and Birds
September 15	Tuktoyaktuk	Open GH – Any matter related to the mandate of the Panel CH – Any matter related to the mandate of the Panel
October 4	Whitehorse	Open GH – Any matter related to the mandate of the Panel
October 17	Yellowknife	TH – Physical Environment – Land, Water and Air – Greenhouse Gas Emissions and Air Quality
October 19 and 20	Yellowknife	TS/GH – Biological Environment – Fish and Wildlife and Their Habitat; Conservation Measures – Wildlife and Wildlife Habitat, including Birds and Bird Habitat (excludes effects on KIBS)
October 23 and 24	Inuvik	TH – Physical Environment – Land, Water and Air – Project Routing and Design in Relation to the Physical Environment
October 26	Inuvik	TH – Biological Environment – Fish and Wildlife and Their Habitat; Conservation Measures – Water Quality and Quantity, and Fish and Aquatic Habitat
November 6 to 8	Yellowknife	TS/GH – Human Environment: Economic Impacts – Project-related Expenditures and Economic Benefits
November 15 and 16	Inuvik	TS/GH – Biological Environment – Fish and Wildlife and Their Habitat; Conservation Measures – Wildlife and Wildlife Habitat, including Birds and Bird Habitat (includes effects on KIBS)
December 5	Yellowknife	Open GH – Any matter related to the mandate of the Panel
2007		
January 8 and 9	Inuvik	CH – Any matter related to the mandate of the Panel Open GH – Any matter related to the mandate of the Panel
January 11 and 12	Inuvik	TS/GH – Human Environment: Economic Impacts – Project-related Economic Costs and Physical Infrastructure Impacts

Legend: Community Hearing (CH), General Hearing (GH), Technical Hearing (TH), Topic Specific (TS)

DATE	LOCATION	HEARING
January 15 and 16	Inuvik	TS/GH – Continuation of Wildlife and Wildlife Habitat including Birds and Bird Habitat
February 6 to 9	Yellowknife	TS/GH – Human Environment: Economic Impacts – Education, Training, Employment, and Procurement
February 12 to 14	Inuvik	TS/GH – Human Environment: Socio-cultural Impacts – Responding to Socio-cultural Impacts
February 26	Edmonton	Open GH – Any matter related to the mandate of the Panel
March 15 to 16	Inuvik	TS/GH – Human Environment: Socio-cultural Impacts – Continuation of Responding to Socio-cultural Impacts
March 17	Inuvik	TS/GH – Human Environment: Socio-cultural Impacts – Harvesting and Other Land Use
March 20 and 21	Yellowknife	TS/GH – Human Environment: Economic Impacts – Continuation of Education, Training, Employment and Procurement
May 2 to 4	Yellowknife	TS/GH – Project Alternatives, Cumulative Impacts and Project Net Effects and Trade-offs after Enhancement, Mitigation and Follow-up – Environmental (Biophysical) Management Plans, Monitoring and Follow-up Programs
May 7 to 9	Yellowknife	TS/GH – Project Alternatives, Cumulative Impacts and Project Net Effects and Trade-offs after Enhancement, Mitigation and Follow-up – Environmental (Socio-cultural and Economic) Management Plans, Monitoring and Follow-up Programs
May 24	Yellowknife	TS/GH – Human Environment: Socio-cultural Impacts – Harvesting and Other Land Use (focus on Timber)
May 25	Yellowknife	TS/GH – Continuation of Environmental (Biophysical) Management Plans, Monitoring and Follow-up
June 19	Aklavik	CH – Any matter related to the mandate of the Panel
June 20	Tuktoyaktuk	CH – Any matter related to the mandate of the Panel
July 9 to 11	Inuvik	Open GH – Project Update and the Ellis Report and the effects associated with the changes
August 27 to 31	Yellowknife	TS/GH – Project Alternatives, Cumulative Impacts, and Project Net Effects and Trade-offs after Enhancement, Mitigation and Follow-up – Cumulative Impacts
September 26 to 29	Yellowknife	TS/GH – Project Alternatives, Cumulative Impacts, and Project Net Effects and Trade-offs after Enhancement, Mitigation and Follow-up – Sustainability and Project Contributions
November 6 to 8	Inuvik	TS/GH – Recommendations
November 28 to 29	Inuvik	TS/GH – Closing Remarks

Legend: Community Hearing (CH), General Hearing (GH), Technical Hearing (TH), Topic Specific (TS)

APPENDIX 7

DETERMINATION ON SUFFICIENCY

JULY 18, 2005 — The purpose of this announcement is to inform the public that the Joint Review Panel for the Mackenzie Gas Project (the Panel) has determined that there is sufficient information to proceed to the public hearings phase of its review, subject to certain information being filed within a time frame prescribed by the Panel.

In making its determination of sufficiency, the Panel considered the information on the Public Registry, comments received from the public, and the comments and submissions from the Environmental Impact Statement (EIS) Conference convened in Yellowknife, Northwest Territories June 26–29, 2005. A detailed *Statement of Determination on Sufficiency*, including reasons for the Panel's determination, is available on the Public Registry of the Joint Review Panel and can be accessed on the Internet at ([statement](#)).

The Panel is prescribing the measures specified below to address outstanding information requirements prior to the commencement of public hearings. The Panel is of the view that the specified information can be provided by Friday, September 30, 2005. At that time, the Panel will be in a position to set a detailed schedule of public hearings by location, type of hearing, and subject matter, for which the Panel will give 45 days notice in advance of the opening day of hearings.

The *Direction on Procedures for Hearings* for the forthcoming public hearings is released along with this determination.

Should the required information for any particular scheduled Technical or General Hearing topic, or for any particular scheduled Community Hearing, not be provided in the time frame specified in the *Direction on Procedures for Hearings*, the Panel may postpone that hearing until the information has been provided.

When the information has been received, the Panel will provide Interveners an opportunity to review and comment on it.

Between now and the beginning of September, the Panel will issue a number of Information Requests (IRs). Response due dates will vary but will be no later than Wednesday, September 21, 2005.

The Panel is mindful of its commitment to provide Interveners with an opportunity to submit IRs on the content of the Community Reports filed by the Proponent in April and May. It is the Panel's understanding that those reports have now been received by each of the communities. Therefore, the Panel invites supplementary Round 2 IRs from Interveners relating specifically to these Community Reports. These IRs on Community Reports are due by Friday, August 12, 2005 and responses will be due by Friday, September 2, 2005.

Public hearings are an important element of the Panel's review of the proposed Mackenzie Gas Project and, as such, present an essential opportunity for public participation in the Panel's review. Public hearings will provide a unique forum for Northerners to express their views about the Project, and to present their knowledge and understanding directly to the Panel about how people and the environment could be affected by it.

In the public hearings, Northerners will have the opportunity to make presentations in their own languages and in their own ways, whether or not they choose to refer to the information on the Public Registry. The Panel is aware that some Northerners are looking forward to participating directly in the Panel's review process through public hearings.

The Panel addressed the deficiency of Proponent-sponsored traditional knowledge studies in its announcement of May 16, 2005 ([JRPPN8](#)). While the Panel hopes to receive the traditional knowledge studies in due course, it attaches great importance to learning about these matters directly from community residents at Community Hearings.

Commitments have been made by the Proponent and others to provide certain information. These commitments include those listed by the Proponent at the EIS conference (and contained in the [Conference facilitator's report](#)), those cited in various IR responses, and the commitments by the Government of the Northwest Territories at the EIS Conference with regard to the community wellness workshop reports and the Prolog Report. The Panel expects that each Party who made these commitments will fulfill them, in order to ensure that the requisite information will be on the Public Registry.

For more information on the environmental impact review of the proposed Mackenzie Gas Project, please contact:

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JRPPN9

APPENDIX 8

CRITERIA FOR CONFIDENTIALITY ORDERS FOR TRADITIONAL KNOWLEDGE STUDY REPORTS

The Panel is mindful of its responsibility under section 3.0 of its Mandate “to promote and facilitate the contribution of traditional knowledge to the environmental impact review.” Sections 22 and 23 of the Rules of Procedure provide that the Panel will encourage the submission of traditional knowledge (TK), including oral history, and may make appropriate arrangements to obtain information from or hear the testimony of an elder or the holder of traditional knowledge during hearings. In its announcement of May 16, 2005, the Panel encouraged the submission of TK and invited individuals to speak to these matters at Community and General Hearings, for at least the following three purposes:

1. Issues identification (what people are concerned about, what people value, what may be at risk from the Project);
2. Baseline information about the communities and the environment in the Project area; and
3. Prediction of Project impacts and the implementation of effective mitigation measures and follow-up effects monitoring.

The Panel is aware that Parties may also wish to file specific TK study reports with the Panel. Some Parties may wish to file such study reports confidentially. Therefore, the Panel is issuing this statement of Criteria for Confidentiality Orders for Traditional Knowledge Study Reports.

The Panel’s Mandate, and the Panel’s Rules of Procedure and its Direction on Procedures for Hearings, provide that all information received by the Panel during the conduct of the environmental impact review of the EIS is, generally speaking, to be made public.

However, section 45 of the Panel’s Direction on Procedures for Hearings provides:

45. The Joint Review Panel may make a ruling or issue a direction on procedure to limit the introduction of or to prevent the disclosure of information or documents in order to protect information of a confidential or sensitive nature, including but not limited to matters involving security, business, personal or proprietary interests.

The Panel will consider motions, filed in accordance with section 45, requesting an order that specific TK study reports, or parts thereof, be filed with the Panel on a confidential basis and that the contents of such study reports not be disclosed on the public record.

In ruling on any such motion, the Panel will consider:

- (a) whether a confidentiality order is necessary in order to prevent a serious risk to an important interest, such as the interest of a community in preventing the exploitation of that community’s traditional knowledge by others, because reasonably alternative measures will not prevent the risk; and
- (b) whether the beneficial effects of a confidentiality order would outweigh the harmful effects of the order, including the effects of the order on the public interest in an open and accessible Panel process.

Parties requesting that the Panel issue a confidentiality order with respect to a particular TK study report should, therefore, identify in their motion (filed in accordance with the Panel’s Direction on Procedures for Hearings):

- (a) the interest that would allegedly be harmed by the public disclosure of the TK study report (including identifying the specific part(s) of the TK study report the disclosure of which would cause such harm); and
- (b) the nature of the harm that would allegedly be suffered. Parties should also address whether the alleged harm would outweigh the interest of other Parties, and the general public, in maintaining a transparent review process.

In considering any such motion, the Panel may request that the TK information which it is sought to maintain as confidential be provided to the Panel, on a confidential basis, to assist the Panel in ruling on the motion. If the Panel decides not to issue a confidentiality order, such information will be returned to the relevant Party. In that event, the Panel, when making any recommendations, could not rely on the relevant TK information.

If the Panel issues a confidentiality order, any information filed pursuant to that order will not be voluntarily disclosed by the Panel. Parties should understand, however, that the Panel may be directed to disclose such information pursuant to access to information legislation or by court order. When deciding whether to seek a confidentiality order, Parties should make their own assessment of the risk that the relevant information might ultimately be so disclosed.

The Panel recognizes that the risk of disclosure might dissuade some Parties from filing specific TK study reports they would otherwise wish to have before the Panel. Parties may, therefore, wish to consider alternatives to filing a motion for a confidentiality order with respect to a specific TK study report. In particular, they might consider whether they could make their points to the Panel as effectively if they were to:

- (a) provide the TK study report with site-specific information blacked out or omitted; or
- (b) provide a summary report of the TK study report, including the methodology, key concerns and proposed mitigation measures.

APPENDIX 9

SELECTED RULINGS ON MOTIONS

APPLICANT	RULING REQUESTED	RULING EXHIBIT #
Dehgha Alliance Society and Dene Tha' First Nation	The motions from the DAS and the DTFN were similar and included a request that the Panel compel federal government departments to respond more fully to several Information Requests and that the Panel rule on the following matters: Implementation of Panel Recommendations, Interaction of Federal Government Departments with the Government of Alberta and the Alberta Energy Utilities Board, Aboriginal Rights (acknowledgement and consultation), and Funding for First Nations	J-JRP00188
Alternatives North coalition	Order for use of teleconference in hearings	J-JRP-00323
Dehgha Alliance Society	File draft Access and Benefits documents	J-JRP-00380
Dene Tha' First Nation	Stay commencement of hearings	J-JRP-00257
Dene Tha' First Nation	Adjournment of Community Hearing scheduled for High Level, Alberta, on July 5, 2006 until the Federal Court issues its ruling in Dene Tha' First Nation v. Minister of Environment	J-JRP-00391
Fort Providence Métis Council	That Proponent be required to do a regional Environmental Assessment	J-JRP-00400
Sierra Club of Canada and World Wildlife Fund	That Panel a) commission an independent scenario-based cumulative effects assessment and b) ensure the scenario-based report is distributed in advance of the Cumulative Effects Hearing	J-JRP-00674
Sambaa K'e Dene Band	Confidentiality of Traditional Knowledge Study	J-JRP-00270
Sambaa K'e Dene Band	Confidentiality of certain portions of the Sambaa K'e Traditional Knowledge report for the proposed Mackenzie Gas Project prepared for the Sambaa K'e Dene Band	J-JRP-00328
Pehdzeh Ki First Nation	Confidentiality of Traditional Knowledge Study	J-JRP-00370
Dehcho First Nations	Confidentiality of Traditional Knowledge information	J-JRP-00447
Jean Marie River First Nation	Confidentiality of information contained in Traditional Knowledge Study	J-JRP-00498

APPENDIX 10

SUMMARY REPORTS OF COMMUNITY HEARINGS

AKLAVIK COMMUNITY HEARING, JUNE 19, 2007

A total of 13 individuals made submissions to the Joint Review Panel. Residents told the Panel that they feel overwhelmed by consultations and research and are frustrated by information being collected without subsequent follow-up and feedback.

BIOPHYSICAL IMPACTS

The Panel heard that Aklavik residents still harvest and are concerned that the Mackenzie Gas Project would impact the land and wildlife, further endangering traditional lifestyles and livelihoods. Residents made several recommendations to protect and preserve the land and the community's harvesting activities. Presenters particularly highlighted the importance of caribou, fish and beluga whales.

There was a question about how compensation would be provided for hunters who might lose their livelihood or be forced to travel farther and spend more time on the land in order to hunt. The Aklavik Hunters and Trappers Committee requested that the pipeline not disturb belugas in the Beluga Management Zone 1A (see Figure 9-2), which contains traditional concentration areas of belugas, particularly during harvest times. The Committee advised that belugas are easily disturbed and would be affected by development activities such as dredging and boat traffic.

Residents did not support the proposed single steel drilling caisson in the Roland Bay area because of fish and whale migrations there and the vicinity's use as a feeding area. Residents claimed that Aklavik's opposition to this drilling caisson is not being heard or considered.

MONITORING

Presenters expressed some doubt as to whether the agencies involved have the capacity to regulate and/or monitor potential negative impacts of the Project as a whole. It was recommended that knowledgeable harvesters and Inuvialuit-trained environmental monitors be involved in all aspects of the Project to identify and mitigate potential negative impacts on the environment and on wildlife in the region.

SOCIO-CULTURAL IMPACTS

While acknowledging the community's longstanding social issues, residents said that their social climate would worsen with the development of the pipeline. A recurring concern was that increased income to residents, combined with poor financial management, could result in greater substance abuse and drug trafficking, and worsen other problems such as domestic violence. Several speakers said that there is a need for community-based addictions counselling and treatment centres. Specific recommendations included:

- ensure that there are enough local health care providers;
- improve community access to addictions facilities;
- provide counselling and training programs;
- establish a shelter for victims of domestic abuse;
- support social service programs; and
- improve protective services.

Residents strongly supported cultural awareness training to combat racism and cultural ignorance that may impede the employment of northern workers.

LABOUR AND BUSINESS

Residents expressed their views on education and on training and Benefits Agreements. There was concern that the Project would increase school drop-out rates and reduce the number of people pursuing post-secondary education or other training. Speakers recommended that the Proponents help the community encourage its students to continue their education by:

- establishing programs for summer employment, community-based trades training and post-secondary bursaries;
- consulting with local employment officers;
- being flexible with minimum education requirements for jobs;
- assisting with costs for travel to and from the job site and training locations; and
- providing resources to fill local positions vacated by people moving into pipeline positions.

Many residents were concerned that Aklavik would be directly affected by the Project but would not necessarily benefit from it because the community is not in the pipeline's proposed right-of-way. It was reported that the Gwich'in Tribal Council has negotiated an Access and Benefits Agreement that would give first choice of jobs to the Gwich'in, provide benefits to the community's business sector, and enable the Gwich'in to establish training and capacity building.

Residents said that revenue-sharing agreements need to be reached with territorial and federal governments to ensure that a portion of the revenue would be transferred to communities to fund much-needed programs and services. Residents also said that the Gwich'in and Inuvialuit land claim agreements allow beneficiaries to set conditions on future development while protecting traditional ways of life. Speakers indicated that they want small businesses to benefit from the Project's opportunities and suggested that contract proposals and bid schedules be sent to businesses in a timely manner.

COLVILLE LAKE COMMUNITY HEARING, APRIL 10, 2006

A total of 13 individuals made submissions to the Joint Review Panel. Support for the Project was generally low, with residents saying that the well-being of future generations is of utmost importance. Residents of Colville Lake were concerned about the impacts of induced development and that the project would open the door to other companies seeking development. Residents said that this would affect not only the Colville Lake region but the whole Sahtu Settlement Area. One presenter said that the concerns of Colville Lake's residents have not been listened to.

BIOPHYSICAL IMPACTS

Many residents were concerned that the pipeline would destroy wildlife and wildlife habitat. A couple of presenters raised the possibility of oil spills or leaks contaminating water and wildlife and harming fish and fish lakes. The pipeline would be crossing many sensitive areas such as rivers, and the Panel heard that there would be high potential for oil spills or antifreeze leaks from heavy machinery. Several presenters said that noise from development would drive away caribou, rabbits and ptarmigan, as it has in the past.

Residents said that it is very important to the community to be able to maintain its way of life through diet, traditional activities and the passing of knowledge to the next generation. Much of the community's concern for wildlife related to its place in Aboriginal lives as a food source. Issues raised included harvest quotas, harvest compensation, independence, and the livelihoods of community residents and future generations. It was also noted that there is evidence all along the Mackenzie River of ancestral activity, including traditional trails.

SOCIO-CULTURAL IMPACTS

Residents said that if the pipeline were to have a significant impact on wildlife and fish and their habitat, there would be changes to the community's diet and traditional activities such as hunting, fishing and trapping. The Panel also heard concerns about teenage pregnancies and the well-being of children.

LABOUR AND BUSINESS

Residents expressed their views on education, Benefits Agreements and compensation. There was a desire to have controlled opportunities for young people through cooperation with industry while maintaining a traditional way of life. Residents said that they want adequate training for jobs in order to avoid injury. They also had concerns about employment opportunities and the Proponents' hiring practices. Other concerns included current student drop-out rates.

Regarding Access and Benefits Agreements, residents said that the Project's potential social impacts would outweigh the benefits of these Agreements. Residents indicated that compensation would be necessary if the pipeline were to cause a reduction in the numbers of animals. They also said that contact between the work camp and the town could be controlled so that workers could spend money at local businesses.

Speakers had concerns about tariffs and tolls, safety on the winter road, and potential impacts on the cost and transport of supplies to communities. A concern about possible racism in hiring practices was also expressed.

DÉLINE COMMUNITY HEARING, APRIL 3, 2006

A total of 17 individuals made submissions to the Joint Review Panel. The significance of the land and wildlife to traditional lifestyles and the well-being of northern people were evident in nearly all presentations. Presenters spoke at length about the contributions of traditional activities to individual and community well-being, and about the meaning that these activities bring to their lives. Many Elders voiced concern for the future, including concerns about the pipeline's structural integrity. Several presenters raised the possibility of oil and gas spills and leaks.

BIOPHYSICAL IMPACTS

Residents were concerned about wildlife and wildlife habitat. While many people spoke generally about anticipated damage to wildlife and habitat, some presenters were more specific. Issues raised included:

- impacts on wildlife;
- loss of trees along the pipeline route;
- changes in animal migration and habitat; and
- impacts of an oil or gas spill or leak on wildlife and habitat.

Concerns about fish and fish habitat included the potential for oil or gas spills or leaks, and that the pipeline is proposed to cross Great Bear River. One presenter was concerned about the impacts of this proposed river crossing on Tulita's water intake system and on the community's water quality and quantity. Another presenter was concerned about the impacts of noise associated with the pipeline's operation on fish and wildlife. He recommended that the pipeline be buried 5 or 6 feet under the ground or river bottom rather than the proposed 3 feet in order to reduce noise disturbance.

SOCIO-CULTURAL IMPACTS

The Panel heard that the pipeline's impacts on the land and on wildlife would affect the supply of country food. One speaker was concerned that Project-associated funding advanced economic issues but not cultural preservation. Presenters explained that such preservation includes land protection. They gave as examples the sacred cultural landscapes of the Saoyú and ?ehdacho, which remain unprotected despite 10 years of effort. Two other participants voiced similar concerns about ensuring proper protection and respect for grave sites, such as those on the Mackenzie River and Great Bear River.

Additional concerns included drug and alcohol use, increases in the community's population and the limitations of present social resources. There was a question about how drug and alcohol policies would be enforced in work camps. There was greater concern about the impacts on youth and children of being exposed to possible increases in drug and alcohol use in nearby communities. The Panel heard that Déline does not have enough human resources and services to cope with these impacts.

Residents said that training for workers should be available to communities in general and include topics such as life skills, parenting skills, financial responsibility and dealing with addictions.

LABOUR AND BUSINESS

Residents expressed their views on education and training, Benefits Agreements and compensation. While some called for further exploration of harvester and land use compensation, many said that monetary settlements could never compensate for the loss or deterioration of their land and animals. Presenters said that the federal government should provide funding to enable interventions in the Panel's review and support harvester compensation agreement negotiations (compensation to beneficiary harvesters for decreases in yield associated with development). It was pointed out that Chapter 18 of the *Sahtu Dene and Métis Comprehensive Land Claim Agreement* indicates that harvesters are expected to draft compensation claims and advocate for themselves. The Panel heard that most harvesters would need professional assistance with this.

Presenters said that, if the pipeline proceeded, there must be a complete and solid agreement with the Dene people. Presenters also indicated that training opportunities in smaller communities are limited and that training funds are directed to larger centres, such as Yellowknife, not to smaller communities. There was much concern about whether there would be pipeline jobs for Aboriginal people. Several presenters suggested that, even if they were trained, they still might not qualify for pipeline jobs.

FORT GOOD HOPE COMMUNITY HEARING NO. 1, APRIL 11, 2006

A total of 13 individuals made submissions to the Joint Review Panel during the first day of Community Hearings at Fort Good Hope. It was evident that this First Nation's trust of government and industry is strained. Residents were concerned that promises were not bearing results, and they questioned the track record of the Proponents.

SOCIO-ECONOMIC IMPACTS

A number of residents spoke at length about the economic benefits of the Project, the Access and Benefits Agreement for the Sahtu, and the need for self-governance. One presenter, the president of the K'ahsho Got'ine District Land Corporation and the Yamoga Land Corporation, made many recommendations. One was that any certificate granted to the Project requires that construction begins within three years of the certificate's issue. He further recommended that a local monitoring agency be formed. He stated that the proposed Access and Benefits Agreement had been rejected by beneficiaries and that the Proponents would not amend their offer. Because the beneficiaries require enhancements to the Agreement, an impasse has resulted. It is perceived that the Project now seeks to expropriate K'ahsho Got'ine lands. It was proposed that the recommendations submitted at this hearing become the basis for reopening Access and Benefits Agreement negotiations or become conditions to a pipeline certificate.

The negotiation process of agreements was questioned. One presenter suggested that the Proponents negotiate Access and Benefits Agreements only to improve their ability to move the gas to market and keep Aboriginal people "quiet." Another said that Access and Benefits Agreement negotiations should be more transparent to the communities involved. Several presenters raised the topic of establishing an annual tax, rent or royalty for the use of Aboriginal land as a means of furthering K'ahsho Got'ine self-governance. It was suggested that revenues should flow directly to the K'ahsho Got'ine and should be collected, calculated and allocated by K'ahsho Got'ine financial agencies. It was proposed that the Panel invite members of the Indian Taxation Advisory Board to appear as expert witnesses to help with negotiating a tax agreement.

Regarding pipeline certificates, it was proposed that the Proponents and the K'ahsho Got'ine District Land Corporation jointly recommend that conditions for business opportunities, a joint advisory board and an education fund be attached to a pipeline certificate. Failing that, it was suggested that the Panel include these recommendations as conditions to a pipeline certificate.

One presenter asked the Panel to recommend that a compensation package be set aside for hunters and trappers, independent of Chapter 18 of the Sahtu Dene and Métis land claim agreement. Another suggested that compensation for loss of traditional land could include building cabins for community traditional use. Residents also said that traditional activities would be particularly impacted by the presence of the proposed compressor station at Little Chicago.

SOCIO-CULTURAL IMPACTS

The Panel heard that the pipeline would be crossing one of the most sensitive and valuable traditional hunting and trapping areas, and that this could have a significant impact on hunters and trappers who have used the area for years. Many concerns related to expectations that pipeline development would trigger an increase in drug and alcohol use through higher disposable incomes as well as bootlegging and drug dealing. Other concerns covered a wide range of issues, including:

- resources and jobs for people with disabilities;
- increased crime;
- increased medical problems;
- a rise in murders, suicides and assaults; and
- cultural orientation for visitors and transient newcomers.

One presenter wanted to know what guarantee there was that the pipeline would improve the community's standard of living. Little Chicago, the proposed location of a compressor station, was reported to be a significant cultural site. The Panel heard that it is used year-round for traditional activities such as hunting, trapping and fishing. It is also the habitat of migratory birds and is a traditional gathering place. Residents said that another place of note is the north shore of Great Bear Lake. The Panel heard that these locations are where the K'ahsho Got'ine traditionally assembled the eight clans. Residents also said that they are looking forward to the start of self-government negotiations.

BIOPHYSICAL IMPACTS

Concerns about environmental damage and clean-up were numerous. They ranged from general questions about whether companies would clean up after construction, to more specific recommendations that environmental monitors turn off vehicles that are left running but unattended, in order to curb greenhouse gas emissions. It was suggested that all damage to the land, including oil spills, should be reported to the Dene on a timely basis.

People expressed concerns for the well-being of the land, fish and wildlife. Specifically, the proposed barge landings near Fort Good Hope were reported to be near a summer community fishing spot. One presenter was worried about the impacts that barge traffic would have on fish and their water habitat. The Panel also heard that noise disturbance was of concern because of its potential to cause animals to leave the area.

FORT GOOD HOPE COMMUNITY HEARING NO. 2, APRIL 12, 2006

A total of 14 individuals made submissions to the Joint Review Panel during the second day of Community Hearings at Fort Good Hope. The Panel heard that negotiations and consultation on the Access and Benefits Agreement have divided the community.

SOCIO-ECONOMIC IMPACTS

The Panel heard that there is a rift between Fort Good Hope Metis Local No. 54 Land Corporation and the Yamoga Land Corporation. It was reported that Métis membership voted 99% in favour of the agreement and that the Yamoga Land Corporation's rejection of the agreement has divided the community.

The Panel heard that support for the pipeline was strong from the representative of the local Métis, but K'ahsho Got'ine presenters held many reservations. A K'ahsho Got'ine presenter questioned the process by which the Proponents sought to have the Access and Benefits Agreement approved, saying that when the community refused to vote, industry provided little information and threatened expropriation. It was stated that the National Energy Board has confirmed that the Proponents are required by law to reach an Access and Benefits Agreement with communities, without which, there will be no pipeline. The community recognizes a need to reopen Access and Benefits Agreement negotiations and wishes to open the agreement's documents to the community. The Panel heard that residents are unhappy with the confidentiality conditions that industry has imposed on Access and Benefits Agreement negotiations, and that people have felt that many decisions are being made without the community's involvement. It was reported that when there is an opportunity for involvement, people feel pressured to make quick decisions without adequate information. It was also stated that the Proponents should pay the community a form of property tax.

SOCIO-CULTURAL IMPACTS

The Panel heard that development would trigger an increase in drug and alcohol use. Existing community social problems include breakdown in family structure, fewer people living on the land, increased illness, less use of traditional foods, incarceration, violence, suicide, alcoholism, substance abuse, and a general

feeling of hopelessness and insecurity. It was expressed that the work camp's proposed location is too close to town and that there must be respect for culturally important sites.

BIOPHYSICAL IMPACTS

One speaker was concerned about potential habitat loss, destruction of vegetation, damage at watercourse crossings, and damage to soil and permafrost. There was concern about the Government of Canada's lack of progress with the Northwest Territories Protected Areas Strategy. It was noted that the Strategy states that, before major development, the Strategy itself should be significantly advanced. The Panel heard that the only place in the Sahtu Settlement Area that has permanent protection is Tuktut Nogait National Park.

Concerns about possible impacts on wildlife were fairly specific. Two presenters inquired about the potential for unexpected climatic and geological factors such as earthquakes damaging the pipeline and the resulting harm to fish and animals. There was concern that noise pollution resulting from the pipeline's construction and operation would cause moose, rabbits, ptarmigan and other wildlife to leave the area. It was reported that there is an eagle and falcon habitat at the start of the Ramparts and that there are caribou feeding grounds at the station proposed to be located between Loon River and Yeltea Lake. In addition, it was reported that the pipeline route would impact several trap lines, including one in the Little Chicago area. Presenters also indicated that there is a need to complete the Sahtu Land Use Plan as soon as possible.

FORT LIARD COMMUNITY HEARING, MAY 12, 2006

A total of nine individuals made submissions to the Joint Review Panel. Presenters stated that Fort Liard has already experienced the challenges and benefits of oil and gas development and that it has learned much in the process. The community is not part of the identified impact area of the pipeline, but it is interested in economic opportunities and spinoffs associated with the Mackenzie Gas Project.

Overall, Fort Liard supports the development of the pipeline. However, according to one presenter, the Acho Dene Koe insist on full consultation before supporting any development that affects its residents. It also insists on regular communication among all parties throughout the Project's duration. Other topics raised included seasonal changes in the load capacities of local highways and the speed of response to fuel spills.

LABOUR AND BUSINESS

Residents expressed their views about education and training, Benefits Agreements and harvester compensation for trap

lines in the pipeline's right-of-way. While local leaders were primarily concerned with the specific topics of negotiations, other presenters spoke about employment, training and policing. Fort Liard's Chief stated that if the Dehcho Tribal Council does not accept a share or ownership in the Aboriginal Pipeline Group, Fort Liard First Nation would still negotiate a 4% share. Further, the Panel heard that if regional groups decline to negotiate on behalf of Fort Liard or with the Proponents or the federal government, Fort Liard First Nation is prepared to negotiate for itself.

It was reported that the Government of the Northwest Territories has been representing community interests in confidential socio-economic negotiations with the Proponents, yet it has not consulted with communities. Presenters were also concerned that royalties and corporate tax from resources in the North must not leave the North until Aboriginal governments are established throughout the Mackenzie Valley and an acceptable sharing mechanism has been arranged. Residents had concerns about the process by which the Dehcho Land Use Plan is being developed and said that they will wait to see it before endorsing it.

The Member of the Legislative Assembly for Nahendeh recommended that northerners become the principal beneficiaries of their own resources. He recommended that the Proponents structure their procurement procedures to ensure that their prime contractors fully engage local businesses in the Project. Some participants stated that residents would benefit from the Project's employment and training opportunities. The Panel heard that Fort Liard took advantage of many contracts with the previous pipeline and that residents have benefited from increased income, although the jobs were largely labourer and equipment operator jobs. Residents said that they want more than seasonal, temporary employment. Several presenters had questions about the types of jobs that may be available during the pipeline's construction and the transferability of skills after the construction phase.

SOCIO-CULTURAL IMPACTS

There was some concern regarding social impacts, including Aboriginal culture and harvesting. It is expected that the regional population would increase and that employment patterns would change.

There was a call for a number of services to be in place before construction would start. These included additional health care workers, community policing and emergency services. Other social impacts discussed were inflation, land development and population growth, and a need for bylaw enforcement. Several participants were concerned about potential increases in drug and alcohol use as a result of increases in disposable income. There was also some concern about the ability of residents to manage their personal finances.

FORT MCPHERSON COMMUNITY HEARING, FEBRUARY 17, 2006

Eighteen individuals made submissions to the Joint Review Panel in Fort McPherson. Residents said they felt that the Proponents had, to date, listened to their concerns in consultations. However, residents also said that the community needs more explanation and that monitoring the Project's social and environmental impacts is a concern.

BIOPHYSICAL IMPACTS

Regarding air and air quality, many residents said that the Project would increase greenhouse gas emissions and that climate change would accelerate.

Some presenters expressed concern over biophysical impacts related to wildlife and terrestrial habitat. Examples given were increased highway traffic and caribou migration across the Dempster Highway in the fall and spring. A concern was raised over problems from past developments. An example was given of people and caribou in Alaska suffering as a result of oil exploration.

Residents also voiced concern that the Project would tear apart the land, changing the food source and their ability to live off the land — to hunt and to trap. Presenters said that traditional food, traditional ways of life and cultural values are important to the people of Fort McPherson. Residents reported a reduction in berry types and quantities, a lack of muskrat and less clean water. It was also expressed that the Gwich'in people are regarded as the best wildlife managers in the country.

SOCIO-CULTURAL IMPACTS

Individuals expressed concerns about alcohol and drugs and the potential for loss of language and culture. Residents said that more treatment centres are needed because substance and physical abuse in northern communities are expected to worsen, leading to loss of language and other aspects of traditional culture. The Tl'oondih Healing Camp was mentioned as a centre to lessen possible socio-cultural impacts of the Project.

LABOUR AND BUSINESS

Residents expressed their views on education and training, Benefits Agreements and the Proponents' proposed training programs. While some said that residents lack the training required to work on the Project and need training for longer-term employment, others said that the Project would demonstrate the power of the Gwich'in land claim agreement, help build the community's economic base, promote self-government and provide benefits through the Access and Benefits Agreement. Residents expressed confidence in their settled land claim and restated the need for government and industry to consult the Gwich'in people. They also expressed their desire to have

Gwich'in people on the job site at all times to support potential victims of racism.

FORT PROVIDENCE COMMUNITY HEARING NO. 1, JUNE 14, 2006

The community arranged for the Panel to take a boat tour to visit with community residents at a traditional camp. A total of 11 individuals made submissions to the Joint Review Panel during the first day of Community Hearings in Fort Providence.

PROJECT DESCRIPTION AND REQUIREMENTS

Residents of Fort Providence said that Traditional Knowledge specific to Fort Providence was not used in the Proponents' Environmental Impact Statement and that Fort Providence's Traditional Knowledge study focuses on the Tsá Tú/Dehcho barging corridor. Presenters indicated that it would take a minimum of four hours to pull a barge past the community. They were concerned that barge trains, which would turn 90 degrees in Mills Lake, would wash out beaches. According to residents, Northern Transportation Company Limited should meet with the community to review the proposed barging schedule for each season in order to reduce impacts on seasonal fishing and hunting.

Residents requested that the Proponents deliver on their previous commitment to provide to the community an emergency response plan for managing spills or releases of fuel into the Mackenzie River. Residents likewise expressed concern about load capacities, and inspection and certification of barges. A presenter also inquired about a list of controlled products and their estimated volumes and method of transport.

BIOPHYSICAL IMPACTS

The community identified and described a number of important harvesting and habitat areas, including Tsá Tú (Beaver Lake), Mills Lake, Tsá Kǐ Dee (Kakisa River), Nduro (Big Island), Axe Point, Horn River and Zhati Kúá. Also identified was an area of small islands, all of which were reported to be valuable harvesting grounds for fish, moose, woodland caribou, beaver, geese and other migratory birds and fur-bearing animals. Residents expressed concern about potential disturbances to wildlife habitat and possible impacts on migration of caribou, given the number of caribou river crossings. The Fort Providence Resource Management Board requested that the Proponents provide the community with any studies pertaining to the impacts of barging on seasonal fishing and hunting.

SOCIO-ECONOMIC IMPACTS

The Panel heard that the Dehcho have yet to reach a final agreement with the Government of Canada concerning their Aboriginal rights and title. It was noted that the Métis never

ceded their Aboriginal title, rights or interests in the Dehcho. Residents stated that fair compensation is required before the Proponents can cross Métis land and use their water. Presenters stated that many changes have been made, without consultation, to programs that were promised in treaties.

The Panel also heard that compensatory offset rules, which would take the place of the Benefits Agreement that would accompany a settled land claim, must be developed and enforced before the completion of the pipeline, including all its induced impacts. It was recommended that the Panel require the completion of formal agreements between the Métis and Proponents regarding the use of compensatory offsets. These are non-financial benefits of equal or more value than the caused impacts, or financial payments to offset structural, social and economic impacts. Compensation would be for:

- support to those whose resources are displaced;
- areas used by the Métis or Dene;
- impacts on protected areas;
- protection of areas such as watersheds and buffer zones; and
- areas that comprise cultural property, such as archaeological, historic or sacred sites.

Fort Providence residents also recommended that the Proponents and the Government of the Northwest Territories negotiate a community impact agreement to clarify lines of financial responsibility. Another recommendation was that the Proponents adhere to their commitment not to make use of Fort Providence's sewage and solid waste disposal service.

SOCIO-CULTURAL IMPACTS

Residents advised that there are many excellent hunting rivers in the Dehcho Region, each generally with a traditional camping site. According to one presenter, Ehtsii Ehda Point is special for its association with legends and was itself created by giant beavers in legend. Residents said that some proposed barging activities would be very close to important cultural sites and that there are burial grounds all the way to Redknife River. Residents expressed concern that the Project would import Aboriginal workers from the South to fulfill a commitment to hire Aboriginal workers. The Panel heard that these workers, by exercising their rights to hunt, could increase hunting pressure on the environment. The community recommended instituting a no-hunting policy for pipeline workers while they are on the job.

MONITORING

Monitoring and mitigation were also important topics at this hearing. People were concerned about the potential for spills, accidents and the timeliness of responses to such incidents. Residents said that there has been insufficient information about the Proponents' emergency response plans. Regarding the Proponents' Terms of Reference, one presenter recommended

that the Panel require the Proponents to conduct an assessment of regional cumulative impacts.

FORT PROVIDENCE COMMUNITY HEARING NO. 2, JUNE 15, 2006

A total of 10 individuals made submissions to the Joint Review Panel during the second day of Community Hearings in Fort Providence.

PROJECT DESCRIPTION AND REQUIREMENTS

Residents of Fort Providence said that the Proponents' Environmental Impact Statement does not properly identify and assess the impacts of transporting Project materials via road and water. In addition, it was reported that meaningful community consultation is not occurring, despite Imperial Oil Resources Ventures Limited's statements that it wants to consult. Residents said that Northern Transportation Company Limited never undertook a baseline study on barge traffic, and so the potential impacts from such traffic are unknown. A presenter explained that the proposed levels of barge activity in the river channel are logistically impossible.

BIOPHYSICAL IMPACTS

The community is concerned that, if the pipeline is constructed, barge traffic would destroy fish habitat and spawning grounds. It was reported that spawning areas are disappearing because of increased tugboat activity.

SOCIO-ECONOMIC IMPACTS

The Proponents have committed to providing a 50% rebate on the full 20-year toll for shippers that drop off gas for use in any Northwest Territories community along the pipeline's proposed route for residential, commercial or institutional use, including power generation. The Panel heard that since this does not include the financing of feeder pipes or other downstream facilities, it would be expensive for communities such as Fort Providence to benefit from the rebate. Residents reported that compensatory offsets would take the place of the Benefits Agreement that would accompany a settled land claim. Presenters also raised concerns that Aboriginal groups are not receiving any royalties and that, under Treaty 11, they should. Residents are also concerned that the pipeline would infringe upon the Treaty rights of subsequent generations.

SOCIO-CULTURAL IMPACTS

According to one resident, the potential for loss of land, resources, culture and language is too costly a consequence of the proposed Project.

MONITORING

Environmental monitoring and mitigation of impacts were also important topics at this hearing, and a number of recommendations emerged in this area. People were concerned about the potential for spills, accidents and the timeliness of responses to such incidents. Residents said that there has been insufficient information about the Proponents' emergency response plans.

FORT SIMPSON COMMUNITY HEARING NO. 1, MAY 8, 2006

A total of three individuals made submissions to the Joint Review Panel during the first day of Community Hearings in Fort Simpson.

SOCIO-CULTURAL IMPACTS

Residents noted that more health and social service professionals would be needed to address anticipated increased demands on such services during pipeline construction. The Proponents were reported to have identified the following possible development-related issues: injuries, suicide, teen pregnancy, children outside of family care, family violence, alcohol and drug-related crimes, physical and sexual abuse, communicable diseases, population influx, and increased disposable income leading to increased anti-social behaviours. Presenters added to these issues an increase in policing problems, the impacts of rotational work camp schedules on families, and increased homelessness because of housing shortages. There was an additional concern about how long-term social impacts such as rape and teen pregnancy would be addressed if proposed mitigation measures were to last only five years.

SOCIO-ECONOMIC IMPACTS

The Panel heard that royalties and corporate taxes resulting from northern resources should not be allowed to leave the North.

MONITORING

Monitoring and mitigation were also important topics at this hearing. One resident said that the Proponents must negotiate agreements to resolve project-related issues at the community level. Enforcement of the Proponents' promised mitigation measures for social impacts was also raised, and a number of recommendations emerged in this area.

LABOUR AND BUSINESS

Residents expressed their views regarding procurement. The Panel heard that the Proponents must structure their procurement procedures to ensure that their prime contractors fully engage local businesses in the Project. It was also expressed that the Proponents must also ensure that any Dehcho resident who wants a job gets a job.

FORT SIMPSON COMMUNITY HEARING NO. 2, MAY 9, 2006

A total of eight individuals made submissions to the Joint Review Panel during the second day of Community Hearings in Fort Simpson.

HEARING PROCESS

Residents said that consultations would not result in the true voice of communities being heard. Residents also stated that they felt the Project would proceed as planned, regardless of community consultations. It was reported that previous experiences with corporations, along with outstanding unresolved governance issues regarding Dene lands, has not made it easy for the community to establish good relationships with industry and governments.

SOCIO-ECONOMIC IMPACTS

There was a call for greater transparency on the part of the Proponents. One presenter wanted the Proponents to make public all documents related to compensation, partnership deals, pipeline shareholders, benefits calculation formulas, access benefits, property replacement payouts and harvesters' compensation, in addition to all documents related to costs and environmental impacts and the supply of pipe. The Panel heard that the absence of a settled land claim in the Dehcho Region is creating uncertainty in the community, particularly regarding Access and Benefits Agreement negotiations. It was stated that, without a legal document to support a claim to their land, the Dehcho territory is seen as Crown land. It was reported that the Proponents have indicated that Canadian law does not require them to negotiate an Access and Benefits Agreement with the Dehcho. If the pipeline were to proceed, residents said that they would want the Dehcho land claim process to be resolved. Residents also acknowledge that the Panel will play a role in the decision-making process that may result in a major development taking place on an unsettled land claim.

There was some concern that the pipeline would have a negative impact on traditional activities and ways of life, as other developments have had in the past. One presenter was very concerned about the impacts of the barge landing proposed for the Liard River ferry crossing on residents who live a traditional lifestyle year-round in the immediate area. It was reported that the Dehcho Harvesters Council will not consider being part of any pipeline in its traditional area, as this would constitute a conflict of interest. The Panel heard that inherent rights to self-governance were never extinguished with the signing of Treaties 8 and 11.

One resident said that it would take the people of the Mackenzie Valley more than five years to be prepared for the social impacts of the pipeline. A 10-year moratorium was recommended to delay the construction of the pipeline and allow people to make

use of available resources to fully prepare their communities before construction.

BIOPHYSICAL IMPACTS

Environmental concerns ranged from specific activities to much broader considerations. Two presenters were concerned about the potential for barging and dredging to have long-lasting impacts on water and fish habitat. Specifically, one resident said that the weight of barges transporting pipes would blend together three layers of differing water temperature and stir up silt. He also inquired about possible impacts on oyster beds. Concern was also raised about the long-term implications for climate change and the impacts that these would have on wildlife if airborne toxins were absorbed by the ecosystem.

HAY RIVER COMMUNITY HEARING, JUNE 9, 2006

A total of nine individuals made submissions to the Joint Review Panel.

SOCIO-ECONOMIC IMPACTS

The traditional lands of West Point First Nation are on the west side of Great Slave Lake. The Chief of West Point First Nation recommended that it be consulted in all resource and land management discussions, that it be recognized as a First Nation government, and that compensation be provided for use of the Tucho and Tsá Tú areas and for the disruption of traditional areas.

SOCIO-CULTURAL IMPACTS

Residents from Vale Island were very concerned about plans to locate a work camp in the middle of their community. It was felt that the camp would result in drugs and alcohol being brought into the community.

BIOPHYSICAL IMPACTS AND MITIGATION

The Panel heard that there has already been significant degradation of local water quality and fish habitat. Residents advised of changes in the quality and firmness of fish, and that people have caught fish that have been contaminated by oil. Numerous concerns were accompanied by recommendations for environmental mitigation. There was concern about the potential for spills, that the West Channel is blocked for boat traffic by increased sedimentation, and that the East Channel is busy with barging activity. Other environmental concerns were the impacts of emissions and the impacts of road calcium on the food sources of small animals. The Panel heard that West Point First Nation has designated some areas for protection and other areas for allowable development. The community is not, however, working on a Protected Area Strategy.

LABOUR AND BUSINESS

Residents expressed their views on education and training, Benefits Agreements, and compensation. One individual from Northern Pipeline Projects Ltd. recommended that the Proponents should negotiate and conclude Project labour agreements with whomever they expect to construct the pipeline. The rationale was that sufficient lead time would better enable contractors to accommodate training, take into account cultural diversity, and offer northern businesses maximum opportunities.

The Samba K'e are concerned about how Benefits Agreements would hold up, the types of potential work available, and how Project labour agreements may impact the community's ability to engage in the Project. It was also stated that communities should consider including a clause in any Benefits Agreement that clearly states that the terms and conditions of that Agreement supersede any other subservient or subsequent contractual agreements.

HAY RIVER RESERVE COMMUNITY HEARING, JUNE 8, 2006

A total of 15 individuals made submissions to the Joint Review Panel.

SOCIO-ECONOMIC IMPACTS

The incomplete state of the Dehcho land claim process appeared to be a significant factor in the willingness of the Katlodeeche First Nation to participate in discussions about the Project. The Katlodeeche First Nation is currently in negotiations with the federal government for an area of land that includes Vale Island. This First Nation, however, lays claim to a much larger traditional territory. It was noted that the proposed 500-person work camp would be on Vale Island, over which the Katlodeeche First Nation is in dispute with the federal government. The Katlodeeche First Nation Chief recommended that the Panel report to the Government of Canada that:

- the Dene still hold jurisdiction over this land;
- the Dene should be full participants in assessing Panel recommendations; and
- Canada should settle the dispute with the Katlodeeche First Nation regarding the infrastructure that has been built on its land.

It was indicated that the Band is willing to meet with the Proponents to communicate its issues and expectations, but if the Proponents do not agree to the benefits that the Katlodeeche First Nation perceives it is entitled to, Katlodeeche First Nation would oppose the pipeline. The Panel also heard that this First Nation is not willing to negotiate Access and Benefits Agreements until the pipeline has been given approval.

Youth presenters requested that more information about the Project be provided to schools so that youth can be involved and educated. They recommended that youth training programs be offered on welding, heavy equipment, carpentry, mechanics, cooking, hospitality, computers, pilot licensing, entrepreneurship and security services. The Chief noted that the Katlodeeche First Nation is exploring other joint ventures and recommended that the Proponents and the Katlodeeche First Nation negotiate a training, employment and contracting agreement that has specific and substantive commitments.

SOCIO-CULTURAL IMPACTS

One presenter indicated that the Proponents' Environmental Impact Statement takes into account neither the global environment nor the Project's potential cumulative impacts that would take place in the Denendeh. It was expressed that the Environmental Impact Statement does not satisfactorily protect the environment and people from greenhouse gas emissions and contamination of their environment and food sources such as fish. It was reported that residents still rely on traditional foods as part of their diet and are concerned about Project development potentially contaminating these food sources. The Panel heard that people have already had to travel farther in order to harvest and that the quality of meat is not as good. People were concerned about the impacts of increased river traffic on the fish food chain, habitat and important spawning areas. One presenter was concerned that the harbour would be dredged to accommodate increased boat traffic. Several people were concerned about the quality of drinking water and long-term health impacts if the harbour were to be contaminated.

BIOPHYSICAL IMPACTS AND MITIGATION

Several presenters were concerned that activities on the highway and railroad would affect important medicinal plants, moose, caribou, beaver and other small animals.

HIGH LEVEL COMMUNITY HEARING NO. 1, JULY 5, 2006

A total of 13 individuals made submissions to the Joint Review Panel during the first day of Community Hearings in High Level. The Chief of the Dene Tha' Council declared that the Dene Tha' First Nation oppose the pipeline because of their perceived exclusion and treatment as outsiders, and because of the lack of studies and information about impacts of the Mackenzie Gas Project within their territory. Numerous participants expressed cynicism regarding the consultation process, stating that the pipeline will proceed no matter what the community says.

PROCESS AND ENFORCEMENT OF MITIGATION MEASURES

The Dene Tha' said that they are very concerned about how they have been treated within the Panel's and Proponents'

processes. They reported to be frustrated by the differences in Project proceedings with First Nations in the Northwest Territories and those in Alberta. It was recommended that the Panel encourage the Government of Canada to deal quickly with a trans-boundary claim that the Dene Tha' hope to file with the federal government. The Dene Tha' are concerned about how Panel recommendations relating to Alberta would be enforced. It was recommended that the Panel inquire with the Government of Canada as to what the Panel can do to address the issue of the enforceability of recommendations.

SOCIO-ECONOMIC IMPACTS

The Panel heard that the Dene Tha' continue to live a traditional lifestyle, hunting animals such as moose, duck, caribou, wolverine and bear; fishing for jackfish, walleye and whitefish; trapping lynx, marten, fisher, weasel, river otter, wolverine, squirrel, beaver, muskrat, wolf and fox; and gathering medicine and berries. It was noted that, despite the long presence of the oil industry in the region, the Dene Tha' unemployment rate remains very high, and a large percentage of Dene Tha' members rely on unemployment and social assistance programs.

SOCIO-CULTURAL IMPACTS

It was stated that the areas surrounding Bistcho Lake, Dickens Lake, Petitot River and Meander River are very important to the Dene Tha' for continued use by current and future generations. The Panel heard that the Meander River, Bistcho Lake and Steen River areas contain historically sacred places for spiritual gatherings. Presenters indicated that people travel along the Petitot River and that the Bistcho Lake area is of particular significance and an important harvesting area. The Panel heard that induced developments would create environmental impacts that would affect fisheries and the ability of the Dene Tha' to live off the land.

BIOPHYSICAL IMPACTS AND MITIGATION

Several residents were concerned that the proposed pipeline would cause animals to leave the area of proposed development. The Panel heard that studies show that woodland caribou avoid linear developments and are disturbed by the noise and activity of helicopters. Caribou are a protected species listed under the *Species at Risk Act*, but no baseline information has been established on the Bistcho caribou herd. It is expected that the caribou recovery program will take until 2008 to establish a range team to collect information and work toward their protection.

It was reported that a number of field studies on wildlife such as caribou, grizzlies and trumpeter swans have been put off until after Project approval. Additional concerns about wildlife included the risk of animals breaking through the pipeline trench when walking in the right-of-way, and the lack of plans for revegetating caribou moss in the pipeline corridor.

Many participants were concerned about potential impacts on the quality and quantities of local water, particularly the

possibility for a break in the pipeline that would harm local water bodies and the land. Concerns were raised that the Project's proposed water-crossing sites and impact-prevention methods have not yet been identified. Presenters indicated that the Dene Tha' are trying to get the Proponents to commit to directional drilling to avoid disturbing fish habitat in important Dene Tha' fishing areas. Additional concerns about water included possible impacts on the water table from disturbing the permafrost, toxic bioaccumulation, water supply safety and the health of existing fish populations.

LABOUR AND BUSINESS

Residents expressed their views on education and on training and Benefits Agreements. One presenter indicated interest in possibilities for creating much-needed jobs and economic change in communities. It was recommended that an Aboriginal construction liaison position be developed to ensure the protection of sensitive sites during construction. The rationale was that a First Nations member may recognize sensitive sites where a non-Aboriginal construction worker may not.

HIGH LEVEL COMMUNITY HEARING NO. 2, JULY 6, 2006

There were no submissions during the second day of Community Hearings in High Level except for those made by the Proponents. The Arctic Indigenous Youth Alliance and the Government of the Northwest Territories raised questions, the North Peace Tribal Council and the Sierra Club of Canada made presentations.

SOCIO-ECONOMIC IMPACTS

The North Peace Tribal Council presented background information about the bilateral treaty negotiations taking place between Canada and the Treaty 8 First Nations. Negotiations will include exploring the Crown's commitments to protect Treaty 8 peoples and their territories from encroachment by white people and resource development.

SOCIO-CULTURAL IMPACTS

Regarding harvesting, it was noted that a decline in the caribou population would impact the Gwich'in people because caribou constitutes 60% of the Gwich'in diet.

BIOPHYSICAL IMPACTS

The Sierra Club was concerned that the Project would induce development while contributing to associated impacts such as greenhouse gas emissions. It was the Sierra Club's official position that the Project should not go forward because of its ecological and social costs. If, however, it does proceed, the Sierra Club recommends that there be a requirement that the Project not be used to further fuel extraction from the oil sands. The Sierra Club stated that caribou habitat is inadequate and

falling short of ensuring population stabilization for species herds. It also stated that studies show that caribou tend to avoid habitat disturbances, including seismic lines.

INUVIK COMMUNITY HEARING NO. 1, JANUARY 8, 2007

A total of five individuals, including representatives of the Arctic Indigenous Youth Alliance, made submissions to the Joint Review Panel during the first day of Community Hearings in Inuvik.

BIOPHYSICAL IMPACTS

A speaker identified a change in migration routes and impacts on migration, including a reduction in species abundance. It was reported that the number of geese, moose and caribou have been visibly reduced, and that moose have been sighted between Tuktoyaktuk and Inuvik (in the past, moose would have been located further south). One resident said that climate change is already affecting the number of species and their migration routes.

SOCIO-ECONOMIC IMPACTS

The Arctic Indigenous Youth Alliance submitted that the federal and territorial governments refuse to recognize the original inhabitants of the Rocher River area. Another speaker said that the pipeline would make social problems worse and would bring more people and more drugs into the town.

One resident was concerned about the status of training and its accessibility. The Proponents confirmed that training is taking place under the Aboriginal Skills and Employment Partnership program, through the Pipeline Operations Training Committee, and via apprenticeship programs in various regions.

SOCIO-CULTURAL IMPACTS

Residents confirmed that some Elders oppose the Project. The Panel heard that plants, trees, fish, insects, water, air and the Porcupine caribou herd have provided the First Nations people with clothing, food, shelter and tools since the beginning of time.

One resident expressed opposition to the Project, citing potential associated health ills, social injustices and terrorist bombing attempts that may come with the pipeline. Residents also expressed concern that the Project could affect hunting grounds and the health of caribou, whales and moose. The Panel heard that most people in Tuktoyaktuk do not want the pipeline.

Another resident said that, having attended an information meeting, she became opposed to the pipeline after learning of the potential of multiple pipelines and granting of additional land for exploration and development. The Panel also heard that residents are unable to practise their traditional hunting because of reduced numbers of moose and caribou.

INUVIK COMMUNITY HEARING NO. 2, JANUARY 9, 2007

A total of eight individuals and representatives of the Inuvik Hunters and Trappers Committee made submissions to the Joint Review Panel during the second day of Community Hearings in Inuvik.

BIOPHYSICAL IMPACTS

The Inuvik Hunters and Trappers Committee said that it does not support construction of an airstrip at Parsons Lake because residents and surrounding communities fish and harvest caribou in the area throughout the year. However, the Committee supports an all-weather road into the Parsons Lake area.

The Committee believes that dredging in the Kittigazuit S-bends may affect fish habitat in the area. It also has serious concerns about development in the Kendall Island Bird Sanctuary, given that it is a bird nesting area and that the surrounding waters are used for beluga whaling.

One individual sought verification and commitment by the Proponents that research and study would continue after the Project is approved. The Proponents confirmed that there would be ongoing monitoring on socio-economic and biophysical matters.

Two residents identified a change in migration routes and impacts on migration, including reduced species abundance. Specifically, the numbers of geese, rabbits and ptarmigan were reported to have been visibly reduced, and caribou have been sighted in Aklavik and Fort McPherson (these are two areas that are not experiencing seismic activity and pipeline development). Two residents said that the land is being chewed up by the oil companies and that wires and other debris have been left behind.

SOCIO-ECONOMIC IMPACTS

One resident advised the Panel that, over the past few years, the cost of living has increased and rents have soared from \$1,500 to \$2,500 per month. The Panel heard that this has resulted in many homeless people in Inuvik. A resident from Tsiigehtchic advised that the community, given its small size of 100 people, relies on services from Inuvik and Fort McPherson. It was expressed that the Proponents should help smaller communities cope.

One resident expressed concern about the status of training and its accessibility. Specifically, the Panel heard that there is too much focus on low-skilled labour jobs and that residents would like to see more encouragement for people to pursue higher-level jobs. Given the potential that approximately 35 permanent pipeline jobs would be available in the region, most associated with the Inuvik Area Facility, the Proponents were encouraged to continue building relationships with the community and find a balance in order to allow developers to proceed without jeopardizing local culture and values. One resident questioned

the likelihood of flexible work schedules to accommodate traditional harvesting. Another noted that the Proponents would offer bonuses for finishing early, which would affect those who seek flexible work schedules.

A student at the college in Inuvik said that young people should be given the opportunity to be part of the development. The student expressed concern over the influx of people into the region and sought clarification as to whether young people would be able to move on to the next section of the pipeline to continue working. The Proponents reiterated their policies to address movement of southern workers and confirmed that workers would be given opportunities to continue to work on the pipeline as it progressed.

JEAN MARIE RIVER COMMUNITY HEARING, MAY 15, 2006

A total of 13 adults and 14 students made submissions to the Joint Review Panel.

LABOUR AND BUSINESS

Residents expressed their views on education and training, and on Benefits Agreements. There was much interest in employment and training opportunities and in securing contracts from the Project as a source of revenue and livelihood for the community. Specifically, a number of residents would like to see the community receive a sawmill contract to supply skids and dimensional lumber to the Project. However, there was concern that the community's small size would make it difficult to obtain pipeline contracts and that the Project would contract from companies in the South. It was recommended that the Panel require the Proponents to purchase dimensional lumber at competitive prices from northern suppliers and that they work with northerners at the community level, regardless of the price of doing business in the North.

SOCIO-ECONOMIC IMPACTS

The Dehghah Alliance Society reported to be negotiating, as part of the Access and Benefits Agreement, rights to salvage timber from the right-of-way for use by communities. Jean Marie River residents also recommended compensation for disruptions and impacts on harvesters.

SOCIO-CULTURAL IMPACTS

Social concerns included those related to anticipated increases in the community's local population, traffic and disposable income. It was felt that these factors would lead to increases in drug and alcohol use, changes to the local way of life and decreased community safety. The Panel heard that people in Jean Marie River still consume traditional foods and are worried that the Project would negatively affect hunting areas, traditional land users and the community's way of life. Presenters indicated

that traditional family camps existed along the Dehcho River and at Selero Lake and McGill Lake, Ekali Lake, Sanguez Lake and Gargan Lake.

The Traditional Knowledge study identified a number of sensitive cultural sites, including traditional trails and trap lines along the proposed route. There were reported to be unmarked burial sites out on the land that could be disturbed. One presenter wanted to know what measures would be in place to prevent the possible destruction of archaeological or palaeontological sites by the Project and, if such sites were uncovered, how they would be handled.

The Dehcho Harvesters Council advocated for sustainable economic development that would include the use of alternative energy sources and include the activities of harvesters, ecotourists and traditional artisans.

BIOPHYSICAL IMPACTS

Several conservation concerns were raised. The Traditional Knowledge study identified a number of sensitive ecological sites along the proposed route. There was much concern about the pipeline's proposed route, water crossings and proximity to Jean Marie River. There were several proposed changes to the route to protect the watershed. One presenter suggested that the pipeline should cross the river only once. Another recommended that the pipeline corridor be moved to the east of the current Enbridge pipeline to reduce the potential for contaminants to enter the watershed. It was also recommended that the corridor stay east as far south as the main Jean Marie River crossing to protect the integrity of Deep Lake.

There was concern about potential disturbances to Satellite Lake. Another concern was the proposed crossing of an underground stream between Ekali Lake and McGill Lake, as this is a known fish migration route. It was requested that the Proponents work closely with the residents of Jean Marie River to document the location and depth of this underground channel.

Additional concerns about water were the impacts of withdrawing large quantities of water from Jean Marie River, the release of hydro test fluid into a natural drainage system, and the release of sewage and grey water onto the land. The Panel heard that these actions could impact the community's water supply, water quality and the aquatic ecosystem, wildlife and vegetation.

Residents were concerned that pipeline activity would affect wildlife habitat and cause animals to leave the area. They were also concerned that barging and dredging would have a long-term impact on waterways and fish habitat, damage whitefish and jackfish populations, and change the migration patterns of fish and beavers. Additional environmental concerns included:

- noise pollution from pipes and vehicles;
- the potential for oil spills resulting from transport on the river;

- vehicles leaking fluids on the land; and
- a repeat of impacts observed from previous pipelines.

Several participants were also concerned about the effects of the Project on climate change, ozone depletion and the bioaccumulation of toxins in the ecosystem.

KAKISA COMMUNITY HEARING, JUNE 13, 2006

A total of two individuals made submissions to the Joint Review Panel. Residents of Kakisa are concerned primarily with socio-cultural and biophysical impacts. Residents also said they want to be consulted regarding employment opportunities and activities on their land. The K'ágee Tu said that their land should be protected for the future and remain free of any development.

SOCIO-CULTURAL IMPACTS

The Panel heard that there are about 300 Slavey place names that describe every feature in the Kakisa watershed and that indicate their significance to the K'ágee Tu. It was stated that people in Kakisa continue to live traditional lifestyles by harvesting and staying out on the land. They report widespread land use of an area of 8,700 square kilometres that constitutes K'ágee Tu territory. This area is also used by people from Fort Providence and Fort Simpson, and it is connected to these communities by traditional trails. The Panel heard that the community has mapped important hunting sites, traditional trails and trap lines, fishing areas, burial and spiritual sites, and cabins and campsites. There is concern about the impacts of barging on harvesting and wildlife migration.

Presenters indicated that the K'ágee Tu travel all over their land to hunt and fish, and that they are actively teaching their youth traditional harvesting skills. It was reported that residents collect berries, medical plants and trees around Tathlina Lake and other sites. They also fish and hunt ducks at Tathlina Lake and Beaver Lake and run trap lines along the river. Local trees are marked to indicate important trails. Presenters indicated that Beaver Lake is a significant place and that it has a role in traditional legend.

BIOPHYSICAL IMPACTS

The community reported to be in the second phase of working toward a Protected Area Strategy. This process is expected to take at least five years to complete. There was significant concern about the Kakisa watershed, particularly that water used by the pipeline would be returned to the land in a contaminated state and travel through the watershed to the community. People were also concerned about the pipeline's location within the watershed. The Panel heard that the Kakisa watershed contains good habitat for boreal caribou, moose, beaver, muskrats, birds and waterfowl. It was further stated that woodland caribou live in the Cameron Hills and that their trails are being recorded through

use of satellite collars. In late summer, presenters stated, Tathlina Lake is a critical site for tundra swan staging and nesting. Participants were also concerned about the potential for spills from pipes or vehicles as well as the consequences of past spills.

PROCESS: CONSULTATION

The Chief of Ka'gee Tu First Nation reported that the K'ágee Tu have not been properly consulted in the past and that their Band office should be notified of activities taking place on their land. Current concerns pertain to activity in the Cameron Hills.

LABOUR AND BUSINESS

Residents expressed their views on education and training. The K'ágee Tu First Nation would like to have an active role with the Project and indicated that it requires more information about training and employment opportunities. The Chief expressed a desire for everyone to support each other and share information. He also indicated that no one from the Project has yet met with the K'ágee Tu.

NORMAN WELLS COMMUNITY HEARING, APRIL 6, 2006

A total of three individuals made submissions to the Joint Review Panel. The Mayor of Norman Wells stated that, given satisfactory negotiations with the Proponents, the Town of Norman Wells would offer strong support to the Project.

BIOPHYSICAL IMPACTS

One presenter was concerned about whether the Proponents would recognize and respect all clauses of the Sahtu Dene and Métis land claim agreement, specifically, those pertaining to the environment and habitat along the proposed route.

Another environmental concern was whether cumulative impacts, including climate change, were being considered in the decision to approve the pipeline or not.

LABOUR AND BUSINESS

Employment was of concern to one presenter who wanted to know how the Project would develop transferable skills and generate long-term employment benefits. It was expressed that adequate daycare would be an important part of future employment and growth. The Mayor was optimistic that the pipeline would offer many employment and business opportunities and that it would generate future developments.

PROJECT TRANSPORTATION AND INFRASTRUCTURE REQUIREMENTS

A presenter asked about the location of the proposed 50-kilometre all-weather road, noting the potential for it to contribute to the community by helping to reduce its isolation

from the South. The presenter was also interested in the possibility of using waste heat produced by the proposed nearby compressor station to provide energy to Norman Wells.

There was an inquiry about how fresh water and sewage disposal needs would be managed for the proposed work camp. This was followed by a presentation by the Mayor about the Town's efforts to plan for the pipeline in terms of infrastructure, zoning and development.

PAULATUK COMMUNITY HEARING, SEPTEMBER 7, 2006

A total of 14 individuals made submissions to the Joint Review Panel. The Paulatuk Community Corporation stated its support for the Project.

SOCIO-ECONOMIC IMPACTS

Paulatuk leaders said that although their hamlet is not in the direct path of the proposed pipeline, the community would nonetheless be affected by it. There was some concern that the community would not enjoy the benefits available to Tuktoyaktuk and Inuvik because of its distance from pipeline activity and the cost of transportation. It was argued that Paulatuk has as much right as any other community to benefit from the Project. One participant said that a fair share of the revenue would make a positive impact on the community's social, economic and educational needs.

It was reported that social services in Paulatuk are sporadic and that people rely on services in Inuvik and Yellowknife. There was concern that Paulatuk would feel the ripple effects of the Project's potential social impacts but may not receive any part of the Mackenzie Gas Project Impact Fund.

LABOUR AND BUSINESS

The community's main anticipated benefit is from potential employment. Participants said that employment would be better enabled through adequate notification, planning and training. Most participants were very concerned about accessing training and job opportunities because of the low education level of local people. The Panel heard that two generations of local people would not meet the Project's Grade 12 hiring requirements because they did not want to leave their community to attend high school.

It was reported that there has been a lack of information in the community about training and job opportunities, which would allow the community to plan in order to maximize benefits from the Project. Some participants stated that a greater effort should be made to communicate with smaller communities and to advertise and promote pipeline jobs and training opportunities. It was reported that the community requested employment and training information from a group they met with. However, no

information has been received, and it is uncertain exactly who the group represented.

Also regarding employment, there was the concern about the cost of travelling from Paulatuk to the job site. It was suggested that measures should be taken to prevent the higher cost of commuting from limiting opportunities for employment. It was suggested that the Proponents consider two- or three-week shift rotations to ease gaps in local staffing. Another suggestion was that jobs could be allocated according to a percentage per community. The principal of the community's school requested financial support from the Proponents to address local educational problems.

SOCIO-CULTURAL IMPACTS

It was reported that most people in Paulatuk continue to harvest in order to survive or to supplement their income because of economic disparities in the region. Residents harvest muskox, caribou, fish and geese and, in doing so, pass on traditional skills to their youth, who are also active on the land. However, the Panel heard that the number of people living traditional lifestyles is diminishing. It was also noted that the community would benefit from funds for on-the-land harvesting skills and safety programs. One participant inquired about the possibility of harvester compensation.

BIOPHYSICAL IMPACTS

A resident questioned the Proponents' conclusion that there would be no long-term impacts on wildlife. There were concerns about the caribou that residents depend on. The Panel heard that the proposed pipeline route would cross caribou habitat and that the local caribou population is apparently in decline. It was reported that Paulatuk residents already exercise a voluntary quota on charr fishing in an attempt to sustain the population.

SACHS HARBOUR COMMUNITY HEARING, SEPTEMBER 9, 2006

A total of six individuals made submissions to the Joint Review Panel. Concerns raised by residents were quite similar to those raised by other isolated Inuvialuit Settlement Region communities. Overall, residents of Sachs Harbour supported some aspects of the Project but were largely wary of the impacts it would have on their community. These included local staffing challenges, changes to local lifestyles and irresponsible uses of the land.

SOCIO-ECONOMIC AND SOCIO-CULTURAL IMPACTS

The Panel heard that Sachs Harbour is currently without many government services to address social issues. It has no social service worker, wellness worker, mental health worker or RCMP officer. In addition, it was reported that there are limited resources in the community for providing long-term

care to pipeline employees who are injured on the job. The Sachs Harbour Community Corporation suggested that pipeline employers should provide financial support for injured workers.

Residents said that the community already has difficulty with cargo shipping from Inuvik. They are concerned that service would worsen as transport resources are redirected for the Project. There was also concern that the Project would cause inflation in the prices of basic supplies and increase competition for social and mental health services.

It was emphasized that harvesting continues to be a key part of residents' subsistence and cultural practices. People were therefore concerned about potential impacts on animal migrations, sensitive areas and traditional harvesting lands, as the pipeline would pass through sensitive lands and traditional Inuvialuit hunting and trapping lands. Presenters indicated that muskox is a significant source of food and revenue for the community, particularly with the decline of Peary caribou.

The Sachs Harbour Community Corporation was concerned that if some community members leave for pipeline employment for an extended period, there would be less country food supplied to the most vulnerable members of the community. It was stated that the community relies on harvesting, yet harvesters face rising prices for equipment and fuel and can no longer make a living off the land. It was suggested that the harvesters in Sachs Harbour be employed to provide country food for pipeline workers.

LABOUR AND BUSINESS

Residents indicated that the community hopes for equal opportunity to benefit from pipeline contracts, despite their distance from pipeline activity. The possibility of connecting the community to the gas supply was also mentioned.

Residents of Sachs Harbour hope to benefit from pipeline employment and training opportunities. However, it was reported that several Sachs Harbour residents were interviewed for jobs and never contacted. The applicants believe that this was due to the expense of transporting them to the job site.

While currently nearly all adult education and training of Sachs Harbour residents takes place in Inuvik, residents feel that providing training in their own community would ensure a higher rate of course completion. The Sachs Harbour Community Corporation suggested that a training strategy would enable the community to provide skilled workers for the pipeline rather than manual labourers. One resident would like to see students encouraged to train to become engineers and fill executive positions. She also suggested that the Proponents visit schools to promote pipeline opportunities during the construction and operations phases. It was also noted that there is a need to advertise available pipeline jobs in the community.

BIOPHYSICAL IMPACTS

A resident asked whether preparations had been made to address potential impacts from earthquakes. Also asked was whether the Proponents had considered the impacts of climate change in the North or the potential for a large spill to occur in Tuktoyaktuk or Aklavik.

MITIGATION AND RECLAMATION

Mitigation and reclamation concerns were raised with the local example of Johnson Point, a 30-year-old development that the community has had to fight to have cleaned up. This experience has left some residents concerned that future developments may be left in the same state. One participant said that it was unfair for taxpayers to pay for industry clean-up and that the Proponents should be required to put aside money to ensure adequate clean-up and remediation.

TROUT LAKE COMMUNITY HEARING, MAY 16, 2006

A total of 12 individuals made submissions to the Joint Review Panel, and one video was presented. Residents of Trout Lake were primarily concerned about socio-cultural and biophysical impacts and monitoring. Also raised were labour and business matters and socio-economic impacts. Trout Lake residents indicated opposition to the proposed pipeline because of the impacts they anticipate it would have on their land and way of life. They indicated, however, that they are providing information on ways in which the plan can be modified to make it more acceptable to them.

SOCIO-CULTURAL IMPACTS

Because of residents' continued reliance on country foods, the Samba K'e traditional territory covers a large area. The Panel heard that residents hunt ducks, chickens, moose, caribou, porcupine and beaver. Residents said that the entire proposed pipeline corridor is considered a good habitat for moose and woodland caribou and that it serves as a primary hunting and trapping area. Two presenters said that the cleared right-of-way would help wolves hunt caribou and lead to a population imbalance. Another presenter was concerned about development-related sickness and disease in harvest animals. Concerns were raised several times that pipeline activity could cause the woodland caribou, a protected species, to leave the area. Residents also said that Ts'étiḥj Mijh is a special place for its traditional use for grayling fishing, beaver hunting and gathering medicinal plants.

It was reported that there are traditional trails between Ts'étiḥj Mijh and the winter road. The Panel heard that residents opposed the proposed gravel pit at Shíhndáákáá Tselaa, as it is part of the Samba K'e Dene Band Protected Area as a traditional harvesting area. Residents reported that the Proponents

subsequently removed the gravel pit from their plans. It was expressed that the K'éotsee (Trainor Lake) area is of great cultural significance and that legends describe its creation. Nearly all points on the lake have been traditional camping sites, and, south of K'éotsee, there are many traditional trails, trap lines and burial sites.

BIOPHYSICAL IMPACTS

Sambaaljāh (Trout River) is within the Samba K'e Dene Band Protected Area. Residents reported that it has been a significant travel route for generations and that it has traditional trails along both sides. The Panel heard that Sambaalīah contains an important wildlife and fish habitat. There was some concern that dredging for the proposed river crossing would damage the fish habitat and that ice jams commonly occur at the proposed location. Presenters indicated that, south of Sambaalīah, the proposed corridor is in an active hunting and trapping area that has many fur-bearing animals and is a crane nesting habitat.

Residents also indicated that the area around K'éotsee is an important habitat for woodland caribou and other large game, fur-bearing animals, porcupine and migratory birds, and that it has an eagle nesting site. The Panel heard that K'éotsee is also an important fish and waterfowl habitat, and that the area is good for hunting and trapping. There was considerable concern about protecting the K'éotsee watershed and the water of the lake because there is little water exchange.

PROJECT TRANSPORTATION AND INFRASTRUCTURE REQUIREMENTS

Although the proposed site for a work camp has already been moved, the community recommends that it be moved another 10 kilometres to the north, just outside of the K'éotsee watershed. The proposed pipeline route was also altered at the community's request to swing wide around K'éotsee. Residents have opposed two proposed gravel pits close to K'éotsee, but an agreement has not yet been reached regarding their relocation.

MONITORING

The Panel heard that the Samba K'e should be involved in gathering baseline environmental data along the proposed pipeline corridor, with particular focus on water quality and woodland caribou and their use of the area.

LABOUR AND BUSINESS AND SOCIO-ECONOMIC IMPACTS

One individual wanted to know if any of the Project's full-time operations positions would be available to local people and if any would be located at Trout Lake. Residents' socio-economic concerns included the impacts of noise and pollution on the community, the potential for air pollution to cause health problems for children, and the use and control of drugs and alcohol.

TSIIGEHTCHIC COMMUNITY HEARING, FEBRUARY 20, 2006

A total of 16 individuals made submissions to the Joint Review Panel.

BIOPHYSICAL IMPACTS

Regarding air quality, residents said that the Project would increase Canada's greenhouse gas emissions and contribute to climate change. It was reported that community residents are currently feeling the impacts of climate change and that these affect tourism, community access and river freeze-up. Residents also expressed concern about climate change impacting permafrost along the pipeline route.

Some residents expressed additional concern over biophysical impacts relating to wildlife, fish and fish habitat. Specifically, the Panel heard that the Travaillant Lake area is a sensitive vicinity because of harvested wildlife, fish and birds, lakes, water, burial sites and trails, and that water withdrawal from water bodies could impact Travaillant Lake. Residents were concerned about wildlife and habitat, caribou maintaining their migration route, and visible reductions in the numbers of birds and moose.

SOCIO-CULTURAL IMPACTS

Individuals expressed concerns about future suicide rates, the potential for loss of language and culture, the need for drug and alcohol addiction facilities, and the lack of adequate health care. One resident gave as an example the Aboriginal communities living on-reserve near Toronto who are close to wealth yet are unable to benefit from it. While there is community support for the pipeline, residents indicated that the Project should also care for the communities involved.

LABOUR AND BUSINESS

Residents expressed their views on education and training, Benefits Agreements and the Proponents' training programs. There was general support for the Project because the Gwich'in people have a one-third ownership in the Aboriginal Pipeline Group. But residents expressed concern about job opportunities. Specifically, they asked whether people in the North are guaranteed to get jobs and whether the use of transferable skills in the future would require people to move elsewhere, which many do not want to do. Some said that residents lack the training needed to work on the Project and that they need training for longer-term employment. Others said that the 1992 settlement of the Gwich'in land claim has provided the Gwich'in with a say in how the land is managed in the Gwich'in Settlement Area. The Panel heard that, with these regulatory processes in place, the Gwich'in are confident that the land will be protected and that development will be managed in a sustainable way.

TUKTOYAKTUK COMMUNITY HEARING NO. 1, SEPTEMBER 11, 2006

A total of nine individuals made submissions to the Joint Review Panel during the first day of Community Hearings in Tuktoyaktuk. Tuktoyaktuk's Hamlet Council reported that consultation with the Proponents has not been meaningful so far and asked the Panel to remind companies of their responsibilities regarding consultation.

PROJECT TRANSPORTATION AND INFRASTRUCTURE REQUIREMENTS

As an alternative to the Proponents' proposed airstrip at Parsons Lake, several residents suggested that making use of existing infrastructure in Tuktoyaktuk with access roads to Parsons Lake would be a positive solution to the expected extensive impacts of a new airstrip. This approach would also divert activity to Tuktoyaktuk.

The Hamlet Council favours the construction of an all-weather highway connecting Tuktoyaktuk to Inuvik, along with the development of Tuktoyaktuk's harbour into a full-service, deep-water port.

Presenters had several questions about the proposed work camps. They wanted to know about the expected number of workers, the permanency of camp facilities and the supervision of workers' access to communities.

SOCIO-CULTURAL IMPACTS

The Panel heard that many people use the land around Parsons Lake, Husky Lake and the Delta. Residents said that they continue to hunt and fish and depend on this way of life. It was reported that Parsons Lake is good for hunting caribou, which have returned to the area only in the last 20 years. One resident was concerned about the proximity of work camps and facilities to traditional harvesting camps. Others said that the Project would impact the harvesting of fish, caribou and geese. Other concerns were that geese and caribou would change migration routes and that waterfowl habitat would be destroyed. It was reported that some wildlife have already moved further away because of development and that there is currently no compensation for having to travel farther to hunt.

A few residents asked about harvester compensation, including what would constitute a loss and what types and amounts of compensation would be provided for damage to the land.

SOCIO-ECONOMIC IMPACTS

While the Inuvialuit own sub-surface rights to some of the proposed Project areas, one resident said that the Inuvialuit would be charged an enormous sum to buy into the Project through the Aboriginal Pipeline Group. Several participants perceived the Project as a basin-opening project that would

mark the beginning of long-term development of oil and gas reserves in the Beaufort Delta and Beaufort Sea. Some residents requested information on anticipated Project revenue.

LABOUR AND BUSINESS

Regarding education and training, two individuals raised the need for cultural orientation for southern employees and asked questions about the location, target group and frequency of training.

Residents also talked about work shifts. There was concern about the length of work days and shifts, with a stated preference for two-week rotations. One participant said that 28 days is the upper limit for a safe length for a work shift. It was also noted that workers may want seasonal leave for traditional activities, such as the spring hunt.

One presenter pointed out that the *Inuvialuit Final Agreement* requires that preference be given to hiring Inuvialuit on projects within the Inuvialuit Settlement Region. This presenter asked how the Proponents would follow through on their commitment to the preferential hiring of northerners. He also asked about how the Proponents would remove union barriers to employing northerners and how they proposed to work with local businesses to help them prepare and qualify for service contracts.

TUKTOYAKTUK COMMUNITY HEARING NO. 2, SEPTEMBER 15, 2006

A total of seven residents made submissions to the Joint Review Panel during the second day of Community Hearings in Tuktoyaktuk.

BIOPHYSICAL IMPACTS

Residents were concerned that dredging transport channels and offshore drilling may affect fishing and whale hunting. Other environmental concerns included the removal of debris and damage from previous projects, noise and air pollution, a decline in the quality of drinking water, and the incomplete state of industry plans for mitigation measures.

PROJECT TRANSPORTATION AND INFRASTRUCTURE REQUIREMENTS

The Panel heard that a proposed airstrip would be located in a caribou path, which would disrupt their migration and increase stress on the herd, ultimately impacting hunting. It was reported that caribou and reindeer are seen year-round in the Parsons Lake area, and that they enter as soon as the ice on the lakes is thick enough for them to cross. Their length of stay depends on the availability of food and activities in the area, including hunting. One participant contradicted several others, saying that caribou and reindeer do not go to Parsons Lake because the area has only willow, so there is little food for them there.

Other concerns about the proposed airstrip included air traffic, noise pollution, impacts to fishing and the long-term health of wildlife. It was indicated that using the existing airstrip and construction of an all-weather road would disrupt the environment far less and be of greater economic benefit to the community, resulting in more self-sufficiency, increased resource accessibility, and more affordable goods and services.

SOCIO-ECONOMIC IMPACTS

It was expressed that the Project would lead to inflated prices for goods, services, harvesting equipment and fuel, consequently limiting trips out on the land. It was reported that harvesters are already suffering from the lack of enforcement in wildlife management and that more wildlife resource officers are needed to enforce Proponents' commitments.

Participants said that harvester compensation should be not only for incidents leading to loss of food on the table. The Panel heard that compensation should also include the cost of having to travel farther to harvest and the loss of potential income from the beginning of Project construction through to operation. It was suggested that compensation amounts could be determined by identifying impacted people and recording harvest areas, harvester relocation, and the numbers and severity of impacts.

Several participants questioned the content of the Access and Benefits Agreement negotiated with the Inuvialuit Regional Corporation. One presenter wondered if the Agreement could be amended and improved upon and recommended that the Proponents revisit the Agreement with the Corporation. She encouraged including shareholders living outside of the Inuvialuit Settlement Region.

LABOUR AND BUSINESS

Because of its high unemployment rate, the community said that it wants opportunities for employment, training and business. There was some concern that because of current education and training levels, local young people would be labourers working for minimum wage. Residents expressed a need for further education and training initiatives to enable the meaningful participation of the Inuvialuit in the Project. Suggested initiatives included:

- a scholarship for students who are pursuing careers in oil and gas;
- workforce placements for training graduates;
- incentives for staying in school;
- improved student safety;
- more teaching positions; and
- facilitated access to trades and vocational studies.

Numerous participants mentioned a need for cross-cultural training and made suggestions regarding its delivery.

TUKTOYAKTUK COMMUNITY HEARING NO. 3, JUNE 20, 2007

A total of 14 individuals made submissions to the Joint Review Panel during the third day of Community Hearings in Tuktoyaktuk.

The Panel heard that opposition to the proposed Parsons Lake airstrip has remained strong in Tuktoyaktuk and that this has yet to be resolved with ConocoPhillips. Residents indicated that the proposed airstrip would negatively impact the community and limit its economic future. Presenters asked that the Panel consider the community's concerns and recommend against the proposed Parsons Lake airstrip in its final report.

SOCIO-CULTURAL IMPACTS

The Panel heard that the area around the proposed Parsons Lake airstrip serves as a feeding ground for important harvest species such as caribou, ducks, geese and fish. Presenters indicated that people from Tuktoyaktuk have been harvesting there for generations and hope to continue to do so for generations to come. Also of concern are the nearby Husky Lakes region and the Noel Lake region, both of which support wildlife and are of cultural, historical and harvesting significance to the Inuvialuit.

LABOUR AND BUSINESS

Education and employment opportunities are seen as an important positive impact of the Project. The Panel heard that residents want their children to stay in school but also want them to be able to take advantage of opportunities with industry. Suggestions from residents included employing summer students, providing distance learning facilities at work camps, restricting the hiring of minors, and providing benefits to short-term employees. Residents also indicated that they want contract work for local businesses.

SOCIO-ECONOMIC IMPACTS

The Panel heard that gravel is a limited and valuable resource in Tuktoyaktuk. Several presenters were concerned that gravel should not be used for industry infrastructure (i.e. an airstrip) and access roads at the expense of residents and the community. It was stated that resources extracted from the Northwest Territories should benefit residents of the Northwest Territories first. To ensure benefits of resources in the North, one speaker suggested the creation of a trust fund for the Inuvialuit with a base amount of \$42 million, to be later increased by an amount equal to a percentage of the value of the extracted resources. Residents said that monetary compensation cannot take the place of lost wildlife and that the Panel must consider the environment, wildlife and habitat areas when it makes its recommendations.

Questions were raised about granting exploration licences when there is an unwillingness to allow identified resources to be developed. Presenters said that industry should be allowed

to develop identified resources and that the Inuvialuit should work with them while maintaining control and preventing environmental degradation.

TULITA COMMUNITY HEARING NO. 1, APRIL 4, 2006

A total of 10 residents made submissions to the Joint Review Panel during the first day of Community Hearings in Tulita.

SOCIO-CULTURAL IMPACTS

Socio-cultural impacts were the most prevalent topic of submissions. The Panel heard that Tulita already has many social problems, and it is anticipated that these would be worsened by the proposed pipeline. Key concerns were:

- increased drug and alcohol use;
- an insufficient number of RCMP officers to address increases in crime;
- the decline of traditional ways of life as youth enter the wage economy; and
- impacts on animals and fish that would diminish traditional food sources.

Other concerns included increases in disposable income and gambling, racism on the job site, too few nurses, a population boom, and terrorist threats. One presenter was concerned that much time has passed since the Mackenzie Gas Project Impact Fund was announced and that communities are not preparing enough for growth related to the pipeline.

The Panel heard that there are a number of significant cultural sites in the proposed pipeline area: Bear Rock, Great Bear River, Keele River and 20 Mile Point. Residents said that these areas were used for fishing and gathering berries and lime, and that one was a camp area. Leaders and several community members of Tulita stated strongly that special areas should be identified and protected before major developments are approved. It was recommended to the Panel and the Proponents that they support Tulita in completing a Protected Area Strategy and the Sahtu Land Use Plan before any activity in the pipeline's right-of-way is started and that this support be referred to in the Panel's final report.

SOCIO-ECONOMIC IMPACTS

Presenters recalled past broken promises and stated that they are already experiencing social impacts from other development projects taking place around Tulita. Residents indicated that pipeline construction would affect the local traditional harvesting area. Several presenters noted that the compensation system associated with the Comprehensive Land Claim Agreement is not user friendly for harvesters. The Panel heard that harvesters need information on how they can be compensated for losses or

initiate a review of losses with the Proponents. One presenter wanted to know how compensation would be provided to non-beneficiaries.

It was proposed that major decisions on a natural gas pipeline or other related development in the Sahtu should not occur before the Sahtu Land Use Plan is completed and approved. Another recommendation was for the Proponents to establish and maintain a Renewable Resource Harvester's Compensation Trust Fund and provide administrative and technical support to give harvesters better access to compensation.

LABOUR AND BUSINESS

Many concerns pertaining to education, training and employment were about youth and adults having opportunities for acquiring sufficient education and training to find employment.

PROCESS

Residents expressed significant concern about the process of community consultation. Elders said that their voices are not being heard and that they have no real say in whether the pipeline would be constructed. There were several comments about the difficulty that community members have had in understanding the Proponents' information materials.

PROJECT TRANSPORTATION AND INFRASTRUCTURE REQUIREMENTS

One presenter stated that it is in the community's interest to have the proposed compressor station on the south side of Great Bear River. A few residents were concerned about the potential for a spill or leak, and one Elder stated that proposed work camps must be monitored and patrolled.

TULITA COMMUNITY HEARING NO. 2, APRIL 5, 2006

A total of 19 residents made submissions to the Joint Review Panel during the second day of Community Hearings in Tulita.

SOCIO-CULTURAL IMPACTS

The residents of Tulita indicated that socio-cultural impacts were important to them. Nearly every presenter on this topic expressed concern about an anticipated rise in drug and alcohol use, inquiring about measures that would be taken to enforce zero tolerance in the proposed work camps and questioning the effectiveness of proposed practices such as luggage searches. Other concerns included racism on the job site, financial problems and increases in abuse, depression, suicide and prostitution. Two presenters anticipated that the lack of full-time daycare in the community would affect employment participation. A number of important historical areas were also identified by presenters. These included Jackfish Lake, Bear Rock and the coal seam.

SOCIO-ECONOMIC IMPACTS

The Panel heard that there are many non-beneficiaries engaging in harvesting that would not be covered by terms of the Comprehensive Land Claim Agreement and so would not receive compensation.

BIOPHYSICAL IMPACTS

Many residents raised concerns about wildlife and the land, focusing mainly on the consequences that environmental degradation would have on traditional activities and food sources. Specifically, it was noted that there are a number of trap lines on the proposed pipeline route and that hunting, fishing and trapping take place at Stewart Lake, which is already impacted by heavy traffic at Keele River because of oil and gas exploration. One presenter was concerned that people coming up from the South would fish in all the good fishing lakes and hunt or otherwise harass wildlife. A number of participants argued that the construction of the pipeline should be delayed until the Northwest Territories Protected Areas Strategy and the Sahtu Land Use Plan are completed.

LABOUR AND BUSINESS

There was some concern about ensuring that northerners would be qualified and able to obtain pipeline jobs. Several presenters anticipated a shortage of skilled labour in the North and were concerned that this would affect local contractors.

ULUKHAKTOK COMMUNITY HEARING, SEPTEMBER 8, 2006

A total of six residents made submissions to the Joint Review Panel.

SOCIO-CULTURAL IMPACTS

It was suggested that the Proponents train employees in financial management skills to address an expected increase in gambling. There is also concern that the proposed pipeline would increase the availability of drugs and alcohol within the community, which is currently without a social worker, wellness worker or mental health worker.

SOCIO-ECONOMIC IMPACTS

People are concerned that the Project would cause price inflation for basic supplies and services in the community, affecting people's ability to hunt. One participant asked whether natural gas would be available for use by the communities or if it would all be sent south. The Panel heard that the Government of the Northwest Territories' Public Housing Rental Subsidy is a disincentive for many people to find employment. The Ulukhaktok Community Corporation was concerned that the Mackenzie Gas Project Impact Fund would not be distributed fairly among all communities because of their varying distances

from the Project. Socio-economic impacts caused by induced developments were also a concern.

LABOUR AND BUSINESS

Residents recognized that the Project would bring jobs and spinoff economic benefits to the North, but they wondered how much of this would be enjoyed by communities that are more isolated. A representative of the Ulukhaktok Community Corporation did not anticipate that the Project would affect the local economy, yet the Corporation hopes that local businesses would have equal opportunity to bid on tenders, despite their distance from the Project.

The Panel heard that residents are hoping to benefit from employment and training opportunities with the Project, despite the cost of travel to and from the work site. Like residents in other small communities, people in Ulukhaktok would like advance notice about employment and training opportunities. The Panel heard that education and literacy levels are low in Ulukhaktok, and the Community Corporation encouraged the Proponents to hire people who do not have a Grade 12 education and provide them with upgrading and skills training during their employment.

CUMULATIVE IMPACTS

Concerns were raised about cumulative impacts relating to induced developments. Specifically, residents were concerned that if the pipeline were built, it would open the Beaufort Sea and other coastal areas for exploration and development and lead to the development of other pipelines to connect with the proposed Mackenzie Gas Pipeline.

WRIGLEY COMMUNITY HEARING, MAY 11, 2006

A total of 15 residents made submissions to the Joint Review Panel. Much of the hearing entailed the presentation of the local Traditional Knowledge study and a community issues study.

PROJECT TRANSPORTATION AND INFRASTRUCTURE REQUIREMENTS

The Traditional Knowledge study opposed constructing facilities in some areas and recommended using existing facilities or sites in other areas. In one case, it was recommended that a proposed compressor station be relocated closer to an existing compressor. A consistent recommendation was that borrow sites must be 1 kilometre away from any creek bed. Four borrow pits were entirely rejected, either because their proximity to Wrigley made them ideal for the community's own use or because of their proximity to a moose hunting area or spawning area. The study also recommended that a limit be set for river traffic and that barges not be offloaded past mid-September, a key hunting

time. Similarly, the study recommended seasonal restrictions for activities in identified sensitive areas.

SOCIO-ECONOMIC IMPACTS

The Panel heard that the Pehdzeh Ki First Nation has not yet negotiated an Access and Benefits Agreement with the Proponents. Residents said that the Pehdzeh Ki left the Dehghah Alliance because it felt they were not fairly represented and that Wrigley's concerns were not understood by the group. The First Nation is instead hoping to negotiate an agreement with the Proponents as a community. The Panel heard that the Pehdzeh Ki is still in land claim negotiations, and so it approaches this Project with less certainty than Aboriginal groups north of the Dehcho. One participant argued that, until the land claim is settled, there should be no development.

Several participants raised the topic of revenue. It was felt that residents should receive funds for allowing the pipeline to cross their land so that they would have resources to address community issues. The community recommended that, as a provision of a Benefits Agreement, the Pehdzeh Ki First Nation should be involved in independent environmental monitoring with the authority to report violations to regulatory agencies. This would provide assurance for land protection and provide meaningful employment.

The community issues study expressed a need for numerous community facilities such as a nursing station, a cultural centre and an indoor recreation facility as well as upgrades to the daycare facility, the recreation centre, the airport and other public buildings. The community would welcome the use of work camp housing after the pipeline's construction phase. Other services that residents said were lacking included recreational facilities, counsellors and social workers, emergency response equipment and a long-term care facility. Representatives from nearby Willow River, home to seven people, told the Panel that they were without a telephone or electricity.

SOCIO-CULTURAL IMPACTS

The Pehdzeh Ki Traditional Knowledge study divides the 55,000-km² Pehdzeh Ki First Nation land use area into five main vicinities. For each, the study outlines its significance, concerns raised and the community's position regarding proposed developments. Vicinities were considered significant for their:

- hunting, trapping and fishing areas;
- traditional trails and gathering sites or campsites;
- burial sites and spiritual sites;
- water ecosystems; and
- bird habitat and medicinal plants.

The Panel heard that harvesting continues to be an important part of residents' lives.

BIOPHYSICAL IMPACTS

Participants were concerned that pipeline activity would cause changes to the migration patterns of moose and caribou. The Panel heard that moose and caribou were not seen for seven years after Enbridge built the last pipeline and that barren land caribou have only recently returned to the area after a 50-year absence. Major concerns included:

- the impact of proposed river crossings on overwintering fish;
- impacts of barge landings on fish;
- the use of water by work camps;
- the disruption of trails; and
- the proximity of a proposed borrow pit to a beaver and muskrat habitat.

Directional drilling was recommended for six proposed water crossings because of the season in which the crossings would be taking place. These were identified as creeks where there would be overwintering fish.

LABOUR AND BUSINESS

Some presenters were concerned about obtaining Aboriginal employment and requested bursaries and scholarships to improve local access to training opportunities.

APPENDIX II

GLOSSARY

Aboriginal authority — As the context requires,

- (i) the Inuvialuit Regional Corporation,
- (ii) the Gwich'in Tribal Council,
- (iii) the Sahtu Dene Council and any one or more of the seven land corporations created pursuant to the *Sahtu Land Claim Agreement*, or
- (iv) the Dehcho First Nations and any one or more council of the band or association or person representing one or more bands, associations or persons set out in the definition of "Deh Cho First Nations" in the *Interim Measures Agreement*.

Aboriginal peoples — Indigenous peoples who, in Canada, constitute the Indian, Inuit and Métis peoples.

Aboriginal private lands — Lands owned and administered by an Aboriginal land administration or land corporation within a land claim settlement area or region in which a comprehensive land claim has been settled.

Access and Benefits Agreements — See Benefits and Access Agreements.

acid rock drainage — Acidic water (pH <5.0) containing sulphide minerals, particularly iron pyrite and the exposure of these minerals to air and moisture resulting in oxidation and the generation of sulphuric acid. ARD occurs primarily in the outflow from mining operations but can also occur where the Earth has been disturbed (construction sites, subdivisions, transportation corridors, etc.).

acidification — The process of making or becoming acid. In environmental terms, the modification of the acid basic equilibrium of an ecosystem by an augmentation of its acid content.

Action Plan or Five-Year Action Plan — The Northwest Territories Protected Area Strategy states "The strategic enhancement needed over the next five years to identify, review, establish interim protection and evaluate a network of protected areas in the Mackenzie Valley. The Action Plan focuses resources to meet the timeline of the proposed Mackenzie Valley Pipeline and provides increased capacity to the communities within the Mackenzie Valley to help meet their long-term conservation goals such as those identified in community conservation plans, land use plans, interim measures and land claims."

Active I Stream/Channel — A watercourse with year round flow, discernible banks and substrate, and a drainage area less than 1,000 km². In winter it might be partially frozen to the bottom because of groundwater input, beaver activity, or large pools and deep water.

Active II Stream/Channel — A watercourse with intermittent flow, discernible banks and substrate, and a drainage area less than 1,000 km². In winter it is frozen to the bottom or dry below the ice surface.

active layer — In a permafrost environment, the top layer of soil that thaws in summer and refreezes in winter.

adaptive management — A systematic and practical approach to the implementation of new or modified mitigation measures over the life of a project to address unanticipated environmental effects.

aerobic — An environment in which oxygen is readily available.

alluvial fan — A large fan-shaped terrestrial deposit of sediments formed by a stream, usually near its mouth.

ambient air quality — The quality of any unconfined portion of the atmosphere, open air, surrounding air.

ambient temperature pipeline — Pipeline designed to operate at close to the local ground temperature so as to neither create nor degrade permafrost.

anadromous species — Fish that travel up freshwater streams from the sea to spawn.

aquifer — A permeable rock formation that stores groundwater water.

areal — Of or relating to or involving an area.

artifact — Any tangible evidence of human activity that is more than 50 years old, in respect of which an unbroken chain of possession cannot be demonstrated.

aufeis — Thick ice that builds up on the surface of a river, a stream or surrounding terrain as a result of repeated overflow when water, under increasing hydrostatic pressure, is forced to the surface, spreads over the area and freezes in successive sheets of ice.

ballast water — Used to maintain the stability of an offshore facility; water with its suspended matter taken on board a ship to control the trim, list, draught, stability and stresses of the ship, and includes the sediment settled out of the ballast water within a ship.

bankfull width — The width of a watercourse when it completely fills its channel and the elevation of the water surface reaches the upper margins of the bank.

bedrock — Rock, usually solid, that underlies soil or other unconsolidated superficial cover.

Before-After-Control-Impact — A type of monitoring program that compares data from potentially affected areas with similar data collected from reference sites not affected by the proposed project obtained both before and after the potential impact has occurred.

Benefits and Access Agreements — Collectively, the benefits agreements, access agreements and other related agreements relating to the Project or a portion of it, entered into between any of the Operators and one or more Aboriginal authorities, that provide for the granting of access rights, the conferring of benefits commitments or the granting of other rights to, or the undertaking of other commitments by the parties.

benthic invertebrate — Any bottom living animal lacking a backbone that filters organic matter out of the sediments or the overlying water.

best available technology — The most effective and advanced stage in the development of activities and their methods of operation which indicate the practical suitability of particular techniques for providing in principle the basis for emission limit values designed to prevent and, where that is not practicable, generally to reduce emissions and impact on the environment.

best management practices — A practice or combination of practices that are considered to be an effective and practical (including technological, economical, and regulatory considerations) means of planning, constructing, operating and decommissioning a project or carrying out an activity.

best practical technology — Factors relating to control technologies that include the total cost of the application of the technology in relation to the benefits to be achieved by its application.

bioaccumulate — The ability of a substance to accumulate in living tissues.

biodiversity — Short for biological diversity and generally defined as: “the full variety of life on Earth.”

biophysical — Referring to the air, noise, aquatic (groundwater, hydrology, water quality and fisheries) and terrestrial (soils, landforms, permafrost, vegetation and wildlife) conditions.

block valve — A device, positioned at intervals along a pipeline, that controls the rate of flow in the pipeline, opens or shuts off the pipeline completely, or serves as an automatic or semi-automatic safety device.

blow-down venting event — The act of releasing natural gas from a section of pipeline or from a compressor so that maintenance work can be done safely.

borrow material — General term for sand, gravel and crushed rock removed from a borrow site.

borrow site — An area that could be excavated to provide material, such as gravel or sand, to be used as fill elsewhere.

candidate protected area — In the context of the NWT Protected Area Strategy, a unique or sensitive area being considered in a public consultation process for formal establishment as a protected area.

capital expenditure — The amount of money spent during a particular period to acquire or improve long-term assets, such as property, plant or equipment.

carbon dioxide — Common gas found in the atmosphere and one of the greenhouse gases produced in part by human activities.

carbon monoxide — A colourless, odourless, tasteless, highly poisonous gas released primarily by incomplete combustion of carbon or carbonaceous material, including gasoline (especially by automobiles).

carbon sequestration — The uptake of carbon into some form of storage where it will remain permanently isolated. Trees and plants, for example, absorb carbon dioxide; they release the oxygen and store the carbon.

channel morphology — The shape, size and path of the bed and banks of a river or stream as defined by its flow and geological setting.

Clean Air Strategic Alliance — The multi-stakeholder partnership, composed of representatives selected by industry, government and non government organizations, which recommends strategies to assess and improve air quality in Alberta.

Commissioner's lands — Public lands administered by the Government of the Northwest Territories.

compressor — A device used to increase the gas pressure in a pipeline system or other facility.

compressor station — A facility containing equipment that is used to increase pressure to compress natural gas for transportation in a pipeline.

conservation land — Publicly owned land specially designated by federal, provincial or territorial governments to protect fragile ecosystems, habitats and species at risk.

constant 2006 dollars (Cdn) — The value of goods and services according to prices in Canada in 2006.

content plan — A term used by the Proponents to mean a written plan submitted by prospective Contractors as part of the procurement process in respect of Project work that sets out the proposed involvement of Aboriginal Persons, NWT Residents and NWT Businesses in the performance of a contract in respect of Project Work.

continuous permafrost — See permafrost.

contractor — In the context of the Mackenzie Gas Project, a business that has contracted with the Proponents or another Contractor to provide Project work.

convective cooling pipe — A self-supporting passive cooling system that provides surface cooling without requiring external power input.

Cooperation Plan — The Cooperation Plan for the Environmental Impact Assessment and Regulatory Review of a Northern Gas Pipeline Project through the Northwest Territories, as developed by the Northern Pipeline Environmental Impact Assessment and Regulatory Chairs' Committee.

criteria air contaminants — Air pollutants that cause smog, acid rain and other health hazards.

cumulative impacts — Impacts on the environment that are caused by an action in combination with other past, present and future human actions.

cuttings — Chips and small fragments of rock or dirt dislodged by a drill as it moves through underground formations and brought to the surface as debris by the flow of drilling fluids. Also known as drill cuttings.

decision tree — A diagram used to determine the optimal course of action in situations having several possible alternatives with uncertain outcomes. A decision tree displays the structure of the each decision and the relationships between different alternatives, decisions and outcomes.

deep hole injection — The disposal of soil and sludge injected back down a drill hole and into a designated formation.

demobilizing — The process of moving people, supplies and equipment away from the work site.

design contingency earthquake — Pipeline performance criteria to ensure that pipeline integrity follows industry practice relating to the design required to withstand an earthquake as required for the regulatory review. In the context of the Mackenzie Gas Project the Proponents adopted criteria with two levels, a lower level called the "design operating earthquake level" or "surface load earthquake level" and a higher level called the "design contingency earthquake level". The design contingency earthquake level considers a rare event (a 2,475 year return period) that includes some structural damage and permanent deformation of the pipeline system but no loss of product nor serious personnel harm.

design strain — The maximum strain allowable for a given material in service.

DFO's Operational Statements — A series of Operational Statements developed by Fisheries and Oceans Canada to streamline the Habitat Management Program's regulatory review of certain low risk activities by outlining measures and conditions to follow in order to avoid the harmful alteration, disruption or destruction to fish habitat and be in compliance with subsection 35(1) of the *Fisheries Act*.

diadromous fish — Fish that travel between salt and fresh waters.

direct economic effect — The effect on industries (firms) that expand production to satisfy increased demand created by the project.

direct employment — In the context of the Mackenzie Gas Project, employment directly by the Mackenzie Gas Project.

direct project expenditure — The amount of money invested directly in a project.

discontinuous permafrost — See permafrost.

downstream emissions — Emissions associated with the combustion of gas transported by the pipeline.

ecological integrity — An ecosystem has integrity when it is deemed characteristic for its natural region, including the composition and abundance of native species and biological communities, rates of change and supporting processes. In plain language, ecosystems have integrity when they have their native components (plants, animals and other organisms) and processes (such as growth and reproduction) intact.

ecology — A branch of science concerned with the interrelationships between animals and plants and their environment.

ecoregion — A relatively large unit of land that is characterized by a distinctive assembly of terrain, climate, soil, flora, fauna and hydrology.

ecosystem — A system where populations of species group together into communities and interact with each other and their physical environment as a defined unit.

environmental impact assessment — A detailed study that attempts to identify and to predict the impact of human activities (i.e. industrial installations, etc.) on the surrounding biophysical environment and on human health conducted before work on those activities has commenced. The results of an EIA are published and discussed by different levels of government, non-governmental organizations, and the general public before a decision is made on whether or not the project can proceed.

excavated volume — Gravel, sand and rock taken from the borrow site and includes allowances for bulking, ice or moisture content and transport.

exceedance — In environmental studies a concept applied to any type of environmental risk modeling. Also refers to instances where a licensee's activities exceed levels or standards set out in the licence.

exploration licence — A licence that gives a company the exclusive right to explore, drill, and test for oil and gas, develop land for petroleum production and obtain a production licence on Crown land. In the NWT, exploration licences are issued by INAC under the *Canada Petroleum Resources Act*.

extraction induced subsidence — The lowering of the land surface because of reservoir compaction as a result of the removal of hydrocarbons.

fault — A fracture in rock along which the adjacent rock surfaces are differentially displaced.

fen — Low land, such as peat land, that is wholly or partly covered by water, especially in the upper regions of old estuaries and around lakes.

fetch — An expanse of open water over which the wind can blow or waves travel continuously without obstruction.

fishery — A place where fish are reared: a fishing ground or area where fish are caught.

flare stack — A chimney used to dispose of surplus hydrocarbon gases by igniting them in the atmosphere.

flaring — The on-site combustion of natural gas during pre-operational testing, emergencies, upsets and other stages of a natural gas project. In the context of the Mackenzie Gas Project, flaring would occur at the three Anchor Fields facilities and the Inuvik Area Facility.

footprint — The outline of an area of land occupied by a building or structure at ground level.

Formula Financing Grant — In the context of the Northwest Territories, a federal government grant to the territorial government that provides a basic level of revenue intended to enable the territorial government to provide residents with a minimum standard of government services established for all Canadians. The grant is intended to provide the difference between the territorial government's tax revenue and the expenditure for the required services.

frost bulb — A frozen zone, typically formed around a chilled pipe, in otherwise unfrozen ground.

frost heave — The upward or outward movement of the ground surface caused by ice in the underlying soil. This movement results from alternate thawing and freezing.

fugitive emission — A controlled product in gas, liquid or solid form that escapes from processing equipment, from control emission equipment or from a product.

gas conditioning facility — An installation for separating water from natural gas or natural gas liquids (e.g. butane, propane) and subsequent delivery to a natural gas pipeline.

gas hydrates — Crystals of frozen water within which gas molecules are trapped.

gas seeps — An area where liquid and gaseous hydrocarbons seep out of fissures to the Earth's surface.

geohazard — Short form for geologic hazard. A harmful event caused by geological features and processes that present, or has the potential to present, severe threats to humans, property and the environment. Geohazards are naturally occurring or human activity-induced geological, geotechnical, geothermal or hydrological phenomena that could lead to pipeline or other component failure, causing adverse environmental impacts, or that could affect the right-of-way, causing environmental concerns.

GHG offset — Short for Greenhouse Gas Emission offset credit.

Goal 1 areas — In the context of the NWT Protected Area Strategy, special natural and cultural areas identified by NWT communities that are the most critical to the sustainability of northern land-based economies and cultures. These could include unique or significant wildlife habitats, harvesting areas, important cultural sites, prime recreational and scenic areas and unique scientific features.

Goal 2 areas — In the context of the NWT Protected Area Strategy, core areas that represent the combination of landscape features, plants and animals, which make each of the 16 ecoregions in the Mackenzie Valley unique.

granular resources — Sand, gravel, clay and quarry materials.

gross domestic product — The annual total value of goods produced and services provided in a country, province or territory, excluding transactions with other countries.

ground ice — Ice that forms below the surface of the ground when interstitial groundwater freezes. Ice rich ground is commonly found in more or less permanently frozen ground (permafrost). Of the many types of ground ice, pore ice, wedge ice, segregated ice and massive ice are most significant in terms of volume and frequency of occurrence.

heat flux — The flow of energy per unit of area per unit of time.

horizontal drilling — Drilling vertically down to a certain level and then at an angle of at least 80 degrees from vertical so that the borehole proceeds almost horizontal with the surface.

hydrological data — Data pertaining to the waters of the Earth, including their properties, circulation, distribution and reaction with the environment.

ice lens — A lens-shaped horizontal accumulation of permanently frozen ground ice of any dimension. It can range in thickness from a hairline to as much as 10 m.

ice wedge — A massive, generally wedge-shaped, vertical or inclined sheet of ground ice which forms in thermal contraction cracks in permafrost. Its size can vary from 10 cm to 3 m wide at the top, tapering to a feather-edge at a depth of 1 m to 10 m.

indigenous species — Species that occur naturally in an area or habitat. Also known as native species.

indirect economic effect — The result of contractors and suppliers purchasing additional required inputs from other firms.

indirect employment — Employment related to an indirect economic effect.

induced economic effect — The result of firms expanding production because of direct and indirect effects, hiring more staff and paying out wages, thereby increasing household income. Households, after withdrawing a portion for taxes and savings, spend this income, which in turn increases the demand for other commodities.

induced employment — Employment related to an induced economic effect.

infrastructure site — Site for basic facilities, such as transportation, communications, power supplies and buildings, which enable an organization, project or community to function.

input-output model — A model used by Statistics Canada to provide a detailed breakdown of Canadian economic activity by province and territory among industries and a detailed breakdown of their inputs and outputs by commodity associated with a change in demand. The model also provides supply requirements from other sources, such as imports and government production of goods and services.

integrity management plan — A term used by the Proponents to mean a plan that would be developed for use during operations of the Mackenzie Gas Project to ensure the safety of employees and the public, reduce environmental impacts, protect the installed pipelines and facilities and maintain reliability.

intermittent stream — A stream where water flows during storms or the wet season but which dries up during the dry season or drought. Also known as intermittent watercourse.

Intervener — Any person or organization who was granted Intervener status by the Joint Review Panel in the environmental impact review.

karst topography — The landscape surface that forms in limestone, dolomite or gypsum, by dissolving the rock, characterized by sinkholes, caves and underground drainage.

labour force — Individuals 15 years of age or older who are working or actively seeking employment.

labour income — The total earnings of workers, consisting of wages and salaries, as well as supplementary labour income, such as employer's contributions to pension funds, employee welfare funds, Employment Insurance and Workers' Compensation funds.

land claim agreement — An agreement between an Aboriginal people and the Government of Canada to settle Aboriginal rights in a geographic area which, may include rights to self-government, land, resources, wildlife management and cash compensation.

land use plan — A plan that identifies different areas of land for specific uses. It describes what activities are permitted — and which activities are not permitted — in those specified areas.

land withdrawal — The withdrawal by INAC of specified Crown land from disposition of mineral and oil and gas rights. The withdrawal may be for a specified period of time, for surface rights only or for subsurface and surface rights.

landfill — A site where waste is deposited, disposed of, handled, treated or processed.

Large River Channel — A watercourse with perennial flow, a wetted width greater than 25 m, and a drainage area greater than 1,000 km².

lean gas or lean dry gas — Gas containing little or no liquefiable hydrocarbons commercially recoverable as liquid product. Also known as dry gas.

liquified natural gas — Natural gas liquified either by refrigeration at minus 160°C or by pressure.

Mackenzie Explorer Group — Seven companies, Anadarko Canada Corporation, BP Canada Energy Company, Chevron Canada Resources, Devon Canada Corporation, EnCana Corporation, Nyttis Exploration Company, and Petro-Canada Oil and Gas holding oil and gas exploration rights in the NWT.

massive ice — Large mass of ground ice, including ice wedges, pingo ice, buried ice and large ice lenses. Commonly, massive ice in the Project area is found several metres below the ground surface but, in places, it may be close to the base of the active layer.

merchantable stands — In the NWT, forested communities greater than 4 ha in size that include all trees greater than 6 m tall, with a crown closure of more than 6% and having a stump diameter of at least 13 cm and top diameter of at least 7 cm.

merchantable timber — Timber that has attained sufficient size, quality and/or volume for it to have commercial value i.e. that can be profitably milled and made into lumber and other wood products.

methane — The most common of hydrocarbon gases and the largest component of natural gas; consisting of one carbon atom and four hydrogen atoms.

mitigation — The elimination, reduction or control of a project's adverse environmental effects, including restitution for any damage to the environment caused by such effects through replacement, restoration, compensation or other means.

municipal lands — In the NWT, lands administered by the GNWT or a municipality.

natural gas — A gaseous, highly compressible, highly expandable hydrocarbon-rich mixture occurring naturally and containing, principally, methane, but also ethane, propane, isobutane, butane, pentane, plus appreciable quantities of nitrogen, helium, carbon dioxide and contaminants.

natural gas liquids — A mixture of hydrocarbons, ethane, propane, butane, that were gaseous in the reservoir but liquified at the surface in separators, field facilities, or gas processing plants.

open cut — A water crossing technique used in pipeline construction where a trench is cut into the riverbed.

operations expenditure — The amount of money used to operate a facility or system.

Operators — In the context of the Mackenzie Gas Project means:

- a. IORL for the Taglu Anchor Field;
- b. IORVL for the Mackenzie Valley Pipeline and the Mackenzie Gathering System;
- c. ConocoPhillips for the Parsons Lake Anchor Field; and
- d. Shell for the Niglintgak Anchor Field;

or their respective lawful successors (including a sole operating Owner) or permitted assigns authorized to operate a portion of the facilities for and on behalf of its Owners, and Operator means any one of the Operators, as the context requires.

organic terrain — The superficial layer of living plant material and a sub-layer of peat or fossilized plant material.

over-the-top route — The sea route that passes north of Alaska on the way to or from the Mackenzie Delta.

oxides of nitrogen — Collective term for a group of gases released by fossil fuel combustion; nitrogen compounds include: NO (nitrogen monoxide), NO₂ (nitrogen dioxide), N₂O (dinitrogen oxide), N₂O₃ (dinitrogen trioxide), N₂O₄ (dinitrogen tetroxide) and N₂O₅ (dinitrogen pentoxide).

palsa — A peaty permafrost mound, several metres in height and up to 100 m in diameter, possessing a core of alternating layers of segregated ice and peat or mineral soil material.

participation rate — The percentage of people 15 years of age and over who are in the labour force.

peat — An organic deposit consisting of decayed, or partially decayed, humified plant materials that have decomposed in wet or waterlogged, anaerobic environments.

peat plateau — A low, generally flat-topped expanse of peat rising one or more metres above the general surface of a peat land and containing segregated ice.

permafrost — Perennially frozen ground, occurring wherever the temperature remains below the freezing point of water (0°C or 32°F) for two or more years. Permafrost underlies about 65% of the Mackenzie Delta. Two major divisions of permafrost are: continuous permafrost, which occurs everywhere beneath the ground surface except large bodies of water, and discontinuous permafrost, which includes many permafrost-free areas.

piping — Pipe-like erosion of soil due to subsurface water seepage that may cause the loss of structural support and the collapse of the ground surface into the resultant cavity.

polycyclic aromatic hydrocarbons — An organic compound containing only hydrogen and carbon, consisting of multiple six-carbon rings. They are a product of incomplete combustion of organic materials, such as wood or fossil fuels.

polygon — Pattern of polygonal cracks formed on a level or gently sloping surface from the displacement of rocks, soil and peat due to frost or ice action.

pore ice — The ice that occurs in the pores of soils and rocks; such ice fills or partially fills void spaces in the ground.

pore water pressure — The pressure exerted by water in the void space of soil or rock.

private lands — In the NWT, lands administered by the Aboriginal authorities' land administration or land corporations within a settled claim area.

processed natural gas — Natural gas that has undergone a purifying process to remove its water content and impurities. Also known as marketable natural gas, marketable gas, sales gas.

protected area — A clearly defined geographical area dedicated to the protection and maintenance of biological diversity, and of natural and associated cultural resources, and managed through legal or other effective means.

provincial Crown lands — Lands administered by the Government of Alberta.

public lands — In the context of the NWT, lands that include Federal Crown lands administered by the Department of Indian and Northern Affairs (also referred to as "territorial lands" in the *Territorial Lands Act*), municipal lands administered by the Government of the Northwest Territories or local municipality, or Commissioner's lands administered by the Government of the Northwest Territories and, in the context of Alberta, provincial Crown lands or Alberta public lands administered by the Government of Alberta.

rearing habitat — A term that, in the context of fish and fish habitat, means small streams, back channels and lakes where larvae and young fish find food and shelter and where they spend up to two years feeding and growing before migrating to the ocean.

reforestation charge — A fee payable on all timber cut based on a percentage of the market value at stump of the timber; revenues generated from this charge are intended to be used solely for funding reforestation (artificial plantation) projects and programs.

regional land use plan — A plan, arrived at after broad consultation, about how land and resources can be used and managed at a regional level.

regional study area — A term used by the Proponents to mean a 15-km-wide buffer around the three anchor fields, on either side of the gathering system right-of-way and on either side of the pipeline right-of-way.

regulatory agency — Any federal, provincial, territorial, or municipal organization, department or directorate responsible for issuing a licence, permit, or other authorization required for development under any federal or provincial/territorial law.

residency — The province or territory where a worker maintains a permanent residence, pays taxes and spends income. A worker might work in one province or territory while maintaining residency in another.

right-of-way — A strip of land in relation to which a person or company is granted a right to traverse for a specific use.

rights issuance — The process by which rights to explore for or produce oil and gas from federal crown lands are issued that is laid out in the *Canada Petroleum Resources Act*.

sales gas — Natural gas that has undergone a purifying process to remove its water content and impurities. Also known as processed natural gas, marketable natural gas or marketable gas.

segregated ice — Ice in discrete layers or ice lenses that have slowly built up in frozen soil as a result of the active migration of water (through the capillary rise of moisture) from around the feature to the freezing front (typically only in the upper 5–6 m of ground). Segregated ice can obtain dimensions large enough to be considered a massive ice body.

seismicity — Seismic activity; especially the frequency of earthquakes per unit area in a region.

settled land claim — Claim by Aboriginal people to land that has been negotiated and concluded with the Government of Canada and the province or territory in which the lands are located. The resulting agreement is legally binding.

shallow gas — Natural gas from formations located within 900 m of the Earth's surface.

slug catcher — A vessel or series of pipes to collect liquids at the inlet of a compressor station.

spud barge — Flat-decked vessel commonly used as a work barge or loading and unloading platform. So-named because its legs, called spuds, can be lowered from underneath and pushed into the waterway floor to anchor the structure in place.

stockpile site — Site where pipes, materials and equipment are stored during the construction phase of a project.

storm surge — Rising of the sea or other water body in a region as a result of strong winds and atmospheric pressure changes associated with a storm.

stumpage charge — A fee, based on the volume of wood cut, paid by companies or individuals who want to cut trees from public lands.

subsidence — The gradual sinking or downward settling of the earth's surface in response to geologic or man-induced causes.

sulphide — Compound of sulphur with another element.

suspended sediment — Very fine particles of rock, sand, soil and organic material that remain in suspension in water for a considerable period of time without contact with the bottom or that are carried in suspension in the water column.

sustainability — Meeting the needs of the present and local population can be met without compromising the ability of future generations or populations in the same or other locations to meet their own needs.

sweet gas or sweet natural gas — Natural gas that has a relatively low concentration of sulphur compounds, such as hydrogen sulphide.

territorial lands — Federal Crown public lands administered by the Department of Indian and Northern Affairs under the *Territorial Lands Act*.

thaw depth — The level down to which the permafrost soil will normally thaw during a summer.

thaw settlement — Ground surface settlement caused by freezing and thawing. When ice-rich soils thaw, water is liberated and, as it drains away, the ground subsides or settles. Where the ground contains excess ice, the amount of thaw settlement may be quite substantial, especially where massive ice is encountered.

thermosiphon — A closed system of tubes connected to a water-cooled engine which permits natural circulation and cooling of the liquid by using the difference in density of the hot and cold portions. A thermosiphon artificially cools the ground or maintains the ground in a frozen state limiting the progression of thaw depth.

threshold — A measurable point at which a condition becomes unacceptable from a social or ecological perspective. Limits of acceptable change are socially defined points or thresholds that establish boundaries or a range on the extent of acceptable change for a species, where exact thresholds may not exist. From a sustainability perspective, both measures are useful in establishing the conditions for socio-cultural and ecological sustainability in a region.

throughput — The total amount of natural gas transported through a pipeline over a given period of time.

valued component — Characteristic or features that represent important environmental or socio-economic conditions identified by assessment specialists, communities or stakeholders.

vegetated watercourse — A natural or constructed watercourse with ephemeral flow, no discernible banks or sediment transport, designed to accommodate concentrated flows without causing erosion.

well test flaring — A type of flaring to test gas flow from a well.



The Joint Review Panel for the Mackenzie Gas Project was a seven-member, independent body that evaluated the potential impacts of the proposed Mackenzie Gas Project and associated Northwest Alberta Facilities on the environment and lives of the people in the project area. The Joint Review Panel members were (from left to right): Tyson Pertschy, Peter Usher, Barry Greenland, Robert Hornal, Percy Hardisty, Rowland Harrison, Gina Dolphus.