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TABLE RONDE NATIONALE SUR L'ENVIRONNEMENT ET L'ÉCONOMIE

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Report to the Prime Minister

TOWARD REPORTING PROGRESS ON SUSTAINABLE DEVELOPMENT IN CANADA

December 1993

National Round Table on the
Environment and the Economy

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Environment and the Economy

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EXECUTIVE SUMMARY

In a Nutshell

Good decisions require good information. This report suggests that Canadians do not have adequate information on which to base sound decisions concerning sustainable development, to set realistic sustainable development goals, or to measure progress toward those goals. It recommends strengthening the federal government's role in facilitating more effective reporting of information, and in so doing, it focuses on four major decision-making groups: households, communities, for-profit corporations, and governments.

As a first step, it recommends that the federal government entrench a commitment to sustainable development and to sustainable development reporting in the mandates of its departments, agencies, and crown corporations. Such a policy should make individual departments clearly responsible and accountable for ensuring that their policies, programs, and budgets support only those activities that contribute to sustainable development.

Secondly, it recommends establishing a capability for annually assessing and reporting on progress toward sustainable development within the federal government as a corporate entity. Careful consideration will have to be given to choosing the exact mechanism. What is most important is that the responsibility centre be independent, be able to link effectively to all elements of the federal system, and be able to work harmoniously with all those elements. It should not, therefore, be embedded within any existing department.

Thirdly, it says discussions should be initiated with provincial and territorial governments, and other stakeholders, with the aim of establishing a mechanism for assessing and reporting, at five-year intervals, on progress toward sustainable development for the nation as a whole.

An additional seven recommendations deal with federal procurement policies, nurturing the setting of corporate and consumer reporting standards at levels that compare favourably with the highest in the world, establishing joint departmental responsibilities for the Environmental Choice Program and the National Pollutant Release Inventory, addressing the reporting needs of community decision makers, establishing sustainable development codes of practice, and linking Statistics Canada to a program to enhance awareness and knowledge of sustainable development that is being undertaken in partnership by the National Round Table on the Environment and the Economy and ParticipACTION.

The Need

After five years of discussing the ideas of the Brundtland Commission, we still cannot answer basic questions. Is Canada progressing toward sustainable development? If so, how fast — and is it fast enough? If not, why not?

Without the means of measurement, without relevant information, progress cannot be charted, goals cannot be set, existing situations cannot be assessed, plans cannot be laid — cannot, that is, with any degree of composure or assurance.

To take an example that underlines the importance of reporting: If Statistics Canada did not provide extensive data on the performance of the Canadian economy, could we adequately chart progress, set goals, assess situations and lay plans for businesses, governments, institutions, communities, and households with any degree of composure or assurance?

Of course not. Yet sustainable development is based on the concept of integrating the economy and the environment. That means changing the way we make decisions on *everything* — and there's no way that can be done without a tracking system for sustainable development that links and is integrated with what Statistics Canada currently supplies for the economy alone.

In short, Canada needs to develop a system of measuring and reporting sustainable development performance in a meaningful and credible way.

The Benefits

More than in anything else, the power of sustainable development lies in its bridging capability — its ability to facilitate integration, synthesis, and collaborative approaches to problem solving. It ensures that decisions and strategic directions are based on:

- encouraging activities that enhance social, cultural, economic, and environmental conditions in both the short and the long term;
- minimizing environmental stress, and related problems that impose severe costs on society, by engaging in anticipatory management and preventive action; and
- saving financial resources by eliminating unwise subsidies to unsustainable activities.

A serious national commitment to reporting on sustainable development will force clarification by linking cause and effect more clearly. It will translate the concept of sustainable development into practical terms for use by decision makers and make it much more probable that strategic directions will be chosen that conform with sustainable development.

Most importantly, the very act of making a commitment to monitor, assess, and report progress will entrench the concept of sustainable development in practice and thereby accelerate changes to the framework within which decisions are made.

The result will be an enriched quality of life, a safeguarding of ecosystem integrity, and an enhanced competitive position internationally that, at the same time, reduces the gap that currently exists between developed and developing regions within Canada and around the world.

Goals and Objectives

The overarching goal of reporting on sustainable development is to improve the way we make decisions. That is, to support informed and responsible decision-making by:

- communicating key signals to targeted decision makers, especially by delivering early-warning signals that indicate the need for policy changes, shifts in behaviour, or institutional adjustments;
- ensuring accountability;
- encouraging initiative by giving credit where credit is due; and
- identifying knowledge gaps and providing rationales for giving priority to filling the gaps.

The Decision Makers

- individuals and households;
- corporations and corporate groupings;
- communities and settlements; and
- regional, provincial, and national governments.

The Reporting Focus

Reporting on sustainable development must measure performance in economic, environmental, social, and cultural terms. And it must do so within every sphere of activity that it addresses. Since there will be a host of activities upon which attention could be directed, a blueprint that shows how a reporting system would work will be needed in order to determine what should be reported.

This report suggests that there are four main areas of diagnosis that should be considered in assessing progress toward sustainable development — we call them indicator domains and they are the touchstones on which progress toward sustainable development is best measured. They should be the focus of reporting. They are:

I ECOSYSTEM

An assessment of the integrity, health, or well-being of the ecosystem;

II INTERACTION

An assessment of the interaction between people and the ecosystem: how and to what extent human activities contribute to the provision of basic needs and the quality of life; how these actions stress, or contribute to restoring, the ecosystem; and how successful we have been at meeting the goals and objectives of policies, regulations, and legislation;

III PEOPLE

An assessment of the well-being of people in the broadest sense (individuals, communities, corporations, regions, provinces, nations, and other decision-making groups); the assessment should range across physical, social, cultural, and economic attributes; and

IV SYNTHESIS

An assessment of the whole: looking at key linkages across the above three components.

The Indicators

Each indicator domain spans a wide range of disciplines, and associated with each domain are a number of indicators that already are being reported. Most of these indicators gained prominence simply because they existed and not because they were picked as part of a coherent reporting system. They fill a need and have emerged, rightfully so, because of their specific usefulness. However, they developed in isolation from insights in other disciplines and in the absence of co-ordinating links.

These indicators inevitably will provide some of the building blocks for a "family" of sustainable development indicators. On their own, however, they are inadequate. To appreciate this inadequacy, it is necessary only to return to the example of the economic reporting system in Canada. Statistics Canada lists close to 1,000 industry classes and each class has a number of indicators to report. Obviously, nothing remotely approaching that scale can be expected immediately for reporting on sustainable development.

Nevertheless, given the integrative perspective of sustainable development, new insights will lead to new and more powerful indicators. It may be possible eventually, to identify a short list of key indicators of sustainability. However, that process will take time.

Canada's Reporting Ability

At this time, Canada cannot offer a definitive assessment of progress toward sustainable development. We know in general terms that while some elements of society are adjusting, many are not. We also can recognize a significant shift in societal values that provides a new context for decision making, a context in which parallel concern for people and the environment broadens the narrow focus on purely economic matters that has dominated the way we have assessed progress throughout this century.

Only a small, leading group of innovative Canadians, mainly at the grass-roots level, has made much progress in grasping the essence of sustainable development. Our most exciting innovations have come from them. However, our current information systems are aimed at the needs of provincial and federal governments, and large corporations, and are not well tailored to support decision making by individuals, communities, and small businesses. Consequently, it is essential that we nourish bottom-up, grass-roots development.

Our review has revealed a number of encouraging developments. The 1991 *State of Canada's Environment* (Environment Canada) along with the parallel publication of *Human Activity and the Environment* (Statistics Canada) are being recognized internationally as setting new standards for reporting. Ongoing work aimed at integrating environmental concerns in macroeconomic analysis through satellite accounts to the System of National Accounts is encouraging. Also noteworthy are initiatives taken by a number of federal departments, provincial governments, and major corporations aimed at choosing new strategic directions in line with the ideas of sustainable development. However, for most people, concern and action remain limited to after-the-fact "environmental protection" at best. We are far from entrenching an anticipatory and preventive stance. Our practice and our ability lag well behind our intentions and even farther behind our rhetoric.

The Motivation

There are three strong motivations for making sustainable development a reality:

- enlightened self-interest;
- the public's right to know; and
- the growing value set that entrenches care and respect for both people and the enveloping ecosystem.

The Underlying Value System

The foundation of this work is a value set based on a parallel concern and respect for people and for the enveloping ecosystem — not one or the other, not one more than the other, but both together.

Sustainable development brings a new perspective that carries with it new responsibilities and an expanded value base that must be merged with the old. Developing a system of reporting on sustainable development offers the opportunity to nourish this shift.

The Timing

There is an urgent need for action. Canada, like most countries, is in a remarkable period of transition. Restructuring at a global scale is unprecedented. Decisions are being made today that will have significant, long-term impacts — economically, socially, culturally, and most importantly, ecologically. We have a window of opportunity to establish the kind of system needed to track progress, ensure rapid response to needed change, and entrench an anticipatory capability to prevent problems before the occur. Only through such a system will we be able to maximize learning as we go and, as a result, minimize wastage of society's limited human, financial, and natural resources.

The Cost

Few would have guessed 50 years ago that our standard industrial classification would grow to accommodate the tracking of economic and social signals from close to 1,000 industry classes in Canada. By the mid-1980s, the federal government was spending three quarters of a billion dollars and employing more than 10,000 people to collect basic information about Canada, its people, its economy, and the ecosystem. In addition, the provinces spend $125 million to $150 million a year. We are unaware of

a comparable figure for private-sector corporations, but it probably is as large as that for the federal government.

The proposed approach to reporting on sustainable development is not aimed at re-creating or replacing existing elements of Canada's information system. Rather, it urges that we build on what is there now. It is best thought of as creating a small, but critical, missing link.

We have reviewed costs related to several existing federal initiatives and have concluded that an annual commitment of $3 million in support of 20 full-time employees is probably the appropriate level of effort needed to establish a capability for reporting on sustainable development. The money and the people should be found within existing allocations for the gathering, processing, and assessing of data and information.

The Cost of Inaction

Over the past 25 years, Canada has accumulated a huge debt. Part of it is expressed in terms of the public accounts deficit. An equally important part is hidden. It is the cost we are going to have to pay to deal with ecological degradation.

For example, it is estimated that tens of billions of dollars will be required to restore ecosystem integrity on the Great Lakes-St. Lawrence system alone. And the longer we delay, the higher will be the cost.

Both of these debt components pass on costs to our children and threaten to reduce the possibility of them enjoying the same quality of life as has been ours. They represent the growing cost of inaction. Recognition of this simple fact was the starting point of the Brundtland Commission, as it is ours.

Part of the reason that we find ourselves with such debts is that we have a totally inadequate system for monitoring and assessing current conditions, interpreting past decisions, and anticipating longer-term implications.

The Recommendations

We need to shift the pens and upgrade the quality of the signals that feed decision making. This is the task to be addressed by a system of reporting on sustainable development.

Consequently, we offer the following recommendations. They are grouped by departmental responsibility.

WE RECOMMEND THAT THE GOVERNMENT OF CANADA:

1. *Develop a policy statement that entrenches a government-wide commitment to sustainable development in the mandates and reporting responsibilities of federal departments, agencies, and crown corporations.*

   It is essential that this policy make individual departments responsible and accountable for ensuring that their policies, programs, and budgets encourage and support activities that are economically and ecologically sustainable, both in the short and longer terms (page 45).

2. *Establish a capability for:*

   a. *assessing and reporting annually on progress toward sustainable development within the federal government as a corporate entity; and*

   b. *reviewing the environmental implications of actions taken as a result of existing statutes, policies, programs, and regulations — as promised in Canada's Green Plan.*

   Exactly what shape this office should take, and where it should be located — within, or at arm's length, to the federal government — requires further assessment. What is most important is that it be clearly assigned this responsibility and given authority for discharging it. Further, the office must be independent and able to link effectively to, and work with, all parts of the federal system. It cannot, therefore, be embed-

ded within any existing department (page 45).

3. *Initiate discussions with provincial and territorial governments, and other stakeholders aimed at:*

   a. *designing and establishing a capability for assessing and reporting every five years on progress toward sustainable development for Canada as a whole; and*

   b. *providing an assessment every five years of domestic legislation and regulations (provincial, inter-provincial, and federal), as well as international treaties and conventions, relevant to sustainable development, that impact on Canada's trade position, economic prosperity, and ecosystem integrity (page 46).*

4. *Restructure the Environmental Choice Program to be a joint responsibility of Environment Canada and Industry Canada.*

   In follow-up, every effort should be made to expand the program to cover a broader range of products and to upgrade program marketing to ensure more effective outreach (page 33).

5. *Identify a responsibility centre and provide it with the mandate to initiate discussions with provincial and municipal partners (including the national and provincial associations of municipalities) aimed at:*

   a. *identifying and prioritizing specific data and information needs of community decision makers related to sustainable development; and*

   b. *exploring the feasibility of establishing a national clearinghouse and other ways by which these needs might best be met (page 37).*

6. *Make a commitment to having corporate and consumer standards set, in particular for reporting, that will compare favourably to the highest in the world.*

   Over all, we conclude that significant gaps exist between what ideally should be reported, what currently is practical, and what actually is being reported. Closing these gaps will take time. In the meantime, corporate sustainable development reporting should be nurtured but not regulated; encouraged but not standardized; reinforced but not necessarily legislated (page 40).

7. *Make Statistics Canada jointly responsible with Environment Canada for development and implementation of the National Pollutant Release Inventory.*

   Management of the program should be aimed at collecting accurate and timely data that keeps to a minimum duplication with other efforts to gather data and information (page 40).

8. *Take the necessary steps to encourage all corporate entities (including for-profit businesses, not-for-profit voluntary organizations, professional associations, co-operatives, hospitals, unions, universities, colleges, and community colleges) to:*

   a. *develop sustainable development codes of practice; and*

   b. *implement practical reporting systems to facilitate monitoring and assessment of progress over time (page 41).*

9. ***WE RECOMMEND THAT STATISTICS CANADA:***

   a. *systematically gather and periodically report data and information concerning individuals and households that is related to the state and progress of sustainable development; and, to that end*

   b. *join with the National Round Table and ParticipACTION in their social marketing initiative to jointly:*

      - *design, develop and launch a national sustainable development home survey and report-back program; and*

- *motivate people to participate.*

The program will provide an opportunity for Statistics Canada to develop and implement an ongoing individual and household database with information from all parts of Canada. It should aim at enabling individuals and households to monitor, assess, and report their activities and to compare them to local, regional, provincial, and national averages (page 32).

10. ***WE RECOMMEND THAT THE TREASURY BOARD:***

re-assign priority to efforts that will lead to the development and implementation of a government-wide procurement strategy and related tracking system that:

a. *reflects the principles of sustainable development;*

b. *provides the Cabinet, Parliament, and the public with a three to five year perspective of government procurement plans; and*

c. *includes a reporting system that effectively compares actions with intentions (page 43).*

INTRODUCTION

After five years of discussing the ideas of the Brundtland Commission, is Canada progressing toward sustainable development? If so, how fast are we progressing? Is it fast enough? If not, what are the priority concerns? These are the questions that motivated this report.

At this time we cannot provide definitive answers. We know in general terms that while some elements of society are adjusting, many are not. And we are aware of the dark consequences of a failure to adjust.

We can recognize a significant shift in societal values that offers a new context for decision making but — and this is the crux of our present dilemma — we do not have the essential tool to make those decisions. The tool we need is information.

The reason we don't have it is that we don't have a reporting system that can monitor progress toward sustainable development. We do not have a system that supplies decision makers with the signals they need in order to make realistic choices.

In making decisions that strive toward sustainable development, the difficulty encountered is that there are many, many variables that need to be considered. The entire concept of sustainable development is structured around the proposition that every decision has ripple effects and, just as when you throw several pebbles into a pool, when the ripples intersect they produce still different ripples.

In other words, sustainable development deals with interrelationships and linkages. It means looking at decisions in a holistic way where there is a parallel care and respect for people and for the enveloping ecosystem of which everyone is a part.

But if you don't report the ripples — and their intersections — how do you know the effect of decisions? How do you have any assurance that you will be basing decisions on sound analysis? How can you judge the consequences of those decisions? And how do you know if you are aiding or hindering progress toward sustainable development?

Consequently, if decision makers are to implement sustainable development policies, and if the public is to gain trust in those policies, Canada must develop some system of measuring and reporting performance in a meaningful way.

Part of the process of developing such a system will be to focus on underlying values because they will determine what should be measured. For instance, the traditional approach to biodiversity has been to ask, "How do you pinpoint the worth of the ecosystem?" The assumption is that in the order of competing priorities, it has its own private position.

It has led to arguments that biodiversity is worth preserving because research into tropical plants provides us with new medicines. Or because it supports a multi-billion-dollar tourism industry. Or because biodiversity has a value in its own right that ought to be protected.

None of these arguments offers a satisfactory approach. But what if the question is changed. What if we take a more holistic approach and ask: "What role does biodiversity have in determining the quality of life?" The question reflects a shift in emphasis that brings into sharp focus a concern for the well-being of people and the integrity of the ecosystem, and removes us from

the murky realm of trying to place an independent evaluation on the ecosystem.

The shift follows naturally from the concept of parallel care and respect for people and the enveloping ecosystem that is at the heart of sustainable development. Once it is made, it brings into light responsibilities that previously lay hidden. And it heralds the need to adjust value systems. Developing a national reporting capability will aid greatly in that adjustment.

The National Round Table recognizes that it has a special responsibility regarding reporting on sustainable development in Canada. In the short term, its goal is to encourage initial assessments of progress toward sustainable development within the context of current conceptual and resource limitations. Over the long term, its role will be to act as a catalyst in the eventual development of a comprehensive reporting system.

Like other countries, Canada is in a remarkable period of transition. The National Round Table thinks that, in this transition, sustainable development has a unique contribution to offer by identifying strategic directions that will:

- encourage activities that enhance social, cultural, economic, and environmental conditions in both the short and the long term;
- minimize environmental stress and related costs through anticipatory management and preventive action;
- save financial resources by reducing unwise subsidies to unsustainable activities.

The result will be an enriched quality of life, the safeguarding of ecosystem integrity, and an enhanced competitive position internationally that, at the same time, reduces the gap that currently exists between developed and developing regions within Canada and around the world.

However, the contribution that can be made by sustainable development will be foreshortened if a system of reporting is not established as soon as possible. The reason is that progress toward sustainable development is dependent, in large part, on reliable reporting. Not only will such reporting track progress, ensure rapid response to needed change, and entrench an anticipatory capability to prevent problems before they occur, it also will be a catalyst for social change in its own right by improving public awareness. Only with such a system will we be able to maximize learning as we go and, as a result, minimize wastage of society's limited human, financial, and natural resources.

There is a window of opportunity, now, for doing all this. But restructuring on a global scale is unprecedented. Decisions are being made today that will have significant long-term impacts — economically, socially, culturally, and, most importantly, ecologically. The longer we wait, the more extensive will be the restructuring undertaken without the benefit of insights that sustainable development can offer.

Key Definitions

The concept of sustainability is best defined as:

> *the persistence over an apparently indefinite future of certain necessary and desired characteristics of both the ecosystem and the human subsystem within.*[1]

Sustainability is a normative attribute of something, such as the ecosystem, biodiversity, development, communities, the nation, the family farm, or society.

Sustainability of development — or sustainable development[2] — focuses on human activities and on related development that:

> *meet the needs of the present without compromising the ability of future generations to meet their own needs.*[3]

This definition is especially appropriate because it focuses on managing human activity and abandons all pretence of trying to "manage" the environment. Policies, decisions, and regulations cannot "manage" the environment; all they can do is regulate human activity as it affects the environment.

The word "development" is used here in the sense of:

to realize the potentialities of, to bring to a better state.[4]

When it is used in reference to sustainable development, it maintains both qualitative and quantitative characteristics. It must be differentiated from growth that applies only to a quantitative increase in physical dimensions.

This report starts with the identification of a system that includes people, the enveloping ecosystem, and the interaction between the two. The word "sustainability" can apply to this system. However, because of the interconnectedness of the ecosystem and people, reporting on progress toward sustainability, in this context, cannot be differentiated from reporting on progress toward sustainable development.[5]

A Brief Historical Note

A system for reporting on sustainable development is as important to Canada's future as its system for reporting economic activities has been for its welfare over the past 50 years.

Work on national accounting through the 1920s and 1930s in the United States, and during the late 1930s and the 1940s in Great Britain, led to the system that is now used throughout the world. A key contribution was made by John Maynard Keynes who provided the crucial theoretical framework for calculating "national income" in the mid-1930s.

Now, half a century later, this system continues to be the subject of debate and is evolving constantly. The Standard Industrial Classification, which underlies the System of National Accounts, tracks a range of social and economic signals from close to 1,000 industrial classes in Canada. It will similarly take time to develop effective ways of monitoring, assessing, integrating, and reporting progress toward the broader and more integrative concept of sustainable development.

The first formalized systems of reporting, at regular intervals, on the state of environment (SOE) began in 1969 in Japan, and in 1970 in the United States.[6] As SOE reporting has matured during the intervening 25 years, Canada has played a leading role internationally, both in terms of conceptual developments and substantive developments.

Much of the effort spent in improving ways to assess progress has been directed at identifying better indicators. In the 1960s, the motivation was a desire to monitor the quality of life and social conditions more effectively. In the 1970s, it stemmed from a concern with environmental quality. In the mid-1980s, assessing the health of communities emerged as a concern and sets of "indicators of healthy communities" were developed.

In 1990, the issue of human development attracted attention with publication of the first annual report on the topic by the United Nations Development Program. Its human development index, although subject to much debate, is gaining recognition as a key indicator of human well-being.[7]

During these same 25 years, alternative approaches to economic monitoring have been proposed. Feminist scholarship has offered an especially useful perspective. Most recently, "ecological economics" has emerged as a transdisciplinary field which now has a formal society and a learned journal.[8]

Canada's system of health information has received critical scrutiny over the past decade as part of the overall concern with soaring health costs. New approaches to indentifying the determinants of well-being, that include economic and environmental factors, are being explored.[9]

These various activities have all dealt, to a greater or lesser extent, with the prosperity, health, and overall well-being of people, on the one hand, and with the integrity, health, and overall well-being of the ecosystem, on the other.

In the late 1980s, and now in the 1990s, popularization of the concept of sustainable development brought a new wave of interest in improved indicators. As a result, the 1989 G-7 Economic Summit, held in Paris, requested that the OECD address this issue. Canada signalled its intention of playing a leading role, and a number of initiatives resulted, including those of Environment Canada (Indicators Task Force),[10] Health

and Welfare Canada (Steering Committee on Indicators for a Sustainable Society),[11] and the Canadian Environmental Advisory Council (Indicators of Ecologically Sustainable Development).[12]

An early attempt to assess progress toward sustainable development in Canada is contained in Canada's National Report to the Earth Summit held in Rio de Janeiro, Brazil, in 1992.[13] Meanwhile, round tables in most provinces and territories have developed, or are in the process of developing, sustainable development strategies. And at the federal level, a multi-stakeholder "projet de société" is charged with developing a national strategy for sustainable development.

In the private sector a number of individual firms and industry associations have established codes of practice and are implementing innovative approaches to reporting.[14] The Canadian Labour Congress, in conjunction with the National Round Table, has published a book explaining the concepts of sustainable development and offering guidelines for action.[15] Individuals and families are striving to decrease the environmental impact of their activities. And the future of Canada's aboriginal peoples is being fashioned with reference to their historic wisdom that recognizes the profound link between the land and the well-being of people.

Most importantly, the concept of sustainable development has finally provided a mechanism for bridging many disparate disciplines and interests. It is our hope to build on the above work and facilitate the involvement of the many stakeholders that now claim some ownership in the idea of sustainable development. The proposed approach to reporting does this by explicitly linking decision making to the ecosystem, to people, and to interactions between the two.

STARTING POINTS

Goals and Objectives

The overarching goal of reporting on sustainable development is to improve the way we make decisions. The means of reaching that goal will be to provide information that will support informed and responsible decision making. To do that, four specific objectives are proposed, and they are to:[16]

- communicate key signals to targeted decision makers, in particular, to give them early-warning signals for required policy or institutional changes;
- ensure accountability;
- encourage initiative by giving credit where credit is due; and
- identify knowledge gaps and provide rationales for giving priority to filling those gaps.

Reporting To, By, and For Whom?

These initial objectives lead to the identification of two categories of reporting, one in support of on-going management and decision making, and a second related to accountability.

The first category is reporting *to* decision makers *for* decision making.

The second is reporting *by* decision makers (or organizations as a whole) *to* those to whom they are accountable for their decisions or performance.

Reporting to decision makers calls for data, information, and analyses assembled as input to routine decision making related to the on-going "business" and management of individual and household daily life, corporate activities, and governance.

Generally such decision making is future-oriented because it addresses the routine needs of decision makers in their ordinary responsibilities of deciding what to do next. Control of this reporting is exercised by the decision makers themselves, on the basis of their own perceived needs. Key items include accuracy, technical capability, and uncertainty about relationships between decisions and actions and between past states and projected futures.

Corporate and government examples abound, and range from lengthy reports by outside consultants or internal advisors, to highly condensed briefing documents. These reports can include information on current and past states, and they can relate to the decision topic, trends, identification of scenarios, projections, and assessments. For governments and larger corporations, there often is some organized capability to do research.

For most small businesses, individuals, and households, such reporting is likely to be much less formal. Usually individuals must rely on either their own data and knowledge (as in reviewing the cost of heating oil use to help make a decision about increasing insulation), or on research done by others (as in researching a proposed purchase by looking at publications providing advice to consumers).[17]

Reporting by decision makers, although similar in scope and content to the first category (i.e., past and present states, as well as trends, projections, and assessments), nevertheless has a quite different driving motivation. Private sector examples include annual reports to shareholders. For the federal government, the Public Accounts serve the same purpose. Since this type of reporting offers decision makers an opportunity to present their actions in a positive light, a key issue often is the credibility of the information reported.

Reporting on sustainability must include both categories of reporting.

Achieving Results

There is an obvious danger that reporting on sustainable development could become a vast task, with no immediate tangible results. That would be completely unacceptable. While the existing data and information base is immense, a number of experiments have been completed that we can build upon. And there are interim steps that can be taken which will yield immediate results while a more comprehensive system is evolving.

Reporting as Part of Decision Making

Any system of reporting is nested within a larger decision-making system. Within that larger system, each society has different groups of decision makers who operate within cultures that are characterized differently in terms of values, motivation, and needs.

For example, the "corporate culture" is different from the "bureaucratic culture", which in turn is different from the culture of academics — and so forth. To be broadly applied, a system of reporting on sustainable development must be adaptable to all these different cultures and, at the same time, be tailored to the specific needs of the decision-making groups that represent those cultures.

In western, market-driven democracies, the following four decision-making groups are likely to be the most significant:

- individuals and households;
- corporations and corporate groupings;
- communities and settlements; and
- regional, provincial, and national governments.

This identification of key groups is pragmatic, although, it could be seen as extending the three components of the conventional model of the market economy (firms, households and governments) in order to recognize communities.

A Fresh Perspective on Values

Decisions are based on values. A decision seeks a result and that result is desired because it is seen to be a beneficial thing. And it is seen as beneficial because the decision maker has rated it according to his or her value system and has said it rates high enough to want.

If sustainable development is to succeed, it will do so because we have adjusted our value system. It will be because we have extended our measure of worth. It will be because we have placed the concept of well-being at the centre of our considerations.

The heart and core of sustainable development is the holistic perception that the well-being of people depends on the well-being of all other parts of our world — and that means the well-being of the ecosystem, the well-being of our economic system, the well-being of our institutions, and the well-being of societies.

The litmus test, however, is people. If their well-being is denied, there will be consequences that will upset any and every balance, whether those consequences take the form of unrest, dysfunctional societies, commodity scarcities, economic dislocation, ecological degradation, atmospheric change, or institutional gridlock.

Developing a system of reporting on sustainable development provides an opportunity to nourish a growth in our perception of what is beneficial and what it is that we should want.

In practical terms, the value set underlying the ideas of sustainable development can be described as being based on a parallel care and respect for people and the enveloping ecosystem of which we are part. The implications of this value set will vary for any group of decision makers.

When this value set is applied to reporting, it channels attention in specific ways so that we approach indicators from a different viewpoint — as if we carried a checklist to ensure that they incorporated the things we think are important. If the indicators don't pass the test, then we can revise them until they do.

In other words, we seek to ensure that the indicators will have value-driven characteristics that reflect the parallel care and respect that we are talking about.

We offer such a checklist in Table 1 to indicate the kinds of things that indicators should reflect. The table is presented to stimulate reflection and discussion. Each decision-making group must deal with this topic on its own terms.

TABLE 1:
VALUE-DRIVEN CHARACTERISTICS OF A SYSTEM OF REPORTING SUSTAINABLE DEVELOPMENT [18]

A system of reporting on sustainable development should focus on:

- **respect and concern for the ecosystem — by**
  - using a time horizon that captures both human (short) and ecosystem (long) time scales;
  - adopting a frame of reference for assessing actions and decisions that extends beyond political and other boundaries to encompass the full extent of affected ecosystems; and
  - analzsing individual ecosystem components (e.g. air, groundwater, surface water, soil, fauna, flora, etc.) within the context of the connected ecosystem.
- **the interaction between people and the ecosystem — by**
  - being sensitive to the complete range of chemical, physical, and biological stress on the ecosystem — including stress that occurs naturally and stress that is imposed by human activities;
  - adopting an anticipatory perspective when dealing with the manner in which indicators, time horizons, and analyses are expressed, so that in the reporting process there will be a forward-looking thrust instead of just a description of past and current conditions;
  - recognizing and accepting uncertainty as an inevitable occurrence instead of an impediment to good decision making.
- **respect and concern for people — by**
  - using assessment criteria that respect the existence of alternative and changing values when evaluating progress;
  - assessing the distribution of environmental, economic, social and cultural costs and benefits by examining their impacts on different social groups;
  - including ways to measure participation and control in decision making; and
  - using both
    - objective data and information, and
    - subjective information, i.e. intuitive understanding based on experience of everyday life, including experience gained from subsistence and traditional life styles.

BLUEPRINT FOR REPORTING

The Reporting Focus

The Steps:

- building on an overlapping consensus
- constructing a template that reflects the main areas of diagnosis:
  - ecosystem health and integrity
  - human-ecosystem interactions
  - human well-being
  - an overall synthesis
- offering a recipe for reporting on sustainable development (two examples)

Building an Overlapping Consensus

This work draws on the concept of "overlapping consensus" first proposed in 1987 by Professor John Rawls of Oxford University. Professor Rawls pointed out that a consensus affirmed by "opposing theoretical, religious, philosophical, and moral doctrines" is likely to be both just and resilient. Consequently, public policy based on such an "overlapping consensus" is likely to thrive over generations.[19]

So, seeking such longevity for our proposals, we drew insights from a broad number of disciplines and interests in an attempt to identify common ground for designing a blueprint for reporting. A wide range of relevant theoretical and practical contributions were reviewed and then linked with the "value-driven characteristics" of a reporting system which are identified in Table 1.

The Template

What we ended up with were four focal points that we think are the most important places to look in order to assess progress toward sustainable development. We call them areas of diagnosis, or, to present a less formal way of putting it, indicator domains.

In addition, our review highlighted once again how wide-ranging are the economic, environmental, social, and cultural concerns that affect progress toward sustainable development. What follows are the four indicator domains that we identified, and what there is about them that needs to be considered:[20]

I ECOSYSTEM
An assessment of the integrity, health, or well-being of the ecosystem;

II INTERACTION
An assessment of the interaction between people and the ecosystem: how and to what extent human activities contribute to the provision of basic needs and the quality of life; how these actions stress, or contribute to restoring, the ecosystem; and how successful we have been at meeting the goals and objectives of policies, regulations, and legislation;

III PEOPLE

An assessment of the well-being of people in the broadest sense (individuals, communities, corporations, regions, provinces, nations, and other decision-making groups); the assessment should range across physical, social, cultural, and economic attributes; and

IV SYNTHESIS

An assessment of the whole: looking at key linkages across the above three components.

Framing the indicator domains in this way achieves two things: it recognizes that people are part of the ecosystem; and it stresses that what has to be managed is human activity. This last is extremely important because of the long-held view that people could "manage" the environment. Such a view, because it offers a false premise, can lead only to misplaced policies. Society cannot "manage" the environment; society can only manage the activities of people — through policies, laws, and actions — and the activities of people, in turn, interact with the supporting ecosystem.

Consequently, these indicator domains will constantly direct attention to the decision-making process.

Taken together, they define the bounds of reporting on sustainable development. They offer a template that can be placed over decisions to help assess the impact they will have on sustainable development — or over activities to see what impact they are having. They also can be used as a template to place over the welter of data and information facing us to help identify what are appropriate indicators. Most importantly, they encourage a perspective that emphasizes the total interdependence of human well-being and ecosystem integrity.

A Recipe

Box 1 applies this approach to two cases: one is a hypothetical assessment of the activities of a forest company; the second is an overall assessment of forest lands in Canada.

Ecosystem Indicators: Building on SOE Reporting

The Initial Building Blocks:

- twenty years of important SOE reporting in Canada
- existing federal, provincial, and corporate reporting activities
- understanding the difference between SOE reporting and reporting on sustainable development
- advancing the ability to assess ecosystem integrity.

Twenty Years of SOE Reporting

Over the years, state-of-environment reporting has provided a great deal of information that will be valuable in developing a system for reporting on sustainable development. And as it has matured, Canada has played a leading international role both substantively and in conceptual developments.

At home, Canadians established important milestones, including:

- a series of broadly interdisciplinary river basin studies, completed in the 1970s and 1980s by federal-provincial-territorial teams created under the Canada Water Act (1970);
- a comprehensive study of the Great Lakes ecosystem by the Pollution from Land Use Activities Research Group (PLUARG), created by the 1972 Great Lakes Water Quality Agreement. It led to entrenchment of the "ecosystem" approach to management of the Great Lakes system in the 1978 Great Lakes Water Quality Agreement;
- the first state-of-environment report completed in Canada. It was called *Environmental Quality in the Atlantic Provinces* and came out in 1979

BOX 1
TWO EXAMPLE OUTLINES OF REPORTING PROGRESS TOWARD SUSTAINABLE DEVELOPMENT

A HYPOTHETICAL FOREST COMPANY REPORT ON PROGRESS TOWARD SUSTAINABLE DEVELOPMENT

I Ecosystem Integrity (natural, modified, cultivated, built)

- assessment of the health and integrity of the ecosystem with which the corporation interacts

II Interaction

- assessment of the stress caused by the activity (physical, chemical, biological); data in a form that compares with that of other corporations around the world
- identification of opportunities for stress reduction; success in reducing stress
- opportunities for, and success at, restoration
- record of compliance with laws and regulations

III Well-Being

- corporate well-being (financial and otherwise)
- profile and valuation of corporate activities (benefits contributed to shareholders, employees, communities, etc.)
- well-being of the community with which the corporation interacts

IV Synthesis

- links across the above; assessment of the "whole"; anticipatory assessment

A HYPOTHETICAL ASSESSMENT OF PROGRESS TOWARD SUSTAINABLE DEVELOPMENT IN CANADA'S FOREST LANDS

I Forest Ecosystem Integrity (natural, modified, cultural, built)

- assessment of the health and integrity of Canada's forest land ecosystems

II Interaction

- assessment of stress on the ecosystem (physical, chemical, biological); data in a form that compares with that from other parts of the world
- identification of opportunities for stress reduction; success in reducing stress
- opportunities for, and success at, restoration
- record of compliance with laws and regulations

III People and Canada's Forest Lands

- assessment of well-being (individuals, families and households, communities, corporations, the forest industry, tourism and recreation, etc.)
- profile and valuation of human activities in, and dependent on, forest lands in Canada

IV Synthesis

- links across the above; assessment of the "whole"; anticipatory assessment

as a joint publication of Environment Canada, on the one hand, and the governments of New Brunswick, Nova Scotia, Prince Edward Island, and Newfoundland, on the other;

- publication by Environment Canada of *The State of Canada's Environment,* first in 1986, and again in 1991; simultaneous publication by Statistics Canada of the statistical compendium *Human Activities and the Environment;*
- publication in 1987 of the first municipal SOE report in Canada by the Regional Municipality of Waterloo;
- the 1991 publication by Forestry Canada of its first annual assessment of *The State of Canada's Forests*;
- the release in 1992 of the federal Government's Green Plan, which included a range of commitments directly related to reporting;
- the 1991 publication by Environment Canada of *A Report on Canada's Progress Towards a National Set of Environmental Indicators;*
- the joint publication in 1992 by Environment Canada and Statistics Canada of *272 Databases for Environmental Analysis,* which is a description of active databases within the federal system;
- the 1992 publication by Statistics Canada of *Households and the Environment, 1991;*
- the 1993 launch by Statistics Canada of the first of a new occasional series entitled *Environmental Perspectives, 1993: Studies and Statistics.*

Existing Reporting Activities

Opportunities for stakeholder participation have been significantly expanded during the past decade because of activities related to state-of-environment reporting within the SOE Reporting Branch of Environment Canada and the National Accounts and Environment Division of Statistics Canada. At present, a new memorandum of agreement is being negotiated between Statistics Canada and Environment Canada that will forge still stronger data/information links between the two organizations and further help overcome fragmentation in data/information gathering and assessment.

Several other federal departments and agencies publish periodic reports on various aspects of Canada's environment. They include: Fisheries and Oceans Canada, Agriculture and Agri-food Canada, Natural Resources Canada, and, within Environment Canada, the Atmospheric Service, the Ecosystem Science and Evaluation Directorate, and the Parks Service.

The Canadian Council of Ministers of the Environment (CCME) has a State of Environment Reporting Task Group that is trying to harmonize SOE activities among the provinces, the territories, and the federal government. Three major workshops have been held that have led to concrete advances supported by all 13 jurisdictions. The current emphasis is on developing an inventory of provincial environmental databases that can link to the Environment Canada/Statistics Canada inventory.

Most provinces have produced SOE reports covering their jurisdictions, and with the emergence of provincial round tables, the SOE reporting process is being linked with provincial strategies for sustainability (as in British Columbia and Ontario) or sustainable development (as in New Brunswick).

Some of the most exciting initiatives are being pursued by local governments across Canada which are undertaking SOE analyses.

A growing number of corporations also are developing a capacity for "environmental reporting". These reports focus on company activities and the stress they impose on the ecosystem — such as the levels of contaminants emitted, and the actions and expenditures undertaken to reduce them. They do not address the "state-of" the receiving environment.

The Difference Between SOE Reporting and Reporting on Sustainable Development

Clarifying the relationship between SOE reporting and reporting on sustainable development is a key issue. We have concluded that in terms of the indicator domains (ecosystem, interaction, people), the appropriate focus of SOE reporting is an assessment of:

- ecosystem integrity or well-being; and
- how, and to what extent, human activities stress or restore the ecosystem. (This component is part of monitoring and assessing human-ecosystem interaction.)

This definition of bounds is consistent with the four questions that conceptually drove Canada's 1991 SOE report. They were:

- What is happening in Canada's environment?
- Why is it happening?
- Why is it significant? and
- What are Canadians doing about it?

However, it also signals our conclusions that SOE reporting is a critical subset of a broader system of reporting on sustainable development that must provide an overall perspective. To date, that broader system of reporting has not been encouraged.

Advancing the Ability to Assess Ecosystem integrity

Finally, it is important to highlight a conclusion regarding Canada's current ability to monitor and assess ecosystem conditions. While there is a massive amount of literature available that describes the state and trends of various components of Canada's ecosystem, natural scientists remain at the earliest stages of being able to effectively monitor and assess ecosystem health and integrity. Ongoing support is critical — within governments and universities, and beyond — if we are to progress on this front.

Interaction Indicators: Building on Economic and SOE Reporting

How to Report Interaction:

- factors controlling interaction between people and the ecosystem
- human activities as the motor of the reporting system
- drawing from macroeconomics
- addressing non-market activities and unquantifiable values
- the key role of the financial services industry
- strengthening the focus on stresses other than "pollution"
- extending current reporting

Factors Controlling Interaction

Interaction between humans and the ecosystem is controlled by two sets of factors:

- natural conditions and events that determine the circumstances in which people, as a sub-system, function; and
- human activities that draw on the ecosystem for support. (Usually these activities impose stress on the ecosystem, but in some special cases they can help restore certain of its functions, for example by building fish ladders around dams or other obstructions in rivers.)

Human Activities as the Motor

Society does not manage the environment. It manages human activities which, in turn, interact with the supporting ecosystem.

It follows, then, that analysing the interaction between people and the ecosystem is dependent on understanding, describing, and classifying human activities. In principle, monitoring and assessing the interaction should concentrate on how:[21]

- human activities provide for basic needs and contribute to an enhanced quality of life. In other words, it should take into account the value of those activites to individuals, households, communities, corporations, regions, provinces, or the nation as a whole;
- human activities stress the ecosystem physically, chemically, and biologically;
- stress on the ecosystem, in turn, produces short and long-term implications for people, for the activities in question, and for the ecosystem; and
- some human activities provide opportunities to reduce stress on, and restore functions to, the ecosystem.

A complete classification and description of human activities does not exist.[22] However, the Standard Industrial Classification (SIC), which categorizes "value-added" according to market activity, offers a useful starting point.

Drawing from Macroeconomics

It is here that the power of economics and macroeconomic analysis should be brought to bear as a critical part of reporting on sustainable development — and there are four reasons:[23]

- the majority of human activities that are overstressing the ecosystem are found within the market system;
- Statistics Canada databases, organized according to the SIC, offer the most complete and long-term quantitative description of human activities available;
- using SIC categories will link reporting to current decision making; and
- current work on natural resource satellite accounts to the System of National Accounts is linked to the same SIC categories.

Thus, the starting point for reporting on the "interaction" is traditional macroeconomic reporting and analysis. For national and provincial reporting, that means dealing with the System of National Accounts (SNA) and its provincial equivalents. For corporations it means starting with their own financial statements.

For communities there is a problem. While a municipal government can deal with itself as a corporate entity through its own accounting, it usually is difficult to obtain anything more than a crude macroeconomic picture of the community as a whole. Databases created by provincial and federal agencies are not usually aimed at assisting community decision makers, and communities rarely have the resources to generate their own.

Individuals and households usually have an understanding of their overall finances, but they rarely examine the longer-term implications of the various activities that fill each day. However, there are a number of sources to which they can turn for information.

For any person, corporation, or body seeking information, Statistics Canada collects and analyzes data on a formidable array of demographic, economic, and socioeconomic topics, listing close to a thousand in its 1993 catalogue. Moreover, it is doing its best to present them in user-friendly formats. (Its user-pay policy, however, is a barrier to many individuals.) In addition, most federal and provincial departments regularly report on their mandates in economic terms and these, too, can be a valuable source of information.

A variety of non-government groups also play a significant role, including the Conference Board of Canada, the Canadian Real Estate Board,

Dow Jones, the major banks, and a number of investment firms, to name a few. In addition, reports prepared by various United Nations agencies, the OECD, and the World Bank offer an important international perspective. For many people, newspapers are a dominant source of economic information.

Non-Market Activities and Unquantifiable Values

There are three important limitations on Canada's financial reporting system, and all relate to what the system does not or cannot offer. In the first place, there are many human activities that lie outside traditional economic topics because they are not necessarily motivated by a desire to produce goods and services for exchange in the market system. Consequently, they are not reported. Nevertheless, they contribute greatly to the well-being of Canadians and, at the same time, they impose significant environmental stress.

The most stark example is housework, most of which is performed by women. In 1992, Statistics Canada conservatively estimated that the value of household work in Canada was from 32 per cent to 39 per cent of gross domestic product (GDP), or about $159 to $199 billion.[24] A second example is the large range of volunteer activities. For 1986-87, Statistics Canada estimated that 5.3 million Canadians undertook volunteer work, contributing more than a billion hours of their time, worth about $12 billion (using an average service-sector wage).[25]

Secondly, under current macroeconomic techniques, it is difficult to assess unquantifiable values. A large range of environmental and social factors are simply not included in the theoretical and conceptual models that drive economic analysis. Examples include air, water, biodiversity, artifacts of human history and culture, etc.

Thirdly, when calculating return on investment or, in general, when assessing success, financial analysis does not deal with the range of physical, chemical, and biological stress imposed on the ecosystem by economic activity.

In fact, economic indicators such as GDP ignore environmentally destructive impacts in recording economic activity. Consequently activities are recorded as economic benefits regardless of how destructive they may be. This practice gives rise to the current paradox of "mutually incompatible descriptions of well-being" in which economists rightfully point to increasing standards of material welfare while ecologists rightfully point to the threat posed by rising consumerism to the planet's life-support systems.[24]

The Key Role of the Financial Services Industry

It is the financial services industry that is leading change toward recognizing environmentally destructive consequences of economic activities. Spurred by the threat of legal liability and substantial penalties, it is seeking ways to better protect investments. As a result, it is beginning to adopt procedures for risk analysis that recognize and deal with at least some long-term environmental implications.[27] So far, however, the only issues to be addressed have been contaminated land and groundwater, concerns that have been recognized as serious problems for two decades. The industry has not yet adopted a broader, anticipatory stance.

However, these two concerns, especially that of groundwater, illustrate the difficulty faced in economic analysis and decision making in dealing with long-term, intergenerational, time horizons. More exactly, they demonstrate the incompatibility between economic analysis that employs short time horizons (generally a few years) and the time horizons governing natural processes (many thousands of years and more).

At the same time, experience with these two concerns has spread awareness of the potential magnitude of environmental risk and sparked recognition of the positive spinoffs that can flow from environmentally sensitive management. For example, minimizing waste and the use of resources has major economic, as well as environmental, benefits. Similarly, effective management of forest activities can improve biodiversity over the long term and lead to a net increase in positive benefits for people.

The initiatives being taken in the financial services industry represent a substantial institutional change that has significantly improved awareness in the corporate world. It underlines the importance of clearly signalling incentives if change is to be promoted.

Strengthening the Focus on Stresses other than "Pollution"

Assessing stress on the ecosystem has been a central concern of state-of-environment reporting. However, as noted in the section dealing with Ecosystem Indicators, it needs to be broadened to provide close attention to assessing how human activity links to ecological stress and to those special cases where it links to restoring the ecosystem.

Although the emphasis on chemical "pollution" is appropriate as a top current priority, it is important to recognize that the stresses that people impose on the ecosystem are physical and biological, as well as chemical. For instance:

- damming, dyking, dredging, and infilling can severely affect lakes, waterways, wildlife, microclimates, and ecosystem dependencies;
- expansion of farmlands can significantly impair biodiversity;
- urban sprawl can seriously reduce available farmland;
- insensitive commercial forestry practices can adversely alter regional ecosystems and microclimates, and can result in land degradation;
- discharges of heated water into waterways can dramatically affect aquatic life;
- extraction of non-renewable resources can give rise to remote human settlements that will create pressures on surrounding ecosystems;
- noise can seriously affect people, raising tensions, causing hearing damage, limiting sleep, and contributing to psychological problems. It also can affect wildlife, and their reaction can, in turn, disturb ecological balances;
- non-native plants, aquatic life and other species can be introduced, intentionally or unintentionally, and have major impacts — three relatively recent examples of unintentional invasion are zebra mussels in the Great Lakes system, milfoil weed in British Columbia lakes, and purple loosestrife in Ontario wetlands; and
- land use — everything from super-highways, to pipelines, to cottage development, lot severances, and urban sprawl — can add stress to the ecosystem;

Table 2, which follows, lists three types of stress and the human activities that produce them.

Extending Current Reporting

It is apparent that to monitor and assess human-ecosystem interaction, reporting on sustainable development must deal with a universe of data and information that extends well beyond the bounds of traditional financial reporting in terms of:

- the breadth of activites considered;
- the nature of the assessment that takes place; and
- the time horizon of assessments.

Nevertheless, the focus of reporting on interaction clearly should be on classifying and assessing human activities. And it is economics that provides the best starting point.

TABLE 2:
HUMAN ACTIVITIES GROUPED TO SHOW STRESSES AS PHYSICAL, CHEMICAL, OR BIOLOGICAL[28]

INDUCED STRESS "TYPE"	HUMAN ACTIVITY
PHYSICAL	physical restructuring
	land-use change
	erosion and sedimentation
	discharge of heat
	noise generation
	extraction of non-renewable resources
CHEMICAL	discharge of chemicals
BIOLOGICAL	harvest of renewable resources
	various forms of habitat disruption
	accidental or planned introduction of non-native species
	biotechnological manipulation

People Indicators (Human Well-Being): An Interdisciplinary Morass

Seeking a More Holistic Approach:

- health as complete physical, mental, and social well-being
- weaving development around people, not people around development
- the Newfoundland lesson: the need for an enormously broad range of disciplines
- initiatives

Health as Complete Physical, Mental, and Social Well-Being

For two decades in Canada there has been an official and determined effort to expand the idea of health into a more holistic notion of well-being. In 1974, the then Minister of Health, the Honourable Marc Lalonde, proposed a concept of health that linked the environment, human biology, lifestyle, and health care organization.[29] In 1977, Canada formally committed itself to a definition put forward by the World Health Organization (WHO) which described health as "a state of complete physical, mental, and social well-being, and not merely the absence of disease or infirmity". In 1986 the WHO, Health and Welfare Canada, and the Canadian Public Health Association used this definition as a starting point for the *Ottawa Charter for Health Promotion.*

The charter demonstrated just how wide-ranging can be the factors that influence health — when health is defined as well-being. It identified peace, shelter, food, education, income, social

justice, equity, maintenance of a stable ecosystem, and sustainable resource development as prerequisites to health. Many of these same factors were identified as critical components of sustainable development by The World Conservation Union, the World Wildlife Fund, and the United Nations Environmental Program in their 1992 publication *Caring for the Earth.* [30]

In its *Human Development Report, 1993,* the United Nations Development Program (UNDP) pointed out that while progress had been made during the past three decades, "our world is still a world of difference." It is important for Canadians to be familiar with the global context presented in the report because the interlocking nature of sustainable development issues means that problems in one part of the world can contribute to problems that affect everyone. For instance, there are clear links between Third World poverty and high population growth, deforestation, land degradation, and climate warming. The report says that:

> *More than a billion of the world's people still languish in absolute poverty, and the poorest fifth find that the richest fifth enjoy more than 150 times their income. Women still earn only half as much as men — and despite constituting more than half the votes, have great difficulty securing even a ten per cent representation in parliaments.*[31]

Weaving Development Around People

The United Nations report further points out that:

> *Development must be woven around people, not people around development and it should empower individuals and groups rather than disempower them.... Markets need to be reformed to offer everyone access to the benefits they can bring. Governance needs to be decentralized to allow greater access to decision making. And community organizations need to be allowed to exert growing influence on national and international issues.*[32]

Since the inception of the UNDP's human development index (HDI) in 1990, Canada has ranked either first or second overall. In 1993, however, an additional figure was published. It was the HDI adjusted for gender disparity, and in that rating Canada fell from second to eleventh place. In addition a third figure, the HDI adjusted for income distribution, showed that Canada dropped from second to sixth place.

The Newfoundland Lesson

The breadth of the disciplinary interests that must be brought to bear in assessing progress toward sustainable development is more evident in discussions of health and human development than in any other aspect of reporting. The degree to which health, work, and play depend on environmental integrity is direct and powerful. No better example exists in the world of this set of relationships than that provided by the demise of the North Atlantic cod populations and the resulting crisis for Newfoundland fishers and their communities. This is not just an environmental catastrophe; it is a human calamity as well.

If warning signals are to be recognized in time to prompt action before there is a crisis, reporting must cover a full range of indicators. And how broad that range is can be seen most clearly in the area of monitoring and assessing human well-being. In part, it's clearer here because human well-being deals with an aspect of sustainable development that comes closest to each and every one of us. And the lesson is obvious: sustainable development involves linkages that reach into every corner of life — environmental, economic, cultural, social, and political.

To monitor and assess the human dimension of sustainable development, insights must be drawn from a large number of disciplines. But the turf of these disciplines often lies protected by broad moats and high walls founded on language and concepts that only the initiated can fathom. To bridge this interdisciplinary morass is one of the core challenges of reporting on sustainable development.

Initiatives

In 1991, the National Task Force on Health Information, a joint initiative of the National Health Information Council (NHIC), the Conference of Health Deputy Ministers, and the Chief Statistician, Statistics Canada, declared that the system of "health information in Canada is in a deplorable state."[33] As a result, the NHIC, working with Statistics Canada's Centre for Health Information (CCHI), is developing a new System of Health Statistics for Canada. It is a very timely initiative, given the escalating costs of health care, and growing unease about potential links between human health, chemical contaminants, and other factors contributing to ecosystem degradation.

CCHI is responsible for conducting the Canada Health Survey, the last of which occurred in 1978. The next is scheduled for 1994. Other smaller, more specific surveys, are conducted by Statistics Canada, primarily for Health Canada. Both Ontario (in 1990) and Quebec (in 1992) also conducted major health surveys. Other provinces and territories are waiting for the 1994 Canada Health Survey. Health information also is collected and disseminated by other divisions, and arms-length affiliates, of Health Canada, and by provincial and municipal counterparts.

Over the past five years, a number of initiatives have departed from the traditional approach and taken up the challenge of developing a more holistic approach to health determinants. For example:

- the Healthy Communities movement has based much of its development of healthy community indicators on the conceptual work of Dr. Trevor Hancock that identifies
  - environmental well-being (viability),
  - economic well-being (adequate prosperity), and
  - community well-being (conviviality)

  as fundamental factors for maintaining sustainable, livable, and equitable communities;[34]
- Health Canada's Steering Committee on Indicators for a Sustainable Society includes environmental, economic, equity, and health factors in its conceptual approach;[35]
- the National Task Force on Health Information proposes a template for assembling health information that is based on recognizing that a person's health is determined in the interaction between his or her individual characteristics and external influences that are:[36]
  - physio-chemical,
  - economic,
  - socio-cultural, and
  - features of the health care delivery system.
- within Health Canada there is a growing emphasis on linking health and the environment, and it is reflected in:
  - the department's 1992 report *A Vital Link – Health and the Environment in Canada; and*
  - the pioneering work of the Great Lakes Health Effects program.
- ongoing conceptual work of the Canadian Institute for Advanced Research links the interaction of:[37]
  - the physical environment,
  - the level of prosperity, and
  - the social environment,

  with
  - genetic endowment,
  - health care,
  - disease, and
  - health and function.

  It also links an individual's response to this interaction (both in behaviour and in biological development) with the overall generation of well-being. It then shows how the degree of well-being feeds back to influence other parts of the system;

- the Canadian Medical Association has developed a model of health and sustainability which includes environmental, economic, and health components;[38]
- the Canadian Public Health Association has established a Task Force on Human and Ecosystem Health; and
- the Global Change Program of the Royal Society of Canada has established a Health Committee.

In addition to these health-based initiatives, many other disciplines are involved in defining and understanding human well-being. Philosophy, religion, and practical ethics lay claim to the very foundation of the topic. Psychiatry, psychology, and sociology focus on the individual personality and the health of individual-family-community relationships. Since the 1970s, and in some cases earlier, landscape architecture and land use planning have been involved in systematic attempts to understand individual, household, and community well-being in relation to physical and social environments. Much of this is captured in quality-of-life literature.

All of the above initiatives, and the related literature, contribute insights that will help in the assessment of the human dimension of progress toward sustainable development in Canada. However, none has offered a satisfactory overall solution to the reporting challenge.

Integration and Synthesis

Building Roadmaps to Anticipatory Reporting:

- making the most of the bridging power of sustainable development
- improving information systems so that they will support integrative long-term, anticipatory analysis and decision making
- putting the seventh-generation principle of aboriginals into practice

The Bridging Power of Sustainable Development

More than anything else, the power of sustainable development lies in its bridging capability — its ability to facilitate integration, synthesis, and collaborative approaches to problem solving.

In a similar way, state-of-environment (SOE) reporting has been motivated by a desire for integration and synthesis. Drawing on ecosystemic principles, SOE reporting has taken the lead in struggling with the issue of cumulative effects and of identifying and assessing cause-effect relationships when hard evidence is scant, or non-existent. Some of the strongest experience in integrating human and ecosystemic issues has occurred at project levels where there have been environmental impact assessments (EIA) that include social impact assessments.

Reporting on sustainable development should build on this experience. But reporting on sustainable development is not SOE reporting or environmental impact assessment extended, just as it is not economic, health, quality-of-life, or law reporting extended. Its power lies in its acknowledgement that all of these facets of reporting, and others as well, have an important role to play. The unique contribution that reporting on sustainable development offers lies in the potential it has to provide a roadmap that will link all these interests.

Improving Information Systems

A bridging approach is long overdue. Experience with the Great Lakes ecosystem serves to illustrate. The first assessment of pollution problems was completed in 1912. In the 80 years since then, thousands of reports have been written that deal with some aspects of that ecosystem — such as the Great Lakes economy, human activities and how they are stressing the ecosystem, and human health. Only three have tried to integrate across this spectrum of concern.

The need for more integrative approaches to policy development in Canada were recognized as early as 1948 when conservation authorities

were established in Ontario. They were organized on the basis of drainage basins and given certain integrating responsibilities. In the 1970s, large integrative water basin planning studies came into vogue and a number were completed in various parts of Canada. However, the results of this work remained distant from mainstream politics.

In the late 1980s, the political situation began to change. The Yukon Government set a leading example of integration with its 1988 long-term economic strategy called YUKON 2000. The ecological principles that were incorporated into Yukon 2000 were subsequently echoed in the government's 1990 Conservation Strategy. Canada is not alone in its initiatives; many countries around the world have adopted integrative strategies for sustainable development.

As a reflection of the approach taken by society as a whole, corporations and governments generally adopt a "react and cure" attitude that leads to sectoral divisions in policy making. Institutional arrangements parallel and reinforce this compartmentalizing of responsibilities, as do the resulting information systems. Not surprisingly, these information systems tend to focus overwhelmingly on the immediate and do not provide much support for integrative policy development and decision making that deals with the very long term in an attempt to anticipate and prevent difficulties before crises occur.

We reach the following conclusions and observations:

1. the interpretive, anticipatory, and long-term perspective that is demanded by the idea of sustainable development points to a need for change in traditional government and corporate organizational structures and mandates;
2. only limited resources are available to reform and build on current reporting systems;
3. while important gaps exist, a powerful inoromation base is available that cannot be put to effective use because of its compartmentalized nature;
4. it is vital that communities, corporations, and governments embed principles of sustainable development as basic values within their organizations, and that in rating performance, they place a high value on implementing sustainable development principles and on providing integrated monitoring, assessing and reporting of progress; and
5. an important step for any organization is to charge an individual or an office with responsibility for monitoring, assessing, and reporting progress toward sustainable development.

The Seventh-Generation Principle

This last conclusion, if acted upon, will incorporate into decision-making structures the ancient aboriginal practice of investing a member of a tribal council with responsibility for speaking on behalf of people to be born seven generations hence, and calling on that person to assess what impact a decision would have on them.

Toward a Short List of Key Indicators

The Scope of Indicators

- at present they address specific needs within limited fields
- in the future they should be trans-disciplinary with perspectives that are integrative and anticipatory
- in the meantime, developing a definitive set of indicators will require patience

Present Indicators

Within each indicator domain, there are indicators that are widely used. Box 2 offers a number of examples.

These examples demonstrate how wide is the area from which data and information need to be drawn in order to properly assess progress toward sustainable development. Individually, any one indicator sends an extremely limited signal

BOX 2
A PARTIAL LIST OF RUDIMENTARY INDICATORS

I ECOSYSTEM

- temperature (daily and trends over time)
- concentrations of contaminants in indoor and outdoor air that are: common (CO_2, NO_2 ground-level ozone, carbon monoxide); and toxic (dioxins, lead, etc.)
- concentrations of contaminants in water (mercury, DDT, PCBs, etc.)
- concentrations of contaminants in the tissue of fish, birds, wildlife, and humans (lead, PCBs, DDT, etc.)
- rates of soil erosion
- acid deposition
- loss of wildlife habitat
- the state of biodiversity:
  - genetic (diversity within species), and
  - species (diversity in the number of distinct species)
- species health (births, survival rates, deformities, leaf or needle loss, etc.)
- population shifts of wildlife (eagles, caribou, counts of migrating salmon in the Fraser River, etc.)

II INTERACTION

- contribution to well-being by activity (value-added by: agriculture, manufacturing, financial services, housework, etc.)
- resource use (per unit of time, or per unit of output)
- generation of contaminant emissions:
  - heat and waste products per capita, or per unit of production
  - loadings to air, surface water, groundwater, or land by activity (by automobiles, pulp and paper manufacturing, energy production, etc.), and
  - the totals for regions and the nation
- proportion of materials recycled
- renewable resource harvest rates
- non-renewable resource extraction rates
- degree of compliance with laws and regulations

III PEOPLE

- infant mortality rates
- literacy rates
- life expectancy at birth
- incidence of disease
- employment and unemployment rates
- income levels
- degree of pride in community and culture
- corporate bankruptcies
- level of indebtedness (individual, community, and nation)
- obesity (adults)
- malnutrition (children)
- caloric intake, and the proportion of it acquired from local, Canadian, and foreign foods

to decision makers. However together, they form a useful "family" that can offer an overall sense of movement — one way or the other — even though the trends of individual indicators may be contradictory. In time, and as we gain experience in synthesizing the broad picture, a refined "family" of sustainable development indicators will emerge.

The indicators listed in Box 2 (and many others not listed) have gained prominence because they are useful within one field or another. Normally, they developed in isolation from disciplines in another field, and without any overarching link. In addition, how they are applied, or whether they are applied at all, depends on who is doing the applying — a national organization, a regional, a corporate, a community, a household, or simply an individual.

Future Indicators

A significant step toward development of transdisciplinary indicators was taken in 1989 when the OECD was requested by the G-7 Summit,

> *...within the context of its work on integrating environment and economic decision making, to examine how selected environmental indicators could be developed.*[39]

In response, Environment Canada quickly established an Indicators Task Force to lead Canadian efforts.[40] And Health and Welfare followed by co-ordinating the creation of a Steering Committee on Indicators for Sustainable Development.[41] The Canadian Environmental Advisory Council commissioned several undertakings and brought Canadian experts together to brainstorm on the subject of "indicators of ecologically sustainable development."[42] It also was at this time that the National Round Table began work on defining indicators for monitoring sustainable energy production and use.[43]

In the Meantime . . . Patience

To achieve the kind of integrative and anticipatory reporting system that is required for sustainable development, it is essential to embrace a new, broader perspective that goes beyond environmental, economic, social, and cultural indicators. That perspective is found in the concept of sustainable development.

It is important to support ongoing work on new indicators in various fields. But it is even more important to encourage work that links these fields together. Finding out how to link these fields, identifying new and pertinent indicators, and — especially — establishing indicators that are integrated, transdisciplinary, and anticipatory . . . that is going to take time.

In the end, with patience, dedication, and a good deal of interdisciplinary co-operation, we may very well be able to identify a small list of key indicators of sustainability.

DECISION MAKERS

Individuals and Households [44]

A Focus on:

- Canada's people
- their reporting needs
- what information and data are available
- discussion and recommendations

Canada's People

According to the 1991 census, there were 27,296,859 people living in Canada in just over ten million households. Three quarters were urban dwellers, one quarter were rural.

Every day, in meeting basic needs and striving for an enhanced quality of life, individuals and families make decisions. They are the fundamental decision-making units of Canadian society.

Reporting Needs of Individuals and Households

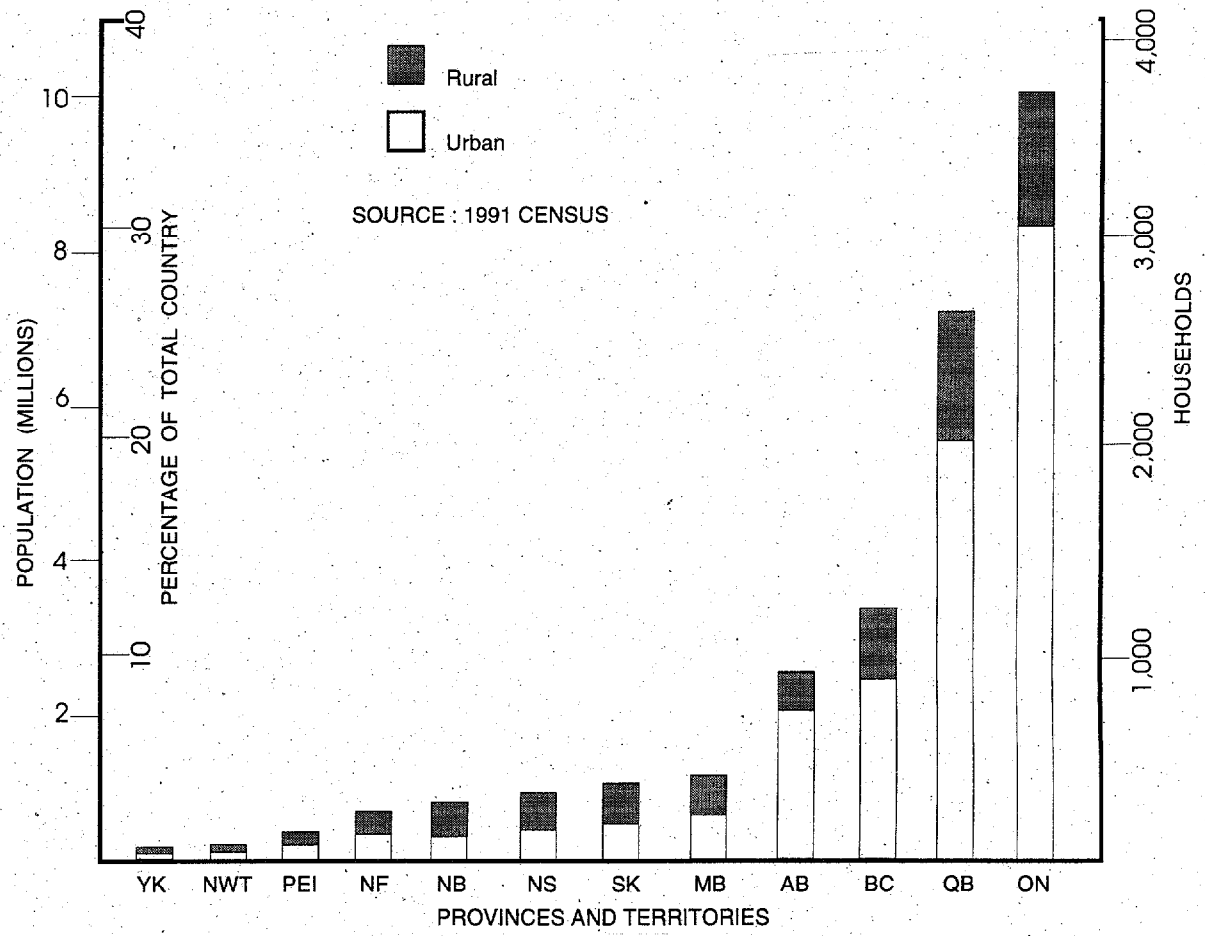
It is practical information and data that people need. So, the following questions should be addressed:

- In terms of human well-being and the well-being of ecosystems, how does my home rate? And my neighbourhood, workplace, and community? What impact do their conditions have on me and my household? How do they compare with those of others?
- What stress (physical, chemical, or biological) do my activites, and those of my household, create — for instance, by our eating, recreation, travelling, buying patterns, etc.? What benefits do we receive? How do our experiences compare with those of others?
- What activities in my workplace, neighbourhood, and community enhance or detract from the well-being of people and of ecosystems? How do these activities compare to what others are doing?
- What higher goals might we achieve, and how does my track record, and that of my household, measure up to those goals? What could we be doing that would improve our performance, and what impact would it have? What would be the difference if people and households undertook collective action?

What Information and Data are Available?

With the exception of energy-use statistics from utilities, the vast majority of individuals and households do not get, and are not encouraged to generate, the kind of information that will answer the above questions in any systematic way. Computerized home audit programs are available, but they are not widely used. Consumer product information is available in popular literature and through programs such as the federal Environmental Choice Program, but it offers far from enough. And information pro-

FIGURE 1
POPULATION AND HOUSEHOLDS BY PROVINCE AND TERRITORY



The "urban" component includes all those living in a continuously built-up area having a population of at least 1,000 living in a density of 400 or more per square kilometre. All others are considered "rural".

vided by manufacturers is mistrusted by most consumers.

In 1991, Statistics Canada completed a survey of *Households and the Environment.*[45] However, it was a once-only undertaking and there is no funding to repeat the survey at regular intervals. Provincial surveys, and the occasional large municipal survey, are completed sporadically. And municipal, provincial, and federal co-ordination in surveying is limited.

Until recently, sharing health records with patients was discouraged. Moreover, systematic collection and analysis of health statistics has been irregular. The good news, however, is that the situation will improve significantly with the development at the federal level of the new System of Health Statistics.

Discussion and Recommendations

The most significant, and yet the least realized aspect of the entire issue of reporting on sustainable development, may be the challenge of providing individuals and households with information. They need to know not only specific information about consumer purchases, but also, in a much broader context, about lifestyle choices.

Because of their importance as decision makers, the National Round Table has joined with ParticipACTION, to develop a program to encourage them to become more knowledgeable about sustainable development and how they can promote it.

However, success in motivating people will be extremely limited if appropriate mechanisms are not put in place to gather key statistical data and information, and to gather it in a rigorous and ongoing way. Baseline information as well as trends over time are required. Given the cost, co-ordination, and expertise involved, it is essential that the federal government take a leading role, preferably through Statistics Canada which already has the capability to do it.

The most effective approach may be to modify existing reporting functions, such as that used for the *Labour Force Survey.* That is how the *Households and the Environment Survey* was completed in 1991.[46]

The National Round Table is aware of the large number of competing demands that the Chief Statistician must weigh in establishing priorities. Nevertheless, it wishes to emphasize how urgently individuals and households need data and information to chart a path toward sustainable development and to measure their progress.

WE RECOMMEND THAT STATISTICS CANADA:

a. *systematically gather and periodically report data and information concerning individuals and households that is related to the state and progress of sustainable development; and, to that end,*

b. *join with the National Round Table and participACTION in their social marketing initiative to jointly:*

- *design, develop and launch a national sustainable development home survey and report-back program; and*
- *motivate people to participate.*

The program will provide an opportunity for Statistics Canada to develop and implement an ongoing, individual and household database with information from all parts of Canada. It should aim at enabling individuals and households to monitor, assess, and report their activities and to compare them to local, regional, provincial, and national averages.

Consumer buying habits that are sensitive to sustainable development concerns are essential to any progress. Consequently, Environment Canada has established a project in which manufacturers voluntarily participate, called the Environmental Choice Program. Individual products are assessed and, if certain environmental standards are met, they are awarded recognition and the right to carry an Environmental Choice logo. Information describing the successful products and the relevant standards is also made available to consumers.

The National Round Table is concerned that the single-ministry focus of this program has limited its effectiveness. Within the federal government, consumer-related responsibilities are shared — at the very least by Environment Canada and by Industry Canada. If there were a similar sharing of responsibility for the Environmental Choice Program, the program could draw upon more extensive expertise and enjoy a wider base of support.

WE RECOMMEND THAT THE GOVERNMENT OF CANADA:

restructure the environmental choice program to be a joint responsibility of Environment Canada and Industry Canada.

In follow up, every effort should be made to expand the program to cover a broader range of products and to upgrade program marketing to ensure more effective outreach.

Communities [47]

A Focus on:

- what is a community?
- reporting needs of communities
- what information and data are available?
- discussion and recommendation

What is a Community?

A group of people can be called a community if:

- membership in the group contributes to self-identification;
- there is extensive participation by its members in the decisions by which its life is governed;
- the group as a whole takes responsibility for its members; and
- this responsibility includes respect for the differences among these members.[48]

By this definition, a community could be based on ethnicity, gender, religion, geography, politics, or interest.

In gathering statistics on communities, however, data and information is not sought according to the above characteristics of a community. Instead, they usually are collected in relation to the existence of a local government and these governments may, or may not, reflect the sense of community as defined here. Nevertheless, there is a significant shift occurring in the Canadian mosaic as more and more jurisdictions assume greater responsibility for their own futures. One result is a strengthening of a sense of community as defined above.

The fundamental reporting unit within Statistics Canada is the *Census Subdivision,* which is usually a municipality or its equivalent, such as an Indian reserve, an Indian settlement, or an unorganized territory.

Where there is an urban area with a core population of at least 10,000 Census Canada identifies it as a *Census Agglomeration (CA).* Adjacent urban and rural areas, which have a high degree of economic and social integration with the core, are included within the CA. When the core reaches a population of 100,000, the area is designated a *Census Metropolitan Area* (CMA). Statistics Canada also establishes as *Urban Areas* those locations which have a population of at least 1,000 and a density of 400 per square kilometre.

Provinces differ in how they identify communities. Their definitions are presented in a variety of statutes in which "communities" can include cities, municipalities, towns, villages, hamlets, and Indian reserves. And they may, or may not, conform with the statistical units established by Statistics Canada. Where they do not conform, usually it is possible to approximate the "community" area by grouping together enough of Statistics Canada's Census Subdivisions. However, Statistics Canada surveys usually are motivated by national data needs and, with the exception of work aimed at tracking conditions

TABLE 3:
COMMUNITIES DEFINED BY STATISTICS CANADA

Region	Census Subdivision	CAs	CMAs	Urban Areas
Canada	6,006	115	25	893
QB	1,637	28*	6*	222*
SK	953	8*	2	69*
ON	951	32*	10*	246*
BC	691	22	2	92
AB	438	9*	2	99*
NF	404	4	1	42
MB	293	4*	1	42*
N.B.	287	5*	1	36*
P.E.I.	126	2	0	7
N.S.	118	4	1	38
N.W.T.	72	1	0	4
YK	36	1	0	1

* communities crossing provincial boundaries are counted in both provinces

SOURCE: Statistics Canada

TABLE 4:
COMMUNITIES ACCORDING TO PROVINCES AND TERRITORIES

COMMUNITIES

Region	Number	Type
QB	1,477	municipalities (cities, towns, villages, townships and parishes, and counties)
ON	951	Statistics Canada Census Subdivisions (metropolitan government, regional/ district governments, cities, towns, villages, counties, and townships)
SK	943	13 cities, 146 towns, 376 villages, 290 rural municipalities, 105 Indian reserves, 13 northern hamlets
NF	705	310 incorporated (cities and towns) 396 unincorporated (local government communities and local improvement districts)
MB	293	Statistics Canada Census Subdivisions (cities, towns, villages, rural municipalities)
AB	325	16 cities, 109 towns, 122 villages, 4 summer villages, 30 counties, 22 municipal districts, 19 improvement districts, and 3 special areas
B.C.	150	municipalities (regional districts, cities, towns, villages, municipal districts)
N.B.	117	6 cities, 27 towns, 84 villages (parishes and Indian reserves excluded)
P.E.I.	89	1 city, 8 towns, 80 municipalities
N.S.	66	municipalities (3 cities, 39 towns, and 24 rural municipalities [including villages and service areas] organized as 12 counties and 12 districts)
N.W.T.	65	1 city, 5 towns, 1 village, 36 hamlets, and 23 unincorporated communities
YK	20	1 city, 3 towns, 4 villages, and 14 unincorporated communities

SOURCE: Provincial and Territorial government officials, and Higgins, 1986

in large urban areas, analyzing the data is rarely useful for community purposes.

Reporting Needs of Communities

Community decision makers should have access to data and information that:

- points to the integrity, or well-being, of the ecosystem with which the community interacts and how it compares to ecosystem conditions elsewhere;[49]
- outlines:
  - activities undertaken within the community, how they provide for basic needs and enhance the quality of life, and how they stress or restore the ecosystem;
  - activities undertaken outside the community and how they add to the stress, or aid the restoration, of the ecosystem,
  - how all this compares to what is happening in other communities, and
  - how successful the community has been in meeting goals and objectives that have been set in policies, regulations and legislation;
- measures the well-being of community members and the community as a whole, and compares the measurements to those in other communities across the country.

Once data and information is compiled on individual communities, one of the great spinoff advantages will be that it can become available to any other community that wants to measure its performance against that of others. However, being available is different from being accessible. There is now, and there will increasingly be in the future, a need for efficient access to information about what is happening in other communities across Canada — describing their policies and programs (intentions and actions) relating to sustainable development. To this end, a national clearinghouse of information should be established.

What Information and Data are Available?

It is lack of access to data and information, not lack of the data and information itself, that is seen as the greatest limitation. Municipal planning offices already use a lot of census data. Nevertheless, there are serious failures to meet the reporting needs in each of the three categories mentioned above. For instance, there is a lack of:

- neighbourhood-level data and information in general;
- information on the local level of health,well-being, and quality of life;
- economic data and information collected and presented to conform with the needs of local governments;[50]
- comprehensive energy-use statistics collected and presented to conform with the needs of local jurisdictions (electricity and gas statistics from utilities are available, but data on other forms of energy, including liquid fuels and wood, are lacking);
- other resource-use statistics;
- data and information describing stress imposed on ecosystems (chemical, physical, and biological) that, together with resource-use statistics, would allow assessment of the demands that a community places on its surrounding environment;[51]
- data and information describing compliance with existing laws and regulations; and
- data and information describing ecosystem conditions (for example, street air quality, diversity, and the state of living things).

This list of shortcomings was identified in discussions with local government experts across Canada. It would take a vast effort, well beyond current means, to address them. There is a strong feeling, however, that there could be a significant improvement if fragmented information resources were co-ordinated.

- about 140,000 not-for-profit voluntary organizations, churches, and trusts of which half qualify for tax-exempt, charitable status;
- about 18,000 professional associations;
- about 7,000 co-operatives, of which 4,096 are non-financial co-operatives,[54] 2,807 are credit unions and caisse populaires,[55] and 11 are insurance co-operatives;[56]
- 1,227 hospitals;[57]
- 945 unions; and
- 249 universities, colleges, and community colleges.

Strictly speaking, government also functions as a "corporate entity". However, because of its special status as society's rule maker, it is considered separately.

In this report, we examine only the first category of decision makers — for-profit corporations.

The Evolution of Corporate Reporting

For the most part, corporate reporting is aimed at shareholders and investors, senior management, boards of directors, employees, and customers, and concentrates on reporting the financial state of the company and on employee safety. Much of the financial reporting is required by law.

Responding to the concept of sustainable development, however, some leading members of the corporate world are expanding their reporting scope — and generally, they are doing so in two ways. In the first place, they are expanding the list of stakeholders targeted to receive their reports to include host communities. And secondly, they have broadened the value base that drives the reporting process to include ethical and environmental concerns. Their reports have been dealing with social, environmental, ethical, and procurement issues in addition to financial reporting.

Their motivation has stemmed from an expanding environmental and ethical awareness, and by rising environmental standards in society at large. Moreover, they have come to recognize that economic benefits go hand-in-hand with environmental improvements, especially in the longer term and in the international competitive arena.

Corporate sustainable development reporting ranges:

from >>	the creation of environmental mission statements or codes of practice,
through >>	elaborate performance or compliance monitoring,
to >>	anticipatory assessments of the environmental and social implications of activities, products, and services.

Ideally, reporting on any level is part of an overall corporate strategy for sustainability. Given the variety of corporate goals and objectives, there never will be one uniform way to monitor and assess corporate progress toward sustainable development.

There have been a number of agencies that have been instrumental in guiding companies. For example, the International Institute for Sustainable Development in Winnipeg has spearheaded both development and synthesis of a variety of new ideas related to corporate environmental reporting.[58] The Canadian Institute of Chartered Accountants continues to explore whether "environmental auditing" can be formalized in a set of rules analogous to those governing financial auditing.[59] And EthicScan Canada has pioneered work on assessing and reporting corporate ethical performance.

What Information and Data are Available?

Very few corporations in Canada have reporting procedures that go beyond a traditional prototype. We base that statement on research commissioned by the National Round Table's Task

Force on Reporting.[60] The research showed that among:

large corporations (more than 200 employees)

- in the order of one per cent routinely monitor and assess some aspect of progress on sustainable development practices;
- fewer than one per cent are committed to releasing an annual environmental report for external consumption;
- about seven per cent report environmental issues to their boards on a regular basis;

medium-sized corporations (100-200 employees in the manufacturing sector, 50-200 otherwise)

- less that one-tenth of one per cent routinely report progress on sustainable practic;es

small businesses and self-employed individuals

- it is a rare exception that any monitoring and assessing related to sustainable development practices occurs at all.[61]

We conclude that:

- in spite of documented evidence to the contrary, the vast majority of firms believe that there are prejudicial aspects to reporting publicly on sustainable development that outweigh potential benefits;
- few corporations have procedures in place to monitor and assess the impact of their operations on the receiving environment at any of the local, regional, or global levels — and if they do, still fewer publish their findings; and
- few corporations have procedures in place to monitor, assess, and report publicly on the overall contribution they make to the well-being of the local, regional, and national communities.

Leading Edge, Couch Potato, or Hostile Avoider — Disclosure Varies Among Large Corporations

Large Canadian corporations generally display one of five levels of commitment to disclosing their record on sustainable development:[62]

LEVEL 1
LEADING EDGE — 1% OF TOTAL
Early adapters or self-styled leadership companies and sectors that have reported at least once and are committed to doing so on a regular basis, typically annually;

LEVEL 2
VANGUARD OF THE REARGUARD — 2% OF TOTAL
Cautious innovators that are preparing to undertake some aspects of state-of-environment reporting, parts of which may be made public;

LEVEL 3
CORPORATE COUCH POTATOES — 7% OF TOTAL
Slow adapter companies that don't report, except, perhaps, to an internal audience, yet are watching the competition to see what transpires with those that are trying to report;

LEVEL 4
REARGUARD OF THE REARGUARD — 60% OF TOTAL
Companies that are aware of reporting but, when asked, identify a myriad of reasons why it isn't practical, or possible, or in their best interests to report;

LEVEL 5
HOSTILE AVOIDERS — 30 % OF TOTAL
Companies that are active resisters and oppose the very idea of reporting anything at all.

Discussion and Recommendations

Some Canadian corporations are excellent models of "leading edge" behaviour — which is heartening, given the growing evidence that so

many of our international trading competitors are striving to apply the highest possible environmental and social standards, instead of the lowest possible, to such matters as waste and emissions, packaging, efficiency of resource use, auditing, and other areas of business.

To protect and improve Canada's competitive position, it is essential that corporate consumer regulation, and industry sustainable development standards — and especially reporting standards — be set to compare favourably to the highest in the world.

WE RECOMMEND THAT THE GOVERNMENT OF CANADA:

make a commitment to having corporate and consumer standards set, in particular for reporting, that will compare favourably to the highest in the world.

Over all, we conclude that significant gaps exist between what ideally should be reported, what currently is practical, and what actually is being reported. Closing these gaps will take time. In the meantime, corporate sustainable development reporting should be nurtured but not regulated; encouraged but not standardized; reinforced but not necessarily legislated.

Corporations need to compare their actions with those of others — just as other decision makers do — and when they want to compare financial performance, there is plenty of information available. But, if they want to see how they compare in promoting sustainable development, except in a few cases the broader comparative data and information that they need are not available. The exceptions are in those businesses where there are industry association programs such as the National Emission Reduction Master Plan, a voluntary program of the Canadian Chemical Producers Association.

There is, however, a special opportunity to develop a source of comparative and cumulative information, as well as to eliminate duplication of reporting at community, corporate, regional, provincial, and national levels.

It will come with implementation of the National Pollutant Release Inventory (NPRI) that is proposed under section 16 of the Canadian Environmental Protection Act. The NPRI is a significant initiative, even though, within the context of everything that Environment Canada is doing, it does not represent a major undertaking.

Environment Canada is still working on details of the NPRI, and while it is doing so, Statistics Canada is developing a Waste and Pollutant Output Satellite Account as part of its work on modifying the System of National Accounts. The National Round Table is concerned that the experience and expertise of both Environment Canada and Statistics Canada are not being co-ordinated in the best possible way. The result could well be duplication and, at worst, confusion in data gathering, as well as irritation on the part of companies faced with replying to yet more requests for information.

WE RECOMMEND THAT THE GOVERNMENT OF CANADA:

make Statistics Canada jointly responsible with Environment Canada for development and implementation of the National Pollutant Release Inventory.

Management of the program should be aimed at collecting accurate and timely data that keeps to a minimum duplication with other efforts to gather data and information.

Up to this point, our examination of corporate decision-makers has been focused exclusively on for-profit corporations. When it comes to their not-for-profit cousins, the picture is much bleaker. Although we did not conduct extensive research, every indication points to most of them as lagging far behind for-profit corporations in their commitment to sustainable development reporting and practice.

With two exceptions, we are unaware of any voluntary association, union, university, or college that has implemented an ongoing sustainable development reporting process (internal or

external) for itself as a corporate entity. The two exceptions are documented in a report on the initiatives of the Alberta Institute of Technology,[63] and in the statement of sustainable development aspects of internal operations contained in the 1992-93 annual report of the International Institute for Sustainable Development.

WE RECOMMEND THAT THE GOVERNMENT OF CANADA:

take the necessary steps to encourage all corporate entities (including for-profit businesses, not-for-profit voluntary organizations, professional associations, co-operatives, hospitals, unions, universities, colleges, and community colleges) to:

a. develop sustainable development codes of practice; and

b. implement practical reporting systems to facilitate monitoring and assessment of progress over time.

The Federal Government [64]

A Focus on:

- the dual role of government
- the size of government in Canada
- federal assets and purchases
  - what data and information are available
  - discussion and recommendation
- the impacts of federal actions
  - what data and information are available
  - discussion and recommendations
- assessing progress in all of Canada: discussion and recommendation

The Dual Role of Government

When it comes to reporting, the federal government has a dual role. One is to focus on the country; the other is to focus on itself.

In its first role, the government is responsible for establishing reporting procedures that allow monitoring and assessment of the activities and well-being of Canada's people and ecosystem. This serves its citizens and addresses the decision-making needs of Parliament.

In its other role, the government reports to the electorate on its performance as a corporate entity. As with any corporation, the government employs people, provides services, stresses the ecosystem — for instance by contaminating air, water, and land, and by using resources — and can take action to reduce stress on the ecosystem that is caused both by it and by others. In this second role, the government is in a special, and too rarely exercised position of potential leadership among all decision makers.

The Size of Government in Canada

Statistics Canada listed 97 federal government departments in fiscal 1992-93, and the 1991 census counted 443,500 employees.[65] Statistics Canada also identified 265 provincial and territorial departments and agencies employing 311,560 people, and 7524 local governments employing 354,130 people. In total, government employees made up 7.5 per cent of Canada's labour force.

The federal government is the largest commercial property holder in Canada, owning or leasing 25 million square metres of office space. The federal inventory of buildings and facilities lists more than 50,000 items including office buildings, laboratories, parks, and military bases.

Federal Assets and Purchases: What Data and Information are Available?

Parliament is responsible for holding the executive branch (the federal government as run by a

political party) accountable for its actions. Control of expenditures and management practices is achieved under a three-part process that includes:

- the budget;
- main and supplementary estimates; and
- the Public Accounts of Canada which are published annually and are examined and signed by the Auditor General — and often carry his critical comments.

The progress of financial transactions is reported at each stage. However, tracking them through each stage is another matter. Often it is a formidable task that can daunt even the experienced.

Tracking and valuing real property and capital assets poses additional difficulties.[66]

The Treasury Board Secretariat maintains a Directory of Federal Real Properties which it is computerizing under its Area Screening Canada (ASC) program. When completed in 1993-94, there will be a computerized inventory, based on 45 geographic areas, of every property the government rents or owns.

For some assets, such as warships, the parliament buildings, crown wilderness lands, and forests, no evaluation procedures have been established. And where there are government properties with identifiable market values, no attempt is made to track changes in what they are worth as markets themselves change. Most real property is managed by the Department of Public Works and Government Services. Management of the remainder is assigned according to program responsibilities to various departments and agencies, such as Agriculture and Agrifood Canada, the RCMP, the Department of National Defence, Correctional Services, the Department of Foreign Affairs and Transport Canada.

Although each department is responsible for maintaining an inventory of all its other capital assets — such as laboratories, libraries, licences to technology, vehicles, royalty rights, desks, and computers — there is no mechanism to consolidate this record across the federal government. Furthermore, all capital goods are written off on purchase (as an operating expense) and there is no tracking of depreciated value over time as there is in private industry.

The Auditor General has voiced his concern over these practices and, as a result, the Office of the Comptroller General is examining how to introduce capital depreciation and valuation into federal management practices. However, no changes are expected for two years.

Because of current practices, the federal government cannot:

- track the inventory and value of real property and other capital assets in any comprehensive way; and
- provide a consolidated inventory of real property and other capital assets which have no assignable value.

Federal Assets and Purchases: Discussion and Recommendation

Shortcomings in the federal system of cataloguing and tracking the value of government assets introduces a limit to institutional memory. They stand as an impediment to monitoring the record of the government over the long term. And they impede the government's ability to assess sustainability:

- from a financial perspective; or
- by completing a full analysis of the "state" of its assets from an environmental perspective; or
- by completing a full analysis of the stress that its assets, and the way in which they are used, are imposing on the ecosystem.

The federal financial management and reporting system is complex, and the way in which it is reported is far from user-friendly. In fact, the form and complexity of the reporting process is a significant barrier to a greater understanding of government in this country.

The reporting system should be much more transparent than it is, and it should engender a much greater sense of value than it does.

We are aware that a number of departmental initiatives have been taken to encourage "environmentally-smart" activities — in particular the 3 Rs: reduce, reuse, and recycle. In addition, the Speaker has undertaken initiatives to make Parliament itself function in a more environmentally sensitive way. And the Office of Environmental Stewardship is examining federal procurement to see how environmental criteria can be applied to purchases.[67]

However, cross-governmental strategic action has not occurred, even though it has been recommended. In the late 1980s, as a result of recommendations from the Nielsen Task Force, the federal government committed itself to developing the "Canadian Annual Procurement Strategy" (CAPS). The strategy was aimed at a better integrating of socioeconomic and environmental priorities into Cabinet and departmental purchasing decisions. It also was intended to give business and the general public a clearer picture of government purchasing priorities. Unfortunately, the main purchasing departments — the Departments of National Defence, Transport, and Public Works and Government Services — had operational needs that were not met by CAPS and the strategy is now dormant.

A less ambitious "Short Range Planning System" has been developed to encourage interdepartmental liaison on procurement, and it is subjecting major procurement initiatives to standard environmental assessment practices. However, no government-wide procurement policy and tracking system such as CAPS is contemplated and it is important that there should be one.

WE RECOMMEND THAT TREASURY BOARD:

re-assign priority to efforts that will lead to the development and implementation of a government-wide procurement strategy and related tracking system that:

a. reflects the principles of sustainable development;

b. provides the Cabinet, Parliament, and the public with a three to five-year perspective of government procurement plans; and

c. includes a reporting system that effectively compares actions with intentions.

The Impact of Federal Actions: What Data and Information are Available?

We are unaware of any departmental or overall government attempt to develop and implement a long-term reporting system for sustainable development similar to what is emerging in the for-profit corporate world.

Estimates complied in the mid-1980s by the Major Surveys Team of the Nielsen Task Force, indicated that the federal government spends three-quarters of a billion dollars annually, and employs more than 10,000 people, in collecting basic information about Canada, its people, its economy, and the ecosystem. The provinces spend a further $125 to $150 million a year.

It was clear then, as it is today, that there are great variations in the priorities and approaches that are adopted in collecting and analyzing data and information. They depend on whether the focus is on activities and well-being of people, economic trends, natural resources, specific industries, or the state of the ecosystem. The result is a highly fragmented federal information system that provides inadequate support for the new agenda implicit in sustainable development.

Nevertheless, there are initiatives being taken within the federal system that are showing great progress, even though they are not fully integrated. Of particular note are:

- advances reflected in the 1991 *State of Canada's Environment,* published by Environment Canada, and in *Human Activity and the Environment,* published by Statistics Canada;
- progress made by Environment Canada in integrating economic and environmental concerns in the development of a national set of environmental indicators;

- the ongoing growth and development of Canada's system of monitoring ecosystem conditions, including identification of a key list of environmental indicators, which has been spearheaded by Environment Canada's State-of-Environment Reporting Service — which, in turn, has enjoyed the co-operation of Statistics Canada and a variety of other federal and provincial departments;

- Forestry Canada's *Annual Review* regarding the state of Canada's forests which is presented to Parliament — however, the last review published was for 1991;

- ongoing modifications to the System of National Accounts undertaken by Statistics Canada, in co-operation with the United Nations, OECD, and others which will allow environmental concerns to be dealt with more effectively;

- ongoing efforts by Statistics Canada to identify and compile a variety of social indicators through its General Social Surveys;

- the evolution of a new system of health information in a co-operative venture of Statistics Canada and the National Health Information Council which is taking place within the Canadian Centre for Health Information, located within Statistics Canada;

- Health Canada's increasing efforts to assess the link between human health and environmental conditions.[68]

On a global scale, Canada is part of a world community in which international agreements are of growing importance. They cover a broad range of topics, including trade and regulation of certain activities such as fishing and whaling. Moreover, at home, there is a great deal of provincial and federal legislation that has implications for Canada's international competitive position.

With publication of Canada's Green Plan, the federal government committed itself to undertaking a comprehensive review of the environmental impacts that flow from implementing existing statutes, policies, programs, and regulations. It also committed itself to proposing modifications wherever necessary. The initial phase of this review was scheduled to take place between 1991 and 1996. It has stalled.

No one federal department has been given the responsibility of regularly reviewing international, national, and provincial legislation and regulations as they relate to sustainable development. The goal of such reviews should be to assess and report on how they impact upon Canada's trade position, what implications they carry with respect to overall prosperity, and how they affect the integrity of the ecosystem both within Canada and beyond.

The Impact of Federal Actions: Discussions and Recommendations

The lack of a system for reporting on its own performance in advancing sustainable development represents a serious inadequacy in federal management. On the other hand, if the federal government were to implement such a system, it would provide a major opportunity to demonstrate commitment to the idea of sustainable development and to offer leadership in Canada through example.

An essential step is to establish an office invested with reporting responsibilities. To be effective, it will have to function independently, link with all parts of the federal system, and be able to work successfully with each of them. It cannot, therefore, be assigned to an existing department such as Environment Canada, Industry Canada, or Revenue Canada.

We have identified five alternative approaches that have been used to deal with policy issues that cut across all departments. The approach to be used will require careful consideration and the National Round Table is continuing its examination of the various advantages and disadvantages.

Historically, cross-departmental integration has been achieved by:

- informal strategic alliances;

- interdepartmental memorandums of understanding (for instance, between Environment Canada and Statistics Canada or between Environment Canada and Industry Canada);
- creating ministries of state (such as Urban Affairs, Social Development, Economic and Regional Development, or Science);
- creating a branch within the Treasury Board with special integrative functions and, to make sure there is a policy link with Cabinet, a parallel secretariat within the Privy Council Office; and
- appointing a commissioner who reports either directly to Parliament (as does the Commissioner of Official Languages), or to a minister (as does the Commissioner of the RCMP who reports directly to the Solicitor General).

In 1987, New Zealand followed the last of these options in creating a Parliamentary Commissioner for the Environment who is charged with providing an independent source of advice to Parliament on environmental matters. Its commissioner is free from government policy constraints and government directives, and acts as an independent watchdog over New Zealand's approach to issues that affect the environment.

Each of the various options has strengths and weaknesses and a combination might be best. What is most important is that a commitment be made by the Government of Canada to create the kind of office we are suggesting.

WE RECOMMEND THAT THE GOVERNMENT OF CANADA:

establish a capability for:

a. *assessing and reporting annually on progress toward sustainable development within the federal government as a corporate entity; and*

b. *reviewing the environmental implications of actions taken as a result of existing statutes, policies, programs, and regulations — as promised in Canada's Green Plan.*

Exactly what shape this office should take, and where it should be located — within, or at arm's length, to the federal government — requires further assessment. What is most important is that it be clearly assigned this responsibility and given authority for discharging it. Further, the office must be independent and able to link effectively to, and work with, all parts of the federal system. It cannot, therefore, be embedded within any existing department.

Reporting on its own performance is only half the battle, however. The federal government also needs to make a commitment to bringing its performance into line with sustainable development principles.

There is no overall strategic policy that has resulted in such a commitment. The National Round Table has concluded that without such a policy, little will change within the federal system.

WE RECOMMEND THAT THE GOVERNMENT OF CANADA:

develop a policy statement that entrenches a government-wide commitment to sustainable development in the mandates and reporting responsibilities of federal departments, agencies, and crown corporations.

It is essential that this policy make individual departments responsible and accountable for ensuring that their policies, programs, and budgets encourage and support activities that are economically and ecologically sustainable, both in the short and longer terms.

Assessing Progress in all of Canada: Discussion and Recommendation

At present, there are no means by which progress toward sustainable development in all of Canada can be reviewed on a periodic basis. Moreover, because of shared constitutional responsibility, there is little hope that such reviews can be established without co-operation from both federal and provincial governments. Consequently, establishing a capability will have to be a collaborative effort from the outset.

It is essential, however, that collaboration extend beyond the two senior levels of government to include all sectors of society — to include what often is referred to as "civil society". A broad-based involvement will not only ensure that a high level of experience and expertise is brought to bear, it also will generate much wider allegiance and support.

WE RECOMMEND THAT THE GOVERNMENT OF CANADA:

initiate discussions with provincial and territorial governments, and other stakeholders aimed at:

a. *designing and establishing a capability for assessing and reporting every five years on progress toward sustainable development for Canada as a whole; and*

b. *providing an assessment every five years of domestic legislation and regulations (provincial, inter-provincial, and federal), as well as international treaties and conventions, relevant to sustainable development, that impact on Canada's trade position, economic prosperity, and ecosystem integrity.*

EPILOGUE

COMMITMENT AND TRUST: Making Reporting on Sustainable Development a Reality

As part of the research for this project, a small survey of households in the Victoria area was undertaken.[69] On reading it, we were struck by the vehemence of the demand for credible environmental information, the general lack of trust in the "green" claims of manufacturers, and the frustration with the media for de-emphasizing environmental issues at a time when interest and concern are so high.

The expression of views may be a little more strident than usual, but the tenor of responses certainly is in keeping with other surveys, and with observations of the National Round Table itself. The responses also can be seen within the context of the cynicism with which many of the electorate regard elected officials and their declarations of concern for sustainable development.

Vehemence, lack of trust, frustration, and cynicism — a potent mixture and an indication that people are impatient with the slow rate at which sustainable development issues are being addressed. If there were to be an unmistakable commitment to sustainable development by decision makers, and especially by the Prime Minister and the Government of Canada, much could be done to alleviate these concerns and generate the trust in leadership that seems so lacking.

Entrenching mandates and responsibilities for reporting openly on progress toward sustainable development would go a long way toward making that kind of commitment. And the remarkable bridging characteristics of sustainable development would encourage collaborative approaches in implementing those mandates that would strengthen our social fabric.

Bringing such systems into being will involve:

- actions that appeal to the enlightened self-interest of all decision makers, whether they are acting as individuals or as members of households, communities, corporations, regions, provinces, or the country as a whole;
- actions that respond to the public's right to know, such as establishing the new National Pollutant Release Inventory; and
- actions that nourish values based on care and respect for both people and the ecosystem.

The National Round Table urges an early start.

ACKNOWLEDGEMENTS

This report is part of an ongoing exploration of the issue of reporting on sustainable development. In the process of its development, we were aided by a number of individuals to whom we owe a debt of gratitude.

This work included three commissioned studies. Trevor Hancock led the examination related to individual, household, and community decision-making. He was assisted in this task by Sylvia Robinson and Shannon Turner of the October Group (Victoria). David Nitkin and David Powell of EthicScan Canada completed the review of corporate reporting. François Bregha, John Moffet and Vic Nishi of Resource Futures International did so for government. David Runnalls and John Cox of the Institute for Research on Public Policy prepared an early synthesis on which our final report was based. In addition to the above individuals, we were assisted in a workshop review of the background papers by Anne Kerr (Environment Canada), Steve Pomeroy (CMHC), Ted Schrecker (Westminster Institute, UWO), Susan Sheehan (Department of Supply and Services), and Carl Sonnen (Infometrica). Tony Cassils provided a number insights, particularly regarding the financial services industry. From the NRTEE secretariat, Dominica Babicki undertook specialized statistical research.

In a parallel project, the International Development Research Centre (IDRC) is exploring the development of a system of reporting on sustainable development that is compatible between developing and developed regions of the world. The interplay between these two projects has enriched both.

Many of the seminal ideas expressed in this work emerged in an interdisciplinary research project in progress at the School of Urban Planning, Faculty of Engineering, McGill University. Support has been provided by the Social Sciences and Humanities Research Council of Canada and the Eco-Research Program of the Tri-Council Secretariat.

We owe a special debt to Philippe Clément, who has provided ongoing advice and coordination to our task force and its predecessor since the inception of the National Round Table. His steady counsel, continuing efforts and useful insights have served as a cohesive force that we could not have done without.

In preparation of the final document, Cameron Smith provided extensive editorial comment for which we are very grateful.

Lastly, as this report evolved through its various stages, many others reviewed and provided numerous insights. Their help significantly enriched our work and though they remain unnamed, we are greatly appreciative of their input.

Task Force on Reporting

R.A. (Tony) Hodge

Susan Holtz

TEXT NOTES

1. Modified from Robinson et al., 1990; see Hodge, in progress.
2. Variously labelled sustainable equitable development, environmentally sustainable economic development, environmentally sustainable socio-economic development, ecologically sustainable development, and ecologically sustainable economic development.
3. WCED, 1987, p. 8.
4. Daly, 1989, p. 4.
5. Hodge, in progress.
6. In the U.S., the Council of Environmental Quality (CEQ) was established in 1970 in the President's Office by the National Environmental Policy Act (NEPA). Under NEPA, the President is required to file with the Congress an annual Environmental Quality Report setting forth the status and conditions of the Nation's environment. The report was to trace current environmental trends, assess the adequacy of natural resources to fulfill human and economic needs, review and assess activities effecting the environment, and suggest ways of remedying program deficiencies. The CEQ was established under President Nixon and was continued through Ford, Carter, Reagan, and Bush administrations. Staff and financial resources were stripped from the CEQ in the early 1980s by the Reagan administration and since 1984, the annual reporting requirement has not been met consistently. By 1990, the Bush administration was considering re-injection of resources into the CEQ but the momentum of the first decade of CEQ activities was never regained. The Clinton administration is maintaining the CEQ but at reduced levels of resources and manpower.
7. Canada has placed first or second in the Human Development Index (HDI) rating since inception of the index in 1990. The HDI includes three components: (1) longevity (life expectancy at birth); (2) knowledge (adult literacy and mean years of schooling); and (3) income (income modified to allow for diminishing returns). See UNDP, 1993.
8. The International Society for Ecological Economics (ISEE) and their journal, *Ecological Economics*.
9. For example, see Evans and Stoddart, 1990 and NTFHI, 1991.
10. Environment Canada, 1991.
11. Gosselin et al., 1991
12. Ruitenbeek, 1991; Victor et al., 1991; Potvin, 1991.
13. Canada, 1991.
14. The Business Council on National Issues, Canadian Bankers Association, Canadian Chamber of Commerce, Canadian Chemical Producers Association, Canadian Electrical Association, Canadian Institute of Chartered Accountants, Canadian Manufacturers Association, Canadian Petroleum Association, Conference Board of Canada, Insurance Bureau of Canada, Mining Association of Canada, Professional Engineers Associations in a number of Provinces, have all been active in this area.
15. Schrecker et al., 1993.
16. Hodge, in progress.
17. Examples include technical data and information provided by Environment Canada's Environmental Choice Program, periodicals such as *Protect Yourself,* published by Quebec's Bureau de la protection du consommateur, or Consumer Reports or any one of a large number of books aimed at providing advice to consumers.
18. Hodge, in progress. This set was developed from 18 contributions that in some way address goals and objectives for sustainable development.
19. Rawls, 1987.
20. Hodge (in progress) proposes this structure on the basis of the value set reflected in Table 1, the results of a review of 30 theoretical models that address the human-ecosystem interface, and over 200 state-of-environment reports from around the world.
21. Hodge, in progress.
22. Hodge, in progress.
23. Hodge, in progress.
24. Jackson, 1992.
25. Department of the Secretary of State, 1990.
26. Brown, 1991 and see discussion in Bregha et al., 1993.
27. Cassils, 1993.
28. Hodge, 1991, p. 16.
29. Lalonde, 1974.
30. IUCN et al., 1991.
31. UNDP, 1993, p. 1.
32. UNDP, 1993, pages 1 and 2.
33. NTFHI, 1991, Preface, p. 2.
34. For example, see Hancock, 1985.
35. Gosselin et al., 1991.

36. NTFHI, 1991.
37. Evans and Stoddart, 1990
38. CMA, 1991. p 39
39. OECD, 1991, p. 8
40. Preliminary results are reported in Environment Canada, 1991.
41. Results are reported in Gosselin et al., 1991.
42. Potvin, J., 1991
43. Marbek, 1990; Western Environmental and Social Trends, Inc., 1991 (draft)
44. Hancock and The October Group, 1993, provided a starting point for this section.
45. Statistics Canada, 1992
46. Statistics Canada, 1992
47. Hancock and The October Group, 1993, provided a starting point for this Section.
48. Daly and Cobb, 1989, p. 172. p 49
49. Natural, modified, cultivated and built elements of the ecosystem (see IUCN, 1991, p. 34) can be identified and need attention. Communities are usually equipped to monitor and assess the state of the built ecosystem but have much less experience at dealing with the other components.
50. This conclusion was recently reinforced by work aimed at both community development and broader provincial development undertaken by the British Columbia Round Table on the Environment and the Economy. See BCRTEE, 1993.
51. Work pioneered by William Rees at the University of British Columbia is leading to definition of the "ecological footprint" of communities - an estimate of the land area outside the jurisdiction implicated by activities within the jurisdiction.
52. Nitkin and Powell, 1993 provided a starting point for this Section.
53. In 1992, Statistics Canada reported 886,964 "establishments" while in 1990, 934,650 businesses were registered. In 1992, 14,317 business bankruptcies were reported. "Small businesses", having fewer than 50 employees, account for 97% of all businesses. However, the small business share of total business sales, profits, and assets are 26, 51, and 14 percent respectively (1988).
54. Figures are for 1989. Of these 4,096 non-financial cooperatives, 900 had an agriculture base, represented over 510,000 producers, and accounted for 71 % of the $15.3 billion total revenues. More than 3.2 million members were reported in 1989.
55. In 1989, credit unions and caisses populaires achieved membership of nearly 9.2 million, or 35 % of the population.
56. These 11 insurance cooperatives reported 9 million policy holders in 1989.
57. These hospitals directly account for about 35 % of Canada's total health care costs which in 1992 stood at $48 billion.
58. See IISD et al., 1992 and Deloitte Touche Tohmatsu International et al., 1993.
59. See CICA, 1992
60. Nitkin and Powell, 1993
61. If small business employment and self-employed individuals (1.8 million in 1992) are combined, they together include roughly half of all those employed in the private sector in Canada.
62. Nitkin and Powell, 1993
63. The Northern Alberta Institute of Technology (NAIT) has created a "President's Advisory Committee Monitoring Our Responsibility to the Environment". Their 1990 report identified over a dozen issues ranging from traditional health and safety considerations through hazardous waste disposal. Recommendations were made regarding awareness, facilities management, food services, paper products, newsprint wastage, pop can disposal.
64. Bregha et al provided a starting point for this section.
65. Note that this figure is different than the 227,415 person-years authorized in the 1990-91 Main Estimates because it includes all individuals employed by the federal government, whether that be full-time, part-time, or on contract. The Federal Green Plan (Canada, 1990) noted that the federal government, together with crown corporations, employs over 585,000 people.
66. This same issue emerges in debates regarding the adequacy of the System of National Accounts in tracking the overall state of "natural resources".
67. The Office of Environmental Stewardship estimates that total federal, provincial, and municipal government procurement of goods and services is estimated as in excess of $70 billion per year. Annual federal procurement is about $8 billion. A crude estimate is that product stewardship considerations could influence about $5 billion worth of federal procurement.
68. See especially Health and Welfare's 1992 publication, *A Vital Link*, and the Great Lakes Health Affects Program now in its 4th year.
69. Hancock and The October Group, 1993

REFERENCES

BCRTEE, 1993. *Strategic Directions for Community Sustainability.* British Columbia Round Table on the Environment and the Economy, Victoria. 160 p.

Bregha, F., J. Moffet, and V. Nishi, 1993. *Reporting on Sustainable Development in Support of National Decision-Makers.* Resource Futures International. Working Paper No. 15. National Round Table on the Environment and the Economy, Ottawa.

Brown, L. et al., 1991. *State of the World.* W. W. Norton & Company, New York.

Canada, 1990. *Canada's Green Plan for a Healthy Environment.* Minister of Supply and Services Canada, Ottawa. 174 p.

Canada, 1991. *Canada's National Report.* Federal Government Catalogue No. EN21-107/1991E. Environment Canada, Ottawa.

Cassils, J. A., 1993. *The Financial Services Industry and Sustainable Development: Managing Change, Information, and Risk.* Working Paper No. 2. National Round Table on the Environment and the Economy, Ottawa.

CICA, 1992. *Environmental Auditing and the Role of the Accounting Profession.* Canadian Institute of Chartered Accountants, Toronto. 156 p.

CMA, 1991. *Health, The Environment, and Sustainable Development - Policy Paper.* Canadian Medical Association. Ottawa.

Daly, H.E., 1989. *Sustainable Development: From Concept and Theory Towards Operational Principles.* Paper presented at Hoover Institution Conference, Population and Development Review. Also published in Daly, 1991.

Daly, H.E. and J. B. Cobb, Jr., 1989. *For the Common Good: Redirecting the Economy Toward Community, the Environment, and a Sustainable Future.* Beacon Press, Boston. 482 p.

Deloitte Touche Tohmatsu International, International Institute for Sustainable Development, and SustainAbility, 1993. *Coming Clean - Corporate Environmental Reporting.* International Institute for Sustainable Development, Winnipeg.

Department of the Secretary of State of Canada, 1990. *Economic Dimensions of Volunteer Work in Canada.* Ministry of Supply and Services Canada, Ottawa. 38 p.

Environment Canada, 1991. *A Report on Canada's Progress Towards a National Set of Environmental Indicators.* SOE Report No. 91-1. Indicators Task Force, State of Environment Reporting, Environment Canada, Ottawa.

Evans, R.G. and G.L. Stoddart, 1990. *Producing Health, Consuming Health Care.* Population Health Program Working Paper No. 6. Canadian Institute for Advanced Research, Toronto. 69 p.

Gosselin, P, D. Blanger, Jean-Francois Bibeault, A. Webster, with collaboration from G. Laroche, Jean-Pierre Reveret, L. Coughlin, M. O'Neill, P. Marc Johnson and the Steering Committee on Indicators for a Sustainable Society, 1991. *Feasibility Study on the Development of Indicators for a Sustainable Society.* Health Promotion Directorate, Health and Welfare Canada, Ottawa. 132 p.

Hancock, T., 1985. "The mandala of health: a model of the human ecosystem." *Family and Community Health,* November, 1985, pp. 1-10.

Hancock, T. and The October Group, 1993. *Reporting on Sustainable Development: The Municipal and Household Level.* Working Paper No. 16. National Round Table on the Environment and the Economy, Ottawa.

Health and Welfare Canada, 1991. *A Vital Link.* Department of Supply and Services, Ottawa.

Higgins, D. J. H., 1986. *Local and Urban Politics in Canada.* Gage Publishing Co., Toronto. 417 p.

Hodge, R. A., 1991. *Towards a Yukon SOE Reporting Framework.* Report prepared for the Sustainable Development Committee, Yukon Council on Economy and Environment and the Department of Renewable Resources, Government of the Yukon, Whitehorse.

_____, (in progress). *Reporting on Sustainability.* Ph. D. (Interdisciplinary) Dissertation. School of Urban Planning, Faculty of Engineering, McGill University, Montreal.

IISD, Deloitte & Touche, and BCSD, 1992. *Business Strategy for Sustainable Development: Leadership and Accountability for the '90s.* International Institute for Sustainable Development, Deloitte & Touche, and the Business Council for Sustainable Development. Winnipeg.

IUCN, UNEP, and WWF, 1980. *World Conservation Strategy - Living Resource Conservation for Sustainable Development.* International Union for Conservation of Nature and Natural Resources (Gland, Switzerland), United Nations Environment Programme (Nairobi, Kenya), and the World Wildlife Fund (Geneva, Switzerland).

_____, 1991. *Caring for the Earth - A Strategy for Sustainable Living.* International Union for Conservation of Nature and Natural Resources (Gland, Switzerland), United Nations Environment Pro-

gramme (Nairobi, Kenya), and the World Wildlife Fund (Geneva, Switzerland).

Jackson, C., 1992. *The Value of Household Work in Canada, 1986.* pp. xxxiii - lii in National Income and Expenditure Accounts, First Quarter, 1992. Statistics Canada Catalogue 13-001 Quarterly. Minister of Industry, Science, and Technology, Ottawa.

Lalonde, M., 1974. *New Perspective on the Health of Canadians.* Government of Canada, Ottawa.

Marbek Resource Consultants Ltd., 1993. *Rationale and Preliminary Family of National Indicators for Sustainable Energy Production and Use.* National Round Table on the Environment and the Economy. Ottawa.

Nitken, D., and D. Powell, 1993. *Corporate Sustainable Development Reporting in Canada.* EthicScan Canada. Working Paper No. 17. National Round Table on the Environment and the Economy, Ottawa.

NTFHI, 1991. *Health Information for Canada, Final Draft Report.* National Health Information Council, Ottawa.

OECD, 1991. *Environmental Indicators - A Preliminary Set.* Organisation for Economic Co-operation and Development, Paris. 77 p.

Potvin, J. R., 1991. *Synthesized Workshop Proceedings - Indicators of Ecologically Sustainable Development.* Canadian Advisory Council, Ottawa. 45 p.

Rawls, J., 1987. "The idea of an overlapping consensus." *Oxford Journal of Legal Studies,* Vol. 7, No. 1. pp. 1 - 25.

Rees, W. E., 1992. "Ecological footprints and appropriated carrying capacity - what urban economics leaves out." *Journal of Environment and Urbanization,* Vol. 4, No. 2, pp. 121 - 130.

Robinson, J. G., G. Francis, R. Legge, and S. Lerner, 1990. "Defining a sustainable society: values, principles, and definitions." *Alternatives,* Vol. 17, No. 2. pp. 36 - 46.

Ruitenbeek, H. J., 1991. *Indicators of Ecologically Sustainable Development: Towards New Fundamentals.* The Canadian Environmental Advisory Council, Ottawa. Cat. No. EN92-13/1991E, Minister of Supply and Services Canada, Ottawa.

Schrecker, T., H. Mackenzie, and J. O'Grady, 1993. *Sustainable Development: Getting There From Here.* Canadian Labour Congress and the National Round Table on the Environment and the Economy, Ottawa.

Statistics Canada, 1992. *Households and the Environment 1991.* Catalogue 11-526 Occasional. Household Surveys Division, Statistics Canada, Minister of Industry, Science, and Technology, Ottawa. 37 p.

Schmidheiny, S. with The Business Council for Sustainable Development, 1992. *Changing Course: A Global Perspective on Development and the Environment.* The MIT Press, Cambridge Massachusetts. 374 p.

Sullivan, J. M., 1990. *Co-operation in Canada.* Co-operatives Secretariat, Government of Canada. 38 p.

UNDP, 1993. *Human Development Report 1993.* United Nations Development Program. Oxford University Press, New York.

Victor, P., J.K. Kay, H. J. Ruitenbeek, 1991. *Economic, Ecological, and Decision Theories - Indicators of Ecologically Sustainable Development.* The Canadian Environmental Advisory Council. Minister of Supply and Services Canada, Ottawa.

Western Environmental and Social Trends, Inc., 1991 (draft). *Summary Report From a Workshop on Measuring Sustainable Development: Energy Production and Use in Canada.* National Round Table on the Environment and the Economy, Ottawa.

WCED, 1987. *Our Common Future.* Report of the World Commission on Environment and Development. Oxford University Press, London. 383 p.

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