

Section I - Report Introduction

1.0 - Executive Summary

Underutilized brownfields can have an adverse effect on the development of cities, especially considering growing urban populations and the need for intensification. Brownfield remediation has emerged in the past few decades and has continued to restore valuable lands necessary to accommodate growing populations. It also provides employment opportunities, and is an important part of tackling climate change. Canada possesses approximately 64,000 contaminated sites to-date, at a conservative estimate (ECO Canada, 2007). Historically, larger cities tend to have a higher share of contaminated sites compared to smaller municipalities.

As part of the research for Ryerson University's third year Advanced Planning Studio, we have analysed brownfield remediation policies, programs and other related documents at a federal and provincial level. Through research, each province was categorized into Upper, Middle and Lower tiers based on current policies, available programs, accessibility of information and updated relevant information. Upper tier provinces are ultimately leaders in brownfield development, with up-to-date policies, programs, experts in the field, available funding and many significant remediations.

After strategic research and evaluation, the primary findings of each region were presented regarding its strengths, weaknesses and recommendations for the future.

Federal Summary

Federal Government

Canadian brownfield redevelopment lacks support from the federal government. Around the early 2000s, there was a heavy emphasis on brownfield redevelopment. The National Round Table on the Environment and the Economy published a brownfield redevelopment strategy guide, making the subject a national issue. The report provided provincial and federal governments with recommendations for dealing with these sites. Following this, the federal government disappeared from their leadership role, becoming concerned only with sites under their jurisdiction. Recommendations were not pursued and guidance was not given, forcing provinces to develop varying laws across the country.

To help fund remediation efforts, the federal government provides the Federation of Canadian Municipalities (FCM) with a large amount of money. This is distributed through the Green Municipal Fund to various categories, including brownfield redevelopment. However, this is the only funding that the the federal government provides. The Canadian Brownfields Network was developed to replace the federal leadership role and to provide advice and advocacy on the issue. The federal government of Canada lacks involvement in the brownfield sector, especially when compared to other countries. They fail to provide the guidance, funding, incentives and overall leadership necessary for brownfield remediation.

Provincial Summaries

Alberta

Within the scope of Canada, Alberta can be characterized as an overall strong region. The foundation for a strong remediation process is present through its relevant policy, programs and planning practices. The region has made considerable progress towards the cleanup of both urban contaminated sites and tackling abandoned petroleum based sites. Alberta's success can be attributed to its devout advocacy groups, who have fought for the prioritization of cleanup practices over other provincial matters, for several decades. However, the region falters in its ability to push developers and landowners to act upon their contaminated sites. As a result, these sites have remained idle for far too long. In addition, despite having a strong foundation compared to other regions, Alberta has failed to lead both national practices and the creation of new innovations for addressing brownfield sites. Alberta's future lies in legislation designed to pressure or incentivise owners to act upon their contaminated lands. Alberta should share any resulting new and noteworthy policies or programs with other regions to tackle the pressing matter of contaminated sites nationally.

British Columbia

British Columbia (BC) has a fully developed comprehensive regulatory framework patterned after the goals and values outlined in the NRTEE report. BC credits the NRTEE Report's influence, and their [Brownfield Renewal Program](#), for much of their general success within the brownfields remediation and redevelopment industry. BC's process involves a self reporting system that prompts owners and stakeholders to initiate a site assessment. If contamination is suspected, a series of protocols will be initiated. The property will be added to the Site Registry, and the remediation process will start. These remediation tools can only be accessed through the use of Contaminated Sites Approved Professionals (CSAP), who allow access to benefits - most significantly, proper documentation allowing financial tools and the ability to transfer liability.

The [CSAP Society](#) was established to administer the work of the Roster of Approved Professionals on behalf of the Director. Through CSAP, the private sector is able to do much of the heavy lifting when it comes to the entire process. The general structure and regulatory framework is complex but accessible for stakeholders to use. This has also produced a vast amount of regulatory information, which has brought further complexities and increased costs for end users. The liability framework is clear, making redevelopment less risky for developers.

As of May 2018, there has been no new provincial programs, direction, or strategy for Brownfields or Contaminated sites in BC. New large scale brownfield redevelopments have slowed due to the lack of provincial interest and involvement. The current Government has maintained the previous administration's guidelines and strategy. Without a new progressive renewal program, the majority of the rural, low-risk, small-scale sites will continue to lay derelict and vacant.

The current redevelopment environment puts pressure on municipalities to entice private development applications. Public Private Partnerships (PPP) continue to be the

	<p>main tool used by municipalities, as they allow for mutually beneficial redevelopment opportunities for the community, municipality and private sector. Many municipally driven PPP's have promoted the most modern and inventive techniques, leading to highly successful brownfield redevelopments.</p>
<p>Manitoba</p>	<p>Manitoba has a fair amount of information regarding remediation structure and liability issues for brownfield remediation. This publicly available information also includes a site depositor - however compared to higher tier provinces, Manitoba's directory is not as comprehensive. As well, Manitoba ensures that all sites with completed environmental assessments meet modern cleanliness standards through the <i>Environmental Approvals Branch Contaminated/Impacted Sites File Review Process</i>.</p> <p>Despite having adequate information of remediation policies and processes, there seems to be a lack of application. Manitoba has taken no appreciable steps to improve the process for remediating brownfields. In addition, Manitoba has no notable advocacy groups, which makes it difficult to bring remediation efforts to the attention of the public and government. Overall, Manitoba stands as a lower tier province. Despite having policies that align with the NRTEE strategy, other provinces have more comprehensive processes that facilitate remediation. It is recommended that the province take initiative in drawing in stakeholders to the process of brownfield remediation. Educating potential stakeholders will help define a more concrete remediation process, benefiting communities through the triple bottom line factors outlined in the NRTEE.</p>
<p>New Brunswick</p>	<p>New Brunswick currently participates in a joint group with the three other Maritime provinces, called the Atlantic Partnership in RBCA Implementation (PIRI). The Atlantic PIRI was established as a forum for experts and developers to work together to remediate contaminated sites. The Atlantic PIRI provides New Brunswick with a contaminated site remediation structure, as they do not have their own in place. Although New Brunswick acknowledges the issue of contaminated sites, the province lacks the funds to solve it. As a result, the Atlantic PIRI 5-year strategic plan has progressed New Brunswick towards brownfield remediation.</p> <p>It is recommended that New Brunswick become more involved in brownfield remediation. This includes updating old remediation plans, providing easier access to information, and providing incentives for developers to choose brownfield redevelopment over the use of green fields.</p>
<p>Newfoundland and Labrador</p>	<p>Newfoundland and Labrador currently participates in a joint group with the three other Maritime provinces, represented under the Atlantic PIRI. The region has taken advantage of the Atlantic PIRI remediation structure, by refining it and creating their own. As a result, the region is aware that brownfield remediation is an important issue.</p> <p>The first document for the management of impacted sites was created in 2005 and updated in 2014. Although the province has documents outlining the procedures of managing impacted sites, no action has been made towards remediation. While the</p>

	<p>Department of Environment agrees that the management of contaminated sites should be improved, it can only be done with sufficient resources and funding.</p> <p>It is recommended that Newfoundland and Labrador allocate more funds into brownfield remediation, as it is not possible to move forward without the resources to do so. Furthermore, they must provide improved access and information to brownfield remediation, to allow developers the opportunity to invest in these brownfield sites.</p>
Northwest Territories	<p>The Northwest Territories do not appear to acknowledge the existence of brownfields within their region. This is despite having properly defined brownfields and contaminated sites, as well as having created policies and documents outlining the process to remediate such sites. A publicly accessible brownfields inventory does exist, however it is not updated. Development and redevelopment in this territory is limited due to its small population. Provincial efforts are primarily focused on cleaning up federally owned abandoned mines from the past.</p>
Nova Scotia	<p>Nova Scotia currently participates in a joint group with the three other Maritime provinces, represented under the Atlantic PIRI. The region has created their own contaminated site remediation structure based off the Atlantic PIRI. Nova Scotia has made an effort to create contaminated sites regulation documents, as well as their own remediation structure. However, they are unable to take action as they do not have the correct funding and resources to do so.</p> <p>It is recommended that Nova Scotia update their information on brownfield remediation. There is a major lack of information available on their government website regarding brownfields. As well, it is recommended that Nova Scotia allocate some money towards brownfield remediation, as incentives and tax breaks for developers would serve a wide variety of interests, from economic to environmental.</p>
Nunavut	<p>Nunavut does not officially define brownfields, however it does define contaminated sites. Development and redevelopment in this territory are limited, due to its small population and small urban areas. There is no publicly accessible brownfields inventory. Nevertheless, urban centres such as Iqaluit do have their share of brownfield redevelopment concerns. Contaminated sites across the territory represent a hazard to human health, with subsequent cleanup and redevelopment opportunities. The City of Iqaluit wishes to increase the supply of land for development and to apply sustainable development practices to this new development. The best practices in Nunavut appear to involve a great deal of public consultation, particularly when human health is at risk regarding Inuit and First Nations communities.</p>
Ontario	<p>The province of Ontario has become one of the countries leaders in brownfield remediation and redevelopment. This is in part due to the vast number of brownfields that reside within the province. Since most of these sites are located in high density urban areas, the process of redeveloping brownfield sites has become a growing priority. Ontario has a variety of incentive and funding programs that aid both developers and municipalities in redeveloping these sites. Additionally, each municipality has their own set of incentives that they can provide, depending on the site.</p>

	<p>Although Ontario has proven to be fairly strong at dealing with brownfields, there are still some steps that can be taken to better the process. The province has a site registry, however it fails to state whether or not the site has been remediated and what types of contaminants were found. Ontario has also created a variety of policies that guide the process, however these can make it difficult for developers to deal with the contaminants that remain on the site.</p>
<p>Prince Edward Island</p>	<p>Prince Edward Island currently participates in a joint group with the three other Maritime provinces, represented under the Atlantic PIRI. The Atlantic PIRI has provided a remediation structure for Prince Edward Island, as they do not currently have their own in place. As a result, the Atlantic PIRI 5-year strategy has generated some progress in PEI. Although PEI acknowledges the issue of contaminated sites, the province is unable to take action due to a lack of funding. A region wide database is needed to provide more information on brownfields, as information was lacking on the provincial website. The region lacks the necessary funds and incentives to drive remediation practices for both public and private bodies.</p>
<p>Quebec</p>	<p>The Province of Quebec has a thorough and well thought out process for brownfield remediation and development. As such, it should serve as a model for the rest of Canada. Quebec precisely defines what a brownfield is, as they first began backing their brownfield policy in 1988. Laws and regulations including <i>Section IV 2.1 of the Loi sur la qualité de l’environnement (LQE)</i> and the recently updated <i>Politique De Protection des Sols et de Réhabilitation des Terrains Contaminés - Plan d’Action 2017-2022</i> provide a clear outlook on brownfield remediation and development. The role of the “expert” plays a large part in expediting the process of remediation, while adhering to the highest environmental standards. Quebec has had success historically and currently with financial aid, through various programs such as the historical Revi-Sol Program, ClimatSol Program and the current ClimatSol-Plus Program.</p> <p>Through its easily accessible site inventory and municipally required registry, the province provides opportunities that would otherwise be difficult to access. Given the deleterious effects of climate change, brownfields represent an opportunity for sustainable development that meets increasingly ambitious planning goals. The Province of Quebec has policies, procedures, and guides that are largely viewed as successful.</p> <p>However, given that the primary language is French, many documents are only accessible to francophone speaking and reading individuals. Gathering information on the liability risks of stakeholders can be difficult, as the information is not easily accessible to all. By providing bilingual information, other provinces could learn from the success of brownfield policy within Quebec.</p>
<p>Saskatchewan</p>	<p>Saskatchewan defines both brownfields and contaminated sites, having taken inspiration from the NRTEE. The province has had legislation, such as the <i>Environmental Management and Protection Act</i>, in place since 2010. Within this, a remediation structure exists that aligns with the FCM guidelines.</p>

	<p>The region has limited tools to aid municipalities. In particular, Saskatoon takes a keen interest in this sort of redevelopment, offering assistance to developers who do brownfield work in key inner-city neighbourhoods. There is private sector funding available in Saskatoon, but aside from this region, the province appears stalled in its efforts. Additionally, there is no publicly accessible contaminated sites inventory, and information is difficult to find. There is no information available on advocacy groups in Saskatchewan.</p> <p>Despite the fact that legislation exists, it has not led to a comprehensive regulatory framework. Creating an inventory and bringing brownfield policy and regulation back to the political table could make a huge difference in remediation and redevelopment efforts within the province.</p>
Yukon	<p>Contaminated sites are officially defined in Yukon, and remediation policies are legislated. There are many contaminated sites from past and current resource extraction, which represents areas of opportunity. However, they have a very small population overall, with correspondingly small populations and growth rates at the municipal level. As a result, the call for any type of development, not just brownfield revitalization, is small compared to more urbanized regions in Canada. Nevertheless, the City of Whitehorse seeks to remediate contaminated lands for development purposes.</p> <p>Creating a publicly accessible brownfields inventory, at the municipal or territorial level, as applicable, may attract developers who might not otherwise be aware of brownfield revitalization opportunities. Explicitly defining brownfields may also prove helpful.</p>

After carefully examining and evaluating each Canadian province, the following recommendations are presented. There are to be implemented independently and from the perspective of a private or public member.

Recommendations	
Federal	Establishment of a Federal Brownfield Department
	Establishing experts in the field to address the scope of the issue.
	Creating a cross-provincial Inventory
	Should be consistent in format and information, made available for public and private use.
	Revision of federal policy and guidelines to encourage remediation efforts
	To establish consistent regulations throughout the country.
	Provide additional funding for municipalities and private stakeholders
Providing more incentives to parties involved in the process could benefit communities, as more remediation would be undertaken with the new support.	

Provincial	Standardize and regulate all registries
	Introducing a registry accessible to the public, with a consistent country wide format.
	Dedicated contaminated society and accredited remediation professionals
	Experts in their field tackling issues related to brownfields and guiding other stakeholders involved in the remediation process.
	Create developer friendly guidelines on how to successfully remediate sites
	Creating guidelines that attract development, while providing easy to follow strategies.
	Increase public information and understanding
Establishing a website with all relevant links and documents for stakeholders interested in expanding their knowledge on brownfield remediation.	

2.0 - Report Overview

Brownfield redevelopment is an integral aspect of the modern development process, both in urban and rural settings. Each stakeholder must go through a lengthy and often cumbersome process in order to gain the approval needed to redevelop a brownfield site. Canadian brownfield redevelopment is stagnant compared to the United States of America, United Kingdom, and European countries, in terms of availability of funds, federal involvement and priority given for such projects. This research conducted by Ryerson students analyses the complexity of brownfield redevelopment and accessibility of information, as well as the processes in each province, availability of funds, and the best national and provincial practices.

A focal point for research and interest in brownfield development dates back to a document released by the Canadian Federal Government, *A Brownfield Redevelopment Strategy for Canada* by the National Round Table on the Environment and the Economy (NRTEE). The intent of the NRTEE and this document was 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”. Though this report fostered the growth of non-profit brownfield organizations, federal involvement in their growth was minimal.

The Canadian Brownfields Network directed this group of third year Ryerson planning students to evaluate and assess the state of brownfield redevelopment across Canada, province by province. The research process was broken down into eight different steps, to provide consistency across the country. These eight elements - provincial definitions, history, policies in place, current remediation structure, funding and programs, liability policies, provincial site inventories, best practices, and advocacy groups - were consistently applied throughout the research process. This structure provides the reader with a clear understanding of the state of provinces according to the information available. It also demonstrates the amount of available information for private developers, the public and any party interested in brownfield redevelopment. Based on our research, the provinces were categorized into three tiers: upper tier, middle tier, and lower tier. The top tier provinces have the most accessible information, the best programs in place for brownfield redevelopment, the greatest availability of expertise to guide any stakeholders, and current and up-to-date policies to navigate redevelopment. The lower tier regions have outdated policies, little to no information available to the public, and stagnant redevelopment processes. All research was conducted

through internet searches of policies, programs and other related documentation, and by contacting officials in each province who were willing to share information.

The research focused on federal and provincial jurisdictions, although some municipal examples were considered. Our analysis found that the federal government has an excellent inventory of remediated and active contaminated sites that are federally owned. Our researchers examined the budget allocated for federally contaminated sites, and explored policies that could improve provincial and territorial performance in terms of the brownfield sector. Our “best practices” and “recommendations” seek to provide an optimal policy environment for strengthening the private sector, thus relieving some pressure on municipalities. Establishing clear and responsive policies would likely improve the efficiency and overall speed of the process. It could also result in greater incentives for research and innovation, leading to new remediation techniques and standards that better promote sustainable redevelopment of previously contaminated sites.

A full analysis of the federal evaluation can be found in Part III of this document, which discusses Federal Overview, Federal Findings, and Canada Compared to Abroad and federal involvement. Part II of this document explains the provincial evaluation in depth and provides insight into findings from every province.

This report adopts a planning perspective that will hopefully be of use to private sector professionals, the public sector and advocacy groups. Our goal is to highlight the many variations in brownfields policy throughout Canada and explore ways for the public and private sectors to advance the field through better cooperation.

3.0 - Client Considerations

This report is tasked by the Canadian Brownfields Network (CBN) to examine all federal, provincial and territorial policies and regulations relating to brownfields remediation and redevelopment throughout Canada. Highlighted features include liability and financial structures, regulatory processes, provincial and municipal programs, remediation techniques and standards, stakeholder involvement, as well as a critique of the current federal and provincial government's involvement and strategies regarding brownfields.

Under CBN's guidance, this report explores nation-wide best practices, and examines policies and practices in need of improvement. Our “best practices” and “recommendations” seek to establish policies that are more clear, responsive and universal, improving the efficiency and overall speed of the redevelopment process. This could lead to improvements in the economic health of the industry, which in turn may foster innovation through greater research and development. We hope that the findings of this report will be useful to a wide variety of professionals concerned with the revitalization of brownfield sites.

4.0 - Importance of Brownfields

As industrial and commercial lands lay vacant across Canada, the need for brownfields remediation becomes ever more apparent. Brownfield sites in large cities, many already serviced by existing infrastructure such as roads, schools, transit and amenities, represent tremendous opportunities. There are approximately 64,000 contaminated sites across Canada. Though the figure is subject to constant change, huge opportunities exist. Brownfields are advantageous for both developers and municipalities alike. Development occurring on previously vacant land generates revenue in the form of taxation and commercial activity. Redevelopment of brownfields contributes to a growing economy through job creation, and is a proven contributor to the rise in local property values.

Brownfields are sites that are perceived to contain, or actually do contain, some form of on-site contaminants. Redevelopment of brownfields delivers environmental benefits to otherwise vacant and potentially contaminated land. Contaminants are cleaned up or removed from sites, and the opportunity for sustainable development emerges. Given that many sites are located in urban areas, brownfield developments can help curb urban sprawl and allow for smarter growth within cities. As climate change concerns grow, brownfield redevelopment emerges as a strong, sustainable mitigator of negative climate change effects.

Redevelopment of brownfields also comes with social benefits that extend beyond the site to the surrounding community. Such development not only increases surrounding property values, but beautifies the previously industrial landscape, often restoring the character of older communities and neighborhoods. In some cases, the historical context of the site or building can be restored, preserving local heritage and history. The redevelopment of brownfields in one area can act as a catalyst for other brownfield developments in surrounding neighbourhoods. As site remediations increase over time, the social stigma surrounding brownfields is replaced with a sense of purpose and opportunity. The opportunities created by development on brownfields can bring neighbourhoods together through the creation of community spaces. The economic, environmental and social benefits of Brownfield redevelopment provide opportunities for communities, for the local government and for private enterprise.

5.0 - Project Scope and Size

The purpose of this report is to examine what is currently happening federally, provincially and territorially throughout Canada in terms of policies and regulations relating to brownfields remediation and redevelopment. There has been no update on this subject matter in more than a decade. As such, this report aims to bring readers up to speed on the current status of brownfields in Canada. Specifically, this report will break down the differences between each province and territory in order to paint a clear picture of what is happening coast to coast. The federal system is also reviewed in order to outline what is being done by the highest level of government.

By examining the current state of brownfields policy and practice across Canada, in terms of both strengths and weaknesses, this report seeks to aid industry professionals, legislators and other stakeholders who wish to see the industry progress. Ultimately, introducing updates and improvements to the industry is a multi-faceted, multi-stakeholder process that begins with a broad snapshot that this report hopes to provide.

6.0 - History of Brownfields

Canada's actions in the field of remediation span decades, from their first steps taken to address these derelict sites to present actions.

1989 - Initial Start

Canada took a major first step in dealing with contaminated sites. The National Contaminated Sites Remediation Program was designed to provide human and financial resources to jurisdictions across the country, in efforts to identify and assess contaminated sites and develop research.

1995 - Group Formation

The federal government set up a Contaminated Sites Management Working Group, with the goal to gather appropriate information on federal lands .

2000 - Monetary Bodies

The federal government established the Green Municipal Fund (GMF), which provided grants up to \$100,000 for community brownfield inventories and assessments of development and policy options.

2001 - A Legacy Starts

The Government of Canada mandated the NRTEE to prepare a National Brownfield Redevelopment strategy.

2002 - Federal Site Mandate

New policies issued with regards to federally owned contaminated sites were created. This required all federal departments and agencies to follow remediation plans.

2003 - Canadian Brownfields Network (CBN) is Born

NRTEE's National Brownfield Redevelopment Strategy was released. This recommended the creation of a Canadian Brownfields Association, for the purpose of increasing national awareness of the benefits of brownfield development.

2005 - Monetary Injections

The federal government provided \$150 million to the GMF for a revolving fund for brownfields.

2005 - Federal Amendments

NRTEE collaborated with the CBN to develop a National Framework for Encouraging Redevelopment of Qualifying Brownfields, through the removal of crown liens and tax arrears.

2006 - Addressing Liability

The Canadian Council of Ministers of the Environment (CCME) developed a report titled [*Recommended Principles on Contaminated Sites Liability*](#).

2008 - Developer Friendly Guidelines

The Canadian Real Estate Association published *Developing Brownfields - Information for Realtors*, with an intent to increase the capacity of realtors undertaking brownfield redevelopment projects.

7.0 - NRTEE Legacy

The National Round Table on the Environment and the Economy (NRTEE) was created in 1988. It was an independent policy advisory agency to the Government of Canada. Its mission was to explore new opportunities to create an environmentally conscious country while promoting economic growth and sustainability. The NRTEE conducted numerous studies and reports on priority issues such as climate change, water sustainability, and energy, among others.

In 2003, the NRTEE released *Cleaning Up the Past, Building the Future: A National Brownfield Strategy for Canada*. It was the first cooperative strategy to address public and private concerns, as it presented a

healthy alternative to urban sprawl. It also made significant progress regarding brownfield remediation and redevelopment within Canada.

The NRTEE brought together hundreds of experts and leaders in various fields and provided critical data and guidance for the Government of Canada. Unfortunately, funding for the NRTEE was cut and its website was closed on March 31st, 2013. Even with the agency's disbandment, their reports and studies will remain an integral part of the development of a prosperous future.

Section II - Provincial Evaluation

8.0 - Structure of Findings

This portion of the report will evaluate each region on several criteria relating to its current state of their brownfield process and its progress as a whole. These criteria include the NRTEE's influence on the region, the regions definitions of a brownfield or contaminated site, the region's history with brownfields, provincial policies that guide remediation, how remediation is structured, available funding and programs for assessing and cleaning sites, policy and legislation pertaining to region liability practices, site inventories in the region, best practices for that area and advocacy groups, if applicable. This set of criteria was used to gauge the current status of the region's involvement with contaminated sites.

9.0 - Provincial Regions

The following section of this report will examine each province and territory of Canada, with consideration placed on the evaluation criteria and a final critique of the region's current standing.

9.1 - Alberta

Region Overview

Traditionally, brownfields within Alberta reside in the urban cores of most cities including Calgary, Edmonton, and other smaller municipalities. These sites are most abundant in the downtown cores and old industrial sites, often near waterways. A large portion of brownfields within Alberta include gas stations, auto mechanic shops, chemical storage facilities and declining industrial facilities. In addition, an emerging shift in [national energy](#) has placed an emphasis on oil and petroleum-based facilities, where abandoned oil sites can be attributed as a derelict site that requires remediation.

NRTEE's Influence

The legacy of the NRTEE's report in the early 2000's has had an impact on Alberta and their efforts to address brownfields. Their definitions for a brownfield in their provincial legislation mirrors the NRTEE's definition. As well, policy concepts from the report have been loosely transcribed in the province's policy. Most importantly, a recommendation to certify liability claims has been introduced through Brownfield Certificates to help address barriers of liability in remediation.

Region Definition

Brownfield

Brownfields are defined under the [Municipal Government Act](#) under section 364.1 as being "a commercial or industrial property which is, or possibly is, contaminated; is vacant, derelict or under-utilized; and is suitable for development or redevelopment for the general benefit of the municipality".

Contaminated Site

Contaminated sites are defined as the “presence, in association with soil, water, groundwater, air, ground surface or structures or a substance or substances that may present a risk to human health or the environment where “substance” is as defined in the Alberta Environment Protection and Enhancement Act”.

Region History

2000 - Tank Site Remediation Program

This [program](#) was initially created to help remediate municipal gas stations. The program spanned roughly 20 years before funding ran out. However, while in effect, around 800 tanks were remediated, costing nearly 90 million dollars.

2009 - Remediation Certificate Program

Nearly a decade after, the adoption of the [Remediation Certificate Program](#) was created to help address issues of liability within the region. The program ensured that all sites would be remediated to current efficiency standards.

2011 - Refocus on Remediation

Refocus was placed on the remediation of brownfields and breaking down barriers to redevelopment. Numerous municipal stakeholder groups met to discuss and formulate plans to address local contaminated sites. Having a municipal focused drive to advocate for brownfields proved to be very effective.

2012 - Brownfield Redevelopment Working Group

The purpose of the body was to deliver recommendations to the province regarding legislative changes, financial incentives, certification requirements, and administrative processes that address barriers to redevelopment. A list of 14 recommendations was drafted and implemented independently.

2015 - Recommitment to Remediation

This year brought about a resurgence in efforts to remediate, with findings published from the previous year beginning to proactively address contaminated sites, mainly based on lobbying from the [Alberta Urban Municipalities Association](#). A review of the Remediation Certificate Program was conducted in order to help address liability. Petroleum-based sites were classified as brownfields to help remediate these sites.

2016 - Brownfield Coordinator

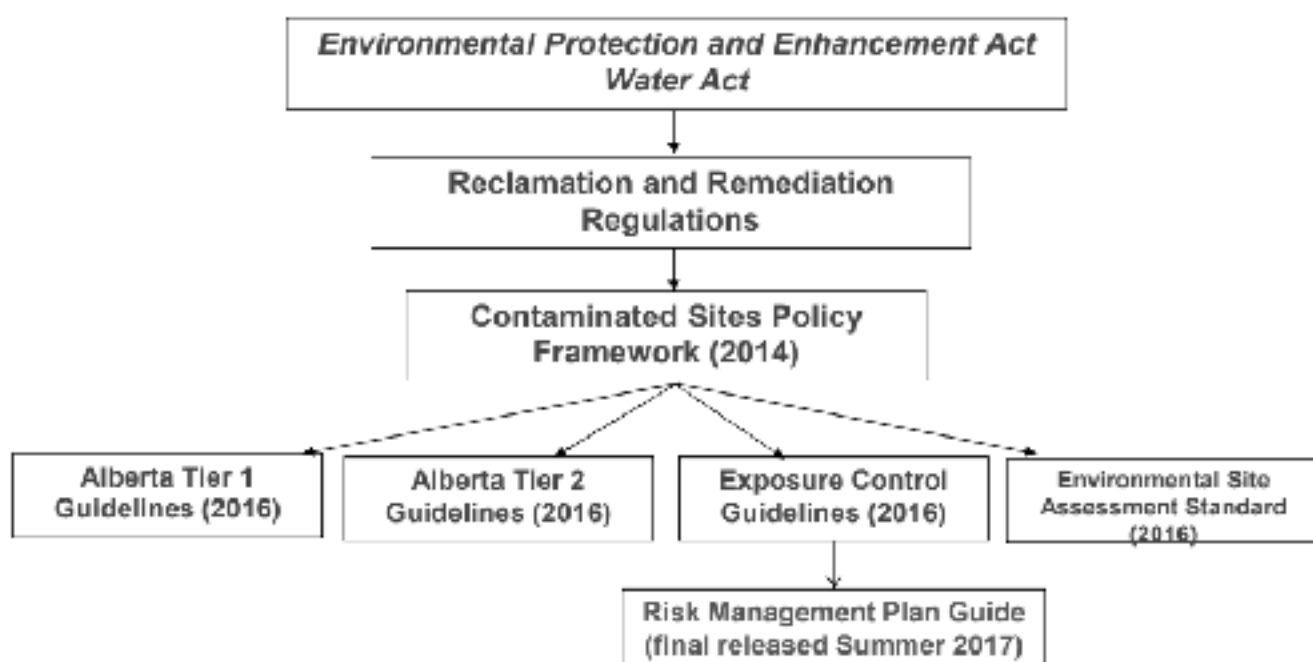
A [Brownfield Coordination Office](#) was established to oversee the management of communications and brownfield related activities. The Municipal Government Act was amended so that municipalities could pass a “multi-year bylaw to exempt or defer tax collection on brownfield properties, and to encourage development or redevelopment for the general benefit of the municipality”.

Present - Continued Advocacy

Advocacy groups such as the Alberta Urban Municipalities Association continue to advocate for a faster process and to foster more inter-related groups to encourage stronger collaboration.

Provincial Policies

<p><i>Municipal Government Act (2018)</i></p>	<p>The Municipal Government Act governs how municipalities can address brownfield sites within their jurisdiction. The act grants municipalities tax exemptions under section 364.1 subsection 2. Under subsection 6 and 7, certificates which allow for tax exemptions or deferrals are outlined, if a set criteria is met. In addition, recent amendments to the legislation give more power to municipalities to cover costs through government funding to incentivize development. By allowing the province to step in to help cover municipal costs on the account of the mandate of environmental sustainability for the province, they can contribute to remediation efforts to aid municipalities.</p>
<p><i>Environmental Protection and Enhancement Act (2017)</i></p>	<p>The Environmental Protection and Enhancement Act is a piece of provincial legislation which sets out to address issues of contamination, liability for both private and public realms, cleanup responsibility and process. Part Five, Division Two, section 107, subsection one, outlines who has designated ownership over the site. Section 123 outlines the process of identifying ways to address sites through either programs or other measures to pay for the costs of remediation. By doing so, this allows the province to have a larger role in remediation efforts and collaborate with its municipalities better.</p>
<p><i>Contaminated Sites Policy Framework (2014)</i></p>	<p>The Contaminated Sites Policy Framework is a provincial tool used to manage, assess and develop contaminated sites. It is an extension of the Environmental Protection and Enhancement Act, through implementation of legislation into a policy framework. It is closely related to other legislative documents, which set out the guidelines for addressing brownfield remediation. The integration of these guidelines is part of the larger objective for the province to achieve province-wide remediation.</p>



A chart outlining the [structure](#) of remediation practices.

Remediation Structure

Alberta's remediation structure is quite thorough and complex, as it guides proponents on how to successfully remediate a site with various evaluations, grants, and approvals. There are three different bodies who oversee different steps in regards to evaluations, grants and, approvals for sites. These bodies are Alberta Environment, the Brownfield Coordinator, and the Municipal Development Authority, who work with the proponent to clean up a site.

Step 1 - Site Designation

Alberta Environment classifies the site as being contaminated or potentially contaminated and designates the site's possible contamination.

Step 2 - Site Feasibility

The proponent and the Brownfield Coordinator of the region decide whether the site is feasible for redevelopment.

Step 3 - Environmental Site Assessment

If a site is deemed feasible, an environmental assessment is carried out by the developer and, if applicable, the environmental grant is approved by the Brownfield Coordinator.

Step 4 - Remediation Plans

If a site is found to contain contamination above the required allowed levels of contamination, a remediation plan is required. A remediation grant, if needed, is approved by the Brownfield Coordinator.

Step 5 - Remediation Approval

After a remediation plan is submitted, Alberta Environment reviews and approves the plans, and remediation efforts are carried out.

Step 6 - Tier Systems

After remediating a site, it is then evaluated by Alberta Environment under a tier system. Tier one establishes a set criteria for site safety, while tier two has variable conditions that vary site by site.

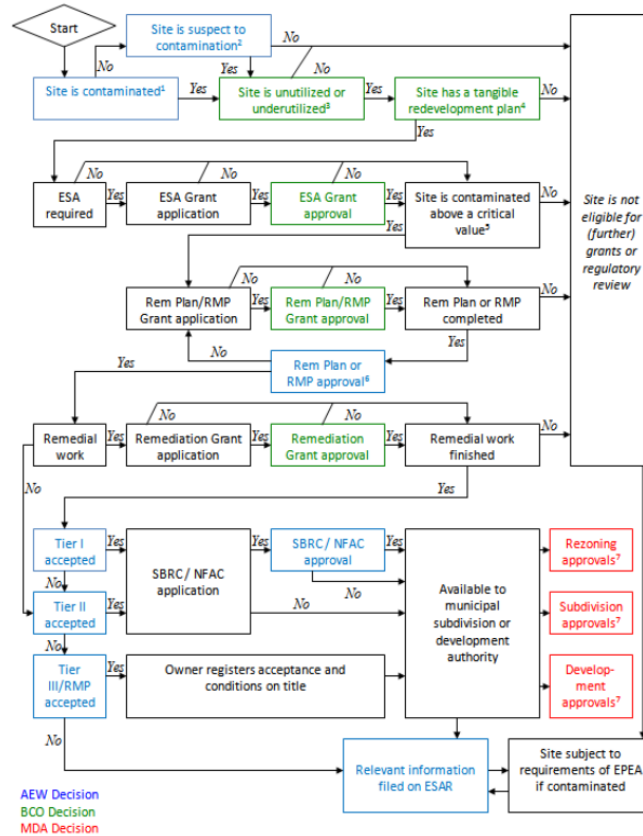
Step 7 - Submissions

After remediating and evaluating a site the owner registers for the site title and submits their final reports to the municipality for review.

Step 8 - Site Approvals

After reviewing the necessary materials, the Municipal Development Authority can grant approvals for the site and for zoning, subdivisions and development approvals, once the site is cleared.

In order to develop a site, a developer must work in tandem with one of the three local bodies to receive grants, evaluations or approvals. In other regions, local bodies intervene at the end to validate a site's remediation. In Alberta, these bodies are very much involved in the entire process.



A flowchart illustrating the [remediation process](#) of contaminated sites in Alberta

Funding and Programs

Public Sector

<p><i>Municipal Sustainability Initiative</i></p>	<p>The Municipal Sustainability Initiative is a provincial grant bestowed upon municipalities in order to help improve and rehabilitate municipal services. More specifically, to rehabilitate roads, bridges, water and wastewater systems, public facilities and other local priorities. However, these funds can be used to address brownfield remediation efforts, where funding can be used “for reclamation, rehabilitation, and betterment activities that involve municipally owned assets or land”. This “includes the removal of pollution or contaminants from land necessary for the mitigation of impacts to capital infrastructure”.</p>
<p><i>Tank Site Remediation Program</i></p>	<p>Alberta’s first large-scale attempt to tackle brownfields was through the introduction of the Tank Site Remediation Program. This program was a provincial initiative to help developers/landowners within municipalities address brownfield sites under their jurisdiction. The program spanned 18 years, ceasing to accept new applicants in February 2018. During the program’s duration, it provided “\$91 million to municipalities and owners of small gas stations to clean up contamination from underground petroleum tanks at 1150 sites”. Among these sites, roughly 790 were remediated as of 2013. Since then, much of the initial funding has run out and the province needs new ways to address remediation processes.</p>

Private Sector

<i>Brownfield Certificates</i>	Brownfield certificates have been used in Alberta to address the post stages of remediating a contaminated site since 2009. These certificates grant the ability to provide closure in terms of addressing liability at a specified site. The applicant must provide documentation of the remediation process. After approval they receive the certificate. This has been an effective way of addressing liability as it grants closure to the developer. However, if a substance is not reported in the initial assessment and later the substance leads to future contamination, the certificate does not cover it.
<i>Brownfield Redevelopment Grant Program</i>	This program is unique to the city of Edmonton. Its purpose is to help incentivize brownfield remediation efforts, which has been in effect since June 2017. The Brownfield Redevelopment Grant is a municipal fund, however funding is awarded on a first come first serve basis. This means that the money awarded is limited in nature. This may pressure developers to act sooner rather than later. The funding covers different phase costs, from study to site remediation, ranging from 50-100% of the costs. Furthermore, the grant is limited to developing on only former gasoline or diesel refueling properties. This limits the types of land that developers can remediate. However, these types of sites are the most common brownfields in urban centres.

Liability

<i>Professional Liability</i>	Environmental professionals guide proponent activities and ensure provincial and municipal regulations are met. The professional must be in good standing with one of the various environmental agencies in Alberta. They must have at least five years of experience and are held accountable for the assessments they make.
<i>Ownership Liability</i>	Owners are subject to liability for their properties. However, in Alberta, many former owners of oil, gas or automotive based sites have abandoned their properties and cannot be found. Municipalities or private banks are then tasked with claiming ownership and inheriting the potential liability.
<i>Municipal Liability</i>	Municipalities are subject to their own actions. This can include older municipal through public works. However, municipalities acquiring land through tax forfeits are exempted under the Environmental Protection and Enhancement Act . They are also liable for granting permit approvals where due diligence was not taken.

Polluter Pays Principle

Liability in Alberta follows the traditional polluter pays principle where the owner of the land is subject to liability. It is a large barrier for development, as developers are apprehensive to take on unwanted liability.

Joint and Several

This form of [liability](#) has the potential to harm bodies in Alberta, where disproportionate and unexpected outcomes can occur. Only third-party claims can help Alberta address issues of disproportionate liability division through cross-party settlement claims.

Apportioned

In Alberta, if a plaintiff is found liable, liability is reduced by a proportionate amount attributed by the plaintiff. Afterward, liability between defendants is [apportioned](#) between them and the plaintiff collects the outstanding amount from both.

Liability Transfer to Cleanup Professional

Municipalities take upon contaminated sites where the previous owner cannot be found. The site is then under their discretion and they must remediate the site. However, in cases where the site is too expensive to remediate, the sites sit idly. In these cases, the municipality takes on the role of a professional body and is responsible for the site.

Sites Inventory

City of Edmonton

In Edmonton, an attempt was made to evaluate sites based on very stringent criteria, in efforts to avoid overlapping. From the available 7000 properties, following intensive research and sorting, the sites were narrowed down to 43, with 24 having off-site contamination. A majority of the sites were predicted and confirmed to be former refueling sites, with the contamination often spreading to adjacent properties. This has resulted in an adequate inventory for the city of Edmonton, which helps to pinpoint remediation efforts.

Orphan Well List

The Orphan Well Association, which advocates for the reclamation of abandoned oil-related sites, has created several up to date inventories. The first list outlines sites that are non-functioning wells, designated by Alberta Environment and Parks. The second list documents wells that are to be suspended in the future. The third list identifies sites currently under reclamation, while the fourth list contains pipeline segments that have been abandoned. In total, amongst all four lists, over 8000 sites have been identified. Within Alberta, oil-related sites are considered to overlap into brownfields remediation. This inventory helps to categorize them for future remediation.

Land Use Description	Number of sites	Number of potential brownfields
Derelict Commercial	7	3
Derelict Industrial	2	2
Derelict Residential	6	2
Multi-Residential (holding property or derelict)	4	1
Non-farmland Vacant	68	10
Outdoor Athletics-Other Vacant	1	0
Park/Playground - Vacant	5	0
Park/Playground - Undeveloped	5	2
Religious - Other vacant	3	0
Spur Rail Line Right of Way	1	1
Vacant Land Inventory Commercial Zones	189	22
TOTAL	291	43

The precise count of potential sites in the city of Edmonton from the [inventory report](#).

Best Practices

Solar Park Interim Use - (2016)

The town of [Vulcan](#), despite being a very small municipality with little private development, was able to remediate and redevelop two contaminated fuel stations. The two sites displayed common brownfield traits - they were “contaminated, under-used and visually unappealing. After remediation, the town created a solar park, described as the first of its kind in Canada. It provides electricity and serves as a community gathering space. However, the journey to reach the completed park was difficult, as liability issues and contamination posed as barriers. The soil was deeply contaminated, requiring a thorough assessment and numerous future assessments to ensure that the soil contamination did not spread. The site, as of 2016, has been completed and is thriving.

Shipping Container Pop-Ups - (2017)

Areas that lack private developer interest often remain idle until a surge in development occurs. However, these surges are often rare and difficult to trigger. Municipalities that face this issue, such as Calgary, use interim site controls in order to coax developers. This city used [shipping containers](#) to highlight the opportunities for future development. Sites that needed further remediation beyond municipal funding received temporary pop-ups. These were then studied to “conduct market research that the City hoped would demonstrate the viability of placing small businesses in modular structures on brownfield sites”. These structures are temporary and can be swapped to introduce different types of businesses on a seasonal basis. This is in effort to draw both public and private attention.

Environment Site Assessment Guidebook - (2016)

The City of Edmonton has played a key role in the remediation and development of brownfield sites. The city formulated and implemented various programs and grants to encourage development. One very important tool to come out of this was the [Environmental Site Assessment Guidebook](#). This outlines the process for Land Development Applications, to decide if a site is suitable for its intended purpose. The guide helps owners and developers to properly address their sites to meet municipal requirements.

Region Advocacy Groups

Canadian Fuels Association

Alberta’s shift from a current oil-based economy to alternative methods has meant that the involvement of the [Canadian Fuels Association](#) (CFA) has become paramount. The CFA represents fuel associations in the petroleum industry. They work with provincial and municipal bodies to remediate contaminated sites and return them to productive use through science-based and cost-effective approaches. CFA employs partnerships between local governments and these companies to address former fuel sites. Their involvement in Alberta consists of working with various groups to put forward recommendations to the province in terms of policy or programs. As a national group, they have the potential to push a brownfield oriented agenda to the province.

Orphan Well Association

A shift from non-renewable to sustainable power and the decline of oil markets has led to the creation of the [Orphan Wells Association](#). The group is a non-profit organization that deals with abandoned oil wells, pipes or facilities that have no legal or financially able parties. The organization submits yearly reports on the conditions of Alberta’s abandoned oil based sites and keeps an updated inventory of these facilities. Within

Alberta, the topic of brownfield site remediation overlaps with oil site remediation. Often, the abandonment of oil sites fits the province's definition of a brownfield.

Alberta Urban Municipalities Association

A key stakeholder in the advancement of brownfield policy and frameworks is the [Alberta Urban Municipalities Association](#). This body has been dedicated to brownfield remediation since the early 2000s. A majority of their actions have focused on engaging provincial and municipal governments to work together with other key stakeholder groups. The AUMA also advocates for a barrier-free, swift process that is transparent for both public and private sectors. The group has put together numerous resources for the public to access, to inform them about brownfields and encourage government bodies to improve their regulatory framework.

Alberta Parks and Environment

A large stakeholder within the redevelopment and remediation of brownfield sites is [Alberta Parks and Environment](#). This body makes up an integral role in engagement with local governments, as well as the province of Alberta to help communicate and coordinate activities. Another role of Alberta Parks and Environment has been providing community members with information regarding brownfields within their municipalities. This engagement helps to inform public bodies about the various reasons, processes, and importance of brownfield developments.

Conclusion

Finding information on Alberta's involvement with contaminated sites has been adequate. Information on all areas of research have been covered, and the information has been easily accessible and available. From this, Alberta has seen a lot of action towards brownfield development on both provincial and municipal scales, due to the current policy and frameworks available to them. Massive efforts into remediation have been conducted since the early 2000's. However, one pressing issue that remains is liability. As well, policy for both levels of government needs to be reviewed to push for development action. Far too often developers will forfeit contaminated sites on purpose to pass on their liability.

9.2 - British Columbia

Region Overview

British Columbia is Canada's most westerly province. The region is well known for their natural resources, such as lumber and fisheries, and more recently, natural gas. Like many parts of Canada, brownfields are spread throughout the province. These range in scale and size. Generally, rural areas contain very large industrial sites, like abandoned mines, closed pulp mills and processing facilities, which continue to be difficult to redevelop. Fortunately, the majority of brownfield properties are near or in urban areas. These sites are usually connected to infrastructure and are adjacent to or part of the rail or shipping facilities. The sites that are near large populations are under increasing pressures for redevelopment, however many are still yet to become economically viable for the private sector. This has forced municipalities to make public-private partnerships for most significant brownfield redevelopment projects to succeed.

NRTEE's Influence

As a direct result of the National Round Table Report's release, the province of British Columbia started a comprehensive updating process of their contaminated sites regulation and policies. This report pushed for an update of all definitions, the remediation structure and requirements, the liability and risk allocation. All of the changes were designed to mirror the goals and values of the NRTEE report. This new direction has been seen as a highly beneficial document for the province and Canada as a whole. British Columbia credits this report for their general success within the brownfields remediation and redevelopment industry.

Region Definition

Brownfield

Brownfields are abandoned, vacant, derelict or underutilized commercial and industrial properties where past actions have resulted in actual or perceived contamination and where there is an active potential for redevelopment.

Contaminated Site

Contaminated Sites are "defined as an area of land in which the soil or underlying groundwater or sediment contains a hazardous waste or substance in an amount or concentration that exceeds provincial environmental quality standards. A site is contaminated if it is unsuitable for specific uses of land, water and sediment" [Read Fact Sheet 1: An Introduction to Contaminated Sites in British Columbia](#)

Region History

1995 - Established Contaminated Sites Fees Regulation

Part 3.1 - Comprehensive contaminated sites provisions were added to the Waste Management Act.

1997 - Contaminated Sites Regulation in effect

Contaminated Sites Provisions of the Waste Management Act comes into force.

1999 - Stage 1 amendments

Added rostered experts set standards for petroleum hydrocarbons and removed aquatic life standards for

iron, manganese, and aluminum.

2002 - Waste Management Act amended

Mines provisions, cost recovery, consequential amendment.

2002 - Stage 2 amendments

Allowed rostered experts to submit Determinations of Contaminated Site, revised various numerical standards, added a notice of contaminant migration.

2003 - Minister's Advisory Panel Report on Contaminated Sites issued.

2003 - Stage 3 amendments

Amended fees, allowing lump sum and hourly rates.

2003 - Environmental Management Act created from Waste Management Act (Bill 57).

2004 - Environmental Management Act amended (Bill 13).

2004 - Environmental Management Act in effect. Stage 4 amendments

Updated authority to make regulations and decisions, removed Conditional Certificates, renamed professional experts, moved Director's standards to regulation.

2007 - Stage 5 amendments

Simplified fees regime, put Summary of Site Condition provisions in effect, amended environmental quality standards.

2007-2014 - Brownfield Renewal Program

Created by the BC government to provide financial support to kickstart environmental assessments and remediation and redevelopment. Designed for municipal projects, including private public partnerships. Overall, the renewal program was considered a major success - it was the underlying reason for many of British Columbia's large-scale brownfield redevelopments. In the program's early years, it set the stage as an example for provincially led remediation and redevelopment efforts, for the rest of the country. Since this program's cancellation, British Columbia has put brownfields on the back burner. The decreased political awareness has led to little to no effort in the updating and restoring any sort of provincial led initiative and or strategy.

2009 - Stage 6 amendments

Expanded and amended environmental quality standards, clarified site profile regime, updated Summary of Site Condition.

2011 - Stage 7 amendments

Moved Director's standards to regulation and introduced new standards for iron, manganese, aluminum, and MCPA in drinking water.

2013 - Stage 8 amendments

Allowed for background iron and manganese. New human health soil standards for industrial use.

2014 - Stage 9 amendments

Human-health soil standards for lead for industrial and other land uses.

2016 - Hazardous Waste Regulation Amendments

The BC government amended the Hazardous Waste Regulation (HWR) and the Contaminated Sites Regulation (CSR). Updated definitions and new acceptable levels of specific contamination.

2017 - Stage 10 (Omnibus) and Stage 11 (Housekeeping) amendments

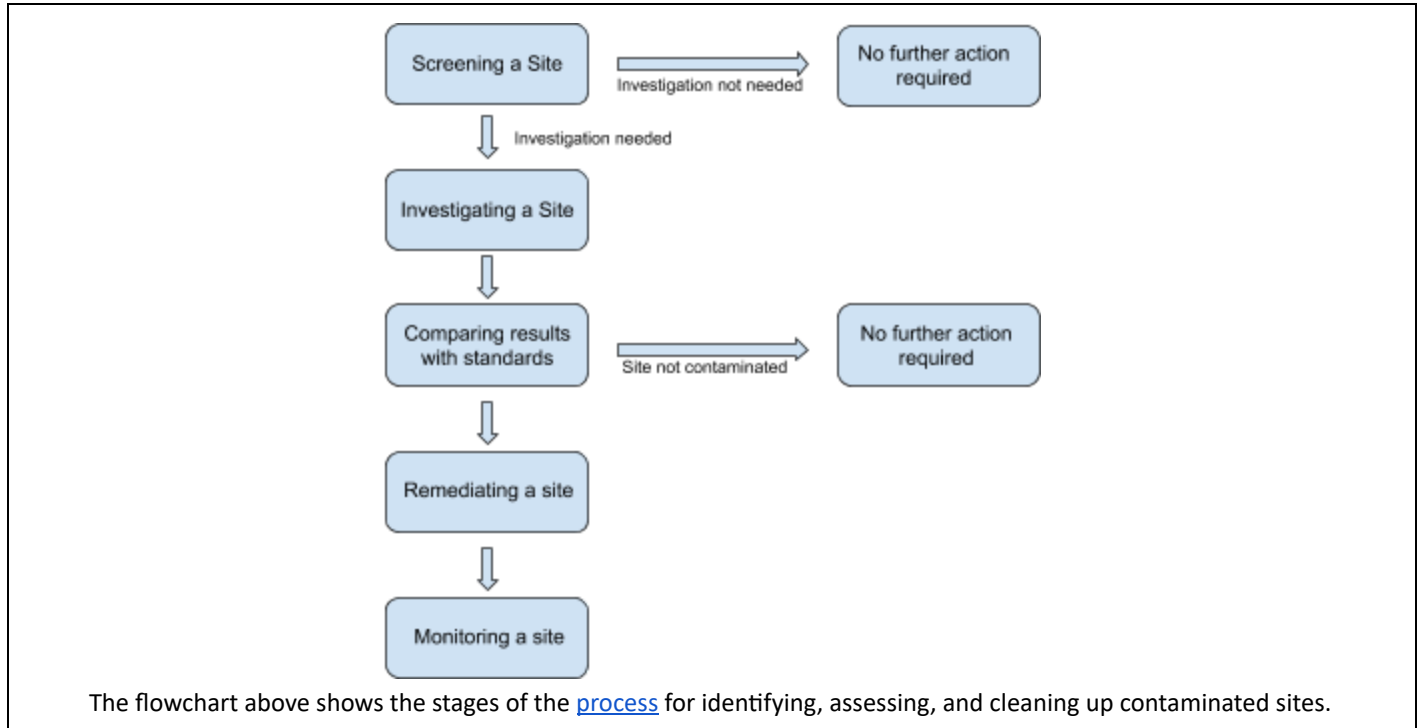
Considered as the most significant update since 1997. These changes included new soil, water, and vapour standards to reflect contemporary science. Simplified the formats and consolidated existing schedules into four new schedules organized by environmental media – i.e. Schedules 3.1 (soil), 3.2 (water), 3.3 (vapour) and 3.4 (sediment). Added new toxicology-based soil/water standards for some emerging contaminants. Eliminated Schedule 7 unique soil standards - the update was published October 31, 2017

Provincial Policies

<u>Environmental Management Act (2003)</u>	Part 4 specifically relates to contaminated sites and remediation. Divisions 1 through 7 describe the process and procedure for site identification, liability allocation and remediation implementation, including powers of the ministry and powers delegated to municipalities. Division 1 - Interpretation, Division 2 - Identification of Contaminated Sites, Division 3 - Liability for Remediation, Division 4 - Implementation of Remediation, Division 5 - Delegation, Division 6 - Ministry Authority, Division 7 - General Provision Respecting Contaminated Sites.
<u>Contaminated Sites Regulation B.C. Reg. 375/96</u>	A 20-part regulation, that is within part 4 of the Environmental Management Act. It is a detailed document defining the rules and responsibilities of all contaminated sites in B.C.
<u>Hazardous Waste Regulation B.C. Reg. 63/88</u>	Part of the Environmental Management Act, the “Regulation” determines transportation and disposal rules for hazardous waste.
<u>Environmental Assessment Act, Chapter 43</u>	Sets out all assessment regulations, policy, framework and powers of the Environmental Assessment Office.
<u>Local Government Act (2015)</u>	Legal framework and foundation for the establishment and continuation of local government. Structured to help local representation, who works to quantify and fulfill the public interest and respond to the unique and complex needs of the communities.
<u>Community Charter Act (2003)</u>	The “Charter” confers the powers of municipalities and their councils under this Act or the Local Government Act. Providing power and flexibility for municipalities to attain the public interest. Allows for the incorporation of lands, provision of services, creation of bylaws, and the power to raise capital and tax.

Part 3, Division 12	Within the Charter; provides Remedial Action Requirements (assessments, timeline and remediation conditions).
Bill 3 Building Act	Governs the rules and regulations of all development or structures being built, including the quality of materials, property, and environmental considerations.

Remediation Structure



The Environmental Management Act is the main law governing contaminated sites in the province. Brought into force in July 2004 (replacing the former Waste Management Act), it lays out standards for site identification, assessment, and cleanup (“remediation”). Other provisions are set out in the Contaminated Sites Regulation. It includes a system to streamline the cleanup of low and moderate-risk sites. The Ministry of Environment administers these legal requirements. The Contaminated Sites Approved Professionals Society (CSAP) are a group of professionals who are an integral aspect of the majority of contaminated sites and are crucial to the entirety of Option 1 of the Contaminated Sites Services Application process.

Step 1 - Screening a site

Once triggered, a [Site Profile](#) needs to be completed. This includes forms that provide required information about the past and present uses of a site, as well as basic land descriptions. The content and format of a site profile are provided in Schedule 1 of the *Environmental Management Act’s* Contaminated Sites Regulation. Site Profiles are conducted in two stages. First, a preliminary site investigation is completed. If more information is needed, a detailed site investigation is undertaken. The information gathered is usually sufficient enough to develop a remediation plan, or a human health or environmental risk assessment. A [Site Risk Classification Report \(PDF\)](#) will be fulfilled to further determine options and the next steps. Once the second stage is initiated, the [Contaminated Sites Services Application](#) must be completed to move onto the next step in the remediation process.

Three submission types for a Contaminated Sites Services Application are:

- Option 1. [Roster of Approved Professionals Submission](#), fast-track approval process required as of November 1, 2004, for non-high risk sites. Proponents must retain the services of Approved Professional to make recommendations to the minister.
- Option 2. [External Review](#), rare circumstances, clients may request a review by external reviewers, on contract by the ministry. Most expensive option, but sets fixed timeframes for review.
- Option 3. Ministry Review, normally only for high-risk sites, ministry staff will review directly.

Site owners and operators must use option 1 whenever required under [Protocol 6](#). If the site is further classified to have the possibility of contaminant migration, a [Notification of Likely or Actual Migration \(DOC\)](#) is required. Notices must be sent to affected neighbours and the ministry if a responsible person becomes aware of the migration or likely migration of contaminants. If the site is classified as a high-risk site, [Protocol 12](#) is required to be initiated.

Step 2 - Site Investigation

Site Investigation is initiated by the ministry, and is completed in full with fees of the [Contaminated Sites Services Application](#). The ministry offers clients a range of services related to managing and regulating contaminated sites. These are referred to as Legal Instruments. Clients may apply for services such as: site investigation report and remediation plan reviews, determinations of whether or not a site is contaminated, Approvals in Principle of site remediation plans, Certificates of Compliance for cleanups to remediation standards, Voluntary Remediation Agreements, and Contaminated Soil Relocation Agreements. The province uses a fee for service approach in providing these Legal Instruments. When pre-approval is required under section 4.4 of Protocol 6, [Protocol 6 Pre-approval Application](#) must be sent to the ministry. Once pre-approval is obtained, an application for a contaminated sites legal instrument based on the preapproval and accompanied by a recommendation by an Approved Professional that the application is approved, is eligible for submission to the ministry.

Step 3 - Comparing results with standards

CSAP or independent professionals will be required to take regular samples and compare test results and standards throughout the entirety of the process.

Step 4 - Remediating the site

This is structured and designed by CSAP Professionals. In rare circumstances, a [Notification of Independent Remediation \(DOC\)](#) is alternatively allowed. Section 54 (2) of the *Environmental Management Act* requires anyone undertaking independent remediation to notify the Director of Waste Management in writing, promptly on initiating remediation and within 90 days of completing it. [Contaminated Soil Relocation Agreement \(Fillable PDF\)](#); this form must be submitted to the ministry when contaminated soil is to be relocated from a source site to a receiving site. Signatures of the source and receiving site owners are required as well as sign-off by a ministry official.

Step 5 - Monitoring the site

For sites being cleaned up to meet numerical remediation standards, post-cleanup sampling and analyses are obtained to ensure that the contaminants have been removed and that the residual soil, water, and sediment meet the applicable standards. For sites being cleaned up to meet risk-based standards, post-cleanup inspections and regular environmental monitoring are carried out to check that exposure to substances remaining in place is reduced and satisfies the applicable remediation standards.

All other forms and relating documentation for the remediation process can be found on the [Contaminated Sites website](#).

The remediation process and structure in British Columbia is front-loaded in forms and regulation with associated fees. Once this process is initiated, CSAP approved professionals take on the entire remediation and documenting process. This includes testing and sign-offs, which minimizes barriers for developers. The process is clear and heavily controlled, producing a reliable and quick, but costly process.

Funding and Programs

Public Sector

Brownfield Renewal Program (BRP) 2007-2014	Provided eligible applications, funding for the initial site and environmental risk assessments, and help potential remediation costs. From 2007 to 2012, the BRP provided more than \$4.2 million toward 60 projects in 44 communities and provided \$1.8 million in 2012.
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Ministry of the Environment has a very limited [brownfield strategy](#), highlighting the previous administration's work between 2008 and 2014, and aiming to build upon the success of this effort. Work is currently underway to develop new options to continually promote and facilitate brownfield remediation and redevelopment. Currently, British Columbia has no province-wide brownfields incentive program, for remediation or redevelopment.

Results of the BRP was generally seen to help jumpstart many relatively risky redevelopment projects. At the time, this made British Columbia a national leader in brownfield redevelopment. Since the cancellation of the BRP, little has been released in the form of studies, showing the relative effects of the program. The Ministry of the Environment is lacking current information on the results of previous programs, while proposed new alternatives have yet to be made public.

The only incentives are held within policy, which provides the rules and regulations for how municipalities are able to individually promote and incentivize brownfields remediation and redevelopment within their borders.

Many municipalities provide incentives according to individual application proposals, dealing directly with applicants of specific sites. The lack of an overarching program puts the onus on the developers to go to the municipality to work through possible incentives available for taking on the remediation of a site. Unfortunately, this slows down the process considerably, making the possibility of a privately led, timely, and profitable brownfield renewal project much less likely.

Liability

<i>Professional Liability</i>	CSAP Society and their Approved Professionals are closely connected to the site assessment and remediation process. They take on much of the liability, once signed off from the site condition and remediation status. This plays an important role in terms of liability transfer and documentation, allowing the owner or proponent to fulfill a contractual obligation for insurance and financial backing.
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	<p>CSAP Society is mandated by the Environment Management Act and is registered under the BC Society Act, which fulfills the Contaminated Sites Regulation B.C. Reg. 375/96. Linked - governance, rules, and bylaws.</p> <p>Professionals such as bankers, developers and investors have a series of available tools to mitigate any unforeseen liability, if the correct supporting documentation is provided.</p>
<p><i>Ownership Liability</i></p>	<p>In 1997, principles of remediation liability were enacted based on the CCME national principles, including polluter pays. This describes how liability can be Absolute (liability may exist without fault), or Joint and Separate (if two or more parties contributed to the release and unless a party can show that the injury or harm at the site is divisible, any one or more of the parties may be held liable for the entire cost of the clean up). It may also be Retroactive (liability may exist even if contamination occurred before 1997).</p> <p>The CCME features that were highlighted directly influenced the NRTEE report in 2003.</p>
<p><i>Municipal Liability</i></p>	<p>Reg. 375/96, Part 7 - Describes persons not responsible, and who is responsible and for how much, defining the polluter pays principle. Part 7 also lays out when a municipality may take on liability.</p> <p>Persons mostly not responsible are: receivers, receiver managers, and bankruptcy trustees.</p> <p>Liability is given out to whom exercised control over or impose requirements on any person regarding the manner of treatment, disposal or handling of a substance and the control or requirements, in whole or in part, which caused the site to become a contaminated site.</p>

Simply put, all owners would be responsible persons since they are the current owners of the site. They would be “jointly and separately” (Referring to Brownfield Regulation) liable for the costs of remediation of the site, if further remediation were required. As a result, any of the responsible persons might be held liable for the entire extent of contamination remaining at the site. In addition to the remediation liability, each person may become responsible for remediating the others’ parcels.

Polluter Pays Principle

This regulation follows CCME’s recommendations closely, adopting terms such as: *Joint and Several and Apportioned* to describe the *Liability Transfer to Cleanup Professional* that is the CSAP Society.

Joint and Several

Unknown

Apportioned

Unknown

Sites Inventory

[Site Registry](#) is mandated through [Section 43](#) of the Environmental Management Act (created in 1988). It holds all information of every investigated and remediated site in the province, including documentation of all affiliated milestones in the clean up process. Many of the listed sites are not contaminated or considered a brownfield site. Currently, there are over 14,000 sites within the registry, with an estimated 9000 brownfield sites. Search Activity, Report Creation, and Requests, are provided via the Online Registry for an associated fee.

The online registry currently presents information in five categories:

- 1) General – information on a site’s location, fee category, overall cleanup status, and current site profile.
- 2) Notations – information on legal events, such as the issuance of pollution abatement, pollution prevention, and remediation orders, Certificates of Compliance, and Approvals in Principle; and administrative notations (for example, on-site investigation and remediation reports).
- 3) Participants – information on people and organizations involved in a site and their roles.
- 4) Documents – information on the existence of reports concerning a site.
- 5) Land Use – information on the land use related to a site.

Goals of the Site Registry

Provide the necessary information for stakeholders to access and use to:

- minimize legal and site cleanup costs;
- minimize liability associated with sites;
- enhance business certainty by being able to predict costs quickly and easily; and
- ensure adequate protection of human health, the environment, property, and utilities.

Other key databases – affiliated with brownfields remediation and redevelopment in British Columbia.

- [Special Waste Information System](#) (SWIS)-maintains information related to the generation and transportation of hazardous waste.
- [Authorization Management System](#) (AMS) - [Document Search](#) - waste discharge permits, approvals, orders, and regulated sites under the Environmental Management Act.
- [Environmental Violations Database](#) (EVD) - violations under the Environmental Management Act related to pollution and contamination having been caused by specific companies.
- [Quarterly Compliance and Enforcement Reports](#) -headings orders, administrative sanctions, tickets and court convictions.

The current Site Registry is expected to be reworked in the next two years. This update will take the current registry and separate it into multiple separate databases. One for oil and gas related spills and hazards and another specifically for brownfields that are currently contaminated and or undergoing site remediation. This update will be used to satisfy a number of department’s needs, and to bring forth a more user-friendly and less cumbersome process for the public and private sector alike.

The current Site Registry is government mandated. It includes a list of all assessed properties to date, and whether these sites are contaminated or not. It also provides information on remediation status and history

of the site, bloated with uncontaminated non-brownfield sites. However, it is lacking information to determine developability, municipal environment, and local incentives. As well, it is only accessible by a fee.

Best Practices

Brownie Award for [Best Large-Scale Project](#)

This is the largest urban agriculture brownfield redevelopment in North America. SOLEfood Farm is a non-profit urban farm, helping to provide jobs, training and community inclusion to disadvantaged individuals from the downtown Eastside Vancouver. The use of safe farming practices, such as raised movable growing beds, allow for the safe production of food on vacant brownfield properties. SOLEfood Farm operations are designed as an interim use for the property, providing a triple bottom line solution for a former industrial or commercial property, while ongoing remediation continues. This project has prompted a more flexible system of potential uses and types of redevelopment, including interim uses before remediation is fully complete.

[Communications, Marketing & Public Engagement Brownie Award](#) - (2014)

Working with over 80 landowners, the Downtown Nanaimo Improvement Association (DNBIA) was successfully able to collaborate for the revitalization of a commercial strip through Nanaimo's downtown core. The BC Brownfield Renewal Program award of \$217,500, combined with the City of Nanaimo contributing \$50,000, all together paid for the environmental risk assessment and phase 1. The DNBIA's Planning Design and Development Committee proposed the 4 phase project to the DNBIA Board of Directors, which would begin the process of removing some of the barriers of development in the area. The project's main success came from their ability to collaborate with landowners, the DNBIA and the provincial government, and to address water contamination levels in the area.

Phase 1 of the Project was granted an Area-Wide Determination for the corridor. This determination recognizes that contamination is widespread, and relieves individual property owners of delineating its extent beyond their property. Phase 2 is still ongoing; the DNBIA has applied to the ministry for an Area Wide Drinking Water Exemption for 120 properties. Once the exemption is approved, provincial drinking water standards will no longer apply to soil or groundwater. These policies are expected to help landowners lower their costs of redevelopment and promote the revitalization of this undervalued section of downtown Nanaimo. This project, consisting of many property owners and stakeholders working together, highlights that a public driven initiative can promote the remediation process.

[Dockside Green, Victoria](#)

Dockside green was an instrumental project for brownfield remediation and redevelopment in British Columbia. This large abandoned industrial site, situated in the heart of Victoria's inner harbour, reached redevelopment due to the combined efforts of a public-private partnership. This municipally owned site was contracted out for the entire project. The developers were chosen for their dedication to achieving a LEED platinum community, following the triple bottom line approach. This first of its kind, fully designed, complete community was granted LEED platinum based on its best practices in creating a socially vibrant, ecologically restorative and economically sound neighbourhood. Innovative features of this development include; the onsite solar, wind production and a biomass energy plant, local water treatment plant, best practices passive design, use of ponds and streams for infiltration and retention ponds, used for irrigation and greywater applications such as for toilets and showers, and modern consumption metering of water and electricity. Integration with the surrounding environment was inherent and central in the planning of the site. Due to the economic recession of 2008, construction was halted in 2009. New life has been brought

back to the site with council's approval to rezone the property and with the Bosa development group acquiring the rights to complete the remainder of the project.

Region Advocacy Groups

[BC Chamber of Commerce](#)

This is British Columbia's largest and broadest business advocacy group, "representing more than 125 Chambers of Commerce and Boards of Trade, and 36,000 businesses of every size, sector and region of the province". The BC Chamber of Commerce considers itself the voice of business in British Columbia. A [recent policy update](#) highlighted a series of critiques of the BC remediation policies, in particular, the extremely rigorous remediation standards that are in place. They propose a more critical examination of the testing standards and address the greater effects of having these properties not in use and unchanged. The results of these factors have increased the costs of remediation tremendously.

[Business Council of British Columbia](#)

This is British Columbia's oldest, non-partisan organization, representing 250 of British Columbia's largest companies, including universities and major institutions. The Council has provided a meaningful organization that works to inform the business community and other stakeholders on all policy changes and general news. They have outlined a thorough review of the province's recent [Stage 10 Omnibus Amendments](#), and how this might affect owners or investors currently dealing with possible contaminated sites.

[Urban Development Institute \(UDI\)](#)

UDI is a significant non-profit development industry advocacy organization. Partnering with the community and government, they strive to achieve a vision of "balanced, well-planned and sustainable communities". They promote a variety of smart growth, sustainable planning techniques, as well as modern inventive solutions for our urban environment. The focus of the institute is towards "policy development, research, advocacy, education, professional development, and events". The organization recently published an update letter, providing comments and guidance on the [Stage 10 Omnibus Amendment](#).

[British Columbia Real Estate Association \(BCREA\)](#)

Representing all REALTORS® in British Columbia, BCREA focuses on provincial issues that impact real estate. Working with the province's 11 real estate boards and over 22,000 Realtors, the BCREA is committed to improving the Quality of Life in BC communities. BCREA "supports policies that help ensure economic vitality, provide housing opportunities, preserve the environment, protect property owners and build better communities with good schools and safe neighbourhoods".

[BC Economic Development Association \(BCEDA\)](#)

BCEDA is the leading professional association of economic development practitioners in the Province of BC. Consisting of over 430 members, the "BCEDA provides services that help member communities grow and expand new and existing businesses, attract new business investments, and work towards strategic infrastructure investment, land use planning, and community enhancement".

[Science Advisory Board for Contaminated Sites in British Columbia](#)

This group established as a non-profit foundation under the Societies Act of British Columbia and are affiliated with the University of Victoria. They work to develop "independent science-based tools of benefit to professionals working in contaminated sites management" in British Columbia. The SAB provides science-based strategic advice, review's of the quality and relevance of the scientific and technical

information being deployed to manage contaminated sites, advise emerging trends and opportunities and establish science-based assessment numerical values for the separate functioning of the licensed Environmental Professional (LEP) system in British Columbia, provided for by [CSAP](#).

[BC Institute of Agrologist \(BCIA\)](#)

Also known as BCIA, this organization ensures the competent and ethical practice of its members in support of the public interest. “BCIA has about 1250 practicing Agrologists, who are professionals in areas including agriculture, food production, environment and resource management”. They regularly promote the improvement of sustainable practices to support sustainable food production and resource management. As well, they broadly conduct work in the “classification, management, use, conservation, protection, restoration, reclamation or enhancement of aquatic or terrestrial ecosystems that are affected by, sustain, or have the potential to sustain the cultivation or production of aquatic or terrestrial plants or animals”.

[Association of the Chemical Profession of British Columbia \(ACPBC\)](#)

Another important scientific organization for all approved chemists in BC is the ACPBC. They provide information and education to allow approved professionals to use the title of Professional Chemist or Chemist. Chemists are charged with the testing, development, and methodology in assessing a variety of factors relating to environmental conditions, such as water, air and soil.

Conclusion

The overall structure and regulatory framework is complex but accessible for all stakeholders to take advantage of. The liability framework is clear, making redevelopment less risky for developers. This process has encouraged more brownfield redevelopment over time. Currently, there is no provincial incentive program to promote community centred brownfield remediation and redevelopment. The current structure puts pressure on local municipalities to entice private development applications for brownfield sites. New large scale brownfield redevelopments have slowed due to a lack of provincial incentive programs. The use and regulation of the CSAP Society and their Approved Professionals allow for a straightforward and relatively quick process. Nearly automatic approval of environmental risk assessments and Instrument approval, when recommended by an Approved Professional, is available for all sites classified as low to moderate contamination.

9.3 - Manitoba

Region Overview

Manitoba values the natural environment, having over [80 protected parks](#) within the province. In regards to provincial brownfield policies, Manitoba possess existing documents that acknowledge the need to remediate them. The core of these policies are found within the *Contaminated Sites Remediation Act*.

NRTEE's Influence

NRTEE shaped Manitoba's contaminated/impacted site policies, as much of them address the main issues outlined in the national strategy. These issues include liability and the unattractiveness of brownfields in the market. Manitoba integrates the polluter pays principle into their policies to minimize liability issues. The Community Places Program and the New Building program are examples of initiatives to address market unattractiveness. Manitoba's remediation structure follows a strongly similar procedure that the NRTEE suggested. In addition, municipal strategies and provincial policies outline the environmental, economic and social benefits of remediating brownfields much like how the NRTEE did.

Region Definition

Brownfield

Notably, there is no provincial definition of the term "brownfield" in Manitoba. However, municipalities such as [Brandon](#) define brownfields within their strategies. The definition of a brownfield in Brandon is "a property, the expansion, redevelopment, or reuse of which may be complicated by the presence or potential presence of a hazardous substance, pollutant, or contaminant".

Contaminated Site

Manitoba's [Contaminated Sites Remediation Act](#) (CSRA) provides definitions for contaminated sites and impacted sites. A contaminated site is one that contains hazardous material (which is defined by the Contaminated Sites Remediation Regulation), in which certain levels pose a threat to human health and the environment. An impacted site is deemed to be contaminated. Though it does not pose an immediate threat to human health and the environment, it is believed to be a threat to future conditions.

Region History

1996 - CSRA

The CSRA was established to address the issue of contaminated and impacted sites.

2007 - Provincial Investment

Manitoba announces to invest \$39 million into a plan to clean up provincial contaminated sites (according to the [Canadian brownfield network](#)).

2007 - Lack of Initiative

Despite this promise, there were no notable follow up actions regarding brownfield redevelopment, even though there are provincial policies in the [Contaminated Sites Remediation Act](#) that encourages brownfield

focus. Additionally, there was a lack of information on brownfield depositories or any documented existing plans for addressing remediation process issues.

Present- Continued Amendment of the CSRA

There are plans to amend the CSRA in the fall of 2018.

Provincial Policies

<p><u>Contaminated Sites Remediation Act (2018)</u></p>	<p>The <i>Contaminated Sites Remediation Act</i> establishes how Manitoba addresses brownfields. The province is a regulator under the <i>Contaminated Sites Remediation Act</i>, with an inventory of all reported sites. This act performs three main functions; encourages a system that identifies impacted sites and contaminated sites; gives the sites appropriate remediation in order to bring out the three benefits and reduce further damage to human and environmental health; and addresses liability issues by urging a fair process when allocating responsibilities for remediation, along with the “polluter pay” principle. As well, the act exempts liability of owners that have pre-contaminated sites and have taken the necessary steps to prevent further contamination.</p>
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Remediation Structure

Step 1 - Report Submission

The owner of a site must send a notice to The Director of Environmental Approvals as soon as the owner becomes aware that the site is contaminated (follows the criteria laid out by the Contaminated Sites Remediation Regulation). The owner is then responsible for conducting a site investigation and reporting to the director if no previous environmental assessment has been completed. Owners are required to meet the standards of a site investigation and report, which are outlined in the Environmental Site Assessments in Manitoba. The document provides guidelines for developers on how to complete a non-intrusive site investigation and recommendations for field investigation methods, among other guides.

Step 2 - Evaluation of report

The Director reviews the report, ensuring that the risk assessment within the report follows the necessary criteria.

Step 3 - Site designation

The Director designates the site as a contaminated site, impacted site or neither.

Step 4 - Remediation plan

The owner is responsible for conducting a remediation plan for their designated site. Manitoba has remediation guideline plans for impacted and contaminated sites, which are found in the *Submission of Remediation Plans for Impacted and Contaminated Sites* document. It states that remediation may not proceed without the approval of the Manitoba Sustainable Development Department. After site designation, responsible parties must submit a remediation plan within a certain period. For contaminated sites, a plan must be submitted within 30 days, for impacted sites it is 90 days. The remediation plan must be detailed and explain the methods, criteria, data of contaminants on the site, plans to transport any contaminants, and deadlines for each part of the plan, among other requirements. Within this document, responsible

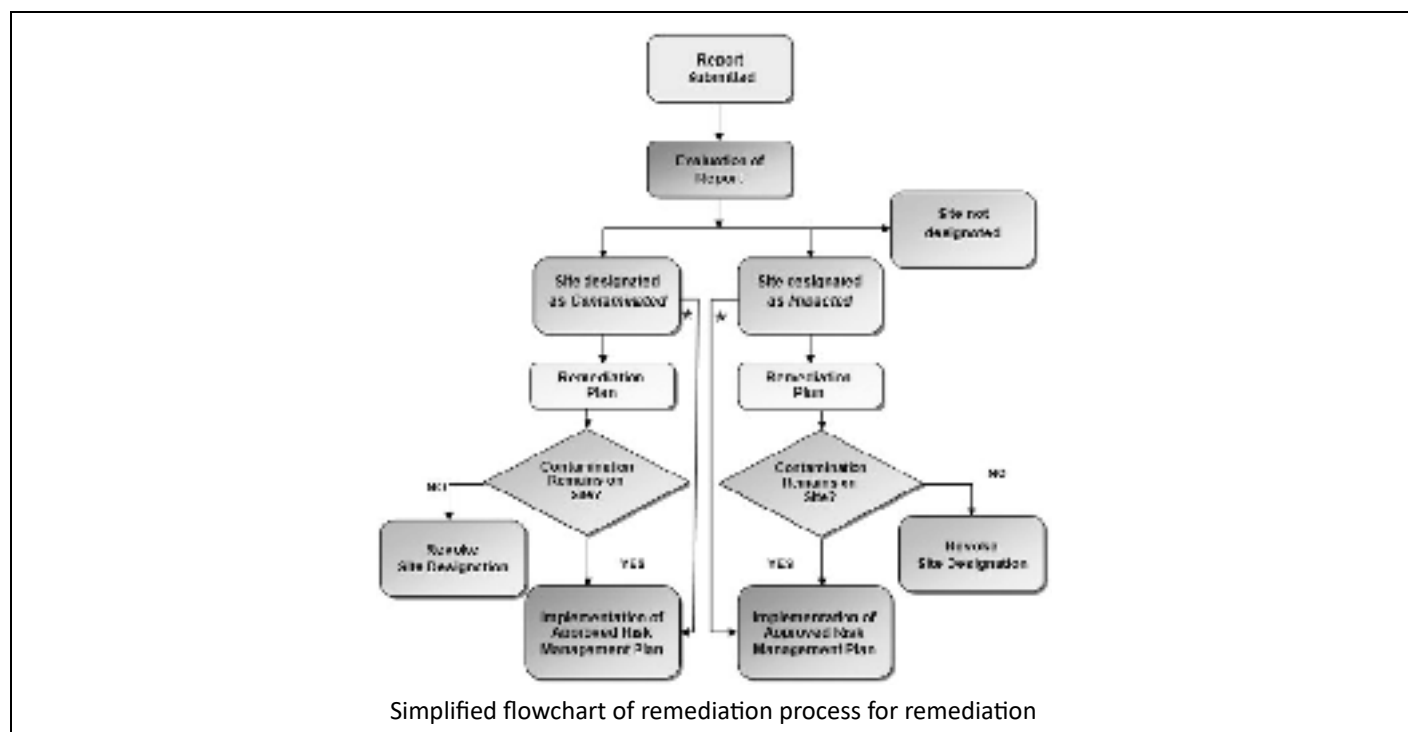
parties of the site should specify the necessary precautions for contaminants in the site that are categorized as hazardous waste. It is recommended by the province that site owners hire competent professionals to do such remediation.

Step 5 - Assessing the site

This step determines whether or not contaminants remain on the site through an environmental site assessment. The methodology in this step is similar to the procedure done in the site investigation. If there are no longer contaminants on the site, the designation is revoked. However, if contaminants remain, implementation of a risk management plan is required.

Step 6 - Risk management plan

The owner must complete a risk management plan and submit it to the Director for approval. This plan must include detailed methodology for the reduction of contaminants impacting the surrounding population.



Funding and Programs

Public Sector

<p><u>Manitoba Community Places Program (CPP)</u></p>	<p>One of the funding programs Manitoba has regarding brownfield remediation includes the Manitoba Community Places Program (CPP). The program offers funding and planning assistance for non-profit organizations who are building or inquiring about a site. They prioritize non-governmental organizations that are focusing on sites in critical need of remediation, such as impacted or contaminated sites. Grants are given up to 50% of the first \$15 000 of the project's costs. One third of the project costs are provided by grants (up to \$50 000, and if costs exceed \$15 000). However, the program is not eligible for public schools, universities, hospitals, nursing homes, businesses, commercial co-operatives or government agencies.</p>
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Liability

<i>Professional Liability</i>	It is recommended by Manitoba, under the Environmental Site Assessments (ESA), that professionals be responsible for conducting ESAs. Professionals can be held accountable after completion of an ESA through the Environmental Approvals Branch Contaminated/Impacted Sites File Review Process.
<i>Ownership Liability</i>	<p>The Director determines site owners as potentially responsible people (PRP) and will send a notice within 14 days to those PRP. Owners are allowed to appeal this decision or list other PRPs to the Director to apportion the liability.</p> <p>If there is a new owner of a previously contaminated site, the CSRA limits their liability.</p>
<i>Municipal Liability</i>	Municipalities in Manitoba can be held accountable for site assessment and remediation if they were responsible for contaminating the site. This is due to the polluter pays principle in the CSRA.

Polluter Pays Principle

Polluter pays principle is enshrined within the CSRA. The principle addresses the issue of liability within the remediation of brownfields, by ensuring any person who caused contamination on a site is held accountable.

Joint and Several

Within the CSRA, the principle of joint and several liability is applied. This occurs when accountable persons share a financial obligation for site remediation.

Apportioned

The Director is granted power to designate people as potentially responsible persons (PRP). A notice would be sent within 14 days to those PRP. Within that period, individuals can request a revocation of their designation or list any more PRP to the director. PRPs are given a certain period to make an agreement on splitting the cost of remediation amongst themselves. If no agreement can be met, the director will assign a mediator to help them reach a compromise.

There are different rules of liability for impacted sites. After an owner receives a notice that their site has been designated, they have the option to make an application to claim who is responsible for remediation. They will have 90 days to complete this application. If the period ends without a submission, it is assumed that the owner is responsible for the remediation according to the CSRA.

Liability Transfer to Cleanup Professional

Persons in charge of remediation are held accountable if they have contributed further contamination. The CSRA limits the liability for a new owner of a site if they have not contributed any form of contamination.

Sites Inventory

MANITOBA DESIGNATED CONTAMINATED SITES LIST			
File Number	Site Name	City/Town/RM	Address
19309	CYPRESS AGRI SERVICES - CS	CARBERRY	411 1ST AVE
19727	MEILLEUR'S ESSO FISHER BRANCH - CS	FISHER BRANCH	18 TACHE STREET
20114	DOMTAR INC - TRANSCONA - CS	WINNIPEG	GUNN RD AT DAY ST
20164	NORTH-WEST SMELTING - CS	WINNIPEG	2185 LOGAN AVE
20861	CENTRA GAS MANITOBA INC - CS	WINNIPEG	35 SUTHERLAND AVE

Manitoba's contaminated depository

Manitoba has several different lists. The [first list](#) contains sites that are designated as contaminated under the CSRA. The [second list](#) is sites that are designated as impacted sites under the CSRA. Additionally, Manitoba has a [depository](#) where all the sites are listed, regardless of contamination or remediation needs. Each of these lists contain the file number and specific address of each site.

Best Practices

Funding Programs

One best demonstrated practice in Manitoba includes their funding programs, as the unattractiveness of brownfields in the market is a major barrier for remediating brownfields. These programs include the Manitoba Community Places Program and the Manitoba Hydro New Building Program.

Environmental Approvals Branch (EAB) Contaminated/Impacted Sites File Review Process

The province uses the [Environmental Approvals Branch Contaminated/Impacted Sites File Review Process](#) to handle inadequate evaluated sites being neglected. The EAB is currently reviewing records of sites with ESAs to ensure it still meets current standards. The EAB can redesignate a site if its remediation does not meet modern requirements. If the file of a site does not meet standards, or there is missing information, the EAB will investigate the owner or the last known consultant for that file.

Updating CSRA

An ongoing active development includes the province amending the CSRA in the fall to ensure that its policies meet today's standards.

Region Advocacy Groups

Available programs in Manitoba generally target developers and NGOs desiring technical and financial assistance for remediating brownfields. There are no notable advocacy groups involved in Manitoba.

Conclusion

Overall, Manitoba fares adequately in areas such as remediation structure, funding, liability rules, regulations and having a depository for brownfields. They have outlined all rules and regulations and have made the information publicly available. Many of these policies are heavily influenced by NRTEE's brownfield strategy as strong similarities are shared. A best practice from the province includes their initiatives of ensure ESAs meet modern standards through the EAB. Other practices include the Manitoba Community Places Program, which is a funding program to incentivize developers to invest in brownfields. These programs follow NRTEE's recommendation of tackling the issue of market desirability for brownfields. However, there seems to be a lack of community interest for brownfield remediation. The absence of any notable advocacy groups indicates this. In addition, despite the abundance of information, there is an absence of the literal term 'brownfield' in the CSRA, which may lead to interpretation issues. It is recommended that the province establish a provincial requirement to educate and engage the public about the importance of brownfield remediation. This requirement could act as an overarching policy to all municipalities in Manitoba. As well, it is recommended to include the term 'brownfield' in the CSRA and other relevant documents. This will help maintain consistency with other provincial brownfield policies and reduce the risk of misinterpretation.

9.4 - New Brunswick

Region Overview

New Brunswick is one of the eastern Maritime provinces. As such, they are part of the Atlantic Partnership in the Risk-Based Corrective Action (RBCA) Implementation group. This joint group strives to develop a risk-based regulatory approach to the management of contaminated sites and brownfields. This group is important for New Brunswick due to their growing amount of petroleum affected contaminated sites.

NRTEE's Influence on Region

According to our review, there are no considerable NRTEE influences in the region of New Brunswick.

Region Definition

Brownfield

The [Atlantic Partnership](#) In RBCA Implementation (PIRI) identifies brownfields as an abandoned, idle or underutilized commercial or industrial property with known or suspected historical contamination, but where there is active potential for redevelopment.

Contaminated Site

The Maritime provinces in Canada have a joint group called the [Atlantic Risk Based Corrective Action](#) (RBCA). In the Atlantic RBCA definition page, contaminated sites described as “ a property or collection of properties where the concentration of specific chemicals in air, soil, or groundwater exceed levels considered acceptable by the Department of Environment and Local Government (DELG).

History

1999 - Guideline for the Management of Contaminated Sites

New Brunswick created a document to guide the management of contaminated sites. This provides information on how to deal with contaminated sites and the creation of a remediation plan.

2002 - Site Professional Training Sessions

Site professionals in New Brunswick were put into training sessions for contaminated site remediation.

2003 - Guideline for the Management of Contaminated Sites version 2

New Brunswick updated their management of contaminated sites document, originally created in 1999.

2007 - New Brunswick releases Brownfield Liability Working Group final report

New Brunswick released a brownfield liability working group report. The working group was formed to bring together stakeholders that share a common interest in redeveloping brownfields.

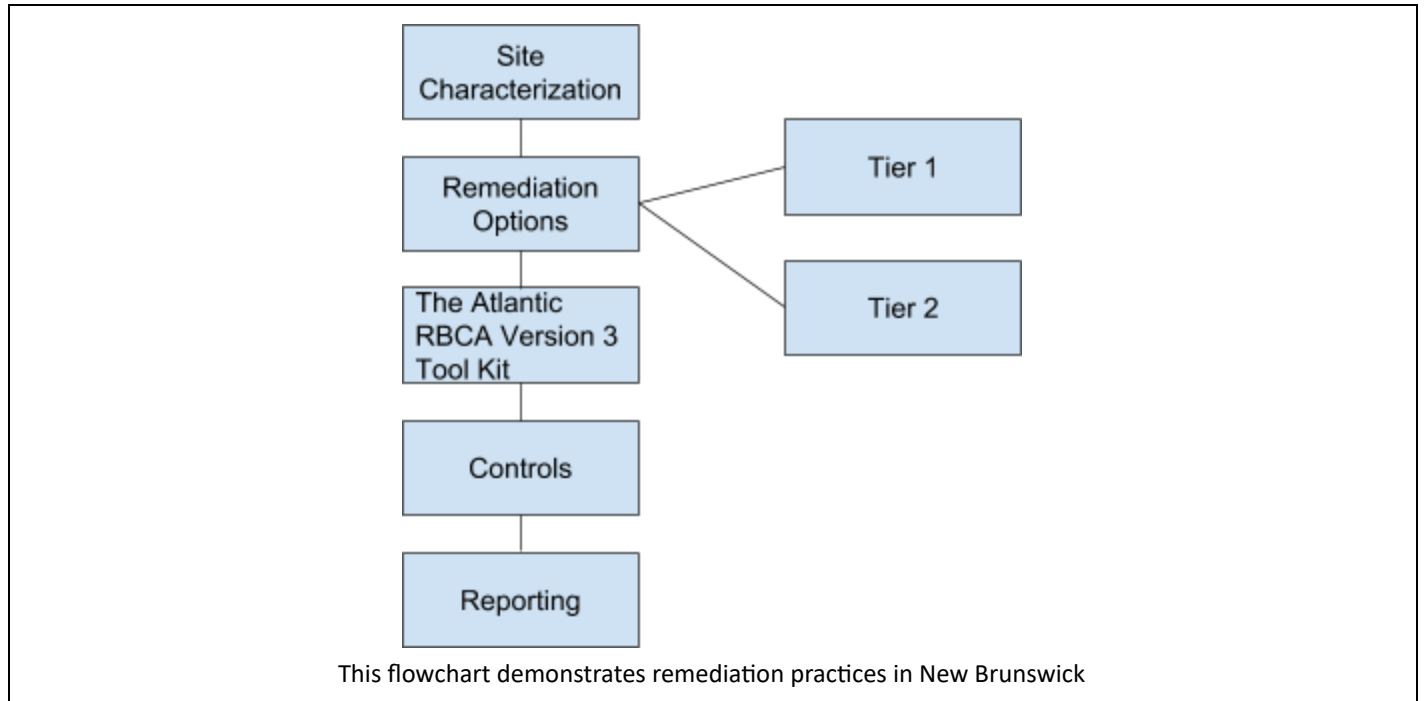
2008 - Comprehensive Plan for Brownfield Redevelopment

New Brunswick released a comprehensive plan for brownfield development. This document was created to improve New Brunswick's contaminated site registry, develop incentives for redevelopment, and improve government education on brownfields and outreach initiatives.

Provincial Policies

There are no provincial policies that affect contaminated sites in New Brunswick. However, certain guidelines exist that deal with contamination. New Brunswick also follows contaminated sites remediation guidelines.

Remediation Structure



Step 1: Site Characterization

In the first step of the remediation structure, the site is analyzed for risks and dangers of contamination. This process includes identifying the type of chemical on the site, the exposure type and land use type.

Step 2: Remediation Options

Depending on what is found in Step 1, Step 2 will categorize the contaminated sites into two tiers. These tiers depend on how severe the contamination of the site is.

Step 3: The Atlantic RBCA Version 3 Tool Kit

After identifying if the site is either a Tier 1 or Tier 2, action plans are created and put into place to remediate the contaminated site. Siting professionals are required to enter the information of the contaminated site into the Atlantic RBCA Version 3 Tool Kit. This will determine if the site is up to environmental standards.

Step 4: Controls

In this step, protocols must be made to control the site from being contaminated again. In some cases, both institutional and engineered controls must be used.

Step 5: Reporting

In the last step of this remediation structure, reports are made and the site is monitored. This step ensures that the remediation process works and the contaminated site is cleaned up properly.

Funding

In the document “A comprehensive plan for brownfield redevelopment in New Brunswick”, created by the Department of Environment, it is stated that the province will develop a new legislation to close remediation files. Currently, the province does not have funds to do this, however they are trying to conduct a workable approach for brownfields redevelopment.

Liability

<i>Professional Liability</i>	No Available Information
<i>Ownership Liability</i>	The Minister of Environment identifies ownership liability using the principle of “polluter pays”. This brings certainty to the process of identifying a responsible party, as it clearly identifies the types of potentially responsible parties.
<i>Provincial Liability</i>	No Available Information

Polluter Pays Principle

New Brunswick follows the polluter pays principle.

Strict, Joint and Several

No Available Information

Apportioned

No Available Information

Liability Transfer

No Available Information

Brownfield Inventory

The EcoLog Environmental Risk Information Services in New Brunswick provides information from the provincial database and federal database. The inventory includes contaminated sites, Canadian mines, oil gas wells, and storage tanks.

Best Practices

There are no considerable actions or policies in New Brunswick.

Advocacy Groups

[*Atlantic Piri*](#)

The Atlantic PIRI is a multi-stakeholder group that oversees the Atlantic RBCA process in Canada's Maritime provinces. The Atlantic PIRI was established as a forum for experts and developers from the four provinces to work together to remediate contaminated sites. Stakeholders, such as the members from the petroleum industry, provide support for the Atlantic PIRI. The goal is to ensure that contaminated sites are remediated, safe to use and cost effective to redevelop.

Conclusion

New Brunswick is severely lacking when it comes to dealing with brownfield remediation. There are no current provincial policies that cover contaminated sites or brownfields. Furthermore, the province does not have the funds to conduct a workable approach to brownfield redevelopment. Due to the lack of funding and lack of policy in this province, there are no considerable actions or policies that stand out in this province.

9.5 - Newfoundland and Labrador

Region Overview

Newfoundland and Labrador is one of the four provinces that are involved in the Atlantic Partnership in the RBCA Implementation (PIRI) group. This joint group strives to develop a risk-based regulatory approach to the management of contaminated sites and brownfields. The Atlantic Risk-Based Corrective Action (RBCA) is important for Newfoundland and Labrador, due to the increasing numbers of contaminated sites affected by petroleum.

NRTEE's Influence on Region

According to our review, there are no considerable NRTEE influences in the region of Newfoundland and Labrador.

Region Definition

Brownfield

In the [Atlantic Partnership In RBCA Implementation](#) (PIRI), brownfields are identified as “an abandoned, idle or underutilized commercial or industrial property with known or suspected historical contamination, but where there is active potential for redevelopment.”

Contaminated Site

In the [Atlantic RBCA definition page](#), a contaminated site is known as “ a property or collection of properties where the concentration of specific chemicals in air, soil, or groundwater exceed levels considered acceptable by the Department of Environment and Local Government (DELG).”

History

1997 - Department Policy Document

Newfoundland and Labrador released a policy document, *Cleanup of Contaminated Sites Criteria*, which outlines the criteria for sites to be considered contaminated.

2004 - Site Professional Training Sessions

Site professionals were trained for contaminated sites and brownfield redevelopment.

2005 - Guidance Document for Management of Impacted Sites

This document outlines the different tiers of contaminated sites, the action needed to address a contaminated site and the clean process.

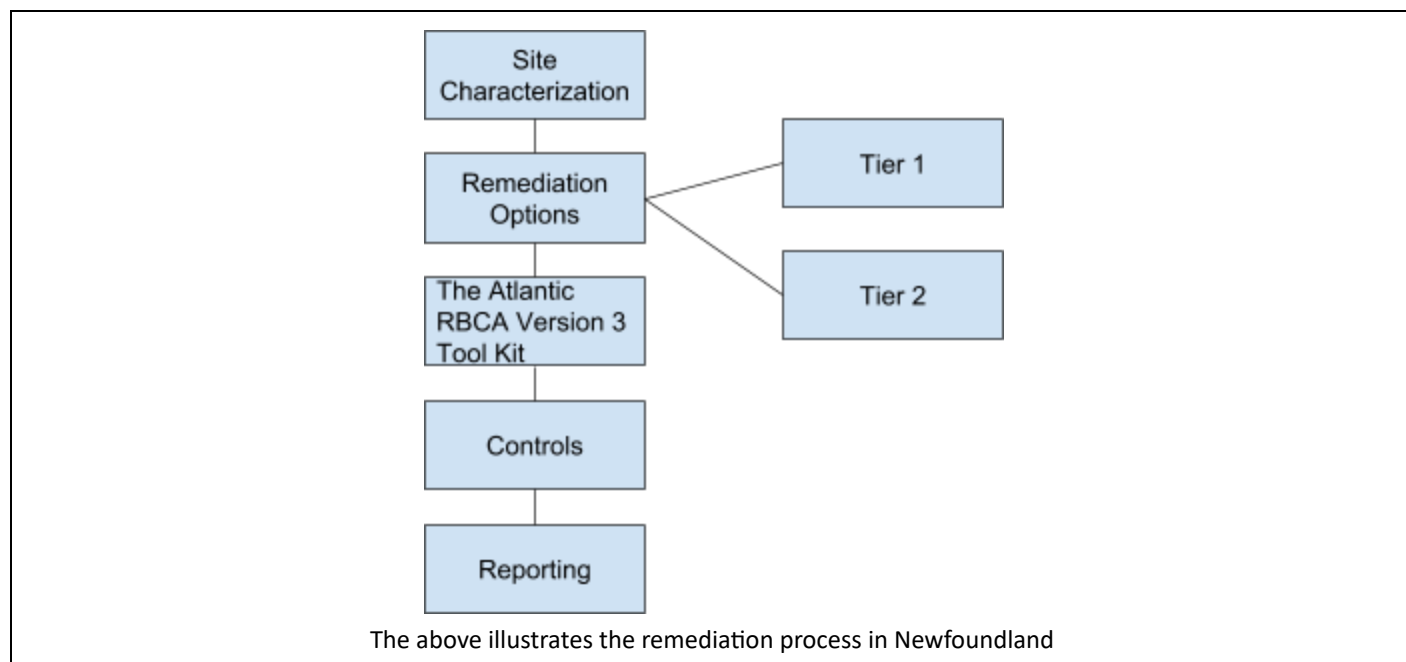
2014 - Document for the Management of Impacted Sites Version 2

A newer version of the document for the management of impacted sites was released. This document is an updated version that addresses current concerns.

Provincial Policies

<i>Environmental Protection Act</i>	Newfoundland and Labrador's Environmental Protection Act is a provincial legislation that protects and encourages sustainable environmental development. Within the act, actions that must be taken when dealing with a contaminated site are laid out.
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Remediation Structure



Step 1: Initial Actions

The first step determines if the spill or impact can cause risk to humans or ecological health. If so, emergency responses are called to clean up the impacted site.

Step 2: Environmental Site Assessment and Risk Assessment

The person responsible for the impacted site must employ a site professional and complete an ESA that meets the Minimum Site Assessment.

Step 3: Remedial Action Planning and Implementation

Remediation or risk management is required to mitigate any impacts that exceed the selected guidelines. After implementation, the site professional must monitor and determine if the site is clear of contamination.

Step 4: Regulatory Closure

Once the site professional is satisfied that the impacts have been addressed and unacceptable risks are not expected, the person responsible or the site professional shall submit a closure report to Service Newfoundland that the site meets remedial objectives.

Step 5: Decommissioning of Monitoring Wells

The last step is to monitor the wells and remedial infrastructure. Monitoring wells are specifically designed

and used for aquifer assessment purposes including, groundwater flow and water quality observations.

Funding

Newfoundland and Labrador is aware that contaminated sites and brownfields are a problem. However, they do not have the funds to address it. The Department of Environment agrees that management of contaminated sites should be improved; however this is challenged by the lack of available resources.

Liability

<i>Professional Liability</i>	No Available Information
<i>Ownership Liability</i>	There are no disclosed costs for sites that are in need of remediation. With costs not being disclosed or being kept unknown, there is no sufficient way of determining the cost of remediating these sites.
<i>Provincial Liability</i>	No Available Information

Polluter Pays Principle

No Available Information.

Strict, Joint and Several

No Available Information.

Apportioned

No Available Information.

Liability Transfer

No Available Information.

Brownfield Inventory

There is no central inventory for contaminated sites owned by the province or private owners.

Best Practices

There are no considerable actions or policies in Newfoundland and Labrador.

Advocacy Groups

[Atlantic Piri](#)

The Atlantic PIRI is a multi-stakeholder group that oversees the Atlantic RBCA process in Canada's Maritime provinces. The Atlantic PIRI was established as a forum for experts and developers from the four provinces to work together to remediate contaminated sites. Stakeholders, such as the members from the petroleum

industry, provide support for the Atlantic PIRI. The goal is to ensure that contaminated sites are remediated, safe to use and cost effective to redevelop.

Conclusion

Newfoundland and Labrador have made attempts to tackle the problem of contaminated sites. They recently created an updated version of a document regarding managing contaminated sites. Furthermore, the Newfoundland and Labrador Environmental Act encourages brownfield remediation. This provides steps for developers to use to redevelop on these sites. Although this is a good attempt to bring awareness to the problem, they currently do not have the funds to support the remediation of these sites.

9.6 - Northwest Territories

Region Overview

Most of the contaminated sites in the North originate from past mining, petroleum and military activities, when the environmental impacts of these uses were not adequately understood. The North focuses primarily on cleanup for environmental and health purposes, instead of development. This is because the population cannot support the economic factor of it.

NRTEE's Influence on Region

In the sense that the now defunct NRTEE influenced brownfields policy at the Canadian federal level of government, the NRTEE's report has influenced brownfields policy in Northwest Territories. However, there is little evidence that the report's recommendations have specifically influenced brownfield policies for the Government of Northwest Territories and its municipalities.

Region Definition

Brownfield

According to the city of Yellowknife's [Consolidation of Development Incentive Program By-Law NO. 4534](#), Brownfields are defined as real property, the expansion, redevelopment, or reuse of which may be complicated by the presence or potential presence of a hazardous substance, pollutant, or contaminant.

Contaminated Site

The [NWT Environmental Guideline for Contaminated Site Remediation](#) defines Contaminated Site as: areas of land, water, groundwater, or sediments that have levels of contaminants exceeding the remediation criteria. Contaminant sources can include on-site burial of wastes, small, frequent drips and spills, stockpiling and storage of materials, major spills, and releases during fires. Contamination may also be due to illegal dumping of contaminated soil. Contaminated sites may have short or long term consequences to the health of people or the quality of the environment.

History

2007 - Management Tools Introduced

Treasury Board Secretariat (TBS) introduced the Policy on Investment Planning, Assets and Acquired Services and the Policy on the Management of Projects. Management of major projects shifted from evaluation based on dollar value to emphasis on risk. The new Policy Suite also incorporates two new standards: the Standard for Organizational Project Management Capacity and the Standard for Project Complexity and Risk. These are tools used on a project-by-project basis, for the purpose of determining if the Department in question has the necessary structures in place to manage projects.

2010-2011 - Update In the Management Process

A major shift in the Treasury Board Policy Suite relating to the management of contaminated sites and major projects was introduced. The focus of dollar value in the management process of major projects was being evaluated and reconsidered.

2011 - Signing of Devolution Agreement-In-Principle

The Devolution Agreement-In-Principle (AIP) was signed. A key step in the devolution process is preparing to meet the Agreement-In-Principle commitments specified within Chapter 8: Waste Sites. The Chapter is based on the principle that the Federal Government is responsible for sites created pre-devolution, while the Government of Northwest Territories and Aboriginal organizations are responsible for sites created post-devolution.

2012 - Dollar Value Focus on Projects Retired

The Treasury Board Policies for the management of major projects used to focus on dollar value per project, meaning that if a project costs more than a certain amount to implement, it would have needed to go to the Treasury Board for approval. Policies related to these steps were phased out.

Provincial Policies

<u>Contaminated Sites Management Policy</u> (2002)	To guide its contaminated sites remediation and prevention efforts, the department created the Contaminated Sites Management Policy in 2002. The implementation of this policy contributes to a safer, healthier, sustainable environment for First Nations, Inuit, and Northerners by striving to preserve and enhance the ecological integrity of the Northern environment.
<u>Environmental Protection Act</u> (2017)	When site contamination is suspected, the provisions and requirements under the <i>Environmental Protection Act (EPA)</i> shall be followed to confirm the extent of contamination, develop an approved remediation plan, implement the plan, and ensure that any liability associated with the contamination is recorded. The <i>Environmental Protection Act</i> enables the Government of the Northwest Territories to take every necessary measure in ensuring the preservation, protection or enhancement of the environment. Under section 2.2 of the EPA, the Minister of Environment and Natural Resources has the authority to develop, coordinate, and administer guidelines regarding contaminated site remediations.

Remediation Structure

The in depth version of the remediation process can be found in the [NWT Guideline for Contaminated Site Remediation](#).

Reporting of Contamination

When site contamination is known or suspected, departments shall contact ENR (Environment and Natural Resources) to report the situation. All departments shall follow the Directives provided by ENR regarding emergency cleanup measures. In addition, Indian and Northern Affairs Canada must be consulted in cases where contaminated surface or groundwater is encountered

Phase I Environmental Site Assessment

The Phase I assessment is completed to determine the likelihood of site contamination and to identify environmental receptors that have been or could be impacted by the contamination. The Phase I ESA must be completed by a qualified environmental consulting firm and a report must be produced for the

responsible department that provides information on the environmental status of the site with recommendations for action or additional studies. A copy of the Phase I report must be forwarded to Environment and Natural Resources (ENR) if a problem is identified. Sites where it is obvious on visual inspection that contamination exists may skip a Phase I ESA and proceed directly to a Phase II ESA.

Phase II Environmental Site Assessment

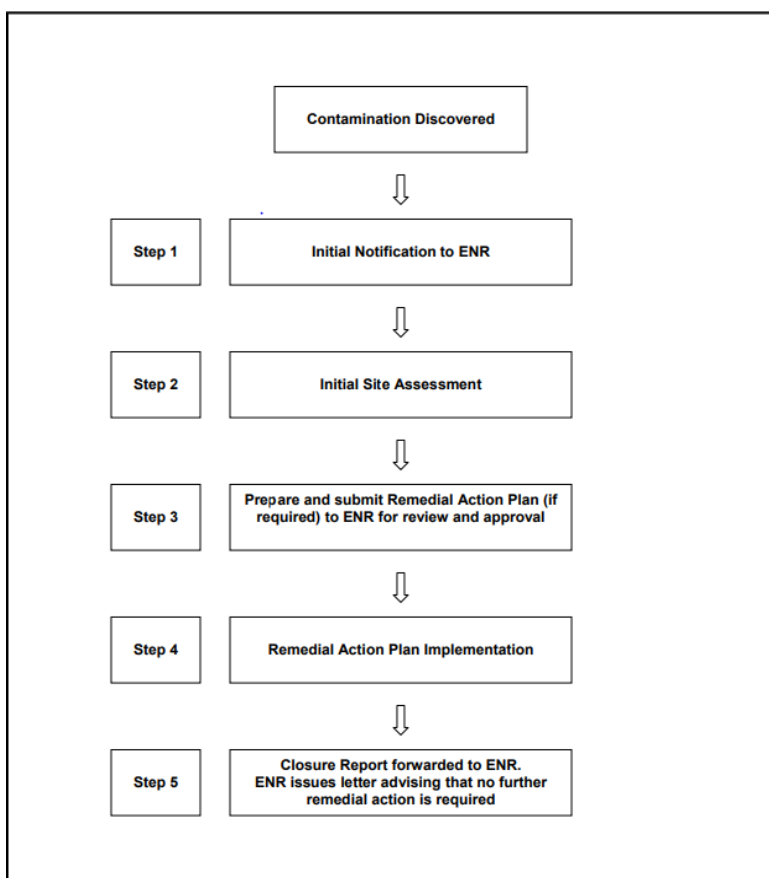
A Phase II ESA must be undertaken to provide preliminary information on the nature and extent of the site contamination, depending on the results of the Phase I ESA. The Phase II ESA information can be used to estimate remediation costs, only under the circumstances where site contamination is not serious and only if the responsible department applies in writing to the ENR stating that sufficient information is available to begin remediation, which then the ENR must approve. A qualified person will provide or verify the remediation cost estimates.

Phase III Environmental Site Assessment

A Phase III ESA will be required when site contamination proves to be extensive or when additional studies are needed to develop a remediation plan.

Remediation Work

Remediation work will be based on a remedial plan approved by the ENR. When the remediation work is completed, ENR must be provided with a final report for review. If ENR agrees that the site meets applicable cleanup standards, a Letter of Completion will be provided to the site owner.



Simplified structure of the management process

Funding

Public Sector

<p><u>Northern Contaminated Sites Program (NCSP)</u></p>	<p>The majority of funding for the Northern Contaminated Sites Program comes from the Federal Contaminated Site Action Plan (FCSAP). FCSAP covers 100% of the costs associated with the largest and most complex sites in the federal inventory, which includes sites such as Colomac and Giant Mine. The NCSP participates actively in all aspects of the FCSAP program, including program oversight and the development of relevant procedures and tools.</p>
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Private Sector

<p><u>Business Incentive Strategy</u></p>	<p>The City of Yellowknife offers a variety of development incentives to businesses who are considering relocating to the city, including tax breaks for developments that increase residential intensification. There are also incentives for brownfield remediation and development, heritage preservation, integrated parking structures and LEED development. The City's Business Incentive Strategy includes an incentive for brownfield redevelopments that provide 100%-80%-60%-40%-20% declining property tax abatement over five years. An additional full year of tax abatement may be granted if LEED incentive criteria are met.</p>
<p><u>Support for Entrepreneurs and Economic Development (SEED)</u></p>	<p>There are small grants available through the territorial governments, such as the Entrepreneurs and Economic Development program, a corporation that supports local business start-ups and expansions. Two more commonly accessed funds are administered by the Akaitcho Business Development Corporation and the Metis Dene Development Fund. Both organizations fund both aboriginal and non-aboriginal businesses.</p>

Liability

<p><i>Professional Liability</i></p>	<p>No Available Information</p>
<p><i>Ownership Liability</i></p>	<p>In the Northwest Territories, if the owner of the site has reason to believe that the site is potentially contaminated, he shall immediately report the incident and ensure an appropriate evaluation of the potential adverse effects and risks is completed. Then the required action will be determined under the EPA or the <u>NWT Environmental Guideline for Contaminated Site Remediation</u>.</p>
<p><i>Municipal Liability</i></p>	<p>Most, if not all, contaminated sites within the North are mines that were long abandoned. These sites remain liable with the Federal Government. Indigenous and Northern Affairs Canada (AANDC) has the largest liability of all federal departments. These liabilities include some of the largest and most complex contaminated sites in the country. For example, the Faro Mine in south-central Yukon, and the Giant Mine in Yellowknife City, together represent liabilities of approximately \$1.2 billion.</p>

Polluter Pays Principle

The territory follows the polluter pays principle set out by the federal government.

Strict, Joint and Several

No Available Information

Apportioned

No Available Information

Liability Transfer

Most of the contaminated sites are abandoned mines. Ownership often falls under the government.

Brownfield Inventory

The NCSP claims that it maintains a comprehensive, regularly updated, electronic inventory of contaminated sites in the North. However, it does not direct to where it can be found. The only inventory that can be publicly accessed is the [NWT Contaminated Sites](#), which states that the information may be inaccurate.

CLASS	2006-07	2007-08	2008-09	2009-10	2010-11
1	49	50	45	47	54
2	22	26	33	32	55
3	0	0	7	7	5
TOTAL	71	76	85	86	114

Sites based on NCS Classifications, 2004-2011

Best Practices

[Contaminated Sites Management Policy](#)

A remediation plan for Giant Mine was completed following extensive site characterization and community consultations. The plan entered the environmental assessment process in 2013, however no updates have been made since. The Contaminated Sites Management Policy pushed this process, as the mine posed as a great concern to environmental and health concerns.

Advocacy Groups

No Available Information

Conclusion

A large amount of the regions contaminated sites are mines. Cleanups of mines were performed out of concern for human health and environmental risk, however the population was not large enough to fully support it. Information regarding contaminated sites cleanup process and brownfield development can be found online, but it is very scattered and hard to collect. As well, some require additional effort such as contacting the Environmental Department. Brownfield practices are not ideal in the North, however it is also not failing. Cleanups have been performed but redevelopment is simply not feasible as land is not highly contended with the low population.

9.7 - Nova Scotia

Region Overview

Nova Scotia is one of the eastern Maritime provinces, consisting of peninsulas and offshore islands. It is part of the Atlantic Partnership in Atlantic Risk Based Corrective Action (RBCA) implementation group. This joint group strives to develop a risk-based regulatory approach to the management of contaminated sites and brownfields. This group is important for Nova Scotia, due to its growing numbers of petroleum affected contaminated sites.

NRTEE's Influence on Region

According to our review, there are no considerable NRTEE influences in the region of Nova Scotia

Region Definition

Brownfield

In the Atlantic Partnership in RBCA Implementation (PIRI), brownfields are identified as an abandoned, idle or underutilized commercial or industrial property with known or suspected historical contamination, but where there is active potential for redevelopment.

Contaminated Site

The Maritime provinces in Canada have a joint group called the Atlantic Risk Based Corrective Action. In the Atlantic RBCA definition page, contaminated sites are known as “ a property or collection of properties where the concentration of specific chemicals in air, soil, or groundwater exceed levels considered acceptable by the Department of Environment and Local Government (DELG).

History

1996 - Management of Contaminated Sites Guidelines

Nova Scotia released a document that provides guidelines for the management of contaminated sites. This includes determining if a site is contaminated, how severe the contamination is and how to clean it up.

2003 - Site Professional Training Sessions

A training session for site professionals was held. This training provided professionals with information on the problems of contaminated sites in Nova Scotia.

2013 - Contaminated Sites Regulations (Atlantic RBCA)

A document was published for contaminated sites regulations. These regulations are cited from the Atlantic Risk Based Action.

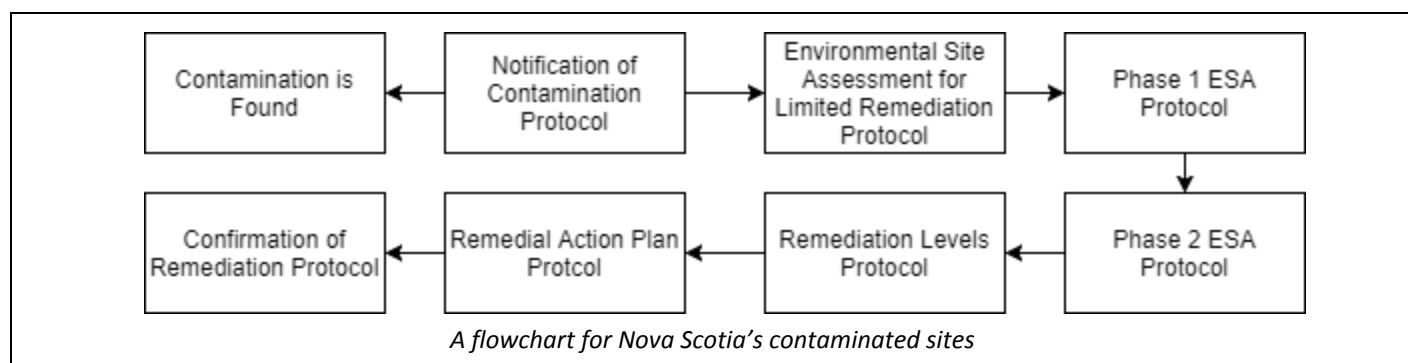
Provincial Policies

[Nova Scotia Environmental Act](#)

Nova Scotia's Environmental Act is a provincial legislation which promotes enhancement of the environment, maintaining long term protection and sustainability and preventing pollution and waste. Part 8 of the act describes how they deal with contaminated sites. Many guides include how to deal with orphan contaminated sites, identifying if a site is considered contaminated, or remedial action plans and regulations, among others.

Remediation Structure

Nova Scotia's remediation structure is located in the Nova Scotia Environmental Act. The act states that this [remediation structure](#) is the standard for the province, as it remains open for public access.



Step 1: Notification of Contamination Protocol

The first step of the remediation structure is to characterize the type of contamination on the site. This includes providing information on land use of the site, soil type, groundwater use and potential contamination concerns.

Step 2: Environmental Site Assessment for Limited Remediation Protocol

The environmental site assessment for limited remediation protocol is for the intended use of site professionals, as it prescribes requirements for sites with limited remediation.

Step 3: Phase 1 Environmental Assessment Protocol

The first phase of the environmental assessment protocol is used to collect information on the property's present and historical land use. This identifies evidence on actual or potentially contaminated soils or water.

Step 4: Phase 2 Environmental Site Assessment Protocol

The second phase of the environmental site assessment protocol is used to conduct intrusive site investigations. By collecting data from these site investigations, site professionals are able to create a remediation action plan to clean up the impacted site. Site professionals are also required to submit information found about this site to the government within the time frame stated in the contaminated sites regulation.

Step 5: Remediation Levels Protocol

The remediation levels protocol is used to identify the appropriate numerical remediation levels.

Step 6: Remedial Action Plan Protocol

The remedial action plan identifies the remediation objectives for a site. This protocol details the requirements needed in a remedial action plan in order to develop and implement an action plan.

Step 7: Confirmation of Remediation Protocol

The final step is to confirm the remediation protocol. A confirmation report must indicate that all the requirements in the remedial action plan must be met.

Funding

The Nova Scotia Contaminated Sites Report states that the [funding](#) allocated for contaminated sites in 1995 was \$750,000. As years went on, the funding decreased drastically to \$125,000 in 2005. As of the report in 2009, no funds have been allocated to contaminated sites on an as-needed basis in Nova Scotia.

Liability

Professional Liability	Regulations under the Environmental Act of Nova Scotia state that site professionals are required to be covered by insurance. This liability insurance must meet the requirement stated in the environmental act in order to become a representative for someone's site.
Ownership Liability	No Available Information
Provincial Liability	No Available Information

Polluter Pays Principle

No Available Information

Strict, Joint and Several

No Available Information

Apportioned

No Available Information

Liability Transfer

No Available Information

Brownfield Inventory

It was recommended, by the Nova Scotia Department of the Environment in 2000, that the province should compile and maintain a provincial inventory or registry for contaminated sites. As of now, no such regulations have been enacted and there is no current inventory or registry.

Best Practices

There are no considerable actions or policies highlighted in Nova Scotia.

Advocacy Groups

[Atlantic Piri](#)

The Atlantic PIRI is a multi-stakeholder group that oversees the Atlantic RBCA process in Canada's Maritime provinces. The Atlantic PIRI was established as a forum for experts and developers from the four provinces to work together to remediate contaminated sites. Stakeholders, such as the members from the petroleum industry, provide support for the Atlantic PIRI. The goal is to ensure that contaminated sites are remediated, safe to use and cost effective to redevelop.

Conclusion

The province of Nova Scotia is aware that brownfields are a problem. They have created their own remediation structure based off the Atlantic PIRI as well as the environmental act that encourages people to redevelop brownfields. Although Nova Scotia has the Environmental Act and remediation structure for contaminated sites, they do not have the funds to pursue the problem with brownfields. There have been recommendations by the Department of Environment to compile a provincial registry, however it was never created due to this lack of funding.

9.8 - Nunavut

Region Overview

Nunavut's small population, correspondingly with its small urban centres, means that brownfield revitalization is not a prevalent concern within the province. Hydrocarbon and petroleum extraction are the dominant industries, which offer significant risk for contamination. Active and abandoned mining sites represent a significant portion of Nunavut's contaminated land and waterways. Nevertheless, urban centres such as Iqaluit do have their share of brownfield redevelopment concerns. Contaminated sites across the territory represent a hazard to human health, with subsequent cleanup and sometimes redevelopment opportunities.

NRTEE's Influence

In the sense that the now defunct NRTEE influenced brownfields policy at the Canadian federal level of government, the NRTEE's report has influenced general brownfields policy in Nunavut. However, there is little evidence that the report's recommendations have specifically and directly influenced brownfield policies for the Government of Nunavut and in the Territory's municipalities.

Region Definition

Nunavut does not officially define "brownfield," but it does define contaminated site as: "areas of land, surface water, groundwater, or sediments that have levels of contaminants exceeding the remediation criteria. Contaminant sources can include on-site burial of wastes, small or frequent drips and spills, stockpiling and storage of materials, major spills, and releases during fires. Contamination may also be caused by illegal dumping of contaminated soil. Contaminated sites may have short or long term consequences to the health and safety of people and the quality of the environment".

Region History

1999 - Separation of Nunavut

Nunavut became a separate territory.

2010 - Environmental Protection Act

The Environmental Protection Act came into force.

Previous legislation is referred to as the Revised Statutes of the Northwest Territories, 1988 and the Annual Volumes of the Statutes of the Northwest Territories (for statutes passed before April 1, 1999) and the Statutes of Nunavut (for statutes passed on or after April 1, 1999).

Provincial Policies

<u>Nunavut Lands and Resources Devolution Negotiation Protocol (2008, ongoing)</u>	<p>This is an ongoing transference of federal responsibilities to Nunavut, similar to Yukon’s DTA. It was designed to give Nunavut greater control over its own affairs, including land use and control of resources.</p>
<u>Environmental Protection Act (2013)</u>	<p>This act enshrines law into all environmental management policies in Nunavut, including those related to contaminated sites.</p>
<u>Environmental Guideline for the Management of Contaminated Sites (Ministry of the Environment, Nunavut)</u>	<p>Most contaminated sites in Nunavut are the result of petroleum hydrocarbon spills (i.e. gasoline, jet fuel, diesel, bunker fuel). For this reason, the Environmental Guideline for the Management of Contaminated Sites focuses on the management of petroleum hydrocarbon (PHC) contaminated soil, water and sediment. Where sites are contaminated with other substances or chemicals, the principles and methods described in this Guideline may still be applied.</p>
<u>City of Iqaluit General Plan By-law No.703, 2010 (Consolidated 2015)</u>	<p>This proposes the establishment of a Municipal Reserve Exception 1 – MR (1) Zone to identify former waste disposal sites in the Zoning By-law, as well as a number of policies and procedures specific to contaminated sites in Iqaluit. Tellingly, the first item in the list is to encourage the federal and territorial governments to take a more active role.</p>

Remediation Structure

Contaminated Site Management Process

The management and remediation of a contaminated site consists of a phased approach, starting with the discovery of contamination. A well-considered and comprehensive work plan will enable the Responsible Party to make informed decisions, which will result in the safe, effective and cost-efficient remediation of the site.

Initial Notification

When a person discovers the presence of contamination, or has reason to believe a site is contaminated, they should immediately notify the Department of Environment and the owner of the facility or property. Once this notification has occurred, EPD will assess the significance of the reported contamination by having an Inspector conduct a site visit or by reviewing other relevant information (e.g. site assessment report).

Site Assessment

There are normally up to three phases to an Environmental Site Assessment (ESA).

- Phase 1 - The initial actions undertaken to determine whether a property is, or is not, contaminated.
- Phase II - Builds upon results of the Phase 1 assessment by sampling soil and water, and sometimes air, on a site to characterize and delineate the concentration of contaminants, and compare those levels to approved remediation criteria.

- Phase III - The most detailed level of assessment. It is intended to address any outstanding issues and information gaps following a Phase II assessment.

Once the environmental condition of the site has been thoroughly assessed, the qualified person may develop a site-specific Remedial Action Plan.

Land Use

Remediation criteria is presented in the context of four types of land use: agricultural/wildland, residential/parkland, commercial and industrial. Identifying the appropriate land use helps to assess the extent of human and ecological exposure to contaminants in the soil, and is essential for preparing a Remedial Action Plan.

Application of Remediation Criteria at Contaminated Sites

Three basic approaches can be utilized for the development of site-specific remediation criteria and objectives:

Tier 1 - Direct adoption of remediation criteria (Criteria-Based Approach).

Tier 2 - Adoption of remediation criteria with modifications based on site-specific information (Modified-Criteria Approach).

Tier 3 - Use of site-specific risk assessment (Risk-Based Approach).

Preparation of a Remedial Action Plan

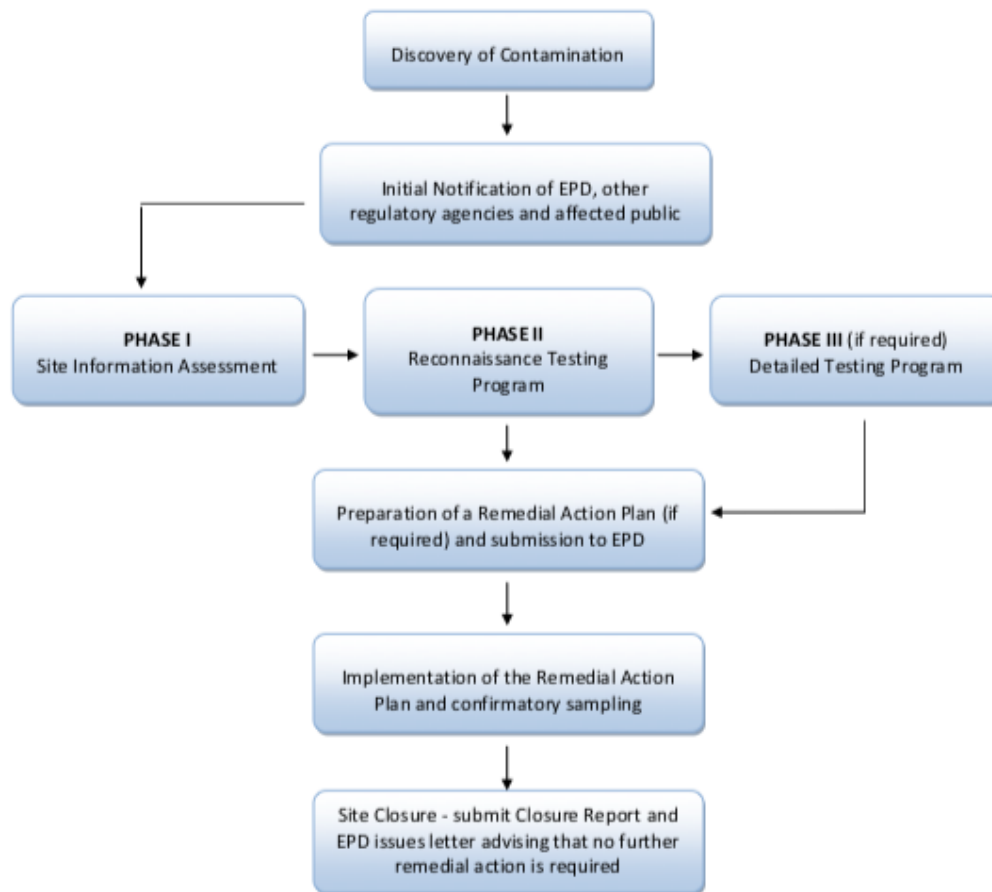
At this point the responsible party will review the results of the site assessment and determine whether to remediate the site to the generic Tier 1 criteria or develop site-specific remediation criteria using either a modified-criteria or risk-based approach. Once remediation criteria is determined, the responsible party must prepare a Remedial Action Plan for the site. Where practical, the plan should favour permanent remediation solutions, opposed to solutions that require long-term management and monitoring. The Remedial Action Plan should be submitted to EPD, and other regulatory agencies as appropriate, for review prior to the plan being implemented in order to confirm all regulatory requirements are met.

Implementation of a Remedial Action Plan

Once all necessary approvals have been obtained, the responsible party shall implement the Remedial Action Plan in a timely manner, and submit monitoring reports to EPD on the predetermined schedule. The responsible party must advise EPD if any activities deviate from the approved Remedial Action Plan. In these cases, EPD will assess the significance of any deviations and advise accordingly. The completion of remediation activities should be validated by comparing the results of confirmatory samples to the selected remediation criteria. Where the remediation criteria fail to be achieved, the responsible party would be required to re-evaluate the Plan and implement alternative remediation activities.

Site Closure

When the responsible party is satisfied that all the requirements of the Remedial Action Plan have been met, a closure report should be prepared and forwarded to EPD. In the case of unconditional closure, EPD will conclude the management process upon receipt and acceptance of the closure report by issuing a letter advising the responsible party that no further remedial action is required. In the case of conditional closure, the letter would state that the management process remains on-going and confirm what land-use controls and restrictions and long-term monitoring is required.



Nunavut's remediation process for contaminated sites.

Funding and Programs

Public Sector

<p><u>Community Transportation Initiatives, Government of Nunavut</u></p>	<p>Eligible applicants: Nunavut Municipalities. Maximum amount: \$300,000</p>
<p><u>Nunavut Economic Foundations Fund, Government of Nunavut</u></p>	<p>This fund helps build community economies and supports regional economic development in key sectors of the Nunavut economy. It provides contributions for physical community assets and feasibility studies. It is used for Nunavut societies, not-for-profits and municipalities. The fund amount is project dependent.</p>
<p><u>The Plateau</u></p>	<p>The City of Iqaluit wishes to increase the supply of land for development in the City and to apply sustainable development practices to this new development. The process is ongoing, and no funding details are available. Developers should contact the <u>Planning Department</u> if they wish to verify opportunities.</p>

Private Sector

No apparent private sector funding programs exist within the territory.

Liability

<i>Professional Liability</i>	Developers are responsible for practicing due diligence when purchasing a site and when determining environmental risks and liabilities. They also are responsible for undertaking environmental assessments and remediation as necessary.
<i>Ownership Liability</i>	No Available Information
<i>Municipal Liability</i>	According to the Environmental Guideline for Contaminated Site Remediation, the Department of Environment is the key territorial agency concerning the management of contaminated sites on Commissioner's Land.

Polluter Pays Principle

Nunavut follows the polluter pays principle set out by the federal government.

Strict, Joint and Several

No Available Information

Apportioned

No Available Information

Liability Transfer

No Available Information

Sites Inventory

There are few listings of brownfields or contaminated sites on either the government of Nunavut's or the City of Iqaluit's websites, and no apparent publicly accessible inventories. Nevertheless, contaminated sites and the need for brownfields remediation of some type do exist. It is recommended that the Government of Nunavut provide a list of some kind, potentially in conjunction with the City of Iqaluit.

Best Practices

Given Nunavut's novelty, relatively small population, and subsequently small brownfields redevelopment sector, it is difficult to get a sense of best practices for this Territory. Nevertheless, the abundance of contaminated and/or abandoned mine sites suggest that best practices in Nunavut involve a great deal of public consultation, particularly when human health is at risk. Reconciliation with Inuit and First Nations Communities is also an emerging factor in planning and development in Nunavut

Regional Advocacy Groups

According to the Government of Nunavut's [Environmental Guideline for the Management of Contaminated Sites](#), community governments play a significant role in the management of local contaminated sites.

However, very few online literature exists detailing community meetings. One such example includes the 2016 Draft Nunavut Land Use Plan - Summaries of Community Meetings on the Draft Nunavut Land Use Plan. It will be necessary to contact governments of Nunavut and Iqaluit for more details about community meetings.

Conclusion

The lack of a publicly accessible brownfields inventory, coupled with the absence of an official regional definition of brownfields, makes it difficult to fully assess brownfield revitalization opportunities in Nunavut. Comparatively, contaminated sites are defined in legislation, and exist in abundance throughout Nunavut, thanks to previous and current resource extraction. Nunavut's small population and subsequently small and infrequent urban centres mean that development is at a smaller scale compared to Canada's more established regions. That being said, Iqaluit does have a need for remediation of contaminated sites within its municipal boundaries. Developers seeking opportunities for brownfield revitalization will have to create a working relationship with territorial and municipal staff.

9.9 - Ontario

Region Overview

Ontario is located east of central Canada, between the provinces of Quebec, and Manitoba. The province is bordered by the Hudson's Bay to the north and the Great Lakes to the south. Ontario has the largest population among the provinces/territories in Canada, along with the highest GDP. Ontario is also home to tens of thousands of brownfield sites, many of which are within/around cities and other urban areas. Although there are plenty of these sites that have been remediated and redeveloped, there are still many more which have yet to be touched. Because of this, the province has made a significant effort in recent years to remediate these sites and to ensure that the process of remediation is easier and more efficient for all parties.

NRTEE's Influence

The NRTEE report recommended that all levels of government implement a "quick start agenda", to help fast-track the many steps involved in the remediation process. Ontario has made efforts to implement a faster process in many aspects of brownfield redevelopment but there are still procedures that slow down this process. The report also recommends that performance standards be out in place to help monitor the progress of strategies. Ontario has done this with the regards to on-site contaminants with the provision of Contamination Standards. Additionally, the province has required that every municipality create a site registry that would list the location of the sites, the number of sites and other such information. This registry would aid in determining the progress made on brownfield sites. However, not all registries have the same categories, and some municipalities may lack information that would show how many sites exist. The report recommends changes be made to legislation pertaining to liability. Although Ontario has not completely managed to cover all aspects of liability, the province has created some legislation that reduces the liability risks that those looking to redevelop brownfields sites may face. While the province has made efforts to coordinate the participation between the public and private sectors, and the community and municipality, there is not much coordination of the provincial and federal governments with regards to remediation. In addition, the report recommends that the public should be informed of the necessary information pertaining to brownfields. In Ontario, many professionals are now aware of brownfields and the implications that come with their redevelopment/remediation but much of the general public is still not informed on what they are or how to reach to them.

Region Definition

Brownfield

According to the [Ministry of Municipal Affairs](#), a brownfield site is defined as properties that are vacant or underutilized places where past industrial or commercial activities may have left contamination (chemical pollution) behind. This can include gas stations, factories or any land that has been used for commercial or industrial purposes.

Contaminated Site

[Contaminated sites](#) are defined as “Areas of land or water that are affected by contamination, such as hazardous waste or pollution in concentrations that pose health and safety risks, and exceed specific levels under environmental standards”

History

1950's - Beginnings of the Ontario Water Resources Act

The earlier version of what is now the Ontario Water Resources Act was created.

1970's - Environmental Pollution

Ontarians were free to pollute their immediate environment as long as they complied with common law obligations.

1971 - The EPA combines the Air Pollution Act of 1967 and the Waste Management Act of 1970

1971 - The EPA prohibits the discharge of a contaminant into the natural environment

1980's - Penalties for offenders were fairly small

1980's - Recognition that remedial standards and policies for cleaning contaminated sites needed to be established

1985 - New EPA Regulation

Determined that any pollutant spill must be cleaned up immediately, and that financial compensation for whoever was injured or harmed by the spill be given.

1989 - Guidelines for the Decommissioning and Cleanup of Sites in Ontario

The first set of standards concerning contaminated sites was created.

1993 - Interim Guideline for the Assessment and Management of Petroleum Contaminated Sites in Ontario

Standards were replaced by a new set of guidelines, focusing on hydrocarbons.

1996 - Updated Contaminant List

The original list of contaminants, which was established in 1989, grew from 20 in 1989 to 120 in 1996.

2001 - The Brownfields Statute Law Amendment Act is created

2001 - Financial Incentives

Brownfields' amendments changed municipal legislation to allow the reduction of property taxes for sites undergoing the remediation process. Municipalities were also authorized to provide loans or grants to assist with the remediation and redevelopment process.

2003 - The NRTEE's National Brownfield Redevelopment Strategy is released

2004 - The Canadian Brownfield Network is founded

2004 - Regulations for the record of site conditions are finalized

2005 - The record of site condition is regulatory regime is fully implemented

2009 - Brownfields Legislation Amendment

Qualified persons were prohibited from having any direct or indirect interest linked to an RSC property. RSC standards also changed to reflect more scientific information.

2011 - RSC regulations contained requirements for both Phase 1 and Phase 2 environmental site assessments.

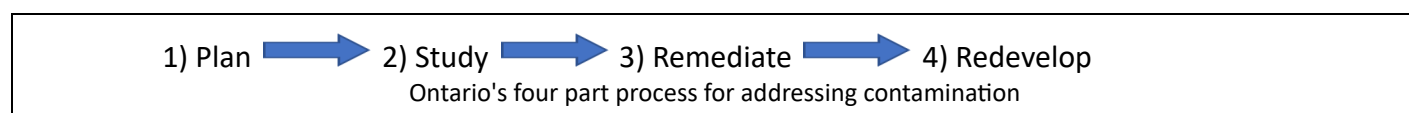
Provincial Policies

<u>Adams Mine Lake Act</u>	This act prohibits the dumping of any “waste” into the Adam Mines Lake in Ontario or any other lake in Ontario. This act seeks to ensure that all of Ontario’s Lakes are free from contamination produced after 2004.
<u>Brownfield Statute Law Amendment Act</u>	This act is generally meant to encourage the revitalization of contaminated lands and to make other amendment relating to environmental issues.
<u>Consolidated Hearings Act</u>	This act is meant to speed up the hearing process, as well as clarify it by giving written notice of a hearing to the Hearings Registrar. The notice must specify the nature of the hearing.
<u>Capital Investment Plan Act</u>	This act states that the government, public bodies, municipalities and the private sector will work together to make significant investments in the province’s infrastructure.
<u>Clean Water Act</u>	This act is meant to protect Ontario’s natural drinking water sources, as it determines how to protect these sources from contamination.
<u>Climate Change Mitigation and Low-carbon Economy Act</u>	This act seeks to reduce the number of greenhouse gases being produced to meet the acceptable levels for climate change efforts and to assist with transitioning the citizens of Ontario to a low carbon economy. This act also enables Ontario to coordinate and collaborate its actions with other jurisdictions in order to ensure an effective regulatory scheme
<u>Environmental Assessment Act</u>	This act seeks to ensure the wise management, conservation, and protection of the environment in Ontario.
<u>Environmental Bill of Rights</u>	The purpose of this act is to provide environmental sustainability, to protect the rights of the environment and to restore the integrity of the environment. It also gives the citizens of Ontario the right to participate in decision making with regards to environmental matters.
<u>Environmental Protection Act</u>	This act was created for the protection and conservation of the natural environment.
<u>Great Lakes Protection Act</u>	The purpose of this act is to protect the ecological health of the Great Lakes and St. Lawrence River Basin as well as to provide individuals with the opportunity to become involved in the protection and restoration of the Great Lakes and St. Lawrence River Basin.

<u>Lake Simcoe Protection Act</u>	This act was created to restore and protect the ecological health of the Lake Simcoe watershed.
<u>Ministry of the Environment Act</u>	This act sets out the guidelines for the Minister of the Environment in regards to assuming control of the Ministry of the Environment.
<u>Municipal Water and Sewage Transfer Act</u>	This act sets out sewage and water usage, to ensure contaminants from sewage do not end up in the local supply of drinking water.
<u>Nutrient Management Act</u>	This act governs the management of materials containing nutrients, in efforts to enhance the environment and promote a sustainable future for rural developments and agricultural operations.
<u>Ontario Water Resources Act</u>	This act protects, conserves and manages Ontario's waters in order to promote a more sustainable future and which will benefit Ontario's social, environmental and economic well-being.
<u>Pesticides Act</u>	This act determines what is a pesticide, the role of the minister to intervene with pesticides being used and ensures that the pesticides being used do not have a negative impact on the environment overall.
<u>Places to Grow Act</u>	This act regulates where growth should take place and designates certain geographic regions as growth plan areas. The Places to Grow Act highlights and promotes brownfield sites as places of growth.
<u>Planning Act</u>	The Planning Act governs all planning within the province of Ontario pertaining to matters such as sustainability, the environment and the economic well-being of the province.
<u>Record of site condition Regulation (O. Reg. 153/04)</u>	This sets out regulations regarding site conditions.

Remediation Structure

According to the [Green Municipal Fund \(GMF\)](#), the structure for brownfield redevelopment in the province of Ontario is (1) Plan, (2) Study, (3) Remediate and (4) Redevelop. This process is the same when it comes to funding and other incentive programs. For Ontario, the brownfield remediation structure is overseen by the Ministry of the Environment and Climate Change.



Step 1 - Plan

1.1 Community-wide brownfield planning activities

- This step includes planning activities that are related to the redevelopment of brownfields

1.2 Standardized and streamlined approval process for brownfield redevelopment proposals

- This is done to ensure that little to no impact occurs on the project's bottom line

1.3 Interim land use planning

- This should be used if the redevelopment cannot begin immediately. However, the interim use should not have an effect on human health, the environment or the future developments desirability.

1.4 Identification and inventory of brownfield sites

- Municipalities use this to determine the progress of brownfield redevelopment in the community.

Step 2 - Study

2.1 Sustainable remediation and redevelopment

- This step considers the big picture with regards to decision making for redevelopment and remediation projects.

2.2 Environmental site assessments

- An assessment of the concentration, location, and types of contaminants on the site is undergone. The environmental site assessment is broken down into 3 phases.
 - o Phase 1 Environmental Site Assessment
 - o Phase 2 Environmental Site Assessment
 - o Detailed or Delineation Environmental Site Assessment

2.3 Risk assessment

- A risk assessment can be performed if the assessment results rule that the project is not feasible.

2.4 Remedial objective determination

- This step determines the sites final remediation objectives.

2.5 Remediation or risk management feasibility studies/optimization

- This deals with the evaluation of risk management or remediation options.

2.6 Remedial/risk management action planning

- Final options are selected based on the review of the remediation and risk management options. A remedial action plan is developed. The plan determines how the options will be implemented.

Step 3 - Remediate

3.1 Building Demolition and soil and waste recycling

- This step deals with the clearance of the land. It also seeks to recycle or reuse the materials that are already on the site, if possible, such as soil.

3.2 Remediation/risk management implementation

- At this level, the risk management or site remediation actions, or both, are carried out in accordance with the remediation action plan.

3.3 Confirmation of compliance or contaminated site closure

- At this step, the site has met the risk management or remediation objectives which will provide the site with an official verification.
- This step also provides the community and stakeholders with the results of the risk management and the remediation actions.

Step 4 - Redevelop

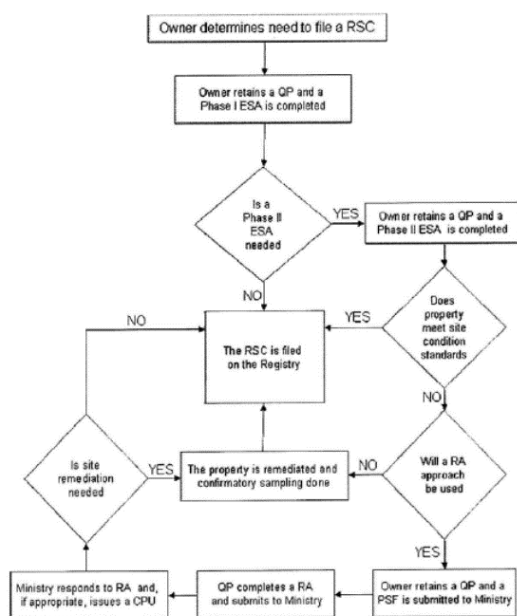
4.1 Ongoing risk management and monitoring

- This can include the constant monitoring of the site and/or a re-evaluation of the risk management studies.

4.2 Design and construction of infrastructure

- This step deals with the redevelopment activities involved with the project.

In regards to assessment and cleanup, even though the Ontario government maintains the right to order the cleanup of a property, the Ministry of Environment and Climate Change (MOECC) favors a voluntary approach wherein a property owner is only required to remediate their property when they opt to. The MOECC began the process of amending its brownfield law and policy in 2001 (Brownfields Statute Law Amendment Act, 2001), with the Ontario Regulation 153/04 (Record of Site Condition Regulation) officially coming into force on October 1, 2004. The main goals were to establish clearer requirements for site assessments, provide some protection from environmental liability, and improve environmental site condition standards (De Sousa 2017). These amendments also made the RSC process more predictable and transparent, obliged property owners to file an RSC when land use changed from industrial or commercial to residential or parkland uses, and outlined the requirements for a Qualified Person (QP). In brief, someone interested in acquiring, remediating, and/or redeveloping a brownfield in Ontario must first ascertain risk by conducting a Phase I environmental site assessment (ESA) that involves a review of historical records and possible interviews and site visits to determine past use and potential risks from chemical processes. If the Phase I ESA identifies concerns, then a Phase II ESA involving physical sampling is carried out to confirm the location, type, and degree of contamination, to recommend cleanup alternatives, and, in Ontario, to outline the methods used to manage contamination to meet standards (i.e., typically referred to as a Phase III in other locales). Standards used in Ontario to assess whether a site is contaminated and to guide cleanup are based on generic levels, wherein they reflect exposure risks considered safe for different land uses (residential/park standards are higher than industrial/commercial ones), or site-specific (risk-based) wherein they reflect risk exposure associated with a particular project at a particular location. Once work is completed and the RSC is submitted to the MOECC, the Ministry issues a notice and has 30 business days to check the record for administrative and technical errors. Then, it notifies the property owner of one of the following outcomes: the record of site condition has been filed; the record of site condition has not been completed in accordance with the regulations; or the intent of the Ministry to conduct a review before the record of site condition can be filed. Only with risk-based cleanup is the QP required to submit a pre-submission form containing information from Phase I and II results and a public communications plan to the MOECC for approval before conducting and submitting an RSC.



Overview of Ontario's [RSC Process](#)

The legislation was amended on July 1, 2011 to require more comprehensive information regarding cleanup and land use and to update standards for almost 120 contaminants. Risk assessment procedures were also amended to give property owners a choice between using a so-called Tier 2 streamlined risk assessment, which allows for simple modifications to the models used by the Ministry to produce their generic standards, or a Tier 3 full risk assessment, which provides the widest range of options for developing standards (MOECC, 2015). The Ministry may also issue a Certificate of Property Use requiring the owner to take specified actions to prevent, eliminate or improve any adverse effect identified in the risk assessment, or refrain from using the property in certain ways (De Sousa 2018).

Funding and Programs

Public Sector

<p><i>Brownfields Financial Tax Incentive Program (BFTIP)</i></p>	<p>Provides provincial education property tax assistance to match municipal property tax assistance for the cleanup of eligible brownfield properties. Under the program, the province can cancel all or a portion of the education property taxes for up to three years. The BFTIP is a 3-part application process comprising of 24 steps. The application has 4 requirements comprising of an Application Form, a Proposed Municipal Tax Assistance By-law, a Community Improvement Plan (CIP), and Program Information and Document Requirements.</p>
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Private Sector

<p><i>Regional Development Charge Exemptions</i></p>	<p>There are development charge exemptions for all developments within the Region of Waterloo. The value of the RDC is based on the total eligible costs of remediation, plus 20% for indirect costs.</p>
<p><i>Joint Tax-Increment Grant</i></p>	<p>Unique to to Kitchener and Waterloo this grant is provided to developers of brownfield sites. The payment is equal to the increase in annual property taxes after a brownfield is remediated, redeveloped and reassessed. It is provided annually until the remediation costs are recovered or to a max of 10 payments.</p>

Liability

<p><i>Professional Liability</i></p>	<p>Section 5.4 of the Environmental Protection Act (EPA) lays out “Professional Liability Insurance Requirements” and states that all qualified persons must maintain professional liability insurance. Section 13.0 covers “Limitations on Environmental Liability”.</p>
<p><i>Ownership Liability</i></p>	<p>Section 15.1 of the EPA seeks to reduce the amount of potential liability that property owners face, once having taken the necessary steps to file a proper and complete record of site conditions. Section 15.2 seeks to reduce the potential liability that municipalities might face. Section 7 of Ontario Regulation 153/04 sets out the requirements for professional liability insurance associated with qualified persons. Section 13.1 of the EPA sets out the “Effect on Owner Liability from Filing an RSC”. This</p>

	states that if a record of site condition is filed in the Environmental Site Registry, then certain types of orders cannot be made against the owner of a property and certain other persons. However, this does have certain exceptions.
<i>Municipal Liability</i>	The “ Guide: site assessment, cleanup of brownfields, filing of records of site condition ” lays out that liability is covered both for the developer and for the municipality when redeveloping a brownfield site. The liability protections set out in the guide are meant to reduce, if not ensure, that there are no liability barriers that would restrict or discourage potential landowners from developing brownfield sites.

Polluter Pays Principle

Liability in Ontario follows the polluter pays principle where the owner of the land is subject liable to it.

Joint and Several

Unclear

Apportioned

Unclear

Liability Transfer to Cleanup Professional

Often municipalities take upon contaminated sites where the previous owner cannot be found. The site is then under their discretion and they must remediate the site. However, in cases where the site is too expensive to remediate, the site sits idle.

Sites Inventory

Each municipality in the province is responsible for a list of brownfield sites within their boundaries. There is also an interactive map of all the [federally owned brownfields](#) across the country, which in turn includes federally owned brownfields in the province of Ontario. Additionally, there is a [Record of Site Conditions \(RSC's\) page](#), which lists all the site conditions in Ontario that can be broken down into/by several categories. These categories include filing date, filing owner, ministry district, the site PIN, street name, postal code, municipality, Qualified Person's first and/or last name, and the Record of Site Condition (RSC) number. The online version of the site registry can be accessed by anyone for free at any time. There are two registries separated into records of site conditions that were filed between October 1, 2004, and June 30, 2011, and another for sites filed since July 1st, 2011. Although there is a full record of site conditions, it does not state whether the site has been decontaminated or what the current contaminant levels are for the site.

Best Practices

[ZIBI site, Ottawa](#)

The project is not yet completed, however they have poised themselves as being the most sustainable community in the world. The site has a focus on sustainability socially, economically and environmentally, both during and after development. The site is mostly on an island; to prevent further contaminants from entering the water, dust shields were put up to stop dust and other materials. An on-site quarry was made which reduced the need for large trucks to bring certain materials (reuse of current clean materials on the site). In addition, all the buildings are LEED certified. ZIBI is being highlighted for its engagement with the

community - the First Nations community in particular - and its collaboration with multiple government structures (Provincial: Ontario and Quebec, Municipal: Ottawa and Gatineau).

[Port Credit West - Mississauga](#)

This project is a 72 acre stretch of land, to be remediated and developed into a mixed-use development that will house about 5,000 residents. The site was once home to the Imperial Oil sands. The project plans to build a complete community with six towers and a proposed a maximum height of 26 stories. The site will also have a community centre and an LRT line near it, to better connect the community to the GO Train services about a kilometer away. Port Credit West is highlighted for its amount and variety of partnerships which ultimately led to the completion of the site's master plan. These varied partners included those who specialize in urban design, financing, consultation, landscaping, architecture, environmental strategies and others.

Region Advocacy Groups

Ontario Real Estate Association (OREA)

The Ontario Real Estate Association is a non-government organization that promotes higher real estate standards for both realtors and consumers and the building of stronger communities within the province of Ontario. In 2003, the association convinced the province of Ontario to permit the use of Tax Incremental Financing to aid in the redevelopment of brownfields; this would reduce development costs. OREA has become an advocate for the remediation of brownfield sites and encourages the provision of incentives to reduce the cost of developing on these sites.

Ontario Environment Industry Association (ONEIA)

Based out of Toronto, this Non-Profit represents the interest of those in the environment industry. Pulling from the tens of thousands of people who fall under ONEIA, the organization is able to provide expertise in a variety of environmental and environmentally related fields and disciplines. The association offers advanced solutions to problems, such as air and water pollution, site remediation, management of contaminated materials and soil waste. Because of this large umbrella, ONEIA is able to bring world-class, cost-effective, environmental technologies to the province of Ontario.

Ontario Association of Architects (OAA)

The OAA provides a variety of information to aid in the physical construction of buildings on a site after it has been remediated. Additionally, they have published a variety of articles that deal with sustainable development and urban regeneration. The OAA also provides information that deals with regulations and government procedures that affect the physical construction of a building.

Conclusion

Ontario has many policies and acts that help to guide the remediation process and determine where certain contaminants can be stored or moved. This protects lands that are and are not contaminated from being or further being contaminated. Many of these policies have been in effect since before the creation of the NRTEE and have since been updated to further reflect the goals of the NRTEE report.

The province also has numerous incentive and funding programs for both the municipality and developers. In some regions there are programs that can only be obtained within that specific region. This has the

potential to bring development into certain areas, which are otherwise lacking new development, and those who are working on the remediation process. Ontario has also done an adequate job at dealing with the liability issues for those looking to develop on brownfield sites may face. This is done in part through the provision of liability insurance. These insurances help protect developers, landowners, municipalities and those deemed as qualified persons from the relevant liability risks associated with brownfields. Although Ontario has many policies that are in place to guide the redevelopment of brownfield sites, many of these are not developer friendly and can thus discourage them from working on these sites. There are a significant number of incentive programs available in the province, but many of these have a lengthy application process. For example, the Brownfield Tax Incentive Program (BFTIP) is a 3-part application process comprising of 24 steps. Additionally, Ontario has a lot of online information, but it needs to be more organized. Nevertheless, the online information is still useful.

Ontario should keep doing what they are doing, but make a few changes that would remove anything that might deter municipalities, developers and landowners from working on brownfield sites. The province should seek to create policies that are less restrictive on developers with regards to the remediation process, thus making it more appealing to work on these sites. Policies should suggest alternatives for developers instead of only providing restrictions. Ontario should continue to provide the incentives and funding that are currently in effect, while looking to provide more in the future.

9.10 - Prince Edward Island

Region Overview

Prince Edward Island is one of the four Maritime provinces next to the Atlantic Ocean. This province is part of the Atlantic Risk-Based Corrective Action (RBCA) implementation group. The joint group strives to develop a risk-based regulatory approach to the management of contaminated sites and brownfields. This RBCA is important for Prince Edward Island, due to the growing numbers of contaminated sites that are affected by petroleum.

NRTEE's Influence on Region

According to our review there are no considerable NRTEE influences on the region of Prince Edward Island.

Region Definition

Brownfields

In the [Atlantic Partnership In RBCA Implementation](#) (PIRI), brownfields are identified as “an abandoned, idle or underutilized commercial or industrial property with known or suspected historical contamination, but where there is active potential for redevelopment.”

Contaminated Site

In the [Atlantic RBCA definition page](#), a contaminated site is known as “ a property or collection of properties where the concentration of specific chemicals in air, soil, or groundwater exceed levels considered acceptable by the Department of Environment and Local Government (DELG).”

History

1999 - Petroleum Contaminated Sites Remediation Guidelines

PEI released a document providing information regarding the clean up of petroleum contaminated sites.

2006 - New Petroleum Hydrocarbon Remediation Regulations

PEI released a document to enforce Petroleum Hydrocarbon impacted sites. The document was made to update the Petroleum Contaminated Sites Remediation Guidelines that was created in 1999.

2009 - Online Registry of Contaminated Sites

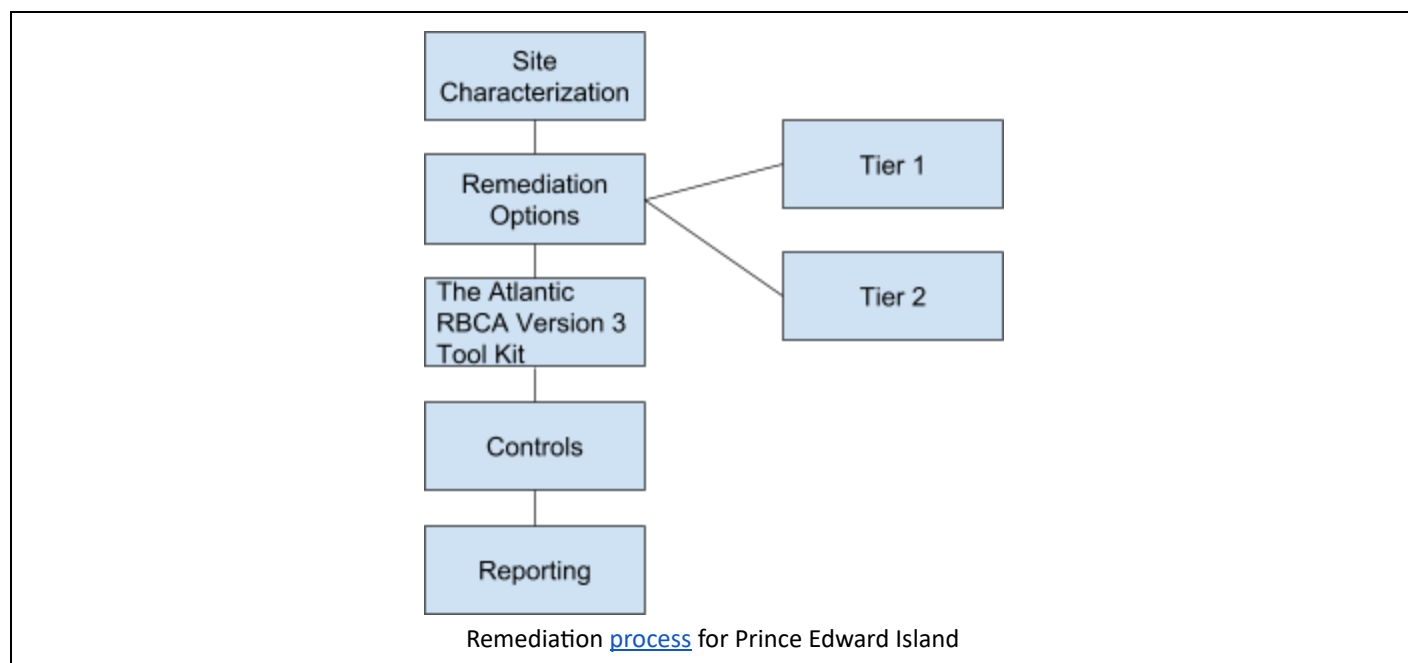
Prince Edward Island released an online tool that allowed interested parties to search contaminated sites. However, to find information on a contaminated site, a Premises Identification (PID) number is required.

Provincial Policies

Environmental Protection Act

Prince Edward Island have dedicated a section of their Environmental Protection Act to contaminated sites. The section provides information on site registry regulations. This includes information that can help determine if a site should be listed as contaminated and if it should be listed in the registry.

Remediation Structure



The remediation structure for Prince Edward Island could not be found on their government website, as it is assumed that it follows the Atlantic PIRI remediation structure.

Step 1 - Site Characterization

The first step of this remediation structure is to classify if the site is considered contaminated. Environmental site assessments would be conducted on site to determine if the site meets the environmental standards.

Step 2 - Remediation Options

The next step of this remediation structure is to identify if the site is a Tier 1 level of contamination or Tier 2 depending on how severe the contamination is.

Step 3 - Remediation

After identifying the classification of the site, the Atlantic RBCA clean up tools are utilized. This starts the remediation process.

Step 4 - Monitor

The site needs to be controlled and monitored in order to keep the site clean.

Funding

Funding in Prince Edward Island has been lacking for the remediation of contaminated sites. Although they are aware that contaminated sites are a problem, they are unable to take action due to their low budget. The Prince Edward Island's Financial Statement, states that it is the government's responsibility to ensure that these contaminated sites do not pose a risk to human health, as well as to meet the environmental standards. The list of contaminated sites in Prince Edward Island added up to \$2.1 million in 2016. The financial statement claims that the government will continue to review these sites.

Liability

<i>Professional Liability</i>	No Available Information
<i>Ownership Liability</i>	No Available Information
<u>Provincial Liability</u>	The liability for contaminated sites in Prince Edward Island added up to \$2.1 million in 2016. The province is currently reviewing the situation in order to clean up contaminated sites, however they do not have the funds to do so.

Polluter Pays Principle

No Available Information

Strict, Joint and Several

No Available Information

Apportioned

No Available Information

Liability Transfer

No Available Information

Brownfield Inventory

Prince Edward Island currently has a list of contaminated sites in their site [registry](#). The information provided for these sites include the ownership type, location, property identification number, contamination type and property description. This list is updated monthly, however it does not include the sites that are currently being assessed.

Best Practices

There are no considerable actions or policies highlighted in Prince Edward Island.

Advocacy Groups

[Atlantic Piri](#)

The Atlantic PIRI is a multi-stakeholder group that oversees the Atlantic RBCA process in Canada's Maritime provinces. The Atlantic PIRI was established as a forum for experts and developers from the four provinces to work together to remediate contaminated sites. Stakeholders, such as the members from the petroleum industry, provide support for the Atlantic PIRI. The goal is to ensure that contaminated sites are remediated, safe to use and cost effective to redevelop.

Conclusion

Compiling information for the province of Prince Edward Island was very difficult. The province follows the Atlantic PIRI remediation structure, as well as use their Environmental Act to encourage brownfield remediation. Due to the size and population of this province, the funding for brownfield remediation has been lacking. Surprisingly, Prince Edward Island was the only Maritime province that had a brownfield site registry. Although they have a brownfield site registry, there has been minimal progress in brownfield remediation.

9.11 - Quebec

Region Overview

The Province of Quebec has a thorough and well thought out process for brownfield remediation and development, such that it should serve as a model for the rest of Canada. Through recently updated policies, plans and procedures, the process of remediation and development has been made relatively painless. Quebec has had success historically and currently using financial aid for various programs aimed at brownfields. The guidance of the expert, plans, and policies help direct the brownfield development process in the right direction. Given the deleterious effects of climate change, brownfields represent an opportunity for sustainable development that meets increasingly ambitious planning goals.

NRTEE's Influence

The National Brownfield Redevelopment Strategy, developed by the NRTEE in 2003, provided provincial guidance for brownfield redevelopment in provinces such as Quebec. Quebec policies and regulations on brownfield redevelopment run parallel with the recommendations of the report, in areas such as monitoring implementation, evaluation of initiatives and programs, raising awareness of the benefits of brownfield redevelopment and others. The NRTEE strategy has been used as a general guiding document for past and current policies, procedures and recommendations in the province of Quebec.

Region Definition

Brownfield

There is no formal definition for a brownfield site in Quebec.

Contaminated Site

According to the [ClimatSol-Plus](#) report, contaminated land is an area of land that is not submerged, contaminated within the meaning of the Response Guide or the Act, and includes both soil and surface water and groundwater, and is contaminated in some way.

History

1983 - Study To Create An Inventory

A group called GERLED (Groupe d'étude et de restaurant des lieux d'élimination de déchets) studied the restoration of hazardous waste disposal sites in the province of Quebec. This group was created by the Ministry of the Environment, with the objective of creating an inventory of brownfields in Quebec.

1984 - Contaminated Sites Inventory Created

The group (GERLED) produced and published an inventory of contaminated sites in the province. The inventory at the time included 315 sites.

1988 - Rehabilitation Policy Published

A rehabilitation policy, *Politique de réhabilitation des terrains contaminés*, was published in order to provide resources to guide interventions on contaminated land. This primarily included accidental spills, as well as

industrial and commercial activities. This policy further established preventative measures for new industries on land, and identified types of industries that are most likely to contaminate land and groundwater. This policy document was the major driver in the Province of Quebec, as it illustrated the idea that brownfields represent potentially reusable land, as opposed to wasted land.

1991 - Polluter Pays Principle Established

Bill 65 was passed. This amended the Environment Quality Act 1990 Chapter 26 to include the polluter pays principle. Onus is on the previous owner to properly account for the land.

1998 - [Policy Enforcement on Brownfields](#)

Publication of the *Publication de la Politique de protection des sols et de réhabilitation des terrains contaminés*. The policy document looked into enforcing several items with respect to brownfields in the Province of Quebec, including the following:

- Legal and regulatory framework
- A network of certified professionals
- Programs on land used
- Economic aids to help facilitate the revitalization of contaminated lands
- Validation of criteria for soils
- Publication of technical guides
- Restructuring of the GERLED group

The program Revi-Sols was launched with the goal of providing financial relief to those pursuing revitalization of brownfield land in Quebec.

2001 - Regulation Created On Brownfield Disposal

Regulation titled the RESC, was created for burying contaminated land in Quebec. This regulation determines the conditions of disposal for certain contaminated lands in the province. This law accounts for what happens before, during, and after the process.

2003 - New Legislation for Remediation

Section IV 2.1 of the Environment Quality Act introduced new legislation for the remediation of contaminated land. *The Règlement sur la protection et la réhabilitation des terrains* (RPRT) was passed.

2005 - Revi-Sols program was terminated.

2006 - Improvement of Inventory

An inventory was launched of sites on lands owned by the province that possess environmental liabilities. REIMR was introduced. Regulation respecting the landfilling and incineration of residual materials was introduced.

2007 - New Climate Sol Program

Climate Sol Program was launched as a replacement of the successful Revi-Sols program. Emphasis of this program was on sustainable development and climate change. RSCTSC, storage and contaminated soil transfer stations were introduced.

2010 - Stakeholder Document Published

Publication of the document, *Bilan sur la Gestion des Terrains Contaminés*, was created for stakeholders in the field of contaminated land. The document included statistical evidence of brownfields in Quebec.

2012 - Proper Approach to Soil Contamination Published

Publication of the document *Lignes directrices sur l'évaluation des teneurs de fond naturelles dans les sols*. The guide was created to establish acceptable approaches to assess potential soil contamination.

2015 - The new Revi-Sols Program was terminated.

2016 - Climat-Sol Plus

In the 2016-2017 budget, the new Climat-Sol Plus program was announced.

2017 - Analytical Report of Policies Developed

A new plan titled [Politique de protection des sols et de réhabilitation des terrains contaminés et son plan d'action 2017-2021](#) was developed by the minister. The report is an analysis of policies and regulations, including changes that will take place.

Provincial Policies

<i>Section IV 2.1 of the LQE (Loi sur la qualité de l'environnement)</i>	The National Assembly in May 2002 passed Bill 72 (2002, Chapter 11) to amend the Environment Quality Act (EQA) and other legislative provisions relating to protection and rehabilitation of land. Section IV 2.1 provides the main overview of laws and regulations for brownfields in the Province of Quebec. A detailed list of objectives are included pertaining to the use, re-use and roles of stakeholders with respect to brownfields. Section IV 2.1 provides information on laws and regulations for the “experts”, soil transfer stations, and contamination information.
<i>Politique De Protection des Sols et de Réhabilitation des Terrains Contaminés- Plan d'Action 2017-2022</i>	This plan was introduced to further improve the management of brownfields in the Province of Quebec, as the inventory continues to increase. To better improve the management of contaminated lands in Quebec, the plan was implemented to further protect the environment and ensure sustainable development.

The Province of Quebec relies on the role of “an expert” to issue certificates required in section IV2.1 of the EQA. To be recognized as an “expert,” individuals must demonstrate to the satisfaction of the Ministries of Sustainable Development, Environment, and Fight against Climate Change, skills in the field of characterization and rehabilitation of contaminated land, as well as knowledge relevant to the application of the EQA. Candidates must pass an examination verifying their knowledge.

In empowering the expert, the province standardizes any required studies and documents. It accelerates the processing of files, ensures all requirements are met and empowers the private sector with respect to the characterization and the rehabilitation of land.

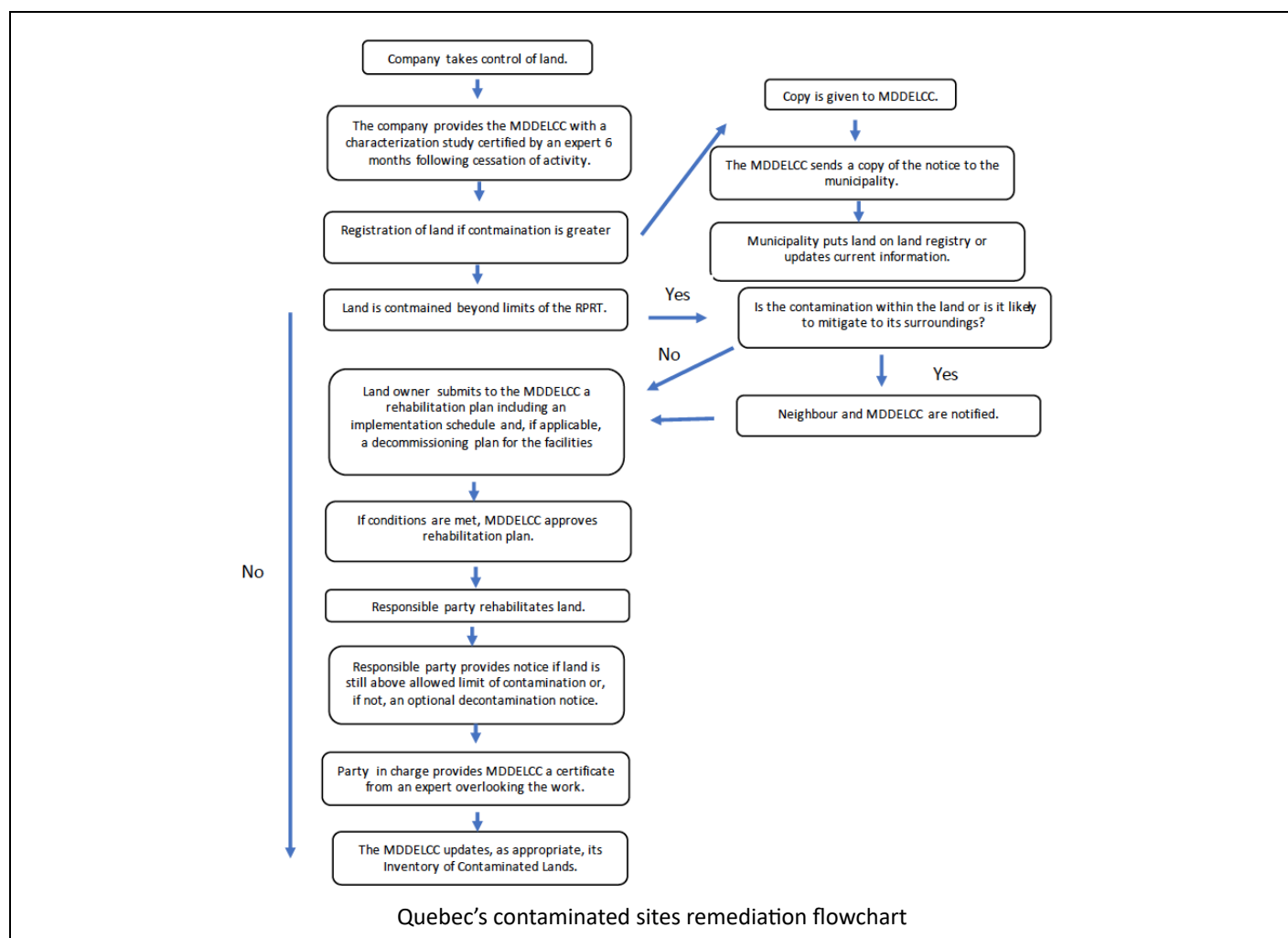
The role of the expert is to: certify any study of characterization of land as specified under IV2.1 of the EQA; stand by the study of characterization including the nature of the contaminants present in the field; attest that the rehabilitation plan is consistent with regulations specifically in article 31.48 of the EQA; certify that the rehabilitation will be in accordance with Bill 102 section 268; and certify upon completion that all work was carried out in accordance with appropriate laws and regulations.

Role of Municipality

Within Quebec, municipalities have a major role in brownfields, as they know the land the best. Municipalities are able to direct development and facilitate the revitalization of certain contaminated sites.

Since 2003, municipalities are legally required by section 31.68 of the EQA to maintain a list of contaminated sites, and include the type of contamination as well as any restrictions of use. Under section 120 and 121 of the LAU (Loi sur l'aménagement et l'urbanisme), municipalities must verify each application for construction or subdivision, whether it is on the list of contaminated lands or not. If so, the applicant will have to provide a certificate confirming that the proposed project is compatible with the rehabilitation plan. This certificate must be signed by an expert.

Remediation Structure



There are several ways of [dealing with contaminated soils](#) in the province of Quebec. Some include:

- Excavation: physically diggin up the soil and transporting it to a licensed site to clean it.
- Geotextiles: covering the contaminated soil to mitigate the problem using geotextiles.
- Soil Washing: mainly used for onsite remediation, it is the process of using chemical and physical processes to extract the contaminants from the soil.
- Soil Vapor Extraction: removing the contaminants from soil in a vapour form.
- Microbial Remediation: microorganisms change the contaminants in the soil into a less toxic form.
- Phytoremediation: using plants to clean up soil and the environment.

Funding and Programs

The Province of Quebec continues to recognize the development potential of contaminated land in primarily urban areas. This program is largely a continuation of the previously successful Revi-Sols and ClimatSol program. Through this program, Quebec provides support for municipalities and private owners. The two-part structure of the program combats climate change and rehabilitates land for high economic potential.

The programs objectives are to:

- Rehabilitate contaminated land,
- Put in place measures to combat against heat islands,
- Integrate green building technologies into more projects,
- Create favourable conditions for densification in the urban setting
- Promote the use of proven treatment measures for soil decontamination

Part 1 of the project has a budget of \$30 million and is funded by the Green Fund through 2013-2020 for all Quebec municipalities.

[ClimatSol-Plus](#)

Applicants eligible for this program include both municipal and private entities. This includes municipalities, metropolitan communities, unorganized territories, regional county municipalities, inter municipal authorities and corporate bodies. Private applicants, such as corporate bodies, are eligible as long as they have not contributed to contamination of land in any form or private individuals who, since January 1, 2015 have not rented or had custody of contaminated land. Federal public bodies, school bodies, and health or social services establishments and other public bodies are not eligible for funding.

To be deemed admissible for the grant, projects must demonstrate that they provide new value and function to the land. Any development, be they residential, commercial, industrial, a public service or space, must comply with a local sustainable strategy. Most importantly, an applicant must demonstrate their compliance with all required environmental policies and regulations, including measures against climate change and heat islands, and will continue to do so in the future.

Part 1 of the program has the following funding coverage:

15% funding provided for:

- The transport and off-site disposal of contaminated soil where the contamination does not meet the criteria for use of regulatory limit values

30% funding provided for:

- Transport and off-site disposal of contaminated material containing metal where no authorized technology by the Minster exists.
- Transport and offsite disposal of residual materials when excavated and segregated

50% of funding provide for:

- Transport of contaminated soil for treatment by proven technologies
- On site or offsite treatment of contaminated soil including water treatment
- Hauling of excavated soil to reclamation site
- Eligible materials allowing the installation of sustainable vegetation on exterior walls (up to a maximum \$10,000)
- Costs of installing green roofs (up to a maximum \$50,000)
- All other eligible costs

70% funding provided for:

- On site treatment of contaminated land

Part 2 of the program seeks to restore land with high economic value and potential, while making brownfields more attractive for developers. Objectives include rehabilitating land with strong economic potential, reusing urban lands in order to keep costs (like transportation) minimal, combating climate change, and using proven soil decontamination treatment strategies.

Part 2 of the program has a budget of \$25 million dollars over 5 years.

Projects deemed eligible for part 2 of the grant will support commercial or industrial activity. Only if other uses support the common good will they be considered for the grant. Further, projects must support investment projects.

Those looking to apply for the program must fill out the application found on the [MDDELCC](#) website.

Liability

<i>Professional Liability</i>	No Available Information
<i>Ownership Liability</i>	<p>Upon closure, a company is required to characterize its land within six months of cessation. When contamination is above the approved rate, a rehabilitation plan must be submitted to the Minister for approval.</p> <p>When changing uses for contamination above the approved rate, a rehabilitation plan must be submitted and approved by the Minister. A public meeting must be held to inform the general public. Contaminants can stay on site as long as the population and environment are protected. In this case, the plan submitted to the Minister must include a characterization study, assessment of toxicology, ecotoxicology risks, and an evaluation of impacts of groundwater.</p> <p>During the voluntary rehabilitation of contaminated land: Same rules apply as changing uses, however no public meeting is required.</p> <p>When there is a risk of contaminant migration and the contaminants are likely to infiltrate into ground water, the person in custody of the land is required to provide notice in writing to the Minister as soon as possible.</p>
<i>Municipal Liability</i>	<p>Since 2003, municipalities have been legally bound by the LQE section 31.68 to have a list of contaminants where notices of contamination have been provided. Municipalities are required to verify if the construction or subdivision permit subject site is on the list of contaminated sites. If the site is on the list, the municipalities must receive a certificate signed by an expert as per section IV 2.1 of the LQE confirming the plan is consistent with the rehabilitation plan. Municipalities are required to keep record of contaminated lands that must be easy to track and access.</p>

Polluter Pays Principle

[Bill 65](#), created in 1990, put forward the “polluter pays” principle, where the individual who contaminates land is responsible for cleaning it up. The Minister may ask for a report from the person responsible for the contamination to provide a study of the land and to carry out restoration work, if necessary. Bill 72 added the “guilty guardian”, which puts the owner of neglected land responsible for possible contamination through possible activities, or activities carried out by others.

Joint and Several

Unknown

Apportioned

Unknown

Liability Transfer to Cleanup Professional

Unknown

Sites Inventory

The inventory list is not an exhaustive list, however it does provide general information and conditions about contaminated sites, including name, address, nature of contaminants, quality of the soil and date of creation. These sites have been brought to the ministry's attention. Further information can be found directly through municipalities.

Best Practices

Best Incentive and Funding Programs

The Province of Quebec has historically participated in multiple funding programs that have granted millions of dollars throughout the years. In 1998, the [Revi-Sol](#) program launched at the first to provide financial relief for brownfield development. The program provided funding for 132 development projects, covering a total of 509 acres on the Island of Montreal. The Revi-Sol program showcased the success between private and public stakeholders, given the economic aid from the provincial government. In 2005, the Revi-Sol program was terminated and later reimagined under the name Climate-Sol Program. The main focus of the [Climate-Sol](#) program was to mitigate climate change impacts on the environment through sustainable practices. The program provided \$25 million for the City of Montreal, \$15 million for the City of Quebec, and \$20 million for other municipalities in Quebec. The Climate-Sol program was terminated in 2015, making room for the Climate-Sol-Plus program. This was introduced in the 2016-2017 budget, and continues to be the main financial program for Quebec.

Liability and Policy

The Province of Quebec maintains updated policies, a regulatory framework and regulations that make it a leader in brownfield policy. Numerous policies include ones such as the the *Politique De Protection des Sols et de Réhabilitation des Terrains Contaminés- Plan d'Action*, which was introduced in 2010 and updated in 2017. Other documents such as the *Protection des sols et réhabilitation des terrains contaminés*, updated in 2016, with the "expert" guide having been updated in 2017. Many of the documents were updated, modified or created in 2016 or earlier, ensuring the success of brownfields in Quebec. Through constant modification and updating, the Province of Quebec has successfully kept pace with current trends and tactics, distinguishing itself as a leader across Canada.

Region Advocacy Groups

[Montreal Center of Excellence in Brownfields Rehabilitation](#)

The MCEBR was an organization that supported the development of technology for soil and groundwater decontamination and remediation. It also supported the redevelopment of brownfields and acted as a platform for brownfield experts. The organization closed in 2011.

[RÉSEAU Environnement](#)

Réseau Environnement is the largest group of environmental specialists in Quebec, representing more than 2700 members. Active for more than 50 years, its mission is to promote good environmental practices and innovation. Its goals are similar to the now defunct MCEBR, in that it brings together environmental specialists, business people, municipalities, and industries in Quebec, and promotes the advancement of technologies, science, and expertise to support environmental activities.

Conclusion

Quebec's approach to brownfields can be viewed as a success. Information such as laws, regulations, a site depository, plans and more, is easily accessible through the Ministry of Environment website. The Province of Quebec has a proactive approach to brownfields, where sites must be characterized after shutting down or changing uses. The power of the "expert" ensures the process is accountable and efficient, while also ensuring the highest standards. Programs such as the ClimatSol-Plus program are very successful in aiding developers in the process of remediation, while the province continues to update policies, most recently with *Politique de protection des sols et de réhabilitation des terrains contaminés, Plan d'action 2017-2021*. Overall, Quebec brownfields policies and practices can be viewed as successful.

9.12 - Saskatchewan

Region Overview

In Saskatchewan, the Ministry of Environment regulates contaminated sites, which are typically associated with manufacturing, transportation, industrial, commercial or mining activities. They occur exclusively in urbanized areas, abandoned refineries and on National Defense sites. Population movement trends that lead to urban areas with abandoned sites and railway facility closures are the main causes of contamination within sites in Saskatchewan.

NRTEE's Influence

Saskatchewan followed the NRTEE with regards to their definition of a brownfield. The NRTEE has supplied direction and several different strategies that Saskatchewan has taken into consideration, mainly regarding action on contaminated sites. Saskatchewan's remediation process includes two phases, each determining whether remedial action is required. This plan is similar to the strategy encouraged by the NRTEE. The guidelines for removing remediation barriers aligns with the NRTEE strategy.

Region Definition

Brownfield

Saskatchewan follows the NRTEE definition of a brownfield, as being "an abandoned, vacant, derelict or underutilized commercial or industrial property where past actions have resulted in actual or perceived contamination and where there is an active potential for redevelopment."

Contaminated Site

According to the Government of Saskatchewan, a contaminated site is a site at which substances occur in concentrations that exceed the maximum acceptable amounts under an environmental standard.

Region History

1997 - Push for development of the Environmental Management Protection Act

The Minister of Saskatchewan Environment and Resource Management received a number of recommendations on the identification, clean up and liability of contaminated sites in Saskatchewan, from its contaminated site liability advisory group. Those recommendations, along with those of the CCME, served as a catalyst for the development of the Environmental Management Protection Act.

2001- [The Tax Enforcement Act](#)

2007- [The Planning and Development Act](#)

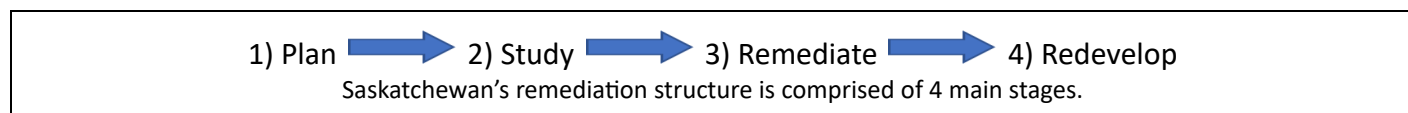
2010- [The Environmental Management and Protection Act](#) (2015)

Over time, no formal provincial program has come about to deal with contaminated sites in Saskatchewan, nor is there an extensive regulatory framework. Informally, the province has adopted most CCME guidelines and continues to use them extensively. Most of the provincial government documents regarding brownfields redevelopment is in the form of guidelines, strategic papers or policy papers.

Provincial Policies

<i>The Planning and Development Act, 2007</i>	This act includes provisions related to the development of official community plans and other planning tools related to brownfield redevelopment
<i>The Environmental Management and Protection Act, 2010</i>	This act enables the process for dealing with environmentally impacted sites. Coming into effect in 2015, the act aims to provide increased certainty around the development, purchase, and sale of brownfield sites
<u>Saskatchewan Environmental Code Standard</u>	This code contains a collection of legally binding requirements for activities regulated by the environmental management and protection act. This code includes several standards related to the management of environmentally impacted sites.
<u>Guidance Document</u>	Impacted sites is a resource created by the Saskatchewan Ministry of Environment. It describes the process for managing impacted sites in Saskatchewan within the framework set out by the Environmental Management and Protection Act, 2010, the Environmental Code and associated standards.
<i>Tax Enforcement Act, 2001</i>	This act was amended in 2001 to allow municipalities to use the cost incurred for the cleanup of environmental contamination as justification for the discharge of tax liens.

Remediation Structure



The following steps align with the FCM steps for municipal remediation.

Step 1- Plan

Conducting community-wide brownfield planning and engagement activities while going through approval processes for redevelopment proposals. Making sure interim/land use planning is considered, compiling an inventory of brownfield sites and tracking/showcasing redevelopment progress is all part of the plan.

Step 2 - Study

Developing a sustainable remediation plan and completing environmental site and risk assessments are the next step. Determining the risk assessment and conducting remediation or risk management studies, as well as developing a remedial management plan that includes sustainable approaches where possible. Similarly

to the NRTEE's National Strategy, this step in the remediation process comprises of two phases. Phase 1 includes historical and current information about a site, as well as a site inspection. This phase determines if there is reason to suspect that the site is contaminated. Phase 2 looks at the site conditions and the contamination present using field investigation techniques (soil and groundwater sampling). This determines whether remedial action is required and assists in preparing a remedial action plan for the site.

Step 3 - Remediate

Completing the building demolition and recycling soil and waste where possible. Using sustainable approaches to remediate the site or implement risk management strategies. Receive confirmation of compliance or contaminated site closure.

Step 4 - Redevelop

Perform ongoing risk management and monitoring as required. Designing/constructing the site infrastructure.

The remedial action plan has guidelines that determine if a site is considered contaminated or not. The three approaches to developing site-specific remediation objectives, and the most suitable approach, are determined by taking into account special site characteristics, project budget, timeline, and approval from the ministry of environment. The three approaches are shown below in tiers.

Tier 1

This approach involves directly adopting the environmental quality guidelines for use as site-specific remediation objectives. This is the most stringent type of clean-up, however it may reduce the amount of environmental investigation required for a site. In this approach, objectives do not take into consideration any site-specific factors, as it may mean removal and disposal of a large volume of soil. This tier is appropriate when a site is heavily contaminated or must be remediated quickly.

Tier 2*

This tier involves adopting environmental quality guidelines for use as site-specific remediation objectives with the additional consideration of site information to develop site-specific criteria for clean up. Information may include a presence of receptors, soil types, and a likelihood of contamination travelling off-site. Two types exist: a) the adoption of site-specific remediation objectives comprised of adjustments to Tier 1 levels based on site-specific parameters such as soil type; or b) the modification or elimination of exposure pathways/receptors, usually achieved through administrative controls.

Tier 3*

This tier develops objectives using a risk assessment; a scientific way of assessing a contaminated site for risks to human or ecological health. It involves an examination of the contaminants on site, the receptors and exposure pathways. Two types of risk assessments exist: Ecological Risk Assessments or Human health risk assessment.

** Tier 2 or 3 approach can mean reduced costs for remediation.

Once Site-Specific Remediation Objectives has been established, a remedial action plan is developed. There are four broad options for the plan:

1. Complete cleanup
2. Partial cleanup of priority items
3. Establishment of a monitoring program
4. No action

For sites requiring a partial or complete cleanup, a remedial strategy will need to be designed using the appropriate remedial technology. Remedial technologies fall into the following categories:

1. Passive Remediation/Monitoring
2. Containment and Isolation
3. Removal for Treatment
4. In Situ Treatment

This show that a variety of remedial approaches exist. The appropriate remedial technology for a site is determined by various factors, including if there is an appropriate proven technology available, cost, schedule, safety and site-specific considerations.

The Minister of the Environment designates qualified persons, which can be engineers, geoscientists, technologists, agrologists and/or other professionals, depending on the endpoints (and the remediation techniques) chosen for the corrective actions.

Funding and Programs

Public Sector

<p><u>New Building Canada Fund</u></p>	<p>The \$10-billion Provincial-Territorial Infrastructure Component (PTIC) of the New Building Canada Fund (NBCF) is intended to support infrastructure projects of national, regional and local significance. They contribute to economic growth, a clean environment, and stronger communities. The PTIC is divided into two sub-components. The first component is up to \$9 billion for national and regional projects. The second component composes of a minimum of \$1 billion through the Small Communities Fund, for projects located in communities of fewer than 100,000 residents</p>
<p><u>Orphaned Environmentally Impacted Sites Fund</u></p>	<p>The Environmental Management and Protection Act, 2010, enables the establishment of an Impacted Sites Fund to reclaim, restore and remedy orphaned environmentally impacted sites. This fund is managed by the Finance and Administration Branch of the Ministry of Environment.</p>

Private Sector

<i>The Enterprise Zone</i>	This incentive program assists with environmental screening and remediation. The program incentivizes property owners and developers to invest in the renovation, expansion or creation of new housing, as well as increasing consumer/investor confidence in the Zone.
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Liability

<i>Professional Liability</i>	No Available Information
<i>Ownership Liability</i>	Owners are required to report if they become aware of contaminants on their properties that exceed prescribed standards. The discovery of certain exceedances on a property can now trigger an obligation to report, even in the absence of adverse effects or changed use of property. The owner is responsible for managing impacts at the site in accordance with the Environmental Management and Protection Act.
<i>Municipal Liability</i>	A municipality can accept responsibility for a contaminated site. If they do, they must recognize the liability and related expenses. In a scenario in which a municipality is uncertain about its responsibility and potential costs when contamination on a site is identified, they must provide adequate note disclosure for a contingent liability.

Polluter Pays Principle

The ministry uses a polluter and/or beneficiary pays model to apportion liability to responsible parties. Impacted sites will be cleaned up and redeveloped through mechanisms that limit the transfer of liability in certain situations, by imposing financial assurances until sites are reclaimed, and by establishing a fund for dealing with orphaned sites.

Joint and Several Liability

No Available Information

Apportioned Liability

No Available Information

Liability Transfer to Cleanup Professional

Previously, the concept of responsible parties was extremely broad. It is now refined, but still contains the flexibility that encourages responsible parties to address impacted sites. In addition, proponents can now transfer responsibility for reclamation when an acceptable corrective action plan and financial assurances are in place. The Ministry of Environment is undertaking a review of legislation relating to contaminated sites, but there is no release from liability available for property owners, even when clean-up of a contaminated site is undertaken.

Sites Inventory

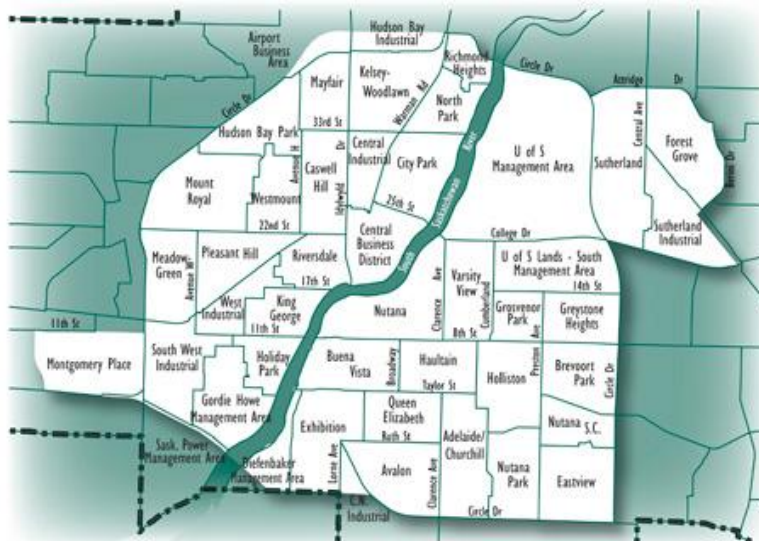
There is no provincial brownfield depository or database. The Ministry of Environment continues to remind the province that a public impacted sites registry is required, however that is yet to happen.

Best Practices

[Vacant lot and adaptive reuse strategy \(Saskatoon\):](#)

This program is designed to encourage development on brownfields and existing vacant sites through financial and/or tax-based incentives for owners of eligible properties. There is a maximum incentive amount equivalent to the increment between existing property taxes and the taxes paid upon completion, multiplied by 5 years.

There is an evaluation system to find out the total amount of the final grant. It is based on points linked to policy objectives identified in the City's Official Plan. The more points, the higher the percentage of the total Maximum Incentive Amount. Applicants are given a choice of the grant or a five-year tax abatement. The system is based on points out of 100. For example, a score of 50 points earns you 50% payout of the Maximum Incentive Amount. In order to qualify, applicants must submit an application and a full development proposal for an existing vacant or brownfield site, or an adaptive reuse project that is within a certain area.



This map outlines acceptable sites for qualifying applicants

The Enterprise Zone (Saskatoon)

This incentive consists of several core neighbourhoods and inner-city industrial areas that are at risk of falling further behind the rest of the City of Saskatoon, in terms of income, economic opportunity, property value, job creation, and some essential commercial services. There are incentives offered to encourage property developers and owners to invest in renovation or expansion, in efforts to create new housing to increase consumer and investor confidence in the Zone. The program assists heavily with environmental screening and remediation.

Region Advocacy Groups

No Available Information

Conclusion

It was difficult to find research and analysis on brownfield sites in Saskatchewan, However, lots of information and research could be found within the City of Saskatoon. The Ministry of Environment has yet to make the province's impacted sites registry public, although they say it will happen soon. There is no provincial brownfield depository or database, however there are a variety of remedial approaches. Municipalities within the province are authorized to set policies that address various aspects of community development. Policies are developed for the designation of brownfield lands, infill development, zoning and incentives.

9.13 - Yukon

Region Overview

Resource extraction continues to contribute to development in Yukon, implying that companies who specialize in environmental remediation on this scale will likely find work for years to come. Aside from cleanup operations mandated by the government to protect human safety, it is very unclear how attractive Yukon is to developers interested in brownfields remediation. Its small population and shortage of urban areas mean that development in general is usually limited compared to Canada's more established regions.

NRTEE's Influence on Region

While it existed, the NRTEE influenced brownfields policy at the Canadian federal level of government. As a result, the NRTEE's report inevitably had some influence on contaminated site policies in the Yukon, who like all the territories is heavily dependent upon federal presence. However, there is little evidence that the report's recommendations have specifically influenced brownfield policies for the Government of Yukon and within the territory's municipalities.

Definition

Brownfield

There is no explicit definition of a brownfield site within the province's legislation.

Contaminated Site

Yukon's definition of contaminated sites is largely in line with most major provincial definitions across Canada. Taken from section 111 of the Contaminated Sites Regulations, associated Protocols , and Section 115 of the *Yukon Environment Act*:

A site is a contaminated if the land use is agricultural, commercial, industrial, park or residential, and the concentration of any contaminant in the soil at the site is greater than or equal to [provincial soil standards], or the surface water or groundwater which is located on the site, or flows from the site is used or has a reasonable probability of being used for aquatic life, irrigation, livestock or drinking water.

Yukon may benefit from the introduction of the term 'brownfields' in its definition of contaminated sites, particularly in situations where remediation is required and/or subsequent development is likely to occur.

History

1993 - First Nations, Government of Canada, and the Yukon territorial government signed Umbrella Final Agreement, terms for final land claim settlements in the territory

2002 - the Government of Canada's Yukon Act officially named the territory 'Yukon'. Also the year that Yukon's Environment Act was first introduced,

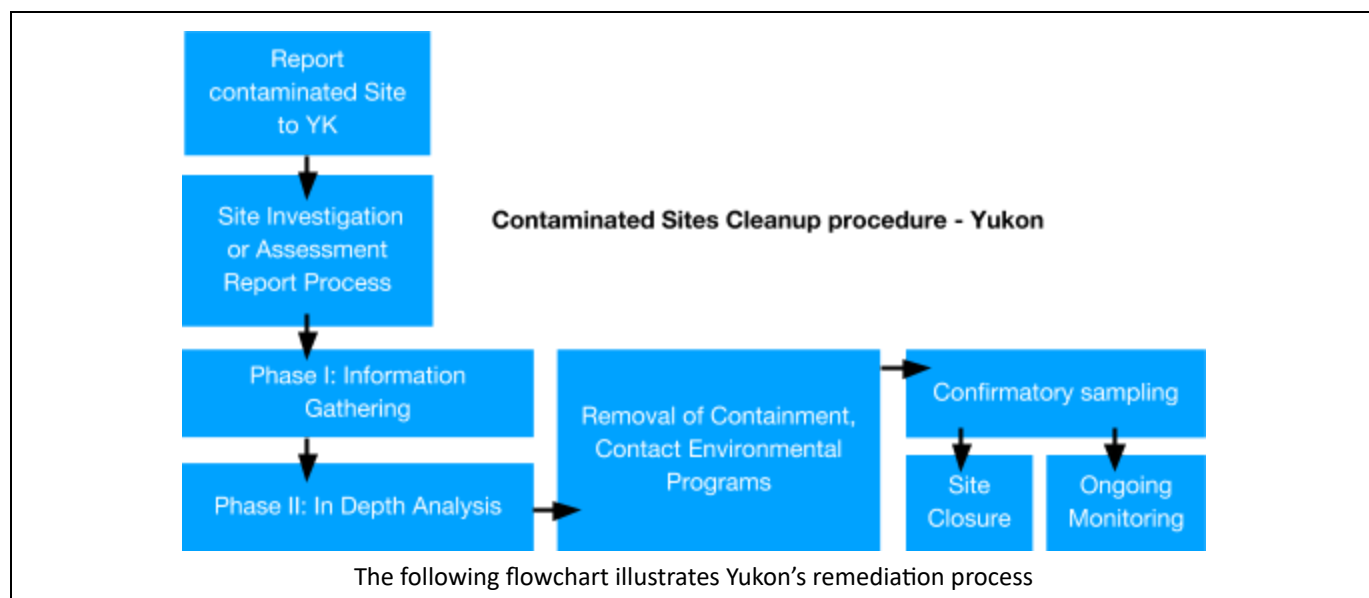
2003 - The Devolution Transfer Agreement (DTA) came into effect.

2014 - Passage of the Act to Amend the Environment Act improves the government's ability to reduce risks to human and environmental health.

Provincial Policies and Municipal Tools

<u>Environment Act (2002, consolidated 2018)</u>	Provides a legislative framework for the protection of the territory's land, water, and air.
<u>Devolution Transfer Agreement (DTA) (2003)</u>	The Government of Yukon began to manage its own public lands, water, mining and forestry, including contaminated sites.
<u>Contaminated Sites Regulations</u>	Drawing from section 145 of the Environment Act, this regulation sets guidelines for all remediation and cleanup efforts in the province, notwithstanding the many that fall on federal land.
<u>City of Whitehorse 2010 Official Community Plan</u>	Under section 8.4.2, the plan states that the redevelopment of brownfield sites around Whitehorse is strongly encouraged as an infill strategy to help reduce urban sprawl. The City will work with property owners to seek assistance for remediation of these sites.

Remediation Structure



Step 1 - Reporting of contamination to the Government of Yukon, Environmental Programs

Step 2 - Site Investigation or Assessment process

A two step process is normally used to determine whether contamination exists on site.

Step 3 - Phase I

Information about the site is compiled, and a list is developed of possible contaminants that may be found on the site.

Step 4 - Phase II

If potential areas of contamination are identified, a Site Assessment may be carried out to identify the areas, depths and concentrations of contaminants on the site.

Step 5 - Contaminant Removal

Once a site is determined to be contaminated, the contaminants should be removed or contained to reduce the risk to human health and the environment. Material contaminated with petroleum hydrocarbons is typically removed from the site and taken to a land treatment facility (LTF), where it is treated to remove the contaminants.

Step 6 - Confirmatory Sampling

Once cleanup is complete, confirmatory sampling is required to demonstrate that the site is no longer contaminated. In some cases, ongoing monitoring may be required to confirm that risk management measures are working as intended.

Funding

Public Sector

<u>2016/17 Environmental Liabilities and Remediation Program</u>	\$3.9 Million for the assessment and cleanup of contaminated sites under the budget. The program appears to offer similar funding on a yearly basis. Further information is not publicly available.
<u>Gas Tax Fund</u>	Technically part of the federal funding portfolio, money flows through the territory (which manages the program) to municipalities (primarily Whitehorse) in the Yukon for a variety of important infrastructure projects. Notably, brownfields revitalization is explicitly mentioned as an eligible category.
<i>City of Whitehorse</i>	Section 8.4.2 of the <u>City of Whitehorse 2010 Official Community Plan</u> indicates that the city will work with property owners in an effort to cleanup contaminated sites. No further specific financial details are publicly available.

<p><i>Planning and Sustainability Services</i></p>	<p>The City of Whitehorse does offer minor, standard and major incentives to developers through its Development incentives policy. Development Incentives are only applied to the value of improvements to the property - taxes applied to the value of land are not eligible for incentives. Neither Brownfields nor contaminated sites are explicitly mentioned under the incentives policy. However, in March 2015, Vector Research and Westropp Management Consulting completed a Downtown Development Incentives Assessment Report geared towards incentivizing development. Contaminated sites are mentioned in their report as a possible incentive target.</p>
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Private Sector

No information available.

Liability

<p><i>Professional Liability</i></p>	<p>No Available Information</p>
<p><i>Ownership Liability</i></p>	<p>No Available Information</p>
<p><i>Municipal Liability</i></p>	<p>The federal government is financially liable for numerous abandoned mines in the Yukon. However, the territory is responsible for any mining damage since 2003 with the signing of the Yukon’s Devolution Transfer Agreement.</p>

Polluter Pays Principle

The province follows the polluter pays principle set out by the federal government.

Strict, Joint and Several

No Available Information.

Apportioned

No Available Information.

Liability Transfer

Most of the contaminated sites in Yukon are resource extraction sites from the past. Due to the scarcity of developer interests, in conjunction with the difficulties of remediating the sites, ownership often falls under the government.

Brownfield Inventory

Environment Yukon maintains information on reported contaminated sites and spills in the Yukon. However, this information is not readily accessible to the public without first contacting the Government of Yukon, Contact Environmental Programs. The City of Whitehorse has no listings or links for a brownfields or contaminated sites inventory, however this is likely a work in progress. Section 8.4.2 of the Whitehorse Official Community Plan (2010) states: “the creation of an inventory of brownfield sites is encouraged.” The city does however have a publicly accessible list of vacant and underdeveloped properties.

Best Practices

There are individual examples that fit into a best practices category, but any real mention of best practices with regards to brownfields revitalization in the Yukon falls implicitly within the larger federal, territorial and municipal framework. Brownfields themselves are seldom mentioned explicitly, other than once or twice in the City of Whitehorse Official Community Plan (2010); however management of contaminated sites is a guiding concern. Specifically, legislation at the territorial and municipal levels is targeted towards contaminated sites cleanup, currently as a method of protecting human health, and in the future as a way to meet development goals.

Advocacy Groups

The public is engaged in a variety of cleanup projects in the Yukon, which has led to hundreds of millions of dollars in federal funding. The Marwell Site has and continues to involve public consultation regarding possible brownfield remediation. An October 25 [Marwell Partnership Workshop](#) provides one example of community engagement. A great deal of advocacy in Yukon is attributed to First Nations governments, as much government policy revolves around reconciliation.

Conclusion

Resource extraction continues to contribute to development in this territory. Aside from cleanup operations mandated by the government to protect human safety, developers may struggle to find opportunities for brownfield revitalization in the Yukon. The small population and limited number and size of urban areas means that development in general is usually limited compared to Canada's more established regions. However, the lack of available information about brownfields in this territory leaves the possibility that these opportunities do exist, but are difficult to find.

Section III - Federal Evaluation

10.0 - Federal Overview

This section of the report analyzes the federal government under the same criteria as the provinces and territories. It addresses the federal government's involvement in brownfield remediation and advocacy and compares it to efforts made by the United States and the United Kingdom.

10.1 - Federal Findings

Federal Overview

Lands dating back over a century ago that were dedicated to military installations, abandoned mines, and lighthouse stations are often contaminated and harmful to current development. According to the [Government of Canada](#), Indigenous and Northern Affairs Canada and the Department of National Defence have responsibility for many brownfields. Numerous acts regarding environmental concerns were passed in order to prevent further environmental damage. Canada currently holds 23,078 known and suspected contaminated sites.

NRTEE's Influence

While the Government of Canada holds a similar definition of brownfields as the NRTEE brownfield strategy, the overall influence of the NRTEE report on the Government of Canada was minuscule. The NRTEE report strongly emphasized the importance of a coordinated effort amongst all levels of government. They have advocated for appropriate financial measures, including as implementing a tax system that promotes and encourages brownfield redevelopment, a federal office that oversees the brownfield sector, alternative ways of developers receiving grants/loans for redeveloping a brownfield site and further federal guidance. However, many federal recommendations that the NRTEE made have yet to be implemented.

Federal Definition

Brownfield

As of 2017, Brownfields are defined on the Canadian [federal website](#) as, "abandoned, idle or underutilized commercial or industrial properties where past actions have caused environmental contamination, but which still have potential for redevelopment or other economic opportunities".

Contaminated Site

According to the Canadian Council of Ministers of the Environment's [Guidance Document on the Management of Contaminated Sites in Canada](#), contaminated sites are defined as a "location at which soils, sediments, wastes, groundwater and surface water are contaminated by substances that are above the benchmark criteria and/or that pose an existing or imminent threat to human health or the environment".

Federal History

1989 - National Contaminated Sites Remediation

The Canadian Council of Ministers of the Environment and the Government of Canada negotiated a joint \$250 million, five year National Contaminated Sites Remediation Program.

1995 - Contaminated Sites Management Working Group (CSMWG)

The Contaminated Sites Management Working Group was created to provide advice on federal contaminated sites to the Federal Committee on Environmental Management Systems.

1999 - A Federal Approach to Contaminated Sites

A document was created by the CSMWG to investigate, propose and develop a common federal approach to managing federal contaminated lands. It made the federal approach to brownfields public for other levels of government.

2002 - Federal Contaminated Sites Inventory (FCSI)

A complete listing of contaminated sites under federal ownership was made. It is highly descriptive and provides valuable information for the public.

2004 - Federal Contaminated Sites Action Plan (FCSAP) Development

The government committed \$3.5 billion towards the development of FCSAP

2005 - FSCAP is Launched

FSCAP addresses federal contaminated lands. It provides funding to federal departments, agencies and consolidated Crown corporations to provide financial assistance for site assessments and remediation.

2006 - Recommended Principles on Contaminated Site Liability

Created by the Canadian Council of Ministers of the Environment (CCME), this document revised the Contaminated Site Liability document of 1993. It addressed current liability concerns and provided recommendations based on public and private opinions.

Federal Policies

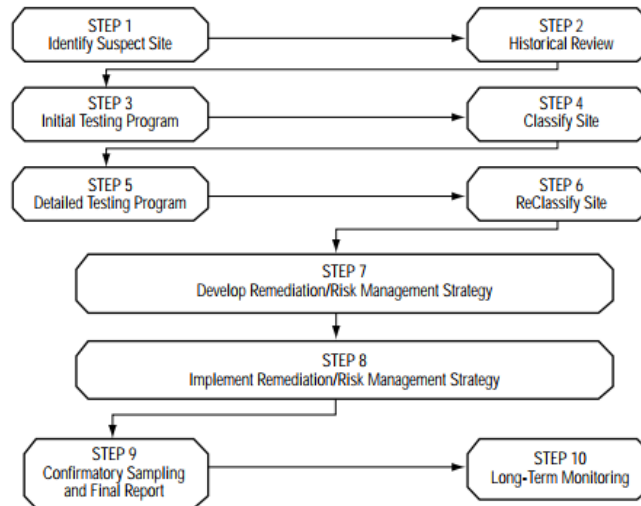
<u><i>The Fisheries Act (1985)</i></u>	This act sets out regulations that protect water bodies. It clearly states the consequences of pollution.
<u><i>The Nuclear Safety and Control Act (1997)</i></u>	This act addresses safe storage of nuclear substances and emergency protocols regarding contamination.
<u><i>Guidance Document on the Management of Contaminated Sites (1997)</i></u>	Created by the Canadian Council of Ministers of the Environment, this was the first document to directly address contaminated sites and how to properly manage them.

<p><u>The Canadian Environment Protection Act (1999)</u></p>	<p>This act handles various environmental issues such as public participation, emergency protocols and the management of pollution and toxic waste.</p>
<p><u>Mine Site Reclamation for the Northwest Territories (2002) and Nunavut (2002)</u></p>	<p>The Mine Site Reclamation Policy has been separated into the Mine Site Reclamation for the Northwest Territories and the Mine Site Reclamation Policy for Nunavut. They directly address mine closures and the lack of clean-up and reclamation responsibilities within abandoned sites. Proposals for new mines must include a mine closure and reclamation plan to prevent further orphan sites from emerging.</p>
<p><u>The Storage Tank Systems for Petroleum Products and Allied Petroleum Products Regulations (2008)</u></p>	<p>This maintains and regulates proper storage of petroleum products.</p>
<p><u>The Canadian Environmental Assessment Act (2012)</u></p>	<p>This act protects components of the environment from ill-designed projects that could result in severe environmental damage and promotes cooperation between aboriginal people, the provincial government, federal government and the public.</p>

Though there are multiple policy documents listed above, the only document that directly addresses brownfields is the *Guidance Document on the Management of Contaminated Sites*. The other documents provide policies on how to protect natural resources and how it would help to protect sites from being contaminated. The only document that provides information and guidance dates back to 1997, as no updated policies are available through the Canadian government.

Remediation Structure

A remediation structure with categories has been implemented by the federal government to provide a uniform plan of action across the country. In 1999, the [Contaminated Site Management Working Group](#) provided guidance on managing contaminated sites under federal custody. This includes a ten-step process to address these sites:



NOTE: The steps shown above illustrate the complete process involved in dealing with contaminated sites. There will be instances where some of the steps may not be required.

- | | |
|--|---|
| <p>Step 1 — Identify Suspect Sites: Identifies potentially contaminated sites based on activities (past or current) on or near the site.</p> <p>Step 2 — Historical Review: Assembles and reviews all historical information pertaining to the site.</p> <p>Step 3 — Initial Testing Program: Provides a preliminary characterization of contamination and site conditions.</p> <p>Step 4 — Classify Contaminated Site Using the CCME National Classification System: Prioritizes the site for future investigations and/or remediation/risk management actions.</p> <p>Step 5 — Detailed Testing Program: Focuses on specific areas of concern identified in Step 3 and provides further in-depth investigations and analysis.</p> | <p>Step 6 — Reclassify the Site Using the CCME National Classification System: Updates the ranking based on the results of the detailed investigations.</p> <p>Step 7 — Develop Remediation/Risk Management Strategy: Develops a site-specific plan to address contamination issues.</p> <p>Step 8 — Implement Remediation/Risk Management Strategy: Implements the site-specific plan that addresses contamination issues.</p> <p>Step 9 — Confirmatory Sampling and Final Reporting: Verifies and documents the success of the remediation/risk management strategy.</p> <p>Step 10 — Long-Term Monitoring: If required, ensures remediation and long-term risk management goals are achieved.</p> |
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The federal flowchart for addressing a contaminated site

The ten-steps listed above are utilized in the process of identifying and handling contaminated sites. Each step is further broken down with their own respected [flowchart](#), along with associated guidance documents and federal department assistance. They provide a consistent federal approach to environmental site management, an effective allocation of federal resources between departments, a uniform implementation of risk-based cleanup criteria and management options and better selections of cost-effective site management strategies.

National Classification System for Contaminated Sites (NCSCS)

The [National Classification System](#) is a classification system in Canada that evaluates the state of contaminated sites. It is also part of the remediation process to identify contaminated lands through three major environmental medias; water, soil and air. The classification system examines the individual characteristics of the site in order to determine which category it belongs to. The classification system is divided into five sections; high priority for action (Class 1), medium priority for action (Class 2), low priority for action (Class 3), not a priority for action (Class N), and insufficient information (Class INS). This system aids in identifying which sites must be given priority in terms of preventing further contamination, harming the environment and protecting human health.

Funding and Programs

Public Sector

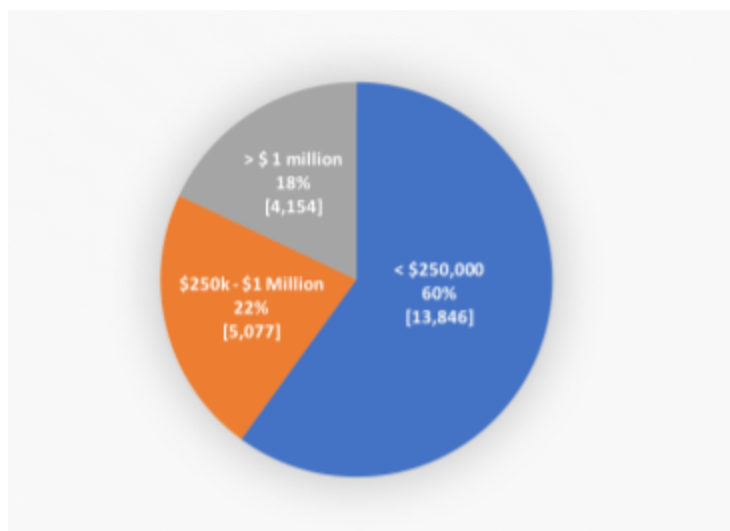
<i>Federation of Canadian Municipalities</i>	The Government of Canada endows an amount of money to the Federation of Canadian Municipalities (FCM) to use towards the Green Municipal Fund (GMF). The FCM funds the GMF with a \$550 million dollar budget, and an additional \$125 million dollars, allocated by the Government of Canada for the 2017-2018 budget. The GMF provides funding and guidance regarding sustainable community redevelopment, which includes brownfield redevelopment. However, there are certain requirements that must be fulfilled before the project is funded. This includes one of the following; site remediation or risk management, inclusion of renewable energy production, and meeting the criteria in the energy, transportation, waste or water sectors outlined in the program.
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Private Sector

<i>Federal Contaminated Sites Action Plan</i>	<p>Currently, the only incentive programs available for brownfields on federal contaminated lands is the FCSAP. Resources that contribute to site remediation come from Crown corporations and the Government of Canada. The FCSAP program has expended a total of \$2.66 billion from 2005 to 2016, with a plan to invest \$1.35 billion over four years, with \$1.25 billion into high-priority federal contaminated sites and the remaining into assessment and program management activities.</p> <p>Funding is provided to custodians from FCSAP for the remediation of sites that are Class 1 or Class 2 with remediation expenditures prior to April 1, 2011. The site must:</p> <ul style="list-style-type: none">- Meet the treasury Board definition of a contaminated site- Have been contaminated through activities that occurred prior to April 1, 1998- Be on lands owned or leased by the federal government (or if it is non-federal lands, the federal government must have accepted full responsibility)- In addition, a financial liability associated with the site must be reported in the Federal Contaminated Site Inventory
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Previous Federal Funding

Year	Amount	Time Period	Description
1990	\$25 million	Five Years	Assisting custodians with identifying, assessing and remediating high-risk contaminated sites
2003	\$175 million	Two Years	To accelerate action on the highest federal contaminated sites
2009	\$80.5 million	Two Years	Program management and assessment activities
2011	\$149 million	Five Years	FSCAP Phase II
2015	\$99.6 million	Four Years	Renew support for FSCAP Phase III
2016	\$217 million	Two Years	To accelerate the assessment and remediation of federal contaminated sites



Number of projects according to the scope of the financial spendings

Liability

<i>Professional Liability</i>	Within the remediation structure, the FCSAP secretariat and various experts from Fisheries and Oceans Canada, Environment and Climate Change, Health Canada and Public Services and Procurement Canada are approached to provide support and advice in their specialized field.
<i>Ownership Liability</i>	The government of Canada is solely responsible for brownfields within their own jurisdiction. They are responsible for funding, environmental assessment, listing on the federal inventory, proper cleanup and future conditions of sites.

Provincial Liability

From a federal standpoint, provinces are given the authority to handle brownfield redevelopment. This includes developing specific policies and acts to promote and regulate brownfield throughout the province.

Polluter Pays Principle

Currently, the Government of Canada adopts the standard "[polluter pays](#)" principle, where the responsibility of the cleanup fall unto the party that produced the pollution.

Joint and Several

Unknown

Apportioned

Unknown

Liability Transfer

If the Government of Canada believe they are responsible for contamination or if sites have been left or unattended due to company bankruptcy and no other company is found liable, multiple levels of government can share responsibility of these "orphan sites". This is normally not the case, as the federal government does not intervene unless there are strict ties to their involvement.

Liability Progression

In March 1993, Core Group on Contaminated Site Liability prepared the *Contaminated Site Liability*. This document was integral in determining who was responsible for clean-up and remediation costs. The Canadian Council of the Ministers of the Environment developed the [Recommended Principles on Contaminated Site Liability](#) in 2006, to replace the 1993 document with updated current issues and concerns.

The five recommended underlying principles listed in the [Recommended Principles on Contaminated Site Liability](#) can be categorized as the general policies that will form the basis of the legislation.

1. The principle of "polluter pays" should be important in framing contaminated site remediation policy and legislation.
2. Member governments should achieve the principle of "fairness". Fairness refers to the concepts of certainty of process, effectiveness, efficiency, clarity, consistency and timeliness in achieving environmental objectives. Alongside fairness, the concept of "deep pockets" should be ignored.
3. The remediation process should achieve the three concepts of openness, accessibility, and participation.
4. Those who are benefiting from the site should pay a portion of the remediation costs, as it would be unfair to receive the rewards without contributing to the process.
5. Government involvement should be based on sustainable development, integrating environmental, human health and economic concerns.

[The Canadian Council of Ministry of the Environment](#) also set out another eight specific principles, to address more practical standards that deal with specific legislatives. Overall, both underlying principles and specific principles provide a solid framework for transferring environmental liability between parties.

Sites Inventory

According to the Financial Administration Act, the Government of Canada must create an annual report that outlines the financial transactions of the country, known as Public Accounts of Canada. The report is divided into three volumes, with volume 1 presenting financial statements, information and analyses.

The [Auditor General of Canada](#) is then responsible for conducting an audit of financial statements that are in accordance with the accepted auditing standards of Canada. When recording liability in the 2017 report, the Auditor General of Canada included environmental liability, which can be defined as a contaminated site. Liability reflects the comparison between remediation costs estimated by the Government of Canada, to the current minimum standard for its use prior to contamination. After a present value and a discount rate based on the estimated time to complete remediation is created, a liability value can be determined. This obligation, set out by the Financial Administration Act, forced the Government of Canada to develop a registry for contaminated sites.

The Government of Canada's depository oversees brownfields on land owned or leased by the federal government, or where the federal government has accepted responsibility for the contamination. [The Federal Contaminated Sites Inventory](#) contains a map navigator that allows individuals to easily see which sites are contaminated. It also contains a detailed description of the site including expenditures spent, contaminants involved and current status of the site.

Best Practices

Federal Contaminated Sites Action Plan

The federal government has control over funding. Retaining most of the funds, the federal government is able to remediate sites that require massive resources under FCSAP. The additional funds acquired by the government can be expended on other helpful brownfield resources. For example, the remediation of the [First Nation Reserve of Kitasoo](#).

Federal Contaminated Sites Inventory

An important asset that the Government of Canada has is the [Federal Contaminated Sites Inventory](#) (FCSI). This inventory is accessible by internet and is free of charge. It states the condition of sites, the funding expended, contaminant details and the population surrounding the site. This helps developers understand the history and the condition of a brownfield site, which would further persuade redevelopment of the site.

Advocacy Groups

Canadian Brownfield Network

The Canadian Brownfield Network (CBN) is an organization that advocates for sustainability through brownfield remediation and redevelopment. They hold annual conferences to update brownfield findings and knowledge. They freely discuss practices and findings from development cases around Canada in order to provide guidance and solutions to barriers for developers.

Federation of Canadian Municipalities

The Federation of Canadian Municipalities (FCM) is an overarching group that handles Canadian municipalities and is the voice for the municipal government. Funding for brownfield redevelopment is given to the FCM through the Green Municipal Fund (GMF). The GMF receives funds which is then divided amongst various environmental issues.

The Government of Canada endows an amount of money to the Federation of Canadian Municipalities (FCM) to use towards the [Green Municipal Fund](#) (GMF). The FCM funds the GMF with a \$550 million dollar budget, and an additional \$125 million dollars, allocated by the Government of Canada, for the 2017-2018 budget. The GMF provides funding and guidance regarding sustainable community redevelopment, which includes brownfield redevelopment. However, there are certain [requirements](#) that must be fulfilled before the project is funded. These requirements differ amongst the provinces based on their own specific regulations and acts, which can be found on the [FCM website](#) under their corresponding roadmaps.

The GMF provides grants and loans throughout the four steps outlined by the FCM.

Four Steps	Description	Financial	Exceptions
Plan	To provide financial assistance when developing community brownfield action plans	Grant: 50% of eligible costs (max. of \$175,000)	N/A
Study	To provide financial assistance for feasibility studies and pilot projects.	Grant: 50% of eligible costs (max. of \$175,000)	Pilot Projects: Grant: 50% of eligible costs (max. of \$350,000)
Remediate	To provide financial assistance for remediation and risk management activities.	Loan: Up to 80% of eligible costs	N/A
Redevelop	To provide financial assistance for redevelopment activities including energy, water, waste and transportation	Loan: Up to 80% of eligible costs (max. of \$5 million) Grant: 15% of the loan	High-Ranking Projects: Loan: (max. of \$10 million) Grant: 15% of loan (max. \$1.5 million)

Libre Program

Under the Federation of Canadian Municipalities, the [Leadership in Brownfield Renewal \(LIBRe\) program](#) provides learning opportunities for municipal practitioners to help develop knowledge and skills to better facilitate brownfield redevelopment. The program is a seven-step framework that supports participants' progress, peer learning activities and materials necessary to understand the brownfield redevelopment. The program is structured according to the seven steps presented below:

1. Commit to Action
 - a. Making brownfield redevelopment a municipal priority

- b. Form an interdepartmental team
2. Understand the Landscape
 - a. Determine your regulatory obligations and policy options
 - b. Identify your local brownfield stakeholders
 - c. Conduct a brownfield inventory
3. Build Partnerships
 - a. Form an external brownfield advisory group
 - b. Build relationships with financial institutions, reliant ministries and FCM's Green Municipal Fund
4. Devise a Strategy
 - a. Identify priority brownfield sites and define broad redevelopment visions
 - b. Engage stakeholders
 - c. Develop a strategy and appropriate incentive programs to encourage brownfield redevelopment
 - d. Establish clear roles and responsibilities
5. Promote Programs and opportunities
 - a. Develop a communication strategy and materials to promote municipal brownfield programs and redevelopment opportunities
 - b. Organize and participate in events to promote brownfield programs and redevelopment opportunities
6. Manage programs and projects
 - a. Adopt a client-centred approach
 - b. Designate and empower a brownfield "Point Person"
 - c. Develop a strong understanding of your brownfield sites
 - d. Set clear and realistic expectations
 - e. Contact FCM's Green Municipal Fund
 - f. Move application through municipal approval processes
 - g. Maintain regular communication with project proponent and stakeholders
 - h. Monitor project progress and impacts
7. Evaluate, improve and celebrate
 - a. Evaluate report on the impact of your brownfield programs
 - b. Adjust brownfield program offering and service delivery as needed
 - c. Celebrate and showcase your brownfield success stories

10.2 - Canada Compared Abroad

United States

Brownfield remediation within the United States dates back to 1990 and continues to remain an important subject in the development discussion. The U.S clearly correlates brownfield redevelopment to economic growth through travel time reduction, money leveraging, and property value increase, among more. Policies are current and directly signify brownfield usage and its importance to the country. Incentives for private developers are also established to encourage brownfield development. Overall, the federal role for brownfield remediation within the United States is more prominent compared to the Government of Canada.

Definition - Brownfield

Within the [Brownfields Act](#), brownfields are defined as “real property, the expansion, redevelopment, or reuse of which may be complicated by the presence or potential presence of a hazardous substance, pollutant, or contaminant”

Regulations

Resource Conservation and Recovery Act (1976)	The Resource Conservation and Recovery Act was established by Congress to establish programs to regulate hazardous waste, solid waste and underground storage tanks.
Comprehensive Environmental Response, Compensation and Liability Act or Superfund (1980)	Created by the United States Environmental Protection Agency, the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA), also known as Superfund, was developed to help protect the health of humans and the environment through the cleanup of hazardous waste sites. Aside from brownfields, the CERCLA responds to local and significant environmental emergencies.
Small Business Liability Relief and Brownfield Revitalization Act or Brownfields Law (2002)	The Small Business Liability Relief and Brownfield Revitalization Act , also known as the Brownfields Law, established funding to assess and remediate brownfields. It also clarified liability regulations set out by the CERCLA and enhanced state and tribal response programs.

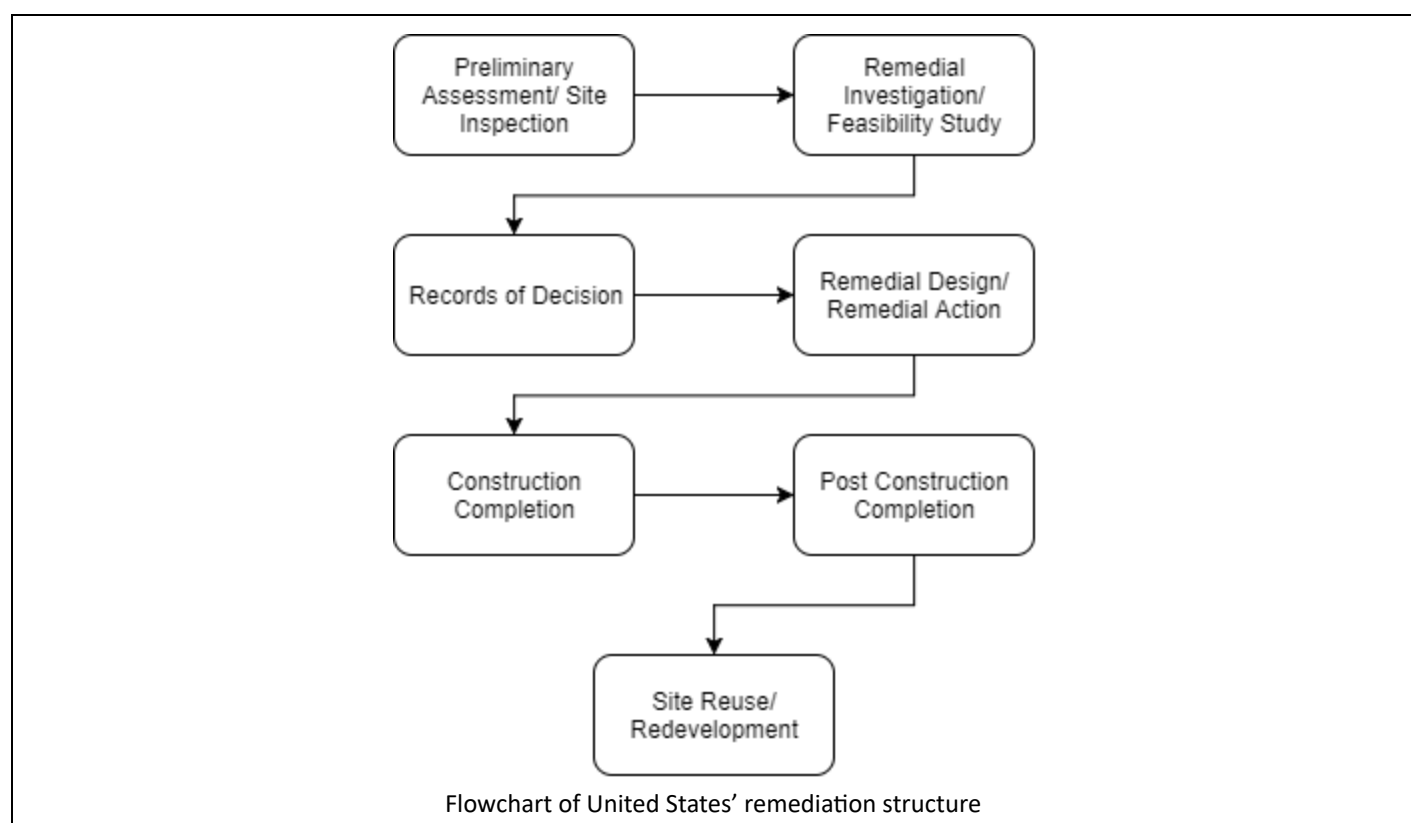
Funding (Federal)

Assessment Grants	<ul style="list-style-type: none">- Up to \$200,000 to assess/address a site contaminated by petroleum and hazardous substances, pollutants, or contaminants (including hazardous substances co-mingled with petroleum)- Applicants can seek a waiver to request a grant up to \$350,000- A coalition of three or more eligible applicants can submit one grant for up to \$1,000,000
Revolving Loan Fund	<ul style="list-style-type: none">- A capital fund that is used to provide loans and subgrants to carry out cleanup activities- Once the loan is repaid, the amount of money is returned to the fund for others to use- Loans can be separated into six different categories: standard, intra-governmental, low or zero interest, loan guarantees, bridge and discounted
Clean Up Grants	<ul style="list-style-type: none">- To help carry out cleanup activities- An eligible entity may apply for up to \$200,000 for a site, however they are limited to three sites- A cost share of 20% must be issued by the applicant (20% of grant amount)

Area Wide Planning Grants	<ul style="list-style-type: none"> - Grants devoted to applicants that are dealing with an area of land - Grant subject to differ (majority at \$200,000)
Environmental Workforce Development and Job Training	<ul style="list-style-type: none"> - Allows non-profits and other organizations to train disadvantaged people living in areas affected by contamination - Develops their skills needed to secure “green jobs” - Grants vary

Remediation Structure

The process for remediation was established by the CERCLA. It actively involves the community throughout the nine step process. Further information on individual steps and public resources are made available on the EPA's [website](#).



Step 1 - Preliminary Assessment/Site Inspection (Site Assessment)

Review of historical information. A site investigation is conducted to evaluate the potential release of contaminants.

Step 2 - Remedial Investigation/Feasibility Study

Determines the nature and extent of contamination at the site. The study is made public for the community.

Step 3 - Records of Decision

Contains information on site history, site description, site characteristics, community participation, enforcement activities, past and present activities, contaminated media, the contaminants present, description of the response actions to be taken, and the remedy selected for cleanup.

Step 4 - Remedial Design/Remedial Action

Prepares for and preforms cleanup.

Step 5 - Construction Completion

Communicates that the physical cleanup has been completed.

Step 6 - Post Construction Completion

Review of construction. Ensures the preservation for future generations.

Step 7 - Site Reuse/Redevelopment

EPA works with communities to determine applicable uses for the newly cleaned site.

Liability

In June 2014, the Office of Site Remediation Enforcement and Office of Enforcement and Compliance Assurance created [Revitalizing Contaminated Lands: Addressing Liability Concerns](#). The handbook establishes the liability of various actors within the development process, such as the CERCLA and RCRA. Liability protection laws are also addressed within the handbook for purchasers, innocent landowners, local government, lenders and residential property owners. The handbook delves further into each respected topic and its components.

Within the [Small Business Liability Relief and Brownfields Revitalization Act](#), liability is addressed further. It allows expedited settlements from owners to ensure the business operations are still maintained, while remediation costs are being paid. The act also exempts particular individuals to ensure the one responsible for the contamination remains liable. The following individuals include:

Contiguous owners

An owner or operator that owns land contaminated solely by the release of hazardous materials from a situated property owned by another person.

Bona fide prospective purchasers

Purchasers who bought the land prior to disposal who do not impede the performance of a response action or natural resource restoration.

Innocent Landowners

Landowners may be deemed as innocent if they satisfy all the appropriate inquiries. Inquiries are case specific, but can include background search on the defendant, phase 1 site assessment or a facility inspection.

United Kingdom

United Kingdom was one of many countries leading the industrial revolution. As a result, plenty of contaminated, derelict and vacant lands can be found throughout the country. As precautionary measures, the government has mandated core planning principles directly focusing the redevelopment of brownfields in the National Planning Policy Framework, published in 2012. Though, the UK government has introduced new policies addressing brownfields, the authority to remediate and up-date information regarding local contaminated sites fall under the jurisdiction of the local planning authorities. The goal of the United Kingdom's government is to build as many houses as possible on brownfield lands and reuse the land.

Definition

According to the [Government of United Kingdom](#), the definition of brownfield land is referred to as previously developed land, which is defined in the governments [annex](#) as “land which is or was occupied by a permanent structure, including the curtilage of the developed land and any associated surface infrastructure”.

Tools

National Land Use Database

The [National Land Use Database](#) comprises records of parcels of vacant and derelict land and buildings, as well as those currently in use with potential for redevelopment. This is the only national source of information available on brownfield lands. Information is compiled annually using five categories of previously developed land (PDL):

- A. Vacant Land
- B. Vacant Buildings
- C. Derelict land and buildings
- D. Land and buildings in use and allocated in local plan or with planning permission
- E. Land and buildings currently in use with redevelopment potential

Categories A-C are collectively referred to as derelict and vacant land and buildings

Categories D-E are 'in-use' or latent brownfield land.

The Land Registry

A new planning tool was introduced in the United Kingdom for local authorities to keep track of contaminated sites, remediated sites and ongoing processes within their area. The land registry provides up-to-date and consistent information on sites that local authorities consider to be appropriate for residential development, having regard to the Criteria 4 of Town and Country Planning Act.

Permission in Principle

The [permission in principle](#) is a newly established tool in the United Kingdom that provides developer with a certainty over whether a site is suitable for development ahead of working up costly proposals to obtain planning permissions.

Regulations

There are two tiers of legislations when dealing with remediation in United Kingdom; planning and contaminated legislations. The planning legislation deals with the sustainable development portion of the remediation of contaminated lands.

Planning Regulations

Town and Country Planning Act, 1990	Provides guidance for town and country development that is consistent with various plans
Planning and Compulsory Purchase Act, 2004	Holds power to reform and speed up the planning system, and support major infrastructure development and redevelopment
Environmental Protection Act, 1990 (EPA)	Deals with identifying and regulating the remediation of contaminated lands. Requires local authorities to produce a written strategy for inspecting contaminated sites within their area
The Contaminated Land (England) Regulations 2006 (2006)	Updated from the 2000 document, the 2006 Contaminated Land Regulations addresses all the policies associated with contaminant control
Environmental Permitting Regulations	Controls the management of large industrial premises to reduce the risk of contamination occurring and to remedy harm caused by breaching the authorisation
Waste Management Licensing	Controls the way that waste management facilities are managed by controlling the disposal or recovery of controlled waste
Water Resource Act, 1991	Pertains to water treatment and quality control

Funding

The only government funding and assistance for brownfield remediation that British landowners and developers receive is tax relief on profits. Though there isn't information directly related to brownfield funds, the government has allocated 3 billion pounds to [Home Building Fund](#) for any developer undertaking brownfield lands in the UK. According to the Environmental Agency report on [dealing with contaminated lands in England](#), the Capital Grants Programme has allocated a total of £ 52.2 million for local authorities to remediate contaminated sites.

Liability

[Environmental Damage \(Prevention and Remediation\) Regulations](#) (2009) - This legislation states that the polluter pays for any contamination. However, if the polluter is untraceable, the local government is in charge of the cleanup.

Conclusion

The US and UK have organized programs, regimes and structures to address brownfield redevelopment to suit the preference of their country. US has focused more on aiding the remediation process by providing funds, while UK has aimed to fast-stream the development of housing on brownfields. Though both countries have different end goals, they have both undertaken the remediation of brownfields by: “(a) setting up a dedicated authority to spearhead brownfield development; (b) implementing facilitation measures by the dedicated authority and local governments; (c) strengthening the efforts on brownfield development through new and existing legislation; (d) setting up publicly- available databases on brownfield sites to increase transparency to developers and communities; and (e) undertaking early and inclusive public engagement and making it as an integral part of brownfield development.” (UK Government, 2017,p. 7). Their current policies, community engagement, federal guidance and additional incentives all provide circumstances for brownfield redevelopment to prosper and thrive as future options for development, which the Government of Canada has yet to thoroughly consider.

10.3 - Federal Involvement

There are no recent contributions made by the federal government towards brownfield remediation. Current policies in practice do not directly address brownfields. The NRTEE’s Brownfield Report of 2003 was the last Canadian wide document advocating for brownfield redevelopment. The NRTEE highlighted the importance of professional guidance and monetary incentives. However, the federal government has stepped down in brownfield leadership, as they only attend to contaminated sites under their jurisdiction. This absence of guidance resulted in the creation of the Canadian Brownfield Network, where professional support is found, along with individual programs developed by the provinces and territories.

The only financial compensation the Government of Canada has is the Green Municipal Fund. While a large amount of fund is given towards the GMF, it still has to be distributed by the Federation of Canadian Municipalities, who handles various environmental issues aside from brownfield redevelopment. When compared to the United States and the United Kingdom, the Government of Canada has made a poor effort in providing consistent guidance and incentives towards brownfield remediation.

Section IV - Conclusion

11.0 A Snapshot of Canada

Canada is slowly progressing towards a better and more productive brownfield remediation process and redevelopment environment. This progress can be attributed to a number of factors. The division of powers between the Federal and Provincial Governments has given provinces the freedom to control land and resource-based activities, including the creation of all relevant brownfield policy, regulation, and process. This fact has allowed for extreme variation, made apparent throughout this report. The Canadian provinces and territories are also extremely different in size, population, geography, and industry, which further complicates the provincial and territorial brownfield remediation and redevelopment needs and their subsequent approaches. The lack of federal leadership and the overly complex individual policies has prompted a decentralized fragmented regulatory environment, with extreme variability throughout policy, regulation and the general process.

This variability has been rained in the last few decades. This is due to the NRTEE 2003 Report and CCME's recommendations, which have prompted a more standardized process, definition, and general standards and the associated levels for acceptable contaminants. Due to the important work of CBN, CCME and Atlantic PIRI, has been obligated to fill in many of the federal gaps, as a national leader in brownfields remediation and redevelopment. Overall, Canada is slowly wading through the issues of brownfield remediation and redevelopment. This has become a matter of necessity for the environment far surpassing involvement of the government.

12.0 - Region Highlights

The following section will award regions for their best practices in terms of process or policy, highlight any notable actions a region has taken to address remediation, and put forward areas of concern that a region faces. It will also highlight what is the ideal province in terms of all facets of evaluation.

12.1 - Optimal Province

Regional Advocacy - Alberta

Alberta, amongst all other regions, has benefited from numerous advocacy groups fighting for the reclamation and remediation of various derelict sites across the province. The Alberta Urban Municipalities Association has served as a source for information, where government actions were lacking. They have been pushing for the remediation of Alberta's contaminated sites for the past two decades and have successfully lobbied for these areas of concern. In addition, oil fields that have been abandoned have been brought to the attention of Alberta through the Orphan Well Foundation, who serve to adopt and remediate derelict sites. Groups such as these have pushed for change in Alberta's legislation and policy to encourage brownfield developments.

Incentive and Funding Programs - Ontario and Quebec

Ontario

Ontario has a large variety of funding and incentive programs available for both developers, landowners and the municipality. In many of the regions, funding is available specifically for brownfields in that area. Depending on where a site is located, there may even be funding at both the municipal level and regional level. Many of these programs can be layered on top of each other, which adds additional funding to a site. Most municipalities have their own programs available. Considering this, some sites have the potential to receive funding at the municipal, regional, and provincial level.

Quebec

The Province of Quebec historically and presently has a very successfully funding program for brownfield development. In 1998, the Revi- Sol program was initiated as the first program to provide financial assistance for brownfield development in the province. The program provided funding 132 development projects, covering a total of 509 acres on the Island of Montreal. The Revi-Sol program was later revamped as the Climate-Sol Program, where a major focus was placed on the environment and sustainability. The program provided \$25 million for the City of Montreal, \$15 million for the City of Quebec, and \$20 million for other municipalities. The Climate-Sol program was terminated in 2015, making room for the Climate-Sol-Plus program that was introduced in the 2016-2017 budget and continues to be the main financial program to this day.

Leading Municipal Action - Saskatchewan

Brownfield redevelopment is not swept under the carpet in Saskatoon. Several brownfield sites are located in the downtown and core neighbourhoods of the city. Developers are able to access financial incentives through several different programs. They are offered assistance with environmental screening and remediation costs. As well, the city is examining the need to develop a new incentive program, specifically for brownfield development, in the near future. Some key incentive programs in the city include an Enterprise Zone, Downtown Housing Incentives , Affordable Housing Initiatives and Vacant Lot & Adaptive Reuse Strategy. To encourage the development of brownfield sites in the city and to educate the public and owners on the issues and benefits of this development, the city developed a guidebook in 2010.

Developed Inventories - Quebec

Quebec's inventory list is not an exhaustive list, however it does provide general information and conditions about contaminated sites, including name, address, nature of contaminants, quality of the soil and date of creation. These sites have been brought to the ministry's attention.

Breaking Barriers (Liability and Policy) -Quebec

The Province of Quebec has a robust set of policies, regulations, and guides that make the province a leader in brownfield development in Canada. Many of the policies and guides have been updated or introduced in 2016 or 2017, providing stakeholders with up-to-date information on brownfields. The policy document, *Politique De Protection des Sols et de Réhabilitation des Terrains Contaminés- Plan d'Action*, was introduced in 2017, and update from 2010. The Province of Quebec further provides an array of guides for brownfields development, including contaminated soil drop off locations, expert guides, and soil remediation flow charts, among others. Ensuring the province has updated policies, regulations, and guides allows for appropriate adaptation to the current state of conditions that brownfield sites are exposed to.

Overall Process (Speed and Ease) - British Columbia

The Province of British Columbia excels due to a few features in their Environmental Management Act. The use of Protocol 6 has prompted a significant improvement in the efficiency, speed, and reliability of site assessments through to the remediation and sign-off. Part 4 Section 42 of the Act highlights how and what approved professionals are qualified to do, including certain classes of activities, the creation of reports and submitting a number of documents. This replaces many tasks of the minister, providing a key role for the private sector to fill. Additionally, the use of approved professionals allows for a relatively easy transfer of liability, while promoting an efficient and successful process for all low to medium risk sites.

Cross Regional Organization - Maritimes

The Atlantic provinces have created a joint organization to standardize brownfield practices across the Maritimes. This method is very effective, as uniform terms and processes make it simple for developers to build in any of those regions, without the need to familiarize themselves with a new set of terms and processes. This cross-regional organization can also be used as a medium to communicate successful practices between participating regions, resulting in the formulation of an encyclopedia of best practices that provinces can refer to.

12.2 - Notable Actions

Innovative Site Use - Alberta

In cases of where investment through both private or public developers was deemed infeasible, the province sought out alternative methods to utilize brownfield sites through unconventional methods. The region saw the country's first solar field interim use, where construction of a building was not feasible for the municipality. The use demonstrates an environmental practice, when making a site temporarily useful until proper remediation can occur. In addition, the region showcased potential sites for pop-up markets with shipping containers to showcase a site's potential economic benefits, while being temporary and safe in nature by use of the containers. In the absence of immediate interest, interim uses are sought out to create use.

Remediation Initiatives (Dockside Green) - British Columbia

Dockside Green was an instrumental project for brownfields remediation and redevelopment in British Columbia. This large abandoned industrial site, situated in the heart of Victoria's inner harbour, was only redeveloped due to the combined efforts of a public private partnership. This municipally owned site was contracted out for the entire project. The developers were chosen due to their dedication to achieving a LEED platinum community, following the triple bottom line approach. This first of its kind, fully designed, complete community was granted LEED platinum due to its best practices in creating a socially vibrant, ecologically restorative and economically sound neighbourhood. Some of the innovative features of this development include; onsite solar, wind production and a biomass energy plant, local water treatment plant, best practices passive design, use of ponds and streams for infiltration and retention ponds, used for irrigation and greywater applications such as for toilets and showers, and modern consumption metering of water and electricity. Integration with the surrounding environment was inherent and central to the planning of the site. New life has been brought back to the site with council's approval to rezone the property and with the Bosa Development Group acquiring the rights to complete the remainder of the project.

Leading Region - Quebec

Quebec has become a powerhouse in the realm of remediation efforts. More specifically, Montreal, with its robust history of brownfield sites, has forced the city to improve policy and programming to speed the clean up processes. The same can be applied to the province, where legislation and policies at the upper levels allow for municipal bodies to utilize them and encourage brownfield clean up.

Active Actions (Hamilton ERASE Program) - Ontario

Hamilton's Environmental Remediation and Site Enhancement or ERASE Community Improvement Plan encourages and aids in the redevelopment and remediation process through the provision of a variety of programs. The ERASE program is a large scale and comprehensive program that helps lead the developer through the processes related to brownfield redevelopment. This encompasses a variety of funding through grants and tax assistance, the setup and provision of partnerships, and other such assistance. Since Hamilton has one of the heaviest concentrations of brownfield in the province, this is a big step in turning this around and dealing with the problem.

Brownfield Coordinator - Alberta

Alberta's creation of a dedicated professional to oversee remediation efforts across the region is a notable action. This role, designated as a brownfield coordinator, plays an integral role in the remediation processes for contaminated sites. By actively participating in the approval stages, a brownfield coordinator can guide both private and public initiatives to better remediate sites. Furthermore, they oversee development from across the region, serving as a contact for any questions or concerns that a developer or public body may have.

Reuse Strategies - Saskatchewan

Saskatchewan's Vacant Lot and Adaptive Strategy is a significant tool that encourages brownfield redevelopment. The provincial strategy provides financial grants that are tax based. The maximum amount is determined by the existing property taxes and the taxes paid once remediation is completed, multiplied by five years. Applications are not restricted, as the amount of monetary grant varies by case, allowing for more case-specific grants.

12.3 - Areas of Concern

Low Priority Agenda - British Columbia

Municipalities in BC are lacking any provincial direction or strategy. Without a new progressive renewal program, the majority of rural, low risk, small scale sites will continue to lay derelict and vacant. These properties are often highly undervalued, being far away from any CBD or major population. Because of this, sites are reliant on the local government to identify, assess and often remediate the site. Municipalities are highly limited in feasible options to promote private sector redevelopment projects. Public Private Partnerships (PPP) have been highlighted by FCM as well as numerous projects throughout the industry. PPP's allow for mutually beneficial redevelopment opportunities for the community, municipality and private sector. Many municipally driven private sector developments have been seen to promote the most modern and productive situation for a successful brownfield redevelopment. Unfortunately, these types of sites vary extensively in quantity and potential for redevelopment, thus making the local context a key factor in all brownfield remediation and redevelopment.

Language Barriers - Quebec

Quebec is one of the most advanced regions in terms of brownfield remediation. However, though information is well provided, it is in French, with no option to translate. This is a problem, as developers not fluent in French have a hard time looking for opportunities additionally, this can be a detriment in policy review.

Underfunded Efforts - Maritimes

Despite the presence of brownfields within the Maritimes, there is a lack of focus and information on any budgets allocated for remediation. The lack of funding is concerning, as there are no incentive programs or grants available to attract developers. The remediation process is a lengthy and tedious one, and without partial coverage of the costs, most developers will not invest.

Fleeting Advocacy - Manitoba

In Manitoba, there is a lack of advocacy groups regarding brownfield remediation. This is a concern, as a lack of involvement from an interested group created a lack of third party force pushing provincial and municipal governments to amend their brownfield policies. This absence of advocacy has great potential to be problematic in the future of urban development; as population rapidly grows, it will be more necessary to grow cities in a sustainable manner. Brownfield redevelopment is the key for unlocking such opportunity. It is crucial that communities' and additional stakeholders' attention are brought to this subject.

Municipal Burdens - Alberta

In Alberta, the provincial government created a policy to dictate how municipalities influence local remediation efforts. However, much of the funding that is available to them is limited in nature. As such, the province has left much of the process and programming to each municipality. These often entail high costs and a lack of tools, which has been restricted through provincial policies. Many local municipalities are overburdened with large responsibilities in which they do not have the ability to take them on.

Problematic or Inaccessible Inventories - Territories and Saskatchewan

All three of the territories and Saskatchewan do not possess adequate contaminated sites inventories. Without proper inventories to keep track of sites that need to be cleaned, it is hard to take initiative and realize the scope of the problem. Having a visual representation of exactly how many sites there are within a region will provide context for the government and developers about the state of brownfields.

13.0 - Federal Highlights

Notable Areas

Comprehensive Federal Inventory

The Federal Contaminated Sites Inventory (FCSI) is an important tool created by the federal government. The FCSI is available for public access and provides an extensive amount of information on federally owned brownfield sites.

Indirect Brownfield Policies

The Government of Canada has implemented numerous environmental policies and acts. These regulations prevent more contaminated sites from being created.

Progressive Liability Policies

The Core Group on Contaminated Site Liability developed the *Contaminated Sites Liability* in 2006. The group recommend several complex principles regarding liability concerns. While the document is over a decade old, it sheds light on different aspects regarding liability, aside from the “Polluter Pays” principle, which is outlined on the government website.

Areas of Concern

Miniscule Role

The federal government’s involvement has been limited to providing the Federation of Canadian Municipalities with a budget to support one brownfield redevelopment a year. After the release of the National Round Table on Environment and Economy (NRTEE) report, the federal government expected provincial and local municipalities to continue brownfield redevelopment without any current policies, acts and regulations.

Accessing Federal Resources

Information available on brownfield redevelopment is scattered. Only a professional with a background in brownfield is able to acquire information. Creating a website dedicated to brownfield information, documents, policies, regulations and guidelines could improve the accessibility and aid public users.

Regressive Actions

Another clear representation of the miniscule role of the federal government is the lack of specific policies, acts and regulations directly addressing brownfields. Also, a lack of a specific website containing information, web documents regarding brownfield redevelopment, and tools to navigate the public and private developers.

14.0 - Region Review

The following rankings emerge from a comprehensive review of brownfields policy and programs in federal and provincial jurisdictions and their ability to support municipal planning and development at a local level. The following regions have been evaluated using signal bars to demonstrate a region's effectiveness in regards to communication.

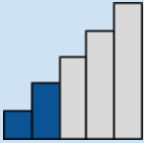
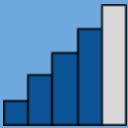
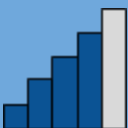
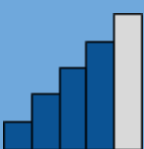
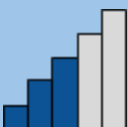
In order to establish the final region reception ratings, a robust criteria was used to examine sixteen factors. These factors were based on the triple bottom-line categories that brownfield remediation has potential in.

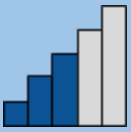
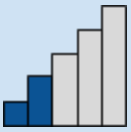
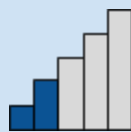
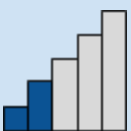
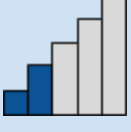
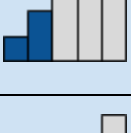
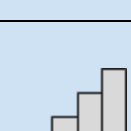
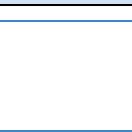
Environmental factors address how the region has fared in reducing the risk of brownfields; are they a priority in the region, does the policy help push for remediation practices, has considerable progress been made since the debut of the NRTEE report and is the process effective in remediation?

Economic factors examined the incentives behind potential developments for developers; is there a strong market to justify remediation, does the region have tools to generate funding, is there investment in remediation from public or private bodies, and does the provincial government fund municipalities to remediate sites?

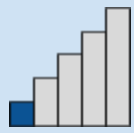
Social factors examined how the various programming available to a region to remediate is being used, the regions stance and practices on liability, the tools and resources available to a region to further remediation efforts, the presence of advocacy in the region, the overall impact of brownfields in a region being realized, and brownfield culture being understood by both public and private stakeholders.

There are a few limitations to consider when reading this document. It should be noted that all research was conducted by third year undergraduate students who were largely unfamiliar with brownfields policy and practice from the outset. As every province and territory essentially has its own brownfields history, policies and processes, the students had to distill a large amount of information. Accordingly, the work had to be delegated to a fairly large group of student researchers, likely resulting in some subjectiveness regarding the interpretation of regional results. Additionally, a frequent lack of brownfields-specific information available on the internet, depending on the region, and difficulties contacting regional government officials, meant that some information presented may be out of date.

Tier	Region	Reception	Comments
Lower	Federal Government		The federal government possesses a well funded federal remediation plan and inventory for federally contaminated sites, but lacks funding for municipal and private stakeholders. Lack of involvement in the remediation process and new policies directly addressing the issue. Information is scattered throughout the web and lacks a web page dedicated to brownfields.
Upper	Quebec		Comprehensive/updated set of policies and guides that ensure proper procedure and understanding to the remediation process and redevelopment process as a whole. A historically successful provincial funding program (ie: Revi-Sol, ClimatSol). Adequate public involvement throughout the remediation process. Information is easily accessible through the MDDELCC.
	Ontario		Ontario has taken many steps that address the issue of brownfields. Between the provinces site registry, guiding policies, accessible information and the number of incentive and funding programs available, it is on the right track to dealing with this issue. Ontario still has some steps to take to ensure that dealing with brownfield sites is no more complex or discouraging than dealing with uncontaminated sites.
	British Columbia		British Columbia was an early proponent of Brownfields remediation and redevelopment in Canada. Their policies and regulations were directly influenced by the NRTEE report and recommendations. Set an example for what a province wide incentive program can look like through their Brownfield Renewal Program, which ran from 2007 to 2014. This program kickstarted many difficult and highly complex projects, providing funding for initial assessments and remediation. Overall, British Columbia provides an efficient and clear remediation process with the use of the CSAP Approved Professionals and their clear liability structure.
Middle	Alberta		Alberta has seen significant effort into regional remediation efforts, with an array of robust policy, legislation and action taken. The province has the necessary tools to fund and develop brownfields, but struggles with pressuring owners to act upon derelict sites. The province has routinely met all criteria, but has not been at the forefront of nationwide efforts. Alberta has a strong foundation but limited initiative to drive remediation efforts across the entire province.

	<i>Saskatchewan</i>		Without the city of Saskatoon, this grade would be down at least a tick for the province. There are a variety of remedial approaches, as well as municipal incentives, to encourage brownfield development. No depository or database is something that the ministry needs to act on in order to improve for the future with regards to brownfield development.
Lower	<i>Manitoba</i>		There is existing information regarding remediation structure, liability regulation and site depository. However, there is a lack of advocacy group involvement. This indicates that Manitoba is not taking the initiative to attract stakeholder interest of brownfields and bringing out their economic, environmental and social benefits.
	<i>Nova Scotia</i>		Nova Scotia has their own remediation structure as they are aware that brownfields and contaminated sites are a problem. They have limited provincial policies and do not have an inventory for contaminated sites. Due to lack of funding, they are unable to progress in the remediation of brownfields.
	<i>Newfoundland</i>		Newfoundland and Labrador have been making progression with brownfields and contaminated sites and are continuing to improve impacted sites. However, they have not done much due to lack of funding. The province has limited policies on contaminated sites and brownfields, as well as no municipal depository.
	<i>Nunavut</i>		Development and redevelopment is limited by small populations and small urban areas. Publicly accessible inventory is not provided. Territorial and Municipal policies are in place. Brownfields mentioned but not explicitly defined.
	<i>Yukon</i>		Much like Nunavut, development and redevelopment is limited by small populations and small urban areas. Publicly accessible inventory is not provided. Territorial and Municipal policies are in place. Brownfields mentioned but not explicitly defined.
	<i>Northwest Territories</i>		Small population, therefore no real benefit to redevelop mines as land is not competitive. Publicly accessible inventory is not available. No real focus on the brownfield effort.
	<i>Prince Edward Island</i>		Prince Edward Island had limited information on contaminated sites and brownfields. A remedial structure could not be found so it is assumed that it follows the Atlantic PIRI remediation structure. The current status of brownfields in Prince Edward Island seems to be at a halt due to lack of funding.

New Brunswick



New Brunswick does not have their own remediation structure, so it is assumed that it follows the Atlantic PIRI's structure. The people of the province are aware that contaminated sites are a problem, however due to lack of funding, they are not able to progress in brownfield remediation.

15.0 - Recommendations

The following recommendations are made to improve how provincial, territorial and federal regions address brownfields in Canada. These recommendations are drawn from our research and attempt to bridge gaps in knowledge and process regarding remediation efforts.

Provincial Recommendations

Standardize And Regulate All Registries

Throughout Canada, we recommend that each region have publicly accessible site registries with consistent terms and structures. The overarching standard for regional depositories should meet a similar level of in-depth information as Quebec's site registries. Each registry should include information of the site owner, address of the site, nature of contamination, quality soil and date of creation. A standard for registries will facilitate the process of remediating sites and ensuring sites with completed ESAs are updated to meet environmentally acceptable standards.

Dedicated Contaminated Society And Accredited Remediation Professionals

We recommend emulating British Columbia's CSAP society. This society provides accreditation and legal process for all remediation professionals in the province. These approved professionals are given the powers to do the majority of the heavy lifting when it comes to site profiles, original assessments and the entire process for low to medium risk sites, following [Protocol 6](#). The creation of CSAP under The BC Society's Act has been seen as an integral piece of the puzzle for British Columbia's brownfields process, providing a substantial role for the private sector, promoting productive industries that compete with each other, and by promoting a more efficient process. Their powers and general [governance](#) are set out in the Environmental Management Act.

Create Developer Friendly Guidelines On How To Successfully Remediate A Site

Creating a developer friendly guideline on how to successfully remediate a site is an important factor for the success of brownfields within Canada. When deciding if redeveloping a contaminated site is worth the time, developers will need guidance to spark their interest. Developers are often turned away by the lengthy and tedious process, a problem that could be solved if they thoroughly understand the steps.

Ensure All Information Is Bilingual

In a bilingual country such as Canada, policy documents, procedures, and laws should be easily accessible in both English and French. Providing documents such as guides, procedures, and laws in both languages allows for easy access to information. It further provides opportunities for other provinces and territories to easily access information to better support their own brownfield policies. Learning from other

provinces provides the opportunity to develop policies, guides and procedures that are comprehensive in nature.

Ensuring That Policies Guide But Do Not Restrict Developers

Although it can be good to have a variety of policies in play that guide the remediation and redevelopment process, too many can make it difficult to get tasks done effectively. Policies should determine certain processes or restrictions but there should be alternatives listed within/amongst them. With too many policies in the way it can discourage developers from wanting to work with brownfield sites, as the policies could end up increasing their costs or the timeline of a project. With alternatives listed, developers could be less concerned with the policies that are in place.

Public Information And Understanding

Spreading information about the benefits of redeveloping brownfields will help developers realize the underlying potential of revitalizing contaminated sites. A lack of understanding regarding brownfield remediation processes can be a barrier to opportunity. Some developers may want to learn more about the subject, but specific information may be scattered and hard to find. Developers need to understand how brownfields have the ability to revive a neighbourhood, encourage sustainable development, and have the ability to reduce cost by utilizing existing infrastructure.

Federal Recommendations

Creation Of A Cross Provincial Inventory

A site inventory that lists all the brownfields within a region may be difficult for some provinces or territories to acquire, due to lack of resources or expertise in the field. A cross provincial inventory of all brownfields within Canada, that is consistent in format and information is available for public use, would be beneficial for brownfield redevelopment. Alongside history, contamination and status, the inventory should showcase grant and loan opportunities as well as surrounding context. A cross provincial inventory could provide updated site information for foreign and local developers, with the correct knowledge to properly handle the brownfield site.

Additional Funding For Public And Private Remediation Efforts

Currently, the only financial incentives provided by the Government of Canada are through the Green Municipal Fund. While a substantial amount is given to the Federation of Canadian Municipalities (FCM), it is insignificant compared to the money allocated to their own fund, the Federal Contaminated Sites Action Plan, dedicated to only federally owned brownfields. Furthermore, the money given to FCM must be distributed properly throughout the five other focus areas, aside from brownfields. Additional funding for public and private development that directly affects brownfield remediation would greatly incentivize redevelopment. A funding system that rivals the United States and rewards redevelopment leadership would benefit the brownfield market, especially in less marketable areas.

Review Of Federal Policy And Guidelines To Encourage Remediation Efforts

No recent efforts have been made by the Government of Canada to establish consistent regulations throughout the country. The federal government states that the provinces and territories have the authority to produce policies and acts that directly affect brownfield remediation. This freedom, combined with a lack of standardization, has resulted in regulations that strongly differ across the country, creating challenges for developers searching for brownfield redevelopment in other jurisdictions. Provinces or territories might lack the knowledge of the remediation process or funding, further complicating regulation development. With the last brownfield document mandated by the federal government being the NRTEE's Brownfield Report in 2003, new federal guidance addressing current concerns is necessary.

Creation Of A Federal Brownfield Department

The creation of a federal office dedicated solely to brownfield redevelopment was initially stated in the NRTEE's Brownfield Report, but has yet to be developed. Currently, brownfield remediation is under Environment and Climate Change Canada which addresses numerous topics. The complexity and size of the subject, and the current variations among the provinces and territories, requires the knowledge of specialists. Furthermore, the creation of a specialized department would provide coordination with participating federal departments and consistent information to the public.

16.0 - What Lies Ahead

The first consideration of this report was to expand upon the legacy NRTEE laid out in their national strategy 15 years ago. The work done then is integral to what appears here; this report is a successor to the endeavours made over a decade ago, and will attempt to lay the groundwork for the next cycle in brownfield remediation practices through its improvements upon brownfield policies and legislation. Having comprehensive information regarding remediation, liability and site depositories is key to facilitating Canada's brownfield redevelopment process. These improvements must become a nation-wide standard and must be publicly accessible in order to drive public and private efforts.

Additionally, there must be greater federal involvement with brownfield redevelopment, as there has been a lack of regulation and monitoring. This will further create an efficient remediation process, without wasting unnecessary time and resources. Developers need to understand the tremendous potential that brownfields possess; providing government-delivered education on the subject would serve the public good. Remediation can bring about sustainable development, cost efficient utilization of existing infrastructure, and slow down the rate of greenfield depletion.

The future holds great potential if the necessary steps are taken to further mandate brownfields across the country. This is not a municipal, provincial or federal responsibility; this relies on all three bodies to work in tandem with each other to foster a drive for remediation. Environmental practices have become a pressing matter within Canadian society, and brownfields represent a piece of that puzzle, in terms of both responsibility and opportunity.

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