



Evaluation of the Northern Contaminated Sites Program

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List of Acronyms

AOC	Aboriginal Opportunity Considerations
CIRNAC	Crown-Indigenous Relations and Northern Affairs Canada
FCSAP	Federal Contaminated Sites Action Plan
FMRP	Faro Mine Remediation Project
GBA Plus	Gender-Based Analysis Plus
GMRP	Giant Mine Remediation Project
NCSP	Northern Contaminated Sites Program
NWT	Northwest Territories
PSAB	Procurement Strategy for Aboriginal Businesses
PSPC	Public Services and Procurement Canada
QRA	Quantitative Risk Assessment

Executive Summary

Canada discharges its responsibility to manage 167 contaminated sites located north¹ of the 60th parallel through the Northern Contaminated Sites Program (NCSP). NCSP is administered by the Northern Affairs Organization of Crown-Indigenous Relations and Northern Affairs Canada (CIRNAC) and primarily funded through the Federal Contaminated Sites Action Plan (FCSAP).

The program ensures that northern contaminated sites are managed to protect human health, safety and the environment for all Northerners by assessing and remediating contaminated sites, and supporting employment and training. This involves carrying out assessment, care and maintenance, remediation/risk management and monitoring activities on contaminated sites, while promoting socio-economic benefits to Northerners, particularly Indigenous peoples.

Purpose and Methods

This report presents the results of the Evaluation of the NCSP. The evaluation is required as per CIRNAC's Five-Year Evaluation Plan to ensure compliance with the 2016 Treasury Board Policy on Results.

The scope of the evaluation covered the period of 2014-15 through to 2019-2020, examining the issues of relevance, efficiency (program design and delivery) and effectiveness (achievement of expected results). During the planning and conduct of this evaluation, there was considerable transformation in the federal approach to the management of northern contaminated sites. In Budget 2019, the FCSAP was renewed for another 15 years, and a new program was announced, the Northern Abandoned Mine Reclamation Program. The new program was launched in 2020 to exclusively address the eight largest and highest-risk abandoned mines (i.e. Faro and Giant Mines) in the Yukon and NWT, with the remediation of the other contaminated sites in the North remaining under the responsibility NCSP. This evaluation was designed to inform the NCSP's successor program, the Northern Abandoned Mine Reclamation Program.

Findings and Conclusions

Relevance

The evaluation found that NCSP was, is and will continue to be highly relevant as a means of addressing the needs and priorities related to contaminated site remediation, reconciliation, and socio-economic development in the North.

There is strong evidence of a continued need for NCSP. The program is the primary tool to address outstanding liability and risks to the environment and human health associated with contaminated sites north of the 60th parallel. The Federal Contaminated Sites Inventory lists 161 suspected or active federal contaminated sites in northern Canada under the custodianship of CIRNAC at the beginning of the evaluation period, April 1, 2014. Of these sites, 145 (90%) were active. More recent Federal Contaminated Sites Inventory data indicates that there were 167 suspected or active contaminated sites in northern Canada at the close of the evaluation period, March 31, 2018, of which 151 (90.4%) were active.

There was broad endorsement that reconciliation is the lens through which programs affecting Indigenous peoples and communities should be designed and delivered. Over the evaluation

¹ Treasury Board Secretariat, Federal Contaminated Sites Inventory (FCSI). Open Datasets.

period, NCSP has taken positive and helpful steps to support reconciliation, however, these efforts have been restricted to very local solutions at specific points in time.

Overall, as a priority program to address Canada's policy objectives and expectations of Indigenous peoples and Northerners, the program should explore a way forward to ensure that reconciliation and the need for socio-economic development are fully incorporated into all aspects of the program.

Efficiency

NCSP has demonstrated to be flexible and adaptable, particularly at the project level, over the evaluation period.

There is evidence that the NCSP project management approach is generally viewed as sound, robust and flexible. The Giant Mine Working Group has been cited as an example within project management as a forum to maintain ongoing dialogue with stakeholders. As well, the program's peer review model is considered an international leading practice. It was noted that embracing common industry best practices more fully should be considered.

While meaningful consultation and engagement have the potential to support reconciliation and socio-economic development, and reduce overall project risk, there was little evidence that this had occurred over the evaluation period. Many external respondents expressed general dissatisfaction with consultation and engagement, and the appropriate human and financial resources to design and implement meaningful consultation and engagement were not apparent. The Giant Mine Remediation Project (GMRP) surface design, the Quantitative Risk Assessment (QRA) and socio-economic development strategy engagement processes were notable exceptions, which present scaling opportunities.

While contaminated site remediation offers billions in potential revenue to remediate contaminated sites and support socio-economic development of the North, there is limited evidence that this promise has been realized by Indigenous and northern communities and businesses. There are a number of barriers to achieving this potential. These are long-standing and well-known issues that require comprehensive response.

While improvements have been made in many areas over the evaluation period, there are opportunities to build on success to address long-standing issues, which will contribute to a more efficient and effective program.

Effectiveness

Evidence from both the performance data and interviewees suggests that during the evaluation period, the risks to human health and the environment from northern contaminated sites were being identified and addressed. For example, between April 2014 and March 31, 2018, sites in active remediation and long-term monitoring consistently increased. Additionally, sites rated very high or high maintained mitigation strategies in place over the same period. Interviewees expressed concern that Indigenous and traditional knowledge systems are not integrated into site environmental monitoring and risk management. It was repeatedly noted that there is a reliance of western science and engineering-based knowledge and skills, which do not necessarily incorporate Indigenous guidance and traditional knowledge.

While the target of 95 percent for expenditures that are liability reducing was exceeded during the evaluation period, the total liability of northern contaminated sites increased by \$580 million (including Faro Mine Remediation Project (FMRP) and GMRP) or \$110 million when these sites are excluded.

It is evident that NCSP has a strong focus on effectiveness, but the program is challenged to present a complete performance story. While project performance data is regularly collected, reported and shared, there is opportunity to tell a more comprehensive performance story.

Evaluation Recommendations

The following recommendations were derived from the evaluation's findings and conclusions.

1. NCSP should be recalibrated using the lens of reconciliation. From the outset, all stakeholders should be jointly involved in the development of "NCSP of the future," from conceptualization and design, through to implementation, ongoing management, and monitoring and evaluation. Recommendations two and three, derive from this overarching recommendation.
2. NCSP should strive to better understand the socio-economic needs of Indigenous and northern communities by working directly with communities at the project specification stage, to ensure that the socio-economic opportunities flowing to Indigenous and northern communities and businesses are maximized. This should include understanding the local realities, including what is realistically achievable; and, adapting federal procurement to the local realities of the North to better enable Indigenous and northern communities and businesses to competitively bid on procurement opportunities.
3. NCSP should ensure that remediation projects, currently largely driven by western scientific, engineering and technical requirements, emphasize a more people-centered, public participation process driven by reconciliation.
4. NCSP should fully embrace common industry project management best practices of front-end loading, stage-gating and earned value project management.
5. NCSP should review the program performance measurement framework, to address limitations such as sequencing of outputs and outcomes, adequacy of outcome definitions, indicators and strength of targets.

Management Response and Action Plan

Project Title: Evaluation of the Northern Contaminated Sites Program

1. Management Response

The Northern Contaminated Sites Program (NCSP) acknowledges the findings of the evaluation report and has provided an action plan to address its recommendations. As per the program's request during the planning phase of the evaluation, the evaluation team delivered a report that specifically investigates NCSP performance through the lens of reconciliation.

In the years following the evaluation's scope (2014-2015 to 2017-2018), NCSP has been extended through two sub-programs: the new Northern Abandoned Mine Reclamation Program and the renewed Federal Contaminated Sites Action Plan. NCSP participated in engagement sessions with program stakeholders and Indigenous peoples to gather feedback on program performance and ensure the new programs are effective in meeting their objectives.

On April 1, 2020, NCSP launched the new Northern Abandoned Mine Reclamation program to address the unique needs of the eight largest and highest risk mine reclamation projects in the North. Additionally, the Federal Contaminated Sites Action Plan (FCSAP) program was renewed for Phase IV, which also began on April 1, 2020. FCSAP Phase IV includes commitments related to socio-economic performance, Indigenous engagement and increased prioritization of contaminated sites that impact Indigenous communities and Northerners.

These two programs have already begun addressing the recommendations identified in the evaluation. Several of these interventions have been implemented and are being monitored, whereas other actions remain under development. The evaluation's recommendations reinforce the importance of these actions and ongoing work to monitor their outcomes. These new programs also build upon the strengths of the program noted in the evaluation, including the program's sound, flexible and robust project management practices, to ensure that NCSP continues to be an effective and highly relevant means of addressing the needs and priorities related to contaminated site remediation, reconciliation and socio-economic development in the North.

The responses below are realistic, actionable responses to the recommendations. While NCSP is involved in various work projects that address the gaps identified by the evaluation, the selected list of actions were deemed to be the most pertinent and measurable.

Many of the responses are planned for completion by March 31, 2025. This date marks the end of Phase IV of the Federal Contaminated Sites Action Plan. It is possible that Phase IV could be extended, although an extension would likely be accompanied by additional policy commitments. For this reason, NCSP has decided to limit the maximum duration of the action's plan scope to March 31, 2025.

2. Action Plan

Recommendations	Actions	Responsible Manager (Title / Sector)	Planned Start and Completion Dates
<p>1. NCSP should be recalibrated using the lens of reconciliation. From the outset, all stakeholders should be jointly involved in the development of “NCSP of the future,” from conceptualization and design, through to implementation, ongoing management, and monitoring and evaluation. Recommendations two and three, derive from this overarching recommendation.</p>	<p>With the launch of the new Northern Abandoned Mine Reclamation Program and the renewal of FCSAP Phase IV, several aspects of the program have been recalibrated using the lens of reconciliation. Additionally, NCSP projects have co-developed governance agreements and socio-economic strategies with Indigenous and territorial partners that promote the full project lifecycle involvement of Indigenous communities and Northerners.</p> <p>The Giant Mine Remediation Project has co-developed a socio-economic strategy and associated socio-economic implementation plan. Under this strategy, the project established a socio-economic working group and advisory body and funded staff, training, and a Business Preparedness conference for Indigenous partners and northern stakeholders in 2020-21. Similarly, the Faro Mine Remediation Project is co-developing a Socio-Economic Framework in 2021-22 to guide the delivery of socio-economic benefits, and has already made funding available to several Indigenous partners to participate in its development.</p> <p>To build on these successes, the program is finalizing a NCSP Socio-economic Strategy, with plans for implementation in 2021-22. This evergreen strategy establishes a program-wide approach to delivering socio-economic benefits to Indigenous peoples and other Northern stakeholders. The implementation of the socio-economic strategy will support NCSP’s commitment to engagement with Indigenous peoples and Northerners throughout the project lifecycle, as project specific socio-economic objectives are co-developed or based on local priorities. The inclusion of project stakeholders and rights-holders in the development of these strategies</p>	<p>Senior Director, Northern Contaminated Sites Branch, Northern Affairs Organization</p>	<p><i>Start Date:</i> April 2020</p> <hr/> <p><i>Completion:</i> March 2023, with ongoing updates</p>

Recommendations	Actions	Responsible Manager (Title / Sector)	Planned Start and Completion Dates
	<p>helps to ensure that socio-economic benefits are maximized.</p> <p>NCSP is also developing updated Northern Procurement Guidance in partnership with Public Services and Procurement Canada (PSPC), that will emphasize the importance of early and ongoing engagement throughout the procurement process. This new guidance will be developed in close collaboration with PSPC. The program has committed to completing this guidance by March 31, 2022. Much like the socio-economic strategy, this guidance will be evergreen, and require regular updates.</p> <p>NCSP will also continue to support the FCSAP secretariat's commitment to develop new federal Indigenous engagement guidance during FCSAP Phase IV.</p>		
<p>2. NCSP should strive to better understand the socio-economic needs of Indigenous and northern communities by working directly with communities at the project specification stage, to ensure that the socio-economic opportunities flowing to Indigenous and northern communities and businesses are maximized. This should include understanding the local realities, including what is realistically achievable; and, adapting federal procurement to the local realities of the North to better enable Indigenous and northern communities and businesses to competitively bid on procurement opportunities.</p>	<p>Since the evaluation period, NCSP has co-developed a Socio-economic Strategy and Implementation Plan with Indigenous partners for the Giant Mine Remediation Project and a Project Governance Agreement with the D�l�n� Got'�n� Government for the Great Bear Lake Remediation Project. The Giant and Faro Mine Remediation Projects have also conducted Labour Resource Studies to maximize local resource participation in the projects.</p> <p>As noted above, work is also underway on an overarching NCSP Socio-economic Strategy in 2021-22. While the program strategy will bring consistency to the socio-economic approaches across projects and regions, project specific strategies will be adapted to regional and community distinctions. One of the goals of this strategy is to support expanded use of procurement approaches that support Indigenous and Northern involvement in projects.</p> <p>Additionally, NCSP is working with PSPC to update the program's Northern Procurement Guidance in</p>	<p>Senior Director, Northern Contaminated Sites Branch, Northern Affairs Organization</p>	<p><i>Start Date:</i> April 2020</p> <hr/> <p><i>Completion:</i> March 2025</p>

Recommendations	Actions	Responsible Manager (Title / Sector)	Planned Start and Completion Dates
	<p>2021-22, linked to the program's socio-economic strategy. New procurement guidance will support program staff and PSPC service delivery partners in ensuring that procurement approaches for NCSP projects are flexible and relevant to the local realities of the North, and provide guidance on Indigenous and Northern procurement tools. This work is a commitment under FCSAP Phase IV, and will be used by other federal partners as the basis of procurement guidance for other FCSAP custodians managing federal contaminated sites in the North.</p>		
<p>3. NCSP should ensure that remediation projects, currently largely driven by western scientific, engineering and technical requirements, emphasize a more people-centered, public participation process driven by reconciliation.</p>	<p>With the renewal of the FCSAP program on April 1, 2020, new guidance prioritizes all contaminated sites located in Indigenous communities and in the North. As a result, many sites in the NCSP portfolio are now eligible for funding in Phase IV and can be elevated as priorities in the work plan to support Indigenous reconciliation.</p> <p>In addition, NCSP projects increasingly include Traditional Knowledge studies as part of the assessment stage. NCSP will continue to support greater inclusion of traditional knowledge into project planning and implementation as a best practice.</p> <p>For example, the Giant Mine Remediation project has completed a Traditional Knowledge study and many project decisions have been influenced by the valuable Traditional Knowledge that community members have shared in project engagement sessions, technical meetings and workshops. The project utilized this Traditional Knowledge from community members and elders to inform the design and development of the water license package, including the Closure and Reclamation Plan, Surface Design Engagement, Quantitative Risk Assessment, and Archaeological Impact Assessment. The team will continue to incorporate Indigenous Knowledge</p>	<p>Senior Director, Northern Contaminated Sites Branch, Northern Affairs Organization</p>	<p><i>Start Date:</i> April 2021</p> <hr/> <p><i>Completion:</i> March 2023</p>

Recommendations	Actions	Responsible Manager (Title / Sector)	Planned Start and Completion Dates
	into various facets of the project in the future.		
<p>4. NCSP should fully embrace common industry project management best practices of front-end loading, stage-gating and earned value project management.</p>	<p>Since the evaluation period, NCSP has developed detailed regional and project-specific dashboards to highlight scope, schedule and budget changes and elevate developing problems, non-compliances and non-performance to senior management. These reporting tools will allow the program to better adopt the principle of “earned value project management.”</p> <p>NCSP will continue to support the FCSAP secretariat in refining the federal work planning process to promote front-end loading of contaminated sites projects. The FCSAP program is also finalizing FCSAP Phase IV operational guidance for contaminated sites project managers, including project management best practices such as project readiness assessments.</p> <p>The NCSP has also developed and implemented Requirements for the Management of Northern Contaminated Sites, whereby project requirements must be fulfilled in order to access budget allocations and to progress from one project stage to the next. This process aligns with the Treasury Board Secretariat (TBS) Guide to Project Gating by providing formal opportunities throughout the project life cycle to take stock of the accomplishments to date, and to ensure that there is a clear and viable path to achieving the desired project outcomes. The new NCSP Quality Assurance Office in the Policy and Program Management Directorate, will be responsible for routine checks and readiness assessments on NCSP projects.</p> <p>Large projects are also to follow the NCSP Major Projects Delivery Model.</p>	<p>Senior Director, Northern Contaminated Sites Branch, Northern Affairs Organization</p>	<p><i>Start Date:</i> April 2021</p> <hr/> <p><i>Completion:</i> March 2025</p>

Recommendations	Actions	Responsible Manager (Title / Sector)	Planned Start and Completion Dates
<p>5. NCSP should review the program performance measurement framework, to address limitations such as sequencing of outputs and outcomes, adequacy of outcome definitions, indicators and strength of targets.</p>	<p>Through the renewal of the FCSAP program and the start of Northern Abandoned Mine Remediation Program on April 1, 2020, NCSP has committed to a new set of performance indicators and targets that will better represent the program's performance story. There are now indicators that capture socio-economic factors such as employment and training for Indigenous peoples, northerners and women, and sub-contracts going to Indigenous and Northern firms. The NCSP Performance Information Profile has been updated to reflect these changes, and will be reviewed by Northern Affairs Organization's Senior Result Advisor to ensure the quality of information presented.</p>	<p>Senior Director, Northern Contaminated Sites Branch, Northern Affairs Organization</p>	<p><i>Start Date:</i> April 2020</p> <hr/> <p><i>Completion:</i> March 2021, with ongoing updates</p>

1. Introduction

1.1 Background

Northern contaminated sites originated primarily from mining, petroleum and government military activity that occurred more than 50 years ago, when the environmental impacts of these activities were not fully understood. In addition to posing risks to human health and safety, and to the fragile northern environment, the sites represent a significant financial liability to the Crown.

The federal approach to contaminated sites, employs a 10-step process,² used by custodians such as Crown-Indigenous Relations and Northern Affairs Canada (CIRNAC) to address contaminated sites. Sites suspected of contamination are initially assessed to determine if risks to human health and the environment exceed guidelines. On the basis of the assessment results, sites are then classified and prioritized according to the Canadian Council of Ministers of the Environment's National Classification System for Contaminated Sites (Appendix A).

There are 2,644 northern contaminated sites in the Federal Contaminated Sites Inventory, with CIRNAC as the custodian of 167 sites (Table 1).

Table 1: Contaminated Sites under CIRNAC custodianship, by site status (2018)³

Territory	Site Status			
	Suspected	Active	Closed	Total
Yukon	0	7	0	7
Northwest Territories	6	76	0	82
Nunavut	10	68	0	78
Total	16	151	0	167

1.2 Expected Results

The Northern Contaminated Sites Program (NCSP) contributes to CIRNAC's core responsibility Community and Regional Development ensuring that northern contaminated sites are managed to protect human health, safety and the environment for all Northerners by assessing and remediating contaminated sites, and supporting employment and training. This involves carrying out Assessment, care and maintenance, remediation/risk management and monitoring activities on contaminated sites, while promoting socio-economic benefits to Northerners, particularly Indigenous peoples.

The complete logic model for the program can be found in Appendix B.

² The 10-step process includes the following steps: (1) Identify Suspect Site; (2) Historical Review; (3) Initial Testing Program; (4) Classify Site (optional); (5) Detailed Testing Program; (6) Re-Classify Site; (7) Develop Remediation/Risk Management Strategy; (8) Implement Remediation/Risk Management Strategy; (9) Confirmatory Sampling and Final Reporting; and (10) Long-Term Monitoring (if required).

³ Treasury Board Secretariat, Federal Contaminated Sites Inventory (FCSI). Open Datasets.

1.3 Governance

Roles and Responsibilities of Key Program Positions

Key Positions	Roles and Responsibility
Assistant Deputy Minister	<ul style="list-style-type: none"> – Responsible for the implementation for the Contaminated Sites Management Policy in the North. – Ultimate accountability of Federal Contaminated Sites Action Plan (FCSAP) and internal CIRNAC resources directed to NCSP.
NCSP Executive Director	<ul style="list-style-type: none"> – Responsible for establishing and managing NCSP. – Reports directly to the Assistant Deputy Minister. – Acts as project sponsor for major remediation projects.
Regional Director General	<ul style="list-style-type: none"> – Responsible for direct implementation of NCSP at contaminated sites in each of the three Northern (Nunavut, Northwest Territories (NWT) and Yukon) regions. – Report directly to Assistant Deputy Minister.

Roles and Responsibilities of Program Committees

Committee ⁴	Roles and Responsibilities
Northern Management Committee	<ul style="list-style-type: none"> – Strategic information sharing and decision-making body for Northern Affairs Organization. – Chaired by the Northern Affairs Organization Assistant Deputy Minister, regional director generals and NCSP Executive General are members.
NCSP Executive General/ Regional Director General Committee	<ul style="list-style-type: none"> – Reviews and recommends to the Assistant Deputy Minister for approval the annual funding allocation and carries out mid-year reviews as needed.
NCSP Directors Committee	<ul style="list-style-type: none"> – Develops and implements corporate procedures for the program. – Reviews funding allocations and expenditures; reviews the project work plans and Annual Performance Report. – Resolves other program level issues on an ongoing basis. – Chaired by the Executive Director and includes Northern Regional Director Generals and the Public Services and Procurement Canada (PSPC) Director, Environmental Services. – The Committee usually meets periodically in person, and monthly by teleconference.
Project Advisory Committee	<ul style="list-style-type: none"> – Provides support and guidance in the areas of project management and execution, as well as on technical issues. – Committee is also referred to as the Project Management and Technical Advisory Committee.
Environment, Health and Safety Working Group	<ul style="list-style-type: none"> – Works to ensure that all program activities meet environment, health and safety requirements to reduce adverse risks associated with contaminated sites.

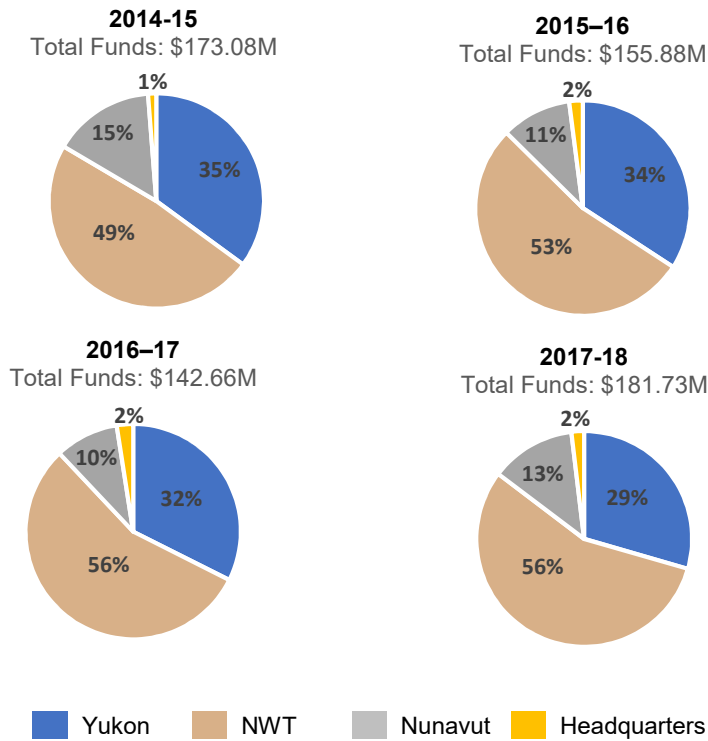
At the project level (individual contaminated sites) there can be several additional governance bodies with a variety of mandates, roles and responsibilities and membership. This can include strategic/oversight bodies with senior federal, Indigenous and sometimes territorial representation, committees and working groups are more operational in nature, with mid-level management and working-level federal, Indigenous and sometimes territorial representation.

1.4 Funding and Resources

NCSP is primarily funded through Federal Contaminated Sites Action Plan (FCSAP), which was established in 2005 as a 15-year program. In Budget 2019, FCSAP was renewed for another 15 years (2020 to 2034) with \$1.16 billion announced for the first five years. FCSAP is administered jointly by Environment and Climate Change Canada and Treasury Board Secretariat.

⁴ The committees are internal to the Northern Affairs Organization Sector and do not have representation from external stakeholders.

Figure 1: NCSP Budget Distribution, by Year



Over the evaluation period, FCSAP was responsible for the total expenditures for both the Giant Mine Remediation Project (GMRP) and the Faro Mine Remediation Program (FMRP) totalling \$364.16 million and for all other contaminated sites in the North, FCSAP invested \$231.28 million. CIRNAC invested \$32.71 million to support the activities of contaminated sites remediation for all other projects.

Table 2: Full-Time Equivalent, by Year

Directorate	Fiscal Year			
	2014-15	2015-16	2016-17	2017-18
Faro Directorate	5.6	7.5	10.2	12.5
Giant Directorate	16.6	19.8	19.7	19.6
Program Management Directorate	14.9	16.2	17.2	16.2
Project Technical Office	2.7	6.9	7.5	8.1
Total	39.8	50.4	54.6	56.4

2. Evaluation Approach

2.1 Objectives and Scope

The Evaluation of NCSP is required as per CIRNAC's Five-Year Evaluation Plan to ensure compliance with the 2016 Treasury Board Policy on Results. Since NCSP includes ongoing programs of grants and contributions, the evaluation is also subject to Section 42.1 of the *Financial Administration Act*.

The scope of the evaluation covered the period of 2014-15 through to 2019-2020, examining the issues of relevance, efficiency (program design and delivery) and effectiveness (achievement of expected results). During the planning and conduct of this evaluation, considerable transformation was underway to the federal approach to the management of northern contaminated sites, including major reforms to the NCSP program. The reforms that were underway to the NCSP included modifications to performance indicators and targets. As a result of the transformation of the NCSP, this evaluation focussed on data that was available up until 2018 to ensure consistency in analysis. The evaluation was designed to inform the NCSP's successor program, the Northern Abandoned Mine Reclamation Program. The new program was announced in 2019 and launched in 2020 to exclusively address the eight largest and highest-risk abandoned mines (i.e. Faro and Giant Mines) in the Yukon and NWT, with the remediation of the other contaminated sites in the North remaining under the responsibility NCSP.

The evaluation assessed the value of the combined investments of CIRNAC and FCSAP through the lens of relevance, efficiency (program design and delivery) and effectiveness (achievement of expected results). Specifically, FCSAP annual resources to the NCSP to assist in the delivery of the Contaminated Sites program as remediation costs for most sites are cost-shared by FCSAP. Contributions are made from CIRNAC's resource base to satisfy the shared funding requirements associated with the FCSAP program (85% FCSAP and 15% CIRNAC) and to address departmental obligations for sites not funded under the FCSAP.

The need for the evaluation was further influenced by drivers, including the programs high to very high program risks related to:

- Challenges with procurement, which lead to project delays, legal challenges and an inability to achieve program objectives;
- Challenges in achieving targets for the delivery of social and economic benefits to Indigenous peoples and Northerners through NCSP activities;
- Expanding program scope as new contaminated sites are identified contaminated sites.

2.2 Methods

The evaluation examined questions presented in the Evaluation Matrix (Appendix C). It used multiple lines of inquiry, both qualitative and quantitative methods, to triangulate and mitigate limitations.

Summary of Evaluation Data Collection Methods

Document Review	Key Informant Interviews (n=21)	Case Studies Interviews (n=45)
<ul style="list-style-type: none"> – An extensive review of: – publicly available and internal program documents; and – financial, program administrative data files. 	<ul style="list-style-type: none"> – Interviews included representatives from: – federal and territorial governments; and – non-Indigenous private sector. – Candidates were identified and selected in purposeful manner. – Standardized interview guides designed to gather information relevant to specific evaluation questions and evaluation indicators were prepared for each category of respondent. 	<ul style="list-style-type: none"> – In-depth interviews related to four case studies major projects (FMRP and GMRP); – consultation and engagement; – socio-economic development; and – project management practices. – Interviews included representatives from: – federal and territorial government; – Indigenous government and private sector; and – non-Indigenous private sector. – Candidates were identified and selected in purposeful manner.

Limitations and Mitigation Strategies

Limitation	Mitigation Strategy
<ul style="list-style-type: none"> – Candidates representing Indigenous communities and private sector firms were not identified as key informants. – For the case studies, a number of public and private sector candidates were identified, but requests were either declined or individuals were unavailable. – Even with the implementation of the mitigation strategy, the sample of respondents overrepresented the non-Indigenous public sector, particularly federal, which introduces the possibility of bias. – If this response bias did occur, it may have resulted in higher claims of success for the program. 	<ul style="list-style-type: none"> – To offset the limited number of key informants from Indigenous communities and the private sector, it was decided early on in the case study interview process to take the opportunity to pose a wider range of questions to respondents from these and other categories. This enabled a broader information base more representative of the parties involved in or affected by NCSP.
<ul style="list-style-type: none"> – Performance data against several important indicators could not be assessed against expectations because: – Targets were not established; and/or – Program data was not available. – Response bias is still a possibility even with the implementation of the mitigation strategy. 	<ul style="list-style-type: none"> – Key informants and case study interviews provided an alternative, albeit qualitative, source of information to establish results.
<ul style="list-style-type: none"> – Performance measurement indicators underwent modifications during the evaluation period, including moving from indicators reflecting counts to progress against targets. 	<ul style="list-style-type: none"> – Assessed progress for outputs and outcomes against 2018 performance measurement indicators.

3. Findings—Relevance

3.1 Continued Need for the Program

Key Findings: There is a continued need for the immediate outcome to address the outstanding liability and risks to the environment and human health associated with contaminated sites north of the 60th parallel.

NCSP is an important contributor to reconciliation.

NCSP is an important contributor to support the socio-economic development of northern communities to address longstanding inequalities.

Continued Need to Address NCSP Outcomes

Continued Need for Site Remediation

There is strong evidence of a continued need for NCSP to address outstanding liability and risks to the environment and human health associated with contaminated sites north of the 60th parallel.

The Federal Contaminated Sites Inventory⁵ lists 161 suspected or active federal contaminated sites in northern Canada under the custodianship of CIRNAC at the beginning of the evaluation period, April 1, 2014. Of these sites, 145 (90%) were active. More recent, the Federal Contaminated Sites Inventory data indicates that there were 167 suspected or active contaminated sites in northern Canada at the close of the evaluation period, March 31, 2018, of which 151 (90.4%) were active.

The 2018 FCSAP evaluation concluded, “There is a clear ongoing need for FCSAP or a similar program to address outstanding liability and risks to the environment and human health associated with federal contaminated sites. Furthermore, the need for long-term monitoring at some sites, along with growing recognition of the need to address emerging contaminants, attest to the program’s ongoing relevance”⁶. The evaluation also noted the mobility and toxicity of many contaminants and the resulting increasing risk over time to human health and the environment. It also noted emerging contaminants that may generate unexpected increases in federal liabilities.

In three of the four years within the scope of the evaluation, the program received funding enhancements. Budget 2019 announced several efforts to strengthen Canada’s commitment to remediating contaminated sites, including:

- FCSAP renewal for another 15 years (2020 to 2034) with an investment of \$1.16 billion for the first five years; and
- Creation of the Northern Abandon Mine Reclamation Program, investing \$2.2 billion over 15 years starting in 2020–21, to exclusively address the eight largest and highest-risk abandoned mines in the Yukon and NWT, with the remediation of the other contaminated sites in the North remaining under the responsibility of CIRNAC through NCSP.

⁵ Treasury Board Secretariat, Federal Contaminated Sites Inventory (FCSI). Open Datasets.

⁶ [Environment and Climate Change Canada. Horizontal Evaluation of the Federal Contaminated Sites Action Plan. Final Report, 2019.](#)

Looking ahead, while new sites are being identified, which are the result of historical contamination and there are new contaminants that are of concern, the 2018 FCSAP Evaluation observed that modern federal legislation and policies, and increased environmental awareness, prevent or greatly reduce the likelihood of creating new contaminated sites. Higher standards for financial and environmental procedures at new mines and other industrial developments are now the industry norm, and the current regulatory framework also mitigates the costs of decommissioning and reclamation in the event of insolvency.

Contribution to Reconciliation

There is strong evidence that NCSP is an important contributor to reconciliation, which remains a priority of the federal government.

From the federal perspective, reconciliation has been a priority over the evaluation period, and remains so. In 2016, Canada officially removed its objector status to the United Nations Declaration on the Rights of Indigenous Peoples, widely viewed as an important step towards reconciliation.⁷ The [“Principles Respecting the Government of Canada’s Relationship with Indigenous Peoples”](#) is intended to guide the federal government’s relationship with Indigenous peoples. Since 2015, successive speeches from the Throne, budget plans and mandate letters have signalled the continued need for reconciliation. Budget 2019 devoted an entire chapter to the topic through several measures, including “Redressing Past Wrongs and Advancing Self-Determination” and “Healthy, Safe and Resilient Indigenous Communities,” both pertinent to the remediation of contaminated sites in the North. A priority of [Canada’s new Arctic and Northern Policy Framework 2019](#) is to “advance reconciliation and improve relationships between Indigenous and non-Indigenous peoples.”

The 2018 FCSAP Evaluation found that the program “is widely seen by internal and external stakeholders as an important contributor to the reconciliation agenda, since it helps to satisfy the federal government’s obligation to address contamination in Indigenous communities, and generates socio-economic benefits for Indigenous peoples.” While key informant interviews and case study interviewees generally agreed with this statement, there was a higher level of success ascribed to the operationalization of reconciliation by internal respondents than external respondents.

Canada’s reconciliation intentions were described by some respondents as opaque and not institutionalized. They cited the lack of a reconciliation strategy and operational guidelines to advance reconciliation through NCSP, and that responsibility for implementing reconciliation was delegated to the program manager level without vehicles for the input of Indigenous parties.

Although the Canada School of Public Service offers reconciliation training to public servants, interviewees suggested that there be opportunities to interact with Indigenous people “in their communities” to “hear individual stories” and “build empathy.” It is notable that none of the interviewees cited the federal government’s “Principles Respecting the Government of Canada’s Relationship with Indigenous Peoples”, intended to help achieve reconciliation with Indigenous

⁷ Bill C-262 sought to harmonize Canada’s laws with United Nations Declaration on the Rights of Indigenous Peoples. The House of Commons adopted this federal legislation in 2018. The Bill stalled in the Senate and died on the order paper in 2019, but it is expected to be reintroduced to the House during the 2020 sitting. To date, only British Columbia has passed legislation that enshrines United Nations Declaration on the Rights of Indigenous Peoples into law.

peoples, or CIRNAC’s “Guidance on Engagement Activities and Costing Throughout a Contaminated Site Project Lifecycle”⁸, which references these principles.

The 2018 FCSAP Evaluation recommended, “increasing alignment with the reconciliation agenda through measures such as increased engagement with Indigenous communities; improved guidance and training for custodians on collaborating and engaging with Indigenous communities; procurement practices that promote greater participation by Indigenous peoples; and explicit consideration of factors of importance to Indigenous peoples.” The findings of the NCSP Evaluation support this recommendation.

Continued Need for Socio-economic Benefits in the North

There is strong evidence that NCSP is an important contributor to the efforts surrounding the federal government’s priority of socio-economic development of the North.

The North has experienced “long-standing inequalities in transportation, energy, communications, employment, community infrastructure, health and education” and lack of “access to the same services, opportunities, and standards of living as those enjoyed by other Canadians.” Across most socio-economic indicators (e.g., education, employment, income), territorial performance is lower than the Canadian average. The Conference Board of Canada identifies geography, demography and substantial Indigenous populations facing distinct historical, cultural and socio-economic challenges as some of the factors contributing to these disparities.⁹

Successive federal strategies (e.g., Northern Strategy 2009, Statement on Canada's Arctic Foreign Policy 2010 and Canada’s Arctic and Northern Policy Framework 2019) and successive budgets since 2013 have supported socio-economic development in northern communities. The Arctic and Northern Policy Framework outlines “a shared vision of the future where northern and Arctic people are thriving, strong and safe”, with priorities related to people and communities, science and environment, economic development and infrastructure.

3.2 Alignment With Government Priorities

Key Findings: NCSP is well-aligned with Government of Canada priorities. The program is a major partner in implementing FCSAP, thereby contributing to “Canada’s overall goals with respect to contaminated sites.”

Alignment with Government Priorities and CIRNAC Mandate

Alignment with Government Priorities

NCSP is well aligned with federal government priorities, and contaminated sites remain the responsibility of the Government of Canada.

NCSP aligns with the following federal strategies for the North:

⁸ Contaminants and Remediation Division, CIRNAC Northwest Territories. 2017. Guidance on Engagement Activities and Costing Throughout a Contaminated Site Project Lifecycle.

⁹ [Conference Board of Canada. 2017. Social Outcomes in the Territories.](#)

- Canada’s Arctic and Northern Policy Framework;
- Canada’s Economic Action Plan; and
- Initiatives and programs of the Canadian Northern Economic Development Agency.

NCSP aligns with commitments outlined in existing and new Comprehensive Land Claim Agreements and devolution of land and resources in the Yukon, NWT and Nunavut.

Policy documents for FCSAP Phases II and III establish links to government policy areas, which are strongly represented by NCSP, including health, science and technology, Indigenous employment and training, economic development, and the Northern Strategy. The policy document for Phase III emphasizes that a high proportion of FCSAP funding directed to northern sites demonstrates Canada’s commitment to the Northern Strategy and devolution of land management. In its assessment of FCSAP alignment with government priorities, and federal roles and responsibilities for contaminated sites in Canada, the 2018 FCSAP Evaluation found clear alignment. It also established alignment with and supports, “for existing federal legislation such as the *Fisheries Act*, the *Canadian Environmental Protection Act*, the *Species at Risk Act*...[and] Section 64(2) of the *Financial Administration Act* [that] stipulates that the Public Accounts of Canada should include environmental liabilities.”

Alignment with CIRNAC Mandate

NCSP is strongly aligned with the mandate of CIRNAC as observed in the Ministers’ Mandate Letters, the CIRNAC Departmental Plan and earlier reports on plans and priorities.

The activities of NCSP are aligned to CIRNAC’s core responsibility for community and regional development and the departmental result land and resources in Indigenous communities and the North are sustainably managed. The expected results aligned to the program in 2014-15 through to 2016-17 were “Contaminated sites are managed to ensure the protection of human health and the safety of the environment while bringing economic benefits to the North,” and since 2017–18, it has been “Environmental stewardship of contaminated sites is responsible and sustainable.”

4. Findings—Efficiency

4.1 Governance

Key Findings: NCSP has displayed flexibility and adaptability introducing different solutions to improve governance, reflecting regional and local contexts. In this regard, the program has met with considerable success applying the lessons learned, particularly at the project level. However, the overall governance structure is generally viewed as being overly complex.

Extent the Governance Structure Contributes to the Achievement of NCSP Outcomes

Clarity, Appropriateness and Efficiency of the Governance Structure

NCSP governance has evolved over the evaluation period, demonstrating it to be flexible and adaptable, particularly at the project level, by being responsive to local context and building on lessons learned.

Flexibility and Adaptability of Governance

There have been ongoing efforts to improve NCSP governance, including the 2014 establishment of the Northern Contaminated Sites Branch. At the regional and project level, governance is structured in accordance with local contexts and individual sites, and is reportedly effective, displaying flexibility and adaptability. This was found to be particularly so at the project level, which was described as pragmatic. There was a high level of agreement amongst internal interviewees that NCSP governance had improved since the creation of the Branch.

There has been some experimentation with the governance of northern contaminated site remediation projects. For example, Elsa Reclamation and Development Company Ltd., a unit of Alexco Resource Corp., owns the former assets of United Keno Hill Mine. It is responsible, under a funding agreement with Canada and the Yukon Government, for the care and maintenance of the properties and the eventual reclamation and closure of the sites. A separate subsidiary of Alexco Resource Corp, Alexco Keno Hill Mining Corp., is incorporated for the purpose of mineral extraction on other areas of the site, with revenue from the production mine offsetting the costs of the remediation. Broad satisfaction was expressed by key informants and case study interviewees with these governance arrangements.

Data analysis suggests that the governance approach and structure can be overly complex. It was found that external interviewees do not have a clear understanding of NCSP governance and individual remediation projects. There was also consensus by external respondents that the various committees, working groups and consultative bodies for the FMRP and GMRP were too numerous, overly bureaucratic and over-regulated.

Clarity of Roles and Responsibilities

NCSP is supported by multiple stakeholders, each playing an important role in the remediation of contaminated sites. Roles and responsibilities within the program (headquarters, regional offices and project level), were found to be well-defined. It was suggested, however, that the technical, procurement and contracting authorities between CIRNAC and PSPC were unclear, and roles and responsibilities imprecisely defined.

Technical Authorities	Procurement Authorities	Contracting Authorities
– Responsible for all matters concerning the technical content of the work under the contract (e.g., defining requirements)	– Procurement, materiel management, contracting and financial management advice	– Responsible for entering into contracts and sign and amend contracts

For major projects, such as the GMRP, CIRNAC is designated as the technical and procurement authority, with PSPC designated as the contracting authority, however, it was identified by key informants that there are instances when PSPC acted as the technical authority. For example, PSPC drafted the Terms of Reference for the GMRP Construction Manager, a role normally fulfilled by the technical authority, which was then deemed inadequate by CIRNAC. At the regional office level and with other contaminated site remediation projects, it has been reported by PSPC and CIRNAC that the authorities are well-defined.

Evidence also suggests that there is differing views of contaminated site remediation in the Yukon between the Yukon Government, CIRNAC's Yukon Regional Office and NCSP Headquarters. Interviewees cited poor direction and confusion about roles related to the development of

remediation plans, which has apparently led to substantial project delays, resulting in high project costs and an increase in liability.

Effectiveness of Decision-making

Given the complexity of NCSP governance, involving multiple stakeholders from national, regional and local levels, and complex operating conditions, relatively few decision-making issues were identified. The Directors Committee reportedly experiences difficulty separating the needs and priorities of the program as a whole over those of individual regions and projects. While the effectiveness of the Project Advisory Committee was questioned, with decisions made by the Project Advisory Committee “often reversed [within weeks] by the Program Technical Office officer responsible for projects”, overriding the region, with reasons for decisions rarely shared.

With respect to the major projects, the FMRP governance structure was described as a “light” version of that for the GMRP, smaller and nimbler. With this structure, the project includes broad representation from federal, territorial and Indigenous governments at the working-level, meeting regularly to discuss operational issues or more formalized as the Technical Review Committee. Given the flatter governance structure, communication is reportedly to be effective across levels, and decision-making is perceived to be efficient.

4.2 Project Management

Key Findings: The NCSP project management approach is viewed as sound, robust and flexible. However, the program has not fully embraced common industry project management best practices, such as: front-end loading; stage gating; and earned value project management.

The peer review model is regarded as an international leading practice.

Contaminated site remediation remains primarily a technical exercise, without including sufficient consultation, engagement and socio-economic expertise and Indigenous representation. The notable exceptions to this are the GMRP surface design and QRA, which were successful in all aspects.

Extent Project Management Contributes to the Achievement of NCSP Outcomes

Utility of the Project Management Approach

There is good evidence that the NCSP project management approach is sound, robust and flexible and contributes to the success of NCSP. Project management is supported by appropriate project management policies, procedures, software and systems, and communities of experts. There are a few notable exceptions to this. There has been some reticence to fully embrace common industry project management best practices. Remediation also remains a primarily technical exercise, and project teams do not have adequate consultation, engagement and socio-economic expertise and Indigenous background.

Maintaining an Ongoing Presence in the Field

The NCSP project team maintains an ongoing presence and involvement in the regions. Interviewees cited this as a means to gain first-hand understanding of regional and local nuances and challenges, build relationships and trust with Indigenous governments and partners, and address risks as they arise.

Maintaining Ongoing Dialogue With Stakeholders

Ongoing dialogue with stakeholders is an important project management tool. For example, the Giant Mine Working Group, formed in 2013, was identified by interviewees as a helpful forum for interested parties to discuss and make recommendations on technical, operational and project activities regarding the remediation. The working group, co-chaired by the Government of Northwest Territories and CIRNAC meets monthly with a membership of federal government departments, Indigenous and municipal governments and a local social justice coalition.

The Giant Mine Oversight Board independently monitors, promotes, advises and broadly advocates the responsible management of the GMRP. Interviewees identified the Board as a second useful mechanism to encourage dialogue among stakeholders.

Recognizing the Value of Partnering and Collaboration

Working with the territorial governments, partnering with Indigenous parties, and being transparent and accountable in these relationships are valuable practices supporting effective project management. For example, the collaborative United Keno Hill Mine design and development process involving and seeking support from the First Nation of Nacho Nyak Dun throughout the process. Adequate and early stakeholder consultation and engagement were identified as a key success factor, with consultation and engagement viewed as key inputs in the process of project definition.

Visioning to Agree on the Path Forward

External interviewees observed that visioning is a common practice on other files, but has rarely been used in contaminated site remediation projects. The external interviewees reported having a perception that CIRNAC was reluctant to integrate the visioning in the FMRP environmental assessment process.

Contaminated Site Remediation is Primarily Viewed as a Technical Exercise

Contaminated site remediation is undertaken primarily as a technical exercise, focussing on engineering and environmental matters to the exclusion of the affected people and communities and socio-economic aspects. Identifying and incorporating reconciliation considerations into contaminated site remediation projects are not widespread practices. Project teams are reportedly largely staffed by scientific, engineering and other technical experts. External interviewees were critical about the knowledge and skills related to socio-economic, consultation and engagement provided by project teams, and noted the lack of Indigenous representation on project teams. Interviewees recommended moving projects away from a technical orientation to a more people-centred orientation.

The Peer Review Model

The peer review practices use international external experts to review the technical merit of the remediation conceptual design and solutions (e.g., environmental and engineering solutions). The model is considered an international leading practice. Caution was noted that unless other traditional project checks and balances are used, the peer review process serves as the primary gate to sanction project progress. It was also noted that the peer review process should be extended to other points of remediation projects, such as the environmental, consultation and engagement aspects.

Limited Adoption of Industry Project Management Best Practices

Industry project management best practices, such as front-end loading, stage-gating and earned value project management, have not been fully applied to contaminated site remediation projects.

It was suggested that the program should adopt three key industry best practices¹⁰.

1. **Front-end loading:** “energy, efforts, people, and resources” are focussed in the early days of the project.
 - During the project definition and planning stage, when it is still inexpensive to make changes, compared to the later implementation and construction stages, where any change can be high impact in terms of cost and schedule delays.
 - This approach, while included in the Major Project Standards and Guidance Manual, would require enhanced training within the program to support successful implementation.
2. **Stage-gate process:** included in the Corporate Procedures Manual and Major Project Standards and Guidance Manual is only partially implemented by NCSP.
 - Checks and readiness assessments should be increased as those in place tended to address developing problems.
3. **Earned value project management:** integrates project scope, time and costs as a single system has the advantage of detecting, early on, indicators of non-compliance and non-performance, making it very valuable especially in complex projects.
 - Earned value would address the widely cited practice within NCSP of re-base lining project work schedules combined with an institutional culture that avoids reporting negative project performance.
 - The concept is well-established internationally. For example, the federal United States infrastructure budget is built around the concept of earned value, and project award and execution will not advance unless the team has proven expertise in earned value management¹¹.

¹⁰ PricewaterhouseCoopers, 2019. NCSP Large Projects Readiness Assessment Final Report.

¹¹ Government Accounting Office, United States Government. 2009. [GAO Cost Estimating and Assessment Guide—Best Practices for Developing and Managing Capital Program Costs](#).

Impact of Annual Planning and Budgeting on Multiyear Project and Program Management

The fundamental scope, scale and contextual differences of contaminated site remediation in the North compared to the South renders the five-year funding cycle of FCSAP a substantial challenge for NCSP. Needs of remediation projects in the North are more consistent with an envelope-based approach to funding as opposed to annual allocation.

The unpredictable and constrained operating environment of the North was cited by interviewees as particular challenges. For example, it was noted that it is difficult to adhere to rigid project planning in the North noting that flexibility is more required (e.g., expenses associated with logistics are a much more important factor than in the South) reflecting the unique context of site remediation not experienced south of the 60th parallel. Moreover, interviewees explained that contaminated site remediation projects face a wide range of risks (e.g., regulatory, engagement, climate change and northern context), and while these risks are well documented, and project managers are aware of, manage and adapt to them, neither project plans nor budgets comprehensively reflect risks. Consequently, at the portfolio level, risks cannot be proactively managed. This is exacerbated by the annual budget approval process, which poses a challenge for project management across multiple years.

The 2018 FCSAP Evaluation identified climate and geography as important drivers of project costs, which can be higher than average due to the shorter field season, the effect of the extreme cold on equipment and the remoteness of contaminated sites without road access. These operating conditions were identified by NCSP evaluation interviewees as factors requiring budget flexibility. The lack of multi-year funding was identified by the 2018 FCSAP Evaluation as a challenge, particularly affecting the pace and progress of work at larger sites. However, the evaluation did not find evidence of how widespread or consequential this challenge was for overall FCSAP efficiency.

Limited Project Resourcing

It was suggested that moving the funding decision-making process to NCSP Headquarters in 2014 is the reason for budgeting decisions being made without full appreciation of the implications for smaller regional projects. It was noted by interviews that the change has broader implications in the North because budgets require more flexibility due to the unpredictable weather. It was further noted that while NCSP wide budget cuts initially started with discussion of a 15% holdback, an additional 5% cut was also required with regional offices struggling to manage these budget reductions internally.

Staffing and available expertise were identified as issues by respondents. It was expressed that the larger (i.e., FMRP and GMRP) remediation may not be inadequately resourced and the scope of available expertise, limiting the front-end loading needs of these projects. The capacity of the Program Technical Office was also identified as an issue. It was suggested that project officers are responsible for too many sites to offer sound advice with only crisis situation receiving full consideration. Additionally, it was expressed that there's a need to build more environmental, health and safety capacity within NCSP.

4.3 Performance Data

Key Findings: The quality of performance data is limited by challenges, such as quality of contractor data; the accessibility of project status updates; and absence of performance targets.

Extent Performance Data are Collected and Reported

Collection and Reporting of Performance Data

While there is evidence that NCSP performance data is regularly collected, reported and shared with stakeholders internal and external to NCSP, there are issues with its comprehensiveness.

Since 2014, performance measurement for NCSP has been guided by two frameworks — the Performance Measurement Strategy and the Program Information Profile. Many of the indicators are the same or similar in nature, however, those in the Performance Measurement Strategy are raw counts, while those in the Performance Information Profile are expressed in terms of progress against targets.

Challenges with liability and reporting were commonly raised by interviewees. For example, the practice of “zeroing out” liability when sites move into monitoring was flagged. Respondents for the 2018 FCSAP Evaluation identified challenges around the measurement and estimation of remediation liabilities, including shifts in the guidance provided by the Treasury Board Secretariat and inconsistency among custodians in carrying out these activities. NCSP evaluation interviewees also indicated that risk reporting was conducted only to meet the minimum due diligence requirements, whereas a more fulsome approach would be required to reflect risk as a driver of project cost. It was noted that the recent simplification of quarterly reports eliminated reporting the most important project risks, which this respondent recommended reintroducing. The 2018 FCSAP Evaluation recommended improving the program’s ability to “report on its contribution to reducing risk to the environment and human health, which is arguably its most important outcome, in a way that resonates with Canadians.”

Interviewees made several suggestions for improved performance data, including earned value, project staffing (numbers, gender and Indigenous), community and Indigenous involvement, training, environment, health, and safety. Some interviewees suggested more comprehensive collection of cost information at a detailed level (e.g., cost per cubic meter to move tailings one kilometre). A detailed database of this nature, with assumptions and site locations, would be of particular assistance at the conceptual phases of remediation projects. It was suggested that the Program Technical Office would be the appropriate organization to develop and maintain such a database. Reviewing the quality of contractors’ data on suppliers and employees was also recommended, as was the tracking of Aboriginal Opportunity Considerations (AOC) commitments.

Sharing of Performance Data with Partners and Other Stakeholders

Based upon the document review, there is limited sharing of program performance data with external stakeholders, in particular Indigenous partners.

Information shared with Indigenous partners (project level)	Information shared with general public (departmental website)
<ul style="list-style-type: none"> - Overall budget - Employment data - Subcontracting data 	<ul style="list-style-type: none"> - Before and after photographs of site remediation are provided - Data related to metal analysis - Water sampling

External interviewees identified that how information is shared could be improved by offering project status updates that are:

- Translated into Indigenous languages;
- Written using straightforward terms;
- Providing opportunity for community dialogue; and
- Providing paper and video copies because there is a lack of access to computers and/or the Internet.

It was further emphasized the importance of ensuring that Elders understand project updates. Elders are critical to successful engagement activities since they advise their communities. If the Elders are unable to participate meaningfully in engagement activities, the support and advancement of a project could be impacted. The GMRP was identified as a project that was more accommodating in this respect, with videos in Indigenous languages (in CD format) and delivery of presentations in English with simultaneous translation.

4.4 Partnerships

Key Findings: Partnerships between the federal, territorial and Indigenous governments, and others are recognized as integral to the success of NCSP. With the partnerships between the federal and territorial governments generally productive, those with Indigenous governments and partners have been strained and trust has been eroded.

Implementation of a partnership model for some remediation projects has resulted in marked improvement in relationships with some Indigenous groups in the last few years.

Extent Partnerships Contribute to the Achievement of NCSP Outcomes

Utility of Existing Partnerships

There is clear evidence that partnerships between federal, territorial and Indigenous governments, and others, are integral to the success of NCSP. While partnerships among federal and territorial parties have generally been productive, those with Indigenous governments and partners have been strained. There is evidence of improvement in these relationships for some remediation projects in recent years.

Breadmore & Lafferty (2015) concluded that the engagement processes used in the Discovery, Colomac and Great Slave Lake projects have led to effective long-term partnerships with communities:

“Through NCSP, positive relationships and partnerships have been forged with many Aboriginal governments and communities. Contaminants and Remediation Division’s relationship with the Yellowknives Dene First Nation on the Discovery Mine Project continues today through long-term monitoring involvement and third-party activities at the site. The partnership formed between Aboriginal Affairs and Northern Development Canada and the Tlicho in the early stages of the Colomac Project remain strong this day, as evident by a letter of support received from the Tlicho for the aquatic-terrestrial sampling permit requested by Aboriginal Affairs and Northern Development Canada in 2013 and through data sharing under the Marian Lake Watershed Stewardship program. The Great Slave Lake Remediation Project has benefitted from these past relationships and partnerships and has strong project support within the Akaitcho Dene and Métis communities. It is anticipated that these relationships will strengthen as the project progresses”¹².

Internal interviewees stated that partnerships have been a critical element of reconciliation discussions, and have adjusted how NCSP manages projects.

A partnership model is increasingly being used for larger projects, such as FMRP and GMRP. Developing long-term partnerships has been a priority for the GMRP and it was suggested as a reason why CIRNAC has maintained a local senior presence. CIRNAC and Government of NWT are co-project proponents of the GMRP. Governed by a cooperation agreement and supported by a joint management structure, the partnership was felt to be very effective from working level through to senior management. Federally, Department of Fisheries and Oceans and Environment and Climate Change Canada are partners involved in the project’s regulatory aspects. Indigenous governments, specifically the Yellowknife Dene First Nation and the North Slave Métis Alliance, are also important partners. The relationship with these groups has improved markedly in the last few years. They have been involved in developing the final closure and reclamation plan for water licensing (under consideration by the Mackenzie Valley Land and Water Board). Part of the development of the closure plan was extensive surface design, which involved a collaboration of First Nations, federal partners and the public. The City of Yellowknife and Alternatives North (a social advocacy group) also served as partners. This was also the experience with the FMRP environmental assessment process where input from partners occurred prior to submission to the Yukon Environmental and Socio-economic Assessment Board. These collaborative approaches are considered to lead to higher quality projects, as there is broad support from all stakeholders.

The relationship with Indigenous partners was described in mixed terms. Internal interviewees characterized relationships as being sometimes challenging, but professional and open with the aim to get the best results on both sides. External interviewees, however, were critical of the program’s partnership efforts with Indigenous parties. External interviewees indicated that there were difficulties with: consultation and engagement; access to economic development opportunities; and, limited involvement in project decision-making.

Some of the same interviewees observed that with a mandate from the Prime Minister for nation-to-nation negotiations, it is expected that partnerships with Indigenous peoples will improve.

¹² [Breadmore, R. E. and Lafferty, G. J. 2015. Mine Closure and First Nations—Social Licence Strategies for Effective Community Engagement.](#)

4.5 Consultation and Engagement

Key Findings: There is some evidence that NCSP has met its statutory obligations to consult with Indigenous parties. Although there was broad agreement that meaningful consultation and engagement have the potential to support reconciliation and socioeconomic development, there was little evidence that this had occurred over the evaluation period. The widely supported GMRP surface design engagement process and the QRA engagement process are notable examples, which have yielded promising approaches.

Extent Consultation and Engagement has Produced Results

Design and Delivery of Consultation and Engagement

While there is some evidence that NCSP has met its statutory obligations to consult with Indigenous parties, there is limited evidence that meaningful consultation and engagement to support reconciliation and socio-economic development occurred over the evaluation period. The program has, however, actively sought to improve the quality of consultation and engagement and efforts have yielded promising approaches, such as the GMRP surface design, QRA and socio-economic development strategy engagement processes.

Definitional Issues

It was found that there was widespread inconsistency in the use of the terms “consultation” and “engagement”, and terms describing stakeholder groups involved in contaminated sites projects amongst interviewees. These definitional challenges are important because they have shaped the expectations of all stakeholders involved in contaminated site remediation projects.

Among interviewees, some defined “consultation” as the legal duty to consult where there is a right or an asserted right, and “engagement” as a less formal process of ongoing two-way dialogue, from the time an environmental assessment decision is rendered, and working with a broader group of stakeholders with vested interest, rather than asserted right, in the project. Other interviewees held the opposite view.

It was further found the inconsistent use of terms describing groups involved in contaminated sites projects. For example, “partner” and “stakeholder” are regularly conflated, an important issue since the former conveys a level of ownership, including joint decision-making and other associated expectations that the latter does not. Terms such as “rights holders,” “intergovernmental participants,” “signatories”, and “parties” were viewed as acceptable.

The documentation review found similar definitional challenges. For example, the NCSP Management Policy and the more recent Major Projects Manual establish the requirements for consultation and engagement with Indigenous peoples and Northerners. The Corporate Procedures Manual notes that the requirement to consult is based on both the legal duty to consult as well as non-legal duties stemming from reconciliation and the promotion of Indigenous partnership and participation in projects. The non-legal duty “arises from a guiding principle of the CIRNAC Contaminated Sites Management Policy, which is to promote Indigenous and northern participation and partnership in the identification, assessment, decision-making, and

remediation/risk management processes related to contaminated sites.” Whereas, the Major Project Standards and Guidance Manual distinguishes between consultation and engagement activities, in which consultation refers to various formal obligations, while engagement refers to meaningful and effective relationship-building.

Indigenous interviewees were generally of the view that consultation has only been undertaken because legal requirements compelled the Crown to do so, and that the Crown followed the “letter of the law only, not respecting the spirit of reconciliation.” Other external interviewees recommended that federal engagement processes occur from the project start, and be driven by reconciliation considerations and government-to-government relationships, rather than scientific and engineering needs. It was suggested that “social licence” be treated like a regulatory permit, a mandatory step prior to the start of a remediation project to obtain “a community’s acceptance of an undertaking that they believe has the potential to have an effect on their well-being”¹³.

Meaningful Consultation and Engagement

The documentation review found that the standards for consultation and engagement for major projects are established in the Major Project Standards and Guidance Manual. Major projects are required to develop and execute a consultation and engagement management plan, containing an Indigenous and stakeholder map, a consultation and engagement framework and process and “variations to Aboriginal and other stakeholder engagement activities across the project life cycle.” Major projects are also required to employ a consultation and engagement manager “responsible for consulting with and engaging Aboriginal groups and other affected stakeholders to meet project planning, regulatory assessment (e.g., environment assessment) and ongoing project execution objectives.” NCSP project documentation confirmed that consultation and engagement management plans have been developed, and consultation and engagement managers retained, where required.

External interviewees defined meaningful consultation and engagement as a process that begins with informed consent, combines Indigenous traditional knowledge and Western technical and scientific knowledge (building “a bridge between those two worlds and put it into these processes”), where the federal government actively listens to the input provided and clearly explains how this input will be used to make future decisions about site remediation. The 2018 FCSAP Evaluation noted that meaningful engagement contributes to the creation of social licence, buy-in and confidence among stakeholders, and, furthermore, establishes a greater imperative for government to follow through on promises.

The consultation and engagement processes were described by Indigenous interviewees as haphazard and inconsistent, with limited learning across remediation projects. These respondents expressed that decisions are still being made without their involvement and that NCSP did not recognize the value of broadly participatory processes where all parties have legitimate input into the development of options and objectives. Many internal interviewees identified similar shortcomings, acknowledging that while consultation and engagement had improved considerably over the evaluation period, “older thinking” still persisted in pockets. Several respondents stressed the need to build relationships based on trust with Indigenous parties. It was also suggested that the NCSP staff responsible for engagement be involved and embedded in the affected communities on a daily basis, to participate in community events and ensure NCSP clearly understands how to interact with communities.

¹³ [Breadmore, R. E. and Lafferty, G. J. 2015. Mine Closure and First Nations—Social Licence Strategies for Effective Community Engagement.](#)

An example of a meaningful engagement process offered by interviewees was the one supporting the plans for the remediation of the surface of the Giant Mine Site. Issues with the GMRP's attempt to obtain a "social licence to operate" through meaningful consultation and engagement triggered an environmental assessment under the *Mackenzie Valley Resources Management Act*. The approval of the environmental assessment in 2014 included 26 measures to be addressed before the water licence process, including improvements to the consultation and engagement process. This led to the widely respected surface design engagement process.

NCSP Capacity for Meaningful Consultation and Engagement

External interviewees were generally of the opinion that CIRNAC views remediation primarily as a technical exercise, and does not make enough effort to include affected people and communities. These interviewees also generally expressed concern that there was an absence of culturally sensitive interpersonal skills to meaningfully execute consultation and engagement.

External interviewees further suggested that remediation project teams be given a clear reconciliation and recognition mandate to lead remediation processes, with federal and contracted technical and scientific staff brought in to address technical matters only on an as-required basis. Others suggested retaining an independent outside firm to manage the consultations, as had occurred for the GMRP surface design and QRA processes.

The remoteness of affected communities amplifies costs of consultation and engagement in the North. With an engagement budget of \$25,000 annually, the regional Great Slave Lake project team could only travel to the affected community once. In the case of the Port Radium remediation project, a four-hour charter flight is required to travel to Déline and another 1.5-hour charter flight to the mine site.

Capacity of Indigenous Stakeholders to Engage Meaningfully in Consultation and Engagement

Capacity issues directly impact the success of site remediation projects. Indigenous stakeholders have been overwhelmed with requests to participate in consultation and engagement processes flowing from a wide variety of federal, territorial and private sector initiatives. Challenges to meaningfully contribute is a product of limited financial and human resources.

Amongst all interviewees it is recognized that capacity issues among Indigenous stakeholders directly impact the success of site remediation projects. It was suggested that Indigenous stakeholders do not have the expertise required to be fully involved in the decisions related to remediation projects, which are very technical in nature. As a result, they are required to contract external expertise, which is viewed as contributing to delays in the remediation projects.

Federal funding is provided to Indigenous parties (and others) to participate on remediation working groups, and retain technical and engagement expertise. However, external interviewees generally viewed the support to be inadequate, and in some cases, external support simply could not be maintained.

4.6 Socio-economic Benefits

Key Findings: There has been some improvement in the accessibility of employment and business opportunities for Indigenous peoples and Northerners. However, communities have not been adequately consulted on their specific economic development needs.

The ability of Indigenous and northern communities and businesses to build the required capacity to be ready as opportunities arise has been negatively impacted by the lengthy procurement lead time, contract uncertainty and limited financing options.

Bonding and insurance have been unnecessarily onerous, and federal procurement policies, procedures and processes inflexible. Penalties for firms failing to meet Indigenous employment and contracting commitments have been too small to be an effective deterrent.

Extent NCSP has Contributed to Socio-economic Benefits

Contribution to the Socio-economic Benefits of Remediation

There is evidence that Indigenous and northern communities are benefitting from the socio-economic benefits of contaminated site remediation, but despite some recent improvements, there is room for improvement.

Accessibility of the Socio-economic Benefits of Remediation

Indigenous and northern communities experience many barriers to accessing socio-economic benefits of contaminated site remediation, including uneven distribution of opportunities, challenging procurement processes, and lack of policy coverage to specifically target northern firms and job seekers.

Training, employment and contracting were identified by most interviewees as the primary socio-economic benefits flowing from contaminated site remediation projects to Indigenous and northern communities. A recent study noted that training and capacity building was generally built into NCSP projects either through contribution agreements or through mandatory or point-rated procurement criteria, such as environmental sampling, environmental monitoring, water treatment and heavy equipment.¹⁴

It was observed that “as long as there is mining, there will be remediation needs”, and that, by building and maintaining a population that is skilled and trained, mining firms will have access to and use much more local content, and thus money will flow into local communities and remain in the North. It was further suggested that the long duration and the expected potential revenues associated with remediation offer the perfect conditions to build a viable and sophisticated Indigenous and northern supplier base that could execute at scale in the North and elsewhere.

¹⁴ Stratos Inc. 2019. Socio-economic Approaches of the Northern Contaminated Sites Program.

There was high correlation among external interviewees that while there had been some improvement in the accessibility of employment and business opportunities for Indigenous peoples and Northerners, there was room for improvement. Respondents felt that their communities and businesses were not benefitting, and socio-economic benefits were not expected in the future, while others reported complete disengagement from the procurement process. Others observed that their communities were only just beginning to feel the impact of reformed procurement governance and processes. Others identified the lack of policy coverage to specifically target northern firms and employment.

The 2018 FCSAP Evaluation found some examples of job creation in Indigenous communities, but the jobs may be short term (because of the nature of the projects and also the incentive structures). It also found that FCSAP has contributed to capacity development and accumulation of human capital. Key informants felt that, even with these positive impacts, more could and should be done.

Identifying Community Socio-economic Development Needs

External interviewees were generally of the opinion that their communities were not adequately consulted on their specific economic development needs. One Indigenous interviewee stated that NCSP should not have any plan (“not even a draft plan”) before speaking to communities, and the program should work with Indigenous communities to determine their needs and then develop a plan from a “blank slate.” It was proposed that this occur during the project specification stage, to ensure that the economic opportunities flowing to Indigenous communities and businesses are optimized.

Interviewees identified job creation as a clear community need, however, bidders are required to identify those to be employed in bid documents, with named resources being required for more senior positions. Typically, the bidder’s in-house capacity is prioritized. Bidders have an incentive to use in-house resources because these resources are already on salary and the margins on these resources are much higher than external resources. This is particularly so for the more lucrative high skill and management positions. The result is to effectively block Indigenous people accessing employment, and particularly, senior management opportunities.

Training is another example of a community need. Interviewees stated that Indigenous students often did not succeed if training was held outside the community. A variety of reasons were offered, such as the limited appreciation of outside institutions for the specific circumstances of Indigenous students (e.g., barriers such as the high cost and irregularity of transport) and the colonial approach to teaching. Community-based training was recommended to increase the likelihood of student success.

The opportunity for Indigenous communities and businesses to network with potential bidders was also identified as a barrier to understanding community socio-economic development needs. Past events, such as “industry days”, were not felt to have been useful in this regard.

Understanding Local Context

Appreciation of the local realities of contaminated site remediation in the North is an important factor in the development of viable socio-economic development strategies for Indigenous and northern communities. Interviewees identified a limited understanding of the local realities of contaminated site remediation in the North as a major impediment. With very small communities and limited capacity, a much longer time is required in the North, when compared to the South,

to build the capacity of communities and businesses (e.g., develop business strategies, retain the required expertise, build the required inventories and form partnerships) to be ready as opportunities arise. Improving local knowledge and employing more local experts was recommended, with federal staff, “on the ground in these areas [to] understand the relationships and the specific needs and have contact with them.”

Procurement Lead Time

Many external interviewees observed that their communities and businesses were only brought into the procurement at the end of the process. This was felt to be far too late to accurately reflect the socio-economic development needs of communities in procurement, or to build the capacity of communities and businesses to competitively bid on procurement opportunities. It was suggested that procurement requirements be communicated early on, and provide a much longer procurement lead time. The methods of the DeBeers company were identified as best practice in this regard. DeBeers has held regular business opportunities events in Yellowknife with local businesses to discuss likely procurement requirements looking ahead three, six and 12 months.

Financing and Contract Certainty

To build a sophisticated supplier base in the North and financially viable Indigenous businesses, substantial upfront capital investment is needed to build the required capacity to be ready as procurement opportunities arise. In contrast to the South, the North does not have a network of Indigenous financial institutions and capital corporations that have a higher risk tolerance than mainstream banks and that provide developmental loans to Indigenous businesses at favourable interest rates. To raise capital, businesses in the North apply for financing through the mainstream banks. External interviews stated that with some contract certainty and clear contract parameters, northern businesses can obtain permits and bonding, finance the required equipment and build the required labour force.

Flexibility of Federal Procurement Policies, Procedures and Processes

AOCs and Procurement Strategy for Aboriginal Businesses (PSAB) set-asides are common tools used to preferentially award contracts to firms that use Indigenous labour and suppliers. Within the context of Canada’s trade agreements, the AOC and set-aside approach may currently be the only instruments for preferential procurement, however, interviewees had mixed views about their utility.

Some felt that while Indigenous-owned businesses were benefitting from procurement, Indigenous people were not necessarily being employed. Others felt that the inflexibility of AOC requirements hampered preferential structuring of larger remediation contracts. Some interviewees observed that the AOC and set-aside procurement approach can only be used if there is more than one Indigenous supplier for a particular good or service and if not, a more open procurement is required to be used. These interviewees felt that they are penalized for being the only firm in the region capable of providing the services. The PSAB set-aside process was described as “not straightforward” and “onerous.”

Unbalanced Bonding and Insurance Requirements

Several interviewees noted the imbalance of contract value and bonding requirements. One respondent cited a \$1 million set-aside contract that required a \$30 million bond, and a \$30 million liability shield for a \$500,000 contract was often provided. In the case of the former, the business

had offered to provide a deposit for the full value of the contract as a form of security, but the offer was declined. Since the magnitude of these bonds were well outside the risk appetite of the Indigenous and northern businesses, these procurement opportunities were passed over.

Commitments, Enforcement Mechanisms and Penalties

Lead firms are required to identify Indigenous employment and contracting commitments during the procurement process. If these commitments are not met, the federal government can rely on enforcement mechanisms and financial penalties. Enforcement has been rare and penalties are disproportionate to the importance of these commitments.

External interviewees agreed that the penalty applied to lead firms (i.e., prime contractor) failing to meet Indigenous employment and contracting commitments is far too small (two percent of contract value), and often, these large firms have the scale to absorb such penalties simply as a cost of doing business. Furthermore, ownership, joint venture and residency requirements are easily manipulated, and while the procurement and benefit requirements may be superficially fulfilled, the intended spirit of these are not being respected. Once contracts are awarded, penalties for those out of compliance with procurement requirements and bid commitments are rarely levied, and even if they are, the amounts are very small. Interviewees observed that if there were serious penalties (e.g., contract termination), that would act as a deterrent, and larger firms would take procurement requirements and bid commitments seriously (e.g., build those requirements and commitments into the risk register).

Leveraging Successes

Several successes related to socio-economic development were cited by respondents. For example, the FMRP innovative procurement process included a socio-economic benefits plan and scoring system co-developed with the affected First Nations, which flowed the direct benefits of the urgent works to these communities (e.g., contracts, training and employment). The Yukon Government has experimented with different contract delivery models to the benefit of Indigenous and northern communities and businesses. For example, fuel provision was contracted to Indigenous communities around the Faro area, for an amount of approximately \$200,000 per month.

The GMRP was identified as breaking new ground in building in socio-economic impacts, through a co-developed comprehensive socio-economic strategy, full-time economic positions in CIRNAC and the construction manager, a socio-economic advisory board, a labour-market study, hard targets for Indigenous procurement, and unbundling procurements. The “Socio-economic Strategy 2016–2021: Giant Mine Remediation Project” includes an analysis of local procurement best practices¹⁵.

Extent the NCSP Procurement Policy Procedure Was Effective

Procurement mechanisms are the main opportunities used by NCSP to maximize Indigenous socio-economic benefits. With AOC as a standard approach for NCSP projects, requirements can be tailored to a specific Indigenous group, and bidders earn technical points by committing to local involvement (e.g., employment, training and subcontracting). PSAB is a national strategy to support Indigenous businesses in securing federal contracting opportunities using mandatory set-asides, voluntary set-asides, joint ventures and partnerships. PSAB does not allow requirements

¹⁵ [Giant Mine: socio-economic approach to remediation](#)

to be tailored to a specific Indigenous group, and Indigenous-owned companies or joint venture companies anywhere in Canada are eligible to bid on Request for Proposals, for this reason, AOCs are favoured over set-asides.

NCSP has used combined AOC/PSAB approaches, “whereby a set-aside policy is applied, limiting bidders to Indigenous-owned businesses, and applying AOC criteria for a more focused utilization of local capacity.” In addition to AOC and PSAB, the program has introduced a supply arrangement with Indigenous priority for small construction projects under \$1 million.

Challenges for the AOC approach included competing opportunities or disinterest from Indigenous groups in bidding on remediation contracts; defining which Indigenous communities are eligible given that some Comprehensive Land Claims Agreements are still under negotiation; and the risk of contractors failing to meet commitments. Challenges for the PSAB approach included that there is no guarantee that contracts will be awarded to a northern Indigenous company; if Indigenous capacity is in short supply, then this may result in there being no compliant bids; the complexity of PSAB requirements; and the often insufficient capacity to form businesses, joint ventures or partnerships¹⁶.

4.7 Gender-Based Analysis Plus (GBA Plus)

Key Findings: GBA PLUS considerations are not fully integrated into NCSP. Performance measurement of gender-related impacts is limited to employment and workforce training.

Extent to Which GBA Plus is Applicable to NCSP

A majority of interviewees were unfamiliar with the federal government’s GBA Plus initiative, however, most supported equal opportunities for females and males in contaminated site remediation projects. Interviewees were not aware of any of the other diversity provisions of GBA Plus.

The FCSAP funded GBA Plus analyses for Tundra Mine, Giant Mine and Bullmoose-Ruth/United Keno Hill Mine found the following:

- Men are more represented on remediation projects than women, particularly in construction phases. In the North, there is much higher representation of men in related work sectors such as trades, transportation and equipment operations;
- The physical nature of construction work means that Elders and people with disabilities are at a disadvantage during the construction phase; and
- All people benefit from the impacts of site remediation in terms of the reduction of environmental contamination.

The views presented in interviews included the perspective that special efforts to promote female representation were not necessary. It was further stated that there are no institutional barriers to women being involved in contaminated site remediation projects and that there has been a good

¹⁶Stratos Inc. 2019. Socio-economic Approaches of the Northern Contaminated Sites Program.

balance between men and women and the types of job each perform. Several interviewees indicated that there is already an even distribution of males and females across remediation projects.

In contrast, other respondents supported special measures to promote inclusiveness, observing that the mining industry is male-dominated and that remediation projects seek ways to be more accessible to female workers. Requirements to facilitate female employment (e.g., such as health and safety, separate dormitories and bathrooms, on-site clinics and daycare) could be stipulated in contracts and make females feel more comfortable being employed in an environment that is dominated by a male workforce. The perception that environmental work, monitoring and management were areas that women could be involved in, as these were less physically intensive than the general labour and heavy equipment operation usually performed by males was also noted.

Finally, a specific concern was raised regarding the welfare of women on remediation sites. One interviewee cited a specific issue at a site, which was viewed to have been mishandled. This interviewee also stressed that women need to be safe but those making these decisions are male and do not understand safety from the female perspective.

Extent to Which NCSP Tracks Gender-Related Impacts

Two gender-related performance indicators are tracked, female employment and workforce training. During the scope of the evaluation, 4,318 women were employed at northern contaminated sites¹⁷.

5. Findings—Effectiveness

5.1 Risks to Human Health and the Environment

Key Findings: Across all classes of sites, the percent that were in active remediation and long-term monitoring between 2014–15 and 2017-18 consistently increased from 9.5% to 16.8%.

Risks to Human Health and the Environment are Identified and Assessed

Over the evaluation period, site assessment occurred most frequently in Nunavut and least frequently in NWT and Yukon. Assessment expenditures were highest in 2014–15 and 2015–16 for a total of \$1.9 million for the NWT, while there were no assessment expenditures in Yukon or Nunavut over the entire evaluation period.

¹⁷ The total does not take into account whether the same employees are counted for multiple years.

Remediation Plans

Over the evaluation period, the number of remedial action plans / risk management plans under development or completed has remained static across all regions: three in Yukon, 25 in NWT, and 15 to 17 in Nunavut¹⁸.

Care and maintenance is actively occurring at the following northern contaminated sites:

Yukon	NWT
– Clinton Creek	– Cantung Mine
– Faro Mine	– Port Radium Mine
– Mount Nansen Mine	– Terra 1
– United Keno Hill Mine	

The available data for sites under active remediation or in long-term monitoring is restricted to the percentage of high priority sites (sites classified as Class 1 in the National Classification System) in steps 8 to 10 (implement Remediation / Risk Management strategy, confirmatory sampling and final reporting and long-term monitoring).

The annual target for the percentage of contaminated sites rated as very high or high with mitigation strategies in place is 100% by March 31 of each year.

Extent to Which New Risks are Being Brought into the Risk Management Regime in an Effective Way

The NCSP risk management approach is established through the NCSP Integrated Risk Management Procedure. Risks are typified as legacy or activity, and classed as technical, management or strategic. While risk management occurs on an ongoing basis throughout the year, an annual risk update ensures that all relevant risks to the achievement of the NCSP Contaminated Sites Policy Objective and the NCSP Strategic Plan has been identified and are being managed. This program-level exercise is complemented by a periodic risk refresh every three years or held at the discretion of the NCSP Executive Director. At the project level, risks to the achievement of project objectives (i.e., reduction of risks of impacts to environment and human health) are reviewed annually. All projects that are funded or are in the process of being funded are assessed. These exercises result in updated risk registers and risk profiles.

Scientific Evidence on Extent of Risk to Human Health and the Environment

The specific risks of northern contaminated sites to human health and the environment are diverse. Some examples follow.

- The Faro Mine site contains 70 million tonnes of tailings and 320 million tonnes of waste rock covering 25 square kilometres. These contain high quantities of heavy metals and pose significant risk to the environment. The site is occupied by three traditional Kaska Nations, and is upstream from Selkirk First Nation.
- Site assessments at the United Keno Hill Mine site identified elevated concentrations of zinc, arsenic, cadmium, lead and other metals in groundwater, 4.6 million tonnes of tailings with elevated concentrations of metals, the presence of polychlorinated biphenyls and

¹⁸ Treasury Board Secretariat, Federal Contaminated Sites Inventory (FCSI). Open Datasets.

asbestos, and physical features and hazards such as unsealed mine openings, steep loose rock piles, open pits and unstable surface structures.

- Mining operations at the Giant Mine between 1951 and 1999 resulted in 237,000 tonnes of arsenic trioxide dust (60 percent arsenic), which is stored on site in underground mine workings and storage chambers. While this subsurface arsenic presents the primary risk to human health and the environment (i.e., air, water, land and biodiversity), above ground, there are 17.5 million tonnes of tailings, contaminated with arsenic, covering 95 hectares, 100 buildings containing asbestos and arsenic, eight open pits and 35 mine entrances posing safety risks.
- The Tundra Mine site includes arsenic and metal contamination, the majority contained in Russell Lake, a 62.4 hectares tailings containment area of 0.2 million cubic meters of tailings and 1.2 million cubic meters of tailing water. Seepage from Russell Lake was affecting downstream bodies of water, and the containment area and mine were determined to pose a public health and environmental risk. In 2018, the site was declared fully remediated.

Key Informant and Case Study Interviewee Perspectives About Risk Identification and Management

The 2018 FCSAP Evaluation stated, “Virtually all key informants believe that FCSAP has reduced risk to the environment and human health stemming from federal contaminated sites. They pointed out that the process of characterizing the nature and extent of contamination at particular sites, and ultimately addressing it through remediation/risk management, can reasonably be expected to reduce the risks those sites pose to the environment and human health.” Nearly all NCSP stakeholders interviewed broadly agreed with this finding, with notable exceptions as follows.

The “cumulative effects of Giant Mine,” such as arsenic contamination outside the mine site in the adjacent community of the Yellowknives Dene First Nation was identified as an unresolved concern, particularly the accompanying psychological stress this placed on the community members. For example, the arrival of spring winds, which is traditionally a time of celebration since winds disperse plant seeds, creates fear in the community because the wind disperses arsenic contamination. Community members no longer hang clothes outside to dry, and many still boil water even though the water is safe to drink.

External interviewees reported that their traditional knowledge of the area was rich because they had been making direct observations of the land (i.e., monitoring) for centuries. These interviewees felt that CIRNAC did not adequately recognize or know how to work with Indigenous knowledge, losing the opportunity to apply Indigenous knowledge and knowledge systems to risk management. Some internal interviewees agreed, noting that NCSP is a Western science- and engineering-based program, and it lacks Indigenous guidance on how to incorporate traditional knowledge.

The GMRP QRA process was identified as a notable exception. Closure options for Giant Mine used extensive engagement processes with Yellowknives Dene First Nation, North Slave Métis

Alliance, the City of Yellowknife and other community and government stakeholders¹⁹ as part of the approval process to commence remediation activities, an independent QRA was required. This included identification of acceptability thresholds developed by potentially affected communities. As the backdrop to this work, reconciliation drove the need for meaningful engagement of Indigenous people on actions affecting their lands and resources. The engagement strategy was designed to ensure that stakeholders understood and were consulted throughout the QRA process, that affected communities participated in the development of acceptability thresholds, and that other input from stakeholders was documented for consideration in project design and execution. The engagement process was intended: to identify failure scenarios that did not occur to the QRA team; to include these in the QRA based on criteria relevant to potentially affected communities; to ensure community acceptance and support for the results of the QRA; and to improve the design and long-term oversight for the project. The QRA engagement process was widely supported by NCSP interviewees.

5.2 Improved Access to Employment and Business Opportunities²⁰

Key Findings: Hours worked per employee increased by just over 40 hours. The number of workers trained increased by 94, however, the training hours per worker decreased by 58 hours during the evaluation period. Training for female workers fell from 30 to 19 hours over the same time period.

On average, 59% of contracts and funding agreements were provided to Indigenous and northern stakeholders over the evaluation period.

Engagement of Indigenous and Northern Communities

The NCSP target of 50 community consultations per year was met or exceeded each year, increasing throughout the evaluation period.

Table 3: Number of Engagement Events, by Year

Event	2014-15	2015-16	2016-17	2017-18
Community Consultations	50	114	174	246
Media Events	17	42	43	228

The number of person-hours of employment has increased across all categories (i.e., northern, Indigenous and female) between 2014–15 and 2017–18 (Table 4). While there has been a decline in the number of Northerners and females employed, across all categories, the number of hours worked by each individual has increased, particularly for Northerners.

¹⁹ Christoffersen, L, Reinecke, S, Shoesmith, M, McKennirey, E, Pilgrim, L and Rae, D. 2019. Mine Closure—Innovative community engagement for the quantitative risk assessment for a mine closure and reclamation plan. Australian Centre for Geomechanics, Perth.

²⁰ Crown-Indigenous Relations and Northern Affairs Canada. 2019. Socio-economic Roundup, 2014–15 to 2017–18.

There was a substantial rise in the number of individuals trained across all categories in 2015-16. However, during this peak period, the number of hours of training received by each individual was substantially lower than in all other years (Table 5). There was a notable decline in the number of hours of training provided to each individual between 2014–15 and 2017–18, particularly for women.

Table 4: Employment, by Year

Employment		2014–15	2015–16	2016–17	2017–18	Total ²¹
Northern (including Indigenous)	Number	1,059	1,233	758	976	4,026
	Person hours	363,956	337,490	329,583	442,670	1,473,699
	Hours/person	344	274	435	454	1,507
Indigenous	Number	373	451	310	475	1,609
	Person hours	162,680	163,473	112,485	216,850	655,488
	Hours/person	436	362	363	457	1,618
Female	Number	1,143	1,344	904	927	4,318
	Person hours	199,734	152,003	135,015	181,236	667,988
	Hours/person	175	113	149	196	633

Table 5: Workforce Training, by Year

Workforce training		2014–15	2015–16	2016–17	2017–18	Total ²²
Northern (includes Indigenous)	Number	235	1,869	421	542	3,067
	Duration (hours)	14,102	11,272	18,216	17,638	61,228
	Hours/person	60	6	43	33	142
Indigenous	Number	110	1,268	208	321	1,907
	Duration (hours)	10,560	5,572	9,715	10,991	36,838
	Hours/person	96	4	47	34	181
Female	Number	81	501	155	175	912
	Duration (hours)	2,463	2,674	4,574	3,311	13,022
	Hours/person	30	5	30	19	84

The annual target for the Indigenous and/or northern supplier dollar value for contracts/ funding agreements is 60%. The target was exceeded in 2015–16 and 2016–17 (67% and 62% respectively), but not met in 2014–15 or 2017-18. On average, between 2014–15 and 2017-18, performance fell slightly short of the target (59%).

²¹ These totals represent the sum of all of the years referenced, and do not take into account whether the same employees are counted for multiple years.

²² These totals represent the sum of all of the years referenced, and do not take into account whether the same trainees are counted for multiple years.

Table 6: Purchase of Goods and Services (rounded), by Year

Supplier		Value of Goods and Services (\$ billion)			
		2014–15	2015–16	2016–17	2017–18
Northern (includes Indigenous)	Number	933	955	1,052	1,103
	Value	\$0.05	\$0.07	\$0.06	\$0.08
Indigenous Suppliers	Number	203	182	168	176
	Value	\$0.02	\$0.03	\$0.03	\$0.06
Total All Suppliers	Number	1,789	1,614	2,013	2,092
	Value	\$0.10	\$0.10	\$0.09	\$0.13

5.3 Reduced Federal Liability

Key Findings: While the target of 95% for expenditures that are liability reducing was exceeded, total liability of northern contaminated sites has increased by \$0.58 billion (including FMRP and GMRP) and \$0.11 billion (excluding FMRP and GMRP) over the evaluation period.

The NCSP target is to reduce liability at all sites (excluding FMRP and GMRP) by \$0.15 billion by 2020, using the liability balance at March 31, 2017, as the baseline.

The total liability as of the start of the evaluation period (April 1, 2014) was \$2.38 billion, and the total liability at the end of the evaluation period (March 31, 2018) was \$2.96 billion—an increase of \$0.58 billion (including FMRP and GMRP) and \$0.11 billion (excluding FMRP and GMRP). Performance is on track to meet the target to reduce liability at all sites (excluding FMRP and GMRP) by \$0.15 billion by 2020.

The NCSP target is 95% of annual expenditures at all sites, the percentage of expenditures that were liability reducing exceeded the target for all regions and all fiscal years (Table 7).

Table 7: Liability Reducing Expenditures (rounded), by Year

Fiscal year	Expenditures (\$ million)		Percentage of Liability Reducing Expenditures
	Total Expenditures Reducing Liability	Total Expenditures	
2014–15	\$166.46	\$168.64	98.60%
2015-16	\$145.44	\$150.66	96.63%
2016-17	\$136.58	\$137.27	99.29%
2017-18	\$175.31	\$176.90	98.89%

NCSP liability balances represent, “CIRNAC’s remaining obligation for contaminated sites at the financial statement date arising from past transactions or events, the settlement of which is expected to result in the future sacrifice of economic benefits. The measurement of the liability considers the net present value of future obligations at the financial statement date, as well as the likelihood and measurability of risk contingencies.”

The FCSAP Evaluation reported that respondents viewed aggregate liability at federal contaminated sites across the country as unchanged since the inception of the FCSAP. However, in qualifying this response, respondents felt reductions at individual contaminated sites had occurred, and aggregate figures were disproportionately driven by a small number of large and complex sites, such as the Faro and Giant sites. NCSP stakeholders were generally in agreement with these statements. Improved costing methods combined with poor initial contaminated site assessment was also offered as an explanation of the increase in liability of the Faro and Giant sites (total \$1.66 to \$2.13 billion) over the evaluation period.

6. Conclusions

6.1 Full Incorporation of Reconciliation and Socio-economic Development

There is a clear and ongoing need for NCSP or a similar program to address outstanding liability and risks to the environment, and human health associated with contaminated sites in the North.

The remediation of northern contaminated sites is viewed as an important contributor to reconciliation from socio-economic and environmental perspectives.

6.2 Build on Success to Address Longstanding Issues

While there have been challenges with NCSP governance, the program is aware of these shortcomings and has introduced a variety of solutions to improve the situation. In this regard, the program has had considerable success, displaying flexibility and adaptability, by introducing solutions to reflect regional and local contexts, and applying and scaling the lessons learned from project to project. NCSP Headquarters and regional governance also improved substantially over the evaluation period.

Contaminated site remediation remains a primarily technical exercise, focussing on engineering and environmental matters. Project teams are largely staffed by scientific, engineering and other technical experts without consultation and engagement expertise, and without Indigenous background.

The NCSP project management approach is generally viewed as sound, robust and flexible. The unique scope, scale and context of contaminated site remediation projects in the North is better suited to multi-year planning and budgeting cycles, ring-fenced funding and generous contingencies.

Partnerships among federal and territorial parties have generally been productive, those with Indigenous parties have been strained and trust has been eroded. The widely respected GMRP surface design and QRA engagement processes have made substantial strides in rebuilding trust and respect, which are core to a successful partnership, and advancing the GMRP with the broad support of all stakeholders. The federal reconciliation agenda offers the opportunity to scaling these proven practices across the program.

There was broad agreement that meaningful consultation and engagement have the potential to support reconciliation and socio-economic development, and reduce overall project risk. The GMRP surface design and QRA projects have yielded promising consultation and engagement approaches.

Contaminated site remediation can contribute to socio-economic development in the North, however, the evidence indicates that this has not been realized by Indigenous and northern communities and businesses.

The program should take full advantage of GBA Plus for working with diverse populations and complex operating environments, which characterize the North as an area for improvement.

6.3 Tell a More Comprehensive Performance Story

It is evident that NCSP has a strong focus on effectiveness but the program is not able to provide its complete effectiveness performance story. While project performance data is regularly collected, reported and shared with stakeholders internal and external to NCSP, there are issues with its comprehensiveness.

7. Recommendations

Addressing the following recommendations should occur in concert with all affected parties, especially Indigenous communities and businesses. It is recommended that:

1. NCSP should be recalibrated using the lens of reconciliation. From the outset, all stakeholders should be jointly involved in the development of “NCSP of the future,” from conceptualization and design, through to implementation, ongoing management, and monitoring and evaluation. Recommendations two and three, derive from this overarching recommendation.
2. NCSP should strive to better understand the socio-economic needs of Indigenous and northern communities by working directly with communities at the project specification stage, to ensure that the socio-economic opportunities flowing to Indigenous and northern communities and businesses are maximized. This should include understanding the local realities, including what is realistically achievable; and, adapting federal procurement to the local realities of the North to better enable Indigenous and northern communities and businesses to competitively bid on procurement opportunities.
3. NCSP should ensure that remediation projects, currently largely driven by western scientific, engineering and technical requirements, emphasize a more people-centered, public participation process driven by reconciliation.
4. NCSP should fully embrace common industry project management best practices of front-end loading, stage-gating and earned value project management.
5. NCSP should review the program performance measurement framework, to address limitations such as sequencing of outputs and outcomes, adequacy of outcome definitions, indicators and strength of targets.

Appendix A: National Classification System for Contaminated Sites²³

Classification	Priority	Description
Class 1	High Priority for Action	The available information indicates that action (e.g., further site characterization, risk management, remediation, etc.) is required to address existing concerns. Typically, Class 1 sites show a propensity to high concern for several factors, and measured or observed impacts have been documented.
Class 2	Medium Priority for Action	The available information indicates that there is high potential for adverse impacts, although the threat to human health and the environment is generally not imminent. Typically, for Class 2 there is no direct indication of off-site contamination; however, the potential for off-site migration tends to be rated high and therefore some action is likely required.
Class 3	Low Priority for Action	The available information indicates that the site is currently not a high concern. However, additional investigation may be carried out to confirm the site classification.
Class N	Not a Priority for Action	The available information indicates there is likely no significant environmental impact or human health threats. There is likely no need for action unless new information becomes available indicating greater concerns, in which case the site should be re-examined.
Class INS	Insufficient Information	Although a minimum of a Phase I Environmental Site Assessment has been conducted for the site, there appears to be insufficient information to classify the site. In this event, additional information is required to address data gaps.

²³ CCME (2008). [National Classification System for Contaminated Sites: Guidance Document](#). Canadian Council of Ministers of the Environment: Winnipeg.

Appendix B: Northern Contaminated Sites Program Logic Model



Appendix C: Evaluation Matrix

Evaluation Issues and Questions		Document Review	Key Informant Interviews	Case Studies
Relevance				
1.	Is there a continued need for addressing the objectives and expected outcomes of the NCSP?	yes	yes	yes
2.	Does the NCSP continue to be aligned with Government of Canada priorities and CIRNAC mandate?	yes	yes	
Design and Delivery				
3.	To what extent is the current design and delivery of the NCSP supporting the achievement of expected outcomes?	yes	yes	yes
4.	To what extent is the governance structure clear, appropriate and efficient for achieving expected results?		yes	yes
5.	Are performance data being collected and reported?	yes	yes	yes
6.	To what extent has consultation/engagement with Indigenous peoples, communities and organizations as well as Northerners produced results (e.g. contributed to reconciliation; co-development)?		yes	yes
Effectiveness				
To what extent has the NCSP achieved results with respect to its stated outcomes:				
Immediate: Risks to human health and the environment are reduced.				
		yes	yes	yes
7.	Improved accessibility of employment and business opportunities for Indigenous peoples and Northerners.	yes	yes	
Intermediate: Liability associated with northern contaminated sites is reduced.				
		yes	yes	
Long-term partnerships are developed and maintained with Indigenous peoples and Northerners.				
Departmental Result: Land and resources in Indigenous communities and the North are sustainably managed.				
		yes		
8.	To what extent is staff, responsible for managing and reporting information on contaminated sites knowledgeable of the Treasury Board Secretariat <i>Policy for Accounting for Costs and Liabilities Related to Contaminated Sites</i> and related guidance and their application to the NCSP?		yes	
9.	To what extent is the NCSP contributing to socio-economic benefits for Indigenous and Northerners actors?		yes	yes
10.	To what extent is the NCSP Procurement Policy Procedure effective?		yes	yes
11.	Are there opportunities (i.e. notable best practices and lessons learned) for altering the design and/or delivery of the NCSP in order to improve its performance and the engagement of Indigenous communities in achieving expected outcomes?			yes
12.	Have there been any unintended outcomes (positive or negative) as a result of the Initiative?		yes	yes
13.	To what extent is a Gender-Based Analysis Plus (GBA Plus) applicable and to what extent does the NCSP track gender-related impact of the program?	yes	yes	