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TABLE RONDE NATIONALE SUR L'ENVIRONNEMENT ET L'ÉCONOMIE

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Backgrounder

The Financial Services Sector and Brownfield Redevelopment

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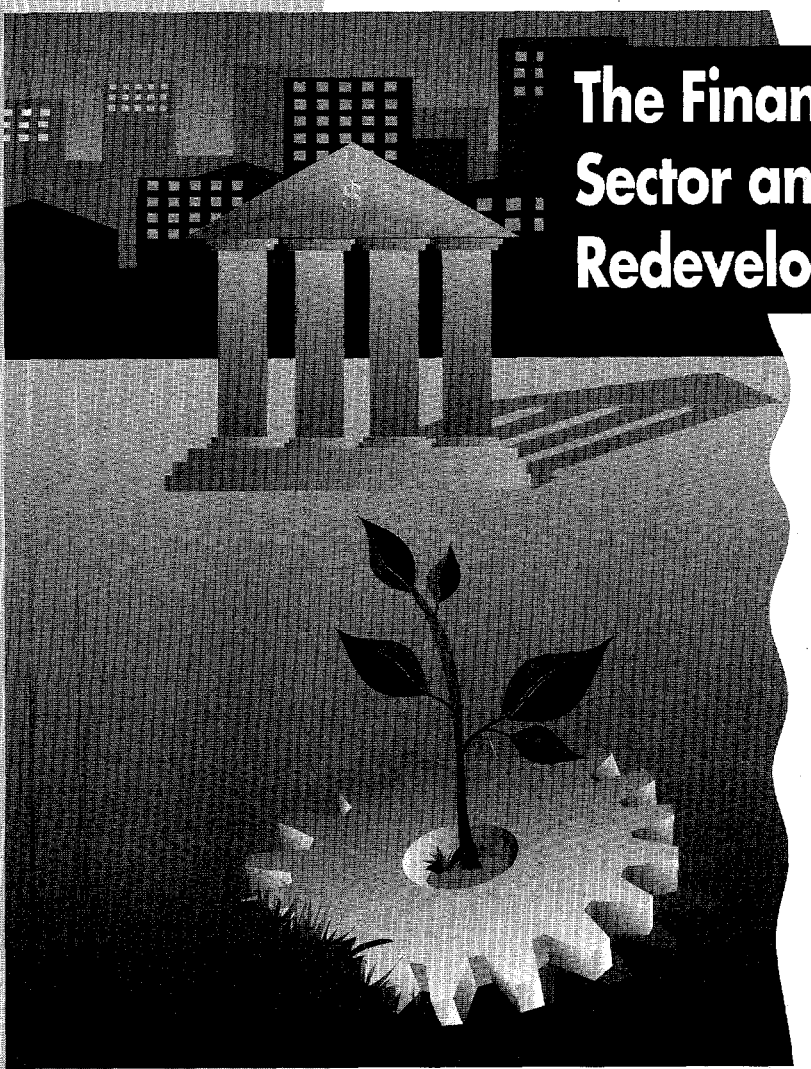
Backgrounder



The Financial Services Sector and Brownfield Redevelopment

Prepared by Dillon Consulting, GlobalRisk Management, and TECSULT under the direction of the NRTEE's Financial Services Task Force.

Mandate

The National Round Table on the Environment and the Economy (NRTEE) was created to "play the role of catalyst in identifying, explaining and promoting, in all sectors of Canadian society and in all regions of Canada, principles and practices of sustainable development." Specifically, the agency identifies issues that have both environmental and economic implications, explores these implications, and attempts to identify actions that will balance economic prosperity with environmental preservation.

At the heart of the NRTEE's work is a commitment to improve the quality of economic and environmental policy development by providing decision makers with the information they need to make reasoned choices on a sustainable future for Canada. The agency seeks to carry out its mandate by:

- advising decision makers and opinion leaders on the best way to integrate environmental and economic considerations into decision making;
- actively seeking input from stakeholders with a vested interest in any particular issue and providing a neutral meeting ground where they can work to resolve issues and overcome barriers to sustainable development;
- analyzing environmental and economic facts to identify changes that will enhance sustainability in Canada; and
- using the products of research, analysis and national consultation to come to a conclusion on the state of the debate on the environment and the economy.

The NRTEE's state of the debate reports synthesize the results of stakeholder consultations on potential opportunities for sustainable development. They summarize the extent of consensus and reasons for disagreement, review the consequences of action or inaction, and recommend steps specific stakeholders can take to promote sustainability.

Members of the National Round Table on the Environment and the Economy

The NRTEE is composed of a Chair and up to 24 distinguished Canadians. These individuals are appointed by the Prime Minister as opinion leaders representing a variety of regions and sectors of Canadian society including business, labour, academia, environmental organizations, and First Nations. Members of the NRTEE meet as a round table four times a year to review and discuss the ongoing work of the agency, set priorities, and initiate new activities.

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Table of Contents

Acronyms

CCME	Canadian Council of Ministers of the Environment
CDIC	Canada Deposit Insurance Corporation
CERCLA	*Comprehensive Environmental Response, Compensation and Liability Act* (United States)
EPA	Environmental Protection Agency (United States)
NCSRP	National Contaminated Sites Remediation Program
NRTEE	National Round Table on the Environment and the Economy
OSFI	Office of the Superintendent of Financial Institutions
REUS	Redevelopment of Urban Sites Team (Detroit, Michigan, United States)

Preface

Brownfield sites — areas abandoned or underused because of industrial contamination — offer opportunities for revitalization and redevelopment, particularly in high-density urban areas. Despite the economic potential of many of these areas, however, members of the financial services sector have often been hesitant to provide funding for development projects. Some of the barriers to the involvement of banks, trust companies, insurance companies and investment brokers in such projects include: statutory frameworks that provide little guidance about environmental credit risk management; laws relating to lender liability that are confusing; and the lack of appraisal standards for brownfield sites.

Various strategies have been used in the United States and Canada to encourage investment in brownfield sites. Successful public-sector initiatives have generally focused on a combination of economic incentive programs and indirect incentives such as legislative reforms. These incentives are designed to promote innovative practices and to prompt the generation of solutions from the private sector.

The National Round Table on the Environment and the Economy (NRTEE), in order to make a contribution in this area, has undertaken a Financial Services Program. The purpose of the program was to identify barriers and explore possible solutions to the issues of redeveloping brownfield areas and other contaminated sites, and to improve site-specific data on the environmental condition of land. This Backgrounder, which was funded by Canada Mortgage and Housing Corporation (CMHC), explores some of the barriers to brownfield redevelopment and presents "best practices" from the Canadian and American experience.

Three additional reports produced through the NRTEE's Financial Services Program complement this Backgrounder: *Contaminated Site Issues in Canada, Improving Site-Specific Data on the Environmental Condition of Land* and *Removing Barriers: Redeveloping Contaminated Sites for Housing.* These background reports were produced to promote debate and discussion among key stakeholders. As a follow-up, the NRTEE Financial Services Program sponsored workshops and prepared a state of the debate report on the issue.

This report was prepared by Dillon Consulting, GlobalRisk Management and TECSULT under the direction of the Financial Services Task Force. The authors accept full responsibility for the interpretation of the literature. The content of the report does not necessarily represent the position of the NRTEE or CMHC.

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Executive Summary

The early growth of Canada's urban centres, usually around rail depots, ocean ports and inland waterways, has often resulted in contamination. As traditional inner city land uses changed, contaminated lands were often abandoned or underutilized. With the recent focus of urban planning initiatives on the revitalization of inner city property, these areas have come under renewed scrutiny.

Brownfield sites — areas abandoned or underused because of industrial contamination — are most often located in high-density urban areas. They therefore offer desirable opportunities for renewal and redevelopment. Potential proponents of brownfield redevelopment, however, are often hesitant to enter into this type of project because of uncertain expectations about such issues as clean-up and approval; liability; the process and costs of legal and technical aspects of redevelopment; site assessment and acquisition; and monitoring and maintenance requirements.

One of the major barriers to the redevelopment of brownfield sites is the lack of financial support. Because of the risks and uncertainties associated with redevelopment, the financial services sector — including banks, trust companies, insurance companies and investment brokers — has been reluctant to finance redevelopment projects. Among other contributing factors, federal and provincial statutory frameworks provide little guidance to managers of financial institutions on the issue of environmental credit risk management. Laws relating to lender liability in such circumstances are vague and varied. Appraisal standards for brownfield sites are lacking: as a result, the financial services sector is unable to identify and quantify environmental credit risk, contributing to the overall reluctance to provide financing.

Various strategies have been employed in the United States, and to a lesser degree in Canada, to encourage investment in brownfield sites. These strategies can be classified as either direct or indirect. Direct strategies are generally monetary in nature. Aimed at improving investors' rate of return, they may include loans, loan guarantees, fees, tax incentives or equity participation schemes. Indirect strategies help to reduce some of the risks for investors and may include regulatory reforms, voluntary clean-up programs, financial and liability assurances, and strategic planning or information services that help potential investors to better assess risk factors.

The capacity to evaluate the merits of these strategies for Canada is hampered by several factors. First-hand Canadian experience is lacking in many areas. Many of these strategies, including those outside Canada, have been implemented only recently, in the past two to three years. Differences in legislative, regulatory, judicial and financial systems make it difficult to transfer the American experience to a Canadian context.

The limited evidence available suggests that, in general, direct, economic incentives are more potent than indirect, regulatory incentives. In particular, hybrid programs combining carefully targeted direct incentives with indirect incentives appear to have

considerable potential. The experience of other jurisdictions makes it clear that some level of public-sector involvement is necessary to provide the impetus for brownfield redevelopment. The extent of public-sector intervention required depends on a number of factors, but hinges primarily on the economic market forces at work where the brownfield site is located. In strong markets, the level of intervention will be less than where markets are soft and where the spectre of the real estate losses of the 1980s remains.

This report identifies key factors that are common to the successful experiences in other jurisdictions:

- Legislative reform on determining environmental liability should provide a cohesive and consistent national framework.
- Levels of government with corporate income taxing authority should investigate and experiment with tax incentive programs, such as accelerated write-off of clean-up expenses, providing a catalyst for private-sector involvement.

These public-sector cornerstones would likely lead the private sector to react constructively in the following areas:

- A philosophical shift by the financial services sector to look beyond the traditional profit-based behaviourial model and actively embrace an issue of public concern.
- Initiatives by the financial services sector to become better educated concerning environmental risk.
- Innovative practices by the insurance industry to create new and practical forms of environmental coverage.
- Initiatives by lenders to use available insurance more broadly, as well as other private-sector risk transfer mechanisms.

The above findings are based on a preliminary review of current research and activities in this sector and are not intended as a comprehensive set of recommendations for action. It is hoped, however, that they will provide food for thought among stakeholders and stimulate discussion.

Introduction

Brownfield redevelopment has become a focus for many municipalities across Canada in recent years. This interest has been generated by several factors including the increasing move away from an "urban sprawl" form of development towards urban intensification; better understanding of site contamination, risk assessment and remediation opportunities; a greater focus on affordability for infrastructure to support development in some jurisdictions; a desire to revitalize decaying urban areas; and, perhaps most importantly, the example of the United States in successful redevelopment of brownfield sites.

The critical factor influencing the likelihood of redevelopment of a brownfield site is the potential for economic success of the project. The financial services sector (i.e., banks, trust and loan companies, insurance companies and securities dealers) has an essential role to play in assessing the risks and economic return and in financing potential projects. However, this sector is only one of the stakeholders in brownfield redevelopment. Local and provincial governments, developers and the public also have important roles in removing barriers to site clean-up and reuse. In addition, private pools of capital (venture capital groups) also have an important role in financing brownfield redevelopment. It is clear that an integrated approach to brownfield redevelopment is needed: this includes partnerships among all of these sectors and the use of a combination of strategies including regulatory reform, financial incentives, education, and improved technical expertise and data management.

This paper examines what the financial services sector can do to facilitate brownfield redevelopment and the opportunities and challenges that are faced. For the purposes of this paper, the financial services sector is defined in terms of the four institutional "pillars": banks, trust companies, insurance brokers and investment brokers. This paper is one of a number of background papers that were prepared to form the basis of discussion for the Financial Services Program of the National Round Table on the Environment and the Economy (NRTEE). These include:

- *Removing Barriers: Redeveloping Contaminated Sites for Housing,* produced in association with the Canada Mortgage and Housing Corporation (CMHC);
- *Improving Site-Specific Data on the Environmental Condition of Land,* produced in association with Statistics Canada; and
- *Contaminated Sites Issues in Canada,* produced in association with the Canadian Council of Ministers of the Environment (CCME).

NRTEE's Financial Services Program comprises a series of multi-stakeholder workshops in major centres across Canada that will consider the issues raised in the papers described above. It is anticipated that these workshops will result in some practical solutions that will help to address some specific issues; a background paper on contaminated sites; a higher profile for issues concerning contaminated sites; and greater awareness of the need to improve land management practices.

The study team included members from across Canada who investigated the location of brownfield sites across Canada, the available data on brownfield sites, and data gaps. Selective telephone consultation and a literature review were used to collect the data. The team's primary research and extensive literature review were undertaken to investigate the opportunities and challenges in brownfield redevelopment and the strategies that have been undertaken to encourage the financial services sector to undertake brownfield redevelopment in Canada and other jurisdictions.

This report is organized into six chapters. Chapter 1 provides a definition of brownfield sites and considers barriers to brownfield redevelopment. The location, geographic characteristics, quantities and data sources on brownfield sites across Canada are summarized. Chapter 2 considers the factors that created brownfields and the role of urban land economics in brownfield redevelopment. An overview of the Canadian financial services sector is provided in Chapter 3 as well as some of the business opportunities and challenges in brownfield redevelopment. Chapter 4 summarizes the strategies that have been undertaken in Canada and other jurisdictions to encourage brownfield redevelopment. In Chapter 5, the lessons learned and reaction of the financial services sector to the strategies described in Chapter 4 are highlighted. A summary of the key strategies and models to encourage brownfield redevelopment is provided. Appendices include a bibliography, as well as greater detail on the status on the status of brownfield sites across Canada.

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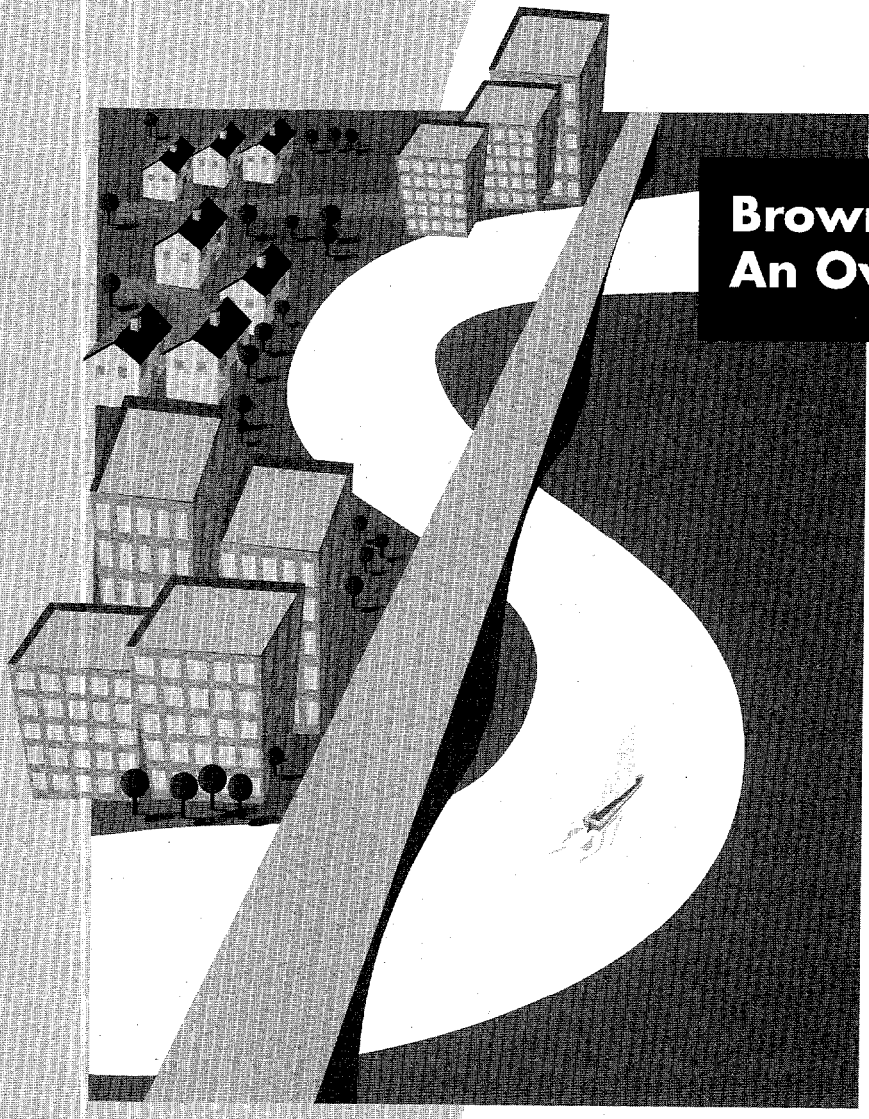

Brownfield Sites: An Overview

Definition of Brownfield Redevelopment

For the purposes of this paper and for consideration by the Financial Services Program of the NRTEE, the definition of a brownfield redevelopment is as follows:

> *Brownfield redevelopment is development on an underutilized site that exhibits economically remediable contamination of its soils and ground water and is located in a setting where existing municipal services are readily available. As far as planning and land use reasons are concerned, a brownfield redevelopment would, except for the contamination issue, represent a desirable location for revitalization of the urban core at the same or higher land uses than presently exist on the site.*

This definition of brownfield redevelopment for the purposes of consideration by the Financial Services Sector recognizes the various factors that contribute to the decision to invest in redevelopment. Thus brownfield redevelopment is an economic process in which the Financial Services Sector has an obvious vital interest. Municipalities can also realize an economic return through more intensive use of urban core lands.

A contaminated site is one that exhibits, after suitable testing, soil or ground water quality that exceeds quality criteria set by government. Brownfield sites are a subset of all contaminated sites since there is a spectrum of contaminant conditions. Some contaminant conditions are so severe that redevelopment is far too costly to be considered by the private sector. On the other hand, some contamination should be considered to be so trivial that dealing with it becomes essentially immaterial to a redevelopment proposal. The range of sites that falls between these limits are the subject of brownfield redevelopment. It is difficult to draw a precise line above or below which the site falls beyond the brownfield definition. It is very probable that each case should be considered on its own merits to determine whether contamination is immaterial, economically remediable, or too severe for redevelopment.

The recent past has seen an increase in understanding and concern for the environmental quality of the nation's land resources. Where contamination exists, the first reaction has naturally been one of avoidance, based on the perception that such sites carry unmanageable risks. The various stakeholders in redevelopment have been unable to agree on a common set of principles that would allow redevelopment. Consequently, many sites have become underutilized.

The brownfield site is likely located within an existing urban setting. Characteristics of brownfield sites are that they are (apart from the contaminant issue) desirable opportunities for redevelopment. This desirability results from the presence of existing municipal services in combination with a location that makes redevelopment sense in terms of the integrated and planned redevelopment of urban lands. It is unlikely that the redevelopment of a contaminated site in a rural setting would have any of the other urban values associated with it. There would probably be other lands located in close proximity that would not carry the contamination stigma.

Historically, the development of Canada is reflected in the urban settings of brownfield sites. When contaminant issues were not well understood in society at large, Canada's major urban centres grew up around the major transportation modes of the

day. Therefore, contamination is associated with transport by rail and water. Canadian urban centres have grown up around rail depots. Similarly, Canadians have historically made great use of Canada's ocean ports and inland waterways for shipping products. Where intermodal terminals existed, there is the potential for contamination from the products themselves, and from the fuels and materials used in transportation support industries.

As the traditional inner city land uses have changed, these lands have become abandoned or at least underutilized. Urban planning has recently focused on the revitalization of inner city lands. With fewer capital dollars to be spent on transportation infrastructure, the intensification of land use within the urban core has become a motivating factor in itself. Opportunities for intensification will naturally fall to underutilized lands. Brownfield redevelopment has therefore become tied to urban intensification.

Barriers to Brownfield Redevelopment

In order to understand and define brownfield redevelopment, it is important to have a clear understanding of the barriers to brownfield redevelopment that exist.

In undertaking brownfield redevelopment, there is often a lack of certainty and finality in the planning and approval process. Proponents are hesitant to enter into a redevelopment project with even minor contaminant issues because of the real or perceived problems that may emerge and uncertain expectations for clean-up and approval. Proponents perceive the process to be arduous, unclear and likely to generate public concern and opposition. Proponents are also uncertain about liabilities they will accept in redeveloping either a site they have owned for some time, or a site they would otherwise find to be an attractive opportunity and normally target for redevelopment in a competitive marketplace. Additional uncertainty is associated with the process and costs of both the legal and technical aspects of redevelopment. This uncertainty extends to the assessment of the site, the acquisition process, the redevelopment process, and monitoring and maintenance of a remediated site. Finally, with regard to the economic aspects of brownfield redevelopment, the range of uncertainties and barriers associated with brownfield sites has meant that the financial services sector is hesitant to finance brownfield redevelopment or has caused transaction costs to increase to the point at which projects become uneconomic. Consequently, a major barrier to redevelopment is the unavailability of financial support and impetus for projects.

Number of Brownfield Sites

Reliable and systematic data on the number and location of brownfield sites are not available for each province in Canada. The data vary in level of detail and are, at times, only subjective estimates. In order to establish a more reliable description, a cross-country survey was conducted and a review was undertaken of various published sources of information. The following summarizes the findings.

The *Removing Barriers: Redeveloping Contaminated Sites for Housing* report (1997) provides an upper limit on the number of brownfield sites in Canada at 20,000 to 30,000, based on estimates made by others. The report points out that the National Contaminated Sites Remediation Program (NCSRP) disagreed with this estimate,

suggesting that it was too high. The estimates were derived from environmental/toxic real estate advocates and may overstate the problem. The NCSRP commentary is perhaps more objective.

The study team surveyed provincial and municipal officials across Canada to make its own estimate of the number of brownfield sites. Exhibit 1.1 summarizes the findings. Recognizing the data inconsistencies and gaps that exist, the present study estimates that there are in the order of 3,000 brownfield sites across Canada.

In establishing this number, the various data sources that may have been used by others to develop a higher estimate were critically evaluated. For example, it is well known that most provinces and the federal government have detailed lists on the location and amounts of PCB waste in storage. In Ontario the number of storage sites alone is in excess of 1,000. However, it is known that PCB storage is a well-regulated activity and that there are acceptable ways of disposing of the PCB inventory found in storage. Therefore, PCB waste — while representing a cost of redevelopment — does not stand in the way of redevelopment. Indeed, in most cases, the cost is so small compared to the redevelopment initiative, *in toto*, that it becomes an immaterial consideration. These sites were therefore not included in the total estimate of brownfield sites.

Similarly, it is likely that automotive fuel service stations appear as suspect sites in most provincial district office files. The experience of the retail petroleum products sector is that large numbers of service stations have been taken out of service and their underground storage tank (UST) locations have been remediated to provincial standards. (There are exceptions to this assumption where contamination has not been effectively remediated as a result of large or chronic spill conditions or where the decommissioning by independent operators was carried out before the leaking UST issue was fully appreciated.) It is suggested that most of the remaining stations will be similarly cleaned up when required. It is unlikely that any environment ministry could point to more than a few serious problems with retail petroleum products sites. Consequently, except as noted, a small percentage of these sites are considered to be brownfield sites.

Geographic Characteristics of Brownfield Sites

In the survey of brownfield occurrences across Canada, it was found that there is a common thread: brownfield sites are primarily located in urban centres, where existing services are more likely to be in place and the redevelopment potential is often higher. Where contaminated sites are located in remote areas, such as National Defence sites, it is recognized that most of these sites fall beyond the definition for brownfield sites. Remoteness here refers to sites that are presently remote; of course, there are many examples of sites that were remote when first contaminated, but which have since become urbanized.

Perhaps the most telling geographic feature of brownfield sites is the history of the growth and development of each urban centre. In each region of Canada, there are examples of urban centres that grew up around the site of exploitation of a natural

Exhibit 1.1

Estimated Number of Brownfield Sites

Province	Data Source	Raw Data	Comment	Selected No.
British Columbia	Vancouver municipal files	400	Broad range from minor to major.	100
	BC provincial Environment Ministry	District files from BC Environment Ministry	No aggregate number pro rata from the Vancouver data.	100
Alberta	No provincial data	n/a	Sites identified with oil/gas industry, service stations and wood preservers. Many of these fall outside definition in this report; therefore estimate made pro rata of population in moderately industrialized province.	50
Saskatchewan	Contaminated Sites List (provincial)	36	Landfills, refineries, herbicide plants, transformer facilities, oil re-refineries, scrap metal dealers, DND sites (radar). Only a fraction of these will meet definition, particularly the urbanity.	20
Manitoba	Provincial response identified a number	50	Range from service stations to former industrial sites.	25
Ontario	Province-wide survey of coal gas plants and industries associated with by-products	90	The majority are in urban centres although some are small centres.	50
	Database on operating and closed landfills	1,400 open 2,400 closed	Many in semi-rural settings although urban growth has surrounded former (closed) landfills.	1,000
	Large municipality experience	About 3% of industrialized sites	Collection of files approaching statistically significant size.	450
	District offices of provincial Environment Ministry has accessible files but no compilation known	n/a	There will be overlap in the counting of these sites.	Total 1,500

Province	Data Source	Raw Data	Comment	Selected No.
Quebec	Montreal municipal files	200	Estimate based on discriminating use of terminology.	300
	Rest of Quebec — provincial files	1,400	"Potentially" contaminated sites. Allowance should be made for rural settings.	700
				Total 1,000
New Brunswick	Files collected in district office of Environment Ministry	n/a	No basis for estimate; used population pro rata estimate.	40
Prince Edward Island	Provincial files almost exclusively service stations	n/a	Few of the causative agents operative.	0
Nova Scotia	Files collected in district office of Environment Ministry	n/a	No basis for estimate; used population pro rata estimate.	40
Newfoundland	Files collected in district office of Environment Ministry	n/a	No basis for estimate; used population pro rata estimate.	40
			Total	2,900*

* Figure is rounded to next 100.

Source: Dillon Consulting, and TECSULT, 1996.

resource. Examples can be thought of for any natural resource sector: forest products; metal mining, smelting and refining; oil and gas development. Similarly, downstream natural resource industries such as steel mills, petroleum refineries, petrochemical production plants, secondary smelters, and oil re-refineries grew up in settings where product distribution to markets defined the location. Urban centres grew up around these employment centres and the modern city is now often the location of a brownfield site that resulted from past practices at these industries.

Present and former transportation facilities define the location of brownfield sites in many cities. Across Canada, former railway lands are at the centre of the cities because cities grew up around the railway. Furthermore, rail lines in and out of the cities attracted a variety of manufacturing industries in the first half of this century because rail dominated product distribution. In many cities located on navigable water, intermodal transfers occurred. This led to the spillage of product and the founding of service industries that looked after the transportation system. In some unique examples on the Great Lakes, the need for suitable transportation facilities caused, in part, the dredging of harbours, creating new lands that were used extensively for industrial purposes — these eventually resulted in brownfield sites.

In Quebec, the importance of the St. Lawrence River cannot be underestimated. The St. Lawrence provided inexpensive access to raw material which contributed to the creation of major industrial complexes around Montreal and elsewhere. In addition, access to the centre of North America through the Lachine Canal, and later the St. Lawrence Seaway, further encouraged industrial growth in the Montreal area.

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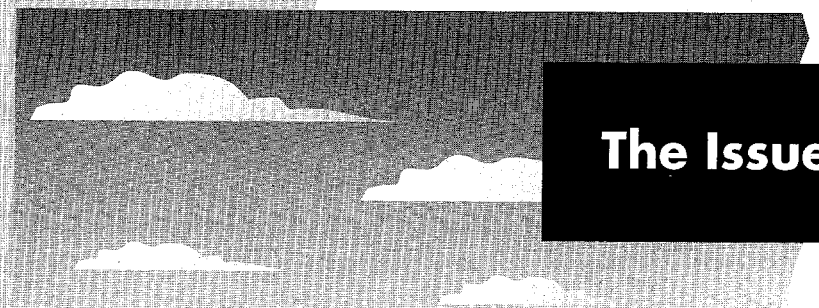

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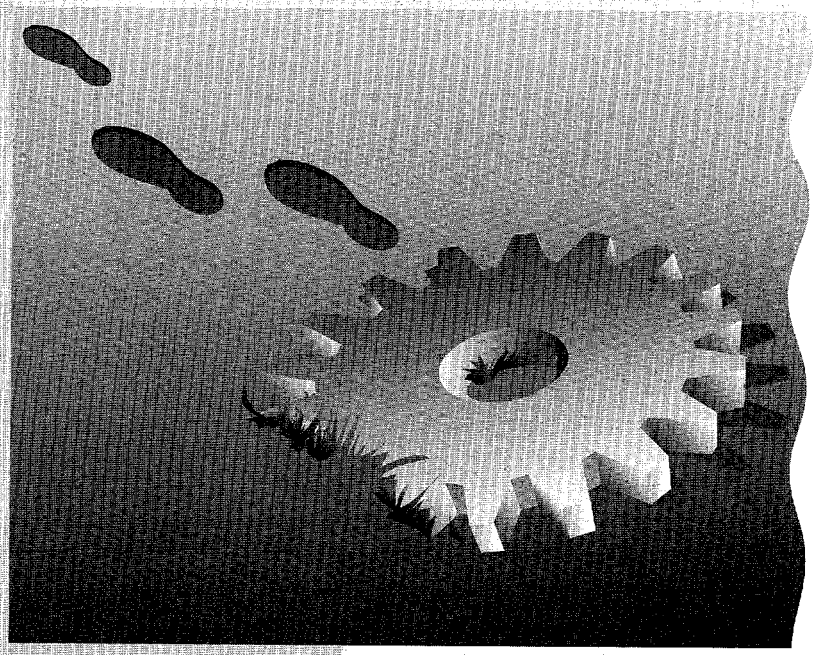


The issues surrounding brownfield redevelopment comprise the causes of site contamination and the social, economic and political context in which redevelopment must take place. In the sections that follow, the factors causing brownfields are discussed first. Following that, the social, economic and political context is described under the heading "Urban Land Economics."

Factors Causing Brownfield Sites

The factors that have caused brownfield sites appear to be uniform across Canada. First, there has been a change in the underlying awareness of environmental issues within the country; this is discussed as an awareness of our ecology and the political effect that has led to increased regulation of societal activities that affect the environment. Within the overriding context of environmental awareness, past practice has resulted in environmental degradation in some industry sectors more than in others. An understanding of the more heavily implicated industrial sectors is important. Finally, public infrastructure demands, apart from industrial activity, has led to contamination of land that has its own set of characteristics. Typical examples in this area are discussed.

Ecological Awareness

A survey of experience across Canada raised the common observation that contaminated sites most often result from past industrial practice. There are many reasons for this:

- Societally, the ultimate effects of uncontrolled emission were not understood and discharges from industry and the industrial practice of the day were viewed as acceptable.
- Development of new products and services was seen as an end unto itself and anyone standing in the way of new production was viewed suspiciously.
- Much of the control of industry and the government was in the hands of an elite few with a concern only for their personal fortunes.

As awareness grew through the sixties and seventies, government reacted to increasing political pressure to address the protection of the environment. The task was daunting and it is fairly uniformly recognized that it was not until the early 1980s that government started to quantify the contaminated land issue and to set criteria for acceptable soil and ground water quality. Once the public agency identified problems associated with contaminated sites — and significant costs were identified with remediating these sites — the sites acquired a stigma of which a brownfield site is one example. Not only did prospective purchasers avoid sites with soil contamination, but financial institutions also avoided participating, declining to finance proposals on brownfield redevelopment, because of the liability question. In one province, innocent landowners are now responsible for site clean-up.

Types of Industry

Certain types of industry have greater significance for the brownfield question than others. In the paragraphs below, these types of industries are described. The choice of industries has been limited — by definition of brownfield redevelopment — to those industrial sites likely to be found in a present-day urban setting. In most of the cases, the industry has more than likely been relocated or phased out for a variety of reasons. It is important to recognize that an ongoing operation that causes minor site contamination is not considered to be a brownfield site.

Historically, the manufacture of town gas by the destructive distillation of coal has contaminated the cores of many urban centres across Canada. Also, the residues from these plants were used in the manufacture of items such as building products, often in the same industrial area of a city. Some types of this manufacturing activity continue today, namely in the wood preserving industry.

Petroleum refining and the related petro-chemical industry is another type of industry with a significant brownfield association. According to the definition of brownfield used above, many specific examples of this industry type fall outside the definition because exploration and, to a lesser extent, refining are carried out far from urban centres. However, there are a number of examples of refineries and bulk storage depots which have had urban development surround them, and what was originally a remote location is now an urban brownfield site.

Petroleum product distribution outlets, for example, gas stations, are often included in lists of brownfield sites. It was suggested above that the great majority of these sites fall into the "immaterial" category as far as brownfield redevelopment is concerned. There remains, however, a concern for sites where a large or chronic loss of product has occurred, or where a site was closed and decommissioned by independent operators (i.e., non-franchises of major oil companies) before the advent of modern environmental awareness.

There are a number of industry types that make use of solvents, the past control of which is suspect by today's standards. These industries include:

- formulators of products containing solvents, e.g., paints and adhesives
- manufacturers that shape and paint metal, e.g., white goods manufacturers
- distributors of solvents
- electronic equipment manufacturers
- service industries such as dry cleaners and auto body repair

Scrap dealers, re-refiners, secondary smelters and recyclers all deal in a market in which cost competitiveness is a defining feature of their industry. Environmental protection has been low on their list of priorities. These industries have dealt in toxic metals (lead and cadmium) and hazardous solvents and other liquid products. It has long been suspected, and confirmed in many cases, that uncontrolled disposal of waste has also occurred at these sites.

Among primary industries, steel mill sites were often located in an urban setting while non-ferrous smelters were generally located in remote areas. This generalization is not always valid and there are examples in which smelters are located within present urban areas. Steel mills are most often located in urban centres because of their need for diverse raw materials and a skilled labour force.

Large government operations can be brownfield sites. National Defence sites have housed all manner of activity and the potential for contamination exists. Similarly, airports, the location of fuel handling and maintenance operations, are potential brownfield sites. Ports and warehouses, where products such as salt, sulphur and fuels are stored or transhipped are potential brownfield sites.

A brownfield site may also arise from special situations such as pesticide formulation industries or industries that used PCB* in their process or products. These examples probably fall outside the definition of brownfield because the cost of remediation is extreme and there is no economic incentive large enough to encourage redevelopment, or because the site has been orphaned.

All types of industry can be suspected of being a source of contamination and from the simplest of activities, such as providing space heating for facilities. However, the broad range of industries should not be considered as the root cause of brownfield sites because much of the contamination can be considered minor. Fuel oil leaks or spills can be cleaned up, contained PCB-use can be managed, and asbestos can be abated. As a result, these issues become immaterial in the bigger picture of a brownfield redevelopment proposal.

Public Infrastructure

The growth of urban populations has been followed by increasing demands for infrastructure and servicing to provide transportation, waste management, water, and sewer supplies. These infrastructure developments, most commonly undertaken by public agencies, have also contributed to the formation of brownfield sites.

Disposal of municipal waste in non-engineered landfills is an example. In the past, solid waste was disposed of in any convenient depression, gully or stream valley, and early landfills were located on the fringes of cities. As with other examples, many of these historical sites are now surrounded by urban development and former landfills are now brownfield sites.

Harbour dredging, particularly in the Great Lakes Basin, produced new land forms in a number of major urban centres. These new lands were located close to existing industrial areas and, as such, were heavily industrialized. There are now significant brownfield locations in these centres.

Finally, demographics plays a role in creating brownfield sites. In some provinces, the movement of population away from urban centres created brownfield sites in the vacated neighbourhoods. In this case, the site is created because the neighbourhood is less attractive and the potential revenue from redevelopment is too low to stimulate redevelopment. In other cases, the opposite demographic pressure exists. There is a

* PCB use here means actual use in the process or product, as opposed to the use of PCB in contained applications, such as electrical transformers, where the PCB waste issue has been well regulated and is now simply a question of routine proper management.

demand for housing in downtown areas in some cities, but the resulting pressure to redevelop urban core lands is being frustrated by the brownfield factors that mean these lands cannot be developed.

The Economics of Brownfield Sites

Evaluating Potential Success

The potential for success of a brownfield redevelopment depends on the economic integrity of the redevelopment strategy. The various factors influencing site location for businesses need to be considered along with the relative advantages of brownfield redevelopment versus greenfield development. Factors to be considered include:

- labour characteristics
- transportation
- financing
- tax exemptions and incentives
- market
- land costs and availability
- construction costs
- availability of energy and raw materials
- regulations
- quality-of-life characteristics

Studies in the United States have shown that the majority of highly rated siting factors are typically associated with greenfield sites. Some of the advantages of greenfield sites include availability of financing, land costs and land availability, environmental regulations, housing availability, and, often, other social characteristics such as crime rates and the rating of schools.[1] Consequently, careful planning is needed to capitalize on the advantages offered by brownfield sites. Considering the brownfield redevelopment within a larger strategic plan for redevelopment of a geographic area, clean-up, urban renewal or community revitalization project may improve the potential for larger or more complex brownfield redevelopments to succeed.

Some of the advantages of brownfield sites that need to be considered include:

- It is apparently more cost effective to develop lands that already have municipal services than to extend services to greenfield sites.
- Brownfield sites may offer a pool of workers within close proximity.
- A dense transportation system may be in place often including transit for workers.
- The site may offer access to a large market of commuters.

- The redevelopment of large tracts of urban lands can be a catalyst for other urban renewal and development projects.
- Redevelopment will increase the likelihood that taxes, often in arrears, are paid.
- Redevelopment can produce other spin-off revenues such as development charges and lot levies.
- Urban intensification avoids expansion of urban lands into greenfield areas with associated environmental effects, and avoids the costs of servicing and other "urban sprawl" effects.
- Populating inner urban areas can bring vitality and safety to otherwise under-used areas.

Strategic Planning for Brownfield Redevelopment

There is some consensus that undertaking strategic planning enhances the likelihood of identifying and attracting investment opportunities for brownfield redevelopment. In such a strategic plan, an investigation is conducted on the extent of contamination over a geographic area covering various old industrial sites (with interrelated hydrogeologic or geologic characteristics). Preliminary clean-up options are investigated and reviewed with authorities and a plan or approval strategy is negotiated to provide greater certainty to prospective purchasers. Birmingham, Alabama, is taking this type of comprehensive approach to brownfield redevelopment, and some Ontario jurisdictions are also considering strategic planning for larger brownfield areas.

This approach is supported by brownfield experts in the United States:

> Wherever possible, brownfield clean-up efforts should become part of larger land assembly and land banking strategies, allowing developers, city governments, and other involved parties to make more strategic investment decisions. Area wide redevelopment strategies for neighbourhoods, commercial business districts, industrial zones, on the other hand can produce the kind of environment that attracts private investors: a coordinated public sector, a targeted and assured infrastructure investment program, and a local community that supports development.[2]

Public Funding and Brownfield Sites

For some more highly contaminated brownfield sites that have more limited potential for return on investment from redevelopment, it is likely that only the provision of public funds will tip the balance to make site redevelopment economically feasible. This is a reasonable response that has led, in the United States, to the reuse of many urban sites that otherwise might be considered to be permanently unattractive for redevelopment.

Despite this increasing demand for public funding to support brownfield initiatives, it is important to carefully target such funding. Given the spectrum of brownfield sites (from those with insignificant environmental risk and high

redevelopment potential to those with high contamination and low redevelopment potential), it is important to focus public funding where it will achieve the most advantageous results. Such an assessment considers both a full range of costs and benefits — including direct economic return, spin-off redevelopment (sparking of urban renewal), improvements to quality of urban life, employment, etc. Cities focus on economic development opportunities appropriate for their conditions and decide on the direction their future can and should take, whether this is export-based or driven by growth in such areas as manufacturing, information technologies, tourism or health care.

In this way, public funding for brownfield redevelopment is provided to private investors and municipalities for redevelopment of brownfield sites only if the underlying factors determining their economic competitiveness are first addressed. In support of this targeted approach to funding, the American specialist in brownfield redevelopment, Iannone, notes:

> Solutions to the brownfield problem should be sought in order to spark urban revitalization on a larger scale. Many proponents of brownfield reuse are too concerned with the details of site conditions. They are stuck in a "deal" mentality. The search for deals needs to be balanced with planning for neighbourhoods, analysis of larger real estate markets, and the creation of strategies for general economic development.[3]

The "New Economy" and Brownfield Sites

Changes in economic trends may influence the economics of brownfield redevelopment in urban areas. The effects of the "new economy," in which business moves beyond the traditional commercial core areas to support home-based business and telecommuting, will influence the demand and market for brownfield redevelopment. Corporations are increasingly seeing the advantages of shifting the cost of rent, utilities and overhead to employees working out of their own homes.

Similarly, in Canada and the United States, there is a move for corporations to move to the "exurbs" (suburban or beyond suburban areas). Such changes will influence the market for brownfield sites and may spark significant changes in our traditional view of downtown core and highly urbanized, former industrial areas.

Such trends must be closely monitored in Canada in establishing an urban strategy for brownfield redevelopment. The key will be to find niches that can support a competitive economic position for brownfield sites.

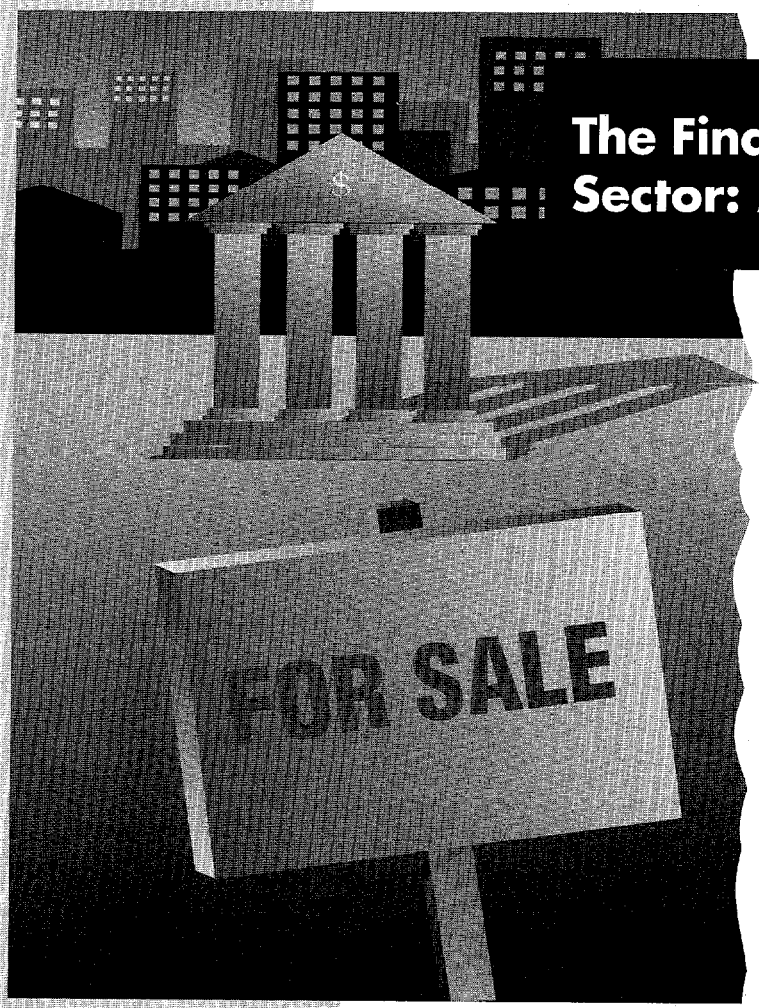
Public Policy and Brownfield Redevelopment

Some provinces, such as Ontario, actively encourage, through policy and regulations, intensification of urban areas and rural settlement areas for growth. For example, the Ontario provincial policy statement promotes urban intensification as well as the provision of low and moderate income housing types. New development is expected to have respect for this policy.

Such policy can influence the form and shape of urban development and may consequently encourage brownfield redevelopment by "levelling the playing field" for all proponents when considering development in urban versus greenfield areas. Proponents may be more attracted to brownfield sites when they know the planning regulations or policy environment has an "urban first" approach, with associated lower cost for regulatory planning approval.

CHAPTER 3

The Financial Services Sector: An Overview



The Players

The Canadian financial services sector has traditionally been defined as having four pillars or markets: banks; trust and loan companies (including credit unions and *caisses populaires*); insurance companies; and securities dealers (investment brokers and mutual funds). Each of these industries acts as a financial intermediary in their respective market: they receive monies from, and then lend or invest monies in the economy on behalf of the providers of funds — their depositors, policyholders or investor clients. In addition, the property and casualty insurance industry serves a unique function as risk-takers with respect to real property risk for the other financial industries.

Banks

By any measure — assets, revenue, numbers of customers or the size of its distribution network — banking is by far the largest and most pervasive of the financial markets. The banking industry comprises two different categories of banks, commonly known as Schedule I and Schedule II banks as a result of their identification in Schedule I and Schedule II of the federal *Bank Act.*

The principal statutory difference between the two classes of institutions relates to ownership: Schedule I banks must be publicly owned (no individual may own or control more than 10 percent of the voting shares of the bank), whereas Schedule II banks may be privately owned (an individual may own or control more than 10 percent of the voting shares of the bank). Schedule I banks are often referred to as "The Big Six" representing, in declining order by size, The Royal Bank of Canada, Canadian Imperial Bank of Commerce, Bank of Montreal, The Bank of Nova Scotia, The Toronto-Dominion Bank and National Bank of Canada. There are approximately 55 Schedule II banks (subject to periodic mergers and closings), comprising the many Canadian subsidiaries of the various foreign banks together with the banking subsidiaries and affiliates of several of the largest insurance companies.

The main commercial difference between Schedule I and Schedule II banks is the size and scope of their operations. Schedule I banks have coast-to-coast distribution networks and are involved in all geographic and product markets (with the exception of the National Bank which remains essentially a regional institution rooted in Quebec). Schedule II banks are niche banks, participating only in selected geographic or product areas (with the exception of Hongkong and Shanghai Bank of Canada which has limited national coverage). Nearly all banks (with rare exceptions among Schedule II institutions) have accumulated considerable experience in, and lend exposure to, real estate development financing.

Changes in the financial services sector's legislative framework over the past decade have caused major rationalizations and realignments, not only within but also across certain financial services markets. As a result, the banking industry has increased considerably in size — at the direct expense of the trust and investment broker industries — by acquiring many of the largest institutions in both those markets.

Trust and Loan Companies

There are approximately 125 trust companies in Canada. A minority, the larger firms with aspirations to nation-wide operations, are incorporated federally and therefore are governed by the federal *Trust and Loan Companies Act.* The majority are relatively small institutions of local or regional scale, incorporated provincially and thus governed by provincial statutes.

The trust industry has suffered a major decline and rationalization throughout the past decade, partly as a result of credit risk management problems arising from overly aggressive lending to the real estate development industry in the 1980s, and also as a result of changes to the federal legislative framework which have permitted banks to acquire trust companies. As a result, apart from Canada Trust and National Trust (both based in Ontario) which are the two largest remaining independent trust companies, all of the other national or major regional trust companies have been acquired by the banks. The independent trust industry is relatively small in comparison with the banking industry: the largest independent trust company is about the same size (as measured by proprietary assets) as the smallest of the Big Six banks, and the combined assets of all the independent trust companies are less than those of the single largest bank.

Credit unions and their Quebec counterparts, the *caisses populaires*, perform essentially the same financial intermediary functions as do trust and loan companies, except on a smaller individual scale. The principal characteristic of a credit union is that it is a financial co-operative in which a depositor gains an automatic ownership interest as a result of being a depositor — the depositor is both a creditor and an owner. In contrast, a depositor in a bank or a trust company only has a right to the return of the deposit — the depositor is only a creditor. Credit unions have a strong historic root in the Prairie Provinces. *Caisses populaires* have a unique strength in Quebec where, if considered as a whole, they rival the market share of the largest banks. Although there is federal legislation for this industry, the *Co-operative Credit Associations Act*, the overwhelming majority of credit unions and *caisses populaires* are small, local institutions, incorporated and governed provincially.

Insurance Companies

The insurance industry comprises two distinct sub-markets which fulfil quite different roles. The life and health insurance industry is by far the more important financier of real estate development, because its long-term obligations to its policyholders require long-term investments. The life and health insurers comprise approximately 150 institutions which, similar to the trust industry, are clearly stratified into a small upper tier of about 10 large firms and a much larger lower tier of about 140 smaller firms. As in the trust industry, the upper-tier firms are generally governed by the federal *Insurance Companies Act*, while the smaller companies are generally subject to provincial governance.

The second segment of the insurance industry comprises the property and casualty insurers. Inasmuch as their obligations to their policyholders are much more of a short-term nature, they require substantially more liquidity in their investments and correspondingly do not provide significant financing for real estate development. However, through their insurance activities, this market provides a mechanism for

transferring risk from other financial intermediaries, thereby increasing the overall capacity and willingness of those other intermediaries to accept risk. Those other financial intermediaries — banks, trust companies, life and health insurers, credit unions/*caisses populaires* — are the dominant providers of financing for real estate development, including brownfield redevelopment.

Securities Dealers

The securities industry is not a direct provider of capital for real estate development. To the extent that it provides financing to the real estate industry, it does so indirectly by arranging equity and debt placements for the few largest real estate development firms which are publicly owned. However, even in this role, its contribution is relatively minor since the degree of financial leverage inherent in the real estate development industry means that the majority of financing for any given project will be provided by the other financial intermediaries described above.

Business Opportunities and Challenges

Opportunities in Financing Real Estate Development

By its very nature, environmental risk is directly and inextricably associated with commercial real estate, its development and its financing. Commercial real estate financing has been a significant and steadily growing aspect of the lending activities of all financial institutions since the Second World War, driven by the tide of urbanization and the changes in both the nature and density of land use which have been part of that phenomenon. Through their lending and investing activities, financial institutions have a direct and influential role in determining which real estate projects, including brownfield redevelopment, proceed.

Commercial property financing may be provided either directly, through commercial mortgages and commercial real estate loans, or indirectly, through collateral mortgages:

- *Commercial mortgage loans* are directed toward long-term financing of cashflow-generating commercial properties. This is "stand alone" financing (that is, other income or assets of the borrower are generally not considered) made according to standard guidelines. Of primary concern is the sufficiency of rental cashflow generated by the property to provide adequate debt servicing, with secondary attention to equity in the property based on its appraised value. This kind of financing, usually provided to real estate operators, traditionally has been obtainable from a variety of sources: chartered banks, trust and loan companies, and insurance companies.

- *Commercial real estate loans* are generally intended for "stand alone," equity-based financings. This category of financing usually provides short- to medium-term accommodation to real estate developers, builders, construction companies and related real estate operators for the accumulation, development, build-out and short-term warehousing of completed commercial properties pending permanent financing. The traditional source has been more or less limited to the chartered

banks, since these development-related financings generally require a broader lending relationship involving other financial services which non-banks are not equipped to provide.

- *Collateral mortgage loans* are part of general-purpose financing arrangements provided mainly by banks to commercial borrowers, secured by charges against all the borrowers' assets including real property.

Market research undertaken by GlobalRisk Management Corporation in 1994 indicating the distribution of commercial real estate financing risk (as measured by numbers of transactions) among the major financial institutions is shown in Exhibit 3.1. It should be noted that this distribution does not include the commercial real estate financing activities of the venture capital sector, since the private sources of capital which comprise this sector are not regulated, do not report their activities to any central agency and are therefore essentially impossible to quantify without further extensive research. Experience in the financial services sector strongly suggests, however, that the relative lack of liquidity in the Canadian venture capital market would limit their overall involvement to no more than several thousand transactions — approximately 2 percent market share. Accordingly, the overall distribution is considered to be representative of the marketplace. In line with the dominant size of their industry within the financial services sector, the banks' portion of commercial real estate financing, and of the environmental credit risk associated with it, is nearly twice that of each of the other three affected market segments.

Notwithstanding the huge volume of commercial real estate financings which occur each year, it is important to remember that the commercial real estate market is driven not by the supply of but by the demand for financing, the latter being a direct function of the demand for redevelopment of commercial real estate including brownfield sites. Lending institutions cannot provide financing for properties that no one wants to redevelop. As a result, the role of lenders is essentially *reactive* in the marketplace: to receive borrowers' requests for financing; to objectively evaluate the financial merits of each situation; and, if a proposed redevelopment is considered to be a safe and sound repository of depositors' and shareholders' funds, to prudently manage the on-going credit risk arising from the loan. At the most basic level, lending institutions lend to borrowers, not to properties. Unless a financially viable entity wants to borrow to redevelop a brownfield site, there is no business reason for a lender to be involved with the site.

Exhibit 3.1

Distribution of Commercial Real Estate Financing and Environmental Risk

	Number of Transactions	Market Share
Banks:		
Commercial Mortgages	34,902	31.6
Commercial Real Estate Loans	2,713	2.5
Collateral Mortgages	5,420	4.9
	43,035	39.0%
Trust and Loan Companies	25,933	23.5%
Insurance Companies:		
Life and Health	21,412	19.4
Property and Casualty	401	0.4
	21,813	19.8%
Credit Unions/*Caisses Populaires*	19,620	17.7%
TOTAL	**110,401**	**100.0%**

Source: GlobalRisk Management, 1994.

The Challenges

Fragmented Financial Services Legislative Framework

The legislative and regulatory framework is the cornerstone both for determining and evaluating the behaviour of the financial services sector. This framework reflects the societal consensus concerning the appropriate role and activities of financial institutions. More importantly though, from a commercial perspective, this framework not only establishes, but also defines the limits and value of the franchise which each financial institution commercially exploits.

The legislative and regulatory framework can determine the behaviour of financial institutions either directly or indirectly. As a direct determinant, it may be prescriptive in nature, dictating that financial institutions "shall" or "shall not" conduct their business in a certain manner, or it may be non-prescriptive, suggesting that financial institutions "should" or "should not" undertake certain activities. Each approach has its merits. The former provides direct and explicit guidance to the managers of financial institutions and therefore reduces uncertainty in the marketplace, whereas the latter provides for increased flexibility and facilitates adaptation to changing circumstances.

As an indirect determinant, the legislative and regulatory framework heavily influences the expectations of shareholders, depositors and policyholders with respect to the safety of their invested funds and plays a significant role in guiding the behaviour of consumers of financial services. To the extent that competitive forces exist in our financial services sector — more so in the insurance markets and less so in the banking

and trust industries — those consumption patterns in turn determine the relative success or failure of individual financial institutions, including their respective approaches to accepting and managing environmental credit risk in commercial real estate financing.

The Canadian legislative and regulatory framework is relatively fragmented with respect to the various markets within the financial services sector. For example, banking is the only market which is an exclusively federal responsibility, hence there is one federal statute, the *Bank Act*, which governs this market. On the other hand, trust and insurance companies may be incorporated either federally or provincially, and there is therefore legislation at both levels and across all provinces which seeks to regulate these markets. Similarly, credit unions and *caisses populaires* are provincially regulated. Securities dealers (investment brokers and the relatively young but rapidly growing mutual fund industry) are also the subject of securities legislation and regulations in each province, separately. This lack of a cohesive, consistent statutory framework makes it difficult to generalize about the Canadian financial services sector, and for analytical purposes it is often instructive to focus on the largest individual market — banking — as a benchmark.

Lack of Financial Regulatory Guidance on Environmental Risk

All of the applicable federal laws, the *Bank Act, Trust and Loan Companies Act, Co-operative Credit Associations Act* and *Insurance Companies Act*, stipulate similar measures that the Board of Directors of a financial institution is required to establish and the financial institution is required to adhere to, *viz*: "investment and lending policies, standards and procedures that a reasonable and prudent person would apply in respect of a portfolio of investments and loans to avoid undue risk of loss."

However, beyond this generic standard of prudence, the federal statutory framework is noticeably silent with respect to environmental risk management in the financial services sector. For example, nowhere in any of these statutes is there any reference to environmental credit risk or its management.

The next level of statutory guidance derives from the federal insurer for deposit-taking institutions, the Canada Deposit Insurance Corporation (CDIC). CDIC is the federal insurer for approximately 130 federally incorporated banks, trust and loan companies. Under its own governing legislation, the *Canada Deposit Insurance Corporation Act*, one of CDIC's objectives is to be instrumental in the promotion of standards of sound business and financial practices for its member institutions and CDIC is empowered to make by-laws governing its member institutions in those matters. All CDIC member institutions are required to maintain deposit insurance with CDIC. CDIC may terminate a member's deposit insurance, effectively putting it out of business, if, in the opinion of CDIC, a member does not follow the standards of sound business and financial practice established under CDIC's by-laws.

In August 1993, CDIC published eight by-laws which established a comprehensive set of standards of sound business and financial practices for its members (the *CDIC Standards*). However, the CDIC Standards also provide little guidance with respect to environmental risk management in the lending activities of its member institutions. The *Credit Risk Management Standard* contains only one generic statement that may be applicable to managing environmental credit risk in the context of real estate, such as

brownfield redevelopment: "member institutions [may be exposed to] undue risks resulting from ... a relaxation in credit quality standards, including the assumption of borrowers' risks." Similarly, the *Real Estate Appraisals Standard* comments that: "property development projects ... may pose a significant risk to CDIC members in their capacity as lenders or investors," but its only guidance with respect to potential environmental risk management is that "all appraisal valuation approaches used [should] reflect accurately circumstances respecting the land or property use."

The *CDIC Act* requires that federal regulatory examiners must provide CDIC with their opinion on whether or not the operations of a member institution are being conducted in accordance with the standards of sound business and financial practices established under the CDIC by-laws. The applicable federal regulator is the Office of the Superintendent of Financial Institutions (OSFI).

In January 1993, OSFI published a guideline incorporating the "prudent person approach" enunciated in each of the federal Acts noted above and applicable in their regulatory examinations of all federal financial institutions — banks, trust and loan companies, insurance companies and co-operatives. However, the guideline is generically worded, without any specific reference to environmental credit risk, to correspond to the *CDIC Credit Risk Management Standard* and the only guidance which would apply to environmental credit risk management is that "financial institutions should set limits on investments and loans according to their quality" and "limits should be established on exposures to industries and geographic regions."

Provincial regulators of trust and loan companies, insurance companies, credit unions and *caisses populaires* generally follow the path established by their federal counterparts.

In general, therefore, the federal and provincial statutory frameworks provide little effective guidance on the issue of environmental credit risk management to the managers of financial institutions. The prudent person approach espoused throughout all the applicable federal legislation establishes a relatively high threshold for due diligence. That threshold is heightened by references in the *CDIC Standards* that property development credits may expose financial institutions to "significant" or "undue" risk. The OSFI Guidelines provide minor commentary on risk identification with respect to establishing quality or risk rating systems, but there is effectively no guidance with respect to environmental credit risk mitigation or management. By heightening sensitivity to, but not providing mitigating mechanisms for, environmental credit risk, the negative bias of the legislative and regulatory framework causes financial institution managers to act from a position of risk aversion rather than risk management.

Lender Liability and Legislative Inconsistencies

Lender liability arises when a lending institution realizes upon loan security covering a contaminated site (for example, a mortgage on land or a security interest in machinery or inventory stored on the site), thereby becoming potentially involved in the chain of ownership of the site or the control of the business which operates on the site. As an earlier NRTEE study in this area concluded, the law on environmental liability is too vague, too varied and not comprehensive.[4]

This problem was recognized from the earliest days of the *Comprehensive Environmental Response, Compensation and Liability Act (CERCLA)* legislation in the United States. Exemptions evolved under *CERCLA* to provide some protection for American financial institutions which were potentially subject to environmental regulations in the everyday conduct of their lending/investment business but who were not "responsible parties" for environmental purposes. Although this exemptive approach was far from perfect, it provided a working level of comfort in the American financial services sector until the *United States of America v. Fleet Factors Corporation* decision in 1990, which significantly broadened the net of responsibility by redefining the circumstances under which a financial institution might be considered to have "control" of a contaminated borrower's business. The U.S. Environmental Protection Agency has subsequently attempted to codify a regulatory exemption for lenders/investors; however, it has suffered legal challenges also and there remains a considerable level of uncertainty in the American marketplace.

In Canada there have been initiatives at the provincial level to create limited degrees of protection for lenders/investors, which would encourage their participation in brownfield redevelopments. The approach has generally been to provide a lender/investor with the opportunity to attempt to recover value from loan and investment security as long as the lender/investor does not take control of the property or of the business conducted thereon and is not responsible for any contamination following the time of the lender's or investor's first involvement. In British Columbia and Alberta, the issue was addressed in new legislation, British Columbia's *Bill 26* and Alberta's *Environmental Protection and Enhancement Act* (Contaminated Sites Provision). In Ontario, the matter was dealt with through a co-operative effort between regulatory authorities and financial institutions, from which emerged the *Standard Agreement Respecting Environmental Investigations.* However, the federal government presently has legislation before Parliament — *Bill C-5: An Act to Amend the Bankruptcy and Insolvency Act,* the *Companies' Creditors Agreement Act* and the *Income Tax Act* — which is perceived in the financial services sector as substantially increasing environmental credit risk.

Traditionally, the Canadian approach to environmental liability provided financial institutions with a due diligence defence under the common law if they became entangled in the web of property ownership (as a mortgagee) or in control or operation of a defaulting borrower's business (while trying to maximize the recovery of value from loan security). Accordingly, while a financial institution *might* suffer the loss of the complete principal of its loan *if* the degree of contamination was so severe that the value of the site, and thus the loan security, was reduced to zero, the financial services sector always relied on the due diligence defence to insulate it from regulatory claims to further subsidize the cost of remediation.

Bill C-5 now essentially provides environmental regulatory authorities with a remediation budget equal to the post-remediation value of a bankrupt debtor's property. Section 15(7) of *Bill C-5* states:

> *Any claim* against the debtor in a bankruptcy, proposal or receivership *for costs of remedying any environmental condition* or environmental damage affecting real property of the debtor *is secured by a charge on the real property and on any other real property of the debtor that is contiguous thereto* and that is related to the activity that caused the environmental condition or environmental damage ... [emphasis added].

If the proposed policy in *Bill C-5* becomes law, a lender/investor will face the *automatic devaluation of its loan security* in an amount equal to the cost of remedying "any environmental condition ... affecting real property of the debtor" *plus* the automatic devaluation of security which it may hold on contiguous property related to the activity causing the environmental condition.

In addition, a financial institution's ability to recoup a meaningful portion of its diminished security value by claiming as an unsecured creditor against other assets of the bankrupt debtor that are not related to the contaminated property (such as inventory or accounts receivable) may also be significantly impaired. Section 15(8) of *Bill C-5* further provides that "a claim against a debtor in a bankruptcy or proposal for the costs of remedying any environmental condition or environmental damage affecting real property of the debtor shall be a provable claim." This means that, to the extent that the cost of remediation exceeds the value of the real property, the regulatory authority retains a claim against the other assets of the bankrupt debtor which ranks equally with, and therefore will dilute, the recoverable value of the claims of other creditors, including financial institutions.

This new federal legislation takes priority over all other legislation — federal and provincial, environmental and financial — across the country. Section 15(7) of *Bill C-5* establishes that the claim of the environmental regulatory authority "*shall rank above any other claim*, right or charge against the property, *notwithstanding* any other provisions of this Act or anything in *any other federal or provincial law*" (emphasis added).

If *Bill C-5* becomes law in the form in which it proceeded to hearings after second reading, it will render unclear what degree of protection, if any, the existing provincial legislative and regulatory measures might continue to provide, and what may be done to co-ordinate these substantially different federal and provincial approaches. However, because of its primacy over other legislation, the federal legislation, with some modifications, has the potential to contribute to harmonization amongst the various jurisdictions in Canada and to encourage greater clarity and certainty in the medium- to long-term.

Difficulty in Quantifying Environmental Credit Risk

One of the greatest difficulties to date in formulating a coherent discussion among all the constituencies which have some interest in brownfield redevelopment has been that the sectors tend to discuss the issue in terms familiar to their particular focus. The public sector speaks to issues of general concern to the population including health risk, natural resource impacts, restored tax revenues, creation of social programs and environmental justice. The environmental industry talks of risk-based corrective action methodologies, pathways and hazardous constituents. The legal community seeks to

define the brownfield issue in terms of legal precedents and legislative liability relief. To date, the financial services sector's focus has remained on the safety of capital and profitability of the transaction. As a result, lending institutions require that they be able to quantify any and all risk in monetary terms.

Loans secured solely by commercial real estate are generally bound by the criterion that the amount of the loan cannot exceed a stipulated percentage of the appraised value of the real estate. In some cases, this loan-to-value threshold is specifically defined in legislation or regulations. However, in many respects the financial services legislative or regulatory framework is weak in providing guidance on how to quantify environmental credit risk. The *CDIC Credit Risk Management Standard* provides only the general comment that "most credit problems stem from disregarding or inadequately assessing basic lending principles, including ... the adequacy of collateral," essentially a reiteration of the prudent person approach. The *Real Estate Appraisals Standard* specifically cautions that "undeveloped land or property [and] property development projects ... may pose a significant risk to CDIC members in their capacity as lenders or investors. For this reason, the impact of such risk must be reflected, and appropriately disclosed, in any appraisal report supporting such transactions." However, this Standard fails to provide any further direction or guidance with respect to the necessary or desirable appraisal methodologies for ensuring that the impact of such risk is adequately reflected and appropriately disclosed.

The issue then devolves to the appraisal industry, specifically resting on the ability of their professional practitioners to identify, quantify and integrate measures of environmental risk with all the other factors which are involved in arriving at an appraisal valuation. The Appraisal Institute of Canada, the dominant and most widely recognized professional association of commercial real estate appraisers in Canada, has formally recognized the difficulties inherent in constructing an appraisal which embodies all relevant environmental factors in their *Uniform Standards of Professional Appraisal Practice.* Guide Note 5, *The Consideration of Hazardous Substances in the Appraisal Process,* states:

> The consideration of environmental forces, along with social, economic and governmental forces is fundamental to the appraisal of real estate ... The presence of hazardous substances on a property can significantly impact value. In some cases the property may have a "negative" value as the clean-up cost could be greater than the property value after clean-up.
>
> The typical appraiser does not have the knowledge or experience required to detect the presence of hazardous substances or to measure the quantities of such material. The appraiser, like the buyers and sellers in the open market, typically relies on the advice of others in matters that require special expertise.

The message is clear: there are few qualified commercial real estate appraisers who also hold professional technical credentials. As a result, the level of understanding of the technical nature of environmental conditions is limited.

This situation is exacerbated by the still-evolving methodologies for determining the value of a property which is subject to environmental depreciation. In this regard, Guide Note 5 further states:

> The loss of value attributable to hazardous substances is generally measurable using the same methods and techniques that are used to measure depreciation from other causes. However, in some cases even environmental professionals cannot agree on the level of clean-up required, the appropriate method of that clean-up, or the cost. The appraiser is cautioned that the value of a property impacted by environmental hazards may not be measurable simply by deducting the apparent costs or losses from the total value, as if "clean". The possibility of other changes affecting value, such as a change in highest and best use or even the marketability, should be considered.

As is typical with any emerging issue, the appraisal industry is and will continue to grapple with methodologies for ensuring that the impact of environmental risk is adequately reflected and appropriately disclosed. Appraisal standards and, as a result, the ability of the financial services sector to identify and quantify environmental credit risk, will remain in flux as long as many substantive technical remediation issues also remain unresolved.

Historical Experience in Real Estate Financing

The dismal experience of all financial institutions in financing real estate development over the past decade has detrimentally affected the willingness and capacity of every surviving institution to provide financing to the real estate development industry. The crash of commercial real estate markets in both value and liquidity, which began in 1990 concurrent with the economic recession, devastated the loan portfolio quality of all segments of the financial services sector but was especially unkind to the banking, trust and life insurance industries which had competed aggressively to finance the largest real estate developments in the 1980s.

Every one of the Big Six banks reported unprecedented loan losses in the 1991-1993 period arising directly from real estate lending. The capital bases of two major trust companies — Royal Trust and Central Trust — were so damaged by real estate-induced loan losses that those companies were taken over by banks in rescues orchestrated by CDIC to protect their depositors. Similar fates befell leading life insurance companies — Les Coopérants and Confederation Life — the latter having the dubious distinction of being the largest failure of a life insurer in North America. And the impact was equally severe at governmental levels: CDIC became seriously indebted for the first time in its history as it subsidized the collapse of the trust industry, and OSFI was publicly pilloried for having failed to adequately police the financial system.

As a result, real estate development financing was effectively terminated in the early 1990s. One Big Six bank calculated in 1992 that its real estate financing losses were so large that they exceeded all of the profit which that bank had made in its real estate financing in the previous decade, and that for practical purposes the bank might as well never have engaged in real estate financing. Commercial real estate lending units in all of the Big Six banks lost their mandate for business development and were turned into *de facto* loan workout and collection units.

As the financial institutions suffered not only massive monetary losses but also the non-productive and immensely frustrating diversion of valuable management resources to managing high risk real estate loan portfolios, real estate financing acquired a deeply entrenched stigma among the managers of financial institutions and their regulators. That stigma will be very difficult to overcome. It has been codified at almost every major financial institution in new or revised lending policies specifically designed to control more stringently real estate financing exposures. It is exacerbated with respect to brownfield redevelopment because of the perceived additional environmental risk.

The last time that the financial services sector was equally traumatized in its commercial real estate financing activities was in the mid-1970s as a result of its experience with Real Estate Investment Trusts. It took two complete economic cycles spanning more than a decade for normal lending conditions to return to real estate markets in the 1980s.

The Real "Drivers" of Financial Institution Management

Management philosophies and practices at the major financial institutions respond to a relatively small group of motivating forces which are common across the banking, trust and insurance industries.

Compliance with the Legislative/Regulatory Framework

Depending on the nature of the financial institution, it may be governed by as many as three different pieces of legislation and/or regulatory policies. Since this legislative/regulatory framework not only establishes the scope and economic value of the franchise which the institution commercially exploits, but also provides for the termination of the franchise in the event of non-compliance, adherence to the legislative/regulatory framework is paramount for financial institution managers. The result is a natural tendency to operate in accordance with conservative interpretations of the legislation and/or regulations which, as noted above, cause financial institution managers to operate from a position of risk aversion rather than risk management.

Profitability and Return to Shareholders/Policyholders

The legislative/regulatory framework requires that financial institutions maintain their respective capital bases at certain specified levels in relation to their assets and/or liabilities. To attract additional capital that may be needed to support the growth and long-term viability of the institution, operations must be profitable so that the institution is capable of paying a competitive rate of return to its shareholders or policyholders. To the extent that the risk factors, both economic and environmental, commonly associated with brownfield redevelopment are perceived to be greater than normal real estate development (and therefore conducive to greater loan/investment losses), financial institution managers will be less likely to engage in brownfield redevelopment.

Sensitivity to Societal Expectations with Respect to the Safety of Invested Funds

Major financial institutions have been allocated a special role and are held to a higher standard because they are the repository of the life savings of most people. The high degree of financial leverage in banks and trust companies means that the overwhelming majority of funds loaned or invested belong not to the institution but to its depositors, shareholders and policyholders. Financial institution managers are constantly reminded of this fiduciary responsibility, again causing a natural tendency to minimize, rather than manage, risk. Since environmental issues would cause brownfield redevelopment to be considered a high risk form of real estate financing, they would not normally be pursued.

Lack of Technical Expertise in and Appreciation of Environmental Issues

Among the majority (four) of the Big Six banks, environmental issues are administered on a part-time basis by credit or in-house legal personnel. Only two of the Big Six banks have in-house environmental advisors, although they all have in-house technical specialists for mining financing which is considered to be a profit, not a cost, centre. One Big Six bank declined a specific recommendation of an internal environmental task force to establish a full-time environmental affairs executive on the grounds that another cost centre was not an appropriate allocation of resources.

Self-Interest of Financial Institution Managers

Compensation and career advancement programs are typically based on the volume or profitability of new business. None of the Big Six banks incorporate environmental matters into the performance and compensation review process. Loan or investment losses, which are exacerbated by environmental problems such as often exist in brownfield redevelopments, are detrimental factors in compensation and career advancement.

4

Encouraging Brownfield Redevelopment: Strategies

The Need for Incentives

Real estate development, regardless of the brownfield issues and whether the players are in the private or public sector, must make sound economic sense if it is to be viable over the long term. Therefore, the most fundamental determinant of the success or failure of a brownfield redevelopment is the economic climate in general, and the real estate market in particular. If economic conditions in general are weak, then brownfield redevelopments will lag. If economic conditions are robust, so that demand is generally strong and creates shortages in established non-brownfield real estate markets, then brownfield projects will increase in number.

However, even in a positive economic climate, some brownfield sites will inevitably be less attractive than others for reasons such as geographic location, surrounding land use or contamination, and availability of municipal services. Each individual brownfield site should be considered as part of a spectrum of sites, ranging from more attractive to less attractive for redevelopment. Developers will undertake a natural selection process, ranking (implicitly or explicitly) the features offered by each site and ultimately choosing from this spectrum the site which is best suited to their particular needs.

The most attractive brownfield sites may be little different from normal sites, in that they may suffer relatively light contamination requiring straightforward, inexpensive remediation while having the benefit of other external advantages related to location, community safety, municipal services, and labour force availability. It is likely that such sites would be acquired for prices close to the market norm for similar non-brownfield properties, reflecting a combination of the discount for the projected cost of remediation and some premium for other positive features of the site. If sufficient information is available in the public domain to permit developers to readily identify such sites, they will require little if any external incentive (that is, non-market or public sector) for their redevelopment.

However, those brownfield sites involving heavy contamination, requiring complex and expensive remediation, and lacking the benefit of other external advantages, will by their very nature be the least attractive for potential redevelopment. Such sites, if they can be sold at all, will sell at deep discounts to the market norm. Between the two extremes of this spectrum will exist a range of sites with increasing degrees of contamination and differing combinations of externally-derived advantages and disadvantages. Their market values will reflect the combined economic impact of their environmental and non-environmental features, not just their level of contamination and projected cost of remediation. The prospective developer's decision-making process leading to the selection of a particular site will similarly take into account many factors.

Strategies to encourage investment in brownfield sites must therefore address the wide variety of factors which combine to determine market value. For example, a site which suffers only modest contamination with a low remediation cost, but which is situated in a neighbourhood characterized by low levels of public safety and poor transportation, will not be made significantly more attractive by conventional public sector incentives such as grants, loans or tax incentives. These monetary initatives do not address the characteristics of the site which cause it to be unattractive. Instead, a

municipal program incorporating improved policing and transportation would be the appropriate response. Conversely, a site which is heavily contaminated with high remediation cost may have a negative economic value because of its environmental characteristics but may also have positive external features. Such a property would require a public sector monetary incentive to offset the monetary effect of the contamination, while other kinds of municipal responses would not greatly improve the site's attractiveness.

Strategies for encouraging investment in brownfield sites may be organized into two basic categories: direct and indirect. *Direct strategies* are generally monetary in nature, aim at improving investors' rate of return, and may include loans and/or loan guarantees, fees, tax incentives and equity participation schemes. *Indirect strategies* aim at reducing some of the risks for investors and may include regulatory reforms, state voluntary clean-up programs, financial and liability assurances, and strategic planning or information services that help potential investors to better assess risks.

It is important to note that the range of strategies employed in the United States to date exceeds those employed in Canada. The reasons for this include not only the ten-fold larger economy and population in the United States, but also differences in the historical pattern of development in the two countries. American industry began to flourish a century before its Canadian counterpart, which has substantially increased the inventory of potentially contaminated, old industrial sites. This has contributed to the much larger problem of urban decay and brownfield sites in urban America. In addition, the larger economy provides for greater liquidity in capital pools available for industrial revitalization. Finally, the strength of the economy in the United States and the potential markets for redevelopment do not mirror those in Canada.

These differences are explored further in the following chapter which describes the range of direct and indirect strategies that have been undertaken in Canada and other jurisdictions, primarily the United States, to encourage brownfield redevelopment. Examples of the application of the strategy are included.

Direct Monetary Incentives

Indemnities

Indemnities are a means of transferring risk through contractual arrangements in which one party undertakes to accept responsibilities which would normally accrue to another party for specified future events or risks. In effect, they are a form of guarantee, although the nature of the obligations assumed by the indemnifier are usually defined in terms of events rather than in monetary amounts. Indemnities are an effective means of transferring risk, sometimes between parties in private sector transactions and in other instances from the private sector to the public sector.

Some American jurisdictions have used indemnities to encourage the purchase and redevelopment of a site by reducing the risk attached to the site. For example, in order to encourage the purchase and redevelopment of a brownfield site, a municipality or state may indemnify a purchaser of the site against future remediation liabilities arising from the application of more stringent future legislation to pre-existing contamination on the site.

In the private sector, vendors of brownfield sites may indemnify purchasers against the costs of additional future remediation for a pre-existing environmental condition that has already been remediated, i.e., against failure or shortcomings in the original remediation conducted by the vendor. Similarly, lending institutions regularly require indemnities from developers against future remediation expenses or other liability which may accrue to the lender because of its involvement in the brownfield redevelopment. In the latter instance, the acceptability of the indemnity to a financial institution will depend on the non-brownfield assets or cashflow of the developer: if the developer's financial strength is tied up in the brownfield redevelopment and the value of the site is unexpectedly impaired in the future, then the developer will be unable to honour the indemnity.

Escrow Accounts

"Escrow" is an American legal term for which the Canadian counterpart is "trust," as in a legal trust account. Escrow accounts may come into play in the sale and purchase of a brownfield site, at which time a portion of the purchase proceeds would be held in escrow, to be used for remediation of the property. Such an arrangement could be negotiated as part of the terms and conditions of the purchase between the vendor and purchaser if remediation work is incomplete at the time of the purchase. It might also be imposed by a state or municipal authority as a condition of approving or registering the transfer of ownership.

Alternatively, escrow arrangements may be used in situations in which the environmental condition of a brownfield site dictates remediation, but the cost of a remedial program is beyond the present financial capabilities of the business which operates on the site. The choice facing the applicable regulatory authority is to insist on immediate clean-up — in which case the business will likely go into bankruptcy — or to negotiate an agreement with the business to undertake a phased remediation program over a period of time, perhaps several years. The business would secure its remediation obligation by placing a specified portion of its profits or cashflow in escrow to fund the remediation. There are several benefits to this approach, including the maintenance of viable business, employment and tax revenues for all levels of government. An arrangement of this type was recently reported between the Ontario Ministry of Environment and Energy and a business in the Junction Triangle area of Toronto, an old industrial and rail transportation corridor in the west end of the city.

Insurance

Private Sector

Notwithstanding their significant environmental losses under old general liability policies and their resultant absence from the marketplace for many years, certain insurers have re-entered the marketplace during the past several years with various kinds of environmental coverages.

Private sector insurance products in the United States include:

- Property transfer liability insurance.
- Third-party liability coverage for bodily injury or property damage occurring on- or off-site.
- Clean-up cost "cap" or "stop loss" insurance which provides insurance for costs of clean-up beyond a pre-agreed cap.
- Landowner insurance coverage for on-site acts or omissions of remediation contractors and consultants and for off-site transportation and disposal of hazardous substances.

All of these varieties of insurance serve as risk-transfer mechanisms to reduce or remove risk from lending institutions by shifting it to insurers.

The two most significant types of coverage with respect to brownfield redevelopment are the clean-up "cap" coverage and the property transfer insurance. The clean-up "cap" insurance removes or at least significantly decreases the uncertainty attached to the cost of remediation and thereby considerably reduces the level of short-term financial risk arising from the acquisition of a brownfield site. The property transfer coverage mitigates the longer-term financial risk which would otherwise exist with respect to the future discovery of previously unidentified contamination or to the future application of more stringent legislative and regulatory requirements to pre-existing environmental conditions. Property transfer insurance has, in some instances, been accepted by lenders as a substitute for an indemnity from a developer. Third-party liability coverage has not gained wide use in the American market due to reported concerns over its price and sometimes restrictive terms of coverage.

In Canada, environmental insurance has traditionally been less readily available. However, in 1992, the five largest banks initiated an effort in conjunction with two major international insurance brokers to import property transfer and third-party liability coverages from the United States. That exercise was considerably complicated by the differences between the environmental legal liability structures of the two countries. However, in the past year, two major international insurance companies have introduced a range of coverages in Canada similar to those available in the United States. As a result, environmental insurance is now available in the Canadian marketplace, although the breadth and availability of coverage is more limited than in the United States.

Public Sector

In addition to private sector environmental insurance, some American states have initiated state-administered insurance pools. Although such programs ostensibly provide insurance, the fact that private sector insurers are not willing to provide similar coverage generally indicates that there are not enough pools of sites to provide proper risk sharing and diversification, and the pricing is not actuarially sound. Because this government insurance which would not normally be commercially viable, these initiatives are really only a different method of delivering more conventional, public-sector mechanisms for risk-transfer, such as guarantees or indemnities.

Shared Financing

Shared financing involves cooperative funding for a brownfield redevelopment project — typically among the landowner and one or more governmental agencies.

For example:

- *The City of Wyandotte, Michigan, and BASF Corporation,* a chemical producer: This project was a three-way partnership among business, local and state governments. Through the 1980s an agreement was reached with the state to allow clean-up, monitoring and installation of on-going remediation systems on BASF's 84-acre site to provide for its redevelopment into a waterfront park and golf course. BASF paid for all preliminary hydrogeology and $2 million of the redevelopment cost, the Michigan Department of Natural Resources provided $2 million in state grants and the City raised the remaining $4.5 million through Tax Increment Financing. Golf course fees will allow the project, including the park, to be self-supporting.

- *Meadville, Pennsylvania*: Meadville undertook a cooperative owner-funded and government-funded program for a manufacturing plant.

- *Minnesota*: When $100,000 was awarded from two private foundations the money was used to establish a grant fund for non-profit organizations. Once an organization receives a grant, the money is then matched by a local corporation and environmental consultants and lawyers are arranged to work *pro bono.* Examples of successful small projects under this program exist in the United States.

Federal and State Funding

A variety of funding programs exist in the United States at the federal and state level to support brownfield redevelopment. The Superfund Brownfields Action Agenda is a key federal initiative described in the examples below. State examples include Michigan, Minnesota, New Jersey, Oregon and Tennessee, which have trust funds from which they draw to share the costs of remedial actions with both responsible and non-responsible parties who would otherwise be unable to provide remediation. Several states offer grants to local governments for site investigation and grants, or loans for remediation. They include Missouri, New Jersey, Pennsylvania, and, at sites without viable responsible parties, Oregon. Missouri limits its grants to local governments that have acquired abandoned former industrial or commercial sites. New Jersey also offers grants to innocent private parties. Missouri, New Jersey, Oregon, and Pennsylvania extend loans or loan guarantees to help finance clean-up actions.

For example:

- *Superfund Brownfields Action Agenda*: This program attempts to destigmatize the Superfund sites by providing $200,000 grants for pilot or demonstration projects on targeted sites (those with high poverty and high commercial or industrial potential) to act as a catalyst for other interests to become involved. Fifty communities have been identified. Funding commenced for three projects in 1993 and will conclude by the end of 1996. Projects have included Cleveland, Ohio; Bridgeport, Connecticut; and Richmond, Virginia.

- *Province of Quebec and City of Montreal*: The Quebec government and the City of Montreal created a pilot project with a value of $6 million to encourage a new approach to dealing with contaminated sites. A risk-analysis perspective and soil treatment, rather than confinement, are encouraged. In addition, a $35 million federal-provincial funding program was created to deal with the rehabilitation of large contaminated orphan sites. This has encouraged the City of Montreal to actively acquire and redevelop brownfield sites.

In the United States, a considerable number of state-funded environmental projects are financed by way of the establishment of Tax-Increment Financing Districts. A Tax-Increment Financing District is a specified geographic or political area in which the formula for calculating property taxes is increased by a specified amount for a specified period of time to raise additional tax revenues which are dedicated to fund predefined public projects, generally of a developmental nature. Canadian municipalities sometimes use similar financing arrangements to fund public works, such as sewers, but the practice does not generally involve financing environmental remediation or participation in brownfield redevelopment.

For example:

- *Akron, Ohio*: Akron raised $4.5 million through a Tax-Increment Financing District to help pay environmental clean-up costs at a redevelopment project.

- *Minnesota*: Minnesota is a leader in tax-increment financing of remedial actions. The Minnesota Community Development Association used $2.5 million in tax-increment financing to help fund the clean-up of a railyard.

Tax Incentives

Federal

United States President Clinton has announced a proposed tax incentive plan specifically targeted to existing and future brownfield pilot sites. Through the proposed plan, brownfield investors will be able to deduct their clean-up expenses immediately and thereby reduce costs significantly in the short term.[5]

State

Some states have initiated tax incentive programs to encourage brownfield redevelopment.

For example:

- *Ohio* has authorized state and local exemptions from property taxes.

- *Missouri* has authorized state and local income tax credits and exemptions.

- *Delaware* provides for a state income tax credit.

Municipal Taxes and Levies

Municipalities may encourage redevelopment by reducing municipal taxes or development charges for brownfield properties.

For example:

- *The City of Windsor, Ontario*: In order to encourage reuse of abandoned industrial properties that have realty taxes in arrears, the City has adopted a tax incentive program for some properties to cancel that portion of the realty tax arrears that results in a total cost of environmental clean-up exceeding the appraised value of the property.

Indirect Incentives

Many American states have put into place new provisions designed to encourage voluntary remediation of contaminated properties by reducing the risk and uncertainty for owners, developers and the financial services sector. In Canada, most provinces have implemented some strategies to encourage the clean-up of contaminated sites. The range of strategies adopted varies by province and state as described in Appendix B and in the 1996 CMHC/Delcan document. The range of provisions includes flexible clean-up standards, clean-ups tied to restrictions on future use, lender liability agreements, policies on site clean-up, and the promise of certainty embodied in covenants not to sue (purchaser/tenant agreements). These programs allow for the review and oversight of proposed environmental remediation by a regulatory agency in non-enforcement mode.

One key advantage of this approach is the shift in risk away from owners and developers and the financial services sector:

> The key advantage is that the risk of environmental liability is shifted from the owner or lender to someone else — to the public if a public agency pays for the clean-up, to neighbours if the site does not have to be cleaned up as much as before, or to a future developer if a full clean-up can be postponed. Consequently, such programs have been successful in encouraging redevelopment in many US states.[6]

Examples of specific measures implemented to encourage voluntary clean-up are discussed below.

Site Clean-Up Guidelines

A range of clean-up guidelines or regulatory standards exists across Canada and the United States. Three basic models exist:

- Clean-up to background conditions with the definition of background varying among jurisdictions.
- Clean-up to generic standards in which the government establishes risk assumptions which may vary according to the proposed site use.
- Site-specific, risk-based standards which usually are also based on the proposed land use for the site.

Many jurisdictions have selected a combination of these approaches.

The move to allow clean-up to vary with the site's future use defers the site's permanent remediation (if the intended use is not the highest use, residential). However, while this approach often offers a short-term savings to the developer, it provides less long-term certainty to lenders who may perceive that the clean-up and liability issues are left at least partially unresolved.

The approaches to clean-up guidelines also vary in the process that is used to assess the acceptability of the site assessment and in the approval of the proposed clean-up process and results. Some jurisdictions require that the regulatory authority sign off that the site has been cleaned up to acceptable levels. Others leave this responsibility to site owners or their consultants. Obviously, where an official sign-off takes place, there is greater assurance that future actions will not be taken by public bodies against the site and that the regulatory agency will accept some responsibility for the site conditions in the future. Clean-up requirements also vary in their expectations for professional standards of practice and accreditation programs for practitioners undertaking site remediation.

For example:

- Most Canadian provinces include some provision for both risk- and standards-based clean-ups in their guidelines.

- Saskatchewan, Ontario, British Columbia, New Brunswick, Nova Scotia and Prince Edward Island have adopted risk-based approaches to clean-up of contaminated sites. These guidelines have been in place for varying lengths of time (as recently as early 1996 for Nova Scotia).

- Newfoundland and Labrador is beginning to review and consolidate its environmental legislation and is in the process of developing new guidelines modelled after the Manitoba remediation guidelines.

- Pennsylvania's *Land Recycling and Environmental Standards Act* (1995) allows three approaches to site remediation, including clean-up to background levels, a statewide human health standard, and site-specific standards. Site-specific standards must also include institutional controls such as deed restrictions and engineering controls. These regulations allow more practical standards that treat each site and its level of contamination as an individual case. However, from a lender's perspective, the *Act* does not provide long-term certainty due to the risk of changing uses for the site or the retroactive application of more stringent future contamination regulations.[7]

Standard Agreements for Lender Liability

These contractual arrangements are different from indemnities. An indemnity would provide for the regulatory authority to assume some risk and expense which would otherwise accrue to the financial institution, whereas an agreement on lender liability does not provide for any such assumption of risk. An agreement on lender liability also only assures the financial institution that the regulatory authority will not initiate enforcement action as long as the financial institution acts within certain limited parameters.

The financial services sectors in both the United States and Canada have struggled to obtain exemptions from lender liability for many years — in the United States since the *United States of America v. Fleet Factors Corporation* judgment in 1990 and in Canada since the Canadian Bankers Association published its position paper *Toward Sustainable Capital* in 1991. In the early 1990s, the U.S. Environmental Protection Agency (EPA) codified such an exemption, which was subsequently overturned by the courts. The more recent approach has been to use contractual arrangements between regulatory authorities and financial institutions that seek to limit their exposure.[8]

In order to avoid the inevitable confusion and lengthy delays arising from negotiating these arrangements on a case-by-case basis, both the American Bankers Association and the Canadian Bankers Association have been actively involved over the past several years in negotiating "blanket" arrangements with the U.S. EPA and with the Ontario Ministry of Environment and Energy in Canada.

For example:

- *Ontario*: Following two-and-a-half years of extensive negotiations, the Ontario Ministry of Environment and Energy and the Canadian Bankers Association formulated a *Standard Agreement Concerning Environmental Investigations* in December, 1995. Lenders may attempt to recover value from loan security as long as they do not take control of the site or of the business conducted thereon. They are not responsible for any contamination following the time of their first involvement.

- *Saskatchewan*: Saskatchewan is also in the process of clarifying the liability associated with the contamination of brownfield sites.

Prospective Purchaser/Tenant Agreements

Prospective purchaser/tenant agreements attempt to facilitate sales involving brownfield sites by providing buyers or tenants with a promise from the applicable regulatory agency not to sue the purchaser or lessee for contamination existing at the time of purchase or lease. Such agreements have been available in the United States since 1989.

For example:

- The 1989 EPA policy was revised in 1995 in the hopes that it would entice more developers to take a chance on brownfield restorations. It allows the EPA more flexibility in deciding whether to offer such agreements, but it is viewed as not going far enough to resolve buyers' and lenders' uncertainties, and it does nothing to decrease the transaction costs for such transfers.[9]

Guidance Documents

Guidance documents exist on topics such as presumptive remedies, soil screening, groundwater contamination, and the role of land use in remedy selection (for example, the U.S. EPA).[10]

For example:

- *Final Policy Toward Owners of Property Containing Contaminated Aquifers (U.S. EPA)*: This policy document outlines enforcement policy for owners of uncontaminated properties situated above groundwater systems that have been contaminated by sources on other properties. The EPA will not take action against the owner of such uncontaminated properties if the owner has not caused the contamination or made the contamination worse by the way the owner has operated the property.[11]

- *"Guidance on Land Use" in the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) Remedy Selection Process (U.S. EPA, 1995)*: The goal of this directive was to assist in developing reasonable assumptions regarding anticipated future land uses at Superfund sites. Too often, the EPA would base its clean-up decisions on the assumption that a site might someday be used for residential purposes, resulting in an expensive, overprotective remedy. The directive requires agency staff to talk with local governments about the likely future land use of a site and to consider land use information in its remedy selection process.[12]

Comprehensive Voluntary Programs

Many American states employ a combination of voluntary brownfield redevelopment measures.

For example:

- *Indiana*: Indiana's voluntary remediation program provides for the issuance of a certificate of completion and a covenant not to sue to successful participants in a voluntary clean-up program. The program sets out a series of steps through which applicants must pass, including applications, agreements, work plans, public participation, clean-up and certification of completion.[13]

- *Minnesota*: Minnesota's Voluntary Investigation and Clean-Up Program provides financial incentives (for example, grants are offered to cities or counties working with the program to approve a clean-up plan) and also offers 10 different types of liability protection in the form of letters, agreements or certificates tailored to the needs of the voluntary parties. The program has 23 staff members and about 700 sites. To date, about 3,500 acres of property have been signed off by the program, which insures the developers and lenders against any administrative action by the state.

- *Connecticut*: Connecticut's Urban Sites Remedial Action Program has a pool of bond funds for assessment and remediation of sites with high economic potential. State regulations have been changed to make rehabilitation easier and to expedite reviews. A Geographic Information System database is being implemented not only to prioritize sites with respect to levels of contamination, but also to be used as a

marketing tool that scores each property based on service advantages and level of contamination (a positive score will attract private redevelopment, a negative value will require public funds as an incentive for clean-up).[14]

- *Detroit*: Detroit's Redevelopment of Urban Sites Team (REUS) is comprised of representatives of major city departments with an interest in property management and state environmental and commerce representatives. REUS has provided coordination between agencies to foster redevelopment.[15]

- *Michigan*: In 1994, Chrysler wanted to resolve its liability at three major sites in the Detroit metropolitan area and sell them with finality. Chrysler negotiated a global consent decree covering these three sites in return for voluntarily cleaning up these properties. Under this decree, Chrysler will not be liable if a future owner wants to convert the property to residential use. Work on the three sites is in progress and one is sold.[16]

- *Quebec*: The Quebec Ministry of the Environment produced a preliminary document entitled *Project of a Policy for the Protection and Rehabilitation of Contaminated Sites* in March 1996. This report presents six proposals to provide economic incentives for the redevelopment of contaminated sites — which amount to a voluntary program. They include: creation of a program for voluntary responsibility; limiting responsibilities under certain conditions; creation of a system to support owners who have limited financial means; creation of a restoration fund; favouring redevelopment of orphan sites and favouring development of infrastructure on brownfield sites rather than greenfields. This program, if adopted, would provide a comprehensive strategy for brownfield redevelopment similar to examples seen in the United States.

Wide-Area Designations and Strategic Plans

These plans can be implemented to deal with contamination of such areas as multiple properties and cross-boundary water system effects. The strategic plan addresses the extent of contamination over a geographic area covering various old industrial sites with an interrelated hydrogeologic/geologic environment. Preliminary clean-up options are investigated and reviewed with authorities, and a plan or approval strategy is negotiated to provide greater certainty to prospective purchasers. This approach is being undertaken by the Waterfront Regeneration Trust for the Toronto Port Area and is being considered by other Ontario jurisdictions.

Comprehensive Approach to Regeneration

In the United Kingdom, a comprehensive approach to regeneration has been attempted. Local Training and Enterprise Councils have combined the funding for new development and infrastructure with funding for job training, skills development, and other community programs. Funds are dedicated to regeneration projects and have the advantage of streamlining approvals that suspend normal planning controls.[17]

Chicago Brownfields Forum

This was an extensive research process to establish policy options for brownfield redevelopment, culminating in a Forum which solicited the expertise of 40 professionals in the fields of environmental planning, banking, real estate, law, community development and public policy. The Forum generated 56 specific recommendations for eliminating obstacles to redevelopment of brownfield sites.

Firms Specializing in Brownfield Redevelopment

In the United States, firms specializing in brownfield redevelopment have emerged. Such firms undertake a full service approach to brownfield site redevelopment, including environmental engineering, arranging financing, approvals, legal and financial advice, communications, construction, real estate assessment, risk management and public relations.

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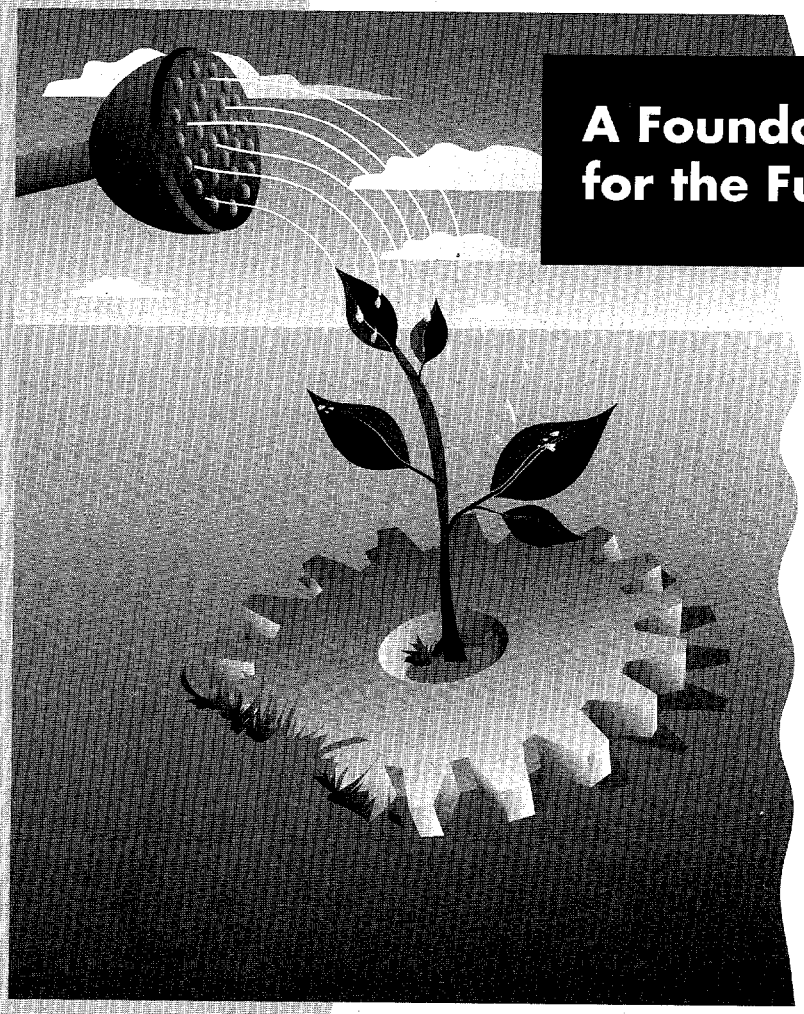

A Foundation for the Future

Evaluating the successes and relative merits of the strategies outlined in Chapter 4 is complicated by three factors. First, the range of strategies employed to date in Canada is not as great as in the United States and we do not therefore have first hand Canadian experience in some areas. Second, many of the options have only been identified, and strategies created or implemented, within the last two or three years. Since there are (often lengthy) lags from the enactment of strategies until they come to fruition in the marketplace, the American experience remains limited in some areas and it is difficult to draw clear patterns with respect to some strategies. Third, because of the differences in legislative, regulatory, judicial and other practices, some strategies (such as tax increment financing) may not be readily transferable from the American to the Canadian agenda, even though they have been successful in the United States.

Moreover, when evaluating the reactions of Canadian financial institutions to environmental incentives, it is important to remember that the structure of the Canadian financial services sector is considerably different from that of the United States. As a result, the American experience may not be a relevant benchmark for Canada. The most important difference is that our financial services marketplace, excluding the insurance industry, is essentially oligopolistic; that is, dominated by a small number of large institutions in a relatively non-competitive market. By contrast, the American financial services sector is distinguished by a high degree of competition in all markets. This distinction is important because, in general, the willingness to accept risk is a direct function of the degree of competition in the marketplace. The Canadian financial services sector is generally considered to be more risk averse, and it will likely be slower both in generating its own strategies and in reacting to public-sector incentives.

We must also be cautious in interpreting public reports of successful brownfield redevelopment as necessarily being indicative of participation by the financial services sector. For example, in the BASF Corporation/City of Wyandotte project, the public reports indicate only shared financing by the City and BASF: there is no indication of direct involvement by a financial institution.

Responses to the Strategies

In the United States, the response to public sector strategies that have been in place for several years or more has been significant.[18]

- Minnesota and Oregon have administered voluntary programs for more than five years. As of June 30, 1995, participants in Minnesota's program had achieved clean-ups at 75 sites and 210 additional clean-ups were in progress. As of the same date, participants in Oregon's program had completed 34 clean-ups, and 22 more were in progress.

- Connecticut, Michigan and New Jersey have established substantial state assistance funds to facilitate the reclamation of commercial/industrial properties. Connecticut has committed $22 million and remedial action is in progress at 34 sites, the state assuming the clean-up liability at nine of them. Connecticut estimates that its investment will help generate at least 5,000 new jobs in the manufacturing, service, retail, research and entertainment sectors and at least

$6 million in new annual tax revenue for local governments. Michigan has committed about $22 million to its state assistance fund and estimates that approximately $15 million of its site reclamation grants will stimulate private investment of approximately $273 million.

- Massachusetts has seen the number of sites remediated rise almost 100 per year to over 500 sites per year. Since October, 1993, more than 3,200 remedial actions have been completed.

- California and New York have achieved significant results through voluntary clean-up programs initiated without legislative changes in their hazardous waste laws. The programs have resulted in remediation of more than 1,300 acres; caused an increase in property tax revenues by $350 million annually; allowed the construction of 4,700 housing units; and provided sites for more than 12 million square feet of office, commercial, recreational and industrial space.

- Among newer initiatives, Pennsylvania's Land Recycling Program, which has been in place for one year, is a comprehensive voluntary program that includes revised standards, buyer/seller agreements on clean-up responsibilities, a significant funding program and new notification requirements. In the one-year period, 35 sites have been cleaned up to meet one or more of the standards under the program. A total of 100 sites have submitted formal notices of intent to clean up and an overwhelming majority of the clean-ups are being done at private sector expense. The Department of Community and Economic Development has provided $2.4 million in financial assistance to 19 projects under the program. As well, millions of dollars in direct grants are available and over $2 million have been awarded.

As the states' regulatory regimes have changed and the EPA has recognized states' primary jurisdiction over lesser contaminated properties, American private sector parties have shown increasing interest in redeveloping these properties. New venture capital pools have formed and new sources of financing are emerging. Various alliances of service providers — including lawyers, casualty insurers, environmental consultants and marketing firms — have formed and are forming to offer one-stop shopping for the amalgam of services needed to accomplish commercial transactions involving contaminated properties. This full-service approach to brownfield redevelopment undertakes land acquisition, arranges environmental engineering, and co-ordinates financing, legal services, governmental approvals, risk management, construction and public relations. Admittedly, these are not traditional institutional financiers: they are generally pools of private capital whose risk profile is innately substantially greater than institutional lenders and who seek the potentially greater returns associated with brownfield site redevelopment. Nonetheless, their activities provide opportunities for institutional financiers to be encouraged by their successes, to learn from their mistakes, and ultimately to adopt more progressive approaches toward, and criteria for, participating in brownfield redevelopment.

There does not appear to be comprehensive data describing brownfield redevelopment in Canada.

Lessons Learned

Direct Monetary Incentives

The key difference between direct and indirect incentives from the perspective of their beneficiaries, the financial institutions, is that direct incentives are typically bi-lateral arrangements quantifiable in monetary terms and therefore easily understood and incorporated into cost-benefit analyses, risk assessments or similar practices. Conversely, indirect incentives generally involve multiple parties, are non-monetary in nature, and their application and benefits are thus often not clearly understood by the financial institution managers whose behaviour they are intended to influence. Accordingly, direct incentives should be more successful in generating and sustaining positive reactions from financial institutions than indirect incentives. In the context of the greater propensity for risk aversion in the Canadian financial services sector, this differentiation should be more evident in Canada than in the United States.

Direct incentives may be generally classified as monetary and non-monetary. Monetary incentives involve the direct payment of money or forgiveness of specified, quantifiable obligations (for example, taxes). Non-monetary incentives provide other mechanisms to reduce uncertainty, usually through the contractual transfer of risk from the private sector to the public sector. Economic theory indicates that monetary incentives should generate the larger and most measurable impact because of their inherent qualities: they are readily quantifiable, their impact in improving a developer's return on investment or reducing a financier's risk is straightforward, and they are direct contractual arrangements not dependent for their success on the actions of third parties or the interpretation of an often inconsistent legislative/regulatory framework.

To the extent that we have them, reports of the usage and relative success of various direct incentives generally confirm that direct public sector financial involvement attracts private sector participants and generates successful redevelopment. Strategies involving direct payment of funds include:

- Shared public/private sector financing of remediation costs (in at least five states).
- Grants for remediation costs to private sector parties (in at least one state) or to lower-level governments (in at least four states).
- Grants of seed money for the redevelopment of targeted, high potential sites (50 projects under the Superfund Brownfields Action Agenda).
- Loans or loan guarantees by states to assist private sector parties in financing clean-up actions (in at least four states).

In other circumstances, public authorities have chosen to forego future tax revenues or to forgive existing tax arrears. Examples include:

- The United States federal income tax proposal to permit accelerated write-off of remediation expenses for brownfield sites.
- Municipal property tax arrears forgiveness (City of Windsor, Ontario).

If enacted into law, the United States federal income tax incentive may generate significant results, since remediation expenses which must presently be amortized over long periods of time could generate a single, large, immediate income tax deduction. Conversely, Windsor's scheme may not have a significant impact because it is designed to forgive only the portion of the tax arrears that results in the total clean-up cost exceeding the appraised value of the property — usually a minor portion of the total value of the property and one which, in any case, has always been the subject of negotiation between redevelopers and municipalities.

Where public funds are not directly available, a number of jurisdictions have successfully used non-monetary — though still direct — mechanisms for reducing or transferring risk from the private to the public sector. The largest and most visible of these programs, in Minnesota, has to date successfully dealt with 3,500 acres of property and has attracted an active inventory of 700 sites using a mixture of grants and situation-specific indemnities. Other jurisdictions, notably the EPA and some states, now use purchaser/tenant agreements to shield these parties from future legal actions with respect to pre-existing contamination. However, these mechanisms have not yet become common in Canada.

Indirect Incentives

One of the main initiatives in many jurisdictions, both Canadian and American, over the past several years has been the liberalization of remediation standards for contaminated properties. This approach has been widely supported by both regulators and consultants on the grounds that it generally provides for the application of clean-up standards which are site-specific and usually less onerous than the traditional requirement to remediate to pristine background levels. It also permits sign-off by private sector consultants and is, therefore, less costly for the proponent of redevelopment. However, one of the issues most frequently raised by environmental risk managers in the financial services sector is their desire that regulatory authorities provide a modicum of certainty by formally acknowledging the acceptability of remediation activities upon their completion. Thus, while this initiative may reduce upfront remediation costs for the developer, it does not also reduce risk for the financier.

For example, if the projected use of a site is not its highest use (that is, residential) and therefore does not require maximum remediation, then many clean-up issues may in fact be deferred and may remain unresolved pending a potential future change in use to a higher status requiring additional remediation (possibly to more exacting and thus expensive standards at that future time). Similarly, although sign-off on remediation by private sector consultants may avoid lengthy delays from environmental regulatory authorities, the absence of governmental involvement in bringing the remediation process to closure, and accepting its result, may increase the ongoing risk that the application of more stringent, future regulatory initiatives will cause incremental liability and/or expense. Thus, initiatives to introduce flexibility into remediation standards and processes may be counterproductive with respect to encouraging financial institutions to provide capital for brownfield redevelopment.

Other indirect programs that seek to construct a supportive context around brownfield redevelopment include a variety of administrative initiatives by municipalities and states to better co-ordinate and provide enhanced access to governmental programs, providing expedited review and approval procedures, GIS data bases, dedicated teams of redevelopment professionals and, in the United Kingdom, co-ordination of related funding sources for social infrastructure such as employment training and other community programs. Although these initiatives are intuitively appealing, they are also generally recent in their development and there is little evidence from which to draw conclusions about their success. Their benefits are difficult to quantity and, if quantifiable, generally represent only a small portion of the potential economic risk which otherwise exists relative to the contaminated site. The impact, individually, of these initiatives, would likely be limited, although collectively it may be more significant.

Worthwhile progress has been made in Canada toward a better definition of the ground rules of lender liability, principally in British Columbia (through legislation) and in Ontario (through a co-operative initiative between the provincial regulatory authority and the financial services sector). However, these approaches provide only limited protection from the point in time at which a financial institution initiates steps to realize on loan security, and do not apply to pre-existing contamination or the ongoing operation of a business by a receiver-manager (often the preferred method to maximize the recovery value to the financial institution). Consequently, considerable concern remains among lenders about what actions could constitute the taking of charge, management or control of property so as to expose the lender to liability for existing environmental contamination of the property. As a result, risk and uncertainty have been only partially mitigated. The inconsistencies between these existing provincial strategies and the new federal *Bill C-5* have exacerbated the uncertainty in this area at least in the short term, because the proposed federal legislation would override the provincial legislative/regulatory initiatives. Nonetheless, *Bill C-5* may have a positive impact, because it would establish a hitherto unknown degree of uniformity across the federal and provincial environmental landscape, thereby reducing uncertainty in the long-term.

Synthesis of Key Strategies

Most jurisdictions undertake a combination of both direct and indirect strategies, although in Canada the main thrust of activity has been through legislative and policy development with little direct financing as a catalyst for redevelopment. The response to these initiatives and their level of success has not been thoroughly tested or documented to date. The limited evidence available suggests that, in general, direct, economic incentives are more potent than indirect, legislative/regulatory incentives in attracting and sustaining successful private sector brownfields redevelopment initiatives. In particular, hybrid programs combining carefully targeted direct incentives appear to have considerable potential, as evidenced by the Minnesota grant/indemnity program.

It is clear that some level of public-sector initiative is necessary to provide the incentive for brownfield redevelopment in most jurisdictions. The depth of public-sector intervention required is dependent on a number of factors but hinges on the

economic market forces at work where the brownfield site is located. In strong markets, the level of intervention will be less than where markets are poorer and the shadow of the losses in the real estate market from the 1980s still lingers.

The strategies that have been successful in encouraging brownfield redevelopment may be viewed in a risk-transfer/risk-mitigation spectrum ranging from a greater level to a lesser level of government intervention, as summarized below:

- Provision of direct government support through various funding mechanisms such as grants, loans and loan guarantees for shared financing, trust funds, pilot project funding and major project funding.

- Provision of indirect government support through such mechanisms as: liability protection which protects developers and the financial services industry from future uncertainty; strategic planning for larger brownfield areas to reduce the uncertainty involved in establishing acceptable clean-up levels; and acquisition of planning support and approval, and assessment of the marketability of the sites. A key component of the latter is to prioritize the opportunity for economic and market return for the sites.

- Provision of insurance through the traditional insurance industry on commercially viable and acceptable terms.

- Physical clean-up. If the risks associated with brownfield sites cannot be transferred through the above mechanisms, then the remaining approach is to deal with the risk through physical clean-up. Clean-up can take place either in a single phase or through a negotiated phased approach that allows the business to operate on an ongoing basis while devoting a portion of its profit to site clean-up. This option reduces the exposure for both the financing agency and the site owner/operator. Integral to this approach is the need to control risk by creating and adhering to a standard of practice and an accreditation program for professionals undertaking site clean-ups.

A Foundation for Successful Future Brownfield Redevelopment

Although it is beyond the scope of this report to deal exhaustively with the agenda that might successfully encourage more proactive and economically significant involvement by the financial services sector in brownfield redevelopment, there are some issues which form a common thread among successful experiences in other jurisdictions.

- *Legislative reform with respect to the determination of environmental liability to provide a cohesive and consistent national framework*: This covers two separate but related issues:

  - The statutory framework across Canada is highly fragmented: a 1993 survey undertaken for the Canadian Standards Association's Technical Committee on Environmental Site Assessment identified more than 240 individual pieces of legislation which were considered to have environmental implications among

the provinces, territories and the federal government. Moreover, the philosophical approaches differ considerably from one jurisdiction to another, even between those which are geographically adjacent and whose differing laws may apply to the same environmental condition. Such fragmentation and inconsistency exacerbates uncertainty and encourages risk aversion. The present scheme of strict, joint and several liability which prevails in many jurisdictions does not conform to the polluter-pays, proportionate liability philosophy accepted by the Canadian Council of the Ministers of the Environment.

- The statutory framework across the country generally fails to address the issue of future environmental liability incurred as a result of changing legislative and/or regulatory requirements applied retroactively. There needs to be a clear and reliable benchmark for defining the nature and extent of liability, based on currently applicable law and best environmental practices.

- *Tax incentive programs*: Those levels of government holding corporate income taxing authority should seriously investigate and experiment with tax incentive programs, such as accelerated write-off of clean-up expenses as a catalyst for private-sector involvement. This approach does not involve a public tax expenditure, but brings forward, in time, tax effects which would occur in any case at a later date.

If the former cornerstones were put in place, the private sector may react constructively in the following ways:

- *A philosophical shift by the financial services sector to look beyond the traditional profit-based behaviourial model and actively embrace an issue of public concern*: The Bank of America describes its approach as a forward-thinking environmental program based on a considerable willingness to wade into public issues that are important to the interests of the Bank. Canadian financial institutions need to heighten the visibility and profile of their environmental risk management functions; only two of the Big Six banks have environmental risk management departments and none have an environmental executive.

- *An initiative by the financial services sector to become better educated concerning environmental risk*: Uncertainty and risk aversion, the two dominant characteristics of the financial services sector with respect to environmental risk at present, are both inversely related to knowledge. A sector-wide program to actively recruit environmental expertise would have immediate benefits in enhancing the level of understanding both of technical issues and the means for their mitigation through accepted risk management techniques.

- *An initiative by the insurance industry to be more innovative in the creation of new forms of environmental coverage*, and to engage in a more proactive and sustained dialogue with the users of environmental insurance to ensure that the characteristics of both new and existing coverages more clearly relate to the pragmatic needs of the marketplace.

- *An initiative by lenders to use available insurance more broadly and other private sector risk transfer mechanisms*: The insurance industry has demonstrated over the last several years that, after a long absence from the marketplace, it is once again ready to provide coverages which endeavour to address many of the concerns of site owners/operators and lenders in brownfield redevelopment. However, use of these new options is not widespread. A co-ordinated effort between the insurance and lending industries is necessary to encourage their introduction on a sufficiently wide basis so as to ensure that they are actuarially sound and therefore sustainable at reasonable cost over the longer term.

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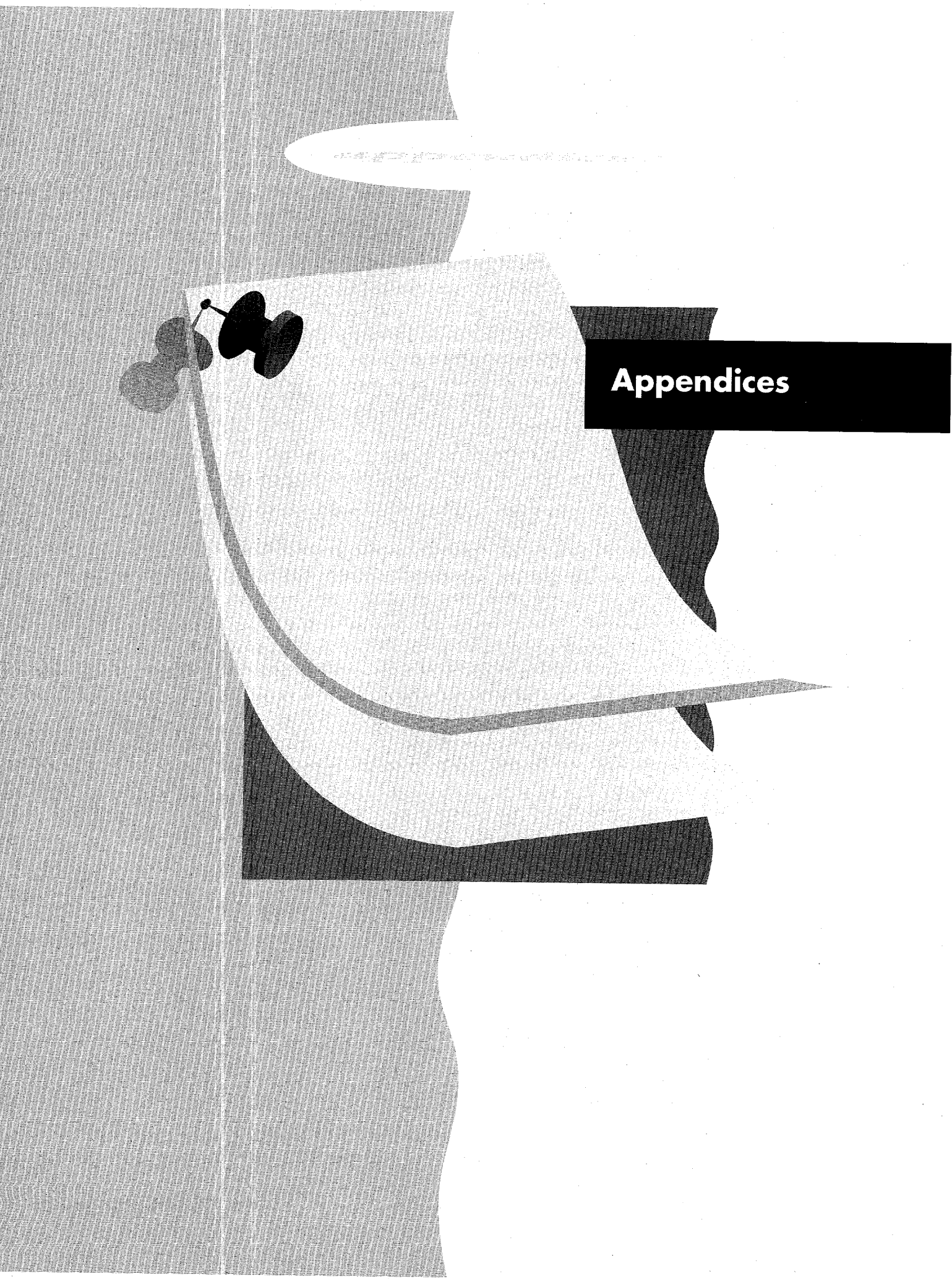

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Appendix A

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Appendix B

Responses to Brownfield Site Survey Questions

Province of British Columbia

Question	Answer
Brownfields Information Base:	
a) Where are the brownfield sites located generally in the province?	a) The brownfield sites in British Columbia are located in urban areas of the province, both in large and small centres. Smaller centres that have brownfield sites are, or were, the centre of heavy industrial developments (such as a smelters, wood processing operations, coal gasification plants, foundries or galvanizing operations).
b) What are the numbers and types pertaining to these sites?	b) The exact number of brownfield sites in British Columbia is not known. However, in Vancouver, approximately 400 files have been received with respect to brownfield sites in and around the city.
c) What information is currently available on these sites?	c) Information currently available on these sites varies depending on whether some event (redevelopment application) has triggered the filing of reports, or other information, with British Columbia Environment. These reports include preliminary environmental audits, assessments, investigations and remedial plans.
d) What are the sources of this available information?	d) The sources of available information include the sites registry, and other information contained in British Columbia Environment files regarding the soil, ground water or remediation plans related to a specific site.
e) What are the geographic/ information type gaps?	e) These gaps are not documented.
What factors have created brownfields by province?	A combination of factors have created brownfield sites in British Columbia. Historical practices by operators of industrial and commercial sites left the surrounding soil and ground water contaminated. The consequences of owning and developing contaminated land changed, beginning in the late 1980s. Since then, many municipalities will not approve applications for subdivision, rezoning, redevelopment, or demolition until the developer/owner has convinced British Columbia Environment that historical contaminants on the property will be satisfactorily remediated. This complicates and adds additional costs to the redevelopment process. Consequently, where a site is significantly contaminated, it may be less expensive and quicker to develop a clean site than to develop an approved remedial plan and remediate the historically contaminated site.

Province of British Columbia (cont'd)

Question	Answer
	In addition, in the late 1980s and early 1990s, British Columbia's environmental legislation changed the consequences associated with owning or occupying contaminated land. A number of parties can now be issued pollution prevention and pollution abatement orders to address contaminated land (see sections 22 and 22.2 of *Waste Management Act*). Due to these provisions, innocent owners and occupiers of land may find themselves responsible for remediating sites contaminated by another. Consequently, contaminated property is difficult to sell or lease, unless the vendor agrees to remediate the site prior to sale. If the remedial cost exceeds the property value, the vendor may choose not to sell but instead to maintain the current use, leave the property idle or abandon the property altogether. The prevalence of numerical criteria-based remedial standards often led to high remedial costs even where the contaminants did not pose a risk to human health or the surrounding environment. Finally, lenders are hesitant to lend money where the borrower owns or operates on contaminated land because (a) the borrower's revenues may be redirected into dealing with environmental problems rather than paying back the loan; (b) the contaminants decrease the value of the security (land); (c) the lender's options for realizing on the security are limited because it risks being responsible for remediation, if it appoints a receiver to continue running the business or to sell the assets, or forecloses on the property, becoming the owner. Lenders' fear of loan money where contaminated land is involved increases, due to concern about U.S. and Canada cases holding lenders or receivers responsible for remedial costs or orders: e.g., Lamford Forest Practices, Northern Badger, Tire King Recycling, Rolex and U.S. Fleet Factors case. In short, brownfields are created because, where the property is significantly contaminated, people are hesitant to own, redevelop or lend money, relying on contaminated land as security.
What are the business opportunities and challenges regarding brownfields by province?	The opportunities include the development of primely located land. In addition, the business opportunities for environmental consulting companies resulting from brownfield redevelopment have been significant. The challenges with respect to brownfield site redevelopment include a province-wide time delay in approvals, in addition to the financial constraints caused by high costs of remediation.

Province of British Columbia (cont'd)

Question	Answer
What has been done to encourage brownfield redevelopment?	Brownfield redevelopment has been encouraged primarily by the development community, as the potential financial gains could be significant.
What was the reaction of the financial services sector to these initiatives?	In reaction to these initiatives, the financial services sector has created its own set of policies specific to brownfield redevelopment. These policies include a framework for the process of providing loans to the purchasers of brownfield sites.
What suggested solutions/ strategies would you offer, particularly for the financial services sector?	It was suggested that streamlining the review process may prove to be an effective strategy aiding in brownfield redevelopment. In addition, the use of site-specific criteria may lead to decreased costs of remediation, thus making brownfield redevelopment more economically feasible.

Contacts:

Doug Roberts, City of Vancouver, (604) 873-7567

Roger Ord, British Columbia Environment, (604) 356-8386

Province of Alberta

Question	Answer
Brownfields Information Base:	
a) Where are the brownfield sites located generally in the province?	a) Within Alberta, the brownfield sites are located most frequently in the vicinity of the medium- and larger-sized urban areas, such as Calgary, Edmonton, Red Deer, Leduc, Sherwood Park, Fort Saskatchewan and Lloydminster.
b) What are the numbers and types pertaining to these sites?	b) The numbers pertaining to these sites are unknown. The main types of sites are the closed-down service stations, wood preserving facilities, and oil and gas facilities.
c) What information is currently available on these sites?	c) No documents were reported to be available specifically on brownfield sites in Alberta. It was suggested that Phase I and Phase II site assessments have been performed on some of the sites, but a database for these is unavailable.
d) What are the sources of this available information?	d) Any Phase I and Phase II reports in existence would be in the possession of either the banks, the owners, or prospective buyers of the brownfield property, and consequently are not easily accessible.

Province of Alberta (cont'd)

Question	Answer
e) What are the geographic/ information type gaps?	e) The geographic gaps in information regarding brownfield sites in Alberta are distributed across the province. The information gaps are extensive, as no consistent level of information on brownfield sites is available.
What factors have created brownfields by province?	The factors creating brownfield sites in Alberta are, to the greatest extent, financial. In part, the demographics have been a cause, as economic pressures have caused a shift in the general population towards the larger urban areas. In many cases, areas contaminated by the oil and gas industry are associated with legal liability. The lenders are therefore hesitant to support development. Quite often, the costs of remediation surpass the market value of the land, thus creating the brownfield sites.
What are the business opportunities and challenges regarding brownfields by Province?	The business opportunities regarding brownfield sites in Alberta are related to the value of the land, once remediated. In many cases, however, these opportunities do not appear to be adequate incentive, as the value of the land may not exceed the clean-up costs. The challenges regarding brownfield sites in Alberta include the discovery of cost-effective remediation techniques. Funding these clean-up efforts is, in most cases, a significant challenge faced by prospective developers.
What has been done to encourage brownfield redevelopment?	Within the *Alberta Environment Protection and Enhancements Act*'s *(AEPEA)* Contaminated Sites Provision, the use of a retroactive clause is presently being established to seek out those parties responsible for the historical contamination at specific brownfield sites. This clarification of liability would encourage the development of brownfield sites in Alberta.
What was the reaction of the financial services sector to these initiatives?	The reaction of the financial services sector to the development of brownfield sites was positive.
What suggested solutions/ strategies would you offer, particularly for the financial services sector?	It has been suggested in the contaminated sites provisions that a fund be developed to assist financially in the remediation of abandoned sites in Alberta.

Contact:

Walter Ceroici, Alberta Environment, (403) 427-6182

Province of Saskatchewan

Question	Answer
Brownfields Information Base:	
a) Where are the brownfield sites located generally in the province?	a) The brownfield sites located in Saskatchewan are exclusively urbanized, thus the majority exist in the vicinity of the largest communities in the province (Regina, Saskatoon, Prince Albert, Moose Jaw, Lloydminster, North Battleford, Yorkton, Swift Current, Weyburn, Estevan and Melfort).
b) What are the numbers and types pertaining to these sites?	b) The Contaminated Sites List produced by Saskatchewan Environment has identified 44 sites (excluding sites related to petroleum industries). Approximately eight of these sites have been classified as "low priority." As a result, there are 36 sites which are considered to be brownfield sites. These sites are predominantly a result of abandoned industries, including the following: • refineries • landfills • herbicide plants • transformer facilities • lubricating oil re-refineries • scrap metal operations • Department of National Defence sites (old radar installations, air defence operations).
c) What information is currently available on these sites?	c) Information currently available on these sites includes preliminary soil and groundwater sampling reports, preliminary reports documenting the nature and extent of contamination at the sites, and a background information document listing the sites.
d) What are the sources of this available information?	d) All of the above mentioned information pertaining to the brownfield sites is available from Saskatchewan Environment (contact: Scott Robinson, Coordinator of the Contaminated Sites Program, (306) 787-6138).
e) What are the geographic/ information type gaps?	e) The information gaps include hydrogeological details of the sites, and consistent information on treatment protocols. In addition, the exclusion of petroleum industry related sites could potentially be viewed as a geographic/information type gap.
What factors have created brownfields by province?	The key factors which have created brownfields in Saskatchewan include demographic changes (the movement of the population towards the larger urban centres), decreased railroad operations (a loss of service to some of the smaller urban areas), and economies of scale.

Province of Saskatchewan (cont'd)

Question	Answer
What are the business opportunities and challenges regarding brownfields by province?	The challenges regarding brownfield site redevelopment in Saskatchewan are predominantly financial, originating from the fact that criteria-based clean-ups lead to extremely high remediation costs. The main opportunity surrounding brownfield site redevelopment in Saskatchewan includes the existence of efficient transportation infrastructures serving the sites. In many cases this asset makes the sites prime commercial property.
What has been done to encourage brownfield redevelopment?	The movement towards a risk-based approach for the remediation of brownfield sites in Saskatchewan is underway. This change could potentially be the key to making brownfield redevelopment financially feasible, as remediation costs would, in some cases, be drastically decreased. In addition, clarifying the liability associated with the contamination of brownfield sites will encourage their redevelopment. Saskatchewan Environment is presently in the process of clarifying this liability issue.
What was the reaction of the financial services sector to these initiatives?	The financial services sector showed a very positive reaction to these initiatives.
What suggested solutions/ strategies would you offer, particularly for the financial services sector?	Two main suggestions/strategies were offered as methods to gain support from the financial services sector with respect to brownfield redevelopment: • The use of risk-based clean-ups, and the recognition of the natural attenuation of contaminants (especially light organics) will make the remediation of brownfield sites more financially feasible. • The clarification of liability (most importantly, who is NOT liable) will aid in brownfield redevelopment, as the party leading the development will then be clear of responsibility pertaining to historical contamination of the site.

Contact:

Scott Robinson, Saskatchewan Environment, (306) 787-6138

Province of Manitoba

Question	Answer
Brownfields Information Base:	
a) Where are the brownfield sites located generally in the province?	a) Within Manitoba, brownfield sites are generally located in industrialized areas. A minority occur in rural areas, as a result of the abandonment of service stations.
b) What are the numbers and types pertaining to these sites?	b) Approximately 50 brownfield sites are known throughout Manitoba. These sites range from abandoned fuel service sites, to sites of previous industrial activity.
c) What information is currently available on these sites?	c) The information regarding these sites consists of consultants' reports, Manitoba Environment inspection reports and any associated laboratory test data.
d) What are the sources of this available information?	d) The sources of this information are primarily with the site owners, in addition to the inspection reports which are in the possession of Manitoba Environment.
e) What are the geographic/ information type gaps?	e) Many geographic/information type gaps exist, as all information is submitted on a volunteer basis only.
What factors have created brownfields by province?	The factors which have created brownfield sites in Manitoba have predominantly been due to either historical routine operations or environmental accidents, and the associated high costs of clean-up. In most cases, these clean-up costs have outweighed any potential economic gains related to the development of the land.
What are the business opportunities and challenges regarding brownfields by Province?	The business opportunities regarding brownfield sites include the recognition of the land as potentially holding good value in the real estate market. Brownfield sites in Manitoba are often priced below market value, in order to ensure a quick sell.
What has been done to encourage brownfield redevelopment?	The incentives used to encourage brownfield redevelopment in Manitoba include lowered scale prices set by the owner. In addition, rural municipalities and local government districts have cleaned up sites which come into their possession, with the assistance of Manitoba Environment.
What was the reaction of the financial services sector to these initiatives?	Within the financial services sector, 85 percent are satisfied with the use of a site if Manitoba Environment is satisfied with the clean-up and management of the site. The remaining 15 percent of the financial services sector are more conservative, and do not want to place financial investment in anything less than a contaminant-free site.

Province of Manitoba (cont'd)	
Question	**Answer**
What suggested solutions/ strategies would you offer, particularly for the financial services sector?	It was suggested that for those not content with the Manitoba Environment treatment of brownfield sites, the internal hiring of technically competent people within the financial institutions may assist them in raising their comfort level with respect to this issue.

Province of Ontario	
Question	**Answer**
Brownfields Information Base:	
a) Where are the brownfield sites located generally in the province?	a) Brownfield sites in Ontario are located in urban centres by definition. Ontario cities developed about the same time as industrialization developed in Canada; as the cities grew there were industrial districts where related industries grew together. Coal gas plants are typical sites including the associated industries (e.g., roofing materials) that made use of some of the coal gas plant residues. Other general industrial activities contribute to sites in these industrial districts (see "Factors Causing Brownfield Sites" in this Report). Other unique examples include specific sites for steel mills, concentrations of petroleum/petrochemical industry, secondary metal refiners and new lands created by dredging harbours on the Great Lakes. The physiography of Southern Ontario lends itself to localized landfilling of numerous gullies or valley lands in or near the new, growing cities. Rail and water transhipment complexes were located in the centres of these new cities at about the same time as widespread industrial activity became the defining characteristic of cities in north eastern North America.
b) What are the numbers and types pertaining to these sites?	b) Municipalities have dealt with this issue unevenly. Most cities have done nothing formally (London, Hamilton-Wentworth), relying on local experience to be able to list local contaminated sites. Toronto assumes that all industrially zoned land (15 percent of all property on the tax rolls) is potentially contaminated but recognizes that in fact a small proportion would likely prove to be contaminated, based on the same sort of logic discussed under "Factors Causing Brownfield Sites" in this Report. One city (Kitchener-Waterloo) has a worst-case listing of all potentially contaminated sites because it is concerned about the impact on ground water resources from which it draws most of its potable water.

Province of Ontario (cont'd)

Question	Answer
	Ontario has surveyed the province for coal gas plants and for other plants using or producing coal tar. There are 41 coal gas plants and approximately 50 other plants in this category. The Ontario Ministry of the Environment and Energy (MoEE) has surveyed waste disposal sites as of 1988 and identified almost 1,400 active sites and over 2,400 closed sites. The majority of the closed sites are old and, while largely municipal sites, the control of waste disposal in the era of operation does not preclude any manner of disposed materials. Most of these sites are located in areas remote from urban development except where the municipality has grown significantly in the past century to embrace areas that used to be in the neighbouring countryside. The well-known inventory in Ontario is the PCB waste site and inventory. By definition, we are excluding this as an inventory that represents a brownfields inventory. On a case-by-case basis, MoEE files are open for public access. Access is achieved either through a request for site-specific information or at times an appointment can be made to personally view the MoEE data on any specific site.
c) What information is currently available on these sites?	c) See response to b).
d) What are the sources of this available information?	d) See response to b).
e) What are the geographic/ information type gaps?	e) Information has not been organized on the basis of consciously developing a brownfield database. As indicated above, local issues have driven the documentation but rarely, if at all, has anything reached the level of a consistent database.
What factors have created brownfields by province?	The industrialization of Southern Ontario in the late nineteenth and early twentieth centuries produced industrial districts that received impacts from industry before environmental sensitivity was high enough to manage discharges effectively. Included in this category is the fairly widespread occurrence of coal gas plants. Situated close to the former population centres, these sites of contamination are now notorious in Southern Ontario as the cities have grown larger and these industrial districts have declined in their use.

Province of Ontario (cont'd)

Question	Answer
	The topography of Southern Ontario has lent itself to the landfilling of local gullies and depressions in the past. Again, it is a function of urban growth; municipal landfills that were formerly located on the edges of the cities are now located well within urban boundaries. The growth of the suburbs, including the building of transportation infrastructure (freeways) that encouraged urban sprawl, has created a condition where older industrial areas of cities have become less attractive to development and the decline and disuse of these districts has been exacerbated. The government policy of requiring clean-up to pre-industrial soil quality has had an impact on some significant redevelopment initiatives. Also, Ontario has several examples of new landforms created out of dredging from harbours. These landforms may or may not have been contaminated in and of themselves, but in most cases the new land became industrial districts in the cities where they are located, and have become notoriously contaminated and brownfield sites. Ontario cities experienced some of their most explosive growth at the time of railway development in Canada. Therefore, it is quite typical of Ontario cities to have aged railway infrastructure located at the centre of the downtown area. Subsequent movement of railway facilities to the outlying areas have created under-utilized areas often with at least some contamination associated with them.
What are the business opportunities and challenges regarding brownfields by province?	There is a movement to control urban sprawl in Ontario and to redevelop downtown areas for a broader range of uses (beyond redevelopment of industrial areas for industry), including housing and service industry uses. The challenges are to create an acceptance of the economic reuse of sites in the cities. Both government and the public have let it be known that clean-up to pre-industrial levels is the only acceptable form of clean-up and this has stood in the way of certain redevelopment initiatives.
What has been done to encourage brownfield redevelopment?	The major initiative has been to publish new guidelines for site reuse that provides more certainty with respect to agency reaction to clean-up proposals and to permit risk-based assessment of the impact of leaving residual contamination on site. The new guidelines remove the necessity to clean up to pre-industrial levels provided science-based assessment is done to demonstrate that residual risks on the site are acceptable.

Province of Ontario (cont'd)

Question	Answer
What was the reaction of the financial services sector to these initiatives?	It is a little too early to judge the reaction. There are some issues around the certification of site cleanliness that the technical/engineering community have not fully accepted and the final form of the documentation of clean-up work is not yet in place.
What suggested solutions/ strategies would you offer, particularly for the financial services sector?	No response elicited. Most of the Ontario data arises from personal knowledge and experience of the authors of this paper and suggestions are imbedded in the concepts developed in the paper.

Contacts:

Personal knowledge and contacts in Toronto, Hamilton-Wentworth and Windsor

City of Toronto, Kyle Benham, (416) 392-1004

Ministry of Environment and Energy, Karen Campbell, Policy and Planning, (416) 323-4658

Province of Quebec

Question	Answer
Brownfields Information Base:	
a) Where are the brownfield sites located generally in the province?	a) Most of the brownfield sites are located in Montreal and, to a smaller extent, in industrial cities such as Trois Rivières, Sorel-Tracy, Shawinigan, etc. On the Island of Montreal, these sites are in general former abandoned industrial sites situated mostly along the Lachine Canal and in the East of Montreal.
b) What are the numbers and types pertaining to these sites?	b) On the island of Montreal alone there are several hundred of these sites on an approximate area of about 4,000 hectares. In Quebec, over 1,400 possibly contaminated sites have been identified. The typical contamination for sites on the Island of Montreal is mixed (organic-inorganic) or organic in the refineries area.
c) What information is currently available on these sites?	c) The information is rather sketchy and is not uniform for all sites. Their location, their owners, the general site history and the type of contaminants are generally known when characterization studies are available. For the City of Montreal, it is estimated that only about 2 percent of the brownfield sites are characterized.
d) What are the sources of this available information?	d) The Quebec Ministry of the Environment produced two inventories of contaminated sites. One was initiated in 1983 (GERLED program) and its role was the inventory (followed by specific remediation initiatives) of all sites containing hazardous waste. The other inventory (GERSOL) includes all sites for which

Province of Quebec (cont'd)

Question	Answer
	the Quebec Ministry of the Environment has specific information concerning the presence and type of contamination. The GERSOL program has over 1,000 sites listed for which soils are known or supposed to be contaminated. A third source of information is the Quebec Ministry of Natural Resources which has under its responsibility the replacement of over 40,000 underground storage tanks (with about a third of them considered leaking). Finally, the City of Montreal has information on parcels it owns.
What factors have created brownfields by province?	The main factors are related to the decline of industrial activities since the early 1980s. Creation of sites is also related to the population shift from urban areas to the suburbs and to the policies which restricted the development of these sites.
What are the business opportunities and challenges regarding brownfields by province?	In its preliminary document titled *Project of a Policy for the Protection and Rehabilitation of Contaminated Sites*, dated March, 1996, the Quebec Ministry of the Environment presents six proposals in order to provide economic incentives for the redevelopment of contaminated sites. These proposals are: • Create a program for voluntary responsibilization. Companies acting in a specific field join forces in order to deal with problematic sites. It applies to the mining and chemical industries, pulp and paper, metallurgy, etc. • Limit responsibilities under certain conditions. This should apply to new owners of a parcel who did not take part in its contamination as well as to the lending institutions involved. • Create a system to support owners of contaminated sites who have limited financial means. This will apply to small businesses or small municipalities and could include delays in carrying out the recommended remediation works, tax breaks, etc. • Create a restoration fund. It is envisaged to create a fund of $1 to $2 million (mostly through increased insurance premiums) to serve as emergency restoration funds. • Favour redevelopment of orphan sites. The non-polluting owners of contaminated sites should support some characterization, confinement, supervision and, sometimes, even rehabilitation costs. • Favour the development of infrastructures on brownfields rather than on greenfields, as it is the case now. It is generally believed that the government should increase its support to counter what was not done in the past and be more open when establishing criteria

Province of Quebec (cont'd)

Question	Answer
	for site rehabilitation (accept the concept of risk analysis). Financial institutions should also facilitate the financing in these cases.
What has been done to encourage brownfield redevelopment?	The Quebec Government and the City of Montreal created a pilot project of a value of $6 million in order to encourage a new approach when dealing with contaminated sites, i.e., favour a risk analysis perspective and encourage soil treatment rather than confinement. The federal-provincial program ($35 million) was created to deal with the rehabilitation of large contaminated orphan sites. The City of Montreal is active in the acquisition and promotion of brownfield sites.
What suggested solutions/ strategies would you offer, particularly for the financial services sector?	The redevelopment of sites should be done by carrying out restoration based on risk analysis in order to better concentrate the efforts where the needs are major, by using innovative treatment techniques and by accepting more realistic environmental clean-up guidelines. Economic incentives should be created along the lines of those identified above.

Atlantic Region

Question	Answer
Is there a list or registry of site/properties that would fit the definition of brownfield?	PEI Department of Environmental Resources maintains a list of contaminated sites based on reports of contamination such as a spill, environmental assessment, underground storage and tank removal. This list includes any size of site, rural or urban. This list would not contain information on sites where no report has been made. Few brownfield sites, by definition, are likely to exist in PEI, due to the nature and type of development historically in that province. Nova Scotia Department of the Environment (NSDOE) does have a list of sites based on reporting of contamination to NSDOE. This list is not exhaustive nor specific to Brownfield type sites. New Brunswick Department of the Environment (NBDOE) has a list of registry of contaminated sites. According to Benoit Ouellette the list is not available to the public in its entirety; however, information about specific sites can be released if requested. Again the list is based primarily on reports of contamination.

Atlantic Region (cont'd)

Question	Answer
	Newfoundland Department of Environment and Labour (NDEL) does have an informal listing with some information on contaminated sites, but no registry has been established. All federal departments, agencies and Crown corporations that control real property are required to submit a list of contaminated sites (or define the level of contamination on their property) to the Auditor General by November/December of 1996. This information will provide the basis for a Registry of Federally Controlled Property.
Is there legislation in place that considers health and environmental risk assessment and risk management in the redevelopment of brownfield sites?	All provinces, with the exception of Newfoundland and Labrador, have in place guidelines for the management/remediation of contaminated sites that allow for the application of risk assessment and risk management approaches. These guidelines have been in place for a year or more for PEI and NB and were issued in early 1996 in Nova Scotia. Newfoundland and Labrador is beginning to revamp and consolidate its environmental legislation and is in the process of developing similar guidelines which will likely be modelled after Manitoba remediation guidelines. Environment Canada uses the CCME National Guidelines for the decommissioning of industrial sites (1990) as a basis for site remediation. The guidelines lay out an approach to developing site-specific, risk-based, remediation criteria where appropriate. More recent CCME guidance documents provide detail on conducting environment site assessments, quantitative risk assessments and developing site specific remedial criteria.

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The Financial Services Sector and Brownfield Redevelopment

National Round Table on the Environment and the Economy

Table ronde nationale sur l'environnement et l'économie

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