



Indigenous and  
Northern Affairs Canada

Affaires autochtones  
et du Nord Canada

***Final Report***

***Evaluation of the Contaminated  
Sites On-Reserve (South of the  
60<sup>th</sup> Parallel) Program***

***Project Number: 1570-7/14089***

*January 2016*

Evaluation, Performance Measurement,  
and Review Branch  
Audit and Evaluation Sector



Canada 

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## ***List of Acronyms***

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INAC	Indigenous and Northern Affairs Canada
CSOR	Contaminated Sites On-Reserve (Program)
EPMRB	Evaluation, Performance Measurement and Review Branch
FCSAP	Federal Contaminated Sites Action Plan
IEMS	Integrated Environmental Management System
PWGSC	Public Works and Government Services Canada

# Executive Summary

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## Introduction

Indigenous and Northern Affairs Canada's (INAC) South of 60<sup>0</sup> Contaminated Sites On-Reserve (CSOR) Program provides assistance to First Nations by supporting the assessment and remediation of contaminated sites on-reserve lands and on any other lands under the Department's custodial responsibility.

The overall purpose of this evaluation is to provide reliable evidence that can be used to support policy and program improvement related to INAC's environmental management responsibilities. The evaluation provides evidence-based conclusions and recommendations about the relevance and performance of the CSOR as per the Treasury Board Secretariat's *Policy on Evaluation*, and also identifies best practices and lessons learned that might be applied to improve similar future programming.

The evaluation covers the period from 2009-10 to 2013-14, during which time \$220.1M was spent on the program.

## Methodology

Evaluation findings are based on information gathered from multiple lines of evidence, including:

- Document review;
- Database review;
- Literature review;
- Interviews with INAC National Headquarters and regional staff;
- Interviews with First Nations representatives;
- Site visits to First Nation communities; and
- Focus groups that included regional and Health Canada staff.

## Evaluation Findings

### *Relevance*

The evidence demonstrates a continued need for the CSOR, given the number of contaminated sites and significant environmental site assessment and remediation work yet to be addressed (e.g., assessing and classifying suspected on-reserve contaminated sites). Such work will contribute to a decrease in priority sites and a reduction in risk and liability.<sup>1</sup> The need for the program will continue as new sites emerge. While the Federal Contaminated Sites Program (FCSAP), as a key source of funding supports the CSOR, the CSOR is well aligned with federal priorities (e.g., the

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<sup>1</sup> The criterion for recording a liability is based on the requirement that INAC is obligated or likely obligated to incur future remediation/management costs. "Likely" is defined as a 70 percent or greater chance. The recorded liability should include all the costs to remediate the site to the appropriate lands or intended uses. Estimated known costs associated with Step 5-10 activities can be included. See 8 in Appendix A.

promotion of a cleaner environment, and economic development). Alignment is also demonstrated by the additional Canada Economic Action Plan stimulus funding given to FCSAP, which was to enable expedited work on both the assessment and the remediation of federal contaminated sites. The expected result is to improve the environment while encouraging economic growth. All of these complement other INAC activities, such as community rejuvenation and the broader environmental and economic strategies of the federal government. Finally, the CSOR is consistent with federal roles and responsibilities, which includes legislative obligations related to environmental stewardship. It is also consistent with INAC responsibilities and community priorities such as reducing or eliminating contaminated sites and environmental hazards, as well as contributing to the safety of on-reserve communities.

### ***Design and Delivery***

#### The CSOR's prevention strategies

There is a need to increase and strengthen the CSOR's prevention strategies in order to reduce or eliminate risks to human health and the environment, and reduce legal and financial liabilities associated with contaminated sites. INAC has undertaken work on a compliance plan to assist First Nations in meeting the 2008 Environment Canada *Storage Tank Regulations*, or help them with training for emergency fuel response and release, and the development of emergency and waste management plans. Yet, funding available for site clean-up is limited and moreover, very little if any remains for regions to offer effective contamination prevention or minor contamination do-it-yourself clean-up programs for reserves interested in preventative options.

#### Integrated Environmental Management System (IEMS)

The IEMS database facilitates the input of contaminated sites information to the Federal Contaminated Sites Inventory, which is a requirement of the *Treasury Board Policy on the Management of Real Property*. This database, together with site-specific Detailed Work Plans and quarterly site reports, informs both planning and reporting processes. However, IEMS users considered it to be a challenging system. For example, the IEMS dataset is incomplete and has a significant amount of inconsistent data or data duplication due to weak record keeping, reporting and data management. If the program is unable to adequately capture information, the quality of reporting suffers and where a system is not in place to easily capture the information, efficiency is lost through workarounds.

Information gathered as part of the evaluation suggests that challenges such as data duplication occur frequently. Given record duplication, the program uses workarounds to address data issues. Workarounds exist either because a system is too hard to use or it does not provide the function as required. Remedying the data in the IEMS database will keep its contents current, ensuring that it performs its vital function of keeping the Department abreast of the environmental situation across on-reserve communities.

### ***Performance – Effectiveness***

The CSOR is achieving its expected result that priority sites are remediated and risk managed and/or monitored. However, questions remain as to whether the program will be able to achieve full remediation, including closure of all contaminated sites. While the CSOR is enabling the reduction of liability, the total remediation liability for the CSOR is still prevalent due to the discovery and addition of new contaminated sites, which impact program-level progress on total liability reduction. There is also evidence to indicate that the secondary impacts of the program in the areas of employment and training are being achieved.

#### The CSOR Program is addressing the highest priority areas

The CSOR is achieving its key priorities of reducing the number of contaminated sites (Class 1 sites)<sup>2</sup>, but restricted funding makes it difficult and limits attention on lower priority (Class 2) sites. Nonetheless, significant progress has been made in achieving priorities. First Nation evaluation participants, while mentioning their own community infrastructure priorities, acknowledged the importance of dealing with these priority areas (i.e., sites that are high risk and require action to address existing concerns for public health and safety).

### ***Performance – Efficiency and Economy***

Evaluation evidence indicates that not all risks and financial liabilities associated with contaminated sites will be addressed given challenges, such as budgetary restraints. The constant discovery of new sites suggests a continuous demand for funding. Aside from FCSAP funds, the CSOR faces challenges with respect to leveraging internal INAC funds to address contaminated sites. This is compounded by the uncertainty surrounding whether the CSOR will obtain FCSAP funding beyond its expected end in 2020.

Despite these difficulties, as well as the requirement to demonstrate that the CSOR is spending its (i.e. public funds) in an efficient and economical way, and that it is achieving a positive impact relative to its capacity, the evaluation found that the CSOR has performed well in terms of resource utilization in relation to the production of outputs and progress towards its expected outcomes.

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<sup>2</sup> **Class 1**, High Priority for action (Sites are high risk and require action to address existing concerns for public health and safety). **Class 2**, Medium Priority for action (Sites are medium risk and there is a high potential for adverse off-site impacts – threats to human health and the environment are not imminent). **Class 3**, Priority for action (Sites are not a high concern, but additional investigation to confirm classification may be required)

## Some Key Challenges to Performance

### The Polluter Pay Policy/Principle on-reserve

The *Canadian Environmental Protection Act, 1999*, which is applicable on-reserve embodies the principle that users and producers of pollutants and wastes should be held responsible for their actions. Similar, for example, to the federal *Fisheries Act* or the *Species at Risk Act*, *Canadian Environmental Protection Act, 1999*, it is enforced on-reserve by the appropriate federal authorities responsible for these acts. In practice, however, enforcement of this principle on-reserve is complicated as it is accompanied by provincial compliance promotion elements (e.g., standards, certification, licensing, inspection), which are lacking on-reserve. Hence the evaluation found that the enforcement of the polluter pay principle on-reserve was a challenge, given the complex jurisdictional and legal context within which First Nations must operate.

A novel approach or solution to this gap can be found under the *First Nations Land Management Act*, where environmental protection standards are required. These must either meet or exceed provincial standards where there is a potential for pollution to occur. Moreover, in British Columbia, some treaties (e.g., the *Maa Nulth Final Agreement*) provide that provincial law will apply on First Nation lands.

Thus, the regulatory issue and the need for enforcement have led to challenges in ensuring environmental protection on-reserve. The polluter pays principle is meant to be one of the levers through which funding for remediation can be received, especially in cases where a polluter of a contaminated site is known.

### Legislative Gap<sup>3</sup>

As the evaluation has found, there are some risks that need to be addressed, one of them being the lack of control, which is also related to Third Party risk. For example, by allowing activities which continue to cause small scale pollution on-reserve, there is a risk that INAC may be held responsible for contamination as a result of activities which INAC does not perform and/or manage. Another key observation is that if the particular on-reserve community does not show diligence in prevention and monitoring, INAC may be liable for the contamination that may result. Thus, with INAC as a whole there are difficulties in monitoring all activities on-reserve, yet INAC could be responsible, or for health and safety reasons assume responsibility, for its remediation.

In fiscal 2015-16, Lands and Economic Development created a User's Guide on Determining INAC and Third Party Contaminated Site Responsibility. This document is intended to address the challenges associated with the polluter pay principle by detailing information related to each step to be taken to identify a polluter. The document covers orphaned or abandoned sites, polluters who do or do not accept the responsibility for pollution and other topics. Building on this guide, the CSOR may benefit from a strengthened liability regime.

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<sup>3</sup> By "legislative" or "regulatory" gap, the evaluation is referring to inadequate or the absence of legislation; this includes monitoring and enforcement systems to govern an activity.

## **Impact, both intended and unintended**

There is general agreement among interviewees that the CSOR has had a significant positive impact in several areas, including a beneficial impact on First Nations overall. High priority (Class 1) sites are being remediated, pollution sources are being documented, and to the extent possible, awareness of the need for appropriate fuel handling and tank management procedures is being raised within on-reserve First Nation communities. It is expected that an increase in the community's awareness will contribute to the program's prevention efforts.

## **Recommendations**

It is recommended that the CSOR Program:

1. Review the integrity of the IEMS data to ensure that they are accurate, reliable and usable;  
and
2. Coordinate its activities with other complementary programs within the Department in order to improve First Nation communities' awareness and response to fuel and waste management issues.



# ***Management Response / Action Plan***

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**Project Title: Evaluation of the Management of Contaminated Sites On-Reserve, South of the 60<sup>th</sup> Parallel**

**Project #: 1570-7/13071**

The Contaminated Sites On-Reserve (CSOR) Program, Lands and Environmental Management Branch and Lands and Economic Development Sector agree with the recommendations produced in this evaluation. There is recognition at all levels of the importance of addressing contaminated sites related to First Nations, for a multitude of reasons, and in making the Contaminated Sites On Reserve Program as effective and successful as possible.

The CSOR program has been very successful in its primary mission to remediate contaminated sites, protect human health and safety and improve environmental integrity on-reserve. These successes were achieved despite having limited financial resources and limited personnel. Sound financial and program management have allowed the CSOR program to be successful in making the case for and securing additional funding for contaminated sites both from within the Department and from custodians of other government departments who are participants in the Federal Contaminated Sites Action Plan.

The evaluation recommendations are in line with work already underway to improve the CSOR program and findings will inform future policy and process improvements.

The CSOR program has made significant recent improvements to the Integrated Environmental Management System (IEMS) data and strives to have the best system possible given available resources. Changes are continually being made to improve the data currently in the system and to respond to any new reporting requirements from central agencies.

The CSOR program coordinates its activities with many stakeholders. It collaborates fully within INAC with the Northern Contaminated Sites Program, Regional Operations and other preventative programs in the Department and will strive to continually improve horizontal collaboration.

The CSOR program will continue to be effectively managed, receive continued departmental support and strive to achieve its objectives. These include protecting human health and safety and improving environmental integrity on-reserve; developing a more accurate picture of contaminated sites on-reserve, reducing total contaminated sites liability for known sites; and, making land available to First Nations for community or economic development.

Recommendations	Actions	Responsible Manager (Title / Sector)	Planned Start and Completion Dates
<p>1. Review the integrity of the IEMS data to ensure that they are accurate, reliable and usable;</p>	<p>We do concur.</p>	<p>Susan Waters Director General, Land and Environmental Management Branch</p>	<p>Start Date: February 2016</p>
	<ul style="list-style-type: none"> <li>• The CSOR program will work to review and upgrade the data in IEMS and work to obtain new, more accurate information on sites.</li> <li>• Because of the large numbers of sites managed by the CSOR program and the limited financial and human resources dedicated to it, prioritization will be given to updating information on active sites and sites scheduled to become active in the near future.</li> </ul>		<p>Completion: Review and upgrade of IEMS data by March 2017. There will be ongoing continual improvement for IEMS system and data.  Completed</p>
<p>2. Coordinate its activities with other complimentary programs within the department in order to improve First Nation communities' awareness and response to fuel and waste management issues.</p>	<p>We do concur.</p>	<p>Susan Waters Director General, Land and Environmental Management Branch</p>	<p>Start Date February 2016:</p>
	<ul style="list-style-type: none"> <li>• Lands and Economic Development Sector and Regional Operations Sector will work together and with other Sectors to propose opportunities for improving coordination.</li> <li>• The CSOR program will work quickly to coordinate with any new preventative initiatives, particularly those related to fuel and waste management, implemented by the Department.</li> </ul>		<p>Completion: March 2017  Completed</p>

**I recommend this Management Response and Action Plan for approval by the Evaluation, Performance Measurement and Review Committee**

*Original Signed by:*

**Michel J. Burrowes  
Senior Director, Evaluation, Performance Measurement and Review Branch**

**I approve the above Management Response and Action Plan**

*Original Signed by:*

**Sheilagh Murphy  
Assistant Deputy Minister, Lands and Economic Development**

# 1. Introduction

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## 1.1 Overview

This report presents the results of an evaluation of the Contaminated Sites South of 60° (CSOR) Program. The overall purpose of the evaluation was to provide evidence able to support policy and program improvement related to Indigenous and Northern Affairs Canada's (INAC) environmental management responsibilities. As required by the Treasury Board Secretariat's *Policy on Evaluation*, the evaluation provides evidence-based conclusions and recommendations with regard to the relevance and performance of the program and identifies best practices and lessons learned that could improve similar future programming.

## 1.2 Program Profile

### 1.2.1 Background and Description

The CSOR is an environmental management program delivered by INAC and that funds First Nations to undertake environmental site assessment and remediation or to risk manage contaminated sites on-reserve and other lands under INAC (Lands and Economic Development) jurisdiction. These activities are supported to reduce or eliminate risks to human health and the environment, and to reduce legal and financial liabilities associated with contaminated sites. The CSOR is administered in accordance with INAC's Contaminated Sites Management Policy (2002) and the Federal Approach to Contaminated Sites developed by the interdepartmental Contaminated Sites Management Working Group<sup>4</sup>.

Implementation of the CSOR Program by INAC is supported by Environment Canada's Federal Contaminated Sites Action Plan Program (FCSAP) which provides funding for the CSOR on a cost-share basis. The FCSAP provides the majority of funding while INAC's Regional Operations<sup>5</sup> Capital Facilities and Maintenance Program provides the balance. The Department's Lands and Economic Development Sector coordinates and flows funding to First Nations, liaises with the FCSAP Secretariat and Treasury Board Secretariat, and works with First Nations to develop and secure contracts for work to be undertaken on-reserve.

### 1.2.2 Overview of Contaminated Sites and Site Remediation Policy

#### Contaminated Sites

A contaminated site is defined by the Treasury Board as "a site at which substances occur at concentrations that: (1) are above background levels and pose, or are likely to pose, an immediate or long-term hazard to human health or the environment; or (2) exceed the levels specified in policies and regulations". A site can be redefined as no longer contaminated once remediation and any necessary long-term monitoring activities have been completed or because it was determined through an established assessment process that no action is required.

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<sup>4</sup> <http://www.federalcontaminatedsites.gc.ca/8DF3AC07-5A7D-483F-B263-6DE03104319A/fa-af-eng.pdf>

<sup>5</sup> Regional Operations is responsible for the delivery of national and regional programs and services (seven regions); emergency and issue management; band governance; Community Infrastructure program policies and operations.

As identified under the National Classification System for Contaminated Sites, a contaminated site could also be Class 1 (i.e. sites where action is required to address existing concerns for public health and safety) or Class 2 (i.e. sites that have a high potential for adverse off-site impacts, although threats to human health and the environment are not imminent).

In 1992, INAC initiated the Environmental Issues Inventory and Remediation Plan. The Plan represented a multi-phase effort to identify and document environmental problems that pose dangers to the environment and to the health and safety of First Nations communities as well as to assist the Department in meeting its legal obligations under the *Canadian Environmental Protection Act*, the *Fisheries Act* and other applicable legislation. The inventory represented the first step taken by the Department to manage contaminated sites on-reserve land and included all environmental issues that dealt with subsurface contamination and those where INAC had spent funds or intended to spend funds on environmental site assessments or remediation/risk management.

#### Federal Contaminated Sites Action Plan (FCSAP)

In October 2002, the *Report of the Commissioner of the Environment and Sustainable Development*<sup>6</sup> criticized the federal government's lack of progress in the management of contaminated sites across Canada. In response, the FCSAP was developed as the successor program to the two-year, \$175 million *Federal Contaminated Sites Accelerated Action Plan* created in 2003. The FCSAP is a cost-shared program for eligible legacy contaminated sites that were contaminated before April 1, 1998.<sup>7</sup>

In 2003, the Environmental Issues Inventory and Remediation Plan initiative was moved into the Contaminated Sites Management Program. This broadened the focus from assessments under the Environmental Issues Inventory and Remediation Plan to include remediation and risk management. The following year, the FCSAP was announced and had a \$3.5 billion budget over 10 years to remediate and manage high-risk federal contaminated sites. In 2005, the duration of the FCSAP was extended to 15 years with the same level of funding.

The FCSAP has two key goals: (1) to reduce the risks to human health and the environment caused by contaminated sites; and (2) to reduce the financial liability for known federal contaminated sites by 2020. The FCSAP pays a percentage of costs (85 percent for remediation/risk management and 80 percent for assessment) with INAC covering the remainder (15 percent for remediation/risk management and 20 percent for assessment).

The FCSAP has 16 custodians (federal departments and consolidated Crown corporations or agencies), responsible for federal contaminated sites and which develop proposals and lead remediation efforts for sites. INAC is one of the custodians that have entered into funding agreements with FCSAP<sup>8</sup>. In order for a custodian to receive FCSAP funding, contaminated sites must:

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<sup>6</sup> Chapter 2 - *The Legacy of Federal Contaminated Sites*

<sup>7</sup> See Treasury Board Federal Contaminated Sites Management Policy for further details by accessing the Federal Contaminated Sites Portal: <http://www.federalcontaminatedsites.gc.ca/default.asp?lang=En&n=1F9527BF-1>.

<sup>8</sup> Government of Canada, 2014b

- meet the Treasury Board definition of a contaminated site;
- have been contaminated due to activities that occurred prior to April 1, 1998;
- be on lands owned or leased by the federal government;
- be either Class 1 or Class 2;<sup>9</sup> and
- represent a financial liability-associated site as reported in the Federal Contaminated Sites Inventory<sup>10</sup>.

FCSAP has evolved and continues to evolve through three five-year phases:

1. Phase I 2005–2011;
2. Phase II 2011–2016; and
3. Phase III 2016–2020.

Phase I resulted in custodians conducting remediation activities at 1,400 sites and completing remediation at 650. In addition, Phase I resulted in assessment activities conducted on over 9,400 sites with 6,400 completed<sup>11</sup>. Under Phase II (approved in June, 2011), only Class 2 sites with remediation expenditures prior to April 1, 2011, are eligible for remediation funding and approximately \$1 billion be invested over the first three years for Phase II. In Phase III of FCSAP, it is expected that federal custodians will continue to focus their assessment activities on identifying the highest priority sites. In addition, remediation activities will target the highest priority sites in order to reduce liability over the Phase III period.

#### Overview of the Contaminated Sites On Reserve Program

The Contaminated Sites On-Reserve Program is guided by a number of key departmental and federal environmental policies such as:

- *Contaminated Sites Management Policy*<sup>12</sup> (2002): intended to provide guidance for the management of contaminated sites located on-reserve lands, on federal lands north of the 60th parallel, and on any other lands under INAC’s custodial responsibility;
- Contaminated Sites Management Directive: which aims to provide an integrated, consistent, cost-effective and coherent approach for all sectors and regions in implementing the Contaminated Sites Management Program;
- INAC’s *Environment Policy* (2003): provides direction and guidance to INAC sectors and regions in meeting federal environmental obligations;
- INAC Environmental Management Directive (2005): provides direction to INAC sectors and regions in implementing the INAC *Environment Policy* and supporting departmental compliance with all applicable federal environmental legislation, regulations, policies and guidelines; and

<sup>9</sup> A description of the classification system appears in Section 3.3.

<sup>10</sup> The Federal Contaminated Sites Inventory includes information on all known federal contaminated sites under the custodianship of departments, agencies and consolidated Crown corporations. It also includes all those that are being or have been investigated to determine whether they have contamination arising from past use that could pose a risk to human health or the environment. (Government of Canada, 2013a)

<sup>11</sup> Government of Canada, 2014a

<sup>12</sup> <http://www.aadnc-aandc.gc.ca/eng/1100100034643>.

- *INAC Policy on Accounting for Environmental Liabilities* (2013): sets out the roles and responsibilities in the accounting and reporting of environmental liabilities.

As of March 2012, almost 22,000 federal contaminated sites had been identified, including those on-reserve<sup>13</sup>. By March 2013, the CSOR managed 2,392 active contaminated sites on reserves south of latitude 60°N; 293 of those sites are Class 1 — high risk to human health and safety. In 2014, 67 percent of contaminated sites south of 60° were related to fuel storage and handling, 20 percent were related to solid waste/landfills, and 13 percent were related to other contaminants<sup>14</sup>. The leading causes of contamination include leaking fuel storage tanks, inadequately managed waste sites, and orphan industrial sites. On March 31, 2013, the reported liability of these sites was estimated at \$246.6 million.

### ***1.2.3 Objectives and Expected Outcomes***

The CSOR is expected to contribute to the expected result of community development by supporting the assessment and remediation of contaminated sites on-reserve lands and on any other lands under INAC's custodial responsibility. It supports the assessment and remediation of known contamination from the National Classification System for Contaminated Sites Class 1 and Class 2, for which a liability to the Crown has been established and documented. The expected outcomes for the Contaminated Sites On-Reserve are:

#### Immediate Outcomes

- *Priority sites are remediated, risk managed and/or monitored.*

#### Intermediate Outcomes

- *Federal liabilities related to the existence of contaminated sites are reduced; and*
- *Decreased risk to public health and safety.*

#### Final Outcomes

This sub-program is one of four, which supports the Community Development (3.2) program with the expected results of:

- *Enhanced conditions for First Nation and Inuit communities to pursue greater independence / self-sufficiency and sustainable economic development; and*
- *First Nation land is available for economic development.*

The Community Development program supports the Land and Economy Strategic Outcome:

- *Full participation of First Nations, Métis, Non-Status Indians and Inuit individuals and communities in the economy.*

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<sup>13</sup> Environment Canada, 2014

<sup>14</sup> INAC, 2014f

#### **1.2.4 What classifies as an on-reserve contaminated site**

Contaminated sites on-reserve land south of 60° are mostly related to abandoned dump sites and fuel spills<sup>15</sup>. These are sites that pose, or are likely to pose, an immediate or long-term hazard to human health and/or the environment and are often a legacy of past practices. If not managed properly, these sites, particularly those identified as having a higher risk to human health and safety, may have a significant impact on the ability for First Nations communities to capitalize on land-based economic development opportunities.

#### **1.2.5 Program Management, Key Stakeholders and Beneficiaries**

INAC is the federal department responsible for the delivery of Contaminated Sites On-Reserve.

##### **INAC Headquarters**

The Lands and Economic Development and Regional Operations Assistant Deputy Ministers have overall responsibility for ensuring the consistent implementation and application of the Policy. Responsibilities include: coordinating regional and national Contaminated Sites Management Plans; and working with regions to implement them.

The Contaminated Sites On-Reserve Program is administered at INAC Headquarters by the Environment Directorate of the Lands and Environmental Management Branch. The Director is responsible for the financial administration of the program and national policy development as well as the authorized official for the Federal Contaminated Sites Inventory Certification<sup>16</sup>. Additional responsibilities of the Environment Directorate include:

- Preparing, coordinating and reviewing responses to audits and evaluations (INAC and Office of the Auditor General);
- Overseeing data management of the Integrated Environmental Management System (includes development, enhancements, maintenance, guidance and advice);
- Providing advice and guidance to regional officers on industry standards and methodologies;
- Preparing Future-Oriented Financial Statements and year-end estimated environmental liabilities in consultation with the regions as required and the preparation of the Public Accounts Plate TA5a<sup>17</sup>; and
- Developing and implementing the national work plan for priority sites with regional input and approval.

The Environment Directorate also liaises with the Regional Operations Sector at Headquarters regarding the Department's planned cost-shared funding required by the FCSAP program.

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<sup>15</sup> INAC, 2012b

<sup>16</sup> The annual certification of the Federal Contaminated Sites Inventory is the primary mechanism through which reporting organizations confirm the completeness and accuracy of the contaminated site records reported to the TBS. Federal Contaminated Sites Inventory Annual Data must reconcile with the environmental liabilities reported to the Public Accounts of Canada in order for certification to be accepted by TBS.

<sup>17</sup> TA5a is one of the standardized plates and forms containing data for preparing the public accounts of Canada.



## **INAC Regions**

Regional directors general are responsible for implementing Regional Contaminated Sites Management Plans and ensuring they are supported by, and well integrated with, other regional programs and activities. Directors general oversee the development and approval of annual project work plans and long term regional strategic plans for the program. Ultimately, they are accountable for the FCSAP and the departmental resources the region manages in support of the program. Regional responsibilities include:

- Liaising with and providing functional direction and advice to First Nation communities in relation to contaminated sites;
- Funding Management - preparing documentation for funding amendments, proposals and reporting management;
- Site Inspections;
- Completing modified Phase I Environmental Site Assessments;
- Maintaining the Integrated Environmental Management System (IEMS) database, which reports to the Federal Contaminated Sites Inventory;
- Program reporting for the FCSAP and Contaminated Sites (On-Reserve);
- Liaising with the FCSAP Expert Support Departments; and
- Preparing site closures for every completed remediation project.

## **Eligible First Nations**

“Eligible First Nations.” These include: First Nations living on lands of known and suspected Class 1 or 2 contaminated sites; Band/Settlements and Communities; District Councils/Chief Councils; Tribal Councils; First Nation Organizations, Associations and Institutions.

INAC and First Nations manage and implement contaminated site projects in partnership, thereby allowing for project ownership and potential economic benefit for the communities concerned. Sound environmental management and protection ensures lands are available for the pursuit of opportunities in business development, residential expansion and cultural/traditional activities.

First Nations report to INAC through Data Collection Instrument reporting requirements on a quarterly basis (or at six month intervals) and at the end of the fiscal year. They also provide consultant or other reports pursuant to Funding Agreements under the approved scope of work.

## **FCSAP Secretariat/Other Federal Departments**

The FCSAP Secretariat, based in Environment Canada, is responsible for the administration of the FCSAP, which is a cost-shared program that assists federal custodian departments, agencies and consolidated Crown corporations to address contaminated sites for which they are responsible. It is one source of funding for the CSOR and its function includes leading and coordinating its delivery, coordinating the review of proposals and managing the project selection process. The Secretariat tracks funding requests and project expenditures and also develops funding allocation proposals for approval by the Federal Contaminated Sites Steering Committee. The Secretariat also develops the procedures required to ensure interdepartmental consistency in program implementation, while

providing clerical and administrative services to the Federal Contaminated Sites Steering Committee and the Contaminated Sites Management Working Group. Reporting on the effectiveness of the program is a key role of the FCSAP Secretariat.

#### *Treasury Board Secretariat*

The FCSAP Secretariat co-administers the program with the Treasury Board Secretariat, whose Real Property and Materiel Policy Division is responsible for ensuring consistency with Treasury Board policies on the management of federal real property, including federal contaminated sites. The division also administers and maintains the Federal Contaminated Sites Inventory<sup>18</sup>, assisting the FCSAP Secretariat with the monitoring of and reporting on government-wide progress in addressing federal contaminated sites funded under the FCSAP.

Through FCSAP funding, three federal departments (Environment Canada, Fisheries and Oceans Canada and Health Canada) partner or collaborate with INAC to manage federal contaminated sites. They provide expert support to INAC and ensure compliance with legislation under their jurisdiction that affects Crown lands. They also support the FCSAP Secretariat with the development and promotion of best practices. Custodians are thereby able to adopt a consistent national approach to human health and ecological risk assessment. More specifically, the roles and responsibilities of the three departments are as follows:

#### *Environment Canada*

The Department houses the FCSAP Secretariat, administers FCSAP and provides program guidance and leadership to custodians, including expert support with regard to contaminated sites, ecological risks and environmental matters. It also assesses and remediates its own sites<sup>19</sup> and administers and coordinates the FCSAP program across the federal government.

#### *Fisheries and Oceans Canada*

Fisheries and Oceans Canada deals with aquatic sites to ensure a sustainable aquatic ecosystem and where applicable, provides expert support to custodians regarding early planning, ecological risk assessments, remediation, risk management and long-term monitoring of FCSAP sites<sup>20</sup>.

#### *Health Canada*

Health Canada's responsibilities include: "Reviewing human health risk assessment and related reports from contractors, custodial departments and provincial regulatory authorities; collaborating with Health Canada's Environmental Health Assessment Services, an authority on integration of health issues in environmental assessments conducted under the Canadian Environmental Assessment Act; and providing custodial departments with expert advice, guidance, training and tools on best

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<sup>18</sup> The database serves as a record of basic information on sites for which the Government of Canada has accepted responsibility. The information included in the inventory includes location of the site, contaminants, quantity of contamination, proximity to human population, and current status of each site.

<sup>19</sup> Environment Canada, 2013

<sup>20</sup> Fisheries and Oceans Canada, 2014

practices and innovative methods for human health risk assessment and incorporating stakeholders into contaminated site management”<sup>21</sup>.

## FCSAP - Other Departments

### *Public Works and Government Services Canada and Industry Canada*

Public Works and Government Services Canada (PWGSC) provides support and advice to custodians on project management and innovative technologies through the development of project management tools, the diffusion of information on technologies as well as liaison with industry. Others with interests in the FCSAP support the program within their existing mandates, for example, Industry Canada, like PWGSC, provides support to custodians by facilitating familiarization and collaboration between custodians and remediation technology vendors offering advanced innovative technologies.

## Provinces - legislation

Provincial governments are stakeholders because “they are responsible for preventing pollution and contamination within their jurisdictions and on federal Crown lands, which includes reserves and lands adjacent to reserve lands”<sup>22</sup>. For the same reason, municipalities are also program stakeholders.

The provinces have a number of pieces of legislation that address contaminated sites in their respective jurisdictions (not including reserve lands, which are the responsibility of the federal government). Only Ontario, however, offers a financial incentive in the form of a tax incentive for the remediation of brownfield sites.<sup>23</sup> All other provinces put the financial burden on the polluter. Since reserves are federal lands, the role of provinces as key stakeholders with respect to contaminated sites on-reserve differs from others and, for example, provincial legislation that affects land does not apply on-reserve.

### 1.2.6 Program Resources

Table 1 shows the operating expenditures and contributions of the CSOR from 2009-10 to 2013-14.

	<b>2009–10</b>	<b>2010–11</b>	<b>2011–12</b>	<b>2012–13</b>	<b>2013–14</b>	<b>Total</b>
Salary	\$1,269,453	\$1,685,593	\$1,354,138	\$1,399,209	\$1,197,904	\$7,783,397
Operations and Maintenance	\$543,933	\$2,088,008	\$385,246	\$794,265	\$1,533,271	\$5,753,494
Statutory – EBP*	\$223,220	\$294,202	\$210,189	\$226,841	\$192,970	\$1,284,907
Contributions	\$46,287,894	\$56,864,798	\$16,521,848	\$29,014,199	\$30,321,868	\$205,303,119
<b>Total</b>	<b>\$48,324,500</b>	<b>\$60,932,600</b>	<b>\$18,471,421</b>	<b>\$31,434,515</b>	<b>\$33,246,013</b>	<b>\$220,124,917</b>

\*EBP stands for Employee Benefit Plans.  
Source: (INAC, 2015a)

Note: While operating expenditures have been generally consistent between 2009–10 and 2013–14, contribution levels have varied year to year, with a large decrease in 2011–12.

<sup>21</sup> Health Canada, 2011

<sup>22</sup> INAC, 2010

<sup>23</sup> “Brownfield properties are vacant or underutilized places where past industrial or commercial activities may have left contamination (chemical pollution) behind” (Government of Ontario, 2015).

Levels vary from year to year since they depend upon the program’s ability to source funds within INAC and other departments, mainly FCSAP, Capital Facilities and Maintenance, Northern Contaminated Sites, and First Nations Land Management.

A contaminated site project is eligible for \$10 million in funding annually. Where a project goes beyond this amount, approval (as in the case of a Capital project) is required from INAC’s national headquarters. Projects are funded through contribution agreements between individual First Nations and INAC. The allocation and amount of funding are based upon an environmental assessment of the work required and depend upon various factors, including site classification score, human and/or ecological health receptors, type of land use (e.g., residential), the amount of available funds, legal obligations, economic development opportunities and cost-sharing opportunities. Depending on the region, payments are made monthly based on the recipient’s cash flow forecast<sup>24</sup>. For example, in Manitoba, payments are made on the progress of the particular project and also on actual work done.

Table 2 shows the 2013–14 planned and actual program budget.

<b>Table 2: 2013–14 Budgetary Financial and Human Resources</b>	
	<b>\$/Full-Time Equivalents</b>
<b>Budgetary Financial Resources (\$)</b>	
Planned spending	\$17,909,251
Actual spending	\$33,246,013
Difference (actual minus planned)	\$15,336,762
<b>Human resources (Full-Time Equivalents)</b>	
Planned	16.1
Actual	11.5
Difference (actual minus planned)	(4.6)
Source: INAC, 2014c)	

Note: The table is consistent with Table 1 and shows that the program spent over \$15 million more than expected in 2013–14 due to the sub-program’s ability to access additional resources from FCSAP and other sources<sup>25</sup>. Table 2 also shows that the program was able to operate in 2013–14 with about 4.6 less full-time equivalents than originally expected.

Funding for CSOR on-reserve comes from various sources: externally, from FCSAP and other federal departments (i.e. other FCSAP custodians); internally (i.e. INAC), from Lands and Economic Development, Regional Operations, the Northern Affairs Organization, and INAC Financial Management Committee requests.

<sup>24</sup> INAC, 2014g

<sup>25</sup> INAC, 2014c

## **2. Evaluation Methodology**

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### **2.1 Evaluation Scope and Timing**

In 2008, INAC evaluated the Department's Contaminated Sites Management Policy and Programming (CSOR), including the North of 60<sup>0</sup> and South of 60<sup>0</sup> programs. In June 2012, an internal audit of the CSOR was completed, together with follow-up reports on the program's response to the audit recommendations. Also in 2012, the Office of the Auditor General included an examination of the FCSAP as part of its audit activities. In 2014, Environment Canada completed an evaluation of the FCSAP, which funds the majority (i.e. the assessment and remediation) of INAC-related contaminated sites program.

The current evaluation, the first of the CSOR, also looks at contaminated sites on-reserve as reserves fall within INAC's responsibilities. This evaluation has relied upon the extensive research and analysis undertaken in the course of the above audits and evaluations, to build on the existing literature while easing the reporting burden on the program. Due diligence was exercised in gathering up-to-date information while avoiding duplicating information gathered during the earlier audits and evaluations.

The evaluation examined CSOR program activities between 2009-10 and 2013-14. Terms of Reference were approved by INAC's Evaluation, Performance Measurement and Review Committee on June 20, 2014. Field work was conducted between June and October 2015.

### **2.2 Evaluation Methodology**

The evaluation's findings, conclusions and recommendations are based on information gathered from these lines of evidence: literature, document and database reviews; site visits with focus group sessions; and key informant interviews.

#### *Literature Review*

The purpose of the literature review was to acquire a greater understanding of contaminated sites and approaches to determining, classifying and dealing with contaminated sites on-reserve land across various Canadian jurisdictions; and, examine the impact of contaminated sites on-reserve south of the 60<sup>th</sup> parallel. The literature was selected and reviewed on the basis of its relevance to the evaluation and it included peer-reviewed journal articles, magazine and newspaper articles. A three-part annex of supplementary information was reviewed together with four topical papers: The "First Nation Involvement in Remediation Efforts"; "Contamination Due to Insufficient Resources"; "Dangers to Food, Water, and Air Both on and off Reserve Lands"; and "Risk-Ranking," (which compares national and provincial classification methods for contaminated sites and the follow-up actions to be taken regarding remediation). The findings helped to inform the choice of which on-reserve sites to visit, the questions posed in key informant interviews, as well as the data and document review.

### *Document Review*

A document review of the program was conducted, structured around identified evaluation issues and questions (see Appendix G, Documents Sources), that included the review of approximately 60 documents including, but not limited to:

- Reports produced by the Office of the Auditor General;
- INAC audits, evaluations, and special studies;
- FCSAP-related governmental documentation sites;
- INAC website and other related web pages;
- INAC Departmental Performance Reports and Reports on Plans and Priorities;
- Governmental Policy documents; and
- Provincial legislation and other related contaminated sites documents.

The document review helped to inform the evaluators' understanding of the governance structure of the CSOR, the broader FCSAP initiative and the roles and responsibilities of various parties involved in the program's delivery.

### *Database Review*

The database review included the IEMS database (together with data on liability provided directly by the program), and a review of the publicly available Federal Contaminated Sites Inventory<sup>26</sup>, housed by the Treasury Board Secretariat. The database review was undertaken for several reasons, including viewing the CSOR Program's records of site investigations and cleanups, verifying the robust information collection and reporting nature of the IEMS, accessing information on reported sites, obtaining information on classified sites with confirmed (known) contamination, gathering information on where instances of site contamination mainly occur (e.g. on-reserve areas affected by site contamination issues that are the direct result of past practices such as fuel storage and associated spills and leaks), etc.

As a way of examining the program's relative progress across provinces in assessing and remediating contaminated sites, the database review included, among others, an analysis of level of classification of site by region. The IEMS database also yielded financial information that informed the effectiveness of the program's use of funding.

### *Site Visits*

There were four site visits, which were primarily visual inspection of the sites and interviews with people involved in or linked to the sites (e.g., community representatives and project managers). Sites broadly illustrative of the CSOR were chosen among Manitoba and Ontario First Nation communities assessed as having high priority contaminated sites or were representative of various stages of assessment and remediation. The site visits also included walk-throughs, to identify areas of potential environmental concern to on-reserve communities. These were used to verify the information gathered during the literature review. Planned visits to communities in British Columbia

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<sup>26</sup> <http://tbs-sct.gc.ca/fcsi-rscf/home-accueil-eng.aspx>

could not be undertaken as the communities were unavailable. It was hoped that the opportunity provided by the evaluation would result in input from British Columbia reserve communities.

#### *Key Informant Interviews/Focus Group*

To increase understanding of the CSOR program and its delivery, 17 interviews were conducted in person or by telephone with individuals with direct experience and knowledge of the management of contaminated sites on-reserve. Those interviewed included INAC Headquarters (four CSOR) and regional staff. Interviews during site visits included First Nation community members and contractors. Focus group sessions were held (included eight regional and Health Canada staff).

#### **2.2.1 Strengths and Limitations**

*The evaluation did not benefit from the presence of a working group since the program was short-staffed, managing competing priorities.*

Barriers to effective implementation of the evaluation included: the absence of subject-matter experts with whom evaluators could have worked to achieve the evaluation's goals and objectives; staff turnover and lack of key member input into the evaluation plan; dependence on a variety of individuals during both the planning phase and the course of the evaluation. Nonetheless, the evaluation did benefit from recent audits and evaluations and, with FCSAP Phase III beginning in 2016, from current work on Phase III, including supplementary information from the research being undertaken for Phase III purposes.

#### **Limitations**

##### *Fieldwork Delays*

The evaluation methodology necessitated undertaking site visits in tandem with already scheduled and ongoing activities of numerous partners in order to capture information that may not be available at other times. The challenges associated with the scheduling of these visits (e.g., partner coordination and travel, weather, accessibility, community readiness, etc.), affected the fieldwork timing, resulting either in delays in data collection and analysis or cancellation of key site visits. As a consequence, the original number of site visits was reduced from seven to four.

Mitigation: Despite the elimination of the three site visits from the study design, the similar nature of the projects, coupled with documents that were reviewed provided information needed. Further, the evaluation design and implementation were appropriate for the objectives of the study, a key strength of the evaluation design being that it took into consideration the broader program theory, which was supported by contaminated site conceptual/analytical framework.

### *Data Analysis Limitations (Integrated Environmental Management System)*

The content of the IEMS database changed daily, resulting in a different number of projects in the database depending on the date the data was provided. For example, a data set provided on April 24 (dates of steps completed - see “8. Appendix A. Stages of Assessing and Remediating a Contaminated Site”) included 3,446 unique projects, while a data set provided on April 29 (current step and classification of projects) included 3,440 unique projects leading to inconsistent data sets.

While this was a live database hence the inconsistency, the complication is attributed to the fact that the dataset was found to include data on sites being managed by other federal departments, that fell under provincial/territorial responsibility or that were a third party responsibility. Thus, all these had to be excluded from the CSOR data analysis. Given the need to clean the data, some frequencies had to be recalculated multiple times using different data extractions provided by the program.

For example, in determining the amount of time taken to complete certain tasks for a project (i.e., steps), a number of the values came back as a negative number of days. The explanation given was that this may be because a project that had a long period of inactivity may have had to go back and repeat steps; therefore, providing completion dates for these earlier steps that are at a later date than the later steps. Moreover, it was noted that information for a number of steps may simply be missing from the database; in one case, it was discovered that not all future funding had been entered into the database. The above challenges highlighted the fact that some of the data in the IEMS database appeared to be incomplete or inaccurate.

Mitigation: The statistics provided from the IEMS database were reviewed with a level of caution, including their validity, and, to the extent possible, the data were cleaned. As well, by using multiple and complementary sources of data, including qualitative information, the evaluation team was able to confirm through its analysis the accuracy of key findings.

## **2.3 Roles, Responsibilities and Quality Assurance**

The Evaluation, Performance Measurement and Review Branch (EPMRB) of INAC’s Audit and Evaluation Sector managed and completed the evaluation according to EPMRB’s Engagement Policy and Quality Control Process, which is aligned with the Treasury Board Secretariat’s *Policy on Evaluation*.



## 3. Evaluation Findings – Relevance

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The key findings regarding the relevance of the program focus on continued need and alignment with the priorities, roles and responsibilities of the federal government as a whole.

### 3.1 Continued Need

***Finding 1:** Central arguments for the continuation of INAC's Contaminated Sites On-Reserve Program include the number of contaminated sites on-reserve, the need to address the challenges to environmental, health, and social development in on-reserve communities, a shortage of funding, the need for further capacity development, and the importance of economic development in on-reserve communities.*

In 2002, the Commissioner of the Environment and Sustainable Development released a report identifying a need for the federal government to move forward with work on contaminated sites in order to ensure their proper management. In response, the Government emphasized the importance of creating a Contaminated Sites On-Reserve Program and in 2005, established the FCSAP<sup>27</sup> program.

Since 2005, the federal government, through FCSAP, has been engaged in the management of federal contaminated sites acting both to protect human and environmental health. As the literature shows, remediation of contaminated sites and the eventual redevelopment of the land accomplishes a number of important goals such as reducing environmental contamination and site hazards, thereby improving public health and safety while enhancing community members' quality of life through neighbourhood revitalization and conservation of green space.

According to documents reviewed, there were an estimated 6,200 suspected or known contaminated sites in 2005. The Federal Contaminated Sites Inventory, a standardized national database for all contaminated sites under federal jurisdiction, stated that there are presently 2,604 suspected sites and 5,786 active sites under federal jurisdiction. Of these, INAC's CSOR is responsible for 844 suspected and 1,109 active sites. In comparison, INAC's North of 60° program is responsible for 40 suspected sites and 252 active sites, although the northern sites are, in general, more technically complex and generally represent a much higher liability. It is noteworthy that FCSAP does not cover sites that were contaminated post-1998 nor most sites classified as Class 2 or 3<sup>28</sup>. As of March 2013, Contaminated Sites On-Reserve manages 2,392 active contaminated sites

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<sup>27</sup> FCSAP's primary objective is to reduce environmental and human health risks from known federal contaminated sites and associated federal financial liabilities. In Phase I (2005-2011), the federal departments, agencies and consolidated Crown corporations responsible for contaminated sites (also referred to as custodians) made significant progress in assessing and remediating sites. Custodians conducted remediation activities at 1,400 sites, and completed remediation at 650 sites. Assessment activities were conducted on over 9,400 sites and completed on 6,400. FCSAP Phase II (2011-2016) allows this work to continue, with a focus on remediating the highest priority sites. FCSAP lists over 21,000 federal sites.

<sup>28</sup> FCSAPs funding is intended to address the remediation or management of federal contaminated sites that were the result of the legacy of past practices and to address the accumulation of federal liability related to this. FCSAP was not designed to address newly created contamination. Consequently, to determine eligibility for FCSAP funding, contamination must be the result of historical activities, which have been defined as activities that occurred prior to April 1, 1998.

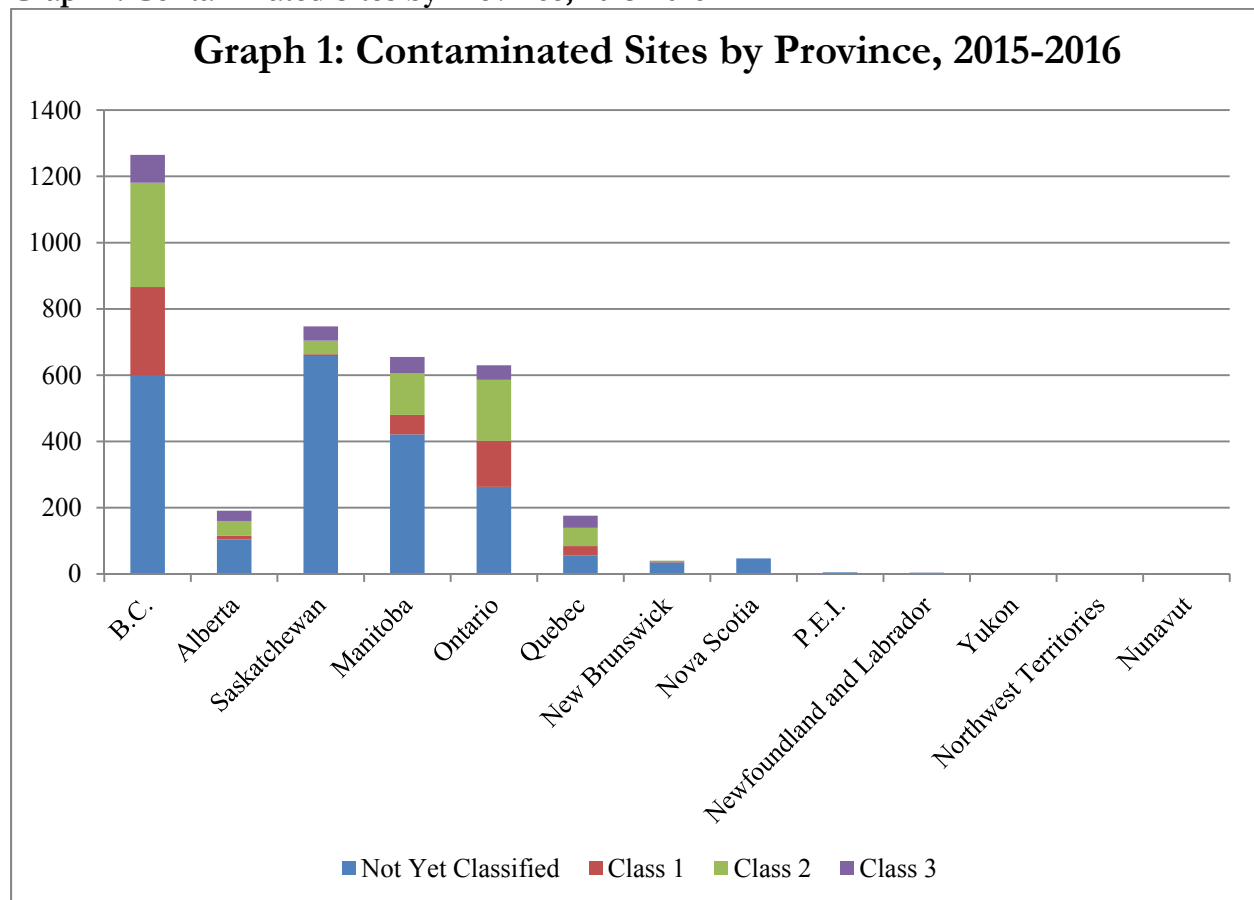
on-reserves south of latitude 60°N. Of the 2,392 sites, 293 are high risk to human health and safety.<sup>29</sup>

Evaluators ascertained as well from key informants across all respondent groups the continued need for the CSOR with INAC interviewees noting that funds obtained from FCSAP has continually been a primary source of funding to either initiate or enable work on contaminated sites to continue.

Further to the preceding information, documents reviewed show that a total of 1,008 sites have been added to the IEMS between April 1, 2008, and March 31, 2014 (i.e., the evaluation period); that is, omitting sites that are being managed by other federal departments, which are provincial/territorial responsibility, or are third party responsibility. The most sites have been added in Manitoba (35 percent), Saskatchewan (34 percent) and British Columbia (26 percent) in that time period.

Graph 1, below, reinforces the need for the CSOR.

**Graph 1: Contaminated Sites by Province, 2015-2016**



\*Data based on site classification in the Federal Contaminated Sites Inventory.

Graph 1 above offers evidence of a continued need for the program. With funding for assessment decreasing, the number of “Not-yet classified” sites represents a large proportion of the number of sites for which the Department is responsible and although there are more Class 2 sites than Class 1

<sup>29</sup> CSOR Performance Measurement Strategy (March 20, 2014)

sites, certain regions still have a number of high-risk sites to deal with. On-reserve contaminated sites, which are typically caused by fuel-related practices (63 percent) or landfill / waste sites (34 percent), continue to be added to the inventory. With constant additions of suspected sites and decreased funding for assessment overall, on top of the ongoing need to remediate the number of high-risk and medium-risk sites left, the data suggest that there is a strong need for the program.

According to environmental liability data extracted from the 2014-15 Public Accounts of Canada, INAC's liabilities of approximately \$2.6 billion as of March 31, 2014, represent 56 percent of federal environmental liabilities (see **Appendix C**: Table 1 for a breakdown of environmental liabilities by custodian department). However, this amount represents the liability for INAC as a whole, a combination of both CSOR and the North of 60<sup>o</sup> programs. On its own, CSOR liabilities amounted to approximately \$211.8 million. This represents 8.1 percent of the Department's total environmental liabilities and 4.6 percent of the total federal environmental liabilities, placing CSOR fourth highest in terms of federal environmental liabilities.

The literature review, site visits and key informant interviews identified numerous examples of contaminated sites on-reserve and an emerging pattern of sites originating after the 1998 FCSAP eligibility date. Given the large number of newer sites not currently funded under FCSAP, dedicated resources to deal with them will be required. In addition, site visit and key informants also suggested there is a need not only for funding assessment and remediation of contaminated sites but also a need to identify a process for promoting environmental stewardship.

### **3.2 Alignment with Federal Roles and Responsibilities**

***Finding 2:** There is strong alignment between INAC's Contaminated Sites On-Reserve Program's objectives and federal roles and responsibilities including contaminated sites. This is evidenced in the consistency with federal legislation as well as roles and responsibilities that pertains to environmental matters.*

Section 91(24) of the *Constitution Act*, 1867 provides that "Indians and Lands Reserved for Indians" are a federal responsibility subsequently given effect in the *Indian Act*, R.S.C. 1985, c. I-5. This creates a unique series of obligations for the Government (and thereby INAC) with regard to the environmental management of on-reserve lands. INAC is the administering department for the *Indian Act* and herein lie the origin and foundation of the CSOR's alignment with federal roles and responsibilities.

The federal government is responsible for all environmental protection-related legislation and regulation on-reserves managed under the *Indian Act*. In addition, its powers with regard to the environment are set out in the *Fisheries Act*, administered by Fisheries and Oceans Canada, the *Canadian Environmental Assessment Act, 2012*, and the *Canadian Environmental Protection Act, 1999*, both of which fall under Environment Canada's jurisdiction.

A further legal consideration that aligns the CSOR with federal roles and responsibilities is the requirement for INAC to ensure that its land and environmental management activities are carried out in a sound environmental manner in accordance with the federal government's environmental legislation. Sections 273 and 280 of *Canadian Environmental Protection Act, 1999*, for example, state that any officer, director or agent of a government department found to be in contravention of the Act or its Regulations may be fined up to one million dollars or given up to three years in prison. The

primary purpose of *Canadian Environmental Protection Act, 1999* is stated as “to contribute to sustainable development through pollution prevention” and under it the federal government may enact regulations to control risks from substances that have been officially classified as toxic. Moreover, some *Canadian Environmental Protection Act, 1999* provisions apply only to First Nations, including, for example, those dealing with environmental management on Aboriginal lands.<sup>30</sup>

The *Canadian Environmental Assessment Act, 2012*) also affects the contaminated sites program. Prior to the new *Canadian Environmental Assessment Act, 2012*<sup>31</sup>, the remediation of contaminated sites on federal lands required a federal environmental assessment. Thus, on-reserve projects that involved the expenditure of federal funds or that needed federal authorization had to have an environmental assessment in order to obtain such an authorization. Under the *Canadian Environmental Assessment Act, 2012*, there is no longer a mandatory requirement for a federal environmental assessment. However, the Minister of the Environment may designate specific federal remediation activities and require a federal environmental assessment based on the potential for adverse environmental effects or public concern about those effects. Moreover, all projects are expected to be subject to the appropriate level of environmental assessment as required under the *Canadian Environmental Assessment Act, 2012* or its equivalent. The *Canadian Environmental Assessment Act, 2012* introduces a streamlined approach that ensures necessary environmental assessments are completed in a timely manner.

As seen earlier under *Program Management, Key Stakeholders and Beneficiaries*, FCSAP, which is led by Environment Canada, is a federal contaminated site program and is cost-shared, assisting federal custodian departments, agencies and consolidated Crown corporations to address contaminated sites for which they are responsible. It is also a source of funding for the CSOR, which points out the federal government’s role and responsibility. Most (two thirds) of FCSAP sites are either situated near or located on federal real property. Of these sites, a quarter is located on designated Canada Lands such as reserves. Less than 10 percent of sites are located on non-federal lands where there is federal responsibility for contamination due to federal activities or those of a lessee, policy decision or contractual obligation.<sup>32</sup>

As a further linkage, the Government of Canada's contaminated sites management policy is overseen by the Treasury Board Secretariat and one aspect of the FCSAP involves Treasury Board Secretariat maintenance of the Federal Contaminated Sites Inventory. The information stored in the inventory includes site location, contaminants, quantity of contamination, proximity to human population and the current status of each site. Moreover, each federal department or agency with responsibility for federal lands is also responsible for identifying, assessing, managing and remediating contaminated sites on their lands in accordance with policies they are required to develop.

Alignment of the program with federal roles and responsibilities is evidenced by INAC’s responsibility for 82 percent of classified sites that are on-reserve. While 17 percent of all on-reserve contaminated sites are the responsibility of third parties, implying that the polluter was neither

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<sup>30</sup> Under *Canadian Environmental Protection Act, 1999* “Aboriginal lands” are defined as any lands subject to the *Indian Act* as well as lands and waters subject to land claims or self-government agreements where title in the land is held by the federal Crown, and air and all layers of the atmosphere above and the subsurface below these lands and waters.

<sup>31</sup> When CEAA 2012 came into force, the former *Canadian Environmental Assessment Act* (the former Act) was repealed, (<http://www.ceaa-acee.gc.ca/default.asp?lang=En&n=9EC7CAD2-1>).

<sup>32</sup> FCSAP Evaluation, 2014.

INAC nor the band, one percent of all on-reserve contaminated sites can be attributed to, and are the responsibility of, another federal department or a provincial/territorial government.

Currently, INAC has three key federal partners, which provide expert support: Environment Canada, Fisheries and Oceans Canada and Health Canada. Although the roles and responsibilities of each department vary, all act to ensure compliance with legislation on those crown lands that fall under their jurisdiction.

While the CSOR aligns with federal roles and responsibilities, it also aligns with the role of other stakeholders. Thus, First Nations communities are responsible for implementing contaminated sites remediation/risk management projects and developing potential economic benefits for their communities.

In reviewing First Nations and provinces' roles and responsibilities, the issue of the "regulatory gap" arises in that both the federal and provincial governments possess the authority to manage various aspects of the environment, including land use planning and commercial activities. Thus, provincial governments manage provincial lands while the federal government manages federal lands (including Aboriginal lands). Provincial governments, through their responsibility for local matters, have developed environment-related legislation and regulation to manage environmental issues. However, as noted above, provincial legislation and regulations do not apply on Aboriginal lands.

The 2009 Fall Report of the Auditor General observed that the environmental regulatory gap was particularly significant for First Nations that entered into the *First Nations Land Management Act* regime. The report also noted that where a First Nation enters into this regime, it was responsible for closing any identified environmental regulatory gap that existed on its territory. Thus, with the lack of federally enacted legislation on-reserve with respect to environmental protection, a "regulatory gap" exists when compared to other Canadian communities. In the case of remediation and recovery of remediation costs of contaminated sites, an example of a regulatory gap on-reserve is the lack of appropriate laws, which should govern industrial, commercial or other such activities. While federal environmental statutes and policies do not appear to provide the same degree of protection on-reserve as do provincial environmental laws for off-reserve lands, under Part 9 of *Canadian Environmental Protection Act, 1999* there are regulations on registration of storage tank systems for petroleum products and allied petroleum products which may touch on contaminated sites on-reserve.

### **3.3 Alignment with Federal, Departmental and Community Priorities**

***Finding 3:*** *The CSOR Program is aligned with Federal, Departmental and Community Priorities, as evidenced in announcements and commitments made by the federal government and INAC, which confirm Community priorities (the use and management of reserve lands) and that CSOR's objectives remain key priorities.*

*The CSOR Program's Alignment with Federal Priorities*

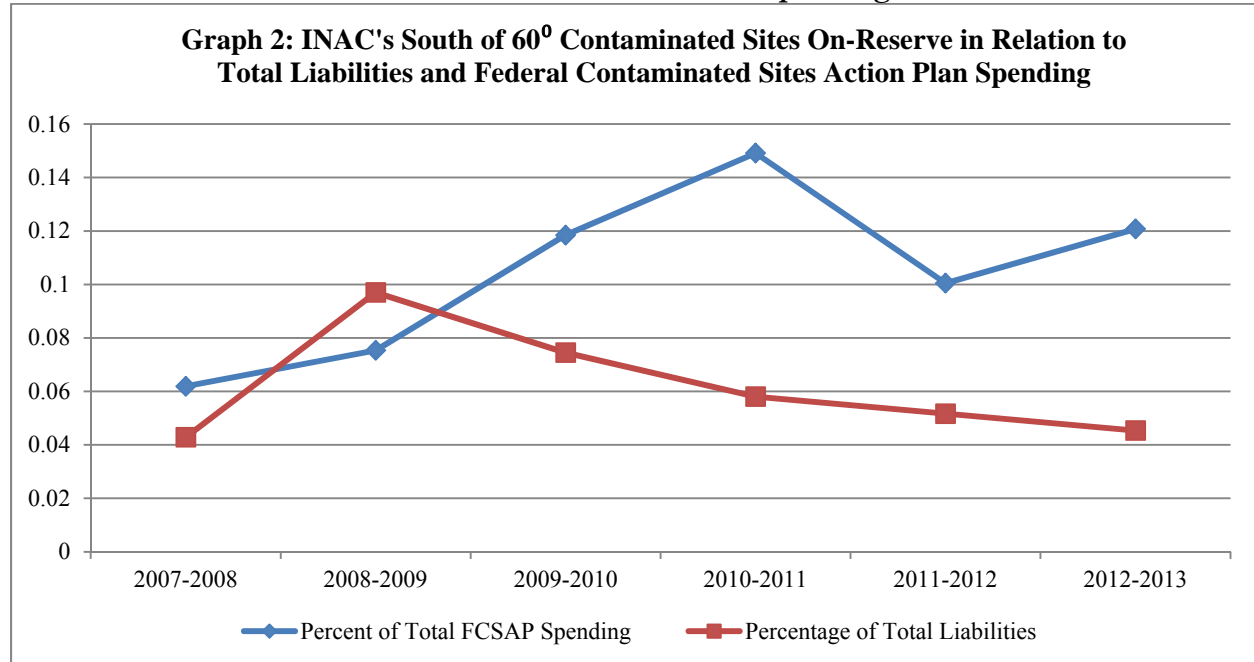
As shown above (e.g., FCSAP), the CSOR is explicitly linked to the federal government's roles and responsibilities with respect to environmental management such as contaminated sites. In addition to FCSAP's original funding of \$3.5 billion over 15 years announced in Budget 2004, the federal government has renewed support for the action plan through two additional funding endowments: the 2009-2010 Canada Economic Action Plan; and Budget 2011. In the case of Budget 2011, the federal government outlined its long-standing support of contaminated sites remediation stating that "The Government has developed a long-term Federal Contaminated Sites Action Plan to systematically assess, remediate and monitor sites for which the Government is responsible." The 2013 Speech from the Throne also addressed the third expected result of the CSOR, stating:

- *"Canadian families expect safe and healthy communities [...] and enjoy a clean and healthy environment"*
- *"our Government will continue to work in partnership with Aboriginal peoples to create healthy, prosperous, self-sufficient communities"* (Government of Canada, 2013b).

FCSAP Phase III is set to begin in 2016, a further indication that federal contaminated sites constitute a serious priority for the federal government. This is, moreover, reinforced by the fact that the CSOR represents a significant portion of total liabilities, works closely with the FCSAP partner departments and is clearly aligned with federal priorities.

Graph 2 below highlights the significance of FCSAP in terms of alignment with federal priorities. As depicted by the graph, the CSOR, in most years, and especially in recent years, receives a higher proportion of FCSAP expenditures than its relative proportion of liabilities. This suggests that the CSOR's liabilities are a high priority for the federal government and are consequently well supported by FCSAP funds. It should be noted that, based on the literature review and key informant interviews, as well as the nature of the assessment, remediation and monitoring services procurement on-reserve, on-reserve contaminated sites may be socially more complex and in harder to remediate areas, thus justifying a need for more funding than sites that fall under other departments' jurisdiction. NOTE: the higher proportion does not mean that the CSOR receives sufficient funds.

**Graph 2: INAC's South of 60° Contaminated Sites On-Reserve in Relation to Total Liabilities and Federal Contaminated Sites Action Plan Spending**



Source of “Percent of Total FCSAP Spending” – *Federal Contaminated Sites Inventory*

Source of “Percent of Total Liabilities” – *Appendix C, Table 1: Breakdown of Environmental Liabilities by Custodian Department*

In addition to FCSAP, one example of how the CSOR aligns with the federal government’s priority regarding contaminated sites can be found in Chapter 3 of the *Commissioner of the Environment and Sustainable Development’s 2012 Spring Report*. The report reviewed the status of federal contaminated sites, including sites on First Nations reserves. According to the report, contaminated sites do not only affect soil, water, and air integrity, but also have the potential to and may jeopardize the health of people who live or work near these sites. Furthermore, the report indicated that contaminated sites may harm natural flora and fauna. Thus, without remediation, the sites’ negative effects could continue indefinitely since some of the contaminants, ranging from toxic and hazardous substances such as petroleum products to heavy metals and radioactive materials, are considered to be extremely persistent. Key informants and site visits to reserves confirmed these concerns.

*The CSOR Program’s Alignment with Departmental Priorities*

It is important to note in relation to Aboriginal community priorities that there are 615 First Nations and over 80 percent have fewer than 1,000 people living on-reserve. Moreover, First Nations, particularly those living on-reserve, have higher unemployment rates and lower average incomes in comparison to other Canadians. Thus, with various First Nations viewing the development of reserve lands as either one of, if not the most viable means of generating wealth for their communities (e.g., developing natural resources or leasing parcels of land to others, activities that spur economic development), contaminated sites do not augur well for such development. Furthermore, as reserve site visits showed, First Nation communities include homes, schools, churches, administration buildings, all of which are built on-reserve land and foster social development. The presence of contaminated sites, therefore, adversely affects communities.

Sustainable development (economic or otherwise) of reserve lands depends on First Nations' access to and control over their land and natural resources, including a clean and healthy environment. Thus, contaminated sites impact reserves' interests and remain a major barrier to economic and community development. In some areas, for example where development is expected and when the "shovel hits the ground," sites have to be abandoned because of the discovery of contamination. This, in turn, results in years of delay in developing the resource. Responsible development and use of natural resources has the potential to promote job creation and attract skilled resources and also to succeed, not only in the Canadian but also in the global economy. Contaminated sites deter progress, as case studies undertaken for this evaluation have shown and even economic development is adversely impacted if on-reserve land must be taken out of productive use.

Addressing contaminated sites on-reserve lands is expected to help in the attainment of development goals while also supporting government priorities related to Aboriginal training and employment. Reserve site visits showed that contaminated site management projects offer Aboriginals benefits in terms of work opportunities, skill development and knowledge-based career potential.

Where the reserve community lacks the capacity, the opportunity and the help, as well as the wherewithal, to develop and use its lands and resources sustainably for the community's benefit, then that particular First Nation reserve's community is deprived of an improved quality of life. In turn, the community is unlikely to approach the standard of health and wellbeing that other Canadian communities enjoy.

*Departmental Priorities: Northern Contaminants Program - the Yukon, Northwest Territories and Nunavut.*

While this evaluation excluded the Northern Contaminants Program (which includes the Yukon, Northwest Territories and Nunavut), a brief comparison of the North and South of 60° programs may be useful in the context of the departmental priorities.

First, the nature or source of contamination sites in the South of 60° is mainly fuel storage and handling (67 percent), solid waste/landfills (20 percent) and other (13 percent) whereas in the North of 60°, past private sector resource extraction and military activity account for the contamination problem.

Second, in the South of 60°, contaminated sites are on-reserve, numerous, much smaller in size, tend to be within or in the close vicinity of communities, represent smaller financial liabilities, and new sites are expected to be discovered anytime. Contaminated sites under Northern Contaminants Program management are fewer, large-sized, have a tendency to be far removed or are not in close proximity (i.e. in remote locations, away from any settlements), do not expect a significant increase in the number of new sites, and costly in terms of remediation efforts (Northern Contaminants Program sites are usually abandoned northern mine sites that will extend beyond FCSAP (2020).

The relative success of the North of 60 Northern Contaminants Program compared to the CSOR was identified as an issue by previous audits and program evaluations. A specific issue arose from the 2008 evaluation of both the North and South components of INAC's contaminated sites program, namely, a lack of dedicated funding on an annual basis made it difficult for both halves of



the program to plan and prepare their site assessments and remediation processes accordingly. This was especially challenging with respect to the CSOR because funding is passed along to communities, adding an additional step between the funding source and the final contracting of services. In response to a recommendation made by the 2008 evaluation, the program has allocated some dedicated A-base funding for the program.

The evaluation also found that the placement of both the North and South contaminated site programs within the Department highlights how these two sub-programs are prioritized. For example, the fact that the CSOR is situated with the Lands and Economic Development Sector provides some indication about the role that the CSOR plays in ensuring that reserve land, aside from being healthy to live on or near, is effectively available for any economic development opportunities the community may want to pursue with it. Economic development for First Nations is a fundamental departmental priority, thus, the placement of the CSOR with the Lands and Economic Development Sector indicates the importance of assessing and remediating contaminated sites in order to create a healthy economic development environment.

Based on interviews conducted, however, some challenges regarding support (number of staff and funds) for the program exist. The evaluation found significant staff support for the CSOR, but the variability of program staff and resource availability for program delivery differ considerably across regions. Interviews with regional staff revealed that a number of environmental officers are handling both their CSOR responsibilities and other program duties as well. Accordingly, staff dedicated to CSOR in some instances could be as few as one individual. Regional staff also noted that since FCSAP funding is unavailable for new sites or sites that are not high-risk, resources were often under pressure in attempting to deal with non-FCSAP sites. As shown in Graph 1 (number of sites by classification across provinces), most regions are dealing with a number of class 2 and 3 and unclassified sites. There was some expectation among interviewees that possible changes in Phase III of the FCSAP program might address some of these resource needs. Despite a lack of financial resources, the regions noted, almost unanimously, that they felt well supported by Headquarters when funding was needed, identifying the national CSOR coordinator as particularly strong in helping to secure resources.

In summary, although distinctions exist between the contaminated sites that are North and South of 60°, with most (93 percent) of INAC's liabilities for contaminated sites found North of 60°, lessons learned from the latter can be applied to the South of 60° program. For instance, by adapting or using the contribution to scientific knowledge and expertise developed as part of the northern remediation efforts. See Section 6, "***Other Findings/Observations***" for more on this topic.

#### *The CSOR Program's Alignment with Community Priorities*

As noted, communities prioritize contaminated site clean-up differently, depending on other pressing issues they may be dealing with. The sheer numbers of suspected contaminated sites communities have identified and that are yet to be addressed points to the concern that on-reserve communities have regarding contamination.

Program staff mentioned that new sites are constantly being added to the inventory of suspected sites and during site visits, for example, the evaluation learnt first-hand of new sites that have surfaced in one reserve. The evaluation also learned from key informant interviews that communities that notify the Department of a potential contaminated site are interested in

assessment and remediation. Given communities' hands-on role(s), often in order for the remediation process to begin, reserves which are preoccupied with other outstanding issues are sometimes unable to prepare a contaminated site for it to be "shovel-ready" when funding is allocated.

The promotion as well as the support of Aboriginal economic development, the use and management of reserve lands, including, in particular, the environmental management and the remediation of contaminated sites, are all federal, departmental and community priorities. They will continue to be central to virtually all forms of Aboriginal economic development. The Auditor General's 2009 Fall Report noted that reserve lands are central to First Nations peoples' history, cultural identity and day-to-day activities. As the evaluation found, this is a key reason why the assessment and remediation of contaminated sites in the South of 60° has a direct impact on the quality of life of First Nations. It is crucial to the economic benefits of the affected reserve and surrounding communities (as it allows and encourages the future development of lands that would otherwise be unusable) and, to the wider Canadian economy as a whole.

## ***4. Evaluation Findings – Design and Delivery***

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This section addresses the issue of the extent to which the CSOR's design effectively responds to the needs it was intended to address (i.e., whether implemented as intended), and analyses evidence of best practices and lessons learned.

***Finding 4:*** *There is a need to increase and strengthen the CSOR's prevention strategies in order to reduce or eliminate risks to human health and the environment, and reduce legal and financial liabilities associated with contaminated sites.*

Through its Contaminated Sites Management Policy (2002), the Department has expressed its commitment to managing contaminated sites in a cost-effective and consistent manner that will lead to a reduction and elimination, where possible, of danger and risk to human and environmental health and liability associated with contaminated sites.

For example, work has been undertaken by Regional Operations on a compliance plan to assist First Nations in meeting the 2008 Environment Canada *Storage Tank Regulations* or help them with training for emergency fuel response and release and the development of emergency and waste management plans. As interviews with community members and regional program staff showed, although the program's goals focus on decreasing the Department's environmental liabilities and successfully assessing and remediating contaminated sites, there is a need to strengthen contamination prevention programming. Yet, funding available for site clean-up is limited and, moreover, very little, if any, remains for regions to offer effective contamination prevention or minor contamination do-it-yourself clean-up programs for reserves interested in preventative options. There is an expressed need for departmental strategies for effective fuel tank storage and waste disposal in order to reduce or eliminate risks to human health and the environment while reducing legal and financial liabilities associated with contaminated sites.

For many reserve communities fuel tanks are essential to the provision of electricity and heat for crucial capital facilities such as diesel power generators, water treatment systems and schools. As owners and operators of infrastructure on-reserve, First Nations are responsible for ensuring all applicable storage tank systems under their control comply with regulations under the *Canadian Environmental Protection Act, 1999* in order to ensure continuous delivery of fuel to their communities. However, many reserves lack sufficient financial resources to pay for fuel tank upgrades, which, as site visits showed, could enhance the range of existing activities relating to containment of affected sites including site security, securing infrastructure, access prevention and infrastructure renewal (e.g., refurbishing fuel tank sites).

Respondents stated that 10 percent of FCSAP funds go toward replacing failing infrastructure. For example, where the ground under a fuel tank is being cleaned to replace an old tank with another, the project is FCSAP eligible. However, the CSOR cannot remove tanks without replacing them or with a renewable energy source. Thus, not replacing a tank would make it FCSAP ineligible. But, the CSOR is about reducing, not replacing, fuel tanks.

The evaluation learned that diesel tanks, in most cases, lead to contamination. As a result, on-reserve communities are looking for prevention strategies, preferably ways to prevent or minimize leakage in the first place. In the Ontario region, for example, the evaluation's site visit found that funding acquired through the Lands and Economic Development Services Program allowed the Ontario First Nations Technical Services Corporation to create fuel safety videos that teach communities how to deal with, and how to prevent, fuel-related contamination. In addition, regional officers are creating guides and programs on prevention shared among regions and communities. These guides are a low-cost option for spreading helpful tips and information about common contamination issues<sup>33</sup>. Both regions and communities consider that greater communication is needed to raise communities' awareness that their operations and maintenance funding will become a substitute for coverage of contamination costs once FCSAP ends. At that point, prevention programming and effective Operations and Maintenance use for contamination remediation will be necessary.

It was also noted that much of the environmental stewardship to which the CSOR aligns evokes a sense of responsibility for and ownership of the environment. Programs targeted at on-reserve school children to promote waste management practices, such as recycling and composting, have been shown to become habit-forming behaviour in the community at large. This, according to the literature, is especially evident in other programs linked to healthy eating and cooking habits where, when children are exposed to certain land and environment protection behaviour, they are likely to bring that behaviour home. Waste dumping in particular represents 20 percent of the contaminated sites under the CSOR. The cost of non-remediation and a lack of forward-looking prevention programming, particularly in the context of FCSAP funding coming to a close, may result in increased costs for communities and also in health and safety risks. Prevention strategies such as those cited can then be beneficial.

Contamination prevention has led to best practices, which have spread across some regions and are reflected, to some extent, in other program areas. The reliance on diesel as a fuel source for many remote communities, for example, leads to very common site contamination problems. Recognizing that the eco-ENERGY program has worked to fund renewable energy projects, shifting towards renewable energy sources could be taken into consideration for the on-reserve program. Such a shift could potentially decrease the reliance on diesel and decrease the cost of subsequent contamination clean-up. At a programmatic level, the practice of sampling soil for possible contaminants before any digging or construction takes place can save communities considerable time and effort in cases where contamination is found. Remediating a contaminated site which has a building on it is much more costly than testing a site for possible contamination before any building occurs. This is a practice that was recommended by a number of regional officers.

INAC regions are making best efforts to assist First Nation communities to bring non-compliant essential fuel tanks into compliance. But regions' capital resources are limited, particularly given the high priority on water and wastewater infrastructure improvements. If an essential community tank is withdrawn from service, particularly in the winter months, there could be health and safety impacts for that First Nation community, including loss of potable drinking water, wastewater, heating and electricity.

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<sup>33</sup> For example, the following Guide to Home-Heating Oil Tanks was created and shared with us by Ellen Sedlack from the Yukon region.

Increasing and strengthening CSOR Program prevention strategies and greater communication across regions can lead to the sharing of many best practices, which, ultimately, could save communities time and money and ensure that they are able to maintain their land without fear for their health or safety. Prevention, in particular, will be important as FCSAP funding ends.

Finally, recognizing that the CSOR Program has a large inventory of high-priority FCSAP-eligible projects (i.e. Class 1) and high-priority, ineligible projects which includes Classes 1, 2, and 3, prevention is key. Program documents indicate taking an integrated management approach where “remediation of FCSAP-eligible projects is coupled with remediation on non-FCSAP eligible sites in the near vicinity and infrastructure renewal and improvement investments.” While the document indicates that this is the most cost-effective option, it requires considerable investment from INAC in order to result in further reduction in Crown liability while preventing new contamination from occurring.

***Finding 5:*** *The Integrated Environmental Management System dataset was found to be incomplete and containing a significant amount of inconsistent data due to weaknesses in record keeping, reporting and data management.*

In 2009-10, the IEMS was developed (as mandated by Treasury Board) and is presently used by INAC to track and report on various contaminated sites. The IEMS is a Corporate Environmental System that captures and reports on environmental assessments and contaminated sites for INAC’s North and South Environmental sectors, in conformity with the legislative mandates on the Department’s Crown lands. The IEMS system streamlines and amalgamates the business processes from the Northern Affairs Organization and Lands and Economic Development into one Corporate Environmental System. In order to store ongoing liabilities for contaminated sites that fall under the CSOR Program, regions input necessary reporting data. IEMS users are internal INAC resources and the application is hosted on a server in the National Capital Region. As the departmental database, the IEMS is separate from the Treasury Board Secretariat-operated Federal Contaminated Sites Inventory<sup>34</sup>.

The IEMS database facilitates the input of contaminated sites information to the Federal Contaminated Sites Inventory, which is a requirement of the *Treasury Board Policy on the Management of Real Property*. This database, together with site-specific Detailed Work Plans and quarterly site reports, inform both planning and reporting processes. While the IEMS is designed to undertake such activities whereby, as new contaminated sites are identified by communities, they are assessed and entered into the IEMS, this also creates a challenge. For example, some of the data collected included sites that were being managed by other federal departments, data that fell under provincial responsibility, or were third party responsibility.

Another point to note in relation to the IEMS is that where a contaminated site is to be remediated, the First Nation is expected to undertake a tendering process prior to hiring a contractor. Consequently, the IEMS is updated with the cost estimate, which is calculated by the contractor and then provided to INAC by way of the First Nation. The cost estimate for a contaminated site is a key part of the environmental liability for a site, which includes the overall environmental liability

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<sup>34</sup> The Federal Contaminated Sites Inventory includes information on all known federal contaminated sites under the custodianship of departments, agencies and consolidated Crown corporations as well as those that are being or have been investigated to determine whether they have contamination arising from past use that could pose a risk to human health or the environment.

figure that is recorded in the Department's financial statements. As new contaminated sites are identified, they are assessed in a similar manner and entered into IEMS.

Document reviews further showed that departmental liability estimates for contaminated sites need strengthening due to human error, for example, confusion around the difference between a cost estimate<sup>35</sup> and a liability estimate<sup>36</sup>. This is exacerbated by the lack of a departmental standard or protocol that would be expected to help ensure consistent application of liability calculation and reporting. As the evaluation observed, INAC adheres to Treasury Board Secretariat liability guidelines in lieu of a departmental standard. As mandated by Treasury Board, the IEMS was developed and is presently used by INAC not only to track and report contaminated sites but is also updated with contaminated site cost estimates, which is a key component of the environmental liability for each contaminated site, besides the overall environmental liability figure recorded in the Department's financial statements. Thus, accuracy of content is key.

Other issues with respect to IEMS included: challenges with undertaking custom reports that would facilitate reporting; technical issues in that every time a proponent “saves” a new record, a user could save it dozens of times for a single entry; when adding a step in the entry, the system will no longer automatically enter a completed date for the previous step or will instead add a completed date for previous steps. A region may then enter multiple steps and have them all appear as the current step leading to confusion, particularly when regions are entering into a reporting cycle of a fiscal year. This is a critical issue since, if a step in the reporting process is missing, the consequences are permanent in the Treasury Board Secretariat-administered Federal Contaminated Sites Inventory.

A further issue concerning accuracy of information in the IEMS relates to the entering (“dumping”) of all available information (e.g. on tank sites) into the IEMS inventory. This practice leads to duplication in the number of sites recorded and is both time consuming and results in an inconsistency in the numbers entered. While some regions have been able to verify and correct some of the data others, given resource and time constraints, have not.

The evaluation is aware that often, data duplication occurs, an inevitable phenomenon due to unintentional duplication of records, gathered at times at short intervals as well as created from multitudes of data from various sources, which is difficult to avoid. Further, this data duplication sometimes leads to contamination of data. Cognizant of the challenges caused by duplication, the evaluation suggests considering manually coding rules so that data can be filtered to avoid duplication. This may help eliminate or reduce data duplication, which always has the potential of skewing distribution of database content. In addition, this could also result in data deduplication (a technique that enables the reduction of storage space an entity needs to save its data) as extra information or copies saved by different users could be eliminated.

Two major conclusions emerged concerning the IEMS database:

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<sup>35</sup> That is, all costs connected with the remediation of the site (used by INAC to budget for contaminated site assessment, remediation and management)

<sup>36</sup> That is, costs that are directly attributable to the actual remediation but not costs to maintain or monitor the site before or after remediation (used by INAC for financial reporting purposes)

First, there is a lack of confidence in the IEMS data. These data (submitted by the regions) is compounded by the number of smaller sites that have been entered in the system but do not require remediation and are sites that have not in fact been closed; the data go into determining the Department's liabilities and since liabilities are a key marker for program success, inaccurate data may compromise final liability figures. It is probable then that the data in the IEMS are over-inflated (see also *Data Analysis Limitations IEMS* and *Confidence in Data in IEMS Database*, **Strengths and Limitations** section, *Evaluation Methodology*).

Second, there are problems with access to data that affect the ability of the IEMS to provide optimal support to the program. Inter-regional comparisons and report generation require Headquarters access and only one region is able to access reports from IEMS as required.

<b>Recommendation 1: It is recommended that the CSOR review the integrity of the IEMS data to ensure that they are accurate, reliable and usable.</b>
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***Finding 6:** There continue to be challenges in program delivery due to factors such as geography and lack of human and financial resources, which prevent a strong and vibrant response to contaminated sites.*

Challenges identified by key informants and from site visits can be grouped as follows: geography; human resources and sustainability/planning; limited finances.

#### Geography

Given that contaminated sites are found in on-reserve communities across the country, South of 60, most in remote, isolated and rural communities, geography constitutes a physical barrier to quick response and remediation efforts. The more remote and isolated the community, the longer is required to remediate contaminated sites. Weather, when combined with geographic location, can affect the community's infrastructure and thereby its ability to undertake timely repairs on infrastructure as well as the remediation that ought to precede it. Depending, for example, on the type of contamination this could be present in some of the soils around community structures (e.g., residential and various outbuildings) for a while. Thus, this poses risks to human health as well as to the plants and animals at the site. In this sense, geography at times dictates that based on risk assessments, the decision has to be made whether to manage risks at a particular site rather than to remove the contaminated soils as is often done at less remote sites. As the evaluation learned, removal of the contaminated soil could lead to irreparable damage to the particular natural environment. Such a site could consist mainly of a thin layer of soil over bedrock. To summarize the discussion so far, consideration must be given to the fact that remoteness is compounded by the smallness of on-reserve Aboriginal populations.

#### Human Resource Capacity

A further barrier to program delivery is the lack of human resources available to support site work, from both First Nations and INAC perspectives. A small team manages the program with oversight provided by Headquarters and supplemented by a network of regional staff. As noted above (Section 1.2.5), regional staff are responsible for, among other things: the development and approval of annual project detailed work plans and long-term regional strategic plans for the program; liaising with and providing functional direction and advice to First Nation communities in relation to

contaminated sites; management of funding, which includes preparing paperwork for funding amendments, proposals and reporting, together with performing site inspections.

From another perspective, Fisheries and Oceans Canada's budget highlights the challenges faced by the CSOR. The Department has 25 percent more FCSAP budget for salaries to be used to manage less than a fifth of the CSOR's assessment and remediation budget and more senior program administration staff. Although the number of projects being managed is similar to the CSOR, several of Fisheries and Oceans projects are small, long-term monitoring projects and all or most of its contaminated sites projects are managed by Public Works. In contrast, Contaminated Sites On-Reserve works collaboratively with First Nations using an "applied" approach, which, as found by the evaluation, requires more resources (possibly more senior staff resources), per project.

There is a lack of capacity in many on-reserve communities regarding land management activities related to contaminated sites and concern about the consequences of the lack of availability of trained land managers. Given this situation, there is a need to raise awareness of the Reserve Land and Environment Management Program, one of whose objectives is to prepare First Nations to take on roles and responsibilities through a training and certification program and efforts made to help address the capacity issue.

#### Limited Finances

Due to limited availability of or delay in the provision of funds, technical support across the affected communities, including other technical support provided by non-community members such as contractors, is not optimal (see also the "Performance" Section below).

The lack of a dedicated source of funding remains an issue following the 2008 evaluation's recommendations on this subject. In response, the Department, through the Lands and Economic Development Sector, provides the CSOR with \$1 million in dedicated funding as well as the required FCSAP cost share (15 percent for Remediation projects and 20 percent for Site Assessment projects) from the Capital Facilities Maintenance Program, which is part of the Regional Operations Sector. The Capital Facilities Maintenance Program also funds a number of priority non-FCSAP eligible projects every year.

As well as the above funding, and as part of its continuing support to the CSOR, the Department has committed to providing \$50 million for the program for 2016-2020 (Phase III of FCSAP) to address FCSAP cost-share and non-FCSAP eligible priority projects for Phase III of the FCSAP program (2016-2020). It has not been determined at this time how these funds will be 'dedicated' to the purpose (CSOR is the only FCSAP custodian to use Vote 10 (Grants and Contributions) funding).

The preceding also singles out a difference between the Northern Affairs Organization's Northern Contaminants Program and the CSOR. With respect to the Northern Contaminants Program, the Northern Affairs Organization is responsible for procuring the assessment and remediation services for its sites, and undertakes its work in terms of funded projects. The CSOR operates differently. INAC and First Nations manage and implement the contaminated sites projects in partnership and the CSOR receives funds, which are then passed to the affected communities. Moreover, the CSOR staff have very little input concerning how the assessment and remediation services are procured or



delivered and the CSOR has more of the characteristics of a Grants and Contributions program rather than those of a steward for projects.

The difference between the Northern Contaminants Program<sup>37</sup> and the CSOR is emphasized in that the model of First Nations management of project delivery means that First Nations have control over their contaminated sites projects from start to finish. Regional officers communicate with First Nations on the work that will be undertaken then the funds for the site project are added to the next amendment of the First Nation's Comprehensive Funding Arrangements. In other words, regional officers play a "trusted advisor" role.

The lack of both a dedicated source of and sustained funding has meant additional funding for the CSOR is received through other program's surpluses (e.g. Capital). Thus, with little or no money remaining after assessment and remediation costs, Lands and Economic Development Services Program is a means of funding prevention projects. The CSOR in fact may be characterized and perceived as an after-thought program, especially considering, for example, that ongoing contractual consulting services to assist with the development and implementation of remediation of contaminated sites is an issue.

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<sup>37</sup> See Section 6 for more on NCP and CSOR

## **5. Evaluation Findings – Performance (Effectiveness / Success)**

Effectiveness relates to the achievement of Expected Outcomes. This section therefore provides an assessment of progress made by the CSOR towards its expected outcomes (including: immediate, intermediate, and ultimate outcomes) with reference to performance targets and program reach, including the linkage and contribution of outputs to outcomes.

### **5.1 Achievement of Expected Outcomes**

***Finding 7:** The program is achieving its expected result that priority sites are remediated, risk managed and/or monitored.*

The indicator for the expected outcome “Priority sites are remediated, risk managed and/or monitored” is the “% of Class 1 sites known at the beginning of the fiscal year that are actively worked on.” A program representative indicated that the number of Class 1 sites actively worked on in a given year could be estimated by measuring the number of Class 1 sites that had expenditures in the given year. Unfortunately, the evaluation could not determine from the data the number of Class 1 sites that were in the database in a given year. Therefore, the percentages calculated in the following Table 3 are out of the total number of Class 1 sites in the IEMS database as of April 24, 2015.

<b>Fiscal year</b>	<b>#</b>	<b>%*</b>
2009–10	109	23%
2010–11	123	26%
2011–12	73	15%
2012–13	56	12%
2013–14	79	17%

\*Percentages calculated out of the total number of Class 1 sites in the IEMS database as of April 24, 2015.  
Source: (INAC, 2015b)

In each fiscal year, at least 12 percent of Class 1 sites received expenditures, with the greatest number worked on in 2010–11 (26 percent). Further, there are 3,440 sites South of 60° listed in the IEMS database (omitting sites that are being managed by other federal departments and, that are a provincial/territorial responsibility or are a third party responsibility). According to the IEMS, 1,446 (42 percent) of these sites have been closed, while the other 1,994 (58 percent) remain open at various stages in the ten-step CSOR process. Of the seven regions South of 60°, British Columbia has the most contaminated sites entered in the database (1,394) and the Atlantic at 14.

Table 4 below shows Contaminated Sites On-Reserve program performance results for the period covered by the evaluation.

<b>Table 4: Contaminated Sites on Reserve Program performance results for the period covered by the evaluation</b>			
<b>Expected results</b>	<b>Performance indicators</b>	<b>Targets</b>	<b>Actual results</b>
<b>2010-11</b>			
Contaminated sites are managed to ensure the protection of human health and the safety of the environment while bringing economic benefit to the North	Number of contaminated sites remediated	Four by March 31, 2011	Five sites
Site assessment and remediation/risk management activities will be conducted on federal contaminated sites in the Canada's Economic Action Plan Federal Contaminated Sites Accelerated Action Plan	Reduction in the number of contaminated sites south of 60	45 assessment projects and 20 remediation projects in 2009-10, seven assessment projects and 24 remediation projects in 2010-11	82 assessment projects and 18 remediation projects
Site assessment and remediation/risk management activities will be conducted on federal contaminated sites under Canada Economic Action Plan's Federal Contaminated Sites Accelerated Action Plan. Over two fiscal years, site assessments will be completed at 355 sites, and some remediation activities will take place at the Giant Mine site.	"Contaminated sites are managed to ensure the protection of human health and the safety of the environment while bringing economic benefits to the North"	106 assessment projects and one remediation project in 2009-10, 249 assessment projects and one remediation project in 2010-11	410 assessment projects
<b>2011-12</b>			
Management of contaminated sites to protect human health and the safety of the environment	Number of contaminated sites remediated	Five sites by March 31, 2012	0
<b>2012-13</b>			
On-reserve contaminated sites are remediated to ensure the protection of human health and the safety of the environment	Number of contaminated sites remediated	Six by March 31, 2013	Seven contaminated sites were remediated and closed
Contaminated sites are managed to ensure the protection of human health and the safety of the environment while bringing economic benefit to the North	Number of suspected contaminated sites assessed	890 by March 31, 2013	2,021 suspected sites were assessed in total. The Northern Contaminated Sites Program no longer has any suspected sites
	Number of sites in Step 8 (implementation) through Step 10 (monitoring) of the Federal Contaminated Sites Action Plan 10-step process	40 by March 31, 2013	41

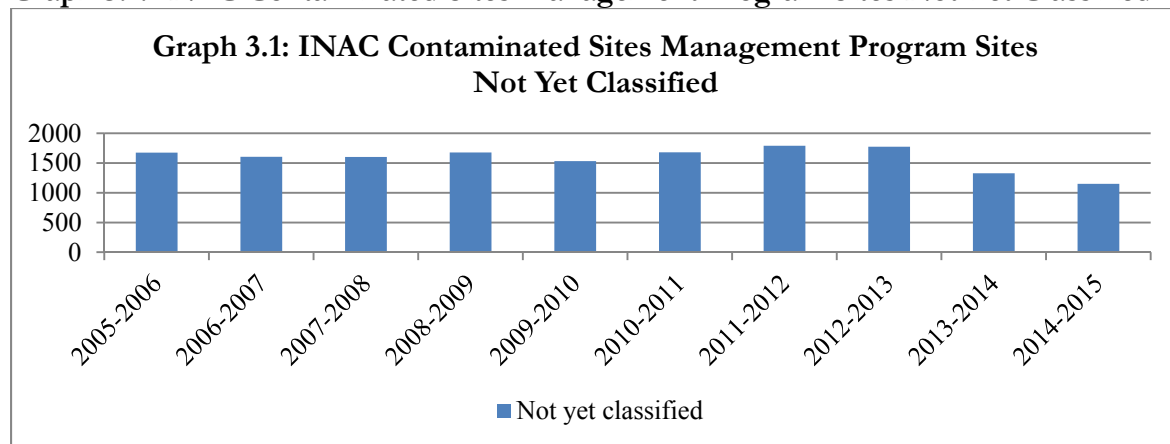
	Level (%) of Northerners and Aboriginal peoples employed within Contaminated Sites projects	60 percent by March 31, 2013	60 percent
2013-14			
Highest ranked human health and ecological risks on-reserve reduced (according to the priority ranking system <sup>38</sup> )	Number of Class 1 sites in IEMS where risk reduction is occurring (Step 7, 8, and 9)	15 sites by March 31, 2014	95 sites
Improved characterization of contaminated sites on-reserve	Number of sites assessed	10 sites by March 31, 2014	67 sites
Reduction of the known federal financial liability in confirmed contaminated sites	Dollar reduction in total contaminated sites liability for known sites in remediation/risk management	\$8.0 million by March 31, 2014	\$24.7 million
2014-15			
Decreased risk to public health and safety	Number of Class 1 sites (with existing concerns for public health and safety) where risk reduction is occurring	15	By March 31, 2015
First Nation land is available for development	Number of contaminated sites remediated	5	
Federal liabilities related to the existence of contaminated sites are reduced	Dollar reduction in total of the known federal financial liabilities in confirmed contaminated sites at the beginning of the fiscal year	\$8.0 million	
Source: INAC Departmental Performance Reports			

<sup>38</sup>The CSOR develops an annual three-year rolling plan, which is undertaken jointly by Regions and Headquarters. Regions identify priorities through the National Priority Ranking System (NPRS) - an evidence-based, neutral and nationally consistent planning tool that helps the department rank contaminated sites based on risks to human health and/or the environment. Contaminated site projects are also prioritized within the regional Capital investment plan against all other Capital infrastructure projects. The Capital priority ranking framework prioritizes projects based on protection of health and safety (Government of Canada, 2014b).

According to its Departmental Performance Report, INAC exceeded all of its targets for the program’s expected results in 2013–14 due to the Department’s access to additional resources from FCSAP and other sources. The Performance Report adds that this was coupled with “INAC’s efforts to monitor and maintain a list of ‘shovel ready’ projects or projects where further investment could result in cost savings by avoiding costs associated with re-mobilizing heavy equipment” (INAC 2013-2014 Departmental Performance Report).

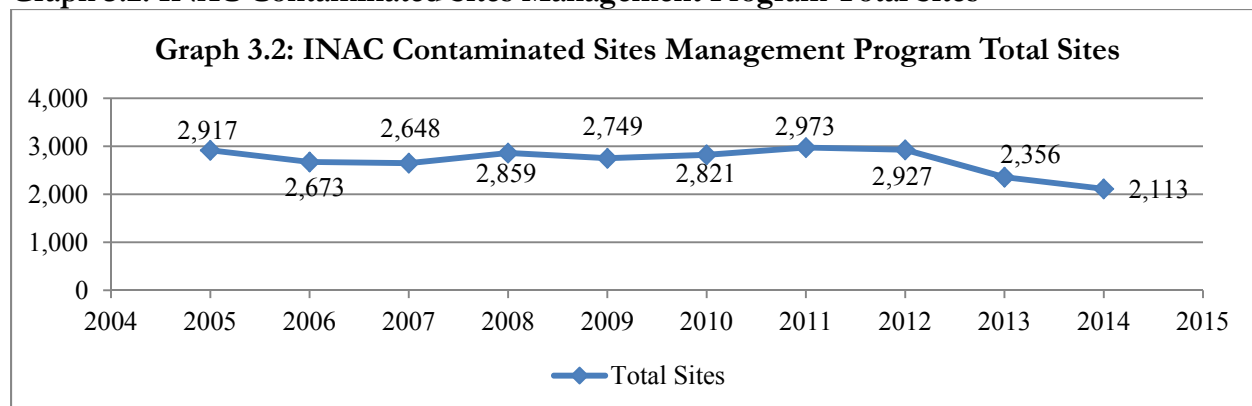
Further evidence of the program’s success can be seen in Graphs 3.1 and 3.2 below. The upcoming Phase III of the FCSAP program in 2011 coincides with a downward trend in the number of active and suspected sites for which CSOR is responsible. While the decrease is slight, it does suggest that the program is working to effectively meet its expected outcomes. Graph 3.1 also shows a downward trend in the number of yet-to-be classified sites. Although this number is difficult to predict and could increase as sites are reported, the trend, coinciding again with the start of Phase II, suggests that work in assessing sites in a timely manner is underway.

**Graph 3.1: INAC Contaminated Sites Management Program Sites Not Yet Classified**



Source: Federal Contaminated Sites Inventory

**Graph 3.2: INAC Contaminated Sites Management Program Total Sites**



\*Based on Federal Contaminated Sites Inventory data.

**Finding 8:** By supporting activities (e.g. for 67 environmental site assessments and remedial activities on 95 high-priority sites), the CSOR is achieving its expected result that federal liabilities related to the existence of contaminated sites are reduced.

The indicator for this outcome is “*Dollar reduction in the total of the known federal financial liabilities in confirmed contaminated sites at the beginning of the fiscal year.*” While this indicator cannot be calculated from the information available, it was calculated for a similar indicator for the 2013-14 Departmental Performance Report. In total, there was a dollar reduction of total environmental liability of known contaminated sites on-reserve by \$24.7 million in 2013–14, which exceeded the target of \$8.0 million. As of March 31, 2014, 65 high priority sites were completed between 2004 and 2014 at a cost of \$32.2 million. In fiscal year 2014-15, 26 sites have so far been fully remediated.

An issue raised by previous evaluations of the program is the difficulty of determining an accurate level of environmental liabilities within INAC. Since the 2008 CSOR evaluation, INAC has produced additional departmental guides and policies designed to maintain a level of consistency across these calculations, both across sites and between programs. Thus, in 2013, INAC implemented a policy on Accounting for Environmental Liabilities and in 2015 the CSOR drafted a document on Guidance on Remediation Liability Accounting to meet this need. However, staff using the departmental guide as well as federal policies on calculating environmental liabilities from the Treasury Board Secretariat, noted that the recent policy updates require additional administrative work that can often be quite challenging. Indeed, the calculation of certain aspects of liability, especially environmental liability, is often challenging because they are inherently difficult to capture. In this context, program staff noted discounting liability estimates to determine their net present value as problematical.

The evaluation was also faced with liability figures based on information provided by regions through IEMS. As noted, however, data inputted into IEMS are often invalid and staff lack confidence in their accuracy. This is likely a challenge for all custodian departments coordinating across regions and introducing departmental guides and policies may deal with some of these data inconsistencies. Nevertheless, following the reduction in the number of sites as shown in the graph above, the program has seen a decrease in liability levels, for instance as a proportion of federal environmental liabilities, Graph 2 reflects the CSOR’s liabilities, which have also decreased steadily since 2008-2009. This suggests that the CSOR has been reducing its liabilities faster, or accruing fewer new liabilities than certain other contaminated sites, which are under custodian departments and programs.

To fully appreciate a decrease in liabilities, it is important to consider the expenditures that ultimately go into remediating sites. If the cost of remediation is higher than the subsequent decrease in liabilities, the measure becomes less relevant. The graphic in Appendix E shows the relation between the decrease in liabilities to the amount of spending on assessment and remediation. It suggests that an increase in liabilities does lead to a subsequent increase in both INAC and FCSAP spending. Nevertheless, the reaction in spending is highly responsive and decreases again as liabilities decline. For the CSOR, liabilities are declining overall, which suggests that the resources spent on remediation are likely effective. This assertion is supported by most key informants as well as the evidence from the site visits: the level of assessment and remediation expenditures logically follows the level of liabilities and the two are mutually responsive. For example, had an increase in spending not led to a decrease in liabilities, there may have been cause for further examination.

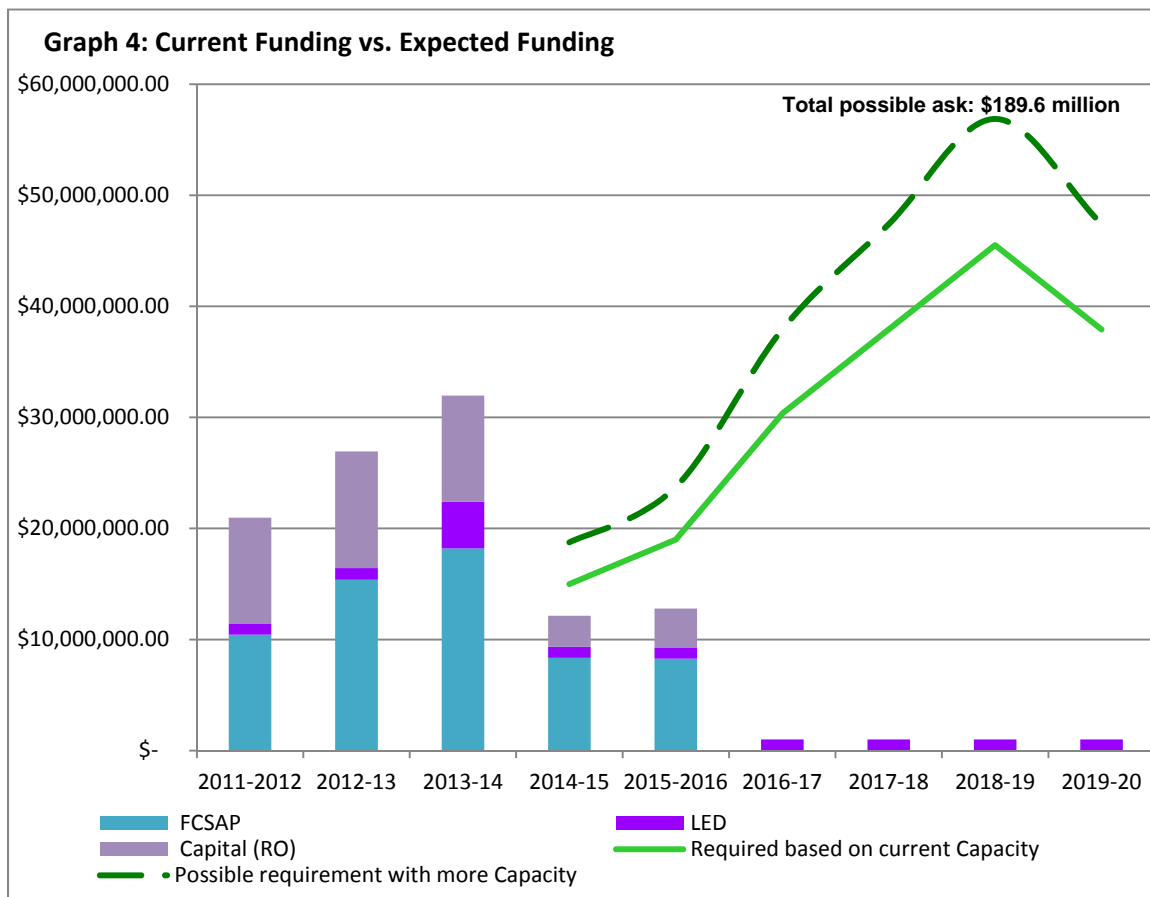
A further important issue to consider is the expected future increase in the CSOR’s environmental liabilities once all listed suspected sites are assessed and classified. As FCSAP enters its third phase

and the remaining funding stream ends, the future increase in liabilities may be particularly difficult to deal with absent predictable funding.

Graph 4, below, is extracted from a 2014 presentation to the Lands and Economic Development’s Operations Committee. It shows that the required level of funding for 2014–15 and 2015–16 was higher than the amount of funding that the program expected to receive and, further, that the required level would continue to increase until 2018–19 as suspected sites were assessed and liabilities are increased (INAC, 2014f). The dotted line represents the possible funding that the CSOR Program could use if the current capacity for program management was increased (i.e. an increase of 25 percent, including regions with the largest inventories in British Columbia, Manitoba and Ontario), should each of these regions, and Headquarters, have additional program management resources; this, along with increased funding for both remediation and assessment work. The analysis implies that the CSOR Program could possibly increase the workload by 25 percent.

Environment Canada’s 2014 FCSAP evaluation noted the gap that would exist in addressing these sites without FCSAP funding. Ultimately, the FCSAP evaluation concluded that there was a continued need for the FCSAP program to assess, classify, and remediate priority contaminated sites to reduce risk and liability to the federal government (Environment Canada, 2014). Overall, this also supports the continued need of FCSAP funding for the CSOR to effectively continue to reduce its environmental liabilities.

**Graph 4: Reported Expenditures and Current Funding vs. Required Funding: FCSAP**



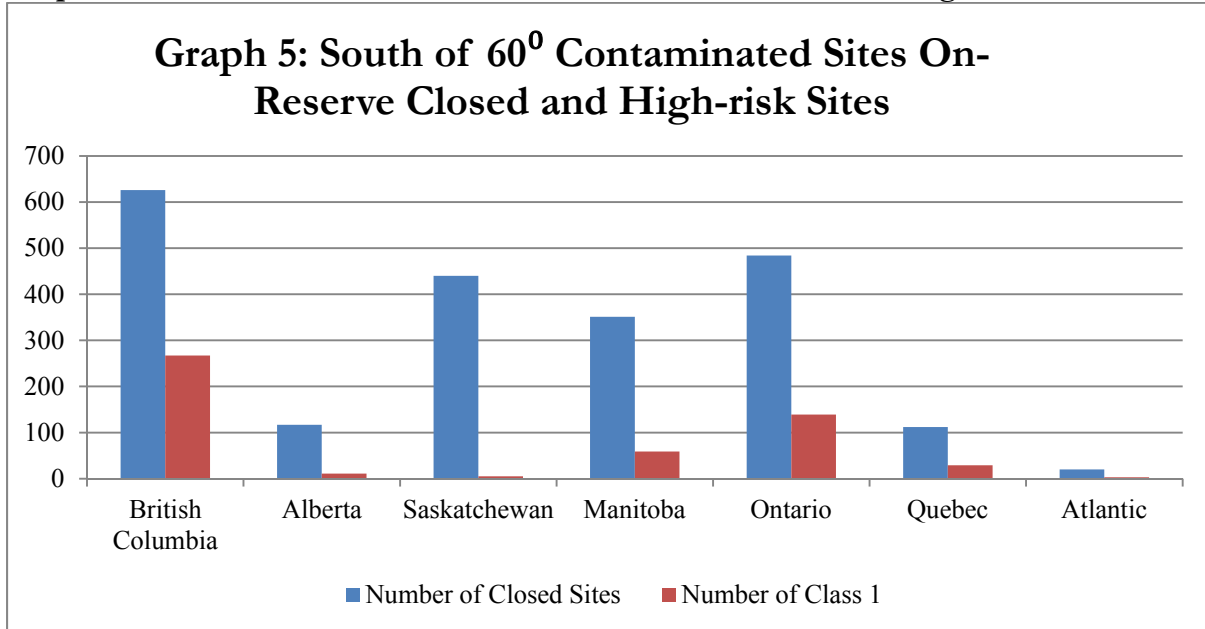
**Finding 9:** Sites identified in the IEMS show that the CSOR is achieving its expected result of decreased risk to public health and safety, by progressing through the program’s ten step process, which includes assessment, remediation, risk management, and monitoring.

The indicator for this expected outcome is “Number of Class 1 sites (with existing concerns for public health and safety) where risk reduction is occurring.”

Although a number of Class 1, high-risk sites still exist (250) and are likely to represent a major component of the liabilities estimates, the regions dealing with the most Class 1 sites are also those that have successfully closed the most sites. The successful closures of sites in Saskatchewan and Alberta, for example, show that the program is probably successfully dealing with the remediation and completion of Class 2 and Class 3 site clean-up, all of which are contributing to a decrease in the Department’s environmental liabilities. As shown in Graph 5, both Saskatchewan and Alberta have a majority of Class 2 and 3 sites.

The evaluation also determined that the nature of the classification system used raises issues. For example, most regions were seeing a number of lower-risk sites not necessarily being prioritized for funding because of their lack of eligibility for current FCSAP funding. This points to limitations in the FCSAP eligibility criteria. Moreover, certain Class 1 sites may represent significant liabilities without necessarily posing a serious risk to public health and safety. Graph 5 below provides a snapshot of CSOR sites that have been closed and those which are high-risk.

**Graph 5: South of 60° Contaminated Sites On-Reserve Closed and High-risk Sites**



\*Data based on Prairie Research Associates Database Review and Data from Federal Contaminated Sites Inventory.

Four hundred and forty Class 1 sites have been actively worked on over the last five years (i.e., high risk to health and safety). While progress has been made in addressing the risks that contaminated sites pose to human health and the environment, the majority of sites have not yet moved into the remediation phase. This is primarily a reflection of inventory demand and of certain sites outpacing



available resources. Overall, the evidence shows that sites identified in the IEMS are progressing through the CSOR's ten step process, which includes assessment, remediation, risk management, and monitoring.

***Finding 10:*** *The program is achieving its expected result that First Nation land is available for development; for example, meeting its target of five fully remediated sites in fiscal year 2014-15 by remediating 26 sites.*

A healthy and livable community that consistently attracts and retains population depends on policies and strategies that build strong, vibrant communities where citizens are valued, resources are managed responsibly and prosperity is broadly shared. This also includes the community's air, soil and water quality. From the evidence available, the evaluation found that the program is achieving its expected result that First Nation land is available for development.

For example, the IEMS database shows that 555 sites have been completely remediated by the CSOR Program and 108 were remediated between April 1, 2008, and March 31, 2014. The program met its target of five fully remediated sites in fiscal year 2014-15 by remediating 26 sites. Additionally, according to a presentation given in 2014, as of March 31, 2014, remediation of 65 high-priority sites at a cost of \$32.2 million had been completed since 2004-05. This reduced INAC's known liability by \$134 million.

Remediated land is used for a variety of community development activities, including green space/parks, sport fields, residential and economic development. The literature notes, however, that due to fear and stigma associated with sites, they may lie fallow for a number of years after remediation.

Key informant interviews did not yield any information concerning lack of confidence in the remediation that is occurring on contaminated sites and responses to such an issue are best obtained from those who are directly impacted. From a program perspective, once remediation occurs, either the site is clean and ready for use or it is specifically monitored for additional contamination. The issue of "remediation confidence" for sites considered closed by the program varies considerably across communities. Evidence from the literature review and site visits points to a range of perspectives from communities wary of the quality of remediation and avoiding sites after the program considers them closed to community members actively engaged with land known to be contaminated.

A site visit with the Nipissing First Nation in Ontario highlights community members' comments that a local contaminated site, a water-side property, was difficult to keep free of people during the assessment and remediation stages. The contamination occurred at a popular fishing site and some residents would continue to fish at the location, despite known contamination, until eventually a fence was built to keep residents away. This is a common issue across communities and sites that seem harmless still attract residents thereby requiring work to keep the areas closed off to the public. The study accentuates Nipissing's plans to turn the contaminated site into a water front property with a fishing beach.

A further example is the First Nation reserve of Attawapiskat where the community is planning on transforming what is currently a contaminated site into a skate-park or baseball park. Both Nipissing and Attawapiskat, together with many others, have plans to develop land that is currently being

remediated and turn the spaces into recreational or community spaces. This, of course, highlights the level of confidence in the remediation being undertaken.

On the other hand, there are other reserves where community members mentioned that a contaminated site could have a lasting stigma, even after remediation is complete. Interviews revealed that some communities are hesitant or distrustful of the kind or quality of clean up. As a result, sites considered “Closed” by the program become fallow or are unused. Although it is difficult to determine whether remediated land is being used by affected First Nation communities, the suggestion from interviews and the literature review is that communities become involved both with the assessment and the remediation process. Community members can learn basic prevention or remediation skills and work closely with the remediation companies (some of which are Aboriginal firms). These communities, as site visits demonstrated, are likely to have more confidence in the long-term health of the site.

The evaluation also reviewed the question of the use of remediated sites for commercial, residential or recreational spaces and, though there is evidence of communities developing and/or planning to develop remediated sites into commercial, residential or recreational space, the hesitation seen in other communities continues to be an issue. A common reaction from regional staff was that communities hesitant about the process are often seeking additional learning or a communications effort on the nature of the contamination, the scope of the risks associated with various levels of contamination and the process necessary to remediate the land. Additional communications resources may help to ease discomfort seen in communities and, from this perspective, an improved communication strategy is needed, one which includes but is not limited to education and collaboration in the remediation process.

## 5.2 Challenges to Performance

***Finding 11:*** *It is difficult to apply the Polluter Pay Policy/Principle on-reserve, which is compounded by a gap in federal legislation.*

The Government of Canada promotes the “polluter pays” principle, and the *Canadian Environmental Protection Act, 1999* shifted the focus from managing pollution, to pollution prevention. According to Environment Canada, pollution prevention involves “the use of processes, practices, materials, products, substances or energy that avoid or minimize the creation of pollutants and waste and reduce the overall risk to the environment or human health.” In its simplest definition, the polluter pays principle promotes the position that companies or people that pollute should pay the costs they impose on society. As a sound principle for dealing with polluters, it is also a way of holding parties responsible for their actions. However, there are inherent difficulties in applying the “polluter pay” principle in support of remediating contaminated sites.

The *Canadian Environmental Protection Act, 1999*, which is applicable on-reserve, embodies the principle that users and producers of pollutants and wastes should be held responsible for their actions. Similar, for example, to the federal *Fisheries Act* or the *Species at Risk Act*, the *Canadian Environmental Protection Act, 1999*, is enforced on-reserve by the appropriate federal authorities responsible for these *Acts*. In practice, however, enforcement of this principle on-reserve is complex and complicated as they are accompanied by provincial compliance promotion elements (e.g., standards, certification, licensing, inspection) which are lacking on-reserve. As a result, the

evaluation found that the enforcement of the “polluter pay” principle on-reserve was a challenge, given the complex jurisdictional and legal context within which First Nations must operate.

A novel approach or solution to this “gap” can be found within the *First Nations Land Management Act*, where environmental protection standards are required. These must either meet or exceed provincial standards where there is a potential for pollution to occur due to human activities. Moreover, in British Columbia, some treaties (e.g., the *Maa Nulth Final Agreement*) provide that provincial law will apply on First Nation lands.

Thus the regulatory issue and the need for enforcement have led to challenges in ensuring environmental protection on-reserve. The “polluter pays” principle is meant to be one of the levers through which funding for remediation can be received, especially in cases where a polluter of a contaminated site is known. According to key informants interviewed, there have been times when the “polluter pays” principle has been applied, and on some occasions, this has led to monetary compensation. However, the evaluation was unable to substantiate how frequently this had occurred.

In its Contaminated Sites Management Policy (2002), INAC notes that the Department “will incorporate provisions into its permits, leases, agreements and other instruments requiring that the private sector, First Nations, Inuit and northerners make every reasonable effort to avoid contaminating the environment in the course of carrying out their operations and activities and holding third parties liable for contamination that they cause on-reserve lands, on federal lands north of the 60th parallel, and on any other lands under AANDC’s custodial responsibility.”

In cases where the polluter is a third party<sup>39</sup>, there is often a lack of resources and/or the capacity, within INAC and in the First Nation community to ensure adequate enforcement. Further, and depending on the particular community, there is a lack of an initial agreement (e.g.: permit; lease; designation; legal agreement; etc.) with an entity conducting operations on-reserve; that is, an agreement that sets the environmental standards needed to govern any work to be done by the entity. Furthermore, as the evaluation found, there is also a lack of a complete regulatory framework for the polluter in question. It is further complicated by the fact that in some cases, the polluter may no longer exist or could have gone bankrupt.

On-reserve, the regulatory regime affecting land differs considerably from the federal and complementary provincial laws that exist off reserve and, since the legislation applying on-reserve lacks the same strength and completeness, both the federal government and on-reserve communities do not have the tools required to ensure or enable the enforcement of the ‘polluter pays’ principle. This has led to concerns regarding the lack of regulatory and enforcement tools to stop future contaminated sites from being created on-reserve.

Documents reviewed indicate that when contamination is clearly the responsibility of a third party, it is not the responsibility of the Crown. In other words, this situation provides a justification for not applying federal funds to the contaminated sites in question (at least where no human health or serious environmental risks exists).

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<sup>39</sup> While the evaluation did not come across a definition of “Third party,” in CSOR documents, for the purposes of this evaluation and to avoid shifting meanings, a non-reserve entity is considered a Third party.

Reliance on federal policies, however, also results in similar problems in that while the *Canadian Environmental Protection Act, 1999*, promotes the “polluter pays” principle, if there is a polluter, the current policy regime does not provide any aid to on-reserve communities.

As the evaluation found, the legislative challenge identified in this report is evident in the case of non-*First Nations Land Management Act* communities which have less regulatory control over contamination on their land, with specific stipulations relating to contamination. Contamination by third parties on-reserve land is often illicit (e.g., illegal waste dumping) and is difficult to capture in pre-set agreements. Staff expressed concern, for example, with regard to the lack of strength in the existing regulatory structure under the *Indian Act*. Staff is of the view that for better monitoring and enforcement, there needs to be greater detail in strengthening or re-organizing certain regulations, for instance, the *Indian Reserve Waste Disposal Regulations*.

A brief comparative look at neighbouring off-reserve areas vis-à-vis on-reserve legislation highlights the issue. For instance, there are notable examples of contamination that often emanate from industrial projects neighbouring off-reserve areas and which affect First Nations’ territory. In such cases, it would be beneficial if the province could help ensure that any such illegal emissions are stopped/cleaned up, and work with the First Nations (with the Federal body as facilitator) to extend the cleanup on-reserve. Passing regulations that mirror those of the province in which a reserve is located would be most helpful.

The gap in legislation is also evidenced in the literature review, which points to the issue of contamination that occurs in neighbouring communities but affects the on-reserve community. Contaminated sites can be the result of several causes, ranging from mining activities to those of a local, nearby factory or road construction.

The review also pointed to problems that lie below the land surface as contaminants from garbage leak into the surrounding environment and water sources. An evaluation site visit which took place in northern Ontario, specifically near Highway 97C which bisects Pennask Creek, showed harmful pyritic rock uncovered by road construction, which caused acid rock drainage and metal leaching into the soil and water below.

The evaluation found that for communities burdened with numerous other challenges, the fiscal difficulty of facing a complex inter-jurisdictional legal challenge is unrealistic. In a highly industrial zone, on-reserve First Nations communities are often affected by multiple polluters, making it even more difficult to discern those responsible for any given contaminated site. The CSOR, with its scarce human and financial resources, has come to represent the program response to all federal liabilities, and is the primary source of federal information and advice on contaminated sites on-reserve.

Site visits and interviews confirmed that the lack of assurance that third parties will be held accountable for contamination of on-reserve land has led to such parties taking advantage of the vulnerability of First Nations to future contamination. However, in fiscal 2015-16, Lands and Economic Development has created a “User’s Guide on Determining INAC and Third Party Contaminated Site Responsibility.” This document is intended to address the challenges associated with the “polluter pay” principle by detailing information related to each step to be taken to identify a polluter. The document covers orphaned or abandoned sites, polluters who do or do not accept the responsibility for pollution and other topics.

Finally, the lack of funds (e.g., at the community level) as noted in the 2012 Spring Report of the Commissioner of the Environment and Sustainable Development, affects the performance of the CSOR. The report asserted that the number of contaminated sites in the federal inventory exceeded the amount of funds available or needed for their management. The Commissioner in effect observed that although INAC has its priorities, in practice only Class I sites (associated with human health risk) have the best chance of receiving funding.

#### Observations/Consideration

As the evaluation has found, there are some risks that need to be addressed, one of them being the lack of control over the results of others’ activities, which is also related to Third Party risk. For example, by allowing activities which continue to cause small scale pollution on-reserve, there is a risk that INAC may be held responsible for contamination as a result of activities which INAC does not perform and/or manage. Another key observation is that if the particular on-reserve community does not exercise diligence in prevention and monitoring, INAC may be liable for the contamination that may result. Thus, with INAC as a whole, there are difficulties in monitoring all activities on-reserve, yet INAC could be responsible, or for health and safety reasons, assume responsibility, for remediation.

In addition, due to inadequate policy and regulatory framework (which implies jurisdictional, unenforced/application of existing regulatory issues), there is a risk that INAC may be held accountable for contamination on-reserves. Thus there is a need for an understanding by policy makers and regulators about who is accountable for contamination prevention. If regulations are not adequately enforced, it is possible that the resulting contamination could fall under INAC’s responsibility.

Building on the User’s Guide on Determining INAC and Third Party Contaminated Site Responsibility, the CSOR may benefit from a strengthened liability regime. This could result in the availability of some needed funds to help pay for clean-up costs, while ensuring that on-reserve communities are protected in the event of pollution.

#### **Delays in approvals and/or funding,**

***Finding 12:** In terms of delays, the timing and/or lack of guaranteed funding (planning issues), combined with short seasons, the need to obtain agreement from First Nations, the multi-year nature of projects, and the challenges associated with aligning projects with the transport construction season lead to negative consequences such as limited program delivery or increased administrative burden for First Nations.*

Interviews conducted during site visits identified delays in project approvals and funding as an issue with such negative consequences as receiving project approvals or funding in the fall or winter, having submitted projects in the spring, with instructions to spend the money by March 31. This resulted in an increased administrative burden to recipients as they were forced to revise their project planning and reassign resources to meet new timelines. Site visit to Garden Hill, for example, showed that summer field work involved the coordination of researchers, equipment, transportation, camp staff and more. Delays in funding resulted in logistical problems. Shortened timelines reduced the quality of deliverables because the scope of projects often had to be reduced along with participation levels. In some cases, because of the time the funds were received, recipients could not spend all the money allocated and had to cancel or postpone a project because of unreasonable timelines.

Further, delays also either led to or equalled increased project costs. Site visits showed that some communities were forced to engage consultants in order to meet revised project timelines, which increased costs. In one situation, a project involving construction did not receive funding until after winter arrived. As a result, it took a significant amount of time to break through snow and ice to get the project underway. In turn, this led to inefficiencies and increased costs.

To the extent possible, project beneficiaries used their own money to cover costs (by borrowing or reallocating funds from other projects or programs) until CSOR funding arrived. Resorting to this approach allowed them to move projects forward as quickly as possible, but it also caused an administrative and financial burden as the organizations were using their own financial resources to cover costs, reallocate funds and resources, revise budgets and so forth.

Within the Department, the CSOR lacks sufficiently dedicated funding to make up its portion of the cost-sharing agreement with FCSAP. In cases where FCSAP funding is available for a given site, the CSOR often “takes” funding from other areas in order to cover the Department’s share. This process is repeated every year. Thus, without knowing ahead of time how much funding the Department will be able to provide, regions often receive their allotments many months after the start of the fiscal year.

Late funding allocation is a challenge for communities that are located in remote areas and have short digging seasons. Continuing work late in the year in regions with permafrost results in significantly higher costs and without advanced planning communities find it hard to prepare “shovel-ready” sites in case funding does come through. Furthermore, for known, long-term projects with high cost estimates, funding has to be determined annually. Putting dedicated multi-year funding in place would be helpful, allowing the CSOR and the affected communities to plan their assessment and remediation needs and likely reduce their costs.

The Lands and Economic Development Services Program funds numerous prevention programs across the regions, which are not eligible for FCSAP funding. There are in addition many contaminated sites that have been identified that do not meet the FCSAP eligibility requirements. The number of contaminated sites discovered after the 1998 “historical site” cut-off will need to be remediated with non-FCSAP funding.

At the time of preparing this report, the details of the Department’s approach to FCSAP Phase III are under consideration and the well-supported need for dedicated funding should be considered as a way to improve the program’s cost-effectiveness and actual delivery.

Finally, it would be helpful to the program and the communities if contingencies were included in allotted funds to cover unforeseen cost increases that commonly occur at contaminated site projects, especially during the remediation implementation phase. The amount of contingency could include, for example, site location and accessibility, project approval, etc. Such project risk contingency could cover events for which the occurrence is either certain or uncertain and that experience shows could result in additional costs.

### 5.3 Unintended Outcomes

***Finding 13:** Some economic benefits which go beyond land use, for example, employment, have accrued to on-reserve communities.*

Though contaminated sites are considered injurious to both human and environmental health, the need to remediate and restore a contaminated site to (or close to) its original state has resulted in both positive and negative unintended impacts as a result of the program. The evaluation found that the CSOR has demonstrated a viable approach to supporting community initiatives aimed at improving capacity development. This has numerous long-term benefits, for example, an opportunity to train local people to work on site remediation projects introduces knowledge and the acquisition of transferable skills to community members with an interest in the site remediation project, as evidenced in case studies undertaken in northern Manitoba. Such knowledge and skills are transferable and can be applied to other types of projects, such as resource development.

As noted by interviewees, though an outcome that was intended, it bears mentioning the fact that there was indirect impact on-reserve revenue (revitalization contributed to development of the area in question). The construction work undertaken brought employment for community members, who were employed in various areas and skill levels. Some of the jobs created were short term, for example, the opportunity to rent equipment, while others were longer term in nature, such as training and certification to equip participants with knowledge and experience.

In this sense, the knowledge that was gained, such as the capacity to engage in community consultations and other remediation activities as a result of the CSOR has contributed to community members' capacity to participate more effectively in consultation with non-Aboriginals and in regulatory review of other development projects. This is combined with an unexpected increase in interest and awareness among communities of the need for appropriate fuel handling and tank management procedures, an activity that was previously considered normal (i.e., no one paid attention to the negative consequences of this practice). This is significant insofar as the CSOR's initial objective was to provide support and to remove real and perceived threats to health and safety, to people and to the environment.

Communities are experiencing other unexpected benefits from remediation and redevelopment, many of which are environmental, social and economic in nature. For example, the removal/tempering and renovation of abandoned and derelict buildings, which in turn has led to a decrease in vandalism, trespassing, risk of injury and so forth as shown by site visits to on-reserve communities in northern Manitoba. Further, a newly rediscovered contaminated site is pointing to the need to preserve a historical landmark such as a cemetery.

In terms of communications, interviewees acknowledged that the ongoing remediation projects have created opportunities for CSOR staff (i.e. INAC) and communities to either develop or forge stronger working relationships with each other. Thus, an indirect impact, though not measured, is an improvement in the Department's reputation, which interviewees based on visible, tangible evidence of ongoing clean-up activities as well as environmental improvements.

***Benefits - Kitsoo Project (Klemtu, British Columbia)***

As a remote community, Kitsoo has limited hydro-electric power and is highly reliant on fuel oil for home heating. According to document review, there are four major zones in Kitsoo, consisting of multiple contaminants and combined these four areas cover most of the village. The risks posed by these sites include human exposure to metals and to petroleum hydrocarbons, including creosote. CSOR involvement has led to the removal of 17,555 tonnes of metal and hydrocarbon contaminated soil, 455 tonnes of demolition waste and 12.75 tonnes of asbestos debris. The work has also included preventative measures, such as installation of up to code fuel tanks, a waste management strategy, environmental education and skills training.

The benefits have varied. For example, together with providing a clean living environment for the residents of Klemtu, remediation has brought other benefits to the community such as a new Housing Strategy and Community Plan, a community-supported recycling program, an adjustment to Kitsoo Xai'xais First Nation's Governance Model, local employment and the development of an Environmental Management Plan, which has increased environmental management capacity. An improved INAC-First Nation relationship has also resulted.



## **6. Evaluation Findings – Efficiency and Economy**

By examining the CSOR's use of resources in achieving outcomes (Treasury Board of Canada Secretariat, Evaluation Policy, 2009), this section provides a demonstration of the CSOR's efficiency and economy.

### **6.1 Program Efficiency**

*Finding 14: Measuring the CSOR's efficiency is difficult as priorities are at times influenced by internal and external factors, which lead to project delays, sudden additional reporting requirements and other pressures.*

One of the major challenges is evaluating the complex interplay between operational multi-unit<sup>40</sup> programs, and to assess their unique contributions to that particular program's success. One of the objectives of this evaluation was to examine the overall impact of the CSOR, which has several components, a pool of interrelated projects with various interrelated departments and multiple partners with respect to its funding and delivery. As a result, this can become difficult as each unit requires a separate analysis in a way that shows its overall impact and performance relative to other units.

As the previous as well as the following show, measuring a multi-unit program such as the CSOR can result in assessments that may be complex and/or tricky to interpret. For instance, the evaluation of the FCSAP offers a report where it assesses a unit, the FCSAP, using different types of evidence, resulting in information that can be difficult to compare with the CSOR simply because other departments have a role to play in the delivery of the FCSAP. These departments, which include INAC, have different levels of resources, thus, their inputs and outputs vary.

Measuring the CSOR's efficiency and economy prove to be difficult as its priorities are at times influenced by internal and external factors, which lead to project delays, sudden additional reporting requirements and other pressures. In addition, measuring in the social sector where outcomes are sometimes difficult to define, and often harder to measure is challenging. Despite these difficulties as well as the requirement to demonstrate that the CSOR is spending its (i.e. public funds) in an efficient and economical way, and that it is achieving a positive impact relative to its capacity, the evaluation has found, and as the data substantiates, that the CSOR has performed well in terms of the resource utilization in relation to the production of outputs and progress towards its expected outcomes.

Although the evaluation notes that the CSOR has had successes, consequently, its efficiency is difficult to measure when considering not only the previous paragraphs but also the main objective of the program - to manage contaminated sites. This involves program delivery through First Nations and presents both unique opportunities and challenges for completing projects. For instance, the CSOR priorities are at times influenced by project delays and other pressures and work does not always occur according to the risk ranking attributed to sites. Land claim agreements, transfer of lands through First Nations Land Management Initiative or Treaty Land Entitlements are typically assigned priority in the CSOR planning process. Moreover, planning is based on winter

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<sup>40</sup> By "multi-unit," the evaluation is referring to programs that, though independent, are linked, intertwined and/or impacted by other programs that are identical or equivalent in function or form.

road accessibility for northern sites (site visits showed that often work must be done a year in advance to take account of winter road requirements), other ongoing projects in the particular reserve that may be of greater priority, and the capacity of the First Nation community to provide labour and/or equipment.

The CSOR's classification system and responsibility for a variety of sites at various levels of contamination is also an issue to consider. By way of illustration, even with the classification system, two sites ranked as "high-risk" may be difficult to compare because of other important factors. For instance, because the basis for the program is the delivery of funds to communities in order to cover the costs of assessment and remediation, while the expected outcomes are based on liability levels, the outcomes are, in a sense, alienated from what the program is able to do. Furthermore, unlike the North of 60<sup>o</sup> (Northern Contaminants Program) program, the CSOR does not generally play a role in choosing the resources for the assessment or remediation of sites. Overseeing the funding, while not being in a position to directly manage a project, suggests that outcomes may not necessarily be what were envisaged.

Instead of looking at expected outcomes to measure the CSOR's efficiency, other indicators may be more useful. For example, one measure of program efficiency is the average length of time it takes to remediate a site that has been assessed. The average for CSOR is 7.2 but this measure too should be viewed with caution for the reasons noted above.

Another measure of program efficiency is the manner by which funding is delivered to regions. As noted above, delays in funding are a major concern, particularly for regional program staff and for community members. This in turn leads again to the lack of dedicated funding, an issue that the program cannot be certain will be resolved. The lack of dedicated funds is particularly clear for multi-year projects where funding must be renewed annually. As the evaluation found, the Canada Economic Action Plan<sup>41</sup> added a sudden influx of money to FCSAP funding, which led to certain challenges. The Canada Economic Action Plan Program, for example, permitted little cash management flexibility due to the very short implementation time frame. Having more flexibility in cash management between fiscal years would have allowed the re-profiling of funds for a project that was delayed due to unforeseen circumstances (e.g., inclement weather). Interestingly, the sudden addition of funds was less problematic for the program than the additional reporting requirements that came with it, considering the capacity challenges faced by some communities. It should be noted that the addition of extra funding did not prove to be a problem for CSOR, although it was for other custodian departments.

Procurement challenges are linked to the sudden infusion of funds. While the extra money may have allowed for projects to be undertaken and given First Nations an opportunity to acquire more capacity, interviewees noted that communities with capacity constraints or a lack of expertise can and do find the procurement process challenging. In its own way, this detracts from efficient use of resources.

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<sup>41</sup> The CSOR received \$33.2 million in Canada Economic Action Plan funding for project years 2009-2011 and 2010-2011. 66 Assessment projects and 11 Remediation projects were undertaken in 2009-19; and, 72 Assessment and 18 remediation projects undertaken in 2010-011.

The literature review showed that public procurement is an important function of government for a variety of reasons, including, for example, the fact that the sheer magnitude of procurement outlays has a great impact on the economy and needs to be well managed. Thus, efficiently handling procurement outlays, which touches on First Nations interests, has been a policy and management concern as well as a challenge for public procurement practitioners. Added to this is the pressure that arises when procurement is, to some extent, being used as an important tool for achieving economic, social and other objectives for First Nations while ensuring that closer and greater scrutiny by taxpayers and competing vendors are handled professionally and well.

Procurement challenges facing the CSOR Program have included, for example, competition for consultants due to demand from the commodity/resource sector and the remote location of sites. These challenges were also mentioned during site visits. The impact was on the pace and cost of projects and managing procurement requirements normally include financial and technical risks, including quality, timeliness, cost (which is more than just the price), minimizing business while maximizing competition, and maintaining integrity. In spite of the lack of CSOR resources, it was noted that program staff offer help with the request for proposal processes and, where applicable, collaborate with expert departments such as Environment Canada, Health Canada and Fisheries and Oceans Canada.

In order to address issues raised by previous evaluations and audits, the program has developed a suite of policies and programs to enhance performance. Among these are two guidelines on cost-estimating for contaminated sites and remediation liability accounting. Outlining the principles used to determine final costs and liability figures helps ensure that, at the least, the various approaches used are consistent across regions and staff turnover. Liability accounting guides have also been developed at the department level to maintain consistency, not only across the CSOR but the North of 60<sup>o</sup> program as well. Consistency is important for program efficiency because it strengthens the process by which funding is delivered to the regions.

***Finding 15:*** *The collaboration between on-reserve communities and INAC (regional) staff as a result of the CSOR is well-developed and well conducted, which contributes to the building of partnerships and relationships between the parties on-reserve lands.*

Document review indicates that the CSOR staff (at both the regional and Headquarters levels), administer the program and work with on-reserve communities to manage and implement remediation projects. In partnership, INAC and the particular Band Council concerned choose the consultants and engineering firms, which will implement the remediation plan, thereby allowing for project ownership and potential economic benefit for the community. Throughout a project's life site visits and interviews show that, where possible, First Nations members are trained on heavy equipment use, soil sampling, project management and construction techniques and so forth, all skills that are transferable and can be applied to many other types of projects. This allows involved First Nations to be responsible for choosing the firms that ultimately come into their communities, which makes sense as the former have both a better understanding and historical knowledge of their territory. Further, it demonstrates an efficient use of resources.

Finally, joint program delivery, part of the contaminated sites work, also builds partnerships and relationships on-reserve lands. This, in turn, encourages socio-economic benefits (e.g., training and capacity building, support of future economic development initiatives), given that the average remediation project lasts four years from start to finish. An example from the Toquaht Nation (British Columbia) of a benefit from a remediation project is the increased awareness of environmental issues among the on-reserve community. This has resulted in the development of an Environmental Management Plan, which is expected to guide all development, operations and maintenance programs on Toquaht lands. The plan is assessed on an annual basis to ensure it remains relevant and up-to-date, preventing harm to community lands and the marine environment.

Although the Toguah Nation was not one of the sites visited for the evaluation, it provides an example of an intangible benefit whereby the community was able to use several community members and local companies for a project related to a bridge replacement. A total of 4,830.28 tonnes of soil was excavated, temporarily stockpiled, sampled and sorted for removal based on detected concentrations of contaminants. This practice also prevailed in other communities visited such as Garden Hill and Little Grand Rapids in northern Manitoba. The perception is that where there is sound environmental management and protection, there is assurance that lands are available on what could be considered a very limited reserve land base for First Nations to pursue opportunities in business development, residential expansion and cultural/traditional pursuits for their members. The demonstration of an efficient use of resources is evident here.

## 6.2 Program Economy

*Findings 16. Costs are very site-specific and vary considerably depending on the size and its complexity, the remoteness of the location and the constant addition of new sites; this makes measuring of economy challenging.*

As mentioned earlier, the costs of inputs used for each of the CSOR's activities is subject to various factors, though funds available and the cost targets (i.e. budgeted costs) set by the program shows that the program attained success in its endeavours. Further, the differences between planned and actual spending for the CSOR's outputs provides evidence that in spite of its challenges, CSOR unit costs compared with other similar programs, example the FCSAP, has been encouraging.

As the evaluation found, though the CSOR's resources are not reasonable in light of intended outcomes, it is undertaking specific activities and delivering products at the lowest possible cost. On the other hand, given the number of contaminated sites at hand, in addition to emerging ones, the evaluation notes that not all the risks and financial liabilities associated with the CSOR's contaminated sites will be addressed by the current program resources.

The evaluation found that various factors at both the CSOR and project site levels either contribute to or negatively impact the program's efficiency. Thus, the cost-effectiveness and economy of the CSOR, for instance, have proven to be difficult to measure for the following reasons: (1) sites are constantly being added, thus, creating the need to be assessed (as a result, which makes it difficult for the program to reduce the number of its sites); (2) the fluctuating level of funding makes it difficult for regions to plan for funding (this likely results in less cost-effective decisions that have to be made at the last minute; and (3) the low human resource level. Key informant interviews, site visits, and document review showed that the CSOR has difficulty attracting and retaining staff to work on contaminated sites. Human resource gaps and problems in retaining staff are especially

acute in the regions. With communities often having difficulties getting projects “shovel-ready” ahead of time, funds coming in late may simply be lapsed.

It should be noted that despite not having a strong base of dedicated funds, including insufficient and late receipt of funds, the program has seen decreases in the number of high-risk sites, the number of sites to be classified and the level of liabilities. This is likely due to the strength of the program staff at Headquarters who are able to procure the Department’s share of the cost necessary to complement FCSAP funding, even if the accessible funds are not enough. However, the constant addition of new sites makes measuring challenging. As a result, if funding were in place in a more dedicated manner, program economy could be measured much more accurately. Similarly, by being somewhat removed from the activities related to the procurement of assessment and remediation resources, it is inappropriate to evaluate the CSOR on the relative economy of the resources that are ultimately chosen. Nevertheless, the CSOR’s efficiency and economy are perceived to be encouraging when such factors as integrated management, coordination and shared tools and resources are considered as contributing to economy and efficiency.

First Nations communities on-reserve may have specific needs (for example, the remoteness of communities), which in turn necessitates specialized services. Aboriginal firms vying for work on projects may also have specialized skills related to land work on-reserve, which may lead to a different price level. One concern heard through site visits was that some communities considered that the assessment and remediation firms monopolize an area. Thus, for example, in a difficult to reach area, an established firm may have an advantage by already having in place and readily available difficult-to-transport equipment, allowing it to increase prices.

As the evaluation observes, such economic factors are external and impacts the CSOR’s performance. As site visits demonstrated, there is competition for specialized environmental consultants who are often in high demand. Ironically, this increases business opportunities in the private sector (new commercial/industrial employment). Yet as a result, this adversely affects the cost and timely completion of projects while adding to the geographic and climatic challenges, which impinges on projects in communities, especially remote on-reserve communities. Correcting this sort of market inequality may be outside the program’s mandate, but as regional environment officers already play an important advisory role in the Request for Proposals process for services, this could be an issue to which regional staff could pay particular attention.

Taking these afore-mentioned factors into account, including the need for dedicated funds and specific communities’ needs, it is apparent to the evaluation that some of these hindrances to economy and efficiency, as identified by key informants at both the program and project levels, in some cases relate to the federal Government of Canada’s processes, which are beyond the control of the program (e.g., rigorous and constraining processes to manage program funds, reporting burden). However, overall, in particular from the remediation standpoint, progress is being made by the program with respect to the CSOR’s stated objectives, including improvement of health and safety of First Nations on-reserves. For more on economy, see also the finding on integrated management approach (below) that is taken by the CSOR.

***Finding 17:*** *The integrated management approach taken by the CSOR is a best practice that contributes towards reduction of costs.*

By “best practice,” the evaluation is referring to an approach taken by the CSOR and which, through the program’s own experiences, has proven to reliably lead to a desired result. The CSOR has a large inventory of high-priority, FCSAP-eligible projects (Class 1) and high-priority ineligible projects, which includes Class 1 as well as Classes 2 and 3. The vast majority of these sites are a risk to human health and safety because of their proximity to residential areas. Furthermore, and which complicates the assessment and remediation processes, several are in isolated communities where equipment and skilled labour mobilization add significant costs to projects. As a result, these lend themselves to the need for an integrated management approach.

The CSOR developed an integrated management approach, which focuses on continuous improvement and leads to sustainable land use and operations by communities. The approach engages the on-reserve community through communications, housing replacement improvement, community land use plan, fuel and solid/hazard waste management. It also involves legal surveys and property records, environmental education and skills training, all of which are linked to the Treasury Board Secretariat’s Contaminated Sites Management Approach (the Ten Step Process).

In response to a 2013 Audit of Environmental and Contaminated Sites Management (South of 60), INAC developed a departmental Environmental Management System, which coordinates environmental management within the Department.<sup>42</sup> As part of the work in developing the EMS, research and assessment on existing data, provincial legislation and regulations, federal regulations, compliance and monitoring was completed with regions. Furthermore, a Gap Analysis was conducted, which highlighted the departmental needs to address all its environmental aspects. A part of this integrated management approach included prioritizing efforts on the development of a waste management strategy on-reserve.

Finally, as a way of minimizing costs, the CSOR Program’s integrated management approach includes coupling the remediation of FCSAP-eligible projects and non-FCSAP eligible sites that are in the vicinity, while addressing infrastructure renewal and improvement investments. Program staff consider that this is a cost-effective option for Canada, as these critical investments are made to take advantage of occasions where heavy equipment and skilled labour have been mobilized for use in other projects. While this approach requires considerable investment from INAC in addition to the cost-share amount, it results in reduction of Crown liability and the possible prevention of new contamination from occurring.

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<sup>42</sup> Audit of Environmental and Contaminated Sites Management, South of 60: (<https://www.aadnc-aandc.gc.ca/eng/1407176921265/1407176987074>)

## 7. Other Findings/Observations

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This section of the report presents other findings and observations. While not a key part of the evaluation, its utility lies in providing lessons learned that the CSOR can benefit from.

### **Northern Contaminated Program and the CSOR (see also Section 3.3, “Alignment with Federal, Departmental and Community Priorities”)**

***Finding 18:** There are key differences between the Northern Contaminants Program (North) and the CSOR (South) programs. However, both the Northern Contaminants Program and the CSOR can learn lessons from each other.*

The Northern Contaminants Program aims to reduce and eliminate contaminants from global sources by engaging Northerners, governments and Canadian scientists in research and monitoring of long-range contaminants that pose a risk to ecosystems and people. While providing information that assists individuals and communities in making informed decisions about their food use, the key objective of the Northern Contaminants Program is to: “work towards reducing and, where possible, eliminating contaminants in traditional/country foods.”

As indicated above, in the South of 60°, contaminated sites are on-reserve, numerous, much smaller in size, tend to be within or in close vicinity to communities, represent smaller financial liabilities with new sites expected to be identified at any time (See Appendix H, Contaminated Sites for which INAC is responsible). Both programs are funded primarily through the Federal Contaminated Sites Action Plan, which, as previously noted, is administered by the Treasury Board Secretariat and Environment Canada.

The nature of the Northern Contaminants Program’s inventory is different from that of the CSOR. While all sites in the inventory have been assessed and the Northern Contaminants Program does not expect a significant increase in liability from new sites, it is also, for example, technically complex in a way that the on-reserve program’s sites are not. Contaminated sites under Northern Contaminants Program management are fewer, larger, and tend to be far removed from or not close to populations (i.e. in remote locations, away from any settlements). The CSOR’s sites may be more socially complex because they are on-reserve, in the middle of the community and new sites are constantly being discovered. The Northern Contaminants Program, in contrast, does not expect a significant increase in the number of new sites and is costly in terms of remediation efforts. A key reason for this is that the Northern Contaminants Program sites are usually abandoned northern mine sites that, based on the amount of work needed to be done, will extend beyond FCSAP (2020).

There are other significant differences between the two programs. In the case of the CSOR, a large percentage of sites are unknown, which in turn raises the issue of expected or potential increases in liability. While the Northern Contaminants Program’s contaminated sites result from past private sector resource extraction as well as military use, sites in South of 60° are usually the result of improper fuel storage (the greatest source of contamination) and handling, solid waste/landfills, and other ill-advised activities.

The evaluation found that the above factors, combined with the proximity of contaminated sites on-reserve lands to populated areas, explain in large measure why the assessment and remediation of contaminated sites in the South of 60° have a direct impact on First Nations' quality of life. The evaluation also determined that remediation encourages the future development of lands that would otherwise be unusable and is therefore key to the realization of economic benefits for affected First Nations, the surrounding communities and the Canadian economy as a whole.

Although the stewardship (the management) of projects may be similar, there are many differences between the Northern Contaminants Program and CSOR, ranging from the way that reserve land is managed to the dissimilarity in drivers to the technical skills needed to manage the contaminated sites. Moreover, having failed to find a community planning approach, the evaluation's analysis also shows that in the context of the remediation of contaminated sites, the on-reserve approach appears to be more of a mixture of reserve management or a broadly coordinated set of activities.

Finally, while the CSOR can learn from the Northern Contaminants Program, the reverse is also true. For example, the Northern Contaminants Program can benefit from the experiences of First Nations who, as has been demonstrated in some cases, manage their own contaminated sites projects most importantly because on-reserve, contaminated site clean-up is often a community development initiative and includes activating lands for economic development.

### Funds

While funding has already been discussed elsewhere, the repetition here is intended to juxtapose the two programs in order to highlight the differences while emphasizing the need that has been identified in this respect. The Northern Contaminants Program employs Grants and Contributions to engage with northern communities or for consultation and engagement purposes, which is done through PWGSC<sup>43</sup>. This makes Public Works the owner of the program and also gives it control over the project. The CSOR, on the other hand, transfers its funds to third parties. Such a funding arrangement could distance the departmental expertise from the issue being addressed as the third parties ultimately end up doing the work. In a site visit focus group session in the North, the evaluation learned that, for example, consultants seemed to be taking on INAC's role. After the initial assessment is done, a third party is then paid to do a review (work that has to/can be done by INAC), which also requires more work leading to another contract because of limited resources to undertake the review.

The nature of the northern program's governance structure, where both funding and planning are centralized at Headquarters, strengthens its approach. For example, a Director General who is involved in the Northern Contaminants Program participates at the management level meetings and is therefore able to facilitate program operation. The CSOR appears to take a coordinating approach involving the various parts of the Department relevant to the program. The Northern Contaminants Program has "one voice, one strategy" as opposed to the CSOR which "doesn't have a profile and a strategy."

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<sup>43</sup> PWGSC plays an important role in the daily operations of the Government of Canada. It supports federal departments and agencies in the achievement of their mandated objectives as their central purchasing agent, real property manager, linguistic authority, treasurer, accountant, and pay and pension administrator. For example, its Project Management Support and Contract Management includes Canadian High Arctic Research Station (CHARS); Site Remediation (Giant Mine, Tundra Mine, Great Bear Lake, Faro); and, Monitoring Programs (Great Slave Lake, Colomac Mine)



While use of PWGSC may appear to be a good practice for the CSOR to adopt, it should be noted that one reason why the Northern Contaminants Program uses the PWGSC is because its contaminated sites are very large. According to interviewees, Northern Contaminants Program sites are at least \$2 million and contracting with the PWGSC is very expensive<sup>44</sup>; also, the Project Management is internalized by PWGSC; PWGSC no longer provides management services. Moreover, even if the CSOR were to use PWGSC, each regional office is different and any decision should be made on a site-by-site basis.

An issue related to “surplus money from the North being sent over to South” was raised by interviewees. According to key informants, surplus funds are sent from the Northern Contaminants Program to the CSOR and some \$7 million has been transferred during the past five years.

Even though these distinctions exist between the contaminated sites that are North and South of 60°, with most (93 percent) of INAC’s liabilities for contaminated sites found North of 60°, lessons from both programs can be applied to each other. For example, by adapting or using the contribution to scientific knowledge and expertise developed as part of the northern remediation efforts, especially since the Northern Contaminants Program has contamination issues which are not dissimilar from those of the CSOR, including diesel tank-related problems. It bears repeating, however, that the Northern Contaminants Program’s situation in terms of land management regime (not reserve and/or provincial lands) is different from the CSOR’s.

***Finding 19:*** *The role and the funding capacity of the Community Infrastructure Branch within Regional Operations may make it better suited to support the CSOR’s objectives if the program was managed by the Community Infrastructure Branch for communities south of the 60<sup>th</sup> parallel.*

As discussed above, the CSOR faces significant funding challenges that result in a myriad of difficulties; for example, having a plan and a more strategic approach, which will provide the program beneficiaries with a consistent way to deal with contaminated sites. However, interviewees raised the possibility that within INAC, program efficiency might be increased by relocating the CSOR to the Regional Operations sector, away from the Lands and Economic Directorate where it is currently housed, in light of the environmental nature of its work. This is based on the recognition that the CSOR is more of a regional operations program broadly delivered by the regions and should thus be closer to community infrastructure thereby offering potential efficiency gains.

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<sup>44</sup> For example, under a multi-year service level agreement with INAC, PWGSC provides services to INAC to directly support the Giant Mine Remediation Program which include:  
Contract and Project Management – administering and managing contracts with private consultants and contractors  
Procurement Services – developing and implementing procurement strategies for all phases of the project  
Care and Maintenance of site – site control through contractor (Site Stabilization Plan)  
Design and Implementation of remediation and long term maintenance – managing the development of detailed designs and the implementation of the remediation construction/demolition work.

Within INAC, one of Community Infrastructure’s responsibilities is to ensure that on-reserve community infrastructure is well planned, effectively managed and comparable to what is enjoyed by Canadians living off-reserve. Through the First Nations Infrastructure Fund, it helps fund among other things, roads and bridges, solid waste management, planning and skills development.<sup>45</sup> In addition, on-reserve infrastructure is funded primarily through contributions made under the Capital Facilities Maintenance Program<sup>46</sup>, a major programming element within the Community Infrastructure programming activity. One of the Capital Facilities Maintenance Program’s stated objective is to ensure that on-reserve *activities are undertaken in an environmentally sound and sustainable manner*.<sup>47</sup> Thus, to meet its objectives, the Capital Facilities Maintenance Program funding “assists First Nations to acquire, construct, operate and maintain needed infrastructure assets and facilities including:…environmental site cleanup / remediation.”<sup>48</sup>

Program location within INAC is also related to the governance (i.e. implementation) challenges facing the CSOR Program, which is linked to human resource capacity challenges. At present, while the roles and responsibilities (Headquarters and regions) are responsive to an identified need, it remains that at the Headquarters staff level, the CSOR’s National Program Coordinator is mainly responsible for the CSOR implementation work, including acquiring the funds required to meet CSOR needs. While it appears that the Community Infrastructure Branch may be better positioned with respect to human resource capacity, this is also an area which gives rise to an opportunity for the CSOR to coordinate its activities with the other complimentary programs within the Department in order to improve First Nation communities’ awareness and response to fuel and waste management issues.

Finally, as this section has demonstrated, the Department has developed various programs and initiatives in order to respond to the challenges faced by Aboriginal communities in such areas as health, social well-being, sustainable communities and fostering economic prosperity. These programs and initiatives have a broad range of objectives and thus, represent an opportunity for the CSOR to facilitate the long-term cleanup of South of 60 sites. Thus, for example, communities and INAC would benefit if the CSOR, together with the other programs, specifically those complimentary programs offered by the Community Infrastructure Branch, could identify best practices with regard to their objectives/goals, structures, modes of operation, synergies across the programs, as well as funding levels. Ultimately, this would make cleaning up CSOR sites easier.

**Recommendation 2: It is recommended that the CSOR coordinate its activities with other complimentary programs within the Department in order to improve First Nation communities’ awareness and response to fuel and waste management issues.**

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<sup>45</sup> <https://www.aadnc-aandc.gc.ca/eng/1100100010567>

<sup>46</sup> Cost-Share and funding for non-FCSAP sites – is available from the Capital Facilities and Maintenance Program through the National Capital Plan. INAC contributes 15 percent of the overall remediation costs and 20 percent of the overall assessment projects. Projects over \$90 million dollars are 100 percent funded by the FCSAP Program

<sup>47</sup> <https://www.aadnc-aandc.gc.ca/eng/1320775445750>

<sup>48</sup> Ibid.

## **8. Conclusions and Recommendations**

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This section of the report presents the conclusions and recommendations of the evaluation. These are derived from the evidence and findings presented in the previous sections.

### **8.1 Conclusions**

The CSOR is relevant and remains an integral part of remediation, not only for on-reserve communities but also for INAC and the national FCSAP, both of which are committed to managing contaminated sites in a cost-effective and consistent manner, to reduce and eliminate, where possible, risk to human and environmental health and liability associated with contaminated sites. In its own way, the CSOR has made progress, providing on-reserve communities with valuable skills and capabilities, increasing their competencies and improving their outlook on their environment, including confidence in their future. This supports the federal government's commitment to First Nation that their land is available for development and that there is a decrease in risk to public health and safety. The fact that new sites keep emerging signals a well-founded and continued need for INAC's contaminated sites policy and programming.

Environmental issues are multi-jurisdictional and of interest to many stakeholders, making their management complex and coordination and timely response even more challenging. In the context of the CSOR Program, this situation is compounded by limited resources, both financial and human. As a result, clean up and redevelopment of contaminated sites has been hampered by a series of obstacles of a structural nature. On-reserve, there are still regulatory gaps in respect to environmental management; challenges with respect to current information on the location and conditions of contaminated sites; a lack of standardized and practical clean up criteria; uncertainties regarding liability ensuing from constant discovery of new sites; and, generally, there is limited funding resources available for site investigation, assessment, and remediation.

In terms of program design, while the CSOR Program is meeting real on-reserve needs, communities continue to face the discovery of new contaminated sites while struggling with issues such as geography, distance, and related community accessibility. Furthermore, levels of funding have not allowed the CSOR Program to stay abreast with the number of sites that keep emerging, thus delaying the program in attaining its overall objectives.

Though progress has been made in addressing the risks that contaminated sites pose to human health and the environment, there is still work required. This signals a continued need and better funding for INAC's contaminated sites policy and programming.

Finally, while providing access to opportunities, without a full understanding of the assets and liabilities for which it is responsible and with regulatory challenges, the Department and First Nations face increased risk, as documented throughout this evaluation. These risks are in the form of increased clean-up costs, continued environmental impairment and negative impacts upon First Nations and other communities' health and safety; for INAC, more liabilities.

## 8.2 Recommendations

It is recommended that the program:

1. Review the integrity of the IEMS data to ensure that they are accurate, reliable and usable;  
and
2. Coordinate its activities with other complementary programs within the Department in order to improve First Nation communities' awareness and response to fuel and waste management issues.

# Appendix A - Stages of Assessing and Remediating a Contaminated Site

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## *Stages of Assessing and Remediating a Contaminated Site*

In general, CSOR follows a ten step process which encompasses the assessment, remediation, risk management and long-term monitoring (Government of Canada, 2014b).

### **Assessment:**

#### *Step 1: Identify Suspected Site*

Suspected sites are identified from either a proposed new project or a stale dated site. A stale dated site is a site where the information is considered no longer current and may not reflect the current status of the land. For example, Environmental Site Assessments (ESA) over five years old are considered stale dated and require a re-assessment.

#### *Step 2: Historical Review*

This step includes the Phase I ESA. The assessment includes a review of all site-relevant information with the objective to assess whether current and/or past activities have resulted in a contamination of the site. The Phase I assessment does not include any sampling, analyzing, or measuring.

This step also determines who is liable for the site and whether the polluter-pay principle can be applied. The polluter-pay principle recognizes that the polluter should be responsible to pay for any environmental damage caused by the developer's technology, practice or product, not the general public. This would be the case if the polluter was a third party (i.e., not INAC or a band). If the polluter is a third party, the site is recorded under third party management regime and the file is closed. Otherwise, the project moves to Step 3.

#### *Step 3: Initial Testing Program*

This step includes the Phase II ESA. The Phase II ESA is a more intrusive investigation than the Phase I ESA and includes the confirmation, delineation, or demonstration of the absence of the contamination on the site. The assessment determines whether more detailed testing is required and provides the inputs to develop site clean-up criteria.

#### *Step 4: Classify Contaminated Sites*

This step involves the preliminary classification of the site using National Contaminated Sites Classification System. It is considered preliminary because additional work will be required to complete all components of National Contaminated Sites Classification System. The classification is finalized in Step 6. Based on the preliminary classification, the following process is followed:

- ▶ If the site is classified as Class 1, Class 2, or Class 3, the project moves to Step 5.

- ▶ If the site is classified as Class INS it is considered a higher priority for more ESA work. The existing information is reviewed and all the steps necessary (i.e., Steps 2 to 4) are repeated to reach a proper classification score.
- ▶ If the site is classified as Class N action is likely not required and the site closure report is completed (i.e., site is closed).

*Step 5: Detailed Testing Program (step may not be required for smaller sites)*

This step includes the Phase III ESA. The Phase III ESA is a complete evaluation to fully characterize the extent and degree of the contamination. The data collected should support further assessment of a site's remedial objectives using a risk assessment approach, the investigation of the feasibility of the clean-up options, and the implementation of the components of the Remedial Action Plan.

*Step 6: Reclassify Contaminated Sites (step may not be required for smaller sites)*

The site is reclassified. If the site is classified as Class 1, it is prioritized against all National sites for funding. If the site is classified as Class 2 or 3, it will receive funding as it becomes available.

**Remediation/risk management/long-term monitoring:**

*Step 7: Develop Remediation/Risk Management Strategy*

A remediation or risk management strategy is developed. The remediation strategy includes the management of a contaminated site for prevention, minimization, or mitigation of inverse effects to human health and the environment. Examples of options for the remediation strategy include direct physical actions (e.g., treatment, removal, destruction of contaminated sites) or other onsite risk management solutions (e.g., capping or containment of contaminants).

The risk management strategy can include direct remedial actions or other strategies that reduce the probability, intensity, frequency or duration of the exposure to the contamination.

*Step 8: Implement Remediation/Risk Management Strategy*

Implement the remediation or risk management strategy developed in Step 7.

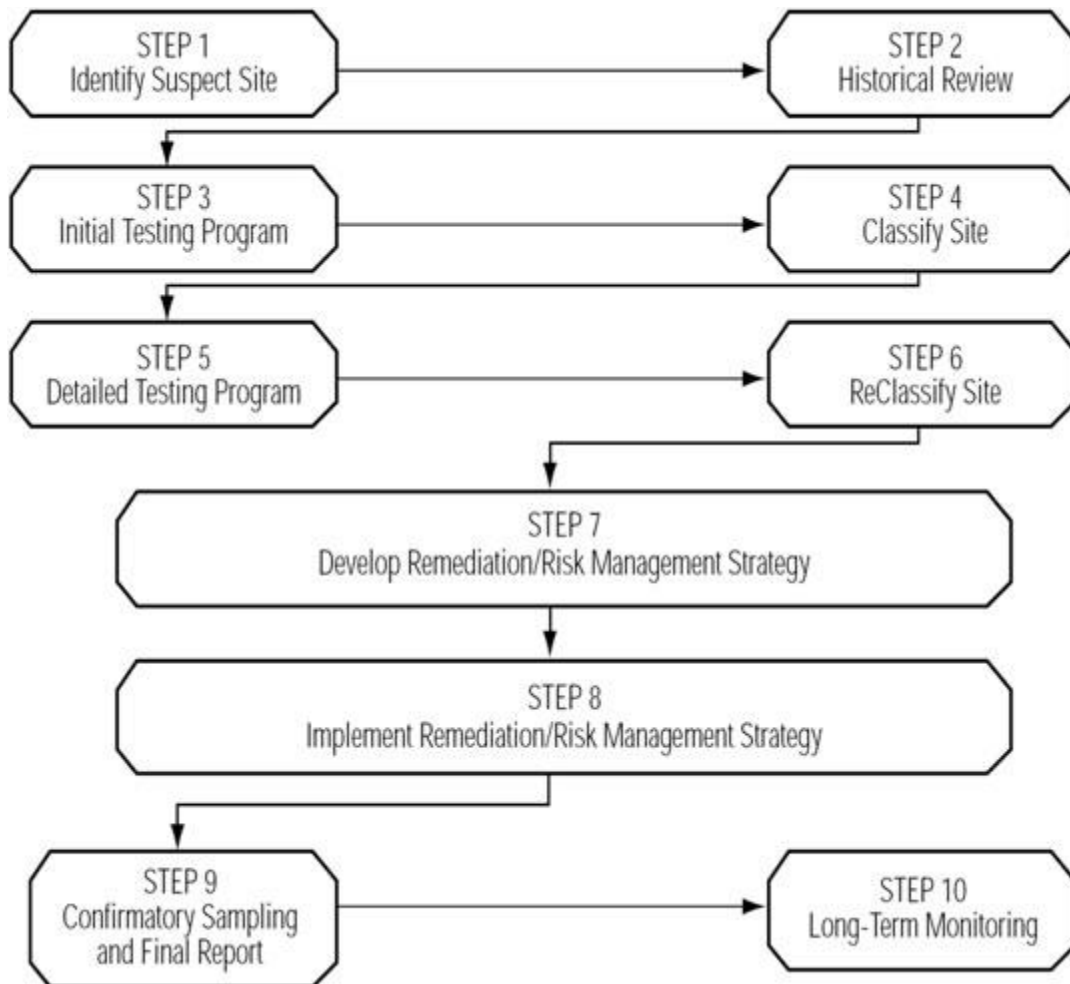
*Step 9: Confirmatory Sampling and Final Reporting*

This step confirms that the contamination has been remediated/risk managed and a final report for the project is developed. This step also determines whether continued monitoring of the site is required. If yes, the project moves to step 10. If no, the site closure report is completed (i.e., site is closed).

*Step 10: Long-Term Monitoring*

The monitoring of the site includes the scientific assessment of air, soil and groundwater conditions of the site at specific points in time. It may also include an assessment of the processes, equipment used, and significant occurrences from the Remedial Action Plan. For remediation, monitoring is considered a cost and for risk management, it is considered a liability. Once the long-term monitoring is completed the site closure report is completed (i.e., site is closed) (INAC, 2014e).

As noted in the descriptions of the steps, sites are typically closed at step 2, 4, 9, and 10. However, there may be exceptions where projects are closed at a different step.



## ***Appendix B - National Classification System for Contaminated Sites***

Class 1 and Class 2 sites as classified under the National Classification System for Contaminated Sites

<b>Classification</b>	<b>Priority level</b>	<b>Description</b>
Class 1	High priority for action	Sites are high risk and require action to address existing concerns for public health and safety
Class 2	Medium priority for action	Sites are medium risk and there is a high potential for adverse off-site impacts – threats to human health and the environment are not imminent
Class 3	Low priority for action	Sites are not a high concern, but additional investigation to confirm classification may be required
Class INS	Insufficient information	Following the Phase I Environmental Site Assessments, additional information is still required to classify sites
Class N	Not a priority for action	Sites do not require action – threats to human health and environment are unlikely

Source: Canadian Council of Ministers of the Environment. (2008). National Classification System for Contaminated Sites: Guidance Document. Retrieved April 10, 2015, from [http://www.ccme.ca/files/Resources/csm/pn\\_1403\\_ncscs\\_guidance\\_e.pdf](http://www.ccme.ca/files/Resources/csm/pn_1403_ncscs_guidance_e.pdf)

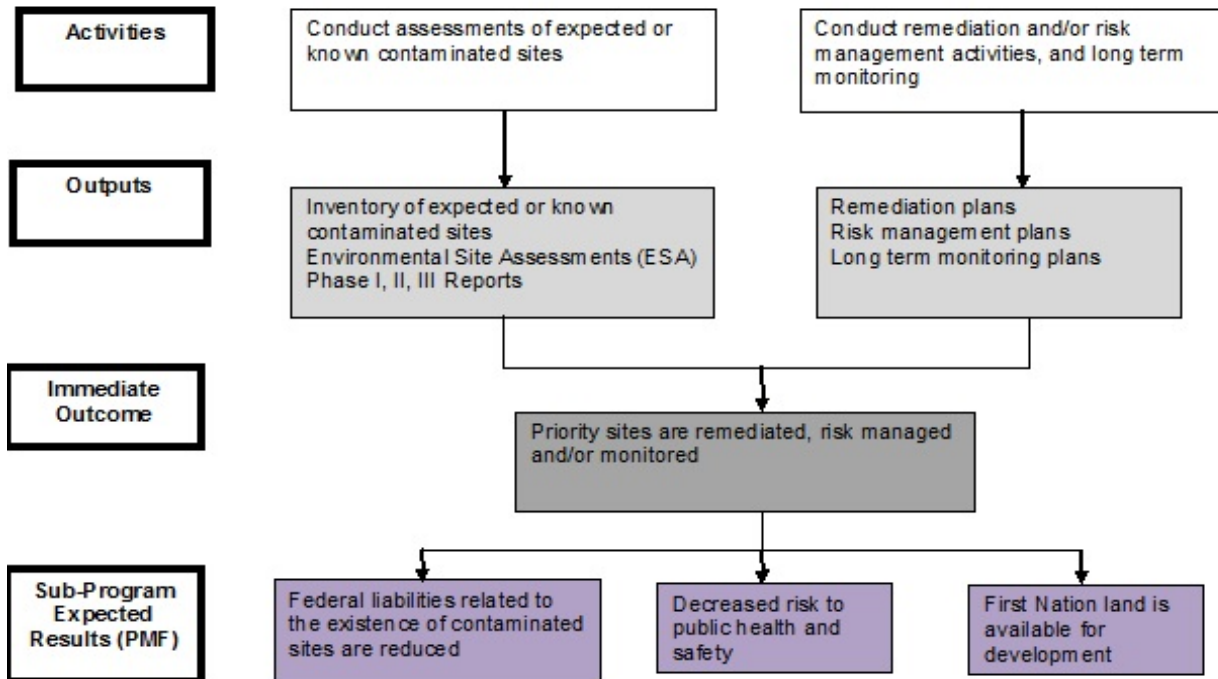


## **Appendix C - Breakdown of Environmental Liabilities by Custodian Department**

**Table 1: Breakdown of Environmental Liabilities by Custodian Department**

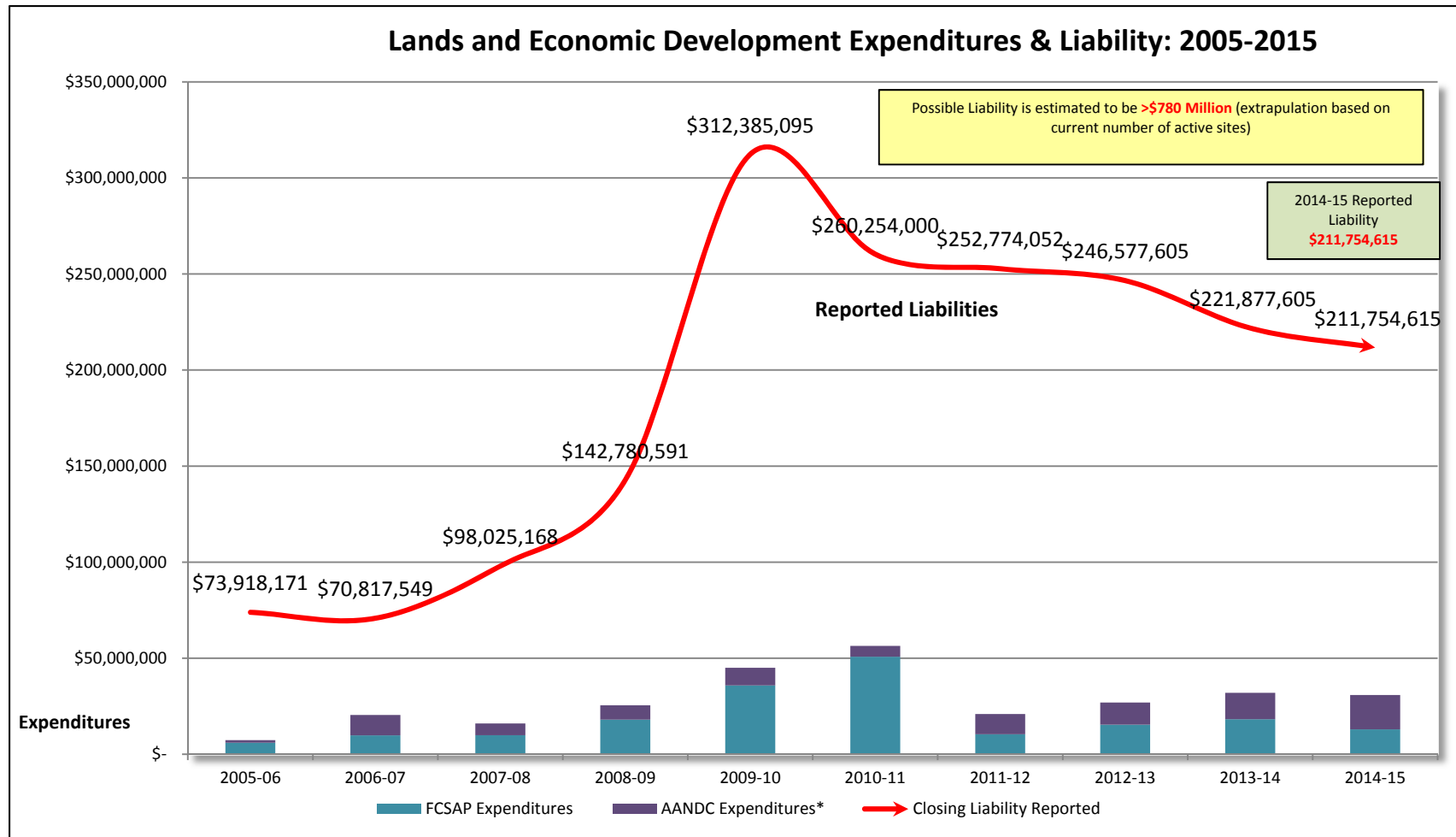
Remediation of Contaminated Sites	As of March 31st, 2014	As a Percent of Total	As of March 31st, 2013	As a Percent of Total
Agriculture and Agri-Food	\$1,513,644	0.03%	\$856,349	0.02%
Canada Border Services Agency	\$2,320,091	0.05%	\$2,295,800	0.05%
Correctional Service of Canada	\$3,963,650	0.09%	\$3,697,562	0.08%
Environment	\$110,916,041	2.11%	\$120,803,919	2.60%
Fisheries and Oceans	\$96,498,180	2.11%	\$94,450,638	2.03%
Health	\$167,482	0.00%	\$170,255	0.00%
Indigenous and Northern Affairs Canada	\$2,602,985,802	56.89%	\$2,530,833,152	54.39%
<i>INAC CSOR</i>	\$211,754,615	4.64%	\$221,877,605	4.77%
National Defence	\$462,424,603	10.11%	\$407,148,644	8.75%
National Research Council of Canada	\$168,400	0.00%	\$197,000	0.00%
Natural Resources	\$987,527,496	21.58%	\$1,035,415,073	22.25%
Parks Canada Agency	\$20,761,201	0.45%	\$20,703,590	0.44%
Public Works and Government Services	\$119,571,537	2.61%	\$251,710,716	5.41%
Royal Canadian Mounted Police	\$3,121,562	0.07%	\$3,937,539	0.08%
Transport	\$163,587,726	3.58%	\$180,760,825	3.88%
<b>Total</b>	<b>\$4,575,527,415</b>		<b>\$4,652,981,062</b>	

## Appendix D – Logic Model



PMF: Performance Measurement Framework

# Appendix E - Lands and Economic Development Expenditures and Liability, 2005-2015



## **Appendix F - Literature Review Summary and Sources**

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- (1) The “First Nation Involvement in Remediation Efforts.” This includes information on British Columbia’s Crown Land Restoration Branch, the unregulated waste-disposal methods on Saskatchewan’s reserves, and Alberta’s reclamation program, focusing on Aboriginal involvement in all three processes.
- (2) “Contamination Due to Insufficient Resources.” This focuses on Aboriginal communities’ inability to fund proper waste-disposal facilities. It also examines community members’ susceptibility to the influence of large industries who store their hazardous materials on First Nations’ lands. Among other challenges, the report finds evidence of strong industry pressure to use reserve land to store hazardous materials.
- (3) “Dangers to Food, Water, and Air Both on and off Reserve Lands.” This examines the major sources of contamination that affect community members but which may not originate from within First Nations’ territory.
- (4) “Risk-Ranking.” This compares national and provincial classification methods for contaminated sites, and examines the follow-up actions to be taken regarding remediation. Deciding on the funding priorities for contaminated sites, after their classification, is a risk-ranking approach. This triaging process is common among various levels of government. The Risk-Ranking paper compares national and provincial classification methods for contaminated sites, and examines the follow-up actions to be taken regarding remediation.

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# Appendix H - INAC Contaminated Sites

