

**Research on the consideration of social impacts in impact
assessment processes applicable to Nunavik**

Final report

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LIST OF INITIALISMS

CEAA 2012	<i>Canadian Environmental Assessment Act, 2012</i>
CEAA	Canadian Environmental Assessment Agency
CIA	Cumulative impact assessment
COFEX-North	Federal Environmental and Social Impact Review Panel
EIA	Environmental impact assessment
ESIA	Environmental and social impact assessment
FEAP	Federal Environmental Assessment Panel
FPIC	Free, prior and informed consent
FSC	Federal Screening Committee
IAA	<i>Impact Assessment Act</i>
IAAC	Impact Assessment Agency of Canada
IBA	Impact and benefit agreement
ICR	Interim control regulations
JBACE	James Bay Advisory Committee on the Environment
JBNQA	<i>James Bay and Northern Québec Agreement</i>
KEAC	Kativik Environmental Advisory Committee
KEQC	Kativik Environmental Quality Commission
KRG	Kativik Regional Government
MCDS	Multi-criteria decision support
MELCC	Ministère de l'Environnement et de la Lutte contre les changements climatiques (the environment and the fight against climate change)
NILCA	<i>Nunavik Inuit Land Claims Agreement</i>
NMRIRB	Nunavik Marine Region Impact Review Board
RCM	Regional county municipality
SEA	Strategic environmental assessment
SIA	Social impact assessment

EXECUTIVE SUMMARY

This study outlines the challenges associated with considering social impacts in the environmental and social impact assessment processes applicable to Nunavik. Particular attention is paid to cumulative impacts, in order to highlight the social impacts of the cumulative changes induced by the projects, particularly on the way of life of the Inuit populations, as well as on their social structure and governance. This study is part of the mandate of the Kativik Environmental Advisory Committee to make recommendations to the governments responsible for the application of Section 23 of the *James Bay and Northern Québec Agreement* and to share its work with the authorities responsible for the other environmental assessment processes applicable to Nunavik. The data analyzed were obtained from a literature review, impact assessment documentation on a sample of projects, and ten semi-structured interviews with stakeholders at various stages of one of the environmental and social impact assessment processes applicable in Nunavik.

The starting point is the marginal place of social considerations in project impact assessment. This difficulty in integrating social impacts is rooted in the conceptual underpinnings of the most commonly used analytical method, impact significance assessment by environmental component. A shortcoming of this approach is that impact assessment does not at the outset consider that any change in an environmental component constitutes an impact, whether or not it is analyzed in relation to a specific issue. The alternative proposed in this report is the issue-based impact analysis approach. This consists in identifying the activities of a project that may constitute a source of impact, measuring the changes induced by these activities on the components of the environment and society, and analyzing them with regard to specific problems formulated in terms of issues in order to determine the impacts.

The data analyzed also highlights gaps in the availability of information on the human environment. This information is nevertheless essential for analyzing the social impacts of projects, which requires taking into account the characteristics of the host community, whose evolution is influenced by a number of factors that affect its ability to adapt to change. These shortcomings can lead to inaccurate and sometimes even contradictory predictions regarding the expected impacts of a project. The implementation of assessment as a tool for integrating environmental and social considerations in territorial and sectoral development is recommended. An alternative mechanism consisting of identifying seven to eight important issues for the development of the territory that must be taken into account in the analysis of individual projects and to monitor them in the long term is also suggested.

The Kativik Environmental Advisory Committee also notes the lack of a centralized information management system and the resulting difficulty in tracking the considerations taken into account at each stage of the environmental and social impact assessment up to the decision to authorize the project. To overcome this problem, the impact analysis grid, structured by issue, is proposed as an information synthesis tool for monitoring the analysis process at each stage and with all stakeholders in the process.

Finally, the generalization of impact and benefit agreements was discussed. It was emphasized that the social consequences of these measures to maximize project benefits should not be ignored. Since impact and benefit agreements have the potential to be a source of social impact, notwithstanding project support, a better reconciliation between public environmental and social impact assessment processes and impact and benefit agreement negotiation approaches is recommended.

INTRODUCTION

The Kativik Environmental Advisory Committee (KEAC) was created under Section 23 of the *James Bay and Northern Québec Agreement* (JBNQA). The KEAC is an advisory body to the responsible governments on the protection of the environment and the social milieu of Nunavik. In this regard, it is the preferred and official intermediary of the governments of Canada and Québec as well as of the Kativik Regional Government (KRG) and the northern villages. The KEAC is a tripartite organization made up of nine members, of whom the KRG, the Government of Québec and the Government of Canada each appoint three members.

In 2017, the KEAC initiated a reflection on the challenges associated with the consideration of social impacts by the four environmental assessment processes applicable in Nunavik. These four processes, which will be defined in section 1.1 of this report, are:

- The provincial process established by Section 23 of the JBNQA;
- The federal process established by Section 23 of the JBNQA;
- The process for the Nunavik Marine Region established by Article 7 of the *Nunavik Inuit Land Claims Agreement* (NILCA);
- The process established by the *Canadian Environmental Assessment Act, 2012* (CEAA 2012), replaced in 2019 by the *Impact Assessment Act* (IAA).

In 2018, in order to develop a picture of the situation and gain a good understanding of the issues, the KEAC commissioned Mr. Gilles Côté, Director of the Secrétariat international francophone pour l'évaluation environnementale (international francophone secretariat for environmental assessment, SIFÉE), to conduct research on the subject. The objective was to conduct a comparative analysis of the four environmental and social impact assessment (ESIA) processes applicable in Nunavik in order to identify the strengths and weaknesses of each, and then to make recommendations to the responsible authorities. The current version presents the entire study, including an abundance of literature to provide context for the approach and results. A simplified short version and a slide presentation are also available [on KEAC's website](#), under the Impact assessment section.

Significant difficulties in accessing documentation in environmental assessment files affected the conduct of this first phase of the research. For this reason, the NILCA and CEAA 2012 processes had to be excluded from the analysis. This first phase of the research was therefore based on data obtained from a selection of projects subject to the provincial and federal processes established under Section 23 of the JBNQA. Based on the findings of this first phase, the KEAC decided to continue the work in order to gain a thorough understanding of the mechanisms that promote and hinder the consideration of social impacts in the ESIA processes applicable to Nunavik. It was decided to pay particular attention to cumulative effects, to highlight the social impacts of the cumulative changes induced by the projects, particularly on the way of life of the Inuit populations, as well as on the social structure and governance. Another objective is to clarify certain aspects of the implementation of the processes with respect to monitoring and documentation management.

This report is divided into six sections and presents the results of both the first and second phases of the research. The first section presents the analytical framework, including a description of the various ESIA

processes applicable to Nunavik, the concept of social impact and the associated methodological challenges, the issue-based impact analysis approach, and the methodological approach used to conduct this research.

Sections two, three and four present the results of the two phases of the research, based on a literature review, an analysis of the impact assessment documentation of a sample of development projects and ten semi-structured interviews. The fifth section interprets the results as a whole and sets out a series of findings and remarks on the state of consideration of social impacts in the ESIA process in Nunavik.

Finally, since this study is part of the KEAC's mandate to make recommendations to the governments responsible for applying Section 23 of the JBNQA and to share its work with the authorities responsible for other environmental assessment processes applicable in Nunavik, the sixth and final part of this report presents the recommendations resulting from this research and analysis. Concrete proposals are put forward to ensure that the processes are carried out under optimal conditions that allow for a true analysis and consideration of social impacts in the ESIA process. Measures are also proposed to improve information and documentation management practices in order to improve access and transparency of the processes.

1. ANALYTICAL FRAMEWORK

This first section of the report introduces the territory of Nunavik and the four ESIA processes that apply there. The concept of social impacts is then discussed in order to familiarize the reader with its origin, its evolution and the methodological challenges associated with it. Taking as a starting point the findings of the first phase of the research, the methodology chosen for this second phase of the project is finally presented.

1.1. Four processes applicable to Nunavik

Nunavik is the northern territory of the province of Québec that extends north of the 55° parallel and covers an area of 507,000 km² (Rivet, 2020). A population of 13,188, of which approximately 90% is Inuit (Statistics Canada, 2017), lives there in the 14 northern villages spread along the coasts of Hudson Bay and Ungava Bay (Map 1). Also on the southern boundary are the Naskapi Nation lands and village of Kawawachikamach, home to more than 1,000 members of that nation. The Inuit and Naskapi way of life is influenced by a very cold climate, with an average temperature below zero between November and May.

Nunavik is mainly beyond the tree line and tundra covers most of its territory. The southern portion of Nunavik is, however, partially covered by forest, among which are patches of exceptional forest important to Aboriginal communities (KEAC, 2011).

Its large size gives it a variety of landforms. The Ungava Peninsula in the north of the region forms a large plateau with a few notable differences in elevation, including the alternating hills and fjords that form the jagged landscape around Kangiqsujuaq. More imposing peaks are found in the eastern part of the region, near the Labrador border, including the Torngat Mountains and the highest mountain in Québec: Mount d'Iberville (1652 m) (Hébert, 2010). The rugged terrain of the central part of the region is conducive to the accumulation of large quantities of water, which is the source of the major rivers Caniapiscou, Eastmain and Grande Rivière. These rivers flow westward into Hudson Bay and northward into Ungava Bay.

With thousands of lakes, dozens of rivers and large areas of peat bogs, the vast hydrographic network is complex and highly developed throughout the territory. Another aquatic component of major importance is the sea which, when frozen, forms the pack ice and becomes the extension of the hunting territory, extending the coastal land where most of the Inuit of Nunavik live (Chaumeron, 2006). For the Inuit and Naskapi, the land is much more than the sum of its physical attributes. The culture rich in traditional knowledge is an integral part of the territory (Watt-Cloutier, 2016). It also encompasses all living things (Berkes, 2012).

The majority of jobs are in the primary and tertiary sectors (WSP, 2015). The territory has significant mining potential. Several companies, including Glencore and Canadian Royalties, have established ore deposit operations near Deception Bay in order to sell the ore concentrate to smelters located outside the territory (SNC-Lavalin, 2015).



Map 1: Nunavik and the northern villages (KRG, 2020)

Four ESIA processes may apply in Nunavik. The regime set out in Section 23 of the JBNQA entitled “Environment and Future Development North of the 55th Parallel” establishes a dual-jurisdiction ESIA regime consisting of a provincial process and a federal process. The jurisdiction affected by a project determines which process applies, and the two processes may be applied simultaneously or combined in the case of concurrent federal and provincial jurisdictions. The ESIA regime is based on a mechanism that consists of an *a priori* list of activities subject to the obligation to conduct an impact assessment and a list of exempted activities. Where an activity is not on one of these lists, it is up to the responsible entity to decide whether or not an impact

assessment should be carried out. The mechanism provides for the participation of non-Indigenous and Indigenous stakeholders in joint committees.

The third process applicable in Nunavik stems from the application of federal impact assessment legislation. The CEAA 2012 was replaced in August 2019 by the IAA. The federal impact assessment process focuses on designated projects that have the greatest potential for adverse environmental effects in areas of federal jurisdiction. At the time of writing this report, no projects have yet been submitted to the IAA process in Nunavik.

The fourth process results from the implementation of the NILCA which provides in Article 7 for the establishment of a review process to assess the environmental impacts of projects to be carried out in the Nunavik Marine Region¹.

1.1.1. Provincial assessment process, Section 23 of the JBNQA

With regard to the provincial process, the Kativik Environmental Quality Commission (KEQC), which is made up of five (5) members appointed by the Government of Québec and four (4) members appointed by the KRG, intervenes at various stages of the process. It is the decision-making body at the initial analysis (or preliminary screening) phase², which is used to decide whether an impact study is required. It is also involved in the stage of determining the content of the impact study (or scoping) which, once the need for an impact study has been established, identifies the main environmental, social and economic issues raised by the project and determines the scope of the study to be conducted. Once the impact study has been completed, the KEQC analyzes it and decides whether or not the project may proceed and, if so, what measures must be adopted to mitigate the impacts and maximize the benefits. However, the Provincial Administrator³ may, with reasons, override the decision of the KEQC.

1.1.2. Federal assessment process, Section 23 of the JBNQA

With respect to the federal process, two committees are involved in the process. The Federal Environmental and Social Impact Review Panel (COFEX-North) consists of two (2) members appointed by the KRG and two (2) members appointed by the Government of Canada. The Federal Screening Committee (screening committee) shall be composed of two (2) members appointed by

¹ Nunavik Marine Region: The Nunavik Marine Region includes all marine areas, islands, lands and waters within the boundaries set out in Schedule 3-2 of the NILCA. The boundaries of the Nunavik Marine Region include areas of equal use and occupancy with the Inuit of Nunavut and areas of equal use and occupancy and joint ownership with the Crees of Eeyou Istchee.

² *Screening*: the initial analysis phase that assesses the extent of the EIA required and whether it should be detailed. (OECD 1992a, cited in André 2010, pp. 65-66).

³ The Provincial Administrator is the director of Environmental Protection Service or his successor, or any person(s) authorized at any time by the Lieutenant-Governor in Council to exercise the functions described in this Section, in the case of matters of provincial jurisdiction (JBNQA, para. 23.1.6).

the Government of Canada and two (2) members appointed by the KRG. These committees act in an advisory capacity during the preliminary screening and scoping stages of the impact assessment. COFEX-North is involved at the impact study review stage and in an advisory capacity at the decision stage. However, the decision-making body at the screening, scoping and decision stages is the Federal Administrator⁴. Table 1 summarizes the mechanism set up by Section 23 of the JBNQA and identifies the stakeholders at each stage of the process.

Table 1: Stakeholders in the environmental assessment process in Nunavik

Process	Submission (or pre-sorting)	Content of the study (or scoping)	Impact Assessment	Review of the impact study	Decision
Provincial	CQEK	CQEK Administrator	Project proponent	CQEK	CQEK*
Federal	Screening committee/COFEX- North Administrator	Screening committee/COFEX- North Administrator	Project proponent	COFEX-North	COFEX-North Administrator
	Recommends				
	Decides				
	Monitoring by the KEAC				

From: Fréchette, 2019

* The Administrator may override decisions of the KEQC.

The KEAC acts as an advisory body to the responsible governments on legislation and regulations related to the environmental and social protection regime and on the application and administration of the regime. In this regard, it has the power to make recommendations. It reviews the mechanisms and processes for environmental and social impact assessment and review and the implementation of the environmental and social protection regime and the land use regime.

Community consultation

Community consultations may be held at various stages of the environmental assessment process. With respect to the provincial process, when the project is subject to mandatory review, consultations are possible at the scoping stage and when the KEQC is analyzing the project. When the project is not subject to mandatory review, consultations may be held at the preliminary screening stage and at the time the KEQC analyzes the project.

For the federal process, as for the provincial process, when the project is subject to mandatory review, consultations are possible at the scoping stage and during the analysis of the project. When the project is not subject to mandatory review, consultation may take place at the preliminary screening and project analysis stages.

⁴The Federal Administrator is the Minister of Environment and Climate Change or any other person(s) authorized at any time by the Governor in Council to exercise the functions described in this Section, in the case of matters of federal jurisdiction (JBNQA, para. 23.1.2).

In the case of both the provincial and federal processes, when the project is not subject to mandatory review, the consultation held at the preliminary screening stage also counts towards determining the content of the impact assessment if the decision is made to subject the project to further review. Finally, proponents may also hold consultations on their own initiative at any stage of the process. Proponents may voluntarily choose to hold consultations early in the process to ensure that concerns raised by the local population are taken into account in the development of the project.

1.1.3. Federal assessment process, CEAA 2012 and IAA

In 2019, the IAA was adopted to repeal and replace the CEAA 2012. In so doing, the Canadian Environmental Assessment Agency (CEAA) became the Impact Assessment Agency of Canada (IAAC). The IAA includes transition provisions for environmental assessments that were ongoing or that continue to be ongoing under the CEAA 2012. Both pieces of legislation and their respective regulations remain relevant during this transition and are reviewed below. At the time of writing this document, the IAA had yet to be triggered for a potential project in Nunavik.

Review process, CEAA 2012

Environmental assessments conducted under the CEAA 2012 determine whether designated projects are likely to cause significant adverse environmental effects:

- that are within the legislative authority of Parliament in relation to the project, or
- that result from a federal decision in relation to the project.

Designated projects are projects that involve physical activities that have the potential to cause significant adverse effects on the environment as determined either by:

- the *Regulations Designating Physical Activities* (SOR/2012-147), also known as the 2012 Project List (CEAA 2012, s. 84(a)); order of the Minister of Environment and Climate Change (where there is public concern and special circumstances) (CEAA 2012, s. 14(2)).

Environmental effects are defined under the CEAA 2012 as:

5(1)(a) a change that may be caused to following components of the environment that are within the legislative authority of Parliament;

5(1)(b) a change that may be caused to the environment that would occur

- i) on federal lands,
- ii) in a province other than the one in which the act or thing is done or where the activity, the designated project or the project is being carried out, or
- iii) outside Canada; and

5(1)(c) with respect to Aboriginal peoples, an effect occurring in Canada of any change that may be caused to the environment on

- i) health and socio-economic conditions,
- ii) physical and cultural heritage,
- iii) the current use of lands and resources for traditional purposes, or
- iv) any structure, site or thing that is of historical, archaeological, paleontological or architectural significance.

Environmental assessments under the CEAA 2012 take into account:

- environmental effects, including
 - effects caused by accidents and malfunctions, and
 - cumulative environmental effects;
- the significance of environmental effects;
- public comments;
- mitigation measures and follow-up program requirements;
- the purpose of the designated project;
- alternative means of carrying out the designated project;
- any change to the designated project that may be caused by the environment;
- the results of any relevant regional study;
- any other relevant matter.

Responsibility for the administration of the environmental assessment process is divided among three organizations. The environmental assessment of projects regulated by the Canadian Nuclear Safety Commission and the Canada Energy Regulator (formerly the National Energy Board) are their sole responsibility. The environmental assessment of designated projects is the responsibility of the IAAC.

For projects regulated by the Canadian Nuclear Safety Commission and the Canada Energy Regulator, as well as certain projects identified by the Minister of Environment and Climate Change that are under the responsibility of the IAAC, environmental assessment is mandatory.

Based on the project description provided by the proponent, the IAAC determines whether an environmental assessment is required taking into account the potential adverse environmental effects of the project within federal jurisdiction, public comments, and the results of any regional studies. If an environmental assessment is required, the IAAC issues a notice of commencement and develops draft environmental assessment guidelines (scoping). However, the Minister of Environment and Climate Change may decide within 60 days of the notice of commencement to refer the environmental assessment to a review panel if it is in the public interest to do so, i.e., (1) where there are potentially significant adverse environmental effects, (2) where there is public concern, or (3) where there is the potential for harmonization with other jurisdictions.

Public participation is possible at the stages of determining the need for an environmental assessment (preliminary screening), drafting guidelines for conducting the impact study (scoping), submitting the proponent's impact study and preparing the draft ESIA report by the IAAC. Those who wish to do so may provide comments to the IAAC. Where the environmental

assessment is conducted by a review panel, the panel will hold a public hearing at the same time as the submission of the proponent's impact study.

Based on the results of the proponent's impact study and the IAAC's ESIA report, the Minister of Environment and Climate Change must determine whether the adverse environmental effects are significant. If the Minister decides that the project is likely to cause significant adverse environmental effects, the Minister refers to Cabinet the question of whether these effects are justified in the circumstances. If so, the Minister authorizes the project with conditions.

Review process, IAA

In 2019, the IAA came into force and expanded project reviews by looking not only at a project's potential impacts on the environment but also its health, social and economic impacts over the long term, as well as its impacts on Indigenous peoples and including gender-based analysis.

Impact assessment under the IAA includes:

- early and regular engagement and participation;
- collaboration and cooperation;
- respect for Indigenous rights and jurisdiction;
- mandatory consideration of Indigenous knowledge;
- building Crown-Indigenous relations and capacity.

Under the IAA, the IAAC alone is given authority for conducting federal impact assessment on designated major projects. Under the IAA, designated projects that are also regulated by the Canada Energy Regulator or Canadian Nuclear Safety Commission are assessed under an integrated review panel process with the IAAC.

The IAA introduces a new mandatory early planning and engagement phase. It also expands the scope of the assessment process, moving from environmental assessment to impact assessment based on the principle of sustainability.

Similar to the CEAA 2012, the IAA impact assessment process is focused on designated projects that have the greatest potential for environmental effects in areas of federal jurisdiction. Projects may be designated either by:

- the *Physical Activities Regulations* (SOR/2019-285) (also known as the Project List) (IAA, s. 109(b));
- order of the Minister of Environment and Climate Change (IAA, s. 9).

1.1.4. NILCA assessment process

The NILCA provides in Article 7 for the establishment of review processes to assess the environmental impacts of proposed projects in the Nunavik Marine Region. At the discretion of the

Minister⁵, a process may be conducted either by the Nunavik Marine Region Impact Review Board (NMRIRB) under Part 7.5 or by a Federal Environmental Assessment Panel (FEAP)⁶ under Part 7.6.

It is important to note that NMRIRB is involved in both cases, but its role changes. First, the project is submitted by the proponent to the Minister who forwards it to NMRIRB. At the screening stage, NMRIRB reviews the project to determine whether it will have a significant impact and requires review, and then sends an assessment report to the Minister. At the scoping stage, recommendations will be made to the Minister for the preparation of guidelines by either the FEAP or NMRIRB, depending on whether the administration of the process is assigned to one (Part 7.6) or the other (Part 7.5).

The proponent then prepares an "impact statement" and submits it to the Minister, who forwards it, as the case may be, to the FEAP (Part 7.6) or NMRIRB (Part 7.5), which conducts a technical review of the document and, where appropriate, may organize public consultations. The decision whether or not to authorize the project and the determination of the terms and conditions of the project shall be made by the Minister. If authorized, NMRIRB shall issue a certificate of authorization.

Given the complexity and diversity of the impact assessment processes applicable in Nunavik, the KEAC has produced the Reference Guide to Environmental and Social Impact Assessment Processes Applicable in Nunavik. This document was created to clearly distinguish between the four impact assessment processes that may apply in Nunavik and emphasizes public participation. It can be found at <https://keac-ccek.org/wp-content/uploads/2019/08/KEAC-ESIA-2019-f.pdf>.

1.2. Social impacts: definitions and related concepts

This section explores some of the core concepts of the ESIA and how their meaning has evolved over time.

The term "environment", as defined and interpreted in legislation establishing environmental impact assessment (EIA) processes⁷ in both the United States and Canada, generally includes the human environment. Furthermore, in *Friends of the Oldman River Society v. Canada (Minister of Transport)*, (1992) 1 S.C.R. 3, J.D. 92-180, the Supreme Court of Canada clarified that the concept of "environmental quality" is not limited to the biophysical environment. According to the Court, the environment is a diffuse subject, and subject to constitutional imperatives, the social

⁵ In the NILCA, it is the responsible federal or territorial Minister who has jurisdiction to authorize a project to be carried out, unless otherwise specified.

⁶ The FEAP is responsible for examining environmental and socio-economic impacts, determining whether or not a project should proceed and, if so, under what conditions, and forwarding its decision to the appropriate Minister. The Board is composed of members suggested by the Makivik Corporation and the Government of Nunavut.

⁷ We use the term environmental impact assessment, which was in use until recently. The addition of the term "social" to refer to the activity of analyzing the impacts of a project is fairly recent.

consequences of environmental change are an integral part of decision-making on matters affecting the environment.

However, social considerations have long been considered by some to be marginal to EIA. As Finsterbusch (1995) points out, subsequent interpretations of the Act's provisions by the courts have created a great deal of ambiguity as to the actual requirements for conducting impact studies (p. 21). Also, in a study published in 2002, Burdge identified 160 scientific articles on the theme of "social impact assessment" in two reference publications: *Environmental Impact Assessment Review* and *Impact Assessment and Project Appraisal*. The author attempts to identify the factors explaining the greater or lesser importance of social impact assessment (SIA) in the EIA process, which he summarizes in the title of his article: "Why is social impact assessment the poor relation of the environmental impact assessment process?"

Referring to the American case, he first mentions the absence of specific SIA requirements in the American Council on Environmental Quality's practice guide for the application of the *National Environmental Policy Act*. He also mentions the tendency, starting in the early 1980s, to substitute environmental mediation and public participation strategies for SIA; some consider that involving communities in the SIA process is a good way to identify social impacts and seek socially acceptable solutions to the problems raised by a project.

Finally, a new practice has emerged, namely, the signing of socio-economic agreements between project proponents and local communities (commonly referred to as impact and benefit agreements (IBA)). These are generally private agreements that operate outside of the public environmental impact assessment process and are designed to maximize the social and economic benefits of projects. These agreements are intended to meet a social demand for a better distribution of benefits among local communities and society as a whole.

But beyond considerations of the relative place of social aspects in environmental impact assessment: What is social impact assessment?

Burdge *et al* (1990) define SIA as follows:

"SIA is a systematic process that aims to determine the impacts on the quality of daily life of people whose environment is affected by a physical intervention or policy change. SIA begins with a baseline and a description of the components that may be affected in the future, in order to estimate the impacts on the community once the intervention or policy change is completed. SIA is important at the impact monitoring stage to measure actual impacts against predicted impacts." (Burdge *et al.* 1990, p. 88)

Burdge *et al* (1990), like other authors, distinguish between SIA processes and stakeholder participation in EIA. As early as 1983, Freudenberg and Olsen (1983) argued that:

"...information about opinions is not necessarily the same as information about social consequences. Data on opinions prior to a project or policy change ... are important in themselves. But information about attitudes is simply not the same as information about potential consequences..." (Freudenberg & Olsen 1983, p. 72)

Also, according to the authors, the degree of support for a project expressed by participants during a consultation is not a reliable indicator of the potential social impacts of a project.

However, it is important to specify that the clarifications provided by Freudenberg and Olsen (1983) do not mean that social actors are excluded from SIA; on the contrary, different strategies can be used to integrate them into the monitoring process, such as the establishment of multipartite committees like the information and exchange tables.

Moreover, like other authors⁸, Burdge (1990) makes a clear distinction between the notion of "material change induced by an action" and that of "social impact of change"; a distinction that is not always made in practice. For example, in a case analyzed by Gagnon (2002)⁹, the ESIA report describes the increase in noise resulting from the construction work and the increase in heavy vehicle traffic, but fails to address the human/social impacts resulting from this change, i.e. the changes in lifestyle, loss of sleep and stress caused to residents living along the access roads to the construction site. As the researcher demonstrated, even if the standards relating to the average noise level are respected, this does not mean that there is no impact. The results of a survey conducted during the proponent's follow-up revealed that point sources of noise, such as passing trains or road convoys, can cause significant changes in the lifestyle of residents living near the site, despite compliance with the applicable standards in this regard.

This "confusion" between the two concepts has consequences for the scope of the follow-up. In the case analyzed by Gagnon (2002), the social/individual impacts of the loss of the forest were not monitored because, according to the logic applied by the proponent, the measure adopted (the purchase of the parcels affected by air emissions) had the effect of cancelling the impact. The same is true of the social/individual impacts of the deterioration in the quality of the sound environment resulting from the intensive traffic of heavy vehicles. Insofar as the ESIA report dealt only with the physical changes induced by the project, i.e. the increase in noise levels, the only follow-up measure envisaged was to ensure compliance with the regulatory standards set in this regard.

Rossouw and Malan (2007) also distinguish between the notion of "action-induced material change" and "social impact of change". In particular, they argue that the approach for dealing with the impacts of development projects is based on a false premise, i.e. that all changes brought about by the project that are likely to improve the situation of communities in terms of meeting their basic needs for employment, housing, health, education, etc., are in themselves a positive social impact. On the contrary, in their view, some of the project's impacts, such as capital injections for improved public services or increased household incomes from job creation, can have major disruptive effects on the way people live and on the governance of local communities; considerations that are absent from the "social monitoring program" that accompanies the implementation of the project under consideration, in which any impact of the project is considered positive from the outset.

Like several authors (Gagnon 2000, Vanclay 1999, Burningham 1995, Blishen *et al.* 1979), Rossouw and Malan (2007) argue that the social impacts of a change are not independent of the configuration of human, institutional, economic, financial, natural and physical capital (or

⁸ Rossouw and Malan 2007, Gagnon 2002, Vanclay 1999, Burningham 1995, Blishen *et al.* 1979.

⁹ Construction of the Alcan industrial complex in Alma.

resources) that characterize each community¹⁰. The nature and magnitude of the impact depend both on the nature and magnitude of the change, and on the characteristics of the communities in terms of the configuration of capital, but also on the capacity of territorial actors to mobilize it. This is why Rossouw and Malan (2007) believe that SIA requires detailed knowledge of the characteristics of the community in which these changes occur. The study of the psychosocial impacts of the presence of the Gentilly-2 nuclear power plant (Québec) is consistent with this objective.

In addition, the social divisions (impacts) generated by the controversy created by the implementation of a project (change) could be more or less significant depending on whether the communities have proven conflict resolution and mediation mechanisms (institutional capital). The increase in the competitive capacity of enterprises (impact) generated by the spinoffs of a project (change) could be more or less significant depending on the level of development of entrepreneurship (human capital) in a given territory.

As Gagnon (2002) points out in this regard, in most cases, social impacts are not independent of the characteristics of the environment: "Depending on the social context and time, the impact can vary: a community, like an individual, can accentuate, accelerate, obscure or even cancel out an impact" (p. 3). The survey on the psychosocial impacts of the operation of the Gentilly-2 nuclear power plant in Québec highlighted the perceptions of neighbouring populations that affect the impact.

1.3. Impact analysis approach structured by issue¹¹

For this study, we adopted an impact analysis approach structured by issue. It consists in identifying the activities of a project that¹² may constitute a source of impact, measuring the changes induced by these activities on the components of the environment and society, and analyzing them with regard to specific problems formulated in terms of issues in order to determine their impacts.

The results will be presented using a grid identifying the source of the impact (*in italics*), the changes in the components of the biophysical and human environment affected (*in italics*) and the impacts of these changes with respect to specific issues. This way of structuring the information is

¹⁰Rossouw and Malan (2007) refer to Moser's (1998) model of "social sustainability" which distinguishes three types of capital: social, productive and human. We prefer to refer to the definition of "rural community" developed by the Centre for Research in Territorial Development (CRTD). The CRTD defines rural communities as dynamic systems characterized by a configuration of specific human, institutional, economic, financial, natural and physical capitals (or resources) that are variably activated according to the mobilization of territorial actors and their actions or projects (Lafontaine *et al.* 2007).

¹¹ The considerations raised in this section are drawn from an article published by Côté G., J.-P. Waaub and B. Mareschal in 2018 entitled "Environmental and Social Impact Assessment at Risk: The Need for Action". The reference of the article appears in the bibliography of this report.

¹² A project involves several activities that need to be clarified at the outset. For example, in the case of a power transmission line project, the pre-construction phase involves clearing land and building access, while the construction phase includes excavation and earthworks. During the operation phase, the presence, operation and maintenance of equipment can be a source of impact.

intended to establish the "chain of consequences" of the planned activities by identifying their constituent elements with respect to each issue.

The analysis grid (Table 2) is a simplified representation of the application of a systemic approach to impact identification, the advantage of which is that it provides a clear picture of the chain of consequences for each issue, based on an *ad hoc* definition of the environmental components affected and/or the relationships between them.

The links between the components of the chain of consequences are established *a priori* at the *scoping*¹³ stage (leading to the issuance of the directive for the conduct of the impact study by the responsible authority) and validated subsequently at the impact analysis and monitoring stage.

Table 2: Analysis of impacts structured by issue

ISSUE	SOURCE OF IMPACT	COMPONENT TOUCHED	IMPACT
Maintenance of forestry-related economic activities	Creation of a holding tank <i>Site preparation by removal of woody material</i>	Forest <i>Felling of an area of X km²</i>	Sustainability of the operation <i>Decrease in harvestable area</i>

This way of structuring the information offers two main advantages. In terms of clarity, the grid allows the user of the information to follow up on the analysis as knowledge about the project's potential impacts is acquired. In terms of communication, the potential impacts and issues of the project are clearly identified and their structure in the form of an impact assessment grid is explained.

The issues-based approach was used in a study similar to this one to analyze a company's social impact monitoring practices. Using an analysis grid similar to the one presented in Table 2, it was possible to synthesize information scattered in several documents (directives, ESIA reports, sectoral study reports on specific issues, authorization certificates, environmental and social management plans, monitoring and follow-up reports, correspondence between the proponent and the responsible authority, etc.) and to reconstruct the chain of consequences for each social impact identified. The impact analysis grid structured by issue proved to be a very useful tool for placing the categories used for monitoring in the context of the entire process and for gaining the best possible understanding of the projects' social issues.

¹³ *Scoping*: The stage in the process when the competent authority and the project proponent, having established the need for an impact study, identify the main environmental issues raised by the project and determine the timing and scope of the analyses to be carried out, the sources of expertise to be used and the mitigation, enhancement or compensation measures to be considered. (OECD 1992a:14, cited in André 2010, p. 66).

One of the most widely used methods for conducting impact studies, the "descriptive method of impacts by environmental component," consists of preparing an "impact study file" that includes a description of the project, a description of the modifications (or changes) to the environmental components (biophysical and human) induced by the related actions. One of the most widely used methods for conducting impact studies, the "descriptive method of impact by environmental component," consists of preparing an "impact study file" that includes a description of the project, a description of the modifications (or changes) to the environmental components (biophysical and human) induced by the related actions, and an evaluation of the significance of these modifications in terms of impact. The results are presented using an impact significance assessment grid for each environmental component and are accompanied by the analyst's explanations. This evaluation uses a qualitative coding (high - medium - low). Three main variables are usually considered: intensity, extent and duration of the impact.

A major shortcoming of this approach is that it assigns a value (impact significance) to changes in environmental components resulting from a given action, without explicitly referring to specific issues formulated in terms of challenges. Impact assessment is often based solely on the general assumption that any change in an environmental component constitutes an impact.

For example, the mere fact that one variant of a hydroelectric development project calls for the cutting of 100 km² of forest, compared to another where the area cut is only 60 km², would, according to this logic, lead to the conclusion that the former has a greater impact than the latter. In our opinion, this conclusion is false because it confuses two fundamental notions, that of "modifications of the components of the environment" which refers to the material or direct consequences of an activity and that of "impact" which refers to their significance in terms of the issues at stake. Indeed, cutting down 100 km² of forest means nothing in itself, unless it is related to a given issue.

The same modification of an environmental component (reduction of forest cover on a given territory) resulting from a given activity (the felling of 100 km² of forest) does not have the same importance (impact) depending on the issue with regard to which it is analysed. In fact, the modification of the "forest" component could be analyzed with regard to biodiversity (environmental issue), the maintenance or development of sport hunting in a given territory (social issue) or the viability of activities in the forestry sector (economic issue).

The criteria for assessing the impact are not the same depending on the issue under analysis. The same applies to the threshold (minimum or maximum) above or below which a change in the environmental component becomes significant or not. This is why, without reference to a given issue, impact descriptors and specific variability thresholds, the attribution of a value to the material or direct consequences of a given activity becomes completely arbitrary.

1.4. Methodological approach

We will now present the methodological approach used to carry out this research project. Despite the difficulties related to access to information, the first phase of the research made it possible to make several observations. First, since the implementation of the environmental assessment processes established by Section 23 of the JBNQA, most of the projects subject to a process have been small or medium-scale (e.g. port and airport infrastructures). As a result, they induce relatively minor changes in the components of the biophysical and human environment. However, their accumulation over time and space can have an impact, particularly on the way of life of local populations, on the social structure and on governance at the community level and at the level of the Nunavik territory.

Second, social impacts are almost never analyzed. Assessments focus more on identifying mitigation and enhancement measures. The documentation in the environmental assessment files therefore informs us mainly about the physical consequences of projects. In cases where social impacts are analyzed, shortcomings are observed in the quality of the information contained in the various reports and documents included in the environmental assessment files consulted. For example, in the case of Raglan (Phases II and III), the ESIA report raises several social issues that are present in Nunavik territory, but which remain unanalyzed for all practical purposes. The impact study is filled with lengthy descriptions of social problems likely to constitute project issues, but does not result in the formulation of criteria for their analysis, let alone follow-up.

Finally, the research highlighted the complexity of managing the environmental assessment processes applicable to Nunavik, which involve several stages and the intervention of various agencies at each stage. The lack of centralized information management systems makes it difficult to reconstruct the process that led to the decision to authorize a project and the development of conditions for its implementation. It has been very difficult to reconstruct the environmental assessment files, which are scattered among several agencies and individuals.

The preliminary findings from Phase I are available in Appendix A.

The findings from Phase I led us to propose an alternative path for the continuation of the project. It was felt that expanding our sample of projects for Phase II would not provide further insight into the gaps in environmental assessment practice in the four processes applicable to Nunavik, but rather that new methodological choices should be made.

1.4.1. Review of the literature

We conducted a synthesis of studies dealing with the consideration of social impacts and cumulative effects of development projects in Nunavik and comparable northern regions. This allowed us to identify good practices applied in other northern jurisdictions as well as gaps in knowledge and in the methodological tools for ESIA. The literature review was based on seven main documents:

- The *Arctic Environmental Impact Assessment (EIA) Guidelines* developed in 1997 by several circumpolar states that collaborated under the "Arctic Environment Protection Strategy" (1997);
- The report on the activities of the KEQC produced on the occasion of its 30th anniversary (1979-2009) (Jacobs, Berrouard and Paul, 2009);
- A study examining the application of cumulative effects assessment under the JBNQA commissioned by the James Bay Advisory Committee on the Environment (JBACE) (Noble, Martin and Olagunju, 2016);
- A master's thesis on the social impacts of the Raglan mine on the Inuit communities of Salluit and Kangiqsujuaq (Blais, 2015);
- Three reports published by researchers from different circumpolar countries under the umbrella of the Resources and Sustainable Development in the Arctic network. These reports provide an overview of how social impacts are taken into account in impact assessments in the Arctic:
 - The first group conducted a review of frameworks, methods and indicators used for the assessment of socio-economic impacts of natural resource exploitation activities in the Arctic (Petrov et al., 2014);
 - The second looked at the knowledge gaps on the social impacts of the mining industry in the Canadian North (Rodon et al., 2014);
 - The third group highlighted the consideration of social impacts of non-renewable resource development on Indigenous communities in Alaska, Greenland and Russia in the context of non-renewable resource projects (Schweitzer et al. 2016).

This literature review informed us of the strengths, weaknesses, constraints and areas for improvement already identified in the literature.

1.4.2. Analysis of impact assessment documentation

The results of the analysis of the impact assessment documentation for a sample of projects subject to the provincial and federal processes provided for in Section 23 of the JBNQA are presented.

Four impact studies analyzed concern projects subject to the provincial process under Section 23 of the JBNQA:

- Innavik Hydroelectric Project in Inukjuak (2010)
- Inukjuak Waste Site Project (2014)
- Puimajuaq Mine Project (2015)
- Raglan Mine Project (Phases II and III) (2015)

Four of the impact studies analyzed concern projects subject to the federal process under Section 23 of the JBNQA:

- Quaqtuaq Marine Infrastructure Project (Phase II)
- Kangiqsujuaq Marine Infrastructure Project (Phase I)

- Ivujivik Marine Infrastructure Project (Phase II)
- Deception Bay Marine Infrastructure Project

For each of the two processes, the projects will first be described and then a summary of the social issues identified and addressed in their ESIA will be presented.

1.4.3. Semi-structured interviews

The final step in the data collection process was to conduct 10 semi-structured interviews with individuals who are or have been involved in the various stages of one of the ESIA processes in Nunavik (screening, study content [or scoping], impact assessment, impact study review, decision) in order to clarify the role of each individual and to specify how the processes work as a whole. The interview grid used to guide the conversation is available in the appendix (Appendix A) as well as a copy of the information and consent form that we had all respondents sign (Appendix B).

2. RESULTS OF THE LITERATURE REVIEW

This section presents the results of the literature review conducted on the topics of social impact and cumulative effect considerations in ESIA in Nunavik and in other northern circumpolar regions with similar social and territorial characteristics.

2.1. SIA in the circumpolar north

2.1.1. *Economic impacts dominate social impacts in assessments*

The three groups of researchers in the Resources and Sustainable Development in the Arctic network point out at the outset that social impacts are by far less well documented than impacts on the biophysical environment. However, the social impacts resulting from the economic spinoffs of projects would be the exception.

Indeed, direct and indirect job creation and high wages associated with resource projects are pervasive themes in ESIA reports (Schweitzer *et al.*, 2016). Spin-offs from mining projects in Arctic regions, consisting not only of the hiring of workers, but also the purchase of goods and services from businesses at the local level, are generally considered in ESIA reports to have direct and indirect positive impacts on the economic situation of the territories, at the community or regional level. Although rarely supported by evidence (or even quantifiable), the implementation of mining activities could even have the indirect impact of encouraging the start-up of new mining projects (Rodon *et al.* 2014). However, not all projects would result in positive impacts.

Some project impacts, such as increased household incomes resulting from the creation of well-paid jobs, can have major disruptive effects that can exacerbate existing social problems or create new ones (Buell 2006). Thus, the rather positive impact of increased household income may, upon analysis, be more mixed (Noble and Bronson 2005). For example, higher disposable income would increase the likelihood of the occurrence of high-risk behaviours, such as substance abuse, gambling and prostitution (Gibson and Klinck 2005).

On the other hand, Schweitzer *et al* (2016) argue that environmental degradation resulting from the implementation of heavy industrial activities such as mining projects can have a negative impact on the local economy based on hunting, fishing and trapping. Using cases from Alaska and Greenland as examples, they note that ESIA reports do not consider the impact of projects on the local economy. More often than not, these activities are seen in ESIA reports as a practice associated with traditions rather than as the building blocks of the local economy that is the basis of an informal exchange system.

However, as Haley *et al* (2011) point out, little is known about the actual impacts of mining on traditional economies in the circumpolar north.

Finally, a theme that has received attention from some authors is the distribution of benefits from projects within communities. Intra- and intergenerational equality is another issue against which the benefits of mining projects could be analyzed in terms of impact (Davis, 2009).

2.1.2. Impacts on traditional activities and land use

As Buell (2006) points out, subsistence hunting, fishing, and trapping activities are not just about providing food for Aboriginal communities, but are an essential component of their identity. Certain common values are associated with them, such as the importance of living in harmony with nature and the importance of sharing and cooperation (Kawagley 2006). Referring to the Greenlandic situation, Olsen (2011) considers traditional food to be one of the last "cultural bulwarks" for Inuit whose way of life has changed drastically in recent decades. Also, according to the author, when hunting, fishing, trapping and gathering activities are threatened in one way or another by the implementation of development projects, it is the culture and economic system of the affected communities that are weakened (Olsen, 2011). For Schweitzer *et al* (2016), these intangible dimensions are difficult to identify in ESIA's, particularly because it is difficult to attribute changes in a community's cultural values to a particular project. These authors argue that a thorough analysis of contemporary conceptions, values, and roles of subsistence activities in Indigenous communities is necessary to understand the impacts of development project implementation in this regard.

Furthermore, Rodon *et al.* (2014) highlighted disparities in the assessment of the impacts of mining projects on the maintenance of traditional activities; activities to which Indigenous communities attach great importance. In some ESIA reports, the impact is considered low. In others the assessment is rather mixed. While some consider that the participation of Aboriginal workers in the mining project as salaried employees will reduce the time available for the pursuit of these activities, others point out that the resources available to them to obtain new equipment will help them to maintain these activities. Some admit that they do not know whether mining activities will lead to a decrease or an increase in the time spent by the younger generation on traditional subsistence activities. Finally, the authors of the ESIA report for the Mary River Mine project in Nunavut acknowledge the importance that communities place on maintaining the practice of traditional activities over the long term and anticipate a program to support traditional knowledge and skills transfer initiatives (Rodon *et al.*, 2014).

2.1.3. Other documented social impacts

Rodon *et al.* (2014) listed a series of scientific publications that highlight certain social impacts of mining projects in the Canadian North. Kenneth (1999) focused on the disruptive effect of the presence of non-native workers on the individual and collective identities of Aboriginal populations living in the territories affected by the projects, which could cause various social problems or have the effect of exacerbating existing social problems. Parlee and O'Neill (2007) draw our attention to the disruption of established social structures resulting from the rapid changes induced by mining

projects. These changes create significant social instability and can lead to serious problems such as anomie and suicide.

Several impacts on women and families have also been documented, including by Gibson and Klinck (2005). They have shown that in a context of strong economic growth, Aboriginal women are more likely to be victims of sexual exploitation, violence and sexually transmitted infections, due to sexual abuse or prostitution. These same authors also highlighted the fact that the demands and stresses of work contribute to changes in family roles and affect family integrity. Finally, Sosa and Keenan (2001) have shown that a miner's work schedule can create tension within families, potentially leading to conflict and violence.

Furthermore, the scientific literature consulted reveals several gaps in the identification and analysis of social impacts. According to Rodon *et al.* (2014), the peer-reviewed literature has done very little to address the health effects of mining on Aboriginal communities. These same authors also point out that the decline of the Inuktitut language caused by English immersion in the workplace and the increased contact of Inuit youth with English speakers does not receive the consideration it deserves, either in the scientific literature or in the ESIA's.

On the same theme, Schweitzer *et al.* (2016) draw our attention to the lack of knowledge on the impacts of inward and outward mobility of local communities, particularly during the exploitation phase and after project closure. They report that population out-migration phenomena have been observed following the closure of natural resource projects in Alaska and Greenland.

2.1.4. *Specificities of the northern context to be taken into account in the assessment process*

During the 1990s, several circumpolar states collaborated in the development of the *Arctic Environment Protection Strategy*. One component of this strategy was the development of guidelines for EIA in the Arctic region (Arctic Environment Protection Strategy 1997). The guidelines emphasized the importance of taking into account the particularities of these regions, such as climate, local cultures and ecosystem functioning, in the choice of methods for conducting impact studies, particularly in order to adapt their scope and duration. Five elements are mentioned in the Guidelines for conducting ESIA's in the Arctic region in this regard:

1. Multidisciplinary: A multidisciplinary approach is important in the Arctic, where the link between the natural environment and socio-economic characteristics may be stronger than in other regions. The inclusion of traditional knowledge as an important source of information for assessing potential impacts is also recommended.

2. Flexibility: ESIA must be a flexible process to deal with the complexity and diversity of cultural contexts while providing a forum for the exchange of divergent views and interpretation of information.

3. Participation: The ESIA process must allow for the participation of a wide range of stakeholders with different perspectives and values, including Indigenous peoples who promote a non-market view of nature. The demographics of the Arctic regions vary, but some

characteristics are common. Many Arctic inhabitants live in sparsely populated areas and most still have livelihoods rooted in large territories.

4. Cumulative impacts: In the Arctic, cumulative impacts are of particular concern because of the sensitivity of the natural environment and long recovery times.

5. Precautionary Principle: The authors note that the application of the precautionary principle to ESIA is particularly relevant in the Arctic, where baseline data is scarce and there are gaps in the understanding of important ecological functions of Arctic systems (Arctic Environmental Protection Strategy 1997).

2.1.5. Examples of good practice

The literature review identified some good practices of ESIA in the Arctic. For example, according to Petrov *et al.* (2014), the method used to describe social impacts for the "Red Dog" mine expansion project in Alaska is an example to follow. The description of the projected impacts of the mine and port expansion includes separate sections on incremental and cumulative effects on land use, recreation, subsistence, public health, cultural resources, transportation, jobs, income, cost of living, and environmental justice.

The Mackenzie Valley Environmental Impact Review Board is also cited as an example by Petrov *et al.* (2014) for the quality of consultations with affected communities and the integration of social issues in the analysis of the Mackenzie Gas Project in the Northwest Territories in 2004. The socio-economic portion of the report in the latter case focuses on community well-being, including the physical, emotional, social, cultural and economic well-being of individuals, families and the community as a whole. The Review Board assessment process is also notable for the effective incorporation of input from Aboriginal stakeholders, which has been addressed through the adoption of a package of measures to address the concerns expressed. However, despite this positive assessment, the authors point out a number of shortcomings in the process, particularly with regard to impact monitoring and follow-up. The consultation process also failed to consider impacts beyond the territory of the eight directly affected communities, a common problem with too narrowly focused ESIAs according to Petrov *et al.* (2014).

Another example of good practice comes from the Government of the Northwest Territories. Since the first mine opened in the Northwest Territories in 1996, it has produced an annual report entitled *Communities and Diamonds* (CAD). The purpose of this report is to assess the impacts of mining activity in the territory. In a way, it is a tool for monitoring the evolution of the socio-economic situation of local communities affected by mining projects. The CAD report compiles and analyzes data according to five impact families:

1. Community, family and individual well-being;
2. Cultural well-being and traditional economy;
3. Non-traditional economy;
4. Effect on government;
5. Sustainable development.

According to Petrov *et al* (2014), CAD report represents a good example of a useful strategy for understanding the impact of development projects and for government, communities and businesses to develop specific measures to mitigate them. However, according to the authors, more work needs to be done in the future to better document health impacts as well as demographic and migration trends, through the adoption of specific indicators to measure their magnitude. The CAD report often remains rather vague and inconclusive as to the specific contribution of mining activities to the socio-economic changes observed within communities and the adoption of specific impact mitigation measures (Petrov *et al.*, 2014).

2.1.6. Creation of a common framework for circumpolar regions

Petrov *et al.* (2014) note the difficulty of comparing practices between circumpolar regions in relation to ESIAs, each with distinct legal frameworks whose characteristics influence the ways in which impacts are conducted and analyzed. In order to overcome this shortcoming, Petrov *et al.* (2014) suggest the creation of impact indicators adapted to circumpolar areas and applicable to the conduct of ESIAs. These would be minimum standards structured on the basis of the six categories proposed in the *Arctic Social Indicators* report published in 2010 by the Nordic Council of Ministers (Norden) (Larsen *et al.* 2010).

2.2. Consideration of social impacts through processes applicable to Nunavik

In 2009, the KEQC published an activity report marking the thirtieth anniversary of its creation (Jacobs, Berrouard and Paul, 2009). The authors note the KEQC's experience in applying the ESIA process established by the JBNQA, and look to the future, including the challenges to be met to ensure its sustainability.

They readily acknowledge the complex interrelationship between the positive and negative impacts of development projects. For example, the KEQC notes that while mining projects have enriched some communities, they have also contributed to changes in the practice of traditional activities and in the social structure of villages; a situation that illustrates the dilemma faced by Inuit, who are torn between the desire to improve their material living conditions and the fear of potential environmental and social impacts of projects (Rodon *et al.*, 2014). The dynamic balance between traditional activities and wage labour is one of the issues to which the KEQC will continue to pay particular attention in the future (Jacobs, Berrouard and Paul, 2009).

The KEQC report also looks at the positive impact of infrastructure improvements on the quality of life of the population, but one of the consequences is the accelerated transformation of community lifestyles and the emergence of new problems. For example, the improvement of air and sea connections has improved the economic well-being of populations and access to consumer products. The significant growth in consumption and its corollary, the increase in the quantity of residual materials, require the implementation of infrastructures adapted to the northern context.

With respect to infrastructure, Jacobs, Berrouard and Paul (2009) emphasize the need for coherent action and cooperation among stakeholders to achieve this. According to these authors, large-scale projects requiring the implementation of transportation (roads, landing strips, and wharves), energy production and waste management infrastructures, such as mining projects, must take into account the needs of all potential users in the territory in order to optimize their use and avoid the multiplication of single-user facilities¹⁴. According to the KEQC, the Nunavik marine infrastructure program would have benefited from the application of a strategic environmental assessment (SEA) process in addition to the assessment of the impacts of single-user facilities (Jacobs, Berrouard and Paul, 2009).

In its report, the KEQC identifies three elements that are likely to have an impact on the way of life of the populations, the social structure of the communities, economic development and governance in Nunavik in the future:

- Climate change;
- Population growth influencing the social structure of communities and the provision of social and educational services;
- The development of new natural resource projects.

In conclusion, the KEQC emphasizes in its report that the population of Nunavik has a strong desire to take charge of the management of its territory. To support this change, the KEQC is committed to integrating all Inuit concerns into development projects and to adopting best practices in environmental assessment (Jacobs, Berrouard and Paul, 2009).

2.3. Methodological tools

A rigorous methodology can help avoid some of the pitfalls of the ESIA, but the literature review shows that several challenges remain.

2.3.1. Lack of theoretical frameworks for indicator development

Petrov *et al.* (2014) describe the approach used to determine the impact categories and the measurement indicators used to analyse them as "unsophisticated". These choices, dictated primarily by "common sense," open the door to biases determined in part by the proponent's interest in certain issues and by more or less easy access to data. Despite the standards contained in the laws and regulations, as well as those determined on a case-by-case basis in the guidelines for conducting impact studies for specific projects, it is often difficult to know the conceptual basis for the choice of parameters assessed. It is also difficult to clearly identify the approach taken by analysts to analyse impacts. According to the authors, the choice of what to measure and how to

¹⁴ See on this subject the thesis of Mariama Diallo (2019) entitled: "L'Évaluation environnementale stratégique de l'aménagement des ports minéraliers en zone côtière tropicale : cas de la Guinée", completed as a partial requirement for the PhD in Environmental Science: Montreal, Université du Québec à Montréal, 266p.

measure it should be based on high-level social science which is not always the case (Petrov *et al.*, 2014).

Moreover, Rodon *et al.* (2014) identified several shortcomings in terms of identification (unanalysed social consequences of projects) and analysis (under- or over-assessed impacts) that they attribute to the lack of data on the human environment. The authors give the example of the employment situation in Aboriginal communities and the education rate of Aboriginal workers; the lack of data makes it difficult to determine training needs [in order to promote their participation in development projects].

According to Petrov *et al.* (2014), the absence [or poor quality] of human environment data would make it all the more difficult to assess impact significance, which requires linking each level (high, medium, low) to specific thresholds as required by the IAA.

2.3.2. *Narrow focus of ESIA*s

Petrov *et al.* (2014) focused on the scope of ESIA, particularly in terms of territory. They note that the study area considered for social impact analysis is limited to the communities directly affected by the projects. However, as they point out, the repercussions of large-scale industrial projects, such as mining projects, extend far beyond the boundaries of the communities directly affected by the projects because of their physical proximity to the implementation sites. Most projects involve the mobilization of financial, material and human resources from communities or regions far from the project site. The authors suggest broadening the scope of the study area and, consequently, the indicators for the analysis of social and economic impacts. These changes are all the more necessary if we take into account the dynamic links between the territories, particularly in economic terms. The implementation of major projects leads to population movements between territories. The comings and goings of people assigned to the implementation of projects, bringing with them diverse expertise, is likely to promote the transfer of knowledge contributing to the initiation or acceleration of social changes on the scale of given territories (Petrov *et al.*, 2014).

On the other hand, Petrov *et al.* (2014) draw our attention to the peculiarities of ESIA applied to the realization of small-scale projects and to the need to adopt standards adapted to the limited resources of the proponents of this type of projects. The latter deplore the lack of tools and techniques for conducting impact studies that meet strict quality standards but require fewer resources. One of the proposals put forward by the authors to this end is to allow community-based monitoring where costs and responsibilities are shared between project proponents, communities and the government (Petrov *et al.*, 2014).

2.3.3. *Quantitative tilt of ESIA*s

According to the authors of the *Arctic Environmental Protection Strategy* (1997), it is important to recognize that social impacts, particularly in the Arctic region, are not always "captured" through the application of a positivist approach that focuses primarily on the quantifiable "cause and effect"

effects of development projects. Because of their complexity, multidimensionality, and breadth, social impacts require the use of qualitative indicators or indicators that combine quantitative and qualitative data.

Petrov *et al* (2014) share this view. According to them, the tendency to rely exclusively on quantitative indicators in social impact assessment introduces a bias because it has the effect of excluding certain types of "non-quantifiable" impacts from the analysis. Some models that assign a monetary value to project-induced changes in environmental components are criticized for the same reason.

Also, Petrov *et al.* (2014) advocate the use of methodologies that allow the use of qualitative indicators whose advantages are:

- The ability to identify local processes, patterns and relationships;
- The ability to appreciate the complexity and interdependence within Aboriginal and local communities, their vulnerabilities, resilience and adaptability;
- The ability to "see impacts through the eyes of Indigenous peoples";
- The ability to take into account both the material and symbolic aspects of human well-being.

Finally, the authors of the *Arctic Environmental Protection Strategy* (1997) draw our attention to the importance of taking into account the value systems held by stakeholders (e.g., project proponents vs. Indigenous communities) in the analysis of results and the methodological challenge that this represents.

2.4. Access to information

Rodon *et al.* (2014) and Petrov *et al.* (2014) identify numerous gaps in knowledge about the biophysical and human environment in northern regions¹⁵. The lack or poor quality of information affects the ability to conduct quality analyses and thus the predictive capacity of the ESIA and to assess the significance of project-induced changes and resulting social impacts. Also, as demonstrated by Rodon *et al.* (2014), the assessment of the significance of a project's impact on, for example, the maintenance of traditional activities, can vary considerably from one ESIA to another.

In addition, the authors of the *Arctic Environmental Protection Strategy* (1997) point out that the lack of basic information on the Arctic regions can result in longer ESIA completion times than in temperate regions where information is more abundant and readily available. To address this shortcoming, in its guidelines for conducting impact assessments, the *Arctic Environmental Protection Strategy* suggests four main measures:

- Combining traditional and scientific knowledge ;

¹⁵ Specific information on women and many socio-economic issues is largely unavailable.

- Use methods compatible with other programs to collect baseline information in the Arctic, including socio-economic issues;
- Use qualitative and quantitative information ;
- Allocate sufficient time for the collection and compilation of baseline information (Arctic Environment Protection Strategy, 1997).

With regard to the traditional knowledge of Indigenous peoples, its contribution to impact analysis must be recognized. The integration of traditional knowledge makes it possible, among other things, to better understand the nature of the impacts of projects on Aboriginal peoples, to reduce uncertainty as to the evaluation of their significance, to identify the conditions for carrying out projects and to develop environmental monitoring and follow-up programs. As well, traditional knowledge must be systematically incorporated into all stages of the ESIA process. Information gathering strategies will need to be adapted accordingly (Arctic Environment Protection Strategy, 1997).

2.5. Public participation

According to Petrov *et al.* (2014), citizen participation plays a key role in ensuring the credibility and effectiveness of the ESIA process. It contributes to building trust between proponents and host communities [necessary for social acceptance of projects]. However, proponents consider that the means of ensuring "meaningful" citizen participation in the ESIA process are generally insufficient. Galbraith *et al* (2007) note significant gaps in community participation in environmental monitoring and project management.

According to the authors of the *Arctic Environmental Protection Strategy* (1997), government agencies, project proponents and researchers must develop a better understanding of Aboriginal peoples, their culture and the socio-economic structure of communities. To do this, they must work with their community leaders.

Communication methods must not be intrusive and should take into account the customs and lifestyles of Indigenous peoples. The use of translators and interpreters who master local languages is often essential (Arctic Environment Protection Strategy, 1997). Blais (2015) agrees and adds that the impact analysis must take into account the specific context of each community affected by a project. In the case of the Raglan Mine project ESIA, Blais (2015) also demonstrated that certain major impacts for the community of Salluit were barely mentioned in Kangiqsujuaq and vice versa.

Furthermore, Esteves, Franks and Vanclay (2012) argue that project-affected populations should be given the necessary support to build the best possible understanding of the changes to come and thus improve their ability to adapt to them. They add that special attention should be paid to the most vulnerable populations.

Finally, Petrov *et al.* (2014) draw our attention to the emergence of new types of information collection that reach out more directly to affected populations, such as focus groups and interviews. Another emerging practice is to involve community members in the collection and analysis of

information from the earliest stages of conducting an ESIA through to impact monitoring (Knopp *et al.*, 2013).

2.6. Environmental and social monitoring and follow-up

Most ESIA reports now include Environmental and Social Management Plans (ESMPs) that include the full range of mitigation and environmental monitoring measures to be considered during the construction and operation phases to eliminate, compensate for, or reduce to acceptable levels any adverse environmental and social impacts of the project. ESIA reports also include environmental and social follow-up programs whose objectives are to verify the effectiveness of impact mitigation, benefits maximization and compensation measures and, if necessary, to take appropriate action to address unanticipated impacts or impacts that were under- or over-estimated in magnitude (new studies). However, according to Noble and Storey (2005), these objectives are not always met. In reality, the focus is primarily on verifying the accuracy of impacts.

Furthermore, Rodon *et al.* (2014) looked at the public dissemination of monitoring reports and their quality. They note that very few monitoring reports are available and that most consist of qualitative interviews with workers and community members. They also deplore the lack of consistency between the structure of monitoring reports and that of ESIA reports; monitoring reports do not systematically refer to the impacts identified in ESIA reports.

More specifically, with regard to the follow-up reports on the social impacts of mining projects in the Canadian North, Rodon *et al.* (2014) note several shortcomings in the identification of the social impacts being monitored. There is no mention of the effects on the cost of living or the actual number of jobs created directly or indirectly for Aboriginal people by the mines. In addition, there is no information in the follow-up reports on potential changes in life expectancy and health status of populations. In most cases, housing shortages and quality are not considered, nor are changes in crime rates. Changes in social cohesion, including Inuit and non-Aboriginal migration in and out of the community and its impacts, are not discussed. Changes in gender roles are also not addressed. Finally, no quantitative data on participation in traditional activities or transmission of traditional knowledge and skills are available (Rodon *et al.*, 2014).

For Petrov *et al.* (2014), improved environmental and social monitoring and follow-up processes are critical to realizing the full potential of the ESIA for gaining a better understanding of the effects of resource development on Arctic communities.

The case studies reviewed by the authors also demonstrate the trend towards developing integrated intergovernmental ESIA frameworks that include tracking and monitoring components, such as the socio-economic monitoring agreements in the NWT and the general monitoring program in Nunavut. In building such a system, it is important to note that, while unavoidable, over-reliance on standard indicators should, in the authors' view, be gradually reduced in favour of community-based monitoring programs, which will better reflect community needs and local and regional specificities (Petrov *et al.*, 2014).

2.7. Cumulative impact assessment¹⁶

A cumulative impact is "the result of a combination of impacts generated by a single project or by several projects or activities over time (past, present or future) and space" (André, 2010, p. 45). Cumulative impact assessment (CIA) is a practice that is integrated into the EIA of individual projects, but is mainly associated with SEA because it focuses on environmental components that are both affected by the project and linked to a territorial issue (e.g., the shores of Lake X (environmental component) - shoreline erosion (territorial issue). It is generally recognized that territorial (or regional) SEA, because of its scope, provides a more appropriate framework for the CIA.

However, in Québec as in Canada, the practice of CIA is mainly concentrated at the level of individual project EIAs. According to Noble, Martin and Olagunju (2016), case-by-case CIA can cause more harm than good because it is often limited to determining the specific contribution of the project (generally considered negligible) to a problem whose causes are multifactorial. Also, according to the authors, this CIA approach leads to a superficial analysis of cumulative impacts and, consequently, to the level of environmental follow-up whose objective is to analyze real impacts (Noble, Martin and Olagunju, 2016). Furthermore, the authors noted several shortcomings in the majority of CIAs for project-specific impact assessments: weaknesses in long time-scale trend analysis and extrapolations, failure to link stressors to potential responses, or failure to model future conditions of valued environmental components. Finally, CIAs are often limited to qualitative description.

Petrov *et al* (2014) make a similar point. Existing processes offer piecemeal analysis and monitoring that do not adequately reflect the complex nature of the relationships between components of the biophysical and human environment, particularly when it comes to defining the notion of human well-being. Yet, a nuanced and accurate understanding of socio-economic impacts related to natural resource development requires, according to Petrov *et al.* (2014), an analysis that considers project-induced impacts both at the scale of a given territory (community or region) and at the scale of specific groups, particularly vulnerable groups.

For Noble, Martin and Olagunju (2016), the shortcomings observed in the practice of CIA are not solely the responsibility of the proponents. They are also a reflection of the legislative and regulatory framework for the practice and the conditions imposed in the guidelines issued for conducting impact studies. Among other things, in the cases studied, the authors note the absence

¹⁶ In the scientific literature, authors use the terms "cumulative effects" and "cumulative impacts" interchangeably. Both terms are also used in state laws and regulations. The IAA uses the term "cumulative effects". In Québec's *Environment Quality Act*, both terms are used: "cumulative effects" and "cumulative impacts". In this subsection, we use the term "cumulative impacts".

However, as mentioned earlier in section 1.3, for the purposes of this study we distinguish between the two concepts. The notion of "effects" refers to the modifications of environmental components induced by a project, and the notion of "impact" to the significance of these modifications with respect to specific problems formulated in terms of issues. This distinction will be of particular importance in the review of Phases II and III of the Raglan project in subsections 5.1.2 and following.

of specific requirements in the directive concerning the development of mitigation and follow-up programs for cumulative impacts.

Moreover, in the opinion of Noble, Martin and Olagunju (2016), the guidelines issued by the Québec Ministère de l'Environnement et de la Lutte contre les changements climatiques (the environment and the fight against climate change, MELCC) for conducting CIA do not mirror the requirements of best practices in the field. Also, referring to the conclusions of the study commissioned by the JBACE in 2016, several improvements should be made to the practice of CIA within the framework of the environmental assessment processes established by the JBNQA.

Among the challenges, Noble, Martin and Olagunju (2016) draw our attention to the lack of information about northern territories, particularly in terms of access to quantitative data on the components of the biophysical and human environment and their evolution over time. With regard to the lack of information on a specific territory, community or region, the authors suggest relying on knowledge from other territories with comparable characteristics, as well as on the knowledge of local communities and Indigenous traditional knowledge.

Recalling that a good prospective analysis of cumulative impacts must be based on facts, and a clear rationale supporting the assumptions on which impact predictions are based, Noble, Martin and Olagunju, (2016) cite the example of the CIA conducted as part of the EIA for the Eastmain 1-A hydroelectric development project, by the proponent Hydro-Québec. In this specific case, in accordance with the process established by the JBNQA, the directive for conducting the impact study was developed jointly by COMEV and the IAAC¹⁷, and supported by a consultation with Aboriginal and non-Aboriginal communities. In addition, Hydro-Québec's long presence in the region and access to reference data and development plans for the hydroelectric sector helped improve the quality of the CIA.

Jacobs, Berrouard and Paul (2009) point out that the structuring and cumulative impacts of road network development in Nunavik are particularly important to monitor. In addition to the road networks of the 14 northern villages, a network of roads has also begun to be developed to meet the needs of the mining industry and others will likely be built to link new industrial projects or national parks. The KEQC has assessed several of these roads as components of a project. However, “the cumulative impact of these transportation corridors and their structuring effect is increasingly evident at the regional level, and the Commission will have to take these impacts into account” (Jacobs, Berrouard and Paul, 2009, p. 35).

2.8. Impact and benefit agreements

In an effort to improve the social and environmental acceptability of their projects, companies negotiate IBA (Prno, Bradshaw, and Lapierre 2012). This practice has been gradually implemented since the late 1980s, at a time when environmental laws were being tightened and the Aboriginal rights of Indigenous peoples were increasingly recognized. IBAs address both the mitigation of

¹⁷ Formerly named the *Canadian Environmental Assessment Agency*.

project impacts and, more importantly, the economic and other benefits that accrue to local communities. Some measures also address community capacity building. These measures help to reinforce the image of good corporate citizenship of companies (Rodon *et al.*, 2014).

IBAs allow for increased cooperation and sharing of information and knowledge between proponents and Aboriginal communities (Duhaimé, Bernard and Caron, 2011). However, some point out that the direct economic benefits negotiated under IBAs do not guarantee the prosperity of the communities concerned since investments in the social and health sectors are neglected (Roy, Lapointe & King-Ruel 2012). However, due to the confidential nature of these agreements, little research has been done on this topic given the difficult access to data (Rodon *et al.*, 2014).

3. RESULTS FROM THE IMPACT ASSESSMENT DOCUMENTATION

The results presented in this section are from the first phase of the research. A sample of four projects subject to the provincial ESIA process under Section 23 of the JBNQA and four projects subject to the federal process under Section 23 of the JBNQA were analyzed. For each process, the projects analyzed are first described, then the social impacts are identified and presented using an analysis grid structured by issue. The analysis grid used for project under the provincial process is available in Appendix C, while the grid for the project under the federal process is in Appendix D. It should be noted that there may be differences between the description of the projects in the impact assessment documentation and their actual implementation, particularly because of the COVID-19 pandemic, which compromised the achievement of certain objectives, for example with regard to the hiring of local workers.

3.1. Provincial assessment process, Section 23 of the JBNQA

3.1.1. *Description of the projects analysed*

Innavik Hydroelectric Project in Inukjuak

The Innavik project is a 7.5 MW hydroelectric development on the Inukjuak River (RSW, 2010). It consists of a 42-metre high concrete dam, a powerhouse powered by two turbines and a power line connecting the powerhouse to the village of Inukjuak. The facility is located 10.3 kilometres from the mouth of the river. During the construction phase, the project also includes:

- The development of a workers' camp with a surface area of 0.9 hectares and a capacity to accommodate 128 people;
- Development of an access road from an existing ATV trail;
- The creation of three borrow pits;
- Erection of a cofferdam and a 180-metre long diversion channel.

In terms of economic spinoffs during the construction phase, the project will create jobs in the construction trades and purchase goods and services from local businesses (not specified in the ESIA report). Economic spinoffs are also expected during the operation phase.

The project will provide a new source of renewable energy to the community of Inukjuak to replace the existing diesel generator plant. Inukjuak has 1597 residents. It is home to public and private institutions as well as local businesses and services.

Inukjuak Waste Site Project

The Inukjuak landfill development project, authorized in 2015, is intended to replace the existing landfill, which has reached its capacity (KRG, 2014). It involves the development of 10 cells with a total capacity of 70,000 m³. The project did not require any new access roads. A fence was erected to control access to the site. Domestic waste, end-of-life appliances or vehicles and hazardous waste will be stored on site. Compaction and capping of waste materials will be the primary methods of waste management. A collection system has been reconfigured and two trucks will provide service between the village and the site.

Puimajuq Mine Project

The Puimajuq mine site is located 59 km west of the Inuit village of Kangiqsujuaq, 154 km southeast of the village of Salluit and 290 km from Puvirnituk. Also, Pingualuit National Park is located 23 km north of the site (WSP, 2015).

Puimajuq is the fourth site operated by Canadian Royalties. It joins Expo, Mesamax and Allammaq. The project included the excavation of an open pit, a catchment system and a 6,000-metre-capacity wastewater retention basin³. A road of more than 10 km was built to link the site to the road leading to the port of Deception Bay. Finally, a camp was built to house the workers.

Mining of the Puimajuq deposit was scheduled to begin in September 2016 for a period of one and a half years, followed by a reclamation phase initially planned for 2018. However, the authorization for the exploitation of this pit was only issued in March 2018. The estimated production capacity is 3375 tonnes of nickel ore per week.

Mining operations are expected to take place during the day and night. Mining activities will produce a significant amount of tailings (or waste rock), 1,715,407 tonnes. Significant quantities of various residual materials and wastewater will also be produced.

A tripartite agreement between the proponent, the neighbouring village communities and the Makivik Corporation, an Inuit organization representing the economic and social interests of the region, provides a framework for the economic benefits to the Inuit communities during the life of the site.

Raglan Mine Project (Phases II and III)

Glencore's Raglan mine project (Phases II and III) aims to extend the operation of a nickel deposit until 2040. The site is located approximately 70 km west of the northern village of Kangiqsujuaq and 110 km southeast of the northern village of Salluit (SNC-Lavalin, 2015). Phase II of the project consists of the opening of two new underground mines (Projects 8 and 14). The first has an annual production capacity of 850,000 tonnes of ore for a period of approximately 8 to 10 years and the second has an annual production capacity of over 500,000 tonnes of ore for a period of approximately 10 to 15 years. Phase III will include the opening of three new underground mines.

The infrastructure in place for Phase I, such as the concentrator, the accommodation complex, the port facilities at Deception Bay, the airport and the access roads will be used in Phases II and III. Two ships will be used to transport equipment and ore to secondary and tertiary processing sites outside Nunavik.

The project includes the construction of a wastewater collection system and retention pond, as well as a tailings and waste management system. Related infrastructure also includes a vehicle wash station, an explosives storage facility for blasting operations and a salt storage facility for road de-icing.

The workday is long (12 hours/day) and based on a rotating work schedule consisting of alternating periods of work and leave of several consecutive days. Extra-curricular activities, such as a sport fishing program, are organized and offered to mine workers. The proponent has established an agreement with the communities, called the "Raglan Agreement", to allow Inuit workers and businesses to benefit as much as possible from the project's economic spin-offs.

3.1.2. Identification and analysis of issues

The results of the analysis are presented using an analysis grid structured by issue. This grid identifies the project activities that constitute a source of impact (*in italics*), the modifications to the components of the biophysical and human environment affected (*in italics*), and the impacts of these modifications with respect to specific issues. The grid also presents the measures proposed to mitigate the impacts. This way of structuring the information is intended to establish the "chain of consequences" of the proposed activities by identifying its constituent elements with respect to each issue. The following headings (*in italics*) designate the issues identified from the analysis of the data contained in the project ESIA reports.

Public health of populations affected by projects

Preserving the quality of the communities' drinking water supply may be a public health issue insofar as project activities would change its biochemical characteristics, making it unsafe. In the case of the Innavik Hydroelectric Project, the use of granular material containing fine particles for the construction of a cofferdam and diversion channel on the Inukjuak River would change the chemical composition of the river water that serves as the village's drinking water supply. If consumed, this water could cause health problems for the residents. Mitigation measures such as the use of granular material free of fine particles and the construction of a temporary water intake at the outlet of Qattaakuluup Tasinga Lake will address the problem in the short term.

In the case of the Inukjuak landfill development, the percolation of rainwater through the waste pile produces leachate. If left unrecovered, leachate has the potential to contaminate surface water and groundwater. However, the drinking water supply for the village of Inukjuak located far upstream from the Inukjuak River cannot be affected by contamination of surface water or groundwater surrounding the site. However, a leachate collection system consisting of a ditch built around the periphery of the site has been planned.

In the case of the two mine sites, exposed to rain, the waste rock piles from excavation work release residual metal particles into surface and groundwater that can be used for drinking water supply. The surface water is the water of the Deception and Puvirnituq rivers used by workers and some local communities. For the Raglan mine site, as for the Puimajuk site, a drainage collection system, retention basins and a wastewater treatment plant have been planned.

In light of the analysis of the four cases under study, it can be seen that the risk of contamination of water used as a source of supply for communities is fairly well controlled through the adoption of appropriate mitigation measures. However, the monitoring of the systems put in place and environmental follow-up become major issues in this context. Poorly functioning systems due to inadequate maintenance could reduce their effectiveness, leading to the contamination of drinking water supplies and putting the health of the populations concerned at risk.

Maintaining traditional activities in the areas concerned

Traditional fishing is an important part of the Inuit and Naskapi way of life. In the case of the construction of the Innalik hydroelectric generating station, the construction of the cofferdam and the diversion canal will result in a change in the water regime and the disappearance of whitewater areas. Since spawning sites, particularly for salmonid species, are usually located in these areas, their number will decrease and thus affect the river's productivity and catch potential. It is therefore planned to build a diversion canal to maintain the river's natural water levels.

During the operation phase of the power plant, turbines are likely to cause excess mortality of fish species, thus reducing the catch potential. It was therefore planned to install a system of fine screens at the turbine intakes to block the passage of fish. Finally, the impoundment of the reservoir will lead to a rise in water level and the flooding of upstream land areas, which would destroy traditional fishing sites.

Changes in the biophysical environment, both upstream and downstream of the structure, are likely to have a significant impact on the conditions under which traditional fishing is practiced in the affected sectors and, ultimately, lead to its abandonment by local communities. Monitoring the effectiveness of the mitigation measures adopted on the productivity of the river upstream and downstream is a crucial issue in the implementation of the project.

It is also possible that, despite the effectiveness of the measures adopted on the river's productivity, the mere presence of the structures constitutes a "disincentive" to maintain the practice of traditional fishing on the river. No measures could then be taken to counter the disinterest of the populations concerned in maintaining their fishing activities on the river.

Maintaining the conditions for the movement of local populations

The activities of the projects analyzed may have an impact on the travel conditions of the population in the territory in terms of safety or travel time in winter.

In the case of the Innalik hydroelectric development, the construction of the access road on the existing ATV trail is envisaged. It will entail sharing this infrastructure with the trucks that will travel between the construction site and the village. Users of the ATV trail will have to share the route with large vehicles, increasing the risk of injury in the event of an accident, not to mention the increase in the risk of an accident as such due to the increase in traffic. The proposed mitigation measure consists of widening and upgrading the ATV trail.

In the case of the Raglan mine, once the site is in operation, there will be a significant increase in shipping in Deception Bay, which will cause the ice cover in the bay to become more fragile. Residents living along the bay use the ice surface to travel by snowmobile. The poor quality of the

ice resulting from the frequent passage of ships increases the risk of accidents or breakage of snowmobiles, prompting users to adopt a longer alternative route to avoid passing over the bay. This results in longer travel times and a change in lifestyle. The construction of an ice bridge or an aluminum bridge is being considered to facilitate travel for users.

Both studies show that project activities can have an impact on the safety of transportation infrastructure users and the travel time of people in a given area. The proposed mitigation measures are likely to improve the situation, without guaranteeing that project activities will not have a disruptive effect on lifestyle.

Economic development of Inuit and Naskapi communities

The fourth theme is the economic development of Inuit and Naskapi communities. First, with respect to the employment situation in the Inuit and Naskapi communities at the local level. In the Nunavik region, the employment market is mainly in the primary and tertiary sectors. In the primary sector, the activities that create jobs are the exploitation of wildlife and mining resources. In the tertiary sector, jobs are mainly concentrated in public administration, health services, education and retail trade.

The launch of development projects and the adoption of measures to encourage the hiring of Inuit or Naskapi workers have a positive impact on the employment situation in the communities concerned. During the construction phase, spinoffs are concentrated mainly in the construction sector through the creation of specialized jobs. This was the case in the communities of Inukjuak, Salluit and Kangiqsujuaq.

The second economic development issue is the status of the Inuit and Naskapi labour force. The labour situation is described by the level of qualification of workers in a given territory. The creation of direct and indirect jobs during the construction and operation phases of projects can have a positive influence on improving the qualification of the workforce in two ways: 1) by stimulating workers' interest in acquiring new skills in order to improve their chances of obtaining one of the jobs created by the project¹⁸, and 2) by the participation of workers in carrying out the projects, who, in so doing, acquire new skills through experience or by taking training courses offered by the companies. In all the cases analyzed, measures were taken to improve the skills of Inuit or Naskapi workers, particularly through the creation of internships or the establishment of training programs in partnership with businesses.

The third issue is the participation of local businesses as contractors or subcontractors in projects. The measures taken in this regard consist of the application of criteria that favour local businesses; when faced with an offer of equivalent services or products, the Inuit or Naskapi business is favoured. Another measure is the identification of mechanisms to help small and medium-sized enterprises qualify for and respond to calls for tenders. Goods and services contract splitting is another measure to encourage the participation of Inuit businesses.

Protection of cultural and natural heritage

¹⁸ In some cases, this interest has been measured by increased enrolment in training courses in relevant areas of activity.

The cultural heritage of the Inuit and Naskapi consists of sites of archaeological interest and burial sites. The natural heritage consists of remarkable natural sites such as the Pingualuit National Park.

In the case of the hydroelectric development near Inukjuak, the original route of the access road encroached on two archaeological sites that were of great spiritual value to the Inuit community. As a result, the route was moved to the south. Also, the presence of the work camp near a third site was seen as an encroachment on the site itself. The camp was moved away from the site and a perimeter was established around it.

In the case of the Raglan mine project, there was concern about the destruction of archaeological sites on the sites where excavation work was to be done. It was decided to conduct an inventory of archaeological sites before proceeding with the work.

The landscape is also part of heritage protection. The presence of equipment and structures or any other activity that modifies the physical appearance of a site can have the effect of changing the representations that residents or people who frequent the site have of the environment that makes up their living space. In the cases studied, measures were taken to mitigate the visual impact of the presence of equipment, structures or any other modification to the physical environment. However, it is important to note that the mere knowledge of the presence of such equipment, structures or modification of the physical environment can have the same effect.

The landscape can also be considered as a tourist attraction. In fact, the "landscape preservation" dimension can be analyzed from the standpoint of the loss or modification of sites valued by land users for their intrinsic value and/or their value as a tourist attraction (modification of the component). In the Raglan mine project, the impact of light pollution caused by the presence of the mine on the experience of visitors to Pingualuit National Park was examined.

Inter-community relations

In the case of the Raglan project, during Phase I of the mining operation, mine workers got into the habit of sport fishing in Deception Bay and in the lakes in the surrounding areas that are also frequented by Inuit. The presence of non-Native fishers has had the effect of distancing Inuit fishers from their usual fishing site. In addition, the presence of an increased number of fishers had the effect of increasing the pressure on the fishery resources valued (Arctic char) by the Inuit, creating a form of competition likely to generate tensions between the latter and non-Native fishers. As part of the implementation of phases II and III, the mine management proposed to regulate sport fishing in the lakes near the mining infrastructures.

Changes in the lifestyle of Inuit families

During Phase I of the Raglan mine operation, it was observed that the absence of workers for long periods had a disruptive effect on their families. Raglan mine management adjusted work schedules to allow Inuit workers to spend more time with their families, and plans to expand support measures in Phases II and III, including psychological assistance for Inuit workers and their families.

3.2. Federal assessment process, Section 23 of the JBNQA

3.2.1. Description of the projects

Quaqtaq Marine Infrastructure Project (Phase II)

The village of Quaqtaq is located at the tip of the northwest coast of Ungava Bay and had 333 residents in 2005, nearly half of whom were under the age of 25 (Makivik Corporation, 2006). The community subsists in part on traditional activities such as shellfish harvesting along the coast or eiderdown harvesting. With an investment in a longline, the community has developed a commercial scallop fishery that it sells locally. Like other Inuit villages in Ungava Bay, the community is subject to winds, which average 22 km/hr and can sometimes reach speeds of over 200 km/hr. In particular, Quaqtaq has a high tidal range of 8.4 metres. In order to provide safe access to the sea and to protect the community's marine vessels, the Makivik Corporation built a breakwater, dock, access ramp and road in 2000 as part of the Nunavik Marine Infrastructure Program (Phase I). In 2007, a second project was launched to improve existing facilities and create new infrastructure on a new site (Tulirag). In the environmental and social impact study prepared by the Makivik Corporation in 2006, the following construction elements were identified:

- Addition of a small breakwater in Quaqtaq Bay (Mission Cove);
- The creation of a new 195-metre long breakwater on the Tulirag site;
- A new 30-meter long access ramp;
- A 3,350 square meter service area.

An existing quarry was reopened to excavate nearly 80,000 cubic metres of material and two trucks made trips to and from the quarry. The dynamite was flown to Quaqtaq. The drilling and blasting jobs were filled by Inuit workers and companies in accordance with the Nunavik Marine Infrastructure Program's hiring and subcontracting policy.

Kangiqsujuaq Marine Infrastructure Project (Phase I)

Kangiqsujuaq is an Inuit village located in the Hudson Strait, 141 km from Quaqtaq. In 1999, the population consisted of 483 residents, with more than 60% of the inhabitants being under the age of 25 (Makivik Corporation, 2000). Among the traditional subsistence activities, shellfish harvesting, particularly blue mussels along the coast at low tide, is very popular. The first phase of the Kangiqsujuaq marine infrastructure project was designed to create a space where boats and canoes could be protected from the waves. Access to the water was to be available 90% of the time. The impact study dates back to 2000 and was carried out by the Makivik Corporation, in which the following construction elements were identified:

- The construction of a main breakwater and a secondary breakwater;
- The construction of a ramp;
- Construction of a mooring basin;
- The construction of a small parking area.

The project required the creation of a new quarry, in which some 53,000 square metres of material had to be excavated. The material was transported by two 35-tonne trucks on existing roads. The proponent favoured hiring Inuit staff and purchasing goods and services from Inuit owned businesses.

Ivujivik Marine Infrastructure Project (Phase II)

Ivujivik is located at the northern tip of the Ungava Peninsula. In 2001, the population of the village was 287 residents (COFEX-North, 2009). Fish harvesting and beluga hunting in the Hudson Strait remain important traditional activities for community members. In 2002, a first phase of marine infrastructure creation was completed and consisted of two breakwaters, a dock, an access ramp, a road and a drainage trench. In 2009, in the final report of the impact study analysis submitted by COFEX-North, the project elements of the second phase were as follows:

- A doubling of the dimensions of the existing access ramp;
- The construction of a new access ramp for ship owners;
- The construction of two new breakwaters;
- Widening the existing access road and reducing its gradient.

The quarry used during the first phase of the project and located 1,700 metres from the port was reopened. Trucks transported construction materials from the quarry on an existing road.

Deception Bay Marine Infrastructure Project

Deception Bay is located 50 km from Salluit and 170 km from Kangiqsujuaq. The bay is a site of essential subsistence activities, such as beluga and ringed seal hunting, as well as plant and berry gathering, carried out by both communities. Ancestral habits and customs, such as drying fish on canvas, are still practiced there. The bay was identified and integrated into the land master plan adopted by the KRG (COFEX-North, 2013). Authorized in 2013, the port facilities project is part of the Nunavik Nickel mine project of Canadian Royalties. In its recommendations report on the port facilities project, COFEX-North indicated the following project elements:

- The development of a dock;
- The creation of a disposal site for marine sediments resulting from dredging activities;
- Marine navigation of ore carriers in the bay.

The sediments were transported by truck on existing roads nearby. The development of the port facilities was exclusively for mining operations, which involved regular ship traffic during the winter months. Construction jobs and subcontracts were available to Inuit workers and businesses at the project site.

3.2.2. Identification and analysis of issues

Maintaining traditional activities in the areas concerned

The projects analyzed may have an impact on the practice of traditional activities. During the consultation period held in the context of the marine infrastructure project in Kangiqsujuaq,

members of the two Inuit communities affected recalled that traditional activities affect several important aspects of their way of life: food, clothing and various objects that are important to them (Kangiqsujaq, p. 213).

In the case of the Quaqtak and Kangiqsujaq marine infrastructure projects, it was feared that work on a breakwater would disrupt blue mussel harvesting activities in the area, at least temporarily.

In the case of the Deception Bay marine infrastructure project, during the construction phase, there was concern that excavation and trucking of marine sediments to a repository would result in the suspension of fine dust particles that could be deposited on plants and berries harvested by shoreline communities. It was therefore recommended that the road surface be permanently moistened to counter this phenomenon. The problem also arises with respect to fish drying, another traditional Inuit activity.

In the case of the Deception Bay and Ivujivik marine infrastructure project, there was concern that blasting activities would drive beluga away from the areas surrounding the coastal villages, making it more difficult to hunt this species. It was therefore decided to prohibit blasting during the period when beluga frequent the construction area.

In the case of the Ivujivik marine infrastructure project, it was feared that the noise generated by the drilling and blasting activities in the quarry would disturb certain bird species during the nesting period, resulting in a decrease in the number of eggs laid. This is the case for the eider duck, whose eggs are part of the Inuit diet. No mitigation measures have been considered to reduce the effect of blasting activities on this practice.

During the operation phase of the port infrastructures in Deception Bay, marine navigation weakened and fragmented the ice cover in certain areas. For some species, particularly ringed seals, the ice cover represents whelping habitat. This species is one of the most hunted by the Inuit. It was therefore decided to limit shipping during the whelping, nursing and weaning period.

Although not explicitly mentioned in the documentation consulted, monitoring the effectiveness of mitigation measures on traditional practices is a key issue. Indeed, despite the measures adopted to mitigate the impacts of the projects in both the construction and operation phases, community members may still abandon traditional subsistence activities. Follow-up should verify this and assess the specific role of the projects in this regard, in relation to other factors that might explain it.

Maintaining safe conditions for the movement of local populations

As observed in the projects analyzed under the provincial process, the activities may have an impact on the conditions of movement of the populations in the territory, in terms of safety or travel time during the winter.

In all the cases of marine infrastructure development analyzed, the transportation of materials between the quarry and the construction site represents a significant impact for residents. Children, often numerous in Inuit communities, are vulnerable to heavy vehicle traffic on existing roads, increasing the risk of accidents. Several mitigation measures were taken, such as in Ivujivik, where it was decided to choose a quarry far from the village to avoid truck traffic near inhabited areas. In

Kangiqsujuaq, speed limits were imposed and barriers were erected along portions of the road used by heavy vehicles. In Quaqtuaq, stop signs were installed and drivers were equipped with portable radios to signal the presence of pedestrians on the roads.

As with the analysis of Phase II and III of the Raglan mine operation carried out under the provincial process, which provides for the improvement of marine infrastructures in Deception Bay, the issue of maintaining safe travel conditions for the population in winter has been raised. As part of the federal process, it was proposed that ship navigation be coordinated and that ship schedules be communicated in order to facilitate the movement of users.

Inuit Community Economic Development

As observed in the case of the projects analyzed under the provincial process, the economic issues analyzed under the federal process are essentially the same: the employment situation in the Inuit communities, the situation of the Inuit labour force and the participation of Inuit businesses in the projects. The measures adopted to maximize spinoffs during the construction phase consist in hiring Inuit in the fields of blasting, drilling or heavy machinery. In the case of the Kangiqsujuaq marine infrastructure project, the designation of the Makivik Construction as the sole proponent and contractor for the project was seen as a positive factor in this regard.

The acquisition of new skills by Inuit workers through their participation in the projects (Quaqtuaq project) and through enrolment in internships or training offered by companies (Deception Bay project) was mentioned. The same applies to the participation of Inuit businesses in projects. Among the measures adopted in this regard, mention was made of the pre-qualification of Inuit businesses as suppliers (Kangiqsujuaq project).

Finally, it is important to mention that the project proponents have adopted labour recruitment and subcontracting policies in order to maximize the economic benefits for the Inuit communities.

Protection of natural heritage

The topography of the sites where the Inuit villages are located, most of which are small or medium-sized, is characterized by a fairly flat relief of the type of non-shrubby plains or low-lying rocky massifs. Therefore, any excavation made in the ground becomes all the more apparent.

In the Kangiqsujuaq marine infrastructure project, the creation of a new quarry has significantly and permanently altered the visual environment in the immediate vicinity of populated areas. As a mitigation measure, it was proposed that the quarry be cleaned and revitalized at the end of the construction phase.

Inter-community relations

In the case of the Deception Bay project, the port facilities built were for the exclusive use of Canadian Royalties for the transshipment of ore, thus depriving the Inuit of easy access to the sea. The occupation of part of the shoreline by these facilities was seen as an encroachment on a part of the territory that had previously been freely accessible to the Inuit.

Changes in the lifestyle of Inuit families

In the case of the Deception Bay project, during the construction phase, Inuit workers had to be away from their families for long periods of time, with the result that their ties to their community were eroded. The mine management had therefore proposed working conditions adapted to the reality of the Inuit workers. Among the measures adopted to mitigate the impact of the workers' estrangement from their families was a 2/2 rotation of work schedules (two weeks on site, two weeks off). Other measures include unpaid leave for family reasons and the hiring of spouses who are offered the same work schedule rotation.

Land use conflicts

In the case of the Kangiqsujuaq project, during the construction phase, the community beach was used by cargo ships to unload their annual cargo. The beach was also used by Inuit fishermen to access the sea. The sharing of the beach had the effect of temporarily disrupting the community's access to the sea. It was decided to locate the community's new marine infrastructure several hundred metres from the annual offloading area.

4. RESULTS FROM THE SEMI-STRUCTURED INTERVIEWS

This fourth section of the report presents the results of the 10 semi-structured interviews (R1–R10) conducted with impact assessment experts and practitioners in Nunavik. The content of the interviews was processed in order to group together excerpts dealing with similar themes.

4.1 Context

Before looking specifically at the impact assessment procedures, the respondents wished to point out that these procedures stem from the JBNQA, and that this treaty imposes a specific historical and economic context (R3, R8). The JBNQA provided for financial compensation but required the abolition of Aboriginal rights throughout its territory of application (R8). The federal and provincial parties were initially hesitant about the impact assessment procedures provided for in the JBNQA, fearing that the creation of the committees charged with implementing or overseeing them, would result in a transfer of human and financial resources needed to carry out their mandates that would be disadvantageous to the governments (R8). The situation has since evolved and interesting examples of collaboration between the various committees have been observed over the years, allowing for joint consultations on certain issues. However, the problem of duplication of processes is real, and the regulatory provisions that would make it possible to avoid it are not always used (R8).

4.2 Social Impact Assessment

The assessment processes instituted by Section 23 of the JBNQA were quite advanced for their time, and practices have been refined over the years (R2). Still today, it is difficult to identify and assess project-specific social impacts versus those resulting from changes in society. For example, the analysis of small-scale development projects has difficulty in identifying the social issues arising from the gradual infiltration of modernity in Aboriginal communities (R6). The committees created under the JBNQA, which are permanent and include the participation of Inuit members, should provide the expertise and flexibility needed to adapt assessments to new realities (R2).

Impact assessment practices continue to evolve. The 2019 adoption of the IAA, which replaces the CEAA, is accompanied by a guide to improve social impact assessment. These new tools could be useful to the Screening Committee, who, if a project will be subjected to the federal impact assessment process, has a role to play in establishing guidelines to identify social issues that require special attention (R4). This evolution in practices was observed in the impact assessment of the Raglan mine. While the mine has been in operation for more than 20 years, social impacts (impacts on the family, financial contribution of wages), were first studied in the context of the Sivumut project, in 2013 (R10).

Social impact assessments in general are of uneven quality. There is no consensus on preferred approaches, and the quality of the study depends on the willingness of the proponents. The consultation process and the consideration of local knowledge vary greatly from one project to another, and some proponents do not necessarily hire social science experts to conduct their studies.

Some communication methods favoured by proponents, such as large public hearings, may not be the most appropriate everywhere (R9).

4.3 Cumulative Impact Assessment

While all stakeholders believe that cumulative impacts need to be better considered, the opinions diverge on how best to do so. Several challenges make this analysis difficult. The difficulty of systematizing the approach and the lack of a rigorous methodology were mentioned (R6, R8). At present, consideration of these cumulative impacts appears to be based on intuition (R6) and second-hand data (R8). The lack of information, the reluctance of some operators to share information about their activities (R2), the uncertainty surrounding the responsibility of each stakeholder, and the variable interpretation of results by each stakeholder (R5) mean that the assessment of cumulative impacts involves "a large degree of uncertainty" (R4). Project-by-project assessment does not work for considering very long-term impacts, for retrospective assessments, or even for considering the perpetual needs of degraded sites (R9).

According to one stakeholder (R6), the multiparty committees created under the JBNQA do not have the mandate to consider cumulative impacts, since their analysis focuses instead on individual projects. The KRG would be in a better position to do this analysis, since it is responsible for territorial planning and management. However, the stakeholder recognized that this would be a huge task for this organization alone, especially considering that this work should be done in collaboration with the northern communities. Another stakeholder (R1) mentioned that comprehensive cumulative impact assessment is also lacking in the south, and that studies to better characterize these impacts generally come too late to be truly considered in the analysis of specific projects. It would also be unrealistic to ask proponents to measure the impact of activities that are not related to their project, or that are located outside their intervention zone.

Several solutions were suggested by respondents. The carrying out of SEAs for territorial and sectoral planning would be desirable (R8), as would the creation of a multipartite body responsible for managing a territorial database and monitoring territorial development (R5). To offset the complexity of conducting a SEA, it might be suitable to identify, with local stakeholders, a few important issues pertaining to the development of the territory. These issues would not be specific to a single project, and would serve to guide long-term monitoring (R8).

4.4 Main social impacts in Nunavik

Since the mid-2000s, there has been significant investment in the mining industry in northern regions. Historically, this type of activity is not sustainable, and often causes environmental contamination as well as a number of social and economic problems. The very temporary nature of the activities often creates a phenomenon called "boom and bust", where many people have a paying job at the same time, and then, once the mining project is terminated, all these people become unemployed. If the local economy is not diversified enough to absorb the workers when the mine closes, these workers either have to leave the area or return to their baseline status, which usually leads to significant frustration. Beyond the economic benefits, there is a need to ensure that concepts that are important to Inuit are considered, such as access to the land, traditional foods, protection of language, sense of community and maintaining the role of elders (R9).

Salaried employment is an impact that cannot be calculated for each specific project, since it has been established in the communities for a long time, but it has a non-negligible impact on the social fabric (R8). The KEQC has also requested the creation of social impact monitoring committees, with the intention to pay particular attention to the increase in individual consumption and the behaviour of individuals within households resulting from the introduction of wage employment in the communities (R7). Northerners are torn between protecting the traditional way of life and introducing job-creating economic activities, and are trying to balance these two seemingly contradictory goals (R2). Mineral extraction activities, which create wealth, are seen both as a way of reclaiming the territory, by having the financial resources to buy the equipment needed to access traditional activities, but also as a threat, since this industry brings about changes that are not necessarily compatible with the activities on the territory (R7).

The management of royalties resulting from mining activities can also pose challenges. The communities themselves decide where to invest these amounts; sometimes the money is invested in infrastructure and sometimes the money is distributed among residents. These two approaches do not have the same impact on communities. This element is now part of the Raglan Mine Socio-Economic Indicators Monitoring Program (R10).

5. DATA ANALYSIS

The results of the literature review, the impact assessment documentation and the semi-structured interviews were presented in the previous three sections. This fifth section analyses all of these findings, building on the conceptual framework presented in the first part of the report.

5.1. Social Impact and cumulative effect assessment

5.1.1. *Return on phase 1 of the research*

As mentioned in the first part of the research (section 1.2), social considerations have long occupied a marginal place in project impact assessment. The question repeatedly asked by observers and experts in the field of environmental assessment is why? Among the reasons cited by some authors¹⁹ to explain this, there is first the conceptual basis of the most commonly used impact analysis method: the evaluation of impact significance by environmental component.

A major shortcoming of this method is that it assigns a value (impact significance) to changes in environmental components resulting from a given action, without explicitly referring to specific problems formulated in terms of issues (Côté *et al.*, 2015). By failing to refer to a given issue, this method confuses two fundamental notions, that of "material change induced by an action" and that of "impact of the change," which refers to its significance in terms of issues formulated in terms of stakes, which has an effect on the scope of the analysis of impacts, particularly social impacts.

As Gagnon (2002) points out in his analysis of the EIA of the Rio Tinto Alcan industrial complex project in Alma, Québec, the ESIA report describes the increase in ambient noise resulting from the construction work and the increase in heavy vehicle traffic, but fails to address the resulting human/social impacts, i.e., changes in lifestyle, loss of sleep and stress caused to residents living near the site and the access roads to the construction site. Moreover, this "confusion" between the two notions of "change" and "impact of change" has consequences on the scope of social impact monitoring.

In the case analyzed by Gagnon (2002), the only measure adopted was to ensure compliance with regulatory noise standards. When a controversy arose over heavy vehicle traffic in a residential area adjacent to the site, some measures were adopted to mitigate noise by lowering the maximum speed limit and reducing the daily time period when through traffic was allowed. The development of a bypass was considered, but until this was completed, residents were asked to be patient and tolerant given the expected economic benefits to the community regardless of the impacts on their quality of life. Even if it was unlikely to suspend construction activities (a \$2.1 billion project in 1997) while waiting for a bypass to be built, an analysis of the social impacts of heavy vehicle traffic would have contributed to the recognition of the problem and, if applicable, would have

¹⁹ Rossouw and Malan 2007, Gagnon 2002, Vanclay 1999, Burningham 1995, Burdge 1990, Blishen *et al.* 1979.

served as the basis for the payment of monetary compensation for the inconveniences experienced by the residents concerned (Côté, 2004).

The treatment of project economic impacts in impact assessments is another example identified in the first part of the research to illustrate the conceptual shortcomings of ESIA and the biases on which they rely. As Rossouw and Malan (2007) point out, economic impact analysis is generally based on the assumption that any changes induced by a project that are likely to improve the situation of communities in terms of meeting their basic needs in terms of employment, housing, health, education, etc., constitute a strong positive social impact. However, as the authors have shown, some project spillovers, such as the injection of capital to improve public services or the increase in household income resulting from job creation, can have major disruptive effects on the way of life of individuals and the governance of local communities, which are taken into account only to a limited extent in the analysis of the impact study.

However, the nature and importance of the social impact would stem not only from the nature and scope of the changes brought about by the project, but also from the characteristics of the communities in terms of the configuration of capital and the ability of territorial actors to mobilize it. This is why Rossouw and Malan (2007) believe that SIA requires detailed knowledge of the characteristics of the community in which these changes occur.

As Gagnon (2002) points out in this regard, in most cases, social impacts are not independent of the characteristics of the environment: "Depending on the social context and time, the impact can vary: a community, like an individual, can accentuate, accelerate, obscure, or even cancel out an impact" (p. 3). Like Gagnon (2002) and several authors (Vanclay 1999, Burningham 1995, Blishen *et al.* 1979), Rossouw and Malan (2007) cited in the first part of the research argue that the social impacts of a change are not independent of the configuration of human, institutional, economic, financial, natural and physical capital (or resources) that characterize each community.²⁰

In short, social impact analysis involves not only measuring the magnitude of changes induced by a given project on the components of the human environment, but also taking into account the "adaptive capacity of the affected populations".

5.1.2. Phase 2 of the research

First, among the respondents to our survey, some drew our attention to the multifactorial nature of the social changes experienced by Aboriginal communities in the north over the past few decades. The various programs financed by the Canadian government or via federal transfers to the provinces for the construction of infrastructure for public use (airport, wharf, landfill site, drinking water supply and wastewater recovery, etc.), the construction of housing and the implementation

²⁰Rossouw and Malan (2007) refer to Moser's (1998) model of "social sustainability" which distinguishes three types of capital: social, productive and human. We prefer to refer to the definition of "rural community" developed by the *Centre for Research in Territorial Development* (CRTD). The CRTD defines rural communities as dynamic systems characterized by a configuration of specific human, institutional, economic, financial, natural and physical capitals (or resources), which are variably activated according to the mobilization of territorial actors and their actions or projects (Lafontaine *et al.* 2007).

of modern governance systems at the regional (KRG) and local (northern villages) levels are all vectors of change (**R3, R8**).

However, large-scale projects, such as mining projects, are vehicles for rapid and significant change. It is quite clear from the scientific literature consulted and from the comments gathered from the respondents to our survey in the second part of the research that the combined effect of hiring Inuit workers, purchasing goods and services from Inuit businesses, as well as the payment of funds to the communities are all sources of impact that induce significant changes on several components of the human environment:

- the lifestyle of individuals (**R6, R7, R9**) ;
- Relationships within households (**R7, R10**);
- the local economy²¹;
- governance within communities (**R9**).

Regardless of the negative or positive interpretation given to the changes induced by mining projects, they have the potential to cause serious social problems and conflict within communities²². Indeed, as observed by Parlee and O'Neill (2007), the rapid changes and instability that accompany mining projects can lead to "social anomie" and "anomic suicide". The concept of social anomie describes the absence of organization or law, the disappearance of shared values. It refers to the situation in which individuals find themselves when the social rules that guide their behaviour and aspirations lose their power, are incompatible with each other, or when, undermined by social change, they must give way to others. Anomic suicide, caused by the suffering generated by the disruption of human activity, tends to increase in times of political crisis or economic boom. Large-scale projects such as mining projects, which bring about rapid and significant changes, are likely to exacerbate the situation described by the concepts of "social anomie" and "anomic suicide". This issue was raised by one respondent to our survey.

Respondent R9 mentioned the accelerated industrial development of the northern regions in the 2000s based on mining and primary processing activities. This respondent emphasized the very temporary nature of this type of development and expressed concern about its impacts if there is not already a diversified local economy capable of both benefiting from the spinoffs of the projects (purchase of goods and services locally and job creation) and "absorbing the workers" when the mine ceases operations once the deposit is exhausted. What happens after 25 years when a community's way of life has been completely transformed by the establishment of an activity that ceases overnight, asked Respondent R9? For this respondent, the residents then have two choices: leave the region to find work elsewhere or give up salaried employment and return to a traditional way of life based to a large extent on subsistence fishing and hunting.

²¹ See *Schweitzer et al.* 2014.

²² Respondents to our survey reported differences of opinion within the communities on whether or not the enrichment of individuals and communities resulting from the implementation of the projects promotes the continuation of traditional hunting and fishing activities. As pointed out by respondent R6, the financial resources provided to communities and individuals by the implementation of these projects give them access to the equipment needed to reclaim this immense territory and pursue traditional activities.

However, according to some respondents (**R3, R6**), the disruptive effect of projects may vary according to what they call the "level of penetration of modernity in Aboriginal communities" and, consequently, on the capacity to adapt to the changes brought about by the implementation of new activities in the territory. This remark refers to the notion of "social impact analysis" which involves not only measuring the extent of the changes induced by a given project on the components of the human environment, but also taking into account the "capacity of affected populations to adapt". But how is this notion interpreted in practice? The ESIA of phases II and III of the Raglan mine operation mentioned in the first part of the research is rich in lessons on this subject.

The ESIA report on phases II and III of the Raglan mine operation mentions that mining projects can contribute to the "erosion of Inuit culture". However, the authors of the report downplay the project's contribution to the phenomenon claiming that:

- Raglan Mine, like other organizations and aspects of modernity (Internet, paid work, education, justice and health systems, etc.), is participating in the erosion of Inuit culture by offering a work environment governed by industrial culture;
- If we consider the number of Inuit employees at the Raglan mine (180 people) in relation to the total population of Nunavik (12,090 people), we see that a small proportion of Inuit are in permanent contact with the mine;
- Several measures have been put in place by Raglan Mine to contribute in various ways to the maintenance of Inuit culture, both in the workplace and in the communities (SNC Lavalin 2015, p. 6-116).

In light of the scientific literature consulted and the comments received from respondents to our survey, it is quite clear that this analysis is incomplete and leads to erroneous conclusions. It is incomplete, first of all, because it fails to identify the communities most specifically affected by the project's cumulative effects. Secondly, because the study neglects to identify the social impacts of the changes induced by the project with regard to the phenomena of social anomie and anomic suicide associated with large-scale projects. Thus, if we analyze the changes induced by the project on Inuit culture with regard to the problem of social anomie and anomic suicide, we should have taken into consideration the impact of the project on social cohesion, in the first case, and on the mental health of individual members of the community, in the second (see Table 2, next page).

Moreover, in an excerpt from the same ESIA report on phases II and III of the Raglan Mine, reference is made to the "capacities of employees, families and communities" to adapt to project-induced changes. A series of measures are proposed to strengthen their capacities in this regard, and even to manage, integrate or even benefit from the effects of the main sources of impact, namely employment and training, contracts, the payment of financial guarantees and profit sharing (SNC Lavalin 2015, p. 6-95).

Table 2: Analysis of the problem of the erosion of Aboriginal culture in terms of impact

ISSUES	ACTIVITIES/SOURCE OF IMPACT	COMPONENTS APPROX. BIOPHYSICS	ENV. COMPONENTS HUMAN	IMPACT
Social Anomaly of Aboriginal Communities/Anomic Suicide	Hiring of Aboriginal workers <i>Creation of salaried jobs</i>		Culture of Indigenous communities <i>Lifestyle of the people</i>	Social cohesion within communities <i>Share capital</i>
			Culture of Indigenous communities <i>Household relations</i>	Mental health of individuals, community members <i>Suicide rate</i>
	Purchase of goods and services <i>Creation of a service company</i>		Culture of Indigenous communities <i>Local economy</i>	
	Payment of funds to communities <i>Creation of public social service agencies</i>		Culture of Indigenous communities <i>Governance within communities</i>	

With regard to the proponent's ESIA report, we note in the first part of the research that the notion of "people's capacity to adapt to change" is considered primarily as a factor that must be taken into account in order to promote the harmonious integration of the project into the human environment, rather than as a constituent element of the analysis of social impacts. But how can the capacity of populations to adapt to change be taken into account in the impact analysis?

One option would be to incorporate a "sensitivity index" that describes the greater or lesser capacity of a given population to adapt to change. This index would be developed from quantitative and qualitative data on the affected communities. The stress experienced by these communities as a result of changes in their environment, both biophysical and human, could be a factor considered in the sensitivity index. The "level of penetration of modernity in Aboriginal communities" which, depending on the case, would be more (high level of penetration) or less (low level of penetration) conducive to the adaptation of affected communities to change.

The sensitivity index would be applied to each descriptor selected to analyze the project's impact on the social cohesion and mental health of individuals in the affected communities. Since the capacity to adapt to change varies significantly from one community to another, the sensitivity index would make it possible to integrate in a rigorous and transparent manner the vulnerability of the affected populations and individuals, which, depending on the case, could prove to be more or less significant.

The commonly used method of using a qualitative coding of high, medium and low to assess impact significance makes it more difficult to incorporate a sensitivity index, but the application of multi-criteria decision support (MCDS) methods to the ESIA could provide a solution because it does not require additional qualitative coding. The sensitivity index would be applied directly to the impact descriptor, whether it is the impact on social cohesion or the impact on the mental health of individual community members.

However, information on the human environment in the north is scarce, particularly with regard to specific communities. The same is true of the information needed for social impact analysis and the development of a sensitivity index that involves assessing the potential cumulative effects of a project with other past, present and future actions on a given social issue, such as the erosion of Inuit culture. The lack of data and, where available, the difficulty of accessing data on the human environment in the North is a problem mentioned in the scientific literature consulted and by the respondents to our survey in the second part of the study.

5.2. Information on the human environment in the north: lack or poor quality of information

In the scientific literature consulted, several observers deplore the lack or poor quality of information needed to analyse the social impacts of projects. Rodon et al. (2014) and Petrov et al. (2014) argue that gaps in knowledge and available information can lead to inaccurate and sometimes even contradictory predictions about the expected impacts of a project. According to them, insufficient baseline data limits analytical capacity and prevents predictive modeling. Rodon et al. (2014) attribute the lack of data to the poor quality of analysis of social impacts which are not properly measured or simply ignored. According to Petrov et al. (2014), the lack of data [because it is non-existent or unavailable] influences the determination of impact categories and descriptors. As for the authors of the *Arctic Environmental Protection Strategy* (1997), they point out that the lack of baseline information in the Arctic can result in prolonging the time needed to conduct an ESIA.

Environmental monitoring reports for mining projects in particular could be a useful source of information for social impact analysis, but are unavailable because project owners and operators are often reluctant to publicly disclose their contents. Moreover, as pointed out by Rodon et al. (2014), monitoring reports often refer to the results of opinion surveys conducted among mine workers and the local population, rather than to monitoring indicators on issues such as increases in the cost of living, changes in the health status of members of affected communities, and the quality, price and availability of housing. Also, monitoring reports rarely contain information on changes in the role of individuals within households and the practice of traditional activities.

The issue of access to information for social impact analysis was also addressed by some respondents to our survey (**R2, R5, R6, R8**). Also, regarding "the possibility of evaluating social impacts with well-defined, well-tested methodologies," respondent R2 stated from the outset that "it wasn't as obvious as that." We tried to develop tools, but over time we learned to rely on the Inuit and non-Inuit members of the committee [as a source of information] because of their roots in the community. With regard more specifically to the factors external to the projects that could have an impact on the social situation of the communities that are constantly evolving, this respondent considers it all the more important to work with "local people". However, the R2 respondent warned against the *preconceived notions* that often stem from the perception of individuals or groups of individuals [consulted] that do not necessarily reflect that of the majority.

Respondent R7 felt that a methodology for SIA should be developed. The knowledge of the human environment provided by Inuit representatives is not fully known or assumed. Very often, they have several responsibilities as representatives at the municipal level and other public authorities while sitting on several committees at the same time. According to the latter, Schedule 2 of the JBNQA should be reviewed.

Like respondent R2, respondent R8 drew our attention to the difficulty of distinguishing the impacts resulting from a given project from those resulting from changes in the environment (biophysical and human) in which it is located, which are influenced by a multitude of factors “about which relatively little is known.” This respondent explains this situation by the fact that the production of knowledge comes mainly from the proponents and is limited to what is strictly necessary for conducting the cumulative impact analysis. According to respondent R2, project operators are also reluctant to share information on their activities and on their project's host territory.

However, respondent R5 wondered about the responsibility of each stakeholder (government, proponent, practitioners) for generating the knowledge required to conduct a cumulative impact assessment. “How far should we go in analyzing the cumulative impacts of development projects on the human environment? Would the directive for the impact study issued by the responsible authority be a tool for requesting information on the human environment? But how far can these requests go? What is reasonable to ask [of the proponent]?” Lastly, what tool(s) would make it possible to interpret this information in order to draw conclusions (*make sense out of it*), with each person being able to make their own interpretation?

With regard to Respondent R5's question concerning the ESIA for phases II and III of the Raglan mine operation, the directive as formulated leaves the proponent considerable latitude in analyzing "social and community issues" as well as cumulative impact issues (see Box 1).

Box 1: Directive for the ESIA of phases II and III of the Raglan mine operation

Social and Community Issues

Without diminishing the importance of the elements presented above, social acceptability is a strong issue... [...] In fact, land use has necessarily been modulated for several years by mining activity in the sector. [...] Jobs are held by [Aboriginal people] with all the positive and negative impacts that this entails. The economic and social impacts of the project and the perceptions of the Aboriginal people condition this social acceptability and even that of mining development [in the territory].

Cumulative impact issues

Ongoing mining operation issues also involve any pressures placed by the project on the natural environment and nearby communities over an extended period. [...] The proponent must therefore take into account, in preparing its impact assessment, the cumulative impacts related to the multiplication of infrastructures on the natural and human environments, and the presence of several other projects in space and time.

Concerning factors external to specific projects that have had a significant impact on the social situation in the northern territories, respondent R6 gives the example of the agreement between the Government of Québec and the Crees "La Paix des Braves" which, combined with the completion of hydroelectric developments on their territory, led to major changes in the communities' way of life and revealed differences of opinion between the generations in this regard.

In short, the analysis of the scientific literature consulted and the comments gathered from the respondents to our survey revealed major shortcomings in the availability of information on the human environment, information that is nonetheless necessary for analysing the social impacts of projects which, as we pointed out earlier, involves taking into account the characteristics of the host community, whose evolution is influenced by a number of factors that have an impact on its ability to adapt to change.

Also, faced with the lack of quantitative or qualitative data on the implementation territory and on the changes induced by the projects on the components of the human environment, one of the strategies adopted by project promoters and operators, as well as by the organizations responsible for administering the ESIA process, consists of using the members of the affected communities or their representatives as a source of information. However, this strategy entails the risk, mentioned above and confirmed by some respondents to our survey, of replacing the analytical approach that characterizes SIA with a process of evaluating the communities' support for a project and seeking solutions likely to promote its acceptance.

This last remark refers to the distinction made in the first part of the research between SIA, defined as a systematic process for identifying the social consequences of an action (project) (Burdge *et al.*, 1990), in which those concerned or affected by a project (stakeholders) can participate, and a process aimed at finding solutions to problems affecting the social acceptability of a project, following a political arbitration process using participatory mechanisms involving stakeholders. The former is based on a rigorous analytical approach and the application of precise criteria, measured by quantitative and qualitative impact descriptors. The second relies on a variety of consultation strategies to obtain data on opinions about a project or policy change. As written by Freudenberg and Olsen (1983) cited in the first part of the research:

"...information about opinions is not necessarily the same as information about social consequences. Data on opinions prior to a project or policy change ... are important in themselves. But information about attitudes is simply not the same as information about potential consequences..." (Freudenberg & Olsen 1983, p. 72)

Thus, the mere presence of KRG-appointed members, some of whom must be Inuit, on the multipartite committees created under the JBNQA cannot constitute a substitute for SIA, if their participation is not part of "a systematic process for identifying the social consequences of a given action" based on a minimum of quantitative or qualitative data necessary to identify and measure the changes induced by a project and the analysis of the impacts of these changes with regard to issues clearly identified beforehand in the framework of a multipartite approach in which community members participate.

5.3. Role of SEA in relation to the practice of SIA and the lack or poor quality of information on the human environment

To compensate for the lack or poor quality of information on the human environment, several respondents recommended conducting SEA of territorial and sectoral development (**R2, R5, R8**)²³. According to respondent R8, SEA that includes a portrait of the territory or sector of activity concerned would make it possible to gather first-hand data that is sorely lacking in the analysis of the social impacts of projects. He recalled that a territorial SEA was proposed for the Nunavik Nickel mining project in 2008. This project involved the construction of port and airport infrastructures. A committee had proposed that a SEA be conducted to plan the development of these infrastructures, the use of which could have been shared by other users. However, this recommendation was ignored by the public authorities.

Respondent R8 also recalled the suggestion made in 1972 by André Marsan of a group known as SCOPE 5 to develop land use plans for northern regions in Québec. The latter proposed three levels of planning: strategic, regional and project. Respondent R8 also cited the example of the land use plan developed by the KRG, but which is largely unknown to the public. In short, the respondent concluded, there is still a reluctance to impose rules in the area of land use planning. Most of the villages established in the northern region have not been the subject of any prior strategic study. Respondent R2 agrees. According to this respondent, given the lack of information and the reluctance of operators to share information on their activities and the territory, conducting SEAs upstream of projects “would make our lives easier”. However, he concludes by stressing that this presupposes political will and that “there is still work to be done before we get there...”

The difficulty in implementing land-use planning and SEA mechanisms in this area, as deplored by respondents R2 and R8, is not limited to the northern territories. In fact, despite the adoption of laws and regulations obliging the responsible public authorities to develop land use plans, urban plans and zoning bylaws, freedom of initiative continues to occupy a dominant place in the scale of values in society. This limits the scope of territorial planning to the imposition of certain rules when a project is implemented. The same applies to the creation of “protected” areas, but within which, subject to certain conditions, it is still possible to exploit forestry, mining, etc. resources.

A recent example of the reluctance of public authorities to impose overly restrictive rules, and the consequences of this, concerns the implementation of wind energy in Québec. In a study on social acceptability modelling published in 2009, the authors clearly demonstrated the importance of strategic planning for territorial and sectoral development. We believe it is relevant to quote an excerpt from the report (Box 2) to understand the importance of the considerations raised by respondents R2 and R8.

²³ See also Jacobs, Berrouard and Paul (2009) cited in this report.

Box 2: Land use planning: Wind energy implementation in Québec

[When the first projects were carried out, the regional county municipality (RCM) development plans did not include specific standards for this type of project, nor did they identify zones favourable to wind power development. Also, the choice of site and the configuration of the wind farm were based more on the application of technical and economic feasibility criteria by the promoter and his ability to obtain the signature of option contracts for the purposes of establishing the land reserve necessary for the project, rather than on a process of questioning the ins and outs of wind energy development on a given territory.

Several RCMs involved in wind power projects have used interim control regulations (ICR) as a vehicle for adopting minimum prescriptive rules for project implementation. However, given the exceptional nature of this mechanism, which allows RCMs to act quickly in the face of new situations, the adoption of ICRs cannot be considered as a "process for questioning wind energy development on a given territory", especially since the adoption of ICRs does not include public participation mechanisms and the emergency context in which several ICRs were adopted did not allow for the systematic elaboration and evaluation of wind energy development scenarios.

Also, as noted earlier, in some cases, RCMs had to develop ICRs when municipalities had already been targeted for specific projects and option contracts had been signed for the establishment of land reserves. The resulting situation made the development and application of regulations particularly difficult, as any standard that might have the effect of modifying existing projects was open to challenge by the municipalities, the landowners concerned and the project proponent. As a result, the development and application of ICRs have been the subject of constant negotiation between the parties, each trying to influence the decision according to their interests in the project.

Nor were there any standards setting the amount or determining the criteria for calculating the royalties or voluntary contributions to be paid by the proponent to individuals, local municipalities and RCMs. The amounts and calculation criteria were determined by the negotiating parties.

In short, several of the most important components of the projects, i.e., the choice of site, the configuration of the park and the determination of the amount to be paid as a royalty or voluntary contribution, were decided on the basis of the power relations between the parties within the framework of a private negotiation process. (Research Unit on Sustainable Territorial Development and the Wind Industry, 2009)

As for SEA, its implementation as a tool for integrating environmental and social considerations into territorial and sectoral development has been slow, despite its recent formalization on the margins of the revision of the environmental authorization regime and the addition of specific provisions to this effect in the *Environment Quality Act* in 2017. Moreover, the provisions of the Act do not apply to RCMs and local municipalities responsible for territorial planning²⁴. The regulation implementing the provisions of the Act has not yet been adopted.

Also, given past experience, particularly the SEA conducted from 2011 to 2014 on the implementation of the shale gas industry in Québec, the application of these provisions by government authorities remains uncertain. Analysis of the controversy generated by the implementation of this sector tends to show that the purpose of the SEA and the consultations held on this subject was to harmoniously integrate shale gas exploration and development activities, rather than to conduct a comparative analysis of scenarios for the development of the sector, including the option of not going ahead with the project.

In this regard, *it* is important to recall the definitions given to SEA in the scientific literature, including that of Thérivel *et al.* (1992), i.e.: "A formal and exhaustive systematic process for evaluating the environmental effects of policies, plans or programs (PPPs) and their alternatives, resulting in a written report whose conclusions are used in decision-making by accountable public authorities.

In order to overcome the difficulties involved in launching a large-scale "land-use plan" type operation and implementing SEA practices in terms of territorial and sectoral development, respondent R8 suggested identifying seven to eight important issues for territorial development "regardless of the analysis of specific projects" and monitoring them over the long term (next ten years). Each issue, which refers to a simple chain of consequences, could be identified in the directive for conducting project impact studies and taken into account by the proponents in their planning. The feasibility of this proposal is illustrated by the application of the issue-based impact analysis approach to the case of the Raglan Phase II and III ESIA presented above.

However, the definition of issues should be validated with stakeholders and especially First Nations and Inuit. Moreover, the issues must be well defined, even "exclusive" and "not conflicting". The identification of development issues constitutes a challenge insofar as the operation would involve the participation of a multiplicity of stakeholders and interests.

5.4. ESIA process in Nunavik and the role of the multi-party committees created under the JBNQA

As mentioned in the first part of the research, the JBNQA has created ESIA processes, one of the particularities of which is the creation of review panels with members appointed by the KRG, two

²⁴ Section 95.5 states that "A strategic environmental assessment shall be conducted of the Authority's programs determined by regulation of the Government, including any strategy, plan or other policy that it develops..." Authority refers to the government, the Executive Council, the Treasury Board, a department, and an agency of the government to which the *Auditor General Act* applies.

of whom must be Inuit, and, depending on the case, members appointed by the Québec or Canadian governments. These committees are involved at various stages of the process: scoping of the impact study, review of the ESIA report and decision. The committees may also be involved in the decision to conduct an ESIA for projects that are not automatically subject to the process.

In addition to the two processes established under the provisions of the JBNQA, there is a third process resulting from the application of the IAA and a fourth resulting from the application of the NILCA, which provides in Article 7 for the establishment of review processes to assess the environmental impacts of projects to be carried out in the Nunavik Marine Region.

It is also important to recall the changes made to the administrative structures of Nunavik as a result of the signing of the JBNQA. First, we should mention the creation of the KRG. This is a supra-municipal institution made up of elected representatives of the northern villages, mainly Inuit. The KRG has certain powers in the area of land management. The administrative structure also includes the Makivik Corporation, which is responsible for administering funds paid to the Inuit in accordance with the JBNQA and for supporting economic development through job creation and the operation of Inuit businesses. Finally, there is the Kativik School Board and the Nunavik Regional Board of Health and Social Services.

Nunavik's administrative structures, ESIA processes, and traditional modes of governance (which continue to play an important role in Inuit communities), form a complex web of territorial development "jurisdictions". This complexity makes it difficult to delineate the role and responsibilities of each organization.

First, with respect to the sharing of responsibilities for the ESIA of projects carried out in the Nunavik territory, according to respondent R8, the creation of processes specific to Nunavik raised concerns among the agencies and departments responsible for administering the federal and provincial ESIA processes. There was concern that the review panels would become too large and that this would ultimately result in a transfer of some of the human and financial resources available to them to the panels. These fears would explain in part the reluctance of agencies and departments to collaborate fully in their development, considering them to be "junior institutions". However, the committees would have regained legitimacy and their role recognized by the agencies and public departments of Québec and Canada following the recognition by the courts of the duty of the federal and provincial crowns to consult the First Nations whose rights would potentially be affected by the implementation of projects or activities on claimed territories.

Respondent R6 felt that the power of multi-party advisory committees associated with project-specific ESIA is limited. He felt that the KRG, as the body responsible for territorial planning and management, was better positioned to deal with the social issues arising from the rapid development of new activities in Nunavik. The KRG is doing what it can, but according to the respondent, "it should work with the communities, but it takes time".

The complex tangle of "jurisdictions" in territorial development would have an impact on the coordination of actions to address social development issues in Nunavik. In this regard, respondent R2 deplores the lack of regional planning tools and notes the divergence in development vision between the KRG and the Makivik Corporation in this regard, particularly with regard to the place

that industrial and economic development and conservation areas should take in the territory of Nunavik.

5.5. Multi-stakeholder committees as a tool for Inuit participation in the ESIA process

Has the creation of joint advisory committees with members from Aboriginal and non-Aboriginal communities allowed the expression and consideration of the concerns of Inuit populations in the analysis of projects and in the decision-making process concerning their implementation? The criteria developed by Webler and Tuler (2000) based on the conditions set out by Habermas (1987) concerning the collective decision-making process in a context of deliberative democracy provide us with some useful conceptual benchmarks to situate the comments collected from the respondents to our survey with regard to the question asked.

The proposed model is based on two meta-criteria: fairness and decision-making competence. First, with respect to the notion of fairness, the authors associate fairness with what people are allowed to do in a deliberative decision-making process, and hence with the opportunities available to them in this regard, namely:

- To be present:

Identifying those potentially affected or interested is the first task. It is also important to ensure that no stakeholder is disadvantaged by the location and timing of participation.

- To speak out:

Participation must be unhindered. Consequently, participants must have the freedom to express themselves on all issues they wish to address: setting the agenda, rules for the conduct of the debate, substantive issues. Access to the process and the power to influence the process and outcomes are important.

- Participate in discussions (ask for clarification, oppose, question, debate).
- Participate in the decision-making process (resolve disagreements and close the controversy).

With regard to the criterion of competence, Webler and Tuler (2000) associate it with the capacity of the process in place to allow for the construction of the best possible understanding given the knowledge reasonably available to the participants at the time of the intervention and a shared understanding among the stakeholders in the decision. The prerequisites for achieving this objective are: access to information, its interpretation and the use of the best available procedures for selecting knowledge and resolving disagreements.

First, with respect to the equity criterion, according to respondent R6, the creation of multi-party organizations, including Aboriginal representatives, and the holding of public consultations provided an opportunity for the communities to speak out. The participants in the public consultations expressed their concerns very clearly and honestly. The call-in shows on community radio were very useful as a vehicle for the free expression of views.

According to respondent R2, the main tool available to the committee in which he participated is public consultation. It is a step that is part of the assessment process for any project of any significance. The informal approach applied and the flexibility in the means used (use of community radio - pre-meeting with the municipality) ensured that "everyone who had something to say could do so comfortably. On one occasion, members of the committee in which the respondent participated even went door-to-door to seek the opinions of residents.

However, to the question "Did the committees allow people to speak who would not necessarily have done so in the context of traditional methods of debate? Respondent R7 answers: yes and no. He explains that "... in the Inuit culture, the committees are not the only ones to have a voice. Respondent R7 explained that "...in Inuit culture, when someone is appointed to a committee, they are considered to represent the world. It is very rare to question the decisions made by those who represent the community. We respect the authority given to a person following an elective process (ex.: participation of elected officials in committees). Elected people are generally trusted, except during public hearings (e.g. symposiums organized by Glencore). Moreover, the cooperative movement (1959) played an important role in this regard, even before the creation of municipal assemblies. With these clarifications, respondent R7 said he was satisfied with the local population's participation in the information and consultation activities organized by the various committees or commissions in which he participated.

This last comment and the previous ones show the importance of consultations as a constituent element of the representativeness of the committees as a vehicle for the concerns of the Inuit communities and their consideration in the ESIA. The informal approach and flexibility of the means used by the committees to inform and consult populations are factors that contribute to improving "fairness of process" as defined by Webler and Tuler (2000). The consultations held by the committees increase the accountability of its members.

However, respondent R10 fears the "fatigue effect" resulting from the multiplication of consultations with the population by project proponents and facility operators, in addition to the surveys conducted by a multitude of researchers in the north. The "environmental forum" organized annually by Raglan Mine to take the pulse of the population is appreciated, but its popularity has declined over time. Finally, according to the latter, the results of these consultations are too often not given back to the populations consulted.

With regard to the consultations held by the IAAC on the impact of projects on Aboriginal rights, respondent R1 mentioned that it is often the band councils that determine how the consultation is held. The interests defended by the latter are not necessarily representative of individual interests. But this varies from one community to another according to the more or less important presence of the chief. In some cases, the consultation is held with the people who are on the ground in terms of land management. Consultations are also held directly with citizens who can express their comments individually. There is a culture of consultation in the northern communities.

Furthermore, with regard to "process competence" as defined by Webler and Tuler (2000), it is important to remember that an ESIA report contains a large amount of scientific and technical information that refers to specific knowledge from different disciplinary fields. The methodological challenge is to link this knowledge and synthesize it in such a way as to shed light on the significant issues at stake in the projects.

Therefore, do the ESIA processes in place allow for the construction of the best possible understanding of project issues given the knowledge reasonably available to participants at the time of the intervention and a shared understanding among decision stakeholders? Do they [the ESIA processes] meet the prerequisites for achieving this objective, i.e. access to and interpretation of information and the use of the best available procedures for selecting knowledge and resolving disagreements?

According to respondent R7, the project documentation, which contains mainly technical information on air, water and soil pollution, has little meaning and is therefore very little read by the Inuit, who nevertheless see the impacts of industrial activities on the territory. Moreover, the latter stresses the difficulties of finding people capable of understanding the documentation received from project proponents and managers in order to explain its content in a language accessible to non-experts. In addition, there is the difficulty of finding people from local communities to participate in the various committees set up in connection with the projects.

However, according to respondent R7, this situation will gradually change with the emergence of the new generation of Inuit trained in southern schools and universities. According to this respondent, the marriage of traditional knowledge held by the elders and the knowledge cultivated by the younger generation is promising, particularly for analyzing the social impacts of change.

Although the issue did not receive much attention from our survey respondents, the quality and relevance of the information contained in impact studies have been the subject of much criticism by observers and various study committees over the years. As mentioned by Côté *et al.* (2018), some consider that impact studies do not identify the major issues of projects, which could ultimately lead to the marginalization of ESIA as a decision-making tool and the weakening of its role in the development of environmentally and socially acceptable projects.

Côté *et al.* (2018) blame the current methodological approach for the problem. As discussed above, a major shortcoming of "impact significance assessment by environmental component" is that it assigns a value (impact significance) to changes in environmental components resulting from a given action, without explicit reference to specific issues formulated in terms of stakes. Impact assessment is often based solely on the general assumption that any change in an environmental component constitutes an impact.

Moreover, the "impact assessment by environmental component" method does not include a mechanism for aggregating assessments by impact criterion. As mentioned in Part 1 of the research, the results are presented using a grid to evaluate the significance of the impacts (high - medium - low) by environmental component. This way of presenting impact results by environmental component is certainly useful for management purposes; each impact is associated with mitigation measures, making it easier to develop and apply the environmental and social monitoring plan. However, without more sophisticated analytical tools to synthesize impact information, it becomes extremely difficult to arbitrate between the many environmental, social and economic considerations raised by a project and between the interests of the parties involved.

In addition, the method is based on a matrix approach applying a standardized weighting of variables that does not take into account the specific characteristics of each type of impact. For example, the choice of variables (relevance) and their relative value (weight) are not the same depending on whether the impact on biodiversity, for example, is compared to the impact on the

employment situation in a given territory. The choice of variables also differs from one promoter and consultant to another, which also complicates comparisons between projects. In this context, the search for compromise in the event of disagreements between the actors in the process concerning the evaluation of impacts or the weighting of impact criteria becomes extremely difficult. These disagreements can occur between experts and the "public" or even among experts.

Also, what consequences do these disagreements have on the final decision? Actors may disagree on the assessment of impact on a criterion or on the weighting of impact criteria, but without a mechanism for aggregating results, how can a change in values be measured on the overall impact assessment? The application of multi-criteria decision support methods applied to the ESIA provides a solution to this problem.

5.6. Access and management of project information

The first part of the research highlighted the complexity of managing multi-stage ESIA processes in Nunavik, with various agencies involved at each stage. In addition, the lack of a centralized information management system and the resulting difficulty in tracking the considerations taken into account at each stage of the ESIA up to the decision to authorize the project were noted. In fact, it was very difficult during the investigation conducted in the first part of the research to reconstruct the environmental assessment files, which are scattered among several agencies and individuals.

In response to the question asked of respondent R7 "... how do we find our way around in a context where information is held by several stakeholders, including the authorities responsible for managing the environmental assessment processes at the Québec level (Québec process) and the federal level (federal process)?", the latter answered that information circulates but informally among a limited number of individuals holding positions of responsibility within existing government structures (ex. the KRG) and participating on several committees. However, he added: "... for someone who is not a member of a commission or committee, access to complete information, i.e., to have an overall picture of what has been done at each stage of the process, is difficult."

As for the interest that could be generated by the implementation of a system that would allow for the centralization of information on each project, the respondent felt that each commission or committee wanted to retain control of the information within the framework of their respective jurisdictions. This view seems to be shared by the R6 respondent, who wishes to point out that one of the characteristics of the JBNQA regime is the creation of a participatory mechanism involving several stakeholders, a characteristic that is opposed to the establishment of a "single umbrella". Each stakeholder in the process has its own archives and each has its own way of managing information. The latter does not see how it would be possible to integrate the information held by the stakeholders into a single database, since each wants to protect its independence in conducting its analysis. The creation of a registry of information on applications and authorizations, such as the one instituted by the *Environment Quality Act*, is an interesting idea, but one that would probably not have political support.

However, when asked "...would it be possible to implement an information management system without having to make changes to the JBNQA?", respondent R2 felt that this would be desirable: "We should move towards that. Within the committee in which the respondent participates, there is certainly a desire to address the issue of transparency. We often have several things to worry about at the same time, and that's what partly explains the current situation."

Respondent R5 deplored the fact that there is no public registry that provides direct access to project documentation. The management of such a registry could be assumed by the JBACE pursuant to section 22.3.1 of the JBNQA. In addition, environmental monitoring and follow-up could be added to the JBACE's mandate. However, a shared understanding of the role of the MELCC, the JBACE and the KEAC in this regard would need to be established in order to create expertise in this area.

When asked whether it would be possible to create a registry that would bring together all the information from all the stakeholders, respondent R1 wondered who could manage such a registry. The advantage of consolidating information on projects would be to improve the quality of assessments, the objective of which is to minimize impacts. Also, the best way to proceed would be to group the information on the websites of local authorities, the Cree government and the KRG (grouped by territory).

Finally, respondent R4 drew our attention to the fact that there are disparities between large organizations such as the IAAC and the MELCC, on the one hand, and the committees created under the JBNQA, on the other, since the latter do not have the same resources to equip themselves with document management systems. The needs in this regard are also not at the same level, given the varying numbers of files that each committee must manage.

The latter adds that the Cree committees receive the support of their government, which wishes to have a global and clear vision of all the issues. Moreover, the sharing of documents between the IAAC and the Cree government is quite good. However, the respondent does not think it would be possible to create an inter-organization information system, mainly for security reasons.

In short, the creation of a registry that centralizes all information on the ESIA of projects and related documents is receiving a mixed reception from the people we met. Some people question the very idea of centralizing information or the feasibility of creating a registry. However, the implementation of an impact analysis process structured by issue and the creation of a grid for each project could be an alternative to the creation of a registry.

The issue-based analysis grid proposed in the first part of the research to draw a comparative portrait of the scope of the SIA carried out within the framework of the processes in effect in Nunavik could be applied to the analysis of the ESIAs currently being carried out. The use of this grid made it possible to synthesize information scattered in several documents (directive, ESIA report, sectoral study report on specific issues, authorization certificate, environmental and social management plan, monitoring and follow-up report, correspondence between the proponent and the responsible authority, etc.) and to reconstruct the chain of consequences related to each identified social impact.

As mentioned by Côté *et al.* (2018), the analysis grid structured by issue, such as the one proposed in the first part of the research, is a simplified representation of the application of a systemic approach to impact identification, the advantage of which consists in providing a clear vision of the

chain of consequences related to each issue, based on an *ad hoc* definition of the environmental components affected and/or the relationships between them. Structuring impact information by issue has several advantages.

First, it allows the user of the information to quickly identify the main environmental and social issues of a project and to know how they have been addressed in the analysis. Second, it facilitates the scoping of the impact study, particularly with regard to determining the scope of the analyses to be conducted and the sources of specialized knowledge to be used. Structuring impact information by issue makes it possible to better target information needs and, consequently, the studies to be conducted. Applying this approach can result in savings in time and money in conducting impact studies. Third, the creation of an issue-based impact analysis grid improves the transparency of the ESIA process by clearly identifying its constituent elements, including the descriptors used and the variability thresholds for measuring changes in the affected environmental and social components, and subsequently, the impact descriptors.

However, the most important feature of this grid is that it facilitates monitoring of the analysis process at each stage. Several of the impacts identified *a priori* at the scoping stage could be removed from the grid because they are not significant (low impact) after evaluation, or because there are recognized and effective measures to mitigate them. Also, impacts could be removed from (or added to) the grid in light of monitoring results because the predicted impacts are below (or above) the prediction or because impacts have been identified that were not anticipated at the assessment stage.

In short, the impact analysis grid structured by issue is the ideal information synthesis tool for monitoring the analysis process at each stage, while addressing the hesitations related to the creation of a registry, particularly with regard to the control of information desired by the various stakeholders in the ESIA process. In fact, the creation of an impact analysis grid structured by issue does not require the disclosure of all the documentation held by each stakeholder in the process, including the correspondence between them.

5.7. Notes on IBAs

Since the early 1980s, a new practice has emerged. IBAs are private agreements that can be negotiated outside of a formal ESIA process between project proponents and various interest groups, including local communities.

As the name implies, these agreements address socio-economic benefits, financial benefits, but also the management of environmental impacts. Negotiations take place without the involvement of government representatives, before, during or, more rarely, after the formal ESIA process is triggered.

IBAs are a common practice in the extractive sector. Several IBAs have been negotiated in the context of mining projects in northern Canada and Québec, including Nunavik. Among others, an IBA was negotiated in 1995 between Falconbridge and the Inuit villages of Salluit and

Kangisgsujuaq for the Raglan I project. Other agreements of the same type were subsequently reached in Nunavik, notably for the Nunavik Nickel project in 2008.

Some see this new practice as an opportunity for affected community members and local businesses to voice their concerns or demands to project proponents in an unmediated manner. But the practice is controversial.

A study conducted on this phenomenon in Canada ²⁵criticizes the confidentiality of these agreements, the content of which is exempt from the application of the provisions of environmental legislation on the dissemination of information. Nor do they benefit from the protection of the remedies provided for in these laws; in the event of non-compliance with the terms of the agreement, the parties must turn to the ordinary courts.

Above all, the authors of the study wonder to what extent IBAs really promote the development of the communities that are party to this type of agreement. They argue that the negotiation process may have the perverse effect of orienting the priorities of the communities towards the search for compromise to the detriment of a systematic analysis of the issues, based on the evaluation of the impacts of long-term development projects. Finally, the authors emphasize the risk of benefits being captured by local elites more or less co-opted by the project owners to the detriment of the community, thus increasing the risk of their legitimacy being challenged *a posteriori*.

Despite these criticisms, although the effectiveness of IBAs has not been demonstrated in terms of equity, some see these agreements as part of a strong trend in Canada and elsewhere toward more socially and environmentally responsible corporate practices. IBAs are seen as part of the process of acquiring a "social license to operate" (Bouchard, 2003). (Social license to operate) (Bouchard 2018). IBAs are encouraged by governments and the mining industry, both in Québec and in Canada, who see them as an excellent way to promote the social acceptance of projects. So, the question that would then arise is how to reconcile the two approaches? (Bouchard 2018)

Several themes were addressed by respondents to our survey concerning IBAs. First, with regard to the confidentiality of the agreements, respondent R8 recalls that the proponents were in favour of making the agreements public²⁶, particularly by appending them to the ESIA reports. Also, some of the agreements mentioned above, the one concluded for the Raglan 1 project and the one concluded for the Nunavik Nickel project, had been made public, but withdrawn a few years later. Respondent R8 also recalls that in 2012, the Mining Act required that IBAs be made public, but, with the exception of the Naskapi, all Aboriginal groups were opposed to this.

Respondent R6 is comfortable with the idea of not disclosing the content of the IBAs, which, he points out, deals mainly with the financial spinoffs of the projects for the communities concerned. According to this respondent, this data does not constitute important information for the analysis of project impacts. Moreover, the respondent considers that it is not the role of the authority responsible for managing the environmental assessment process to interfere in issues such as the benefits of projects, the distribution of wealth resulting from the application of IBAs or the choices

²⁵ Caine, Ken J., Naomi Krogman. 2010. "Powerful or Just Plain Power-Full? A Power Analysis of Impact and Benefit Agreements in Canada's North. *Organization & Environment*, Vol. 23, no.1. p. 22-76.

²⁶ Respondent R2 also reported that project proponents tend to disseminate the contents of IBAs when they are signed before an environmental approval is obtained.

made by municipalities that affect the survival of the community. These considerations are not part of the conditions attached to projects.

According to a document consulted by the R5 respondent, the Grand Council of the Crees would like to keep these agreements confidential. The IBAs would be perceived by the Grand Council as an expression of the sovereignty of the Aboriginal communities and as a new management tool for mining projects. However, according to the respondent, the confidentiality of IBAs raises a problem of transparency.

Moreover, with regard to "reconciliation between the two approaches" and, more specifically, consistency between the conditions for carrying out projects provided for in the government authorization and those provided for in the IBAs, respondent R8 felt that 90% of the 60 or so in his possession referred to the impact study, including the commitments made by the proponent and the environmental and social monitoring and follow-up mechanisms. Since most of the IBAs were concluded after the impact study was completed but before the certificate of authorization was issued, the respondent suggested that an agreement in principle should be concluded between the parties at the directive issuance stage. According to respondent R8, the absence of provisions to this end in the economic development agreements between the Government of Québec and the Cree, Inuit and Naskapi constitute missed opportunities to "couple" IBAs with impact studies.

Respondent R2, referring to the position advocated by the committee in which he participated, said "...no matter what agreement is signed, the law will always apply. If there is an overlap between the requirements imposed by conditions decided by the committee or the government, the latter always take precedence over the clauses of the IBA.

Finally, with respect to the real benefits of IBAs as a tool for wealth distribution, respondent R2 wondered, today, despite the signing of IBAs, to what extent the situation has really changed? Is the argument that the projects create jobs well-founded? "What is the quality of these jobs? To whom: to workers in the south or to workers in Nunavik? Who benefits: the company that can put on its website that it has signed an IBA? We should look at the impact of IBAs. It's a nice model, but are we looking at the negative impacts? And the fact that a sum of money is being spent on negative impacts is questionable. The fact that it is confidential is also questionable. What is the *deal that was made*? Who is excluded? The Inuit are not a homogeneous group. There are all the same social categories as elsewhere. Who makes the decisions? "

Taking the example of the Raglan I project, respondent R10 fears the political tensions between the northern villages at the regional level that could result from the differential treatment accorded to them under the IBA, which concerns not only the two communities located closest to the project, but also the Nunavik region.

In light of the comments made by participants in our survey and by authors in the scientific literature consulted, it seems essential to take into account the emergence of IBA practice in any reflection on ESIA processes in Nunavik. For Bouchard (2018), notwithstanding the differences, the coexistence of the two approaches has many points of convergence in terms of environmental management, which makes it necessary to consider how to reconcile IBA and ESIA. The latter proposes a few changes in the preparation and dissemination of the directive and in the public consultation process.

With regard to the Directive, according to Bouchard (2018), although the Directive should not intervene in the discussion of the financial aspects of IBAs, it seems important that it does not ignore the existence of IBAs and mentions them. Three things should be clearly stated:

- the Directive should require a single, comprehensive document from the proponent (separate from the impact assessment), setting out all the components and dimensions of an Environmental and Social Management Plan (ESMP);
- the Directive should clearly state that the management of environmental impacts is non-negotiable;
- the Directive should require the proponent to inform the responsible authority, including the local authority under the agreements, of its intention to enter into an IBA, when it will do so, and the broad (non-financial) parameters of its involvement. (p. 8).

Furthermore, Bouchard (2018) distinguishes between public consultations, which he associates with the (statutory) consultations provided for in formal ESIA arrangements, and (community) consultations carried out at the initiative of project proponents in order to establish a dialogue with the populations concerned or affected.

With regard to social acceptability and public consent, Bouchard (2018) draws our attention to the importance given to the benefits of energy and mining development projects by the Québec government as a constituent element of social acceptability. Referring to the Superior Court judgment in *Strateco*²⁷, the author reports the words of Judge Jacques to the effect that the notion of social acceptability does not refer solely to a process of information, consultation, participation or negotiation aimed at obtaining the agreement of stakeholders in the context of a decision, but to a result arising from the application of the law and its environmental protection objectives.

In the case of First Nations and Inuit, rather than referring to the notion of acceptability, considering it difficult to apply, Bouchard (2018) considers it preferable to speak of "free, prior and informed consent" (FPIC), the materialization of which would be IBA:

[T]o the extent that community consultations are conducted in an orderly fashion, without coercion or pressure, and result in IBAs ... they can arguably be seen as an expression of First Nations' FPIC. (p. 11)

With regard to the notion of social acceptability, we refer instead to the study on social acceptability modelling published in 2009, in which the authors distinguish between the notions of "carrying out a socially acceptable project" and "the social acceptance of a project" (CRDT 2009). The former refers to an approach that the authors describe as "reasoned social acceptability" aimed at ensuring the social, environmental and economic viability of projects following an ESIA process. The second is a socio-political approach to social acceptability that seeks solutions to problems affecting "social acceptance" through a political arbitration process using participatory mechanisms involving stakeholders. Although the two approaches are not exclusive, as Freudenberg & Olsen (1983) have shown, the choice of the least impact site for the installation of an industrial facility

²⁷ *Ressources Strateco v. PG du Québec*, 2017 QCCS 2679, affirmed 2020 QCCA 18.

does not necessarily coincide with that which would result from an analysis of the social acceptance of the project by local populations.

In reference to previous comments, the social consequences of IBA measures to maximize project benefits should not be ignored. As noted, some project benefits, such as capital injections for improved public services or increased household incomes from job creation, can have major disruptive effects on individual lifestyles and local community governance. In other words, IBAs could be a source of social impact that should not be overlooked, notwithstanding the support for the project.

6. Areas of improvement

The data collection and analysis work presented in the previous five sections leads the author to make six recommendations. Concrete proposals are made to ensure that the provincial and federal processes provided for in Section 23 of the JBNQA are carried out under optimal conditions that allow for genuine analysis and consideration of social impacts. Measures are also proposed to improve information and documentation management practices in order to improve access and transparency of the processes.

The recommendations resulting from the completion of Phases I and II of this research focus on six themes:

- Improving the practice of ESIA and CIA;
- Implementation of SEA as a tool for integrating environmental and social considerations in territorial and sectoral development;
- Improving the quality of information on the biophysical and human environment in northern regions, particularly in Nunavik, at various scales, including the communities;
- Improving the quality and relevance of project information at the impact analysis and monitoring and follow-up stages;
- Improving the performance of joint advisory committees as a tool for involving Inuit populations in project analysis and decision-making ;
- Improved reconciliation between public ESIA processes and IBA negotiation approaches.

6.1. Improving the practice of ESIA and CIA

In order to improve the transparency of the ESIA process in Nunavik, an impact analysis process structured by issue and MCDS methods should be applied.

This study has demonstrated that methodological shortcomings are a significant barrier to developing the full potential of social and cumulative impact analysis in ESIA processes applicable to Nunavik. Indeed, a major shortcoming of the most commonly used analysis method, impact significance assessment by environmental component, is that it assigns a value (impact significance) to changes in environmental components resulting from a given action, without explicitly referring to specific problems formulated in terms of issues (Côté et al., 2015). By failing to refer to a given issue, this method confuses two fundamental notions, that of "material change induced by an action" and that of "impact of the change," which refers to its significance in terms of issues formulated in terms of stakes, which has an effect on the scope of the analysis of impacts, particularly social impacts.

An impact analysis approach structured by issues consists of identifying the activities of a project that may constitute a source of impact, measuring the changes induced by these activities on the components of the environment and society, and analyzing them with regard to specific problems formulated in terms of issues in order to determine the impacts. This approach avoids confusion between the consequence of an activity and its impact. The same modification of an environmental component (e.g. the reduction of forest cover in a given area) resulting from a given activity (e.g. the felling of 100 km² of forest) does not have the same importance (impact) depending on the issue in relation to which it is analysed. In fact, the modification of the "forest" component could be analyzed with regard to biodiversity (environmental issue), the maintenance or development of sport hunting in a given territory (social issue) or the viability of activities in the forestry sector (economic issue).

The criteria for assessing the impact are not the same depending on the issue under analysis. The same applies to the threshold (minimum or maximum) above or below which a change in the environmental component becomes significant or not. This is why, without reference to a given issue, impact descriptors and specific variability thresholds, the attribution of a value to the material or direct consequences of a given activity becomes completely arbitrary.

More specifically, unlike the environmental component impact significance method, MCDS methods do not require additional qualitative coding; using raw data and units of measure specific to each (quantitative or qualitative) impact indicator (km², %, PPM, etc.). One of the advantages is the ability to transparently apply a sensitivity index to the raw data to account for the characteristics of the biophysical and human environment. The inclusion of a sensitivity index describing the greater or lesser capacity of a given population to adapt to change would allow for a rigorous and transparent incorporation of the vulnerability of affected populations and individuals, which could be greater or lesser depending on the case. This would make it easier to take into account the specific context of each Inuit and Naskapi village.

6.2. Implementation of SEA as a tool for integrating environmental and social considerations in territorial and sectoral development in Nunavik

SEA should be implemented as the preferred tool integrating environmental and social considerations into territorial and sectoral development in Nunavik

SEAs can contribute to informed decision-making on important government directions and allow for public participation in the context of consultations. SEAs also provide an opportunity to take stock of possible linkages with other plans and strategies put forward by the various levels of government in Nunavik, where overlapping jurisdictions sometimes lead to confusion. SEAs should be carried out for the plans, programs and policies developed for fisheries, forestry, energy, industry, mining, transportation, regional development, waste management, water management, tourism, land use planning and management²⁸, etc. This strategic assessment should make it

²⁸ Examples taken from: UNITED NATIONS ECONOMIC COMMISSION FOR EUROPE, *Protocol on Strategic Environmental Assessment to the Convention on Environmental Impact Assessment in a*

possible to evaluate the environmental and social impacts of the implementation of new plans, programs and policies.

In order to implement this practice in Nunavik, the signatory parties to the JBNQA could assess the advisability of including in Section 23 the strategic assessment of plans, programs and policies that have a specific application in the territory of Nunavik. Environmental assessment has made significant progress since the adoption of the JBNQA. The SEA of plans, programs or policies that may have an environmental impact on a given territory is now part of the assessment mechanisms recognized and used by a growing number of states. Strategic assessment makes it possible to assess the impacts upstream, not of a single project in isolation, but to consider the cumulative impact of a series of specific projects that may or may not be subject to the Section 23 process of the JBNQA.

In 2017, the Government of Québec introduced a SEA process in the *Environment Quality Act*²⁹. The Government of Canada followed suit in 2019 with the IAA, which now includes provisions allowing for the deployment of regional assessments and strategic assessments. It would be important that this type of assessment does not contribute to the problem of duplication of processes in Nunavik and that any future SEA undertaken in the region will be done in a consistent manner and in collaboration with all the entities involved. In this regard, it is very important to emphasize that any regional assessment and any strategic assessment must be structured to take into consideration the context of the JBNQA and the special status and participation of the Inuit and Naskapi.

6.3. Improving the quality of information on the biophysical and human environment in northern regions in general and in particular the Nunavik region at various scales including communities

A process should be initiated to identify, in consultation with all stakeholders, issues that are important to the development of the territory of Nunavik and to establish a mechanism for integrating them into the analysis of the social impacts and cumulative impacts of projects.

Information on the biophysical and human environment in northern regions, and more specifically in Nunavik, is sorely lacking. The strengthening of territorial planning and SEA mechanisms for the development of territorial planning policies, plans and programs are seen as two measures that could fill this gap and provide an excellent means of producing the basic data on the territories that are needed to analyze social impacts and cumulative impacts.

However, since the implementation of these measures is hampered by numerous constraints, particularly of a political and financial nature, the proposal made by one of the respondents to our survey to identify seven to eight important issues for the development of the territory that should be taken into account in the analysis of individual projects and to monitor them over the long term makes sense. Each issue could be identified in the directive for project impact studies and taken

Transboundary Context, 21 May 2003, UN Doc. ECE/MP.EIA/2003/2, [Online], [\[www.unece.org/env/eia/documents/legaltexts/protocolfrench.pdf\]](http://www.unece.org/env/eia/documents/legaltexts/protocolfrench.pdf) (Nov. 10, 2008).

²⁹ At the time of writing this report, the Government of Quebec had not yet enacted the regulations relating to the implementation of this procedure

into account by the proponents in their planning. The example of the Raglan Mine Phase II and III ESIA regarding the anomie phenomenon illustrates the usefulness of such an approach (see section 5.1.2).

6.4. Improving the quality and relevance of project information at the impact analysis and monitoring and follow-up stages

In order to improve the quality and relevance of project information at the impact analysis and monitoring and follow-up stages, the use of an impact analysis approach structured by issue³⁰ is recommended.

The structuring of impact information by issue has several advantages. First, it allows the user of the information to quickly identify the main environmental and social issues of a project and to know how they have been dealt with in terms of analysis.

Second, it facilitates the scoping of the impact study, particularly with regard to determining the scope of the analyses to be carried out and the specialized knowledge sources to be used. Structuring impact information by issue makes it possible to better target information needs and, consequently, the studies to be conducted. Applying this approach can result in savings in time and money in conducting impact studies.

Third, the creation of an impact analysis grid by issue improves the transparency of the ESIA process by clearly identifying its constituent elements. Following the distinctions made earlier, it is important to name the descriptors used and the thresholds of variability for measuring changes in the affected components of the environment and society and, subsequently, to assess their impact. Moreover, this grid facilitates monitoring of the process at all stages. Many of the impacts identified *a priori* at the scoping stage could be removed from the grid because they are not significant (low impact) after assessment, or because there are recognized and effective measures to mitigate them. Also, impacts could be removed from (or added to) the grid in light of the results of the follow-up because the predicted impacts are below (or above) the prediction, or because impacts have been identified that were not anticipated at the assessment stage. The element of coherence that the issues-based approach brings about stems from the fact that the impact is linked to a given issue, thus making it possible to establish its significance more clearly. In short, the structuring of information on impacts by issue represents a significant improvement over current practice, particularly in terms of the transparency of the ESIA process.

Applying this method, an analysis grid structured by issue could be created for each project to synthesize the information relating to it. All stakeholders in the process would thus use the same grid constructed for the assessment and monitoring of a project, and all would be called upon to contribute to it so that the information presented would be as up-to-date and consistent as possible with observations. As mentioned, the impact analysis grid structured by issue is the ideal

³⁰ The components of the impact analysis approach structured by issue are presented in section 1.3 of this report.

information synthesis tool for monitoring the analysis process at each stage, while addressing the hesitations related to the creation of a registry, particularly with regard to the control of information desired by the various stakeholders in the ESIA process. In fact, the creation of an impact analysis grid structured by issue does not require the disclosure of all the documentation held by each stakeholder in the process, including the correspondence between them.

6.5. Improving the performance of joint advisory committees as a tool for involving Inuit populations in project analysis and decision-making

In order to facilitate the work of the joint assessment and review committees and enable them to achieve their full representativeness, their analysis approaches should be systematized through the use of multi-criteria decision support methods, such as the use of an issue-based multi-criteria grid. The consultations held by the Joint Advisory Committees are a key component of their representativeness as a vehicle for the concerns of the Inuit communities and their consideration in the ESIA.

The informal approach and flexibility of the means used by the committees to inform and consult the public are a positive factor. However, given their importance in ensuring the accountability of their members, consultations should be systematized, or even become mandatory, rather than left to the initiative of the committees and the results integrated into the analysis process.

The search for solutions (e.g. ranking of action scenarios relating to a project with regard to impact criteria) within a framework of application of multi-criteria decision support methods consists of nine (9) steps:

- Active search for actors;
- Elaboration of possible or conceivable solutions (e.g.: action scenarios related to a project);
- Identification and structuring of issues in the form of impact criteria;
- Identification of ways to assess impact criteria using specific performance indicators, measurement scales and thresholds of variability;
- Weighting of impact criteria according to the various value systems held by the actors;
- Drawing up a table of the performance of the scenarios according to the different impact criteria by carrying out the sectoral studies relating to the different impacts;
- Aggregation of the performances of the action scenarios on all the impact criteria (for each actor and for the group);
- Search for solutions, discussions, consultation, negotiation;
- Decision for implementation and follow-up.

Each stage provides opportunities for stakeholder participation in the ESIA process, particularly in the impact study stage, which has traditionally been reserved for experts from the proponent and public agencies. The stakeholders in the ESIA process created by the JBNQA are: the project proponent, the Joint Advisory Committees responsible for administering the ESIA process in accordance with the provisions of the JBNQA, as described above, and the stakeholders, consisting

of the individuals or groups of individuals concerned with or affected by the project, who are invited to participate in the process by various means (community radio, public meetings, private meetings, etc.). Each stakeholder has value systems and sometimes divergent interests that must be taken into account at several stages of the process.

Notwithstanding the level of participation adopted, the systematization of the analysis process using a multi-criteria grid structured by issue and the application of MCDS methods improve the transparency of the ESIA and facilitate the integration of the preferences of the various stakeholders in the process. In fact, with two exceptions, that of the decision and the aggregation of performance, the system provides for stakeholder participation at almost every stage of the process: project planning, analysis of the scope of the study, study execution and the search for solutions at the time of publication of the draft study report. It is also strongly suggested that the public be involved at various key stages of the process in a broad consultation mode. In addition to the usual advantages of consultation processes, these consultations provide an opportunity for the public to contribute and for broader involvement and ownership.

Finally, MCDS methods facilitate the search for solutions in a context involving diverse stakeholders by highlighting the elements of convergence and divergence arising from their preferences; preferences that are expressed, among other things, in the choice of criteria and in the determination of their relative importance. The main advantage of developing a multi-criteria grid is to identify the parameters used to analyse the issues in a synthetic manner, thus facilitating discussion between the stakeholders in the event of disagreements on this subject. Disagreements can also arise in the assessment of impacts, particularly with regard to the establishment of the threshold (minimum and maximum) above or below which a change in the environmental component becomes significant or not, and the determination of the relative weight of the criteria for assessing actions. The integration of preferences into the analysis process makes it possible to verify their impact on the ranking of action scenarios, for example, by facilitating negotiation between the participants in the process on the trade-offs to be made in order to arrive at the final choice.

6.6. Improved reconciliation between public ESIA processes and IBA negotiation approaches

Regarding the linkage between public ESIA processes and IBA negotiation approaches, the suggestions of Bouchard (2018) regarding the development of guidelines for conducting impact studies should be applied. According to the latter, three things should be clearly stated in the guidelines:

- The Directive should require a single, comprehensive document from the proponent (separate from the impact study), setting out all the components and dimensions of an environmental and social management plan (ESMP);
- The Directive should clearly state that the management of environmental impacts is non-negotiable;

- The Directive should require the proponent to inform the responsible authority, including the local authority under the agreements, of its intention to enter into an IBA, when it will do so, and the broad (non-financial) parameters of its involvement. (p. 8).

However, even if this practice is widely applied and accepted, it seems necessary to us to systematically monitor their social impacts. It is useful to remember that even if the spinoffs of the projects are likely to improve the situation of the communities, the injection of capital for the improvement of public services or the increase in household income resulting from the creation of jobs, can lead to major disruptive effects on the way of life of individuals and the governance of local communities that must be analyzed.

CONCLUSION

This report is the result of collaboration between the Kativik Environmental Advisory Committee and the Secrétariat international francophone pour l'évaluation environnementale (international francophone secretariat for environmental assessment). It reviews the challenges associated with taking social impacts into account in environmental assessments conducted in Nunavik and makes recommendations that are both innovative and pragmatic.

Integrating social impacts into the environmental and social impact assessment process has always been a particular challenge, one that some attribute to the conceptual underpinnings of the most commonly used impact analysis method: assessing impact significance by environmental component. This method of analysis assigns value to changes in the environment, but fails to refer explicitly to specific issues formulated in terms of challenges. Moreover, the nature and significance of the social impact would derive not only from the nature and extent of the changes brought about by the project, but also from the characteristics of the communities. Thus, to be able to determine the impact of a change on the population, the assessment process requires a detailed knowledge of the characteristics of the community in which the changes occur. One way to do this would be to incorporate a sensitivity index that describes the varying ability of a given population to adapt to change. Such an index would make it possible to integrate, in a rigorous and transparent manner, the vulnerability of the populations and individuals affected, which, depending on the case, could prove to be more or less important. This would make it easier to take into account the specific context of each Inuit and Naskapi village.

The results of our survey also indicate significant gaps in the availability of information on the human environment, information that is necessary for analyzing the social impacts of projects, which involves taking into account the characteristics of the host community, whose evolution is influenced by a number of factors that affect its ability to adapt to change. To compensate for this lack of information, many stakeholders are calling for the implementation of a strategic environmental assessment process. While such a process would be beneficial in addressing some of the territorial and sectoral development issues in Nunavik, it is unlikely to be implemented in the short to medium term. The process of taking into account the impacts of policies, plans and programs should be included in a territorial development strategy. In addition, Nunavik's administrative structures, environmental and social impact assessment processes, and traditional modes of governance form a complex jurisdictional tangle with respect to territorial development and this complexity affects the coordination of actions to address social development issues in Nunavik. To overcome these difficulties, it is suggested that seven to eight important issues for the development of the territory be identified and monitored over the long term. Each issue, which refers to a simple chain of consequences, could be identified in the directive for conducting project impact studies and taken into account by the proponents in their planning.

The idea of creating a registry that would centralize all project environmental and social impact assessment information and documentation was met with mixed reviews by the semi-structured interviewees. Some respondents questioned the very idea of centralizing information or the feasibility of creating a registry. However, the implementation of an impact analysis process structured by issue and the creation of a grid for each project could be an alternative to creating a registry. In fact, the issue-based analysis grid proposed in the first part of the research to draw a comparative portrait of the scope of the SIA carried out within the framework of the processes in effect in Nunavik could be applied to the analysis of the environmental and social impact assessments currently being carried out. The use of this grid made it possible to synthesize

information scattered in several documents (directive, ESIA report, sectoral study report on specific issues, authorization certificate, environmental and social management plan, monitoring and follow-up report, correspondence between the proponent and the responsible authority, etc.) and to reconstruct the chain of consequences related to each identified social impact.

In the coming years, the vast region north of 55th parallel is expected to host new development projects, particularly in the mining sector. The proper consideration of social impacts will be crucial in order to mitigate negative effects and optimize the positive spinoffs of these projects, in a manner that is equitable for the population as a whole. To this end, this report is intended to be a starting point for dialogue with the environmental and social impact assessment stakeholders in Nunavik and for considering the implementation of the recommendations in collaboration with them.

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Appendix A: Preliminary Observations from Phase I of the Study

Preliminary observations

Despite the small number of cases analysed, it is possible to draw some preliminary observations useful for further research. First, we will focus on the sources of impacts on the human environment and their treatment in terms of analysis. Next, given the difficulties encountered in obtaining information on environmental assessment files, it is important to focus on the problem of data management as a component of the administration of the processes under study. Finally, a closer reading of the impact study report on phases II and III of the Raglan mine project prompts us to return to the methodological considerations mentioned in the presentation of the analytical framework of this research (section 1).

Sources of impact on the human environment: themes addressed

A large proportion of the problems identified in the impact study reports analyzed concern the subsistence activities (hunting, fishing, gathering) and lifestyles (travel on the land) of local Inuit communities, which are threatened by the deterioration in the quality of the biophysical environment caused by project activities. A range of measures are proposed to minimize the negative effects of the projects on water, air, fauna and flora.

However, notwithstanding the effectiveness of these measures, this does not mean that there is no impact on the human environment. The mere presence of equipment, activities or the footprint left by activities on the territory can modify the communities' symbolic representation of their environment and induce changes in their subsistence practices and long-term living habits. The perception that human activities have led to environmental degradation (presence of contaminants in traditional foods) is a possible cause of these changes.

These changes and the social impacts of these changes with regard to issues such as the maintenance of traditional practices and the preservation of Inuit culture are very little analyzed in the impact study reports consulted. Most attention is paid to finding practical solutions to the inconveniences or nuisances caused by the projects.

On the other hand, the injection of capital for improved public services resulting from the payment of funds to communities in the form of profit sharing and financial guarantees, or the increase in household income resulting from job creation are presented in the study reports as positive consequences of the projects. But as mentioned earlier, these changes can have a disruptive effect on the way of life of individuals and the governance of local communities. The potential social impacts resulting from these changes with regard to issues such as the erosion of Inuit culture or social cohesion within the communities, although mentioned in the impact study reports, are not really analyzed either. The case of the impact study for phases II and III of the Raglan mine operation is analyzed in greater detail in subsection 5.3.

Difficult access to project data

The difficulties encountered in conducting this research with respect to access to data reflect the complexity of managing the environmental assessment processes under review, which are multi-stage and require the involvement of various agencies at each stage (see Table 2, p.13). In the absence of a centralized information management system that brings together all the documents produced at each stage of the process, it has not been possible to reconstruct the environmental assessment files, which are scattered among several agencies and individuals. This applies to both the federal and provincial processes.

What was the content of the directives issued by the provincial and federal administrators with regard to social impact assessment? What were the recommendations of the organizations responsible for project analysis (the KEQC and the FRP) in this regard? Subsequently, how were the issues raised in the directives analyzed in the impact studies? How did the KEQC and the FRP assess the results of this analysis in their impact assessment report? On what criteria was the decision to authorize the project based and what conditions were imposed for its implementation in the certificate of authorization? To answer these questions, we would have needed access to all the documents produced at each stage of the process, in each case.

There are also some gaps in the information management systems within the provincial and federal assessment processes of each agency. Information on projects in Nunavik is contained in several lists. There is no filing system that allows for the easy identification and location of documentation on each project. As a result, it was not possible to compile a reliable list of projects subject to each process in order to provide a representative sample and to track the documentation for each case.

The legal provisions governing access to information also impose certain constraints. The JBNQA does not contain a provision guaranteeing access to project information. As for access to impact study files produced outside the administration of the provincial process, the MELCC informed us that it cannot transmit documents from third parties without first obtaining their authorization. This requirement makes it considerably more difficult to access documents that are crucial to the conduct of research, such as impact study reports, which, it should be noted, have long been made public in the context of projects subject to the provincial procedure applicable to southern Quebec (Chapter 1 of the Environment Quality Act). However, recently, the impact studies for the northern process have been made available on the Web.

It is useful to recall in this regard that since the adoption of Bill 102 amending the *Environment Quality Act* (E.Q.A.), the information and documents produced in support of an application for authorization and the documents relating to an authorization are accessible to the public in a register (E.Q.A., s.115.5). This information and these documents are also public. Such a register has also existed at the federal level for several years.

Methodological shortcomings observed: the case of the Raglan Phase II and III ESIA

In addition to the difficulty of accessing information on projects, another obstacle to this research concerns the quality of the information contained in the various reports and documents in the environmental assessment files consulted. This finding is consistent with the many criticisms made by observers and various study committees over the years concerning the relevance of the information contained in the impact studies.

A frequent criticism is that the impact studies do not identify the important issues of the projects. The lack of transparency in impact assessment is also deplored. Some people feel that the approach taken by analysts to assess impacts is not always very clear, indicating a certain amount of arbitrariness. The impact study report for phases II and III of the Raglan mine operation (2015) analyzed in this research is a typical example illustrating these shortcomings and is important to focus on. This is a large-scale project which, among the cases analyzed, includes the most complete analysis of the changes induced by its implementation on the human environment and the resulting social impacts.

The report is replete with lengthy descriptions that do not lead to the formulation of specific issues and the development of criteria for analyzing them. In the part of the study that deals specifically with impacts on the human environment, several issues are grouped together in categories or themes that are formulated in such broad terms that they lose all meaning in terms of analysis.

The section of the report dealing with impacts on the human environment is divided into four themes:

- Economic benefits,
- Quality of life and cultural context,
- Land use,
- Archaeological heritage.

With regard more specifically to "quality of life and cultural context", the introduction to section 6.4 of the report states that

The experience of quality of life and cultural context over time depends largely on the ability of employees, families, and communities to manage, integrate, or even benefit from the effects of the key impact sources of employment and training, contracts, financial guarantees, and profit sharing (Adger 2000; Bingeman *et al.* 2004; Gibson and Klinck 2005). (p.6-95)

The problem as formulated can be summarized as the ability of employees, families and communities to adapt to modernity and its benefits, as supported by the project. A series of measures are therefore proposed, which consist of:

- Maintain the benefits and mitigate the inconveniences in terms of quality of life for families generated by the payment of financial guarantees and the sharing of profits under the Raglan Agreement (Impact 1),
- Mitigate the inconvenience to employees, families and communities due to the prolonged absence of Inuit workers (Impact 2),
- To ensure continued benefits and mitigate disadvantages due to wages paid to Inuit workers (Impact 3),
- Reduce the problems experienced in adapting to the culture in the workplace and discrimination due to the conditions favourable to the integration of Inuit (Impact 4),
- To ensure continued benefits and mitigate adverse impacts on the health and well-being of Inuit employees working at the mine (Impact 5).

As for the "erosion of Inuit culture", the authors of the impact study consider the project's contribution to this phenomenon to be negligible, given that Raglan Mine is not the only organization to introduce certain factors of change associated with modernity into Inuit communities, such as salaried work and the values specific to industrial culture.

Moreover, the migration of Inuit workers from the Raglan Mine to urban centres in the south, favoured by the FIFO (Fly In - Fly Out) operation model, is presented as both a positive and a negative consequence, depending on the point of view adopted. The same is true of the creation of new socio-economic classes in the communities, and more broadly in the territory of Nunavik, because of the socio-economic benefits associated with the project.

The project's impacts on quality of life and the cultural context are therefore considered both negative and positive. After the application of impact mitigation and spinoff maximization measures, the balance presented in the following table is 4 negative impacts of moderate significance and 12 positive impacts of high significance (see Table 3). But one may ask what exactly these assessments refer to?

As mentioned previously, , a major shortcoming of the methodological approach generally applied to impact studies consists in assigning a value (impact significance) to changes in environmental components

(biophysical or human) without explicitly referring to specific problems formulated in terms of issues. However, the same change in an environmental component does not have the same significance in terms of importance (impact) depending on the issue in relation to which it is analysed.

Table 3: Assessment of impacts on quality of life and cultural context

PERIOD	IMPACT SIGNIFICANCE (without mitigation measures)	IMPACT SIGNIFICANCE (with mitigation measures)
Construction/operation	Type: negative or positive	Type: negative or positive
	Intensity: low to medium	Intensity: low to medium
	Scope: local	Scope: local
	Duration: medium to long	Duration: medium to long
	Importance: medium (4) (positive impacts) to high (12) (negative impacts)	Importance: medium (4) (negative impacts) to high (12) (positive impacts)
	Probability: high	Probability: high

Source: SNC Lavalin 2015, p. 6-12

The criteria for assessing the impact are not the same depending on the issue under analysis. The same applies to the threshold (minimum or maximum) above or below which a change in the environmental component becomes significant or not. This is why, without reference to a given issue, impact descriptors and specific variability thresholds, assigning a value to the material or direct consequences of a given activity becomes completely arbitrary. The assessment of the impacts on the quality of life and cultural context of the Raglan Mine project is incomprehensible from this standpoint.

The text is peppered with testimonials from key informants, references to authors' texts and various documents (study reports, agreements, programs), but does not refer to any specific impact criteria and descriptors. Thus, it becomes virtually impossible to know the basis for the assessment and the decision to authorize the project. The same applies to the relevance of the conditions attached to the project.

Moreover, the analysis of several issues raised in the report was to all intents and purposes avoided. This is particularly true of the project's impact on the "erosion of Inuit culture". The only factor considered to contribute to the phenomenon attributable to the project is the hiring of Inuit workers in three communities bordering the mine. According to the authors of the study, the creation of salaried jobs and contact with industrial culture would encourage more individualistic behaviour that runs counter to the values of mutual aid and sharing that characterize the traditional Inuit way of life. However, the authors of the study minimize the influence of the changes observed among Inuit mine workers on their home communities, given their relatively small numbers.

However, the impact study neglects to take into account other factors likely to induce major changes in Inuit society. In particular, it mentions the emergence of "socio-economic classes" made up of Inuit businesses and local suppliers of goods and services to the Raglan Mine. In addition, the payment of funds to the Inuit communities on an annual basis, in the form of profit sharing and financial guarantees, which contributed to the creation of services and the hiring of personnel within various organizations, is mentioned.

Improving the situation of communities in terms of meeting their basic needs for employment, housing, health, education, etc., is a positive impact of the project, but can have major disruptive effects on the way of life of individuals and the governance of local communities, and can even create a rupture in the social fabric.

The combined effect of hiring Inuit workers at the mine, purchasing goods and services from Inuit-owned businesses, and providing funds to the communities are all factors that induce significant changes to the traditional way of life, potentially leading to the erosion of Inuit culture beyond what was estimated in the impact assessment (see Table 4).

Table 4: Contributing Factors to Inuit Cultural Erosion Attributable to the Project

PROJECT ACTIVITIES Source of impact	HUMAN ENVIRONMENT COMPONENT Changing the component	SOCIAL IMPACT
RECRUITMENT OF PERSONNEL FOR THE OPERATIONAL PHASE Creating Jobs for Inuit	SOCIAL STRUCTURE Creation of new social categories (mine workers)	BREAKING OF TRADITIONAL TIES BETWEEN COMMUNITY MEMBERS Change in individual behaviour (individualism vs. community and self-help values)
NEEDS FOR GOODS AND SERVICES Local procurement of goods and services	SOCIAL STRUCTURE Creation of new social categories (business class consisting of Inuit business owners)	BREAKING OF TRADITIONAL TIES BETWEEN COMMUNITY MEMBERS Emergence of a group of individuals with economic and political power
FINANCIAL GUARANTEES AND PROFIT SHARING Payment of funds to communities	SOCIAL STRUCTURE Creation of new social categories (employees of Inuit community organizations)	BREAKING OF TRADITIONAL TIES BETWEEN COMMUNITY MEMBERS Appearance of a group of individuals with political power

As mentioned in the impact study report, the changes experienced by the Inuit communities of Nunavik are the result of a multitude of factors that are difficult to isolate. Nevertheless, it would certainly be relevant for a project of this scope and duration to conduct a "cumulative social impact study" to consider the accelerating effect of this and other projects on changes in the communities that could lead to a breakdown in the social fabric, a breakdown against which the measures for adapting to Inuit culture (numerous in the impact study) have limited effect.

APPENDIX B: Guide for semi-structured interviews

PROCESS PARTICIPATION

- 1) In the environmental assessment processes applicable to Nunavik, have you been involved

Provincial JBNQA	
Federal JBNQA	
NILCA	
IAA/CEAA 2012	

- 2) What was the nature of your involvement

Type of involvement	Submission	Content of the study	Evaluation Impact assessment	Review Impact assessment	Decision
Mb. committee					
Director					
Participating in consultations					

- 3) Duration of your involvement - period (years) - how many projects analyzed?

PARTICIPANT FEEDBACK

- 4) What is your assessment of your experience (positive - negative) as a participant in the process?

SOCIAL AND CUMULATIVE IMPACTS :

- 5) In your opinion, have the environmental assessment processes established under the JBNQA contributed to the identification and consideration of the social impacts of development projects?
- 6) What are the main social impacts of the projects in Nunavik?
- 7) Are the social impacts of development projects different in Nunavik than in other regions of Québec or Canada? If so, what are these differences and what are the causes?
- 8) Do you have any comments on the observations from the first phase of the research regarding :
- a. analysis of social impacts,*
 - b. cumulative impact analysis,*

PROCESS: PROJECT MANAGEMENT TOOL

- 9) Do you have any comments on the observations from the first phase of the research regarding the process?
- complexity,
 - lack of an information management system,
 - follow-up of the analysis at the various stages of the difficult process (scoping - impact study - decision - monitoring and environmental follow-up).
- 10) In your opinion, has the process contributed to better projects (environmental and social acceptability)?

PROCESS: A TOOL FOR CITIZEN PARTICIPATION

- 11) Are the committee(s) formed under the JBNQA effective tools for participation?
- a. effective participation of committee members and means to reach the populations they represent,
 - b. access to project information (access to data - data that provides the best possible understanding of the issues,
 - c. (e.g., consideration of stakeholder concerns in the analysis [completion of the impact statement], in the decision [to proceed or not to proceed with the project and, where appropriate, to adopt mitigation measures], environmental monitoring and follow-up)

SUGGESTIONS FOR IMPROVEMENT

- 12) What process improvements could be made to address the identified weaknesses or gaps?

*SOCIAL IMPACTS

The first phase of the research revealed that the impact studies conducted in Nunavik generally fail to identify the important issues of the projects. The approach taken by analysts to assess social impacts is not always very clear, indicating a certain amount of arbitrariness.

*CUMULATIVE IMPACTS

Individually, projects are mostly small to medium in scale (e.g. port and airport facilities) and social impacts are not comprehensively analyzed. However, their accumulation over time and space can have a more significant impact that is difficult to capture through project impact assessment processes.

How could the consideration of these cumulative effects be improved in the Nunavik context?

The 2016 JBACE-commissioned study on cumulative effects assessment (CIA) applied in the environmental assessment of projects highlighted that the quality of CIAs is primarily a reflection of the quality and scope of instructions set out in the Directive.

How do you explain the fact that the Guidelines are not always aligned with best practices and do not allow proponents to do what is necessary to ensure that sufficient cumulative effects analysis is in place?

What measures should be put in place to ensure the quality of the guidelines?

APPENDIX C: Information and Consent Form

Title of research	Assessment of social impacts in environmental assessment processes applicable to Nunavik (Phase II)
Sponsors	Kativik Environmental Advisory Committee (KEAC) ³¹
Mandated to carry out the research	International Francophone Secretariat for Environmental Assessment (SIFÉE) ³²
Researchers	Gilles Côté, Annie Lamalice
Responsible for the KEAC	Michael Barrett, Paule Halley, Alexandre-Guy Côté

IMPORTANT NOTE

The consent form you have been given is only one part of the informed decision-making process and is intended to give you a general idea of the nature of the research and what your participation entails. Never hesitate to ask for more details or information. Please take the time to read the following carefully and understand all the information.

³¹ The KEAC was created in 1975 under Section 23 of the *James Bay and Northern Quebec Agreement* (JBNQA). This advisory body is the preferred and official intermediary of the governments of Canada and Québec, the Kativik Regional Government, the Northern villages and the Naskapi Nation of Kawawachikamach with respect to environmental and social protection in Nunavik. As such, the KEAC has the mandate to make recommendations to the responsible governments concerning laws, regulations and any other measure relating to the environmental and social protection regime in Nunavik, including the territory covered by the *Northeastern Quebec Agreement* (NEQA).

³² SIFÉE is an international non-profit organization founded in 1997 with the support of the French and Quebec governments to promote environmental assessment in the member countries of the Francophonie. SIFÉE carries out its mission through capacity building activities: international meetings, training, participation in research, and the publication of various works on themes related to the practice of environmental assessment, citizen participation and sustainable development.

Research objectives

Over the past few years, the KEAC has initiated a reflection on the social impact assessment (SIA) of development projects submitted to one of the four environmental assessment (EA) processes applicable in Nunavik. The objective of the process is to draw up a portrait of the scope of SIA within the framework of the processes in effect in Nunavik, to identify the strengths and weaknesses of the processes and to make recommendations to the authorities responsible for the application and implementation of the processes. In order to support this reflection, the KEAC mandated the SIFÉE to conduct research. The strategy initially proposed was to conduct a comparative study of the four EA processes applicable in Nunavik.

The first phase of the research revealed that the impact studies conducted in Nunavik generally fail to identify the important issues of the projects. The approach taken by analysts to assess social impacts is not always very clear, indicating a certain amount of arbitrariness.

Individually, projects are mostly small to medium in scale (e.g. port and airport facilities) and social impacts are not comprehensively analyzed. However, their accumulation over time and space can have a more significant impact that is difficult to capture through project impact assessment processes.

The first phase of the research also highlighted the complexity of managing environmental and social impact assessment (ESIA) processes in Nunavik, which involve several stages and the intervention of different agencies at each stage. The lack of centralized information management systems makes it difficult to reconstruct the process that led to the decision to authorize a project and to the development of conditions for its implementation. Without access to the environmental assessment files, whose documents are scattered among the hands of several organizations and individuals, it is also difficult to get an accurate picture of the identification of issues and the monitoring of the social impacts of development projects. In this second phase of the research, new information will be collected to obtain first-hand information on the conduct of EA processes in Nunavik and their consideration of social impacts.

This second phase of the research will first clarify the implementation of the EIA processes with respect to the administrative follow-up of files at various stages (from impact analysis to environmental follow-up) and the management of documentation in each case. By meeting with resource persons involved in the implementation of the various EIA processes, we will seek to explain the shortcomings observed in the first phase of the research.

In a second phase, this new phase aims to broaden the scope of the analysis spatially and temporally in order to shed light on the social impacts of the cumulative changes induced by the projects, particularly on the way of life of the Inuit populations, as well as on the social structure and governance at the community level and at the level of the Nunavik territory. The cumulative effect of projects carried out in Nunavik and the challenges of taking them into account in the EIA process are therefore the focus of the second phase of the research.

1) Methodological aspects

a) Preliminary interviews and construction of an analysis grid

The strategy adopted consists initially of conducting preliminary interviews with a few key informants (≈ 3), using a fairly broad interview grid to highlight what is working well and not so well in the implementation of the processes.

These preliminary interviews will allow us to formulate working hypotheses and refine the guide for subsequent interviews.

b) Review of the literature

In parallel with the interview process, a synthesis of studies dealing with the cumulative impacts of development projects on the biophysical and human environment in northern regions comparable to Nunavik will be conducted. Among other things, research has been done on the impacts of development projects in northern regions elsewhere in Canada. This will make it possible to identify, for Nunavik, the potential social issues of similar development projects and to develop a multi-criteria grid to analyze them. The literature review process will be used to develop the interview guide and the analysis grid. It will also allow us to situate Nunavik in a broader geographic context, which could, if necessary, contribute to the reflection on good practices in SIA.

c) Interviews based on the grid constructed in a) and b)

The final stage of data collection will be the conduct of semi-structured interviews (≈ 10) with the responsible individuals involved in each stage of the ESIA processes in Nunavik (scoping, study content [or scoping], impact assessment, impact study review, decision) in order to clarify the role of each and to specify how the processes as a whole operate. The interview grid used at this stage will reflect the content of the issues identified during the preliminary interviews and the literature review. In addition to the findings, we hope to encourage a broader process of reflection by involving resource persons concerned with the various stages of the four ESIA processes applicable in Nunavik.

2) Participation in research

Each interview will last approximately one hour. No theme of the interview will be given before it is conducted. This is to ensure that the answers to the questions are spontaneous.

The conversation will be recorded to facilitate further processing of the information.

In this regard, do you allow the researcher to record the conversation?

☐ yes or ☐ no

The transcript of the data from the interview conducted by the researcher will be sent to the interviewee for validation and, if necessary, to make clarifications or corrections. The interview data will be used exclusively for the purposes of this research. The audio recordings will be destroyed at the end of the research, after the final report has been produced.

3) Confidentiality, anonymity or dissemination of information

No personal information about the interviewees will be included in the report. The same is true, if applicable, of the organizations they represent. Therefore, we will use numerical coding to identify the individuals and organizations involved in the research.

In addition, only the people conducting the interviews and responsible for writing the summary will have access to the participants' personal data and to the content of the interviews. These people are the identified researchers: Gilles Côté and Annie Lamalice.

4) Advantages and disadvantages

Given the measures taken to ensure confidentiality, there are no particular risks or disadvantages to you in participating in this research. In terms of advantages, the interviews may provide an opportunity to reflect on your experience as a stakeholder in the environmental assessment processes established under the JBNQA or other legal provisions governing its administration and to draw lessons for your personal benefit. Also, the transcript of these interviews in the form of a summary will allow you to keep a written record of this reflection. Finally, by participating in this research, you can contribute to the development of processes and practices in the field of environmental assessment.

5) Right of withdrawal

Your participation is entirely voluntary. You are free to withdraw at any time by verbal notice, without prejudice and without having to justify your decision. If you decide to withdraw from the research, you may contact the researchers at the telephone number listed on the last page of this document. If you withdraw from the research, any personal information about you that was collected prior to your withdrawal will be destroyed.

I declare that I have read the above information, that I have had my questions about participating in the research answered, and that I understand the purpose, nature, benefits, risks, and harms of this research.

After due consideration and a reasonable period of time, I freely consent to participate in this research. I understand that I may withdraw at any time without prejudice and without having to justify my decision.

Signature of the participant		Date	
Name		First name	

I declare that I have explained the purpose, nature, benefits, risks and drawbacks of the study and have answered the questions asked to the best of my knowledge.

Signature of the researcher		Date	
Name		First name	

A copy of the signed information and consent form must be given to the participant

APPENDIX D: Identification Tables and Issue Analysis for Projects Subject to the Provincial
Process under Section 23 of the JBNQA

ISSUE PUBLIC HEALTH	PROJECT ACTIVITY <i>Source of impact (Reference)</i>	BIOPHYSICAL ENVIRONMENT COMPONENT <i>Changing the component (Reference)</i>	HUMAN ENVIRONMENT COMPONENT <i>Changing the component (Reference)</i>	SOCIAL IMPACT	MITIGATION OR ENHANCEMENT MEASURE <i>Description of the measure (Reference)</i>
PRESERVATION OF THE QUALITY OF THE SOURCES OF SUPPLY COMMUNITIES' DRINKING WATER SUPPLY	DEVELOPMENT OF FACILITIES IN THE RIVER <i>Emission of fine particles into the water (RSW, 2010, 3.3.3. Diversion and Cofferdam, p.29)</i>	SURFACE WATERS <i>Changes in water chemistry (RSW, 2010, 6.1.3. Physico-chemical characteristics of water, p.58)</i>	WATER TABLE <i>Contamination (RSW, 2010, 6.1.3. Physico- chemical characteristics of water, p.58)</i>	REDUCED ACCESS TO SAFE WATER FOR AFFECTED COMMUNITIES	MITIGATION MEASURE <i>Use granular material free of fines. Construct an additional temporary water intake at the outlet of Qattaakuluup Tasinga Lake (RSW, 2010, 6.1.3. Physico- chemical characteristics of water, p.58)</i>
	MANAGEMENT OF THE LANDFILL SITE FOR RESIDUAL MATERIALS <i>Leachate flow (Kativik, 2014, 14.1.5. Liquid discharges, p.51)</i>	GROUNDWATER SURFACE WATER <i>Changes in the chemical composition of water (Kativik, 2014, 14.2.2. Water, p.59)</i>	WATER TABLE SURFACE SUPPLY SOURCES <i>Contamination (Kativik, 2014, 14.2.8. Population, p.64)</i>	ACCESS TO DRINKING WATER FOR AFFECTED COMMUNITIES	MITIGATION MEASURE <i>Construct perimeter ditches to divert runoff and provide good drainage from the landfill (Kativik, 2014, 14.2.2. Water, p.59)</i>
	CREATION OF THE WASTE ROCK DUMP <i>Dissolution of nickel and other metal particles (SNC-Lavalin, 2015, 6.2.2.1.2.1 Sources of Impact, p.6-37)</i>	GROUNDWATER SURFACE WATERS <i>Modification of the chemical composition of water (SNC-Lavalin, 2015,6.2.2.1.2.2 Description of impacts, p.6-38)</i>	WATER TABLE SURFACE SUPPLY SOURCES <i>Contamination (SNC-Lavalin, 2015, 5.4.9.2 Drinking Water Supply, p. 5-384)</i>	ACCESS TO DRINKING WATER FOR AFFECTED COMMUNITIES	MITIGATION MEASURE <i>Drainage water to retention ponds before being pumped to the treatment plant at Mesamax (SNC-Lavalin, 2015, 6.2.2.1.2.4 Specific Mitigation Measures, p.6- 42)</i>

ISSUE MAINTENANCE OF TRADITIONAL ACTIVITIES	PROJECT ACTIVITY <i>Source of impact (Reference)</i>	BIOPHYSICAL ENVIRONMENT COMPONENT <i>Changing the component (Reference)</i>	HUMAN ENVIRONMENT COMPONENT <i>Changing the component (Reference)</i>	SOCIAL IMPACT	MITIGATION OR ENHANCEMENT MEASURE <i>Description of the measure (Reference)</i>
MAINTENANCE OF SUBSISTENCE FISHING PRACTICES	DEVELOPMENT OF FACILITIES IN THE RIVER <i>Construction of a diversion channel and cofferdam -- Loss of whitewater areas (RSW, 2010, 3.3.3., p.29)</i>	AQUATIC WILDLIFE Decrease in the number of salmonid spawning sites (RSW, 2010, 6.2.2 Fish fauna, p.77)	SUBSISTENCE FISHING <i>Decrease in catch of affected species (RSW, 2010, 6.2.2 Fish fauna, p.79)</i>	PRECARIOUSNESS OF THE PRACTICE	MITIGATION MEASURE <i>Design the diversion channel to maintain natural water levels (RSW, 2010, 6.1.2. Hydrodynamic conditions, p.53)</i>
	OPERATION OF THE PLANT <i>Operation of the power plant turbines (RSW, 2010, 3.2.3 Central, p.24)</i>	AQUATIC WILDLIFE <i>Increased salmonid mortality. (RSW, 2010, 6.2.2 Fish fauna, p.82)</i>	SUBSISTENCE FISHING <i>Decrease in catch of affected species (RSW, 2010, 6.2.2 Fish fauna, p.79)</i>	PRECARIOUSNESS OF THE PRACTICE	MITIGATION MEASURE <i>Install fine screens to minimize the risk of fish mortality. (RSW, 2010, 6.2.2 Fish fauna, p.82)</i>
	IMPOUNDMENT AND OPERATION OF THE RESERVOIR ³³ <i>Flooding of the area upstream of the reservoir (RSW, 2010, hydrodynamic controls, p.54)</i>	(See footnote)	SUBSISTENCE FISHING <i>Destruction of fishing sites (RSW, 2010, 6.2.2 Fish fauna, p.79)</i>	PRECARIOUSNESS OF THE PRACTICE	MITIGATION MEASURE No
	IMPOUNDMENT AND OPERATION OF THE RESERVOIR <i>Decrease in level and flow downstream of the reservoir (RSW, 2010, hydrodynamic controls, p.54)</i>	(See footnote)			

³³ The implementation of hydropower projects generally leads to the modification of the water regime. This modification can lead to a change in the productivity of the watercourses, resulting in a decrease or an increase of the resource in the affected areas. It can also affect the navigability of rivers and thus access to fishing sites by boat. Finally, changes in the water system may render wading sites unusable due to changes in water levels downstream of water retention structures.

ISSUE MAINTAINING THE CONDITIONS FOR THE MOVEMENT OF LOCAL POPULATIONS	PROJECT ACTIVITY <i>Source of impact (Reference)</i>	BIOPHYSICAL ENVIRONMENT COMPONENT <i>Changing the component (Reference)</i>	HUMAN ENVIRONMENT COMPONENT <i>Changing the component (Reference)</i>	SOCIAL IMPACT	MITIGATION OR ENHANCEMENT MEASURE <i>Description of the measure (Reference)</i>
SAFETY OF USERS OF LAND TRANSPORT INFRASTRUCTURES	CONSTRUCTION OF THE ACCESS ROAD <i>Existing mountain bike trail modified into an access road (RSW, 2010, 3.2.8. Access road, p.25)</i>		MOUNTAIN BIKE TRAIL <i>Sharing the ATV trail with trucks (RSW, 2010, 6.3.2. Traffic, p.102)</i>	RISK OF ACCIDENTS FOR USERS OF THE MOUNTAIN BIKE TRAIL	MITIGATION MEASURE <i>Upgrade and widen the ATV trail by five metres (RSW, 2010, 3.2.8. Access road, p.25)</i>
INCREASED TRAVEL TIME IN WINTER	SHIPPING IN THE BAY WINTER DISAPPOINTMENT <i>Ship passage (SNC-Lavalin, 2015, 3.8.5. Transportation of concentrate, p.108)</i> <i>5.4.10.4.4 Ice Conditions in Deception Bay, p.5-416)</i>	ICE-COVERED <i>Deterioration of ice condition and quality (SNC-Lavalin, 2015, 5.4.10.4.4 Ice Conditions at Deception Bay, p. 5- 416)</i>	MOVEMENTS ON THE ICE <i>Increase in equipment breakdowns (snowmobiles) (SNC-Lavalin, 2015, 7.3.6.1.2 Transportation Infrastructure, p.7-68)</i>	AVOIDANCE OF THE OLD RUNWAY FOR A NEW LONGER RUNWAY	MITIGATION MEASURE <i>Plan the construction of an ice bridge or the use of the aluminum bridge. Participate in the analysis of the results of the ice monitoring program at Deception Bay and implement recommendations to facilitate the use of the bay by the Sallumiut in winter (SNC-Lavalin, 2015, 6.4.3.2.4 Specific Mitigation Measures, p.6-138)</i>

ISSUE INUIT COMMUNITY ECONOMIC DEVELOPMENT	PROJECT ACTIVITY <i>Source of impact (Reference)</i>	BIOPHYSICAL ENVIRONMENT COMPONENT <i>Changing the component (Reference)</i>	HUMAN ENVIRONMENT COMPONENT <i>Changing the component (Reference)</i>	SOCIAL IMPACT	MITIGATION OR ENHANCEMENT MEASURE <i>Description of the measure (Reference)</i>
EMPLOYMENT SITUATION IN LOCAL INUIT COMMUNITIES	RECRUITMENT OF PERSONNEL FOR THE HYDROELECTRIC DEVELOPMENT PROJECT <i>Creation of skilled jobs (RSW, 2010, 6.3.1. Socio-economic aspects, p.101)</i>		LABOUR MARKET <i>Employment rate of Inuit workers on the project (RSW, 2010, 6.3.1. Socio- economic aspects, p.97)</i>	ENHANCES THE VALUE OF THE LOCAL WORKFORCE	BONUS MEASURE <i>Give priority to hiring local staff (RSW, 2010, 6.3.1. Socio-economic aspects, p. 100)</i>
	RECRUITMENT OF PERSONNEL FOR THE MINE PROJECT <i>Job creation (SNC Lavalin, 2015, 6.4.1.2.1 Impact Sources, p.6-72)</i>		LABOUR MARKET <i>Employment rate of Inuit workers on the project (SNC Lavalin, 2015, 6.4.1.2.2 Description of impacts, p.6- 78)</i>	ENHANCES THE VALUE OF THE LOCAL WORKFORCE	BONUS MEASURE <i>Prioritize hiring for the Inuit of Salluit and Kangiqsujuaq, other northern villages and the Inuit of Quebec and Canada in accordance with Chapter 5 of the Raglan Agreement (SNC Lavalin, 2015, Overview of Current Key Employment Measures for Inuit, p.6-80)</i>
	RECRUITMENT OF STAFF FOR SITE RESTORATION <i>Job creation (Kativik, 2014, 14.1.11. Site rehabilitation, p.55)</i>		LABOUR MARKET <i>Employment rate of Inuit workers (Kativik, 2014, 14.2.8. Site rehabilitation, p.66)</i>	ENHANCES THE VALUE OF THE LOCAL WORKFORCE	BONUS MEASURE <i>The project will also ensure a minimum number of working hours for the operators since it will be spread over at least 2 years. (Kativik, 2014, 14.2.8. Site rehabilitation, p.66)</i>

ISSUE INUIT COMMUNITY ECONOMIC DEVELOPMENT	PROJECT ACTIVITY <i>Source of impact (Reference)</i>	BIOPHYSICAL ENVIRONMENT COMPONENT <i>Changing the component (Reference)</i>	HUMAN ENVIRONMENT COMPONENT <i>Changing the component (Reference)</i>	SOCIAL IMPACT	MITIGATION OR ENHANCEMENT MEASURE <i>Description of the measure (Reference)</i>
INUIT LABOUR FORCE STATUS	RECRUITMENT OF PERSONNEL FOR THE CONSTRUCTION AND OPERATION OF THE POWER PLANT <i>Fields of expertise required (RSW, 2010, 6.3.1. Socio-economic aspects, p.99)</i>		PROFESSIONAL QUALIFICATION OF THE INUIT WORKFORCE ³⁴ <i>Number of enrolments in internships or in-company training. (RSW, 2010, 6.3.1. Socio- economic aspects, p.97)</i>	IMPROVING THE EMPLOYABILITY OF THE LOCAL WORKFORCE	BONUS MEASURE <i>Planning for construction trades training (RSW, 2010, 6.3.1. Socio- economic aspects, p.99)</i>
	RECRUITMENT OF PERSONNEL FOR THE CONSTRUCTION AND OPERATION OF THE MINE <i>Skills of hired workers (WSP, 2015, 7.4.2 Economy and employment, p.77)</i>		PROFESSIONAL QUALIFICATION OF THE INUIT WORKFORCE <i>Number of enrolments in internships or in-company training. (WSP, 2015, 7.4.2 Economy and employment, p.77)</i>	IMPROVING THE EMPLOYABILITY OF THE LOCAL WORKFORCE	BONUS MEASURE <i>Implement a training program to be disseminated to Inuit villages to recruit staff. (WSP, 2015, 7.4.2 Economy and employment, p.77)</i>
	RECRUITMENT OF PERSONNEL FOR THE CONSTRUCTION AND OPERATION OF THE MINE <i>Skills of hired workers (SNC-Lavalin, 2015, 5.4.6.4 training programs offered at the Raglan Mine, p. 5-294)</i>		PROFESSIONAL QUALIFICATION OF THE INUIT WORKFORCE <i>Number of participants in partnership training programs. (SNC-Lavalin, 2015, 5.4.6.4.3 Tamatumani program, p. 5- 298)</i>	IMPROVING THE EMPLOYABILITY OF THE LOCAL WORKFORCE	BONUS MEASURE <i>Retention of the existing Inuit wage workforce and opportunity to increase the number of Inuit workers. (SNC-Lavalin, 2015, 6.4.1.2.4 specific mitigation and enhancement measures, p.6-89)</i>

³⁴ The creation of a local labour pool is the result of the experience of the workers who participated in the project and those who, faced with the employment opportunities created by the project, decided to upgrade their skills by participating in training courses in the construction trades or other fields such as administration.

ISSUE INUIT COMMUNITY ECONOMIC DEVELOPMENT	PROJECT ACTIVITY <i>Source of impact (Reference)</i>	BIOPHYSICAL ENVIRONMENT COMPONENT <i>Changing the component (Reference)</i>	HUMAN ENVIRONMENT COMPONENT <i>Changing the component (Reference)</i>	SOCIAL IMPACT	MITIGATION OR ENHANCEMENT MEASURE <i>Description of the measure (Reference)</i>
INUIT BUSINESS PARTICIPATION IN PROJECTS	SUBCONTRACTING THE CONSTRUCTION AND OPERATION OF THE MINE <i>Purchase of goods and services for the work. (WSP, 2015, 7.4.2 Economy and employment, p.77)</i>		LOCAL BUSINESSES <i>Number of mine site subcontractors among Inuit firms. (WSP, 2015, 7.4.2 Economy and employment, p.77)</i>	ECONOMIC ACTIVITY OF LOCAL BUSINESSES	BONUS MEASURE <i>Consider Inuit firms first when awarding the various construction, operation and maintenance mandates for its mining infrastructures. (WSP, 2015, 7.4.2 Economy and employment, p.77)</i>
	SUBCONTRACTING THE CONSTRUCTION AND OPERATION OF THE MINE <i>Bidding Procedures for the Purchase of Goods and Services (SNC Lavalin, 2015, 6.4.1.2.1 Impact Sources, p.6-72)</i>		INUIT BUSINESSES <i>Success rate of tenders. (SNC Lavalin, 2015, 6.4.1.2.2 Description of impacts, p.6- 73)</i>	COMPETITIVENESS OF LOCAL INUIT BUSINESSES	BONUS MEASURE <i>Identify mechanisms to help SMEs qualify for and respond to tenders (2015 HIA, 6.4.1.2.4 Specific Mitigation and Bonus Measures, p.6.-91)</i>

ISSUE	PROJECT ACTIVITY <i>Source of impact (Reference)</i>	BIOPHYSICAL ENVIRONMENT COMPONENT <i>Changing the component (Reference)</i>	HUMAN ENVIRONMENT COMPONENT <i>Changing the component (Reference)</i>	SOCIAL IMPACT	MITIGATION OR ENHANCEMENT MEASURE <i>Description of the measure (Reference)</i>
PROTECTION OF CULTURAL AND NATURAL HERITAGE					
PROTECTION OF THE ARCHAEOLOGICAL HERITAGE	CONSTRUCTION OF THE ACCESS ROAD <i>Plotting the route (RSW, 2010, 3.2.8. Access road, p.25)</i>		ARCHAEOLOGICAL SITE <i>Physical encroachment (RSW, 2010, 6.3.5. Heritage and Archaeology, p.106)</i>	ALTERATION OF THE SPIRITUAL CHARACTER OF THE SITE LEADING TO A FEELING OF DISOWNMENT	MITIGATION MEASURE <i>Move the road south to preserve the two existing archaeological sites (RSW, 2010, 6.3.5. Heritage and Archaeology, p.107)</i>
	DEVELOPMENT OF THE WORKERS' CAMP. <i>Determination of the site (RSW, 2010, Housing and Transportation, p.31)</i>		ARCHAEOLOGICAL SITE <i>Physical encroachment (RSW, 2010, 6.3.5. Heritage and Archaeology, p.106)</i>	ALTERATION OF THE SPIRITUAL CHARACTER OF THE SITE LEADING TO A FEELING OF DISOWNMENT	MITIGATION MEASURE <i>Plan the camp away from the archaeological site. (RSW, 2010, Heritage and Archaeology, p.107)</i>
	SURFACE INFRASTRUCTURE DEVELOPMENT <i>Excavation work (SNC Lavalin, 2015, 3.3.1 Description of Preparatory and Construction Activities, p.3-38)</i>		ARCHAEOLOGICAL SITE <i>Accidental update or destruction of a new site (SNC Lavalin, 2015, 6.4.4.2.2 Description of impacts, p.6-142)</i>	LOSS OF HISTORICAL HERITAGE	MITIGATION MEASURE <i>Carry out an archaeological inventory before proceeding with any work (SNC Lavalin, 2015, 6.4.4.2.4 Specific Mitigation Measures, p.6-143)</i>

ISSUE PROTECTION OF CULTURAL AND NATURAL HERITAGE	PROJECT ACTIVITY <i>Source of impact (Reference)</i>	BIOPHYSICAL ENVIRONMENT COMPONENT <i>Changing the component (Reference)</i>	HUMAN ENVIRONMENT COMPONENT <i>Changing the component (Reference)</i>	SOCIAL IMPACT	MITIGATION OR ENHANCEMENT MEASURE <i>Description of the measure (Reference)</i>
LANDSCAPE PROTECTION	DAM CONSTRUCTION <i>Height of the concrete vertical plane (42 meters) (RSW, 2010, 3.2.2 Dam, p.24)</i>	VISUAL ENVIRONMENT <i>Permanent change in the physical appearance of the natural terrain (RSW, 2010, 6.1.2. Vegetation, p.68)</i>	LIVING ENVIRONMENT <i>Permanent introduction of a new element in the visual field (RSW, 2010, 6.3.3. Landscape, p.103)</i>	MODIFICATION OF REPRESENTATIONS OF THE ENVIRONMENT AS A LIVING ENVIRONMENT	MITIGATION MEASURE <i>Developing a mural and layering a sculpture (RSW, 2010, 6.3.3.2 Impacts and Mitigation Measures, p.104)</i>
	LANDFILL MANAGEMENT <i>Maximum height of stacked waste is 5.2 metres (Kativik, 2014, 14.1.8. Construction of berms, p.55)</i>	VISUAL ENVIRONMENT <i>Overhang above the natural elevation of the land (Kativik, 2014, 14.2.1. Sol, p.57)</i>	LIVING ENVIRONMENT <i>Deterioration of the aesthetic aspect of the landscape (Kativik, 2014, 5.2 Visibility, p.27)</i>	MODIFICATION OF REPRESENTATIONS OF THE ENVIRONMENT AS A LIVING ENVIRONMENT	MITIGATION MEASURE <i>Construction of berms hides operations in the most active part of the landfill: the domestic area (Kativik, 2014, 12.9. Landscape, p.67)</i>
	RESIDUAL MATERIALS MANAGEMENT <i>Dispersal of flying debris (Kativik, 2014, 14.1.9. Presence of waste, p.55)</i>	VISUAL ENVIRONMENT <i>Temporary change in the physical appearance of the natural terrain (Kativik, 2014, 14.2.1. Sol, p.57)</i>	LIVING ENVIRONMENT <i>Deterioration of the aesthetic quality of the landscape (Kativik, 2014, 12.9. Landscape, p.67)</i>	MODIFICATION OF REPRESENTATIONS OF THE ENVIRONMENT AS A LIVING ENVIRONMENT	MITIGATION MEASURE <i>Regular maintenance to reduce flying debris (Kativik, 2014, 12.9. Landscape, p. 67)</i>
	MINE SITE DEVELOPMENT <i>Height of the waste rock pile (20 meters projected) (WSP, 2015, 5.13.2 Barren, p.45)</i>	VISUAL ENVIRONMENT <i>Temporary overhang above natural ground elevation (WSP, 2015, 7.1.2 Environmental Components, p.63)</i>	LIVING ENVIRONMENT <i>Introduction of new elements in the visual field (WSP, 2015, 7.1.2 Environmental Components, p.63)</i>	MODIFICATION OF REPRESENTATIONS OF THE ENVIRONMENT AS A LIVING ENVIRONMENT	MITIGATION MEASURE <i>Limiting the height of the hangar to better integrate the structures into the surrounding landscape (WSP, 2015, 7.1.2 Environmental Components, p.63)</i>

ISSUE PROTECTION OF CULTURAL AND NATURAL HERITAGE	PROJECT ACTIVITY <i>Source of impact (Reference)</i>	BIOPHYSICAL ENVIRONMENT COMPONENT <i>Changing the component (Reference)</i>	HUMAN ENVIRONMENT COMPONENT <i>Changing the component (Reference)</i>	SOCIAL IMPACT	MITIGATION OR ENHANCEMENT MEASURE <i>Description of the measure (Reference)</i>
LANDSCAPE AS A TOURIST ATTRACTION	MINE SITE EXPLOITATION <i>Light emissions from the mine site (SNC Lavalin, 2015, 5.4.13.5 Infrastructure Visibility, p.5-438)</i>	VISUAL ENVIRONMENT <i>Increase in the level of light in the sky</i>	PINGUALUIT NATIONAL PARK <i>Visual nuisance for tourists in the park (SNC Lavalin, 2015, 5.4.13.5 Infrastructure Visibility, p.5-438)</i>	DISRUPTION OF THE TOURISM EXPERIENCE IN PINGUALUIT NATIONAL PARK	MITIGATION MEASURE <i>Understanding the impacts of the Raglan mine in Pingualuit National Park (SNC Lavalin, 2015, Table 6.22 Overview of Key Initiatives, p.6-86)</i>

ISSUE INTER-COMMUNITY SOCIAL RELATIONS AND LIFESTYLE INUIT COMMUNITIES	PROJECT ACTIVITY <i>Source of impact (Reference)</i>	BIOPHYSICAL ENVIRONMENT COMPONENT <i>Changing the component (Reference)</i>	HUMAN ENVIRONMENT COMPONENT <i>Changing the component (Reference)</i>	SOCIAL IMPACT	MITIGATION OR ENHANCEMENT MEASURE <i>Description of the measure (Reference)</i>
INTER-COMMUNITY RELATIONS BETWEEN INUIT AND NON- ABORIGINALS	RECREATIONAL ACTIVITIES OF WORKERS <i>Sport fishing (WSP, 2015, 7.4.1 Land use, p.75)</i>	AQUATIC WILDLIFE <i>Pressure on the fish population in lakes near the mine site (WSP, 2015, 7.4.1 Land use, p.75)</i>	TRADITIONAL FISHING GROUNDS <i>Disruption of Inuit fishing patterns near these lakes (WSP, 2015, 7.4.1 Land use, p.75)</i>	AVOIDANCE OF TRADITIONAL FISHING SITES	MITIGATION MEASURE <i>Establishment of a sport fishing program to promote the supervision of this activity near the mine (WSP, 2015, 7.4.1 Land use, p.76)</i>
	RECREATIONAL ACTIVITIES OF WORKERS <i>Sport fishing in Deception Bay (SNC Lavalin, 2015, 5.4.11.1 Sport fishing by non-Inuit employees of Raglan Mine, p.5-421)</i>	AQUATIC WILDLIFE <i>Decrease in populations of some fish species in Deception Bay (SNC Lavalin, 2015, 6.3.2.2.2 Disappointment Bay, p.6-66)</i>	FISHING APPEAL <i>Increased competition for a fish of interest to the Inuit: Arctic char. (SNC Lavalin, 2015, 6.3.2.2.2.2 Description of impacts, p.6-66)</i>	NEW SOURCE OF COMPETITION FOR RESOURCES BETWEEN INUIT AND NON-ABORIGINAL PEOPLE	MITIGATION MEASURE <i>Ensure that fishing by non-Inuit does not interfere with Sallumiut activities on an annual basis (SNC Lavalin, 2015, 6.3.2.2.4 Specific Mitigation Measures, p.6-67)</i>
LIFESTYLE CHANGES IN INUIT FAMILIES	PERSONNEL MANAGEMENT <i>Scheduling and rotation weeks (SNC Lavalin, 2015, 5.4.5.4 Workplace Culture at Raglan Mine, p.5-280)</i>		FAMILY <i>Removal of Inuit workers from their families (SNC Lavalin, 2015, 6.4.2.2.2 Description of impacts, p.6-103)</i>	EROSION OF THE FAMILY BOND	MITIGATION MEASURE <i>Expanding support opportunities for families and providing psychological/social services to new Inuit workers (SNC Lavalin, 2015, 6.4.2.2.4 Mitigation Measures, p.6-119)</i>

APPENDIX E: Tables identifying and analyzing the issues of projects subject to the federal process established under Section 23 of the JBNQA

ISSUE	PROJECT ACTIVITY <i>Source of impact (Reference)</i>	BIOPHYSICAL ENVIRONMENT COMPONENT <i>Changing the component (Reference)</i>	HUMAN ENVIRONMENT COMPONENT <i>Changing the component (Reference)</i>	SOCIAL IMPACT	MITIGATION OR ENHANCEMENT MEASURE <i>Description of the measure (Reference)</i>
MAINTENANCE OF TRADITIONAL ACTIVITIES					
SUBSISTENCE HUNTING	MARINE NAVIGATION <i>Fragmentation of the ice cover (COFEX, 2013, 5.5 Marine Mammals, p.20)</i>	AQUATIC WILDLIFE <i>Loss of pupping habitat for ringed seals (COFEX, 2013, 5.5 Marine Mammals, p.20)</i>	SUBSISTENCE HUNT <i>Decline in reproduction of one of the most hunted seal species by the Inuit (COFEX, 2013, 5.5 Marine Mammals, p.20)</i>	PRECARIOUSNESS OF THE RINGED SEAL HUNT	MITIGATION MEASURE <i>Prohibit boating and restrict it during periods of childbirth, nursing and weaning of newborns. (COFEX, 2013, 5.5 Marine Mammals, p.20)</i>
	BLASTING IN THE CONSTRUCTION AREA <i>Underwater noise (COFEX, 2009, 5.2 Effects on the biophysical environment, p. 12)</i>	AQUATIC WILDLIFE Disturbance of beluga whales that frequent the bay Deception <i>(COFEX, 2009, 5.2 Effects on the biophysical environment, p. 13)</i>	SUBSISTENCE HUNT <i>Likely departure from the bay of a species hunted by the Inuit (COFEX, 2009, 5.5 Marine Mammals, p. 19)</i>	PRECARIOUSNESS OF THE BELUGA HUNT	MITIGATION MEASURE <i>Blasting outside of the restriction period, during which beluga whales frequent the construction area (COFEX, 2009, 5.2 Effects on the biophysical environment, p. 13)</i>
MAINTENANCE OF THE PRACTICE OF HARVESTING MOLLUSCS	UNDERWATER CONSTRUCTION WORKS <i>Layout of breakwater materials in a 7,000 m² area (Makivik, 2000, 4.1.3.1 Construction, p. 42)</i>	AQUATIC HABITATS Loss of aquatic habitat due to encroachment on the natural environment <i>(Makivik, 2000, 7.3.2.1 Marine and freshwater habitats, p. 134)</i>	SHELLFISH HARVESTING <i>Disruption of blue mussel harvesting activities in the Site 1 construction area (Makivik, 2000, 6.1.5.1.1 Subsistenceharvesting, p. 80)</i>	DEGRADATION OF A TRADITIONAL SUBSISTENCE ACTIVITY	COMPENSATION MEASURE <i>The creation of breakwaters will result in the creation of 9,000 m² of new marine habitat (Makivik, 2000, 7.3.2.1 Marine and freshwater habitats, p. 135)</i>
	CONSTRUCTION OF THE UNDERWATER PART OF THE MARINE INFRASTRUCTURE <i>Dispersion of fine particles from building materials in water (Makivik, 2006, 3.4.3 Sources of materials, p. 28)</i>	AQUATIC HABITATS Temporary deterioration of the quality of aquatic habitats, particularly those of molluscs (mussels, clams) <i>(Makivik, 2006, 3.4.2 Affected Habitat, p. 27)</i>	SHELLFISH HARVESTING <i>Decline in harvesting of shellfish along the coast at low tide (Makivik, 2006, 4.2.10 Harvestingactivities, p. 40)</i>	DEGRADATION OF A TRADITIONAL SUBSISTENCE ACTIVITY	MITIGATION MEASURE <i>Treat construction materials to reduce sedimentation caused by wave erosion (Makivik, 2006, 6.1 Aquaticresources, p. 44)</i>
ISSUE	PROJECT ACTIVITY <i>Source of impact (Reference)</i>	BIOPHYSICAL ENVIRONMENT COMPONENT <i>Changing the component (Reference)</i>	HUMAN ENVIRONMENT COMPONENT <i>Changing the component (Reference)</i>	SOCIAL IMPACT	MITIGATION OR ENHANCEMENT MEASURE <i>Description of the measure (Reference)</i>

MAINTENANCE OF TRADITIONAL ACTIVITIES					
PLANT AND FRUIT PICKING PRACTICE	<p>SEDIMENT TRANSPORT</p> <p><i>Emission of fine particles into the air (COFEX, 2013, 3.2. Dredging and Sediment Management, p. 7)</i></p>	<p>FLORA</p> <p><i>Deposition of fine particles and dust on nearby plants and berries (COFEX, 2013, 6.2 Land Uses, p.26)</i></p>	<p>HARVESTED FRUIT SAFETY</p> <p><i>Contamination of harvested plants and berries (COFEX, 2013, 6.2 Land Uses, p.26)</i></p>	<p>PRECARIOUSNESS OF THE PRACTICE</p>	<p>MITIGATION MEASURE</p> <p><i>It is recommended that roads be kept wet to reduce dust (COFEX, 2013, 6.2 Land Uses, p.26)</i></p>
FISH DRYING PRACTICE	<p>SEDIMENT TRANSPORT</p> <p><i>Emission of fine particles into the air (COFEX, 2013, 3.2. Dredging and Sediment Management, p. 7)</i></p>	<p>AIR</p> <p><i>Deposition of fine particles on the ground</i></p>	<p>SAFETY OF AIR-DRIED FISH</p> <p><i>Contamination of dried fish (COFEX, 2013, 6.2 Land Use, p.26)</i></p>	<p>PRECARIOUSNESS OF THE PRACTICE</p>	<p>MITIGATION MEASURE</p> <p><i>It is recommended that roads be kept wet to reduce dust (COFEX, 2013, 6.2 Land Uses, p.26)</i></p>
MAINTAINING THE PRACTICE OF EGG HARVESTING IN THE SHORELINE AREA	<p>DRILLING AND BLASTING IN THE QUARRY</p> <p><i>Construction noise (Makivik, 2009, 3.4.4 Activities, p.29)</i></p>	<p>HABITATS FOR AVIAN FAUNA</p> <p><i>Disturbance of the environment in the vicinity of the quarry, which is conducive to the nesting of shorebirds, such as the eider duck (Makivik, 2006, 4.2.8 Biological components, p. 39)</i></p>	<p>EGG COLLECTION</p> <p><i>Decline in eider duck egg harvest at affected sites (Makivik, 2006, 4.2.10 Harvestingactivities, p. 40)</i></p>	<p>DEGRADATION OF A TRADITIONAL SUBSISTENCE ACTIVITY</p>	<p>MITIGATION MEASURE</p> <p><i>No mitigation measures. (Makivik, 2006, 6.4 Avianresources, p. 45)</i></p>

ISSUE MAINTAINING THE CONDITIONS FOR THE MOVEMENT OF LOCAL POPULATIONS	PROJECT ACTIVITY <i>Source of impact (Reference)</i>	BIOPHYSICAL ENVIRONMENT COMPONENT <i>Changing the component (Reference)</i>	HUMAN ENVIRONMENT COMPONENT <i>Changing the component (Reference)</i>	SOCIAL IMPACT	MITIGATION OR ENHANCEMENT MEASURE <i>Description of the measure (Reference)</i>
MAINTAINING SAFE CONDITIONS FOR THE MOVEMENT OF THE LOCAL POPULATION	TRANSPORT OF BUILDING MATERIALS <i>Truck traffic (COFEX, 2009, 3.2 Project components, p. 6)</i>		ACCIDENT RISK <i>Increased risk (COFEX, 2009, 5.3 Effects on the community, p. 14)</i>	FEELING OF INSECURITY	MITIGATION MEASURE <i>Select a quarry so that trucks do not have to pass through the village (COFEX, 2009, 5.3 Effects on the community, p. 14)</i>
	MATERIAL TRANSPORT <i>Traffic of the two 35-ton trucks on the road between the quarry and the project site (Makivik, 2000, 4.1.3 Activities, p. 42)</i>		RESIDENT SAFETY <i>Increased risk of accidents, especially for children (Makivik, 2000, 6.1.4 Population, p. 54)</i>	FEELING OF INSECURITY IN THE COMMUNITY	MITIGATION MEASURE <i>Impose speed limits on vehicles and install barriers along used roadways (Makivik, 2000, 7.3.2.7 VC7: Public safety, especially for children, p. 157, p. 157)</i>
	TRANSPORT OF BUILDING MATERIALS <i>Truck traffic between the quarry site and Tuliraq and Quaqtaq bays (Makivik, 2006, 3.4.4 Activities, p. 29)</i>		RESIDENT TRAVEL <i>Increased risk of collision with pedestrians, especially children, travelling on the truck route. (Makivik, 2006, 6.10 Safety issues, p. 47)</i>	INCREASED SENSE OF INSECURITY IN THE COMMUNITY	MITIGATION MEASURE <i>Putting up six stop signs and equipping drivers with portable radios (Makivik 2006, 3.2.8. Access road, p.25)</i>

ISSUE MAINTAINING THE CONDITIONS FOR THE MOVEMENT OF LOCAL POPULATIONS	PROJECT ACTIVITY <i>Source of impact (Reference)</i>	BIOPHYSICAL ENVIRONMENT COMPONENT <i>Changing the component (Reference)</i>	HUMAN ENVIRONMENT COMPONENT <i>Changing the component (Reference)</i>	SOCIAL IMPACT	MITIGATION OR ENHANCEMENT MEASURE <i>Description of the measure (Reference)</i>
SAFETY OF THE USERS OF THE BAY FOR THEIR WINTER TRAVEL	SHIPPING IN THE BAY WINTER DISAPPOINTMENT <i>Frequency of vessel traffic in the bay Disappointment (COFEX, 2013, Marine Navigation, p. 7)</i>	ICE-COVERED <i>Deterioration of ice condition and quality (COFEX, 2013, 6.3 Access to the territory, p.26)</i>	RISK OF ACCIDENTS DURING WINTER TRAVEL <i>Increase in accidents or equipment breakdowns (COFEX, 2013, 6.3 Access to the territory, p.26)</i>	RISK OF FALLS AND INJURIES WHEN TRAVELLING ON THE TERRITORY	MITIGATION MEASURE <i>Coordinate navigation between the two mining companies and communicate in advance the passage of vessels (COFEX, 2013, 6.3 Access to the territory, p.27)</i>

ISSUE INUIT COMMUNITY ECONOMIC DEVELOPMENT	PROJECT ACTIVITY <i>Source of impact (Reference)</i>	BIOPHYSICAL ENVIRONMENT COMPONENT <i>Changing the component (Reference)</i>	HUMAN ENVIRONMENT COMPONENT <i>Changing the component (Reference)</i>	SOCIAL IMPACT	MITIGATION OR ENHANCEMENT MEASURE <i>Description of the measure (Reference)</i>
EMPLOYMENT SITUATION IN LOCAL INUIT COMMUNITIES	STAFF RECRUITMENT <i>Creation of skilled jobs in the construction industry (COFEX, 2013, 5.3 Effects on the community, p. 15)</i>		LABOUR MARKET <i>Increase in the number of Inuit workers employed (COFEX, 2013, 5.3 Effects on the community, p. 15)</i>	ENHANCES THE VALUE OF THE LOCAL WORKFORCE	BONUS MEASURE <i>Prioritize the hiring of Inuit during the construction phase (COFEX, 2013, 5.3 Effects on the community, p. 15)</i>
	STAFF RECRUITMENT <i>Creation of skilled jobs in the construction industry (Makivik, 2000, 4.1.7 Manpower and training, p. 45)</i>		LABOUR MARKET <i>Increase in the rate of Inuit workers employed in the community (Makivik, 2000, 6.1.4.5 Employment, p. 64)</i>	ENHANCES THE VALUE OF THE LOCAL WORKFORCE	BONUS MEASURE <i>Designate Makivik Corporation as the sole proponent of the project (Makivik, 2000, 7.3.2.5 VC5: Maximizing local and regional contracting, p. 151)</i>
	STAFF RECRUITMENT <i>Creation of skilled jobs in the construction industry (Makivik, 2006, 3.4.8 Manpower, p. 32)</i>		LABOUR MARKET <i>Increase in the number of Inuit workers employed (Makivik, 2006, 6.9 Inuit employment, p. 47)</i>	ENHANCES THE VALUE OF THE LOCAL WORKFORCE	BONUS MEASURE <i>Encourage local hiring during construction only (Makivik, 2006, 6.9 Inuit employment, contracting, revenue generation, p. 47)</i>
ISSUE INUIT COMMUNITY ECONOMIC DEVELOPMENT	PROJECT ACTIVITY <i>Source of impact (Reference)</i>	BIOPHYSICAL ENVIRONMENT COMPONENT <i>Changing the component (Reference)</i>	HUMAN ENVIRONMENT COMPONENT <i>Changing the component (Reference)</i>	SOCIAL IMPACT	MITIGATION OR ENHANCEMENT MEASURE <i>Description of the measure (Reference)</i>

INUIT LABOUR FORCE STATUS	STAFF RECRUITMENT <i>Fields of expertise required (COFEX, 2013, 6.4 Economic Development, p. 28)</i>		PROFESSIONAL QUALIFICATION OF THE INUIT WORKFORCE ³⁵ <i>Number of enrolments in internships or in-company training (COFEX, 2013, 6.4 Economic Development, p. 28)</i>	IMPROVING THE EMPLOYABILITY OF THE LOCAL WORKFORCE	BONUS MEASURE <i>Provide support for programs aimed at better integration and retention of Inuit employees (COFEX, 2013, 6.4 Economic Development, p. 28)</i>
	STAFF RECRUITMENT <i>Fields of expertise required (Makivik, 2006, 3.4.8 Manpower, p. 32)</i>		PROFESSIONAL QUALIFICATION OF THE INUIT WORKFORCE <i>Acquisition of new skills through participation in the project (Makivik, 2006, 6.9 Inuit employment, contracting, revenue generation, p. 47)</i>	IMPROVING THE EMPLOYABILITY OF THE LOCAL WORKFORCE	BONUS MEASURE <i>Implement the Nunavik Marine Infrastructure Program policy on hiring and subcontracting (Makivik, 2006, 6.9 Inuit employment, contracting, revenue generation, p. 47)</i>

³⁵ The creation of a local labour pool is the result of the experience of the workers who participated in the project and those who, faced with the employment opportunities created by the project, decided to upgrade their skills by participating in training courses in the construction trades or other fields such as administration.

ISSUE INUIT COMMUNITY ECONOMIC DEVELOPMENT	PROJECT ACTIVITY <i>Source of impact (Reference)</i>	BIOPHYSICAL ENVIRONMENT COMPONENT <i>Changing the component (Reference)</i>	HUMAN ENVIRONMENT COMPONENT <i>Changing the component (Reference)</i>	SOCIAL IMPACT	MITIGATION OR ENHANCEMENT MEASURE <i>Description of the measure (Reference)</i>
INUIT BUSINESS PARTICIPATION IN PROJECTS	<p>SUBCONTRACTING THE CONSTRUCTION OF MARITIME INFRASTRUCTURES</p> <p><i>Development of port infrastructures Subcontracts (COFEX, 2013, 6.4 Economic Development, p. 27)</i></p> <p><i>Development of port infrastructures Allocation of material purchase contracts (Makivik, 2000, 4.1.2 Source of materials, p. 41)</i></p>		<p>LOCAL BUSINESSES</p> <p><i>Number of subcontractors among Inuit firms (COFEX, 2013, 6.4 Economic Development, p. 27)</i></p> <p><i>Increased sales of Inuit- owned businesses in the community (Makivik, 2000, 6.1.4.5 Employment, p. 64)</i></p>	ECONOMIC ACTIVITY OF LOCAL BUSINESSES	<p>BONUS MEASURE</p> <p><i>Implementation of the agreement signed for the Nunavik Nickel Project providing a framework for the awarding of contracts for this purpose. (COFEX, 2013, 6.4 Economic Development, p. 27)</i></p> <p><i>Identify Inuit-owned businesses in the community that will be suppliers to the project (Makivik, 2000, 7.3.2.9 VC9: Maximizing local and regional revenue-generation, p. 164)</i></p>
MAXIMIZING ECONOMIC BENEFITS FOR INUIT COMMUNITIES	<p>SPONSOR POLICY</p> <p><i>Measures to promote the participation of Inuit businesses in the project (Makivik, 2006, 6.9 Inuit employment, contracting, revenue generation, p. 47)</i></p>		<p>ACCESS TO CONTRACTS FOR INUIT-OWNED BUSINESSES</p> <p><i>Number of mine site subcontractors among Inuit firms (Makivik, 2006, 6.9 Inuit employment, contracting, revenue generation, p. 47)</i></p>	INUIT BUSINESS PARTICIPATION IN DEVELOPMENT PROJECTS IN THEIR TERRITORY	<p>BONUS MEASURE</p> <p><i>Implement the Nunavik Marine Infrastructure Program policy on hiring and subcontracting (Makivik, 2006, 6.9 Inuit employment, contracting, p. 47)</i></p>
	<p>SPONSOR POLICY</p> <p><i>Measures to encourage the hiring of Inuit workers (Makivik, 2006, 6.9 Inuit employment, contracting, revenue generation, p. 47)</i></p>		<p>LABOUR MARKET</p> <p><i>Number of jobs available to Inuit workers (Makivik, 2006, 6.9 Inuit employment, contracting, revenue generation, p. 47)</i></p>	PARTICIPATION OF INUIT WORKERS IN DEVELOPMENT PROJECTS IN THEIR TERRITORY	<p>BONUS MEASURE</p> <p><i>Implement the Nunavik Marine Infrastructure Program policy on hiring and subcontracting (Makivik, 2006, 6.9 Inuit employment, contracting, p. 47)</i></p>

ISSUE	PROJECT ACTIVITY <i>Source of impact (Reference)</i>	BIOPHYSICAL ENVIRONMENT COMPONENT <i>Changing the component (Reference)</i>	HUMAN ENVIRONMENT COMPONENT <i>Changing the component (Reference)</i>	SOCIAL IMPACT	MITIGATION OR ENHANCEMENT MEASURE <i>Description of the measure (Reference)</i>
PROTECTION OF CULTURAL AND NATURAL HERITAGE					
PROTECTION OF THE PHYSICAL APPEARANCE OF THE LANDSCAPE	SUPPLY OF BUILDING MATERIALS <i>Creation of a new career (Makivik, 2000, 4.1.2 Sources of materials, p. 41)</i>	VISUAL ENVIRONMENT <i>Permanent transformation of the visual environment (Makivik, 2000, 5.1.3 Sources of materials, p. 50)</i>	LIVING ENVIRONMENT <i>Introduction of new elements in the visual field (Makivik, 2000, Landscape and aesthetics, p. 84)</i>	MODIFICATION OF THE REPRESENTATIONS OF THE ENVIRONMENT AS A LIVING ENVIRONMENT	MITIGATION MEASURE <i>Clean and revitalize the quarry at the end of the construction phase (Makivik, 2000, 7.3.2.13 Maintenance of aesthetic qualities of built and natural environments, p. 174)</i>

ISSUE INTER-COMMUNITY SOCIAL RELATIONS AND LIFESTYLE WITHIN THE INUIT COMMUNITIES	PROJECT ACTIVITY <i>Source of impact (Reference)</i>	BIOPHYSICAL ENVIRONMENT COMPONENT <i>Changing the component (Reference)</i>	HUMAN ENVIRONMENT COMPONENT <i>Changing the component (Reference)</i>	SOCIAL IMPACT	MITIGATION OR ENHANCEMENT MEASURE <i>Description of the measure (Reference)</i>
CONTROL OF LAND USE	QUAY DEVELOPMENT <i>Lack of sharing of the port facility with Inuit communities (COFEX, 2013, 6.4 Economic Development, p. 27)</i>		SITE ACCESSIBILITY <i>Deterioration of the territory's accessibility (COFEX, 2013, 6.4 Economic development, p. 27)</i>	SENSE OF EXCLUSION	COMPENSATION MEASURE <i>Provide for compensatory measures to replace the fact that sharing will not be possible (COFEX, 2013, 6.4 Economic Development, p. 27)</i>
INUIT CONSTRUCTION WORKERS' WEAKENED TIES TO THEIR COMMUNITIES	PERSONNEL MANAGEMENT <i>Working conditions (COFEX, 2013, 6.5 Hiring of Personnel, p. 28)</i>		LINKS OF THE CONSTRUCTION WORKERS INVOLVED IN THE PROJECT WITH THEIR HOME COMMUNITIES <i>Removal of Inuit workers from their families (COFEX, 2013, 6.5 Hiring of Personnel, p. 28)</i>	EROSION OF THE LINK WITH THE COMMUNITY	MITIGATION MEASURE <i>Propose working conditions that are better adapted to the realities and needs of the region (COFEX, 2013, 6.5 Hiring of Personnel, p. 28)</i>

ISSUE HABITS OF TRAVEL	PROJECT ACTIVITY <i>Source of impact (Reference)</i>	BIOPHYSICAL ENVIRONMENT COMPONENT <i>Changing the component (Reference)</i>	HUMAN ENVIRONMENT COMPONENT <i>Changing the component (Reference)</i>	SOCIAL IMPACT	MITIGATION OR ENHANCEMENT MEASURE <i>Description of the measure (Reference)</i>
TRAVEL NUISANCES	OPERATION OF MARITIME INFRASTRUCTURES <i>Inuit shipping to hunting and fishing camps, to Salluit or Quataq (Makivik, 2000, 6.1.5.1.1 Subsistence harvesting, p. 67)</i>		ACCESS TO THE SEA <i>Disruption of access to the sea due to the annual unloading of cargo ships from outside Nunavik (Makivik, 2000, 6.1.10 Vessels and coastal navigation, p. 85)</i>	DISRUPTION TO THE MOVEMENT OF COMMUNITY MEMBERS	MITIGATION MEASURE <i>Locate the community's new marine infrastructure several hundred metres from the annual sealift area. (Makivik 2000, 7.3.2.14 Non-interference with / facilitation of annual sealift, p. 177)</i>