THE RELATIONSHIP BETWEEN URBAN SOIL CONTAMINATION AND HOUSING IN CANADA

Condensed from a Report Prepared for
Research Division, CMHC by
Gardner Church and Associates

NOTE: **DISPONIBLE AUSSI EN FRANÇAIS SOUS LE TITRE:**

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Disclaimer

This study was conducted for Canada Mortgage and Housing Corporation under Part IX of the National Housing Act. The analysis, interpretations and recommendations are those of the consultant and do not necessarily reflect the views of Canada Mortgage and Housing Corporation or those divisions of the Corporation that assisted in the study and its publication.

ABOUT THE REPORT

This report was prepared in response to a request from the Research Division of CMHC for an identification of the housing related issues associated with contaminated soils in urban settings. The report explores these matters within the economic, social and environmental context of urban lands in Canada. The report is a limited survey of the issue. Its intent is to provide an overview of the current state of affairs, the views of interested parties and to point to areas of concern or gaps in our knowledge. It is not meant to be exhaustive or detailed. This condensed version summarizes the main findings of the longer report prepared by Gardner Church and Associates entitled "The Relationship between Urban Soil Contamination and Housing in Canada."

SYNOPSIS

INTRODUCTION

Until recently, concern about soil contamination has been restricted to isolated "hot spots" and clean-up efforts have been restricted to sites where serious chemical or radiation spills have occurred. As a result of improved measurement and analysis capacity, however, concern has spread to include all land with potential contamination. This has led, in turn, to the emergence of urban soil contamination as a public policy issue.

At the same time, economic restructuring has forced many industries to close and thousands of hectares of urban industrial land to be abandoned. While these post-industrial lands are a significant economic asset and could play an important role in the revitalization of Canadian cities, their reuse is threatened by the possibility of soil contamination. Under current standards and processes, redevelopment is not permitted until evidence indicates the soil is not contaminated. Yet the cost of removal often nullifies the commercial value of a contaminated property.

THE ISSUES

The soil contamination issue directly affects the housing industry through related economic, social and environmental impacts. Because housing represents a viable use for post-industrial lands, the industry could play a key role in the reuse of potentially contaminated areas. This is tempered, however, by soil remediation standards which affect the nature, amount and affordability of housing that can be developed in major cities.

- ***Economic Issues***

Housing affordability and accessibility are influenced by the costs associated with soil remediation. Downtown post-industrial lands - a significant economic resource and an important factor in the redirection of growth from fringe farmland to revitalized urban centres - are in danger of being marginalized by current approaches to the identification and remediation of contaminated soil.

As a large-scale owner of contaminated sites, the government has a vested interest in the remediation and redevelopment of post-industrial lands. Downtown lands have economic advantages over rural lands and their redevelopment would allow public and private providers to produce housing that is more affordable. These lands are already serviced, and it is often politically acceptable to develop them at higher, sustainable densities than in fringe areas.

- ***Social Issues***

We are in a period of prolonged fiscal restraint and there will be fewer subsidy dollars for more social housing. Society will rely more and more on the private market to provide housing for low- and moderate-income households. Part of the solution lies in maximizing opportunities to produce affordable housing.

While post-industrial lands represent a major opportunity for urban redevelopment, the costs of and attitude toward soil remediation have a direct impact on inner-city housing objectives. The current system, which in effect freezes large tracts of unused land, often indefinitely, contributes to the erosion of communities through loss of economic opportunity, physical intrusion, fear, worry and frustration, and inhibits downtown intensification by limiting opportunities for affordable housing and job creation.

As well, the soil contamination issue is poorly

understood by the general public, and the terminology used in the debate can generate fears beyond reason. Providing occupants and owners of existing housing with the information necessary to identify and deal with soil contamination on their own properties will improve public health and safety.

- ***Environmental Issues***

The growth of single-purpose, low-density suburbs has had a devastating effect on the environment. The arable land consumed by this kind of development and the companion effects of urban sprawl - excessive pollution from extensive automobile use, for example - are serious concerns. In the search for an alternative urban form, post-industrial lands could play a significant role. By keeping potentially contaminated lands off the market, however, current environmental policy contributes to, rather than alleviates, urban sprawl.

- ***Liability Avoidance or Risk Management?***

Most of the measures adopted by the government agencies to deal with soil contamination are designed to avoid taking on responsibility and liability. Regulating agencies are protected by highly conservative and rigorous standards. Financial institutions are protected by requirements for soil quality assessments and remediation. The interests of future homeowners and renters are not represented, and the broader public interest is not reflected in current measures.

Liability is about private interests; risk is about public interests. A consequence of the over-stringent approach to clean-up before permitting redevelopment is that redevelopment simply does not take place, the risks remain and the public interest is not served. If soil remediation standards were related to actual risks, there would be less interest in liability avoidance and more interest in managing the risk. Measures that consider all risks must replace current measures and those being developed.

- ***The Role of Public Agencies***

A number of public agencies and organizations at the national, provincial and local levels are already active in the field of soil contamination, and their activities have an effect on housing. Unfortunately, their efforts to this point have been fragmented, unco-ordinated and unstructured. There has been little co-operation or exchange of information between the different groups,

although their focus is generally consistent - determining liability for contaminated sites and setting remediation standards - these two concerns are treated by all parties as unrelated issues. As well, a preoccupation with liability and standard setting has led to the neglect of another important and related issue - risk assessment. Where the need for risk assessment has been acknowledged, there has been little effort to pursue a balance among economic, social and environmental interests.

CONCLUSION

Housing will be needed in Canada's downtown areas. This need could be feasibly and affordably satisfied were it not for a regime of soil standards that make redevelopment unattractive or even unaffordable. As long as the mere presence of contaminants is equated with unacceptable risk and there is no attempt to balance the costs and benefits of remediation and redevelopment through a practical assessment of risk, then the environmental, economic and social damage of the present approach will continue.

A continuation of the current fragmented, single-interest approach to soil contamination will jeopardize any goals established for the environment, the economy and society.

THE RELATIONSHIP BETWEEN SOIL CONTAMINATION AND HOUSING POLICIES AND PROGRAMS IN CANADA

(CONDENSED FINDINGS)

INTRODUCTION

Sustainable development is dependent on the integration of environmental, economic and social priorities. To this end, economic opportunities that conflict with environmental or social imperatives must be rethought, while those that are consistent with these objectives should be vigorously exploited.

Revitalization of Canada's downtown areas is consistent with the principles of sustainable development. But redevelopment is not possible in the absence of a policy framework that addresses urban environmental, economic and social issues in a consistent and integrated fashion.

Housing is affected by all three of the above types of issues. It is one of the nation's largest industries, and enjoys a direct relationship to employment and prosperity. Socially, housing is one of the two most significant issues confronting the Canadian government (income redistribution is the other), its affordability and accessibility having a direct impact on the ability of communities to meet their own social needs. And in terms of the environment, it is the relationship between housing and employment (in the urban context) that determines population density and distribution and thus levels of air pollution due to automobile use.

The issue of soil contamination also has economic, social and environmental impacts, and its relationship to housing raises a number of complex questions related to these three priorities.

The current trend in post-industrial societies to maximize urban potential through the recovery and redevelopment of vacant lands and old buildings is hindered in Canada by present soil contamination policies and procedures.

CURRENT ACTIVITY

Many Canadian agencies and individuals are currently involved in the soil contamination and housing issue, including government agencies, special purpose bodies, private-sector associations, public and private developers, and environmental and citizen groups. Activity is most intense in areas where industrial sites have been identified for potential redevelopment.

A review of their activity leads to the conclusion that the issue of contaminated soils as it relates to housing is being dealt with in a fragmented and unstructured manner. There is considerable coordination on the subjects that have preoccupied governments, financial institutions: determining liability for contaminated sites and setting remediation standards. Yet even these are not addressed in an integrated manner but as discrete problems.

Beyond these narrow issues there is little coordinated activity. There is little co-operation or sharing of information among the stakeholders representing differing perspectives.

Risk assessment is an acknowledged concern but there is little evidence of an even handed effort to balance economic, social and environmental interests. The agencies involved wanted a quick determination of standards and have not adequately determined the relationships among the various risks involved.

ISSUES RELATED TO SOIL CONTAMINATION

Future Housing and Its Sustainable Development

In response to a growing public environmental awareness, governments are adjusting their systems and procedures to ensure that they contribute to (rather than detract from) a shared vision of a sustainable future: that is, one in which the actions of this generation will not jeopardize the opportunities of the next. Sustainability cannot be achieved, however, through a simple reshuffling of priorities; rather it requires an integrated approach to public policy development - a delicate balancing act that allows the integration of environmental, economic and social priorities and elevates them all to the status of full and equal partners.

The Environment

Within this integrated policy framework, environmental issues must not be restricted to the study and prevention of environmental damage, but expanded to include an assessment of the environmental costs and benefits of any given action.

- *Resisting Sprawl*
  The cost/benefit relationship of redevelopment versus abandonment of post-industrial lands is a key policy issue associated with soil contamination and remediation. The negative effects of urban sprawl - which could be moderated through downtown redevelopment and intensification - are well documented: the consumption of arable land, pollution, community alienation, and excessive commuting and energy consumption. The environmental cost of sprawl may far outweigh the environmental risk of land reuse. Vacant industrial lands - many of which are contaminated - represent

a significant resource in the campaign against continued urban sprawl. To impose regulatory processes that fail to recognize the potential environmental benefits of land reuse exacerbates urban sprawl by making redevelopment too expensive and too risky.

- *The Trigger*
  Under current soil contamination procedures, redevelopment applications are often the trigger for assessment and remediation. But the complexity and cost of clean-up has made investors reluctant to redevelop potentially contaminated properties. The irony here is that because investors are avoiding these sites - and are not, therefore, submitting applications for their redevelopment - pollution hazards might go undetected for years, jeopardizing human health, economic development and the environment.

- *Standards and Risk*
  Another concern is the questionable nature of most soil standards. Does remediation reduce the risk to human health and the environment? The difficulty in assessing risk - which is a function of toxicity, concentration and probability of exposure - lies in the fact that current regulatory practices do not adequately distinguish between hazardous and benign materials or between harmful and harmless concentrations of or exposure to materials. As well, the long-term effects of soil contamination on human health remain unknown and unpredictable, affected as they are by such things as access to soil, behaviour patterns, presence of ground cover, seasonal variation of exposure conditions, particle size and the composition of on-site compounds and the exposure pathway.

- *Liability Versus Environmental Risk*
  For the most part, public policy development and consultation focusses on liability avoidance and not on the safe reuse of contaminated lands. While the liability issue is an important one, its resolution will not solve the problem of soil contamination as it affects housing. Unlike risk assessment, liability addresses a symptom of soil contamination, not a cause, and emerges as a self interest rather than a public interest. Once a balanced, multi-factor risk assessment procedure is formalized, the market will resolve liability concerns.

The Economy

Although many of the economic policy issues surrounding housing and soil contamination are linked to the environment, there are a number that are purely economic.

- *Freezing a Critical Resource*
  The confusion and risk associated with the redevelopment of potentially contaminated lands that has essentially "frozen" thousands of hectares of land in Canada's abandoned, post-industrial downtown areas, has cost our urban economies dollars and jobs.

  Redevelopment of downtown lands offers significant employment opportunity. Reurbanization is labour-intensive and employs workers from industries that are experiencing high unemployment rates and cannot find suburban jobs. Economically sensitive soil regulations could remove one of the greatest obstacles to downtown job creation.

- *The Costs of Remediation*
  Many current remediation procedures are considered to be little more than inefficient, expensive hindrances to economic redevelopment. Conspicuously obvious is the requirement to treat the harmless concentration of substances as hazardous.

  As a result of the current treatment of contaminated lands and increasingly complex processes and associated clean-up costs, costs to develop post-industrial lands have risen dramatically over the past five years. As well, wary developers have been forced to withhold investment capital from new projects to create a protective reserve fund for future contamination problems.

- *Complex and Confusing Protocols*
  As the ever-changing approaches toward soil contamination and remediation become more complex, the costs of meeting current standards and guidelines rises significantly. Lenders, borrowers, investors and developers are continually playing "catch-up" with their own policies and procedures and are forced to hire "protocol specialists" just to remain in the game.

- *How Deep Is Your Pocket?*
  Underpinning the soil contamination issue is the matter of how much expense the market is willing - and able - to bear. Often, the ability to pay is equated with the obligation to pay. Banks, developers and others agencies that have accumulated public wealth are expected to "dig down deep" to cover the costs of environmental improvement. The inherent danger of this approach is that capital will be directed away

from contaminated site redevelopment, slowing down both the clean-up process and the economy.

- *Value of Downtown Redevelopment*
  One of the main arguments favouring downtown redevelopment over new urban development is that the former has its infrastructure and tax base in place while the latter does not. With the erosion of the urban industrial base and the loss of heavy industry in downtown areas, public and private interests alike are struggling to find a new economic base for these under-utilized or abandoned post-industrial sites. Current soil contamination practices - in which liability and remediation costs often exceed the estimated value of the land - are inhibiting the remediation of this important urban resource.

Social Policy

- *The Need for Downtown Housing*
  There will likely be a strong demand for downtown housing in the near future. This demand can only be satisfied, however, if policies and procedures are sensitive to the need for urban housing and downtown neighbourhood intensification and redevelopment, for public education on the low risks and for an understanding that the physical deterioration of working class neighbourhoods surrounding these lands is best served by an infusion of development.

- *Downtowns Do It Better*
  Urban intensification, which has gained wide acceptance as an environmental goal, is best accommodated in downtown areas. It is easier, for example, to create an integrated, intensive plan on a vacant downtown site that has ready access to existing high-quality infrastructure, than it is to build a new development on a greenfield site. As well, intensified areas generally allow for a better job opportunity/proximity match and greater accessibility to business amenities and recreational, cultural and educational activities.

- *Redevelopment Versus Decay*
  There is some concern that residents of downtown industrial areas, who are concerned more for the lack of investment in their communities than for contamination, feel abandoned by local and provincial governments. To these residents, governments appear committed to turning their communities into economic graveyards.

- *Supply of Low- to Moderate-Income Housing*
  Governments - either directly or through non-profit

partnerships - have been Canada's main low- and moderate-income housing provider for the past 40 years. But the costs associated with housing provision have become prohibitive, and the question of who will supply us with housing in the future is looming. Today, we are not only concerned with supply of affordable and adequate homes, but also with appropriateness and accessibility.

Downtown areas are appropriate for much of the future provision of affordable housing because of their proximity to social and community services. But again, present soil remediation technologies make it prohibitively expensive to bring these lands to market - even for high-end housing. If downtown lands are to be used for low- and moderate-income housing, current approaches to soil contamination will have to change.

- *Improved Communication*
  It would appear that the main source of soil contamination information for downtown residents (who are aware of no other health or environmental studies outside of those cited in the press) is the media. Improved communication with residents would reduce feelings of abandonment and unfounded fears regarding contamination. Residents should be informed realistically - not sensationally - about any potential health and welfare hazards.

Managing the Existing Housing Stock

Soil contamination also poses a number of significant issues for ongoing housing activity in both the public and private sectors.

- *Finance*
  Soil contamination has a dramatic effect on housing financing. It is almost impossible to find financing for properties with even low levels of contamination because financial institutions now require evidence that sites are virtually contaminant-free. Refinancing may become a nightmare for the future. Why should financing or refinancing be denied even in the case of harmless levels of contamination? As long as there is no standard risk assessment procedure, there will be no definitive answer to this question. It is difficult to say just how many buildings will fail to qualify for refinancing and become commercially valueless.

  Liability, too, is a major concern. Since lending institutions are protecting themselves against liability, owners - including the owners of public housing - will be required to finance remediation.

- *Private Rental and Social Housing Operations*
  Private landlords, non-profit and public housing operators are affected by the soil contamination issue in several ways. Their housing may already be on contaminated land (industrial or naturally occurring contaminants such as radon and methane); or there may be contamination from a neighbouring site. The levels of contamination may exceed the local clean up criteria. An ethical dilemma may exist. If building owners fail to take reasonable measures to protect residents from known or suspected risks, can they be held liable for any health repercussions? Landlords face the question of whether testing for contamination is warranted.

CLOSING REMARKS

In concluding his report, the author makes the following points:

- Although Environment Canada possesses a rough list of the most notorious (and therefore the most problematic) contaminated **sites**, there is no inventory of contaminated **areas** in Canada (many of which might go undetected indefinitely given the current development climate). A complete inventory of questionable areas, as opposed to isolated sites, would provide an understanding of the broader environmental effects of contamination and benefits of remediation.

- Human and environmental risk assessment must go beyond the mere presence of contamination to balance the risks of exposure with such hazards as urban sprawl, neighbourhood deterioration and the exposure-induced spread of contaminants from fallow lands.

- The development industry cannot function in the current atmosphere of uncontrolled risk. If redevelopment is not encouraged, post-industrial lands will remain fallow and contamination will not be mitigated.

- Housing owners and operators must deal with the suspicion that land under existing, occupied housing might be contaminated. If land is not considered safe for new residents, how can it be safe for existing ones? Conversely, if land is safe for existing local residents, why is it not safe for redevelopment?

- If soil contamination is reduced to an issue of risk assessment and insurance (adequate, rather than complete, safety), market forces could be used to determine which contaminated lands should be developed and for what uses.

- Current processes, which tend to ignore the social risk of vacant post-industrial lands and the associated impacts of

accelerated neighbourhood decay and retarded redevelopment, make it difficult to involve and empower local residents.

- Contamination dilution and engineered solutions (that physically separate humans from the soil environment) could alleviate much of the risk associated with soil contamination.

- The housing industry's desire to change current contaminated soil procedures is linked to its general concerns about efficiency and cost-effectiveness. Because the government's role in the contamination issue is as a guardian of public health and not simply as a regulator of housing activity, however, solutions must be based on goals designed to: reduce government duplication and bureaucracy; develop the maximum number of contaminated downtown areas; ensure public health protection; and meet the broadest range of environmental objectives.

- Because words define and frame problems for the public, communication must begin with the designation of appropriate language. The word "contaminated" means different things to different interests: to lenders, mortgage insurers and policymakers, it means there is a risk involved that must be measured against the other costs of urban life; to communities, it means "unfit for human habitation." To ensure that the public views contamination as a constraint to be overcome in the interest of affordability and intensification rather than a crisis, the language used to describe the issue must be clear and positive ("regeneration instead of "decommissioning"; "complex" instead of "contaminated").