Provincial Class Environmental Assessment: The Examination of Whether the Process can be Effectively Applied in a Northern Ontario Context

by

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Authors Declaration

I hereby declare that I am the sole author of this thesis. This is a true copy of the thesis, including any required final revisions, as accepted by my examiners.

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Abstract

As Canada employs a federated system of government, there are separate environmental assessment (EA) processes. In Ontario, Canada, there is a streamlined, pre-approved, self-assessed process (i.e., the Minister of the Environment's approval is not required) for "classes" of projects. These Class EA projects are routine, with known impacts, being predictable and mitigable, in a southern Ontarian environment. However, it is assumed that Class EA protocol developed in the southern Ontarian context is directly transferable to northern Ontario. A case-based approach, using the Victor Mine electricity transmission line project, was employed to critically examine whether the Class EA template developed in southern Ontario, could be effectively applied to the western James Bay region of northern Ontario. Specifically, the two assumptions (and corollaries) of Class EAs of predictability (corollaries: the environment is similar in all locations where Class EAs are applied; and the environment is well understood) and mitigability (corollary: all negative effects are mitigable) were examined. Primary (semi-directive interviews) and secondary (literature search) data were used to inform a themed analysis. Results indicate that the northern environment is unique: biophysically, the western James Bay area is Ontario's only salt water coastal region, and contains one of the largest wetland regions in the world; and socio-economically, no southern Ontarian region can claim that one third of their total regional economy is related to subsistence pursuits. In addition, the northern environment is dynamic, disproportionately changing over time with respect to climate change and post-glacial isostatic adjustment. Moreover, not all negative effects are mitigable (i.e., the effects the existing electrical

transmission line has had on waterfowl harvesting). Thus, the Class EA template is not transferable to the northern Ontarian context. Similarly, in other northern regions of the world where glacial isostatic adjustment is a reality and these regions uniqueness must be recognized and be reflected in the EA process, if a process exists.

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Chapter 1: Introduction

A Brief History of Environmental Assessment in Canada

Over the last half century, environmental assessment (EA) has continued to evolve into an important decision making tool used in more than one hundred different countries (Minister of the Environment, 2001). In 1969, the US National Environmental Policy Act was established (Treweek, 1999). This policy set a precedence; being the first to establish a legislative requirement for potential environmental impacts to be assessed by the proponents of the projects (Treweek, 1999). It did not take long for other countries, such as, Canada, to formulate their own federal EA process. On June 8, 1972, the Canadian Cabinet decided that all new projects initiated by the Government of Canada or under its jurisdiction should be screened for "potential pollution effects" with proposed projects likely to have effects being referred to the Department of the Environment for further assessment (Gibson, 2003). Subsequently, in 1974, under Cabinet directive, the precursor to the Canadian Environmental Assessment Act (CEAA) was born (Minister of the Environment, 2001).

In 1975, the governments of Canada and Quebec, along with the Cree and Inuit of Northern Quebec signed the *James Bay and Northern Quebec Agreement*; the first time a claims-based EA process was used in Canada (Gibson, 2003). In 1977, the Wreck Cove hydroelectric project on Cape Breton Island, Nova Scotia, was the second major undertaking subjected to review under Canadian EA Guidelines review process (Gibson, 2003). Also in the same year, the Mackenzie Valley Pipeline Inquiry, led by Mr. Justice Thomas Berger, set an international

standard for critical and cross-cultural public assessment of proposed development options and is now more commonly known as the Berger Report (Gibson, 2003). In September of 1978, there was a federal review of the Canadian EA process which led to the release of a green paper entitled *Reforming Federal Environmental Assessment: A Discussion Paper* (Gibson, 2003). The papers main idea was the broadening of the assessment scope through such methods as specifying all the different categories of projects requiring EAs, providing funding to facilitate more effective public involvement, and finally requiring post-approval monitoring plans (Gibson, 2003). The Minister of the Environment promised to seek approval from the Cabinet for a reform package following public consultations on the green paper, but these proposed reform packages never emerged in the years to come (Gibson, 2003).

In 1983 - a very controversial yet informative document was released that would change the fundamentals for the future of EA in Canada - Beanlands and Duinker (1983) released their paper "An Ecological Framework for Environmental Impact Assessment in Canada". The report addressed the quality of EA work done in Canada and offered suggestions on how to improve the process (Gibson, 2003). They proposed a greater emphasis on the ecosystem as a whole, rather than the effects on individual species, as well as recognizing the importance of local knowledge, especially in identifying valued ecosystem components (Gibson, 2003). In addition, Beanlands and Dunker (1983) recommended that an EA should be based on those components of the environment valued by society rather than solely what was important to the proponent (Department of Works, Services and Transportation. 1998). Beanlands and Duinker (1983) also made many comments identifying flaws in the existing CEAA, such as, how the

scoping process failed to adequately examine many socio-economic and other environmental effects. They also believed that the extent to which predicted changes in the valued ecosystem components are expected to influence project decisions should be made more clear (Beanlands and Duinker, 1983). Lastly, they believed that EAs should be required to state impact predictions explicitly and accompany them with the basis upon which they were made giving some range of uncertainty (Beanlands and Duinker, 1983). This work has stood as a pillar in Canadian EA.

Finally, in 1984 the Environmental Assessment and Review Process (EARP) was formalized through a guidelines order (Minister of the Environment, 2001). Subsequently, it became increasingly obvious that the EARP needed to be strengthened and given the force of legislation (Minister of the Environment, 2001). Canadian Parliament conducted national consultations and a comprehensive review and in the end, the CEAA received royal assent in 1992 (Minister of the Environment, 2001). Then, in 1995 after another series of consultations, the CEAA and all of its enabled regulations came into force for the first time (Minister of the Environment, 2001).

In 1995, the EA process in Canada experienced an interesting twist by creating the Commissioner of the Environment (OAG, 2004). The Commissioner was to provide independent analysis and make recommendations to parliament on the federal government's environmental protection and sustainable development methods (OAG, 2004). The Commissioner also was to assist the Auditor General with auditing environmental and

sustainability issues in Canada (OAG, 2004). The mandate for the Commissioner's office was to encourage the government to take on more accountability for its environmental policies, operations and programs (OAG, 2004). Overall, the addition of the Commissioner's office was a benefit for environmental protection in Canada. It brought any shortcomings of the federal government with respect to EA to the eyes of the public and therefore, held the government accountable for their shortcomings (OAG, 2004). This meant that the Government of Canada had to put more time and effort into their environmental policies because any mistake would appear in such things as the Commissioner's annual report to the House of Commons (OAG, 2004).

On January 29, 1998, persistent concerns about duplication and inefficiency in the federal and provincial EA processes were addressed (Gibson, 2003). The respective federal and provincial ministers signed an accord based on the harmonization of the federal and provincial EA processes (Gibson, 2003). This accord provided guidance based on basic EA requirements, but mostly promotes cooperative use of existing assessment processes.

In 1999, as required in the CEAA, the Minister of the Environment launched a review of the first five years that the CEAA had been in operation (Minister of the Environment, 2001). There were several independent studies conducted on the CEAA and its key requirements; the studies were published upon completion. Also, through a wide-ranging national consultation process, any interested Canadians were invited to comment on the CEAA and offer any recommendations for improving the CEAA (Minster of the Environment, 2001). Overall, the

review focused mainly on the issues of efficiency, public participation and assessment quality (Gibson, 2003). Other larger issues, such as, project scope and decision making were not mentioned (Gibson, 2003).

The introduction of EA in Canada resulted in important changes in the decision making process at the level of the federal government. For the first time, in the history of Canada, there were written obligations for federal departments and agencies on how to conduct EAs (Minister of the Environment, 2001). The CEAA was helpful in that it identified factors that needed to be addressed in EAs, and introduced sustainable development as a goal of the EA process; while, allowing for the formal opportunity of public engagement (Minister of the Environment, 2001). On the other hand, the CEAA provoked distrust and frustration in communities and the government, especially with regards to panel reviews and community involvement in the assessment process (Hazell, 1997). Many believed there was a lack of opportunity for public involvement or for public comment on such things as panel reviews (Hazell, 1997). In addition, there was concern about the ability of the government to exempt projects from EAs even when there may be trans-boundary effects (Hazell, 1997). Based on these concerns with the CEAA, there were many suggestions made about how to improve the CEAA (Hazell, 1997).

Types of Federal Environmental Assessment

Environmental Assessment, as defined by the Federal Government, is a *process to predict the environmental effects of proposed initiatives before they are carried out* (CEAA, 2007). The

assessment identifies possible environmental effects, proposes measures to mitigate any adverse effects, and predicts whether there will be significant adverse environmental effects even after the mitigation is implemented (CEAA, 2007). The Act describes the different types of federal environmental assessment that may be required for projects, which are:

1. **Screenings**: A screening is a systematic approach to documenting the environmental effects of a proposed project and determining the need to eliminate or mitigate any potential adverse effects, to modify the project or to recommend further assessment through mediation through an assessment by a review panel. The screening process can vary in the time it takes to finish and the overall depth of analysis. These aspects depend on the circumstances of the proposed project, the existing environment, and the likely environmental effects. For example, some screenings may require only a brief analysis of the available information and a brief report; others may need new background studies and will be more thorough and rigorous (CEAA, 2007). If the screening identifies that further review is needed, it is usually because of such things as uncertainty surrounding whether the project will have adverse effects or it could be that overwhelming public concern.
2. **Comprehensive Studies:** Most federal projects are assessed through the screening process, however, the projects that often tend to have more adverse impacts are studied though a comprehensive study. Generally, they often tend to be larger and generate more public concern (CEAA, 2007).
3. **Mediation:** This is a voluntary process of negotiation in which an independent and impartial mediator helps interested parties resolve their issues (CEAA, 2007).

Mediation can be beneficial in the sense that it can be sensitive to local concerns and be less costly and time consuming than an assessment by a review panel. Participants may also gain a sense of having contributed to the resolution of a problem. Overall mediation is a beneficial option when the interested parties are willing to work together to form a consensus, and is even more beneficial with the issues are limited in scope and number (CEAA, 2007).

4. **Review Panels:** A review panel is a group of experts that were picked to sit on the panel based on their knowledge and expertise. These individuals are appointed by the Minister of the Environment, who also has the opportunity to hand select one of the panel members as chairperson (CEAA, 2007). The panels appointed to impartially review and assess a project that will most likely have adverse environmental effects, or could also be appointed in a case where public concerns warrant it. Review panels are beneficial because they have the unique capacity to encourage an open discussion and exchange different points of view (CEAA, 2007). They also inform and involve large numbers of interested groups and members of the public by allowing individuals to present evidence, concerns and recommendations at public hearings. A panel allows the proponent to present the project to the public and explain the projected environmental effects, and provides opportunities for the public to hear the views of government experts about the project (CEAA, 2007).

Improving the Canadian Environmental Assessment Act: The Review Process

In December of 1999, the Minister of the Environment launched the review of the CEAA (CEAA, 2004a). The provisions and operations of the CEAA were under review and the Minister of the Environment published a discussion paper, as well as many background studies on the CEAA (CEAA, 2004a). From January to March of 2000, on behalf of the Minister of the Environment, the Agency was involved in extensive public consultations and ran specialized workshops on the CEAA to help inform the public on EA and get input from the public (CEAA, 2004a).

On March 20, 2001, the Minister of the Environment tabled a bill in order to amend the current CEAA (CEAA, 2004a). While the bill was being tabled, the Minister submitted his report on the review of the CEAA and the Bill received its first reading (CEAA, 2004a). On June 4, 2001, the bill, known as Bill C-19, received its second reading in the House of Commons (CEAA, 2004a). The bill was then referred to the Standing Committee on Environment and Sustainable Development (CEAA, 2004a). On December 4, 2001, the Standing Committee on Environment and Sustainable Development began to review Bill C-19 and on May 29, 2001, the committee's review was addressed by David Anderson, the Minister of the Environment (CEAA, 2004a).

On October 2002, an Act to amend the CEAA was re-introduced in Parliament as Bill C-19 (CEAA, 2004a). By December 11, 2002, the Committee had completed its review of the new Bill C-19, which was amended by the Committee who then reported back to the House of Commons prior to being posted on the parliamentary website (CEAA, 2004a).

By April 29, 2003, Bill C-19 had completed the report stage in the House of Commons; the bill then passed in the third reading on May 6th of the same year (CEAA, 2004a). On the same day, Bill C-19 received its first reading inside the Senate (CEAA, 2004a). By May 13th, the Bill had received its second reading and was then referred to the Senate Committee on Energy, the Environment and Natural Resources for further review (CEAA, 2004a). On May 27th, the Minister of the Environment, David Anderson, appeared before the Senate Committee on Energy, the Environment and Natural Resources to speak on Bill C-19 (CEAA, 2004a).

By June 3rd, 2003 Bill C-19 was reported back to the Senate without amendment, by the Senate Committee, and by June 5th the Bill had passed its 3rd reading within the Senate (CEAA, 2004a). On June 11th, Bill C-19 finally received royal assent which was welcomed by Mr. David Anderson through a national news release (CEAA, 2004a). On October 30th, 2003, the renewed CEAA was proclaimed into law (CEAA, 2004a).

Past suggestions of Improving the CEAA Prior to the Review

Prior to the 1999 review of the CEAA, one of the major limitations of the Agency, as seen by the Canadian public, was the lack of real involvement of Canadian Aboriginal peoples. The Canadian Constitution of 1982 recognizes three groups of Aboriginal peoples: Indians, Métis and Inuit. Aboriginal peoples have unique heritages, languages, cultural practices and spiritual beliefs, even within the three groups identified by the Canadian Constitution of 1982 (INNC, 2001). It was generally thought that Aboriginal peoples should have been given greater

decision making power in the EA process as well as more opportunities for meaningful involvement (Sallenave, 1994). One method of increasing Aboriginal involvement in the process was the inclusion of the Aboriginal peoples' knowledge system, Traditional Ecological Knowledge (TEK) (Paci, et al. 2002).

TEK is a cumulative body of knowledge and beliefs, handed down through generations by cultural transmission, about the relationship of living beings (including humans) with one another and with their environment. It is also an attribute of societies with historical continuity in resource use practices; by and large, these are less technologically advanced societies, many of them indigenous or tribal (Sallenave, 1994). It was felt that TEK should be incorporated into the data collection and EA processes in order to involve the people and communities in the process (Sallenave, 1994).Overall experience with involving the public in the environmental assessment process has proven that despite good intentions, there are always going to be barriers to participation (Diduck et al., 2002) With that being said, the challenge is to find a way to involve Aboriginal people in EAs in a way that they would find meaningful (Minister of the Environment, 1999).

Another concern about the CEAA was that it was too restrictive (Delicate, 1995). This was seen mostly in the implementation of the CEAA, and how applications were restricted solely to projects that were defined as physical works or activities (Delicate, 1995). Because of this restriction, it meant that policies or programs appeared to be excluded from the CEAA (Delicate, 1995).

Furthermore, many people wholeheartedly believed that there were not enough opportunities for public involvement in the CEAA (Gibson, 2004). Not only was there not enough public involvement, but there was also no assurance of public access to assessment reports so that the public were able to stay informed during the assessment process (Gibson, 2004). It was believed that one of the main goals for the improved CEAA would be the inclusion of more meaningful public participation (CEAA, 2003).

The lack of adequate baseline information was another concern identified by many Canadians (Sallenave, 1994). There was a need for better and more thorough collection of baseline information in order to have an adequate understanding of the surrounding area (Sallenave, 1994). Also, to help with gaining a better understanding of the project area, the CEAA needed to work on the inclusion of not just biophysical data, but also social, economic, political and health information (Gibson, 2004). With a more holistic collection of baseline information, there would be a need for an adequate framework or method to link ecological and social components of the environment (Sallenave, 1994). Along with adequate baseline information, came the recommendation for the mandatory inclusion of valued ecosystem components (VECs).

It was championed that any part of the environment that was considered important by the proponent, public, scientists or government involved in the EA process should be designated a VEC. Significance should be determined on the basis of cultural values or scientific concern (CEAA, 2004b). It was believed that VECs should be considered in all EAs in Canada

because they were components of the local systems which were thought to either have value or merit to those who not only lived within an area, but also those that use or are part of that particular area (Treweek, 1999). Identifying something as VECs, typically, makes the public feel even more passionate about the project and assessment process. In turn, this is a tool to mobilize public support and involvement.

Harmonization between provincial and federal EAs was another widely supported recommendation (Minister of the Environment, 1999). This would allow both levels of government to work together on projects and would combine both assessment processes into one larger and integrated assessment approach (Minister of the Environment, 1999). It was believed that harmonization would increase the amount of public involvement in all assessments (Hazell, 1997). Also, it may have been able to change the ability of the provincial government to exempt projects from EAs (Hazell, 1997). Therefore harmonization would eliminate provincial assessment boundaries, and any transboundary effects would affect the country as a whole (Hazell, 1997).

The inclusion of socio-economic aspects in the CEAA is another recommendation which was made by many Canadians. It was believed by many that social impact assessment should play a mandatory role in the EA process for many reasons (Treweek, 1999). For example, proposed projects should take how local community members "live, work and play" into consideration prior to beginning the project (Treweek, 1999). This would outline how the project would affect every aspect of the community members' life from their livelihoods at work, home and during recreational time. If the project negatively affected any of these

aspects, mitigative measures could be in place a priori (Treweek, 1999). Under the CEAA '*environment" means the components of the Earth, and includes: a) land, water and air, including all layers of the atmosphere, b)all organic and inorganic matter and living organisms, and c)the interacting natural systems* (CEAA, 2007). This definition is limiting social impact assessment by not including aspects of the social environment and focusing solely on the natural environment. The EA process would greatly benefit from the inclusion of social impact assessment in order to lower impacts that local communities would feel from the presence of the project site.

Changes Made After the Review of the CEAA

Bill C-19 became law in Canada on October 30th, 2003 (CEAA, 2004a). With the new law came such things as more meaningful public participation and what was seen as a higher quality EA process in a more predictable and timely manner (CEAA, 2004c). Overall, there were many changes made to the CEAA.

The Canadian public demanded an EA process which promoted a higher quality assessment process, such as, what was incorporated into Bill C-19. It was agreed that quality assurance makes for better project decisions; while, raising the public's confidence in those decisions (CEAA, 2004c). To do this, the Canadian EA Agency was given a stronger and clearer role in promoting and monitoring compliance with the new CEAA by Canadians (CEAA, 2004c). In fact, to ensure compliance, the Canadian EA Agency was to lead a new quality assurance program for all assessments which would be conducted by the Federal government (CEAA,

2004c). These changes also ensured not only more, but better, follow-up programs for EAs in Canada (CEAA, 2004c). In theory, these changes would ensure that proper mitigation measures would be put in place during every single phase of the projects (CEAA, 2004c). Any lessons learned from these follow up programs would further improve future EAs in Canada (CEAA, 2004c).

Public participation was another major concern for many Canadians. Most people complained of the lack of opportunities for the public to get involved in the assessment process (Sallenave, 1994). The new CEAA takes many measures to greatly increase public participation in the EA process (CEAA, 2004c). The first method of increasing public participation was to implement a government wide internet registry which is fully accessible to the public (CEAA, 2004c). This registry is meant to provide better and timelier access to all environmental assessments (CEAA, 2004c). Furthermore, early in the comprehensive study process, the public will now have the ability to participate in the decision to continue the assessment, as a comprehensive study or to send it to a panel review (CEAA, 2004c). Moreover, federal authorities who are responsible for the project under assessment now are able to involve the public at the screening level of their projects assessment process (CEAA, 2004c).

Another group of changes made to the CEAA was the improvements to the certainty as well as the predictability and timeliness of the EA process (CEAA, 2004c). The new process will now focus on assessments which are more likely to have significant adverse environmental

impacts and focus less attention on those projects which have insignificant effects (CEAA, 2004c). To make the process more timely, and more harmonized, the new CEAA will require federal coordination which will assist federal agencies as well as other jurisdictions to work together more harmoniously (CEAA, 2004c). Also, to make the process more time efficient, the new CEAA will eliminate the possibility of referring the project to a review panel once the comprehensive study level assessment is complete, which was a very important aspect to industries involved in federal EAs (CEAA, 2004c).

Overall, the new CEAA will be applied more fairly and consistently (CEAA, 2004c). The CEAA will actually extend environmental obligations to Crown corporations just three years from royal assent (CEAA, 2004c). The Crown corporations may be either subject to the full assessment requirements or a process tailored for the project itself (CEAA, 2004c). Either way, it will force all Crown corporations to be subject to the CEAA. Furthermore, a large legislative gap has been closed, so that any federally-funded projects on reserve land will now require an EA as well (CEAA, 2004c).

Current Canadian Environmental Assessment Act

Although the current CEAA has many strong points, it also contains many weaknesses. Some of these weaknesses were previously identified as being problematic prior to the review in 1999, but were not fixed by the end of the review period and are therefore creating deficiencies in the Canadian EA process. In order for the CEAA to be as strong as it can or

needs to be, the strengths must be maintained and/or reinforced; while, the weaknesses need to be identified and addressed.

Strengths

One of the prior limitations to the CEAA was the inability to use TEK (Sallenave, 1994). Upon the revision of the CEAA, TEK became a permanent part of the federal EA process. Now, found as section 16.1, the CEAA states "Community knowledge and aboriginal traditional knowledge may be considered in conducting an environmental assessment" (Government of Canada, 2004). The inclusion of Traditional Ecological Knowledge is identified in the CEAA. Although the Act only suggests that TEK "may" be used, the presence of this concept within the Act alone helps to bring the notion to the attention of all those conducting EAs in Canada.

The presence of review panels within the CEAA is also strength. Panel reviews benefit the assessment process because of their integration of the public and assurance that all needed information is present for the assessment (Government of Canada, 2004). Section 34 of the CEAA states that "A review panel shall, in accordance with any regulations made for that purpose and with its term of reference; ensure that the information required for an assessment by a review panel is obtained and made available to the public, hold hearings in a manner that offers the public an opportunity to participate in the assessment and prepare a report" (Government of Canada, 2004). This aforementioned report includes such things as

recommendations made from the public, the rationale of the assessment, any conclusions or recommendations from the panel relating to the project, like any mitigation measures and follow-up programs (Government of Canada, 2004). The panel also has the power to summon people to the stand to be witnesses to deliver evidence to the panel surrounding the project, as stated in section 35(1) (Government of Canada, 2004). Finally, according to section 35(3) of the CEAA, the panel is also entitled to conduct public hearings publicly in order to keep the public informed of the EA process surrounding the project (Government of Canada, 2004).

Follow-up programs are also strengths of the CEAA. A follow-up program is beneficial because it ensures that the assessment was accurate and monitors the environment for years after the assessment is completed (Government of Canada, 2004). Section 31(1) states that "where a responsible authority takes a course of action under paragraph 20(1)(*a*), it shall consider whether a follow-up program for the project is appropriate in the circumstances and, if so, shall design a follow-up program and ensure its implementation" (Government of Canada, 2004). The aforementioned section 20(1) (a) simply outlines assessments that utilize mitigation measures; therefore, follow-up programs are to be designed for projects in which the responsible authority utilizes mitigation (Government of Canada, 2004). This section further outlines such things as the use of the results from follow-up programs to implement adaptive management measures or for doing such things as improving the quality of future EAs (Government of Canada, 2004). When it comes to the implementation of the follow-up program, the CEAA states, "In designing a follow-up program and in ensuring its implementation, a responsible authority is not limited by the Act of Parliament that confers

the powers it exercises or the duties or functions it performs"; which further demonstrates just how important follow-up programs are considering it is not limited by the CEAA (Government of Canada, 2004). The inclusion and enforcement of follow-up programs in Canadian EAs makes the CEAA much stronger.

Some of the strengths of the new CEAA can be seen in the newly revised purpose section of the CEAA. Sustainability is a strong concept which is now a big part of the assessment process. The CEAA must now "ensure that projects are considered in a careful and precautionary manner before federal authorities take action in connection with them, in order to ensure that such projects do not cause significant adverse environmental effects" as well as "encourage responsible authorities to take actions that promote sustainable development and thereby achieve or maintain a healthy environment and a healthy economy" (Government of Canada, 2004). These concepts of sustainability are very important when taking into consideration future generations, ensuring that current projects do not negatively affect them and making sure that the assessment process is more sustainable.

Another concept found in the purpose section of the CEAA is the emphasis on the importance of public communication. Section 4(1)(d) states that the CEAA will "ensure that there be opportunities for timely and meaningful public participation throughout the environmental assessment process" (Government of Canada, 2004). This public participation also includes the promotion of not only cooperation, but communication between the responsible authorities and Aboriginal peoples with respect to the EA (Government of Canada, 2004). A

strong CEAA includes these very aspects because it should be mandatory to involve all interested parties in the assessment process as well as keeping them informed with respect to the proceedings of the project. In summary, it is clear that the CEAA is much improved. On the other hand, everything does have its weaknesses, and the CEAA is not exempt.

Weaknesses and Suggested Methods of Improvement

Prior to the 1999 review of the CEAA as detailed earlier, it was believed that most weaknesses in the CEAA would be identified and fixed throughout the review process. Unfortunately, it is evident that the CEAA still contains some aspects which diminish its strength and power.

The CEAA addresses most biophysical aspects relatively thoroughly. Although this is an identified strength of the CEAA, it is also a weakness, as other aspects of the environment, such as, health, social, economic or political impacts are only addressed in a superficial manner. The integration of social aspects would produce a more holistic approach to the EA process (Kwiatkowski and Ooi, 2003). Social assessment allows local communities to examine project impacts on their quality of life and define any problems that may arise from the projects presence (Branch et al. 1984). It would also ensure that the decision making process of assessment would be more integrated (Kwiatkowski and Ooi, 2003). Overall, the challenge is to balance all these interests to make the CEAA work to the best of its ability (Minister of the Environment, 2001-2003).

Another weakness in the CEAA is the lack of a health assessment component. With respect to community health, there is a clear lack of data collection during EAs in Canada. For example, in a survey conducted by Canadian health officials, it was found that only 28% of the EAs in Canada had adequately covered health impacts (Mindell and Joffe, 2003). Currently in Canada, health assessment is only preformed when the project has already been decided on, which is too late in the process to avoid health implications (Mindell and Joffe, 2003). In fact, strategic assessment does not even consider health assessment during its process (Mindell and Joffe, 2003). By addressing human health impacts during the assessment period, prior to the project commencing, there would be an elimination of costly project expenses, such as, mitigation or remedial actions (Kwiatkowski and Ooi, 2003).

Another disadvantage of the CEAA is the relative lack of opportunities for public involvement in the process. Currently in the CEAA, there are some opportunities for the public to get involved, but there are not enough. The public must be able to affect the assessment process, not just play a minor role in it (O'Brien, 2002). All public comments must be taken into consideration and all questions answered, so that the public not only is fully informed with respect to the project, but is able to play a meaningful part in the process (O'Brien, 2002). Also, those in charge of the project or the assessment should reach out to the effected public to ensure that public concerns are being addressed (O'Brien, 2002).

Although TEK has been mentioned in the CEAA, there is still a need to more thoroughly integrate TEK into environmental policies (Paci et al. 2002). If TEK were to be incorporated

into Canadian environmental policies, the use of TEK would be enforceable (Paci al. 2002). This would create a legally binding process whereby proponents would have to involve all communities, especially aboriginal communities, in the assessment process and incorporate their knowledge of the land (Paci et al. 2002). The inclusion of TEK in environmental policies would increase the acceptance and use of TEK in Canadian EA (Paci et al. 2002), but may also create a backlash.

Cumulative effects are "changes to the environment that are caused by an action in combination with other past, present and future human actions" (CEA, 1999). Cumulative effects assessment is another weak aspect in the CEAA (Duinker et al. 2006). In the beginning of the EA movement in Canada, it was perceived that cumulative effects were not adequately addressed in the CEAA. It is still a popular belief that this has not changed (Tollefson and Wipond, 1998). In fact, on a case-by-case basis, most EAs do not take into consideration the impact of multiple or repeated uses over time, let alone cumulative effects (Tollefson and Wipond, 1998). Taking into account that EAs eventually addressed cumulative effects on large scale projects, cumulative effects have not been addressed with regards to small scale projects (Tollefson and Wipond, 1998). There is a need for analyzing the future impacts of the project, not just the immediate impacts (Becker, 2001). Cumulative effects are impacts which end up affecting humans over time, and therefore it is important to identify and deal with these impacts before they have an effect on the surrounding social and ecological environments (Tollefson and Wipond, 1998). Overall, concerns are often raised about the long-term changes that may occur not only as a result of a single action but the combined

effects of each successive action on the environment. Cumulative Effects Assessment (CEA) should be done to ensure the incremental effects resulting from the combined influences of various actions are assessed. These incremental effects may be significant even though the effects of each action, when independently assessed, are considered insignificant (CEA, 1999).

In summary, the CEAA has both its strengths and weaknesses, as identified in the above passages. The CEAA cannot be viewed as a finished product; the CEAA must be viewed as a work in progress that will benefit from continual refinement.

The Harmonization of Federal and Provincial Assessment Acts

Under the constitution, the federal and provincial (and territorial) governments actually share the responsibility of EA (Minister of the Environment, 1999), but each level of government has its own legislation dealing with EA. However, the current CEAA states that one of its main purposes is "to promote cooperation and coordinated action between federal and provincial governments with respect to environmental assessment processes for projects" (Government of Canada, 2004). The main concern in the past was that the use of two or more EA processes on one project could create other issues, such as, duplication as well as conflicting efforts by proponents, the public and government agencies (Minister of the Environment, 1999). While most provinces have a single contact agency for EAs, the federal principle of self assessment meant that proponents were required to deal with many federal departments (Responsible Authorities) on a single project (Minister of the Environment,

1999). Therefore, the result of coordinating provincial processes involving many different federal departments could result in conflicting decisions and increased uncertainty which may lead to delays in projects (Minister of the Environment, 1999).

Public Concerns about Federal-Provincial EA Harmonization

There are other issues which are thought to result from the harmonization of the provincial/territorial and federal EA processes, such as, level of detail. Federal EA projects often require more planning level detail, unlike the provincial level, which would also require much work in the combination of the two assessment methods (Minister of the Environment, 1999). Another issue in the harmonization process is both coordination and accountability of the separate EA Acts; some provincial agencies feel that some of the federal agencies lack a desired amount of coordination (Minister of the Environment, 1999). This lack of coordination ends up resulting in major unwanted delays in the EA process (Minister of the Environment, 1999). A third issue seen in the harmonization process is the scope of the project or the assessment (Minister of the Environment, 1999). The federal and provincial assessment processes often differ in the scope of the project (Minister of the Environment, 1999). This also means that both the federal and provincial approaches to the EA process also differ, which leads to difficulties in coordinating the EA as well as making regulatory decisions and achieving the objective of the assessment (Minister of the Environment, 1999). Another public concern about the harmonization of federal and provincial EA Acts is the coordination of public participation (Minister of the Environment, 1999). The timing as well

as the variation of any public participation under the federal act and provincial legislation affects coordination of the assessment process (Minister of the Environment, 1999).

Harmonization between Federal-Provincial EAs and Aboriginal Participation

Harmonization between the federal and provincial/territorial EA processes with respect to Aboriginal involvement is a challenge. Governments have been in many talks with Aboriginal groups about land claim treaties and all other aspects associated with EAs from an Aboriginal perspective (Minister of the Environment, 1999). In order for the harmonization process to work, there is a need to accommodate the rights of the Aboriginal peoples, such as, their right to self government, with the rights of the federal and provincial/territorial governments under the constitution (Minister of the Environment, 1999). In these types of situations, the federal government asks for a strong commitment between the involved parties to reduce the possibility of duplicating information in the EA processes (Minister of the Environment, 1999). If there was a federal and provincial harmonization framework that meaningfully included Aboriginal interests, these agreements would better promote the wise use of resources in all the different involved jurisdictions (Minister of the Environment, 1999).

Options for Harmonization

Although the challenges of harmonization are identified in the federal-provincial bilateral agreements, more could be done to improve the coordination of the federal and provincial

assessment procedures (Minister of the Environment, 1999). In fact, the federal Minister of the Environment suggests a few different options to improve the harmonization of the assessment practices (Minister of the Environment, 1999). The first option involves adding a new concept to the CEAA. This new concept has been described as the "lead responsible authority", which would be added to the CEAA to reduce the difficulties in federal coordination and federal-provincial harmonization (Minister of the Environment, 1999). Also, the Canadian EA Agency could be given the power to designate a lead responsible authority just in case the federal departments cannot agree on the choice; in addition the Canadian EA Agency would also be given the power to assign responsibility for essential follow-up and monitoring functions in the cases where the subject area is outside the mandate of the lead responsibility authority (Minister of the Environment, 1999). This revamping of the EA process would address the issue of coordination of federal departments, public participation and determination of the scope of the assessment (Minister of the Environment, 1999).

Another potential option is to temporarily enhance the coordinative role of the Canadian EA Agency or responsible authority in cases where multiple responsible authorities are involved or no lead authority is designated (Minister of the Environment, 1999). The proposed process could be used to speed up the project triggering, during the planning stage of the project, especially when the triggering item is on the Law list (a list containing the triggering criteria with respect to the involvement of the different federal responsible authorities) (Minister of the Environment, 1999). Although this would be a temporary measure only to be used until the lead authority is identified, it is intended to make the process timelier and enforce the

sharing of information during the assessment process between the federal and provincial levels (Minister of the Environment, 1999).

A third option is to amend the CEAA to identify a single responsible authority (Minister of the Environment, 1999). This would mean that only one authority would be responsible for each project (Minister of the Environment, 1999). The responsible authority would have the responsibility of including the interests and requirements of all other federal departments with interests in the project (Minister of the Environment, 1999). This would make the coordination of information requirements for the proponent easier and avoid duplication of responsibility among federal authorities (Minister of the Environment, 1999). This option would also simplify the harmonization with other jurisdictions or processes (Minister of the Environment, 1999).

The final option would be to designate the Canadian EA Agency as the "single widow" for joint provincial and federal reviews (Minister of the Environment, 1999). A "single widow" means that the agency in this role would be responsible for ensuring that the agency coordinating information would gather all information from all the involved departments (Minister of the Environment, 1999). This option would not provide more power for the Canadian EA Agency; instead this organization would be providing an additional coordinating role in the harmonization of the review with other jurisdictions (Minister of the Environment, 1999).

Future of EA Harmonization in Canada

Recently, provinces such as Nova Scotia or Quebec have shown that not only does harmonization work, but that it can be relatively easy and effective in the EA process (CEAA, 2005). The purpose of the harmonization process is to allow for the exchange of information between the federal and provincial/territorial governments on projects. This would result in an agreement on one terms of reference for the project (CEAA, 2004d). Furthermore, the provincial and federal partners would also have the option of appointing a joint review panel to conduct hearings on the environmental effects of a project with this cooperative approach to EA, reducing overall project delays without affecting environmental protection (CEAA, 2004d). For these reasons and others, many provinces indicate support for increasing harmonization between the two levels of government will continue to rise and may work its way at becoming a permanent fixture in the EA process in the future (CEAA, 2004d).

Chapter 2: The Victor Mine power supply project: Is it appropriate to apply the "class" environmental assessment process in a northern Ontarian context?

As Canada was formed under a federated system of government (i.e., a division of power between central/national/federal and provincial/territorial governments), there are separate environmental assessment (EA) processes for each level of government. However, these separate EA processes can be harmonized either formally or on an ad hoc basis between the two levels of government. In Ontario, Canada, the most stringent type of EA is the Individual EA which is guided by terms of reference approved by the Ontario Minister of the Environment; while, the final approval of an Individual EA is by the Ontario Minister of the Environment and the Ontarian Cabinet, also known as the executive council of the province (Government of Ontario, 2010a). By contrast, there is a streamlined, pre-approved, self-assessed process (i.e., the Minister's approval is not required) that fulfills the requirements of the Ontario Environmental Assessment Act "for groups or classes of projects that are carried out routinely, have known impacts, and that are predictable and manageable" (Government of Ontario, 2010b: unnumbered). The two main assumptions of all so-called "class" EAs are that environmental effects are "predictable and mitigable" (OME, 2001: 3; Table 1); relevant to this research is the fact that EA practitioners, including the government, regulators assume that Class EA protocols developed in the southern Ontarian context are applicable to all similar classes of activities in Ontario and therefore directly transferable to the northern Ontarian context. An example of this could be a Class EA for road development. Employing a

case-based approach, the issue of whether the Class EA template developed in southern Ontario, with its predictable outcomes and mitigable effects, can be effectively applied to the northern context, will be critically examined.

The issue of whether the Class EA process developed in southern Ontario can be transferred to the northern Ontario context is important - because at present, central and northern Ontario has undergone significant resource development (i.e., south of the tree "cut line") – and since the development of the Victor Diamond Mine (operational in the summer of 2008; Figure 1) there is steadily increasing interest in resource development in the Ontario "Far North" area, which includes the western James Bay region. Indeed, resource development in this region has been accelerated with Ontario Power Generation interested in further hydroelectric development on the Albany River (Treaty Forum on Rights to Water Resources, 2008) and mineral companies are continuing exploration (Koven 2007; Larmour 2007). Moreover, Bill 191 (2009, *An Act with respect to land use planning and protection in the Far North*) went through 1st Reading in the Ontario legislature June 2, 2009 (the bill is required to go through three readings before royal assent), and has been controversial because of resource development implications (e.g., Standing Committee on General Government, 2009). Thus, it is important to determine the strengths and weaknesses of the Class EA approach and whether the approach is appropriate to use in the northern context of Ontario, as resource development has begun and legislation is in place to accelerate the process.

Our case-based research on the Victor Mine Power Supply project was initiated in 2006 after our research team first became involved in the Victor Diamond Mine Comprehensive EA (AMEC, 2004a) process in 2005 (Whitelaw et al., 2009). The Victor Diamond Mine Comprehensive EA was part of the federal EA process and was completed by De Beers Canada Inc.'s proponents on February 2004, and submitted for review (see Table 2, for a brief history of the Victor Mine power supply). As the Victor Diamond Mine was located approximately 100 kilometers east of Attawapiskat First Nation, in the remote western James Bay region of northern Ontario, there was not an existing power source that could supply the electricity required for the mining project during the construction and operating phases (SNC-Lavalin Engineers and Constructors, 2005a). The preferred power source described in the Victor Diamond Mine Comprehensive EA (AMEC, 2004a) entailed water transportation of diesel fuel through James Bay with fuel being transferred to storage tanks in Attawapiskat, to be piped to the mine site, for on-site diesel generation. This type of power generation project required an Individual EA under Ontario's legislation (Environmental Assessment and Approvals Branch, 2004; Table 2). However, there was significant resistance to the on-site diesel proposal by the First Nation people of the western James Bay region, due to the threat of diesel spills; thus, other power alternatives were re-evaluated with the transmission line alternative being selected (AMEC, 2004b). As a result, the Individual EA terms of reference were withdrawn for the Victor Mine Power Supply on-site diesel generation project; a Class EA was identified as being appropriate for the transmission line alternative (Environmental Assessment and Approvals Branch, 2004; Table 2).

The paper begins with the presentation of the two main assumptions (and corollaries) that have been made in developing a generalizable framework of Class EAs in southern Ontario. This is followed by information on the study area, western James Bay transmission lines, the Ontarian EA process as related to the case study, research methods used, and results and discussion based on semi-directive interviews with involved stakeholders and First Nations individuals, and the document record pertinent to the case study. The paper concludes with a discussion of the strengths and weaknesses of applying a class EA process developed in the southern Ontarian context to northern Ontario. The generalization of the EA processes developed in a southern context, to northern environments, is briefly discussed.

Background and context

Two main assumptions (and corollaries) of class EAs in Ontario have been summarized in Table 1. These criteria will be used to evaluate strengths and weaknesses of the appropriateness of transferring a Class EA framework developed in a southern Ontarian environment to Ontario's "Far North".

Study area

The Mushkegowuk Territory includes the western James Bay region of northern Ontario, Canada. This area is populated by approximately 10,000 Omushkego Cree who occupy four coastal First Nations (Moose Cree, Fort Albany, Kashechewan and Attawapiskat) and one town (Moosonee) (Tsuji and Nieboer, 1999; Figure 1). Fort Albany, Kashechewan and

Attawapiskat are geographically remote First Nations being accessible only by airplane year-round, a snow/ice road during winter, and by water transportation (i.e., barge and boat) during the ice-free season. The town of Moosonee is the northern terminus of train transport in this region, and Moose Factory (governed by Moose Cree First Nation and also home to the MoCreebec Council of the Cree Nation) is located on an island in the Moose River (Figure 1). Each First Nation is governed by a community elected Chief and Council (also called Bands). The traditional lifestyle (i.e., hunting, gathering, subsisting off the land) is still a vital part of the Omushkego Cree culture (George, 1989; Berkes et al. 1994; George et al., 1995; Tsuji et al. 2001a, 2007, 2008). Traditional environmental knowledge is also an important part of the Cree culture (Tsuji and Ho, 2002). As stated by the Dene Cultural Institute (Stevenson, 1996), indigenous knowledge (or traditional knowledge, TK; or TEK) is a body of knowledge and beliefs transmitted orally, being both cumulative and dynamic, building upon the experience of earlier generations, while adapting to the present.

The western James Bay transmission lines

In 1997, Five Nations Energy Inc. was created to examine the feasibility of connecting the western James Bay coastal communities of Attawapiskat First Nation, Kashechewan First Nation and Fort Albany First Nation with the Ontarian power grid, as existing community-based, diesel generation (see Tsuji et al. 2001b, for a brief history) was deemed unreliable and unsustainable (Five Nations Energy Inc. 2008). Five Nations Energy Inc. is a non-profit corporation equally owned by Attawapiskat, Kashechewan and Fort Albany Power

Corporations; it is the only First Nations-owned, electricity-transmission company in Canada (Five Nations Energy Inc. 2010). The Five Nations Energy Inc. transmission line from Moosonee to the coastal First Nations was energized early in the new century (see Table 3 for a timeline; Figure 1), and has proved to be a reliable source of power.

Use of TEK in the 1997 Federal EA for the James Bay Transmission Line

As mentioned previously, on-site diesel generation was rejected as the power source for the Victor Diamond Mine, with the transmission line alternative being favoured by the coastal First Nations (AMEC, 2004b). As the existing transmission line did not have sufficient residual power to satisfy the projected requirements of the Victor Diamond mine project, a new transmission line was proposed from Abitibi Canyon to the mine site (SNC-Lavalin Engineers and Constructors, 2005a; Figure 1). Specifically, the proposed transmission line project (Figure 1) was to entail:

- Twinning of the existing Hydro One transmission line between Fraserdale and Moosonee and an extension from Fraserdale to Abitibi Canyon;
- Twinning of the First Nations Energy Inc. transmission line between Moosonee and the Kashechewan First Nation and, as a contingency only, between Kashechewan and Attawapiskat First Nations;
- A new De Beers line extending from Attawapiskat to the Victor Mine site located approximately 108 km to the west of Attawapiskat (SNC-Lavalin Engineers and Constructors Inc., 2004: 2).

In addition, the new transmission line would require a 30 meter right-of-way and in the sections that paralleled existing right-of-ways, the combined right-of-way of the existing transmission line and the twinned line would be 60 meters (SNC-Lavalin Engineers and Constructors Inc., 2004). The Victor Diamond Mine transmission line project was a joint effort between De Beers Canada Inc., Hydro One Networks Inc., and Five Nations Energy Inc. (SNC-Lavalin Engineers and Constructors Inc., 2004).

The Five Nations Energy Inc.'s western James Bay transmission line was evaluated through a federal EA process (1997); the EA was prepared by Maclaren (now SNC-Lavalin Engineers and Constructors Inc.; SNC-Lavalin Engineers and Constructors, 2005b) and submitted by First Nations Energy. Although it has been stated that "as a project owned by First Nations as well as involving and affecting First Nations, traditional knowledge data was collected, mapped and incorporated into the decision-making process" (SNC-Lavalin Engineers and Constructors, 2005b: 1-7), this assertion has been a contentious issue. During the Round 1, EA meetings for the 2004 Victor Mine power supply Class EA with the Mushkegowuk Territory First Nations, Chiefs and Councils for Kashechewan, Fort Albany and Moose Factory (Moose Factory is the community, while, Moose Cree is the First Nations governing body), "Questioned [the] need for further TK studies" with Fort Albany adding that "since developers never bothered to collect TK when the line went up originally"; while, Moose Cree qualifies their statement that the "line is already up and went up without TK research in 1997" (SNC-Lavalin Engineers and Constructors, 2005a: Summary of Public Responses,

Minutes of Meetings Round 1). SNC-Lavalin Engineers and Constructors (2005a: Summary of Public Responses, Minutes of Meetings Round 1) response was as follows:

> TK and community consultation [is] part of [the] Provincial Process. Current TK [is] considered either dated or incomplete and DeBeers recognizes the need to rectify this deficiency. MOE [Ontario Ministry of the Environment] also wants information on impacts from existing line and perceived impacts of new line which wasn't addressed in past studies.

Kashechewan and Fort Albany Chiefs and Councils then, "Questioned why, if 1997 TK inadequate, approvals were given"; while, SNC-Lavalin Engineers and Constructors (2005a: Summary of Public Responses, Minutes of Meetings Round 1) responded:

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> At that time TK was just beginning to be recognized as a necessary component of studies such as this. The TK done at that time was voluntary and the level of study was considered adequate at that time.

Two points should be mentioned: 1. Only 41 TEK interviews were conducted in 1997, for the original transmission line EA, and individuals to be interviewed were identified by "the Chief and/or economic development officer of each Band [First Nation]" (SNC-Lavalin Engineers and Constructors, 2005b: 6-6). The Chief is an elected official - while, the economic development officer is an employee of the Chief and Council - thus, Chief and Council may

not have been aware of the TEK study if the study erroneously went through the economic development officer. 2. Contrary to what the consultants state SNC-Lavalin Engineers and Constructors, (2005a), in Canada, TEK was used in EAs since the 1970s Berger Inquiry (Gamble, 1978) and the use of TEK in EAs was especially evident during the mid-1990s (Government of the Northwest Territories, 1993; Maclachlan et al. 1996), when the western James Bay transmission line EA was done.

The Ontarian Environmental Assessment process as related to the Victor Diamond Mine transmission line project

The *Environmental Assessment Act*, Ontario Regulation 116/01, Electricity Projects (OME, 2009) was applied to the Victor Diamond Mine power supply project. It should be emphasized that in the Ontarian legislation, the environment is defined broadly to include the following: air, land, and water; plant and animal life (including humans); the socio-economic and cultural conditions; human- made structures and devices; and anything anthropogenic in origin (OME, 2001). Electricity projects in Ontario are classified as one of three types. Category A projects are expected to result in minimal environmental effects and do not require approval under the *Environmental Assessment Act* (OME, 2001). Category B projects potentially can result in environmental effects that "can likely be mitigated" and are subject to the Environmental Screening Process of the *Environmental Assessment Act* (OME, 2001: 8). Two types of Class EAs have been described as part of the screening process: Screening Reports, where there are no significant net effects and all project concerns are resolved; and Environmental Review Reports, where there are significant net effects and/or unresolved

concerns associated with the project (OME, 2001). Category C projects require an Individual EA as "known significant environmental effects" are associated with these undertakings (MOE, 2001: 8). Category B transmission line projects, like the Victor Diamond Mine transmission line, that are not associated with a Category B generation facility and are 115 kV (and more than 2 km in length; OME, 2001) are subject to the process outlined in Hydro One's (1992) *Class Environmental Assessment for Minor Transmission Facilities*. This document is one of 10 "parent" Class EAs developed in southern Ontario that encompasses a wide range of projects, including hydro transmission lines (Hydro One, 1992; Government of Ontario, 2010c, d).

The Ontario Class Environmental Assessment process covers a wide range of projects and activities which includes such things as municipal infrastructure, transit, provincial highways, activities in provincial parks, disposition of Crown resources, hydro transmission lines, and modifications to hydroelectric facilities (OME 2009). Once the project is identified as a Class EA, the document is prepared by the proponent in accordance with the approved terms of reference which is submitted to the ministry for review and a decision (OME, 2009). Once approved, the proponent can follow the streamlined EA process as outlined in the approved class EA document to plan the listed activities. The appeal process for Provincial Class EA's is identified as a Part II Order request. This request is made in writing to the Minister of the Environment or delegate, who then review the request, consult with appropriate persons, and make a recommendation to the Minister or delegate who is ultimately responsible for making a decision (OME, 2009)

Approximately 90% of projects subject to EAs in Ontario are processed as Class EAs (Government of Ontario, 2010e). Nevertheless, there is a mechanism whereby a Class EA can be elevated (bump-up or Part II Orders) to an Individual EA (Government of Ontario, 2010b, e). Typically, individuals and/or groups may write to the Director of the Environment Assessment and Approvals Branch during the mandatory review period and request that a Class EA be bumped-up (i.e., from a Screening Report to an Environmental Review Report or from an Environmental Review Report to an Individual EA; Government of Ontario, 2010e). The Director of the Environment Assessment and Approvals Branch has four options: "deny the request; deny the request with conditions; refer to mediation; grant the request and require the proponent to undergo an Individual EA" (Government of Ontario, 2010e: unnumbered). In unusual cases, the Minister of the Environment at any point in the Environmental Screening Process can elevate a Class EA to an Individual EA; if it is determined that significant negative environmental effects will be associated with the project (OME, 2001). With respect to the Victor Mine transmission line Class EA, two separate bump-up requests were received by the Ministry of the Environment, but both were denied (Ministry of Northern Development and Mines, 2005; Seim et al. 2005; AMEC, 2006; see Table 2, for a brief timeline of the Victor Mine Power Supply Class EA).

Research methods

For this case study approach (Yin 2003), primary data were collected using the semi-directive interview format which is culturally appropriate (Tsuji et al., 2007; Whitelaw et al., 2009;

McCarthy et al., 2010, Huntington, 1998). Interviews were conducted in person, in either Cree or English, dependent on the participant's preference, during August 2006, January 2007, February 2007, February 2008, and November 2008. Oral consent, which is culturally appropriate was given by all participants, prior to the interview, after being informed of the purpose of the study. All participants in the present study were 18 years of age or older. Sampling was purposive (key informants) for the individual (n = 23; 23 males) and paired (n = 5; 8 males and 2 females) semi-directive interviews. However, purposive (key informants) and convenience (other individuals could participate, if present) sampling were employed for the group interviews (n = 3; 6 males in one group, 7 females in the other group, and 2 males and 1 female in the last group). Group interviews are a culturally appropriate format for discussions. The individual and paired interviews as well as the focus groups were conducted with Elders and experienced bush people (Moose Factory, Fort Albany, Kashechewan and Attawapiskat), personnel from First Nation political and service organizations (Moose Cree Band, Fort Albany Band, MoCreebec, Five Nations Energy Inc.), concerned First Nations community members, and personnel from Government of Ontario ministries. Questions focused on the observed impacts of the existing transmission line as well as the potential impacts of the second transmission line. However, questions were left open ended to allow the respondent a wide range of responses and the ability to give examples or their thoughts and opinions. Interviews were conducted in family homes, Band offices, Elders' residences, and government offices. Site visits to the transmission corridor were also employed to augment the oral accounts. Secondary data with respect to the western James Bay transmission line EAs were kindly made available by Mushkegowuk Council, Timmins, Ontario. Themed

analyses were performed on the interview data and the document data, being informed by the criteria described in Table 1.

Results and Discussion

Findings are presented based on our analysis of semi-directed interviews and the document search, with respect to the two main assumptions of class EAs, that of predictability and mitigability. The results are organized specifically around the corollaries presented in Table 1.

Corollary 1a: The environment is similar in all locations where Class EAs are applied

Reiterating, legislation in Ontario defines the environment to broadly include biophysical, natural (including humans), socio-economic, cultural, and human-made parameters (OME, 2001). However, we will focus our discussion primarily on the biophysical environment and mixed economy, for this section.

Biophysical environment

The southwestern Hudson Bay and western James Bay area is Ontario's only salt water coastal region. The Mushkegowuk Territory's coastal region has been described as one of the largest wetland regions in North America and the world (Abraham and Keedy, 2005). The region provides ideal habitat for approximately 300 bird species (Abraham and Keedy, 2005). Indeed, the Albany River estuary and associated coastline (latitude 52.3° N, longitude 81.44°

W; IBA Canada, 2010a), Big Piskwanish Point (latitude 51.7° N, longitude 80.57° W; IBA Canada, 2010b), Longridge Point and associated coastline (latitude 51.75° N, longitude 80.63° W; IBA Canada, 2010c), and North Point (latitude 51.48° N, longitude 80.45° W; IBA Canada, 2010d) have been designated important bird areas in Canada (Figure 1). In addition, the southern James Bay area around the mouth of the Moose River (latitude 51.20° N, longitude 80.25° W; Ramsar Organization, 2010) has been identified as a Ramsar site under the Ramsar Convention, that is, a wetland of international importance (Environment Canada, 2010). Lastly, the Government of Ontario is considering Chickney Point and the Southwestern James Bay as Areas of Natural Scientific Interest (ANSI; SNC-Lavalin Engineers and Constructors, 2005b) which represent "lands and waters containing important natural landscapes or features that are important for natural heritage, protection, appreciation, scientific study or education" (Ministry of Natural Resources 2007: 1; Figure 1). In another document pertaining to the Victor Mine power supply, it was recognized that: "In essence, the entire west James Bay coast (and much of the south and east coasts) is regarded as being internationally (globally) significant for its representation of waterfowl and shorebirds" (SNC-Lavalin Engineers and Constructors, 2005b: 5-83). Clearly, the biophysical environment of the western James Bay region is significantly different than that characterizing southern Ontario.

The Mixed Economy

In the Victor Mine power supply EA addendum (SNC-Lavalin Engineers and Constructors, 2005b: 6-62), it was asserted that:

> To understand the relative significance of these different activities [the traditional economy of hunting, fishing, trapping/snaring, gathering and other subsistence activities], and their overall impact on the economy, statistics indicating the magnitude and importance of the subsistence economy relative to the income derived from the wage economy are required…Unfortunately there are no comprehensive data available which quantify the extent of these activities. Such data are not collected by government agencies as the products generated from the traditional economy are generally consumed locally and not marketed.

This assertion is erroneous, as will now be detailed. Subsistence pursuits are a way of life in the Mushkegowuk Territory with harvesting of waterfowl being the most important activity (Berkes et al. 1994, 1995). Harvesting of waterfowl occurs in the spring and fall seasons and has been documented since written records were first kept in Canada (see Lytwyn, 2000, for a comprehensive account of Hudson's Bay fur trading records), and the continuing importance of waterfowl harvesting has been documented more recently (Honigmann, 1948; Hanson and Currie, 1957; Thompson and Hutchinson, 1989; Cummins, 1992; Berkes et. 1994; Tsuji and Nieboer, 1999). Indeed, it has been reported that approximately 95,000 waterfowl are harvested annually in this region (Berkes et al. 1994). Waterfowl harvesting is an important component of the mixed economy that exists in the Mushkegowuk Territory; the mixed

economy has been described as a combination of traditional pursuits, federal government transfer payments and wage work (George, 1989; George et al., 1995). The traditional economy (i.e., subsistence activities) has been described as the cornerstone of the Mushkegowuk Territory mixed economy, contributing $8,400 per household/year or approximately one third of the total economy (Berkes et al. 1994).Comprehensive studies (e.g., Berkes et al. 1991, 1992, 1994, 1995; George et al. 1992; Hughes et al. 1993) do exist detailing the importance of the subsistence lifestyle to the household and regional economy of the Mushkegowuk Territory. To our knowledge, no other region in southern Ontario can claim that a third of their total economy is based on subsistence activities.

Corollary 1b: The environment is well understood, that is, not appreciably changing over time

Climate Change

The "Climate" section of the Victor Mine power supply EA addendum (SNC-Lavalin Engineers and Constructors, 2005b: 5-13) consists of a brief paragraph and refers to only one outdated (1985) reference. Consequently, the sea-ice and river ice descriptions are wholly inadequate and there is no mention of global warming. It has been predicted and shown by modeling that temperature increases due to climate change will be greatest in sub-arctic and arctic regions, such as, the James Bay region (e.g., McCarthy et al. 2001). Indeed, a statistically significant increase in the length of the sea-ice, ice-free season for the Hudson and James Bay lowland region has been demonstrated for the time period 1971 to 2003 (Gough et al. 2004). In addition, even though trends in river-ice, break-up data for the western James Bay region have not been definitive - recent changes in river break-up characteristics illustrated through TEK have shown - that potentially major changes in river-ice break-up (e.g., recent break-ups have been too gradual to measure using past methods) have recently occurred (Ho et al. 2005). Clearly, the climatic environment in northern Ontario is not static; the climatic environment is dynamic as has been documented by both western science and TEK. Climate change has the potential to affect sea-level and shorelines; thus, it would be very difficult to predict potential impacts (and mitigation strategies) if climate change was not built into any of the models used in the EA process.

Post-glacial Isostatic Adjustment

A natural process that impacts shorelines, especially in the western James Bay region of Ontario, is post-glacial isostatic adjustment (GIA). The "Physical Terrain Conditions" and "Physiography" sections of the Victor Mine power supply EA addendum (SNC-Lavalin Engineers and Constructors, 2005b: 5-13, 5-14) gives an overly simplistic explanation with respect to GIA, as the prediction of sea-level changes (taking into account different global warming scenarios) is a relatively complex task (Tsuji et al. 2009). During the last several million years, the earth has been subjected to a series of ice-age cycles – at the last glacial maximum, continental ice sheets covered Canada, northeastern United States (the Laurentide ice sheet), Scotland, Fennoscandia, and Siberia, with ice covering Greenland and the Antarctic being more extensive than at present – unloading associated with the melting of the Laurentide ice sheet started a rebound of the earth's crust that is evident, locally, as a sea-level fall (i.e., land emergence; Tsuji et al. 2009). Contributions to sea-level changes are not only from changes in the volume of continental and grounded marine-based ice, but are also from deformational, gravitational and rotational inputs driven by the changing ice plus water load (e.g., Farrel and Clark, 1976). As the earth responds viscoelastically to this load, sea-level changes have occurred throughout interglacial periods, and these sea-level changes persist today (Tsuji et al. 2009). In a recent paper by Tsuji et al. (2009), numerical models of the GIA process were used to predict how shorelines in the James Bay region would migrate (at 10-year time increments), over the next 1,000 years, as a result of GIA, taking into account different global warming sea-level rise scenarios. It was found that many of the smaller and

larger islands in James Bay would eventually become attached to the mainland in several hundred years, with the shoreline being significantly altered within decades (Tsuji et al. 2009; Figure 2). It is hard to deny that the physical environment in the western James Bay region is dynamic; a class EA process that does not account for a dynamic physical environment is fatally flawed, as one cannot mitigate effects that have not been accurately predicted.

Corollary 2: All negative effects are mitigable

In the document pertaining to Class EAs for electricity projects (OME, 2001: 24), there is a section entitled "Consultation with First Nations and Other Aboriginal Communities" that states:

> In consulting on their projects, proponents should give particular consideration to the concerns of First Nations and other Aboriginal communities located in the vicinity of, or having a potential interest in, the project. First Nations and other Aboriginal communities are to be identified, notified, consulted, and involved in an appropriate manner.

Part of this consultation process with the Mushkegowuk Territory coastal First Nations was the collection and collation of TEK. As detailed in the Victor Mine power supply EA addendum (SNC-Lavalin Engineers and Constructors, 2005b: 3-26):

> The purpose of the TEK survey was two fold [sic], one to update the existing baseline data for the study area for the environmental assessment, and two, to solicit input from respondents regarding the impact of the existing transmission line as well as the perceived impact of its expansion on traditional activities.

It should also be emphasized that prior to the power line TEK study, there was a general belief that the natural and socio-economic effects associated with the construction of the Victor Mine transmission line "would not result in significant environmental effects, following mitigation" (AMEC, 2004b: iv). Further, the Victor Mine power supply EA addendum which includes the TEK study reconfirmed the belief that there were "no significant environmental effects expected from the transmission line, given mitigation" (SNC-Lavalin Engineers and Constructors, 2005b: Unnumbered) in that the environmental effects of the proposed Victor Mine transmission line were "expected to be very similar, and often incremental, to those associated with the construction and operation of the existing FNEI [Five Nations Energy Inc.] system" (SNC-Lavalin Engineers and Constructors, 2005b: 7). The assumption made in the EA addendum is evident; the environmental effects from the original western James Bay hydroelectric line were minimal and/or mitigable.

Interviewees for the Victor Mine power supply TEK study were selected to include significant users (youths and adults) of traditional lands and/or elders with significant TEK of the lands (SNC-Lavalin Engineers and Constructors, 2005b). An interview format was used as well as working maps to illustrate traditional land use (SNC-Lavalin Engineers and Constructors,

2005b). Taking into account that TEK was collected with respect to most subsistence activities (e.g., trapping, small game hunting, fishing, and other wildlife; SNC-Lavalin Engineers and Constructors, 2005b), we limit our discussion to one theme, waterfowl harvesting, as waterfowl harvesting is the most important subsistence activity and typically involves the whole family (Berkes et al. 1994, 1995; Tsuji and Nieboer, 1999). In the power supply TEK report, 109 of the 121 participants from Attawapiskat, Kashechewan, Fort Albany, Moosonee, Moose Factory and MoCreebec reported participating in waterfowl harvesting activities (SNC-Lavalin Engineers and Constructors, 2005c). However, the power supply TEK data must be interpreted with caution as the TEK project was not designed as a survey, in that only approximately 20 people per community were surveyed - and this point was mentioned at a community meeting in Moose Factory - where one community member opinioned that everyone in the community should have been interviewed or the information collected was incomplete or incorrect (SNC-Lavalin Engineers and Constructors, 2005c). Surprisingly, the authors of the TEK report appear to treat their work as a survey. Otherwise, it is difficult to justify SNC-Lavalin Engineers and Constructors (2005b, c) position, as the TEK collected in the power line study (see Table 4 for verbatim transcription) does not support the statements that the existing power transmission line had "no appreciable effects" (SNC-Lavalin Engineers and Constructors, 2005b: 3-11 to 3-12); and the expansion of the line generated "limited community concern" (SNC-Lavalin Engineers and Constructors, 2005c: 110) with the majority of respondents perceiving "no significant long term adverse effects" (SNC-Lavalin Engineers and Constructors, 2005c: 75).

Indeed, TEK from the power line Class EA (see Table 4 for verbatim transcription; note- most TEK categorized as potential effects on waterfowl hunting with respect to the proposed expansion of the transmission line are misclassified, as this TEK details actual effects from the existing line) revealed that the socio-economic and cultural effects of the existing transmission line have been substantial:

> The first spring the majority of the migration of geese low inland, parallel to the hydro lines. The ones that pass through to reach the bay fly high not like before…Geese changed their fly pattern, they go along the power lines, the ones that fly there, they fly high (KA2, Table 4).

> Birds fly higher than before line, harder to get [shoot] geese (KA16, Table 4).

> The camp along the lake, close to the line used to be one of the best [now it is not] hunting camps, traditional goose camp (KA14, Table 4).

> Used to be more geese, 200 [harvested] now 50 [harvested] (KA16, Table 4).

> Geese are following transmission line – Birds do not follow river as much, follow transmission line instead which affects hunting sites in spring located on the bay [James Bay] (FA23, Table 4).

> Geese following transmission lines instead of the rivers and not coming to [James Bay] coast therefore less to kill (FA25, Table 4).

> Power line have messed up hunt – Altered flight patterns – Birds turn off now and take different route (MO4, Table 4).

TEK collected in the present study revealed similar observations:

> Hydro corridor has had many effects because 'it's like a prison wall', birds have to fly up and over…it changes everything for them (interview identifier, date of interview; Fort Albany Interview 22, 2006)

> Geese go up over the lines and then go high (Fort Albany Interview 3, 2008).

> The transmission line makes the birds fly higher over the lines, so hunters finding it hard to shoot them because they are too high (Fort Albany Focus Group 3, 2007)
> Ducks will fly under the power lines but geese won't, they [geese] will only fly over (Kashechewan Interview 4, 2008)

> A lot of geese now turn and follow the power transmission line…Used to get about 40 geese during spring, now about 10 (Moose Cree Interview 2, 2008)

> Goose hunting has been the most seriously impacted by the power lines. Community members [Moose Cree] have noticed that the lines have changed the geese's migratory patterns by making them fly higher or in different areas. Often the birds will follow the lines or avoid them altogether. Goose hunting has not been as good since the power lines (Moose Cree Interview 7, 2007).

However, effects of the transmission line with respect to waterfowl hunting have not been uniformly experienced by members of the different First Nations, as was reported in the power line TEK study (SNC-Lavalin Engineers and Constructors, 2005c; Table 4, e.g., compare Attawapiskat community members' responses to that of Kashechewan). TEK collected in the present study illuminates the reasons behind the non-uniform effects experienced by the Omushkego Cree (refer to Figure 1, for geospatial orientation):

> Power lines affect at least a dozen Moose Cree First Nation [goose] camps that are on the [James] Bay side of the power line. Only the camps that are close to the power lines when the lines turn northward are affected. Camps that are further away from the line on the bay side [the interviewee drew a map depicting the area near the mouth of the Moose River, on the north side, in the North Point area; Figure 1] are not affected. Geese used to follow creeks and rivers to James Bay and then follow the [James] Bay [coastline] northward (Moose Cree Interview 2, 2008).

> A lot of geese are going up [following the transmission line] to Attawapiskat, now, to the end of the [transmission] line. The geese are flying northward until they can cross [the transmission line] to the [James] Bay [coast] (Fort Albany Interview 1, 2008).

Evidently, since the original power transmission line was erected - many of the geese have followed the transmission line northward during their spring migration - until the geese come to the end of the power transmission line corridor at the Attawapiskat River, where the geese turn towards the James Bay coast to Akimiski Island or further northward to Hudson Bay. This scenario is consistent with TEK collected in the power line TEK study where none of the participants from Attawapiskat report any effects from the existing transmission (Table 4) and is in agreement with the present study, where participants responded:

> I never heard anybody talk about them [birds] or have some issue with the transmission line (Attawapiskat 15, 2008).

> The flight patterns are the same; they usually fly the pattern (Attawapiskat Interview 19, 2008).

In fact, when an Attawapiskat interviewee had concerns with the power transmission line and its effects on birds, it was not with the original line along James Bay, but the new portion of the line from Attawapiskat to the Victor Mine (Figure 1):

> We said, as Elders that we don't want this line to be in muskeg; because that is where the birds fly. What I recommended was to have that line along the river where there is a tree line and they [De Beers Canada Inc.] are not doing what we recommended. They do as they want because it is probably economical (Attawapiskat Interview 16, 2008).

Thus, it is incorrect to analyze the TEK collected in the power line study as survey data, as erroneous conclusions will be drawn. The reporting of negative effects from the existing transmission line was dependent on where a person's traditional goose camp was located. Indeed, when one considers that the presence of the existing transmission line has decreased some respondents goose harvest to a quarter of their pre-transmission line harvest, and that the harvesting of waterfowl is a well-documented way of life in the western James Bay region for socio-economic and cultural reasons (Honigmann, 1948; Hanson and Currie, 1957; Thompson and Hutchinson, 1989; Cummins, 1992; Berkes et. 1994; Tsuji and Nieboer, 1999; Lytwyn, 2000), then the effect of the existing transmission line on this valued ecosystem component has been significant. This point was clearly articulated by the Omushkego Cree participants in the SNC-Lavalin Engineers and Constructors (2005c; see Table 4 in the present study) TEK study:

> Your hydro lines are indeed destroying our way of life. It has affected the numbers of game that we have gotten over the years. – Geese now follow the hydro lines, thy [sic] don't fly along the coast as much (MC10).

> Not many birds fly there – let it be [do not expand the transmission line] (MO10).

> Just not do it [expansion of the transmission line] (MO17).

The expansion of the line was seen as worsening the goose harvest problem:

> Widening it [the existing transmission line] would amplify this [altered flight patterns] and worsen hunt further (MO4; Table 4).

> It [the goose harvest] is probably worse now that the transmission line is twice as wide (Moose Cree Interview 2, 2008).

It should be mentioned that although studies have been done with respect to hydro corridors affecting bird flight behavior and mortality (mortality rates were in the range 0.01 to 1.16% of total flights over right-of-ways, Manitoba Hydro, 2000; average mortality rates of 0.87 to 2.83% per 1000 flights over the wires, with higher rates found in larger species 12.66% to 32.36%, Winning and Murray, 1997), we are not aware of any studies reporting specifically on goose species and/or the effects of transmission lines on waterfowl hunting. Taking into account that TEK had identified changes in waterfowl behavior with respect to the existing hydroelectric transmission lines, the power line TEK study and our present study did not find any evidence of any waterfowl mortality associated with the transmission line. It has been

suggested that certain bird species are more at risk than others with respect to mortality related to hydroelectric transmission, specifically the larger bird species because the larger wing span allows for both wing tips to touch and cause electrocution (Idaho Power Company, 2000). This appears to be the case as participants in the present study only report bird mortality related to the transmission line for bird species with larger wing spans: Blue Herons (e.g., Fort Albany Interview Pair 5, 2007), cranes (e.g., Attawapiskat Interview 18, 2008), and large raptors (e.g., Moose Cree Interview 2, 2008). It should also be mentioned that the other studies conducted often involved longer hydro line corridors.

In summary, our analysis calls into question SNC-Lavalin Engineers and Constructors (2005b: 8-41) assertion that:

> The existing line, together [with] the proposed line, will not substantially affect the traditional way of life to the extent that it is currently practiced in the affected communities since no new corridors will be created.

As the existing line has significantly affected the Omushkego Cree way of life, this fact, should have been recognized in the Victor Mine power line EA. It is puzzling that in Table 8-6 of the SNC-Lavalin Engineers and Constructors (2005b) power line EA, only the portion of the transmission line from Attawapiskat to the Victor mine is addressed with respect to "Significance Determinations of Residual Impacts after Mitigation"; while, there is no mention on how the existing transmission line effects on waterfowl harvesting and the Cree way of life have been mitigated. Similarly, there is no mention of the socio-economic effects

on the Omushkego Cree with respect to disruption of the goose harvest in "TABLE 8-7 Significance Determinations of Residual Impacts after Mitigation - Socio-Economic Effects" (SNC-Lavalin Engineers and Constructors, 2005b). SNC-Lavalin Engineers and Constructors (2005c: 82) even try to switch the onus of responsibility for mitigation of transmission line effects on waterfowl by stating "respondents proposed no mitigation measures to mediate potential impacts." Actually, one respondent suggested to use an "under ground [sic] cable" (MC8, Table 4). Underground transmission lines are a reality, but expensive (Stantec, 2009; BC Transmission Corporation, 2010; Public Service Commission of Wisconsin, 2010); this mitigative/alternative was never discussed in the power supply EA reports (SNC-Lavalin Engineers and Constructors, 2005a, b).

Conclusions

Both the document record and the interview results indicate that the Class EA template developed in the southern Ontarian context is not transferable to the northern Ontarian context, as the assumptions of predictability and mitigability (and associated corollaries) do not hold true. The biophysical, socio-economic, and cultural environments were shown to be significantly different between southern and northern Ontario, with climate change and glacial isostatic adjustment disproportionately impact northern Ontario. In addition, the effects of the first hydroelectric line in the Mushkegowuk Territory on waterfowl harvesting have not been mitigated. Moreover, there are no plans to mitigate the effects from either the first or second hydroelectric transmission line with respect to waterfowl harvesting, which is a way of life in

the Mushkegowuk Territory. Offering small amounts of money to First Nation waterfowl harvesters who complain about the effect that the transmission line is having on their way of life is not mitigation:

> I complained three times to Mushkegowuk Council [the regional First Nations organization] about the geese avoiding the wires and my camp. They gave me $150 each time. They said that they were going to give it [money] to all the families that hunt near me, but they never did. I got it because I complained (Fort Albany Interview 4, 2008).

Clearly, there were issues with the Victor Mine power line EA in that equal weighting was not given to TEK compared to science - even though when Chief Randy [Kapashesit] asked: "what weight will TK be given in the EA process compared to scientific info?" - The response was "TK information covers more area than the existing scientific survey data, the two sources should complement one another. TK will also identify social/cultural impacts" (SNC-Lavalin Engineers and Constructors, 2005a: Minutes of Meetings Round 1 – November/December 2004). Nevertheless, the fundamental problem is with the Class EA framework itself, in that this EA process was developed in southern Ontario enabling "the requirements of the [Ontario] Environmental Assessment Act…to be met by proponents in an efficient, timely, economic and environmentally-responsible manner " (Government of Ontario, 2010b: unnumbered).

Although the Class EA process does include bump-up mechanism, whereby a Class EA can be elevated (Part II Orders) to an Individual EA (Government of Ontario, 2010b, e), this system failed the Victor Mine power line EA process, as two bump-up requests were denied (Ministry of Northern Development and Mines, 2005; Seim et al., 2005; AMEC, 2006). Taking into account that approximately 90% of projects subject to EAs in Ontario are Class EAs (Government of Ontario, 2010e); it follows that less than 10% of Class EAs are ever elevated. In fact, the percentage would be much less than 10% in that most of the Individual EAs included in this percentage would have started as Individual EAs and were not the result of bump-ups. Ideally, a special category should be developed for EAs in northern Ontario or all northern Ontarian projects should start under the Individual EA process, with a mechanism to bump-down these projects, if necessary. Moreover, a new EA process for the "Far North" of Ontario could be included with Bill 191 (2009), as the Government of Ontario has already recognized the necessity of introducing new legislation with respect to development in the Far North of Ontario. Due to the differences between projects completed in northern Ontario from those in Southern Ontario, as outlined previously, the legislation developed in the southern Ontario context was considered inappropriate for development in the Far North of Ontario.

Implications for EAs in Northern Canada and Other Polar Regions

It must also be discussed that under the Class EA framework described in the OME (2001) document, there are "triggers', whereby hydroelectric transmission line projects would also have to undergo a Government of Canada EA process under the *Canadian Environmental*

Assessment Act. For the Victor Mine power line, the Government of Canada EA process was triggered when the transmission line infringed on First Nation's land (Table 2). Specifically, under the Indian Act (2010), subsection

> 28. (2) The Minister may by permit in writing authorize any person for a period not exceeding one year, or with the consent of the council of the band for any longer period, to occupy or use a reserve or to reside or otherwise exercise rights on a reserve.

Thus, a federal EA process was triggered because a request had to be made to Indian and Northern Affairs Canada (the Responsible Authority) for a permit to allow the Victor Mine transmission line access through the First Nations' land of Fort Albany and Kashechewan.

The federal process includes provisions for four types of EAs: screenings, comprehensives, mediations and review panels (Government of Canada, 2010). The Victor Mine power line project fell under the federal Screening EA process (Canadian Environmental Assessment Agency, 2006). Federal Screening EAs vary in depth of analysis; this type of EA is the least rigorous of the federal EA processes (Government of Canada, 2010). Similar to Ontario's Class EAs, federal Screening EAs can be recommended for further review (e.g., mediator or review panel) if there is uncertainty associated with the magnitude of the adverse environmental effects or public concerns are justified (Government of Canada, 2010).

The responsible authority, in the present case, Indian and Northern Affairs Canada, made a decision on March 21, 2006: "after taking into consideration the screening report and taking into account the implementation of appropriate mitigation measures, the authority is of the opinion that the project is not likely to cause significant adverse environmental effects" (Canadian Environmental Assessment Agency, 2006: 1). For the reasons we detailed earlier - concerning the complexities of the Victor Mine transmission line provincial Class EA - the Victor Mine federal Screening EA should have been elevated to at least a Comprehensive EA. Interestingly, Indian and Northern Affairs Canada decision on March 21, 2006, to grant the permit for the Victor Mine power line (Canadian Environmental Assessment Agency, 2006: 1), contravened the Indian Act, subsection 28(2), as the consent of Fort Albany First Nation Chief and Council had not been obtained by this date (Fort Albany Interview 7, 2007).

Lastly, it should be emphasized that the EA arguments that we have made with respect to the dynamic nature of the sub-arctic and arctic regions of Ontario, also are applicable to the rest of Canada. "Cookie cutter" EA frameworks developed in the southern regions of Canada are not applicable to northern Canada, as the sub-arctic and arctic regions of Canada are experiencing climate change disproportionately compared to the rest of Canada. Even if someone wants to dispute whether climate change is actually occurring; there is no doubt that glacial isostatic adjustment is occurring in the northern regions of Canada, and is markedly changing the face of the north with changing shorelines and land mass (Figure 2). Similarly, in other sub-arctic and arctic regions of the world, a changing shoreline is reality. Therefore, for countries where EA frameworks already exist, based on their country's more southerly

regions, their northern regions uniqueness must be recognized and be reflected in an appropriate EA process. Only in this way, will the spirit of the EA process be met.

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Figure 1: A map of the western James Bay region depicting First Nations and the town of Moosonee, as well as other features described in text. This map is partially based on Figure 4-8, "Proposed Transmission Line Alignment Moosonee to Kashechewan", and Figure 6-1, "Study Area" of the SNC-Lavalin Engineers and Constructors (2005b) report.

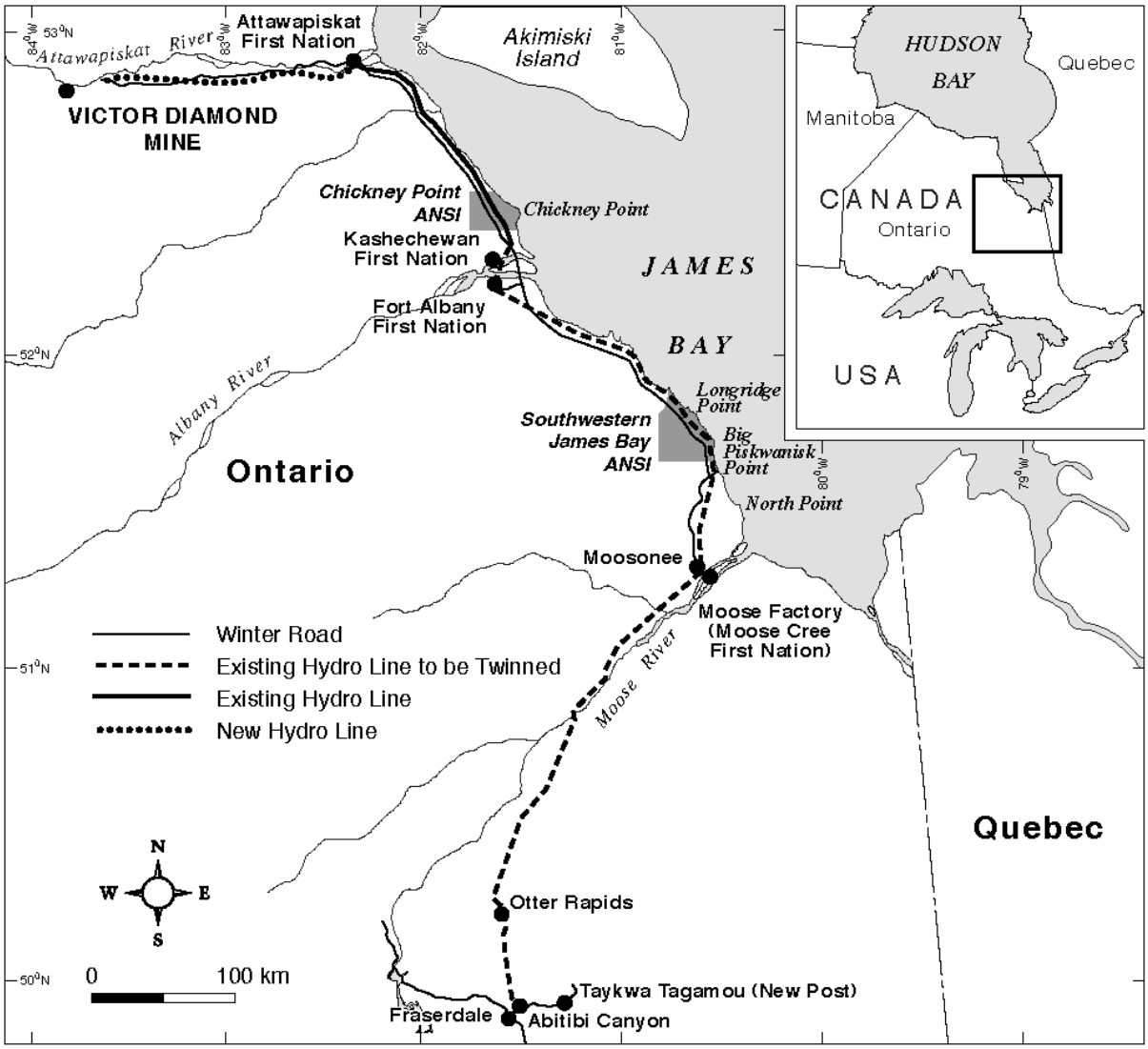

Figure 2: Shoreline evolution in the James Bay region over the next 1,000 years, in 100 year increments, based on a glacial isostatic model with a lower-mantle viscosity of 3 x 10^{21} Pas and a global warming scenario of 1.8 mm/year (the red line represents the present day shoreline, blue is water, and white is land; Tsuji et al. 2009, used with permission from the Arctic Institute of North America).

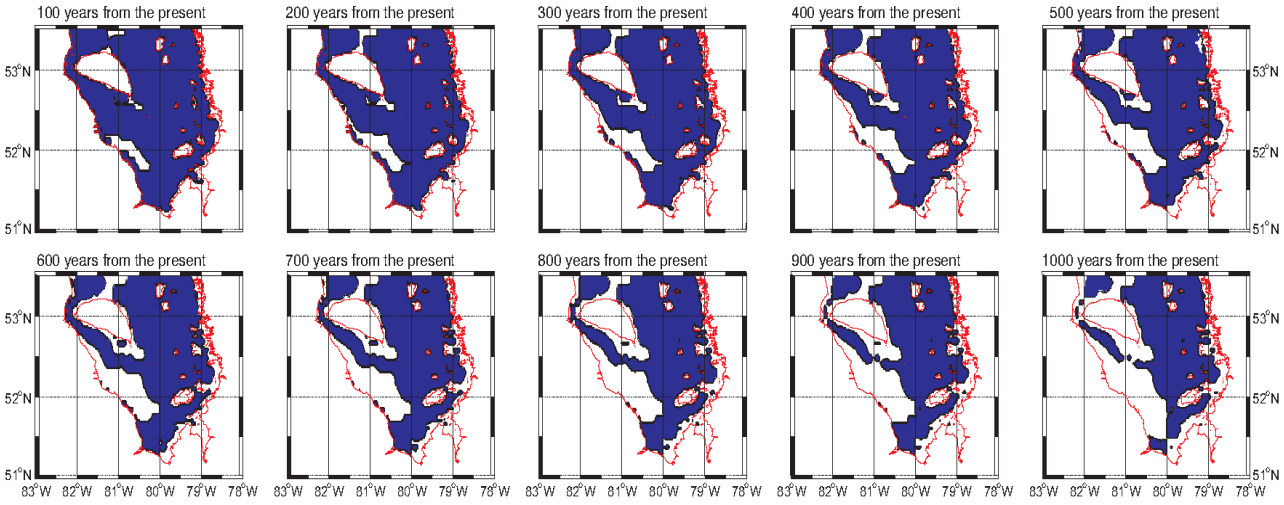

Table 1: Assumptions (OME, 2001) and corollaries of Class Environmental Assessments

Assumption 1	**Predictability**
Corollary 1a	The environment is similar in all locations where Class EAs are applied
Corollary 1b	The environment is well understood, that is, not appreciably changing over time
Assumption 2	**Mitigability**
Corollary 2	All negative effects are mitigable

Table 2: Timeline of the Victor Mine Power Supply Class Environmental Assessment (EA)

Date	Activity
1989 – 2001	Exploration leads to the discovery of the Victor Kimberlite deposits.
February 2004	Victor Diamond Mine Comprehensive EA (for the Government of Canada) submitted for review.
June 2004	Terms of Reference for an Individual EA (for the Government of Ontario) submitted for the Victor Diamond Mine Power Supply Project.
August 2004	Victor Diamond Project Re-evaluation of Site Access and Power Supply Alternatives completed.
August 2004	Terms of Reference for an Individual EA (for the Government of Ontario) withdrawn for the Victor Diamond Mine Power Supply Project.
August 2004	Notice of study commencement: Class EA [for the Government of Ontario] for Victor Diamond Mine power supply project
March 2005	Victor Mine Power Supply Environmental Study Report submitted for review.
June 2005	Victor Mine Power Supply Environmental Study Report addendum completed.
August 2005	Two separate bump-up requests denied and the co-proponents allowed to proceed with the Victor Power Supply project

March 2006	James Bay Coast Grid Power Supply Upgrade approved by the Government of Canada
August 2006	Class EA addendum, Otter Rapids to Moosonee transmission line request for change in right-of-way routing, Victor Project
Sources:	AMEC (2004a); AMEC (2004b); SNC-Lavalin Engineers and Constructors Inc. (2004, 2005a, 2005b); Environmental Assessment and Approvals Branch (2004); AMEC (2006); Seim et al., (2005); Ministry of Northern Development and Mines (2005)

Table 3: Timeline of the western James Bay transmission lines

Date	Activity
2001	Five Nations Energy Inc. transmission lines to Fort Albany and Kashechewan First Nations energized.
2003	Five Nations Energy Inc. transmission line to Attawapiskat First Nation energized.
2006	DeBeers Canada Inc. built transmission line from Attawapiskat First Nation to the Victor Diamond mine energized to provide power during the construction phase.
2008	Five Nations Energy Inc., DeBeers Canada Inc. and Hydro One Networks Inc. upgrades and modification to existing lines completed.
Sources:	Five Nations Energy Inc. (2006/2007, 2008, 2009)

Table 4: Effects of the existing transmission line and the potential effects of the proposed expansion on waterfowl hunting (abbreviated and verbatim - except for category headings and sample size - from Table A-3; SNC-Lavalin Engineers and Constructors, 2005c: 1)

Community (N=total number of participants) Personal identifiers match those in Table A-3	**Comments** (n=the number of participants answering in the affirmative to the question about effects from existing and/or proposed hydroelectric transmission lines on waterfowl harvesting)
Attawapiskat (N=20)	**Existing** (n=0)
	Expansion (n=1; AT3, no comment)
Kashechewan (N=18)	**Existing** (n=10: KA1, 2, 13, 14, 16, 18, 19, 21, 22, 23; we present only relevant comments)
KA13	Geese flying higher near line
KA14	The camp along the lake, close to the line used to be one of the best hunting camps, traditional goose camp
KA16	Yes – Used to be more geese, 200 now 50.
	Expansion (n=10: KA1, 2, 13, 14, 16, 18, 19, 21, 22, 23; we present only relevant comments)
KA1	Birds follow line – Birds fly over line and don't come back down

KA2	The first spring the majority of the migration of geese low inland, parallel to the hydro lines. The ones that pass through to reach the bay fly high not like before…Geese changed their fly pattern, they go along the power lines, the ones that fly there, they fly high.
KA13	Fly more inland. Less hunting success. Less geese [Canada Geese] along [James] bay most obvious this year compared to previous years. Same for snow geese.
KA14	geese stay high because of opening, negative effects on hunting success
KA16	birds fly higher than before line, harder to get geese
KA19	area 1 spring geese fly higher, its hard to call them down, some change their fly-way…Starting to change their fly-way away from nesting area in the island [sic]
KA23	Yes – Some waterfowl migration moved inland. Away from nested area.
Fort Albany (N=30)	**Existing** (n=7: FA4, 6, 10, 23, 24, 25, 27; we present only relevant comments)
FA4	Yes – The pond, on my hunting grounds, birds don't sit there anymore, had to move from inland area to out in the bay. Preferred my old pond, closer to camp.
	Expansion (n=8: FA4, 5, 6, 19, 23, 24, 25, 27; we present only relevant comments)
FA4	Would be the same – Snow and Canada geese flying higher when crossing the line, ducks fly under.
FA5	Yes – They fly when they reach the transmission line.

FA23	Yes – Geese are following transmission line – Birds do not follow river as much, follow transmission line instead which affects hunting sites in spring located on the bay [James] – Will have to shoot at transmission lines and poles.
FA25	Yes – Geese following transmission lines instead of the rivers and not coming to coast therefore less to kill.
Moosonee (N=20)	**Existing** (n=2: MO4, 17; we present only relevant comments)
MO4	Yes – Power line have messed up hunt – Altered flight patterns – Birds turn off now and take different route.
	Expansion (n=4: MO2, 4, 10, 17; we present only relevant comments)
MO4	Yes – Widening it would amplify this and worsen hunt further.
MO10	Yes – Not many birds fly there – let it be.
MO17	Yes – Just not do it.
Moose Factory (N=20)	**Existing** (n=3: MF2, 13, 14; we present only relevant comments)
MF2	Yes – The birds flare up from the transmission line.
	Expansion (n=4: MF2, 10, 13, 14; we present only relevant comments)
MF14	Yes – Disrupts geese migration movements

MoCreebec (N=20)	**Existing** (n=7: MC2, 3, 5, 8, 10, 14, 15; we present only relevant comments)
	Expansion (n=8: MC2, 3, 4, 5, 8, 10, 14, 15; we present only relevant comments)
MC3	Yes – Geese follow the transmission line during the migration north.
MC8	Yes – Under ground cable – Canada Geese don't come to the normal flyway anymore, they follow the transmission line.
MC10	…your hydro lines are indeed destroying our way of life. It has affected the numbers of game that we have gotten over the years. – Geese now follow the hydro lines, they don't fly along the coast as much.