Environnement Canada Environment Canada

NORTHERN ECOSYSTEM INITIATIVE : Environmental Action Plan for Northern Quebec

Produced by:
Regional Steering Committee

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Canada

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Preface

The Northern Ecosystem Initiative (NEI), which began in the fiscal year 1998–99, is the most recent of the five major ecosystem initiatives administered by Environment Canada.

In 1999, as part of the process of developing the NEI, Environment Canada–Quebec Region initiated a round of consultations with government agencies, Aboriginal organizations and certain co-management agencies created under northern agreements. This process allowed the interests and priorities of the stakeholders consulted to be identified.

Stakeholders expressed a strong desire to actively participate in the regional management of the Northern Ecosystem Initiative. To facilitate this, Environment Canada proposed the creation of a regional steering committee. The members of the committee met in Schefferville in January 2001 to determine the strategic approaches to be used in formulating an integrated and concerted environmental action plan for Northern Quebec.

Environment Canada drew up a draft of the plan and distributed it to committee members. The first comprehensive revision was carried out during a committee meeting on November 1, 2001. The contents of the plan were revised further during discussions and exchanges, in a series of conference calls organized by Environment Canada between December 2001 and April 2002.

This action plan therefore represents a consensus among Steering Committee members on the activities that Quebec Region partners wish to promote during the first phase of the Northern Ecosystem Initiative.

The action plan respects the vision and objectives of, and is based on the main priorities outlined in, the Northern Ecosystem Initiative. It provides sufficient flexibility, however, to be adapted to the specific administrative context of the North.

The action plan is a collective product and will be implemented according to the opportunities and resources available. EC will co-ordinate the implementation of the plan, provide follow-up, carry out an annual review and update and fine-tune the plan as required. The NEI Regional Steering Committee will participate in implementation activities. The action plan will be used by not only the steering committee but also government managers and northern stakeholders in order to better co-ordinate environmental programs in Northern Quebec.

Members of the Regional Steering Committee for the Northern Ecosystem Initiative–Quebec Region

Co-chairs

Albin Tremblay, co-chair
Regional Director, Conservation
Environment Canada

Serge Ashini-Goupil, co-chair
Representative, Innu Nation of Matimekush-Lac John

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Representative, Kativik Regional Government and Makivik Corporation

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Environmental Advisor
Hydro-Québec

Ginette Lajoie
Representative, Cree Regional Authority

Pierre Lauzon
Environmental Manager, Indian and Northern Affairs Canada

John Mameamskum
Representative, Naskapi Nation of Kawawachikamach

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Director, Wildlife Management, Northern Quebec, Société de la faune et des parcs du Québec

Introduction

NORTHERN ECOSYSTEM INITIATIVE

Northern priorities

The Canadian North is of national strategic importance not only politically but economically and environmentally. Consequently, Environment Canada believes it is important to devote a significant part of the resources allocated to large ecosystems to better study and understand northern ecosystems.

The Northern Ecosystem Initiative was established in 1998–99. It is the most recent of the five large ecosystem initiatives administered by Environment Canada. The first phase of NEI, which has a budget of $4.8 million over five years, ends in March 2003. Environment Canada has agreed to renew the program for a second phase, to be allocated $10 million or $2 million annually.

The Northern Ecosystem Initiative (NEI) was designed as a partnership-based program, focusing on the Government of Canada's environmental priorities and incorporating a set of environmental, social and economic concerns.

Four major issues involving the protection of ecosystem biodiversity were identified as priorities:

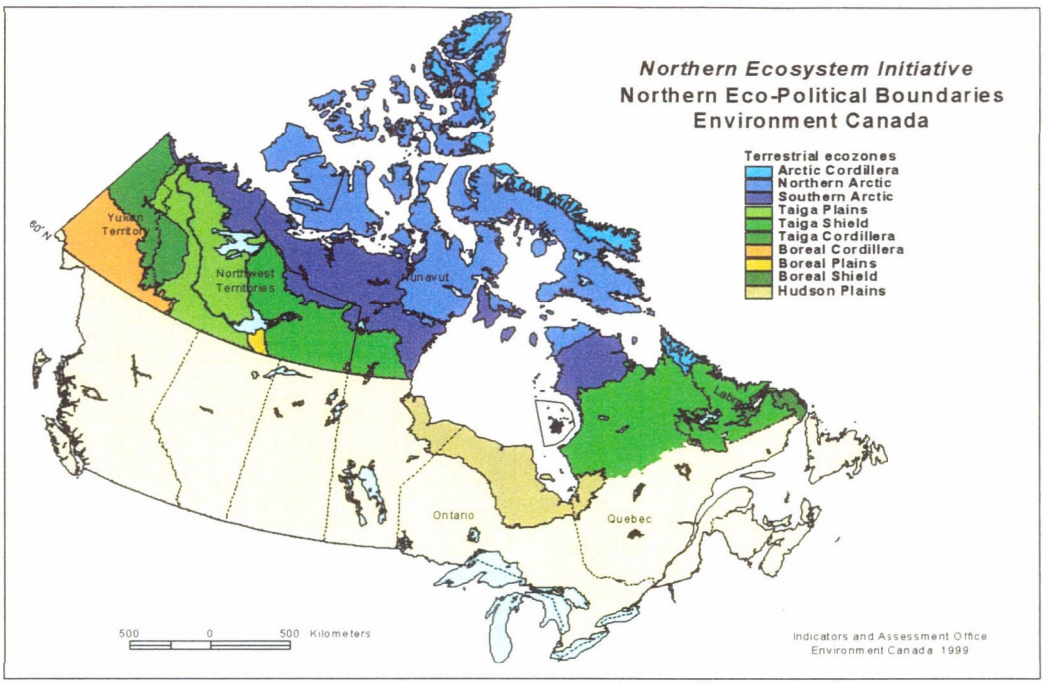
- The effects of contaminants and toxic substances on ecosystems
- The effects of climate change on ecosystems
- The effects of development activities on ecosystems
- Monitoring of ecosystem status and trends

Complementing the four priority issues, the main objectives of the NEI are:

- Improving our knowledge (scientific, local and traditional) of northern ecosystems
- Involving inhabitants of the North in the decision-making process and improving the quality of decisions
- Promoting the use of traditional and scientific knowledge
- Promoting capacity building by northern organizations

Geographically, the Northern Ecosystem Initiative covers the entire Canadian North, from Yukon to Labrador, including the Northwest Territories, Nunavut, Hudson Bay Lowlands and Northern Quebec (Figure 1).

Figure 1


Northern Ecosystem Initiative
Northern Eco-Political Boundaries
Environment Canada
Terrestrial ecozones
Arctic Cordillera
Northern Arctic
Southern Arctic
Taiga Plains
Taiga Shield
Taiga Cordillera
Boreal Cordillera
Boreal Plains
Boreal Shield
Hudson Plains
60° N
Yukon Territory
Northwest Territories
Nunavut
Labrador
Ontario
Quebec
500 0 500 Kilometers
Indicators and Assessment Office
Environment Canada 1999

NORTHERN ECOSYSTEM INITIATIVE: QUEBEC REGION

Territory

In Quebec, the NEI covers close to 750,000 km^2 or around 50% of the province's land mass (Figure 2), taking in all the area north of the boreal forest. This territory runs from Hudson Bay in the west to Ungava Bay and Labrador in the east. Two major ecosystems predominate: the tundra in the north and the taiga farther south.

Figure 2

The climate is characterized by cool summers and very cold winters. By definition, continuous permafrost occurs only in the extreme northern part of the NEI territory. Extensive discontinuous (or widespread) permafrost occurs in the northern two thirds, with low to medium ice content. In the southern third, sporadic discontinuous permafrost is found.

The dominant vegetation in the territory is a transition between the arctic and alpine tundra vegetation communities in the north and the dense coniferous stands of the boreal forest in the south.

Administratively, almost all the territory[1] is covered by the James Bay and Northern Quebec Agreement (JBNQA) and the Northeastern Quebec Agreement (NEQA). These two agreements were signed in 1975 and 1978 respectively between the Quebec and federal governments and the Cree, Inuit and Naskapi Aboriginal nations. The Innu Nation was not a signatory to the agreements. Negotiations are currently under way between the Quebec and federal governments and the Mamuitun Tribal Council and the

[1] The terms NEI territory, Northern Quebec and northern environment as used in this document designate the entire northern region covered by the NEI in Quebec, as shown in Figure 2. Aboriginal communities designate the territory in their own languages as follows: Cree Eeyou Istchee; Naskapi: Naskapi Iyuch Ut-aschiwaaw; Innu: Nistasinan; Inuit: Nunavik

Assemblée Mamu Pakatatau Mamit to settle land claims. The Innu community of Matimekush–Lac John is not involved in negotiations with governments at this time.

The NEI area is mainly under the jurisdiction of the Government of Quebec, although the federal government has general responsibility for fishing, shipping and Dominion lands.

The Government of Quebec recently signed two historic agreements in Northern Quebec, one in 2001 with the Cree and the other in 2002 with the Inuit. The goal of the agreements is to develop the full economic potential of the James Bay and Nunavik territories in a spirit of partnership and mutual trust.

The population

The demographics of Northern Quebec are characterized by a very small population in relation to the huge size of the territory. The population (Figure 3) is made up mainly of Aboriginal peoples from four nations: Cree, Inuit, Naskapi and Innu.

Figure 3: Breakdown of population in NEI territory

Type of community	Residents	Number of communities
Cree	7,394	5*
Inuit	8,705	14
Naskapi	799	1
Innu	712	1
Other	655	2**
TOTAL	**18,265**	**23**

Sources: INAC (2002), MSSSQ (2002), MAMM (1996)

*Five of the nine Cree communities are in NEI territory. Traplines belonging to the Cree communities of Mistissini and Nemaska partially overlap NEI territory.

**: Schefferville and Radisson

Development in the territory

Hydro-electric development and mining clearly predominate in terms of development in the territory. The La Grande complex, built in the 1980s, produces over 15,000 MW of power, which is sent to southern Quebec markets over an impressive network of transmission lines. In the province, Northern Quebec is one of the province's regions with the greatest hydro-electric power potential.

The NEI territory also has great mining potential. Although the region has yet to be explored extensively, mineral exploration has increased north of the 55th parallel in the last few years. The main deposit mined in the territory is the Raglan property, which is owned and operated by Falconbridge under an agreement with the Inuit. This large copper–nickel deposit has an estimated mine life of 25 years.

The huge iron ore reserves in the Schefferville region were mined steadily for thirty years by the Iron Ore Company of Canada until the mine was shut down in 1983. Since the termination of operations in Schefferville, no iron ore deposits have been mined in the region.

The recent discovery of diamond indicator minerals is also very promising for Northern Quebec. Exploration is currently under way in the region to obtain more knowledge of this relatively unknown area.

Increasingly, firms getting established in the North are signing partnership agreements with Aboriginal communities. This ensures that Aboriginal people can participate in the studies and other activities associated with development projects. Other types of agreements are also being signed ensuring that Aboriginal people are involved at all stages of a project. These partnerships create economic opportunities and meaningful employment for northern communities.

Through compensation obtained under agreements such as the JBNQA and NEQA, Aboriginal people are investing in the development of Aboriginal businesses. Subsidiaries have been established in a number of sectors such as air transport, shipping, construction, food and fisheries.

In 2001 and 2002, the Government of Quebec and the Cree and Inuit communities signed agreements that provide for co-operation and partnership in development projects in Northern Quebec.

Other activities are also practised in the NEI territory. Traditional activities (hunting, fishing and trapping) are still very important in Aboriginal communities in this region. In addition, the sectors of outdoor recreation, ecotourism, cultural tourism and adventure tourism are expanding in Aboriginal communities.

Environmental protection regimes

Under the various agreements signed with Aboriginal nations (Cree, Inuit and Naskapi), a number of environmental protection and social regimes have been set up. These regimes are managed by advisory committees consisting of representatives appointed by Aboriginal governments as well as the Quebec and federal governments.

These regimes also have provisions for establishing assessment and review procedures in order to mitigate the negative environmental and social impacts of development projects in the territory.

In addition, under the agreements, a Hunting, Fishing and Trapping Regime was set up to define Aboriginal peoples' rights and guarantees to harvest wildlife. The regime is implemented through the Hunting, Fishing and Trapping Co-ordinating Committee, which consists of representatives of all the signatories.

The Quebec Region NEI Steering Committee[2] recognizes these institutions' precedence and plans to work and operate in a complementary and co-operative fashion with its partners in Northern Quebec.

[2] The committee is described briefly in an appendix.

ENVIRONMENTAL ACTION PLAN: integrated and co-operative planning

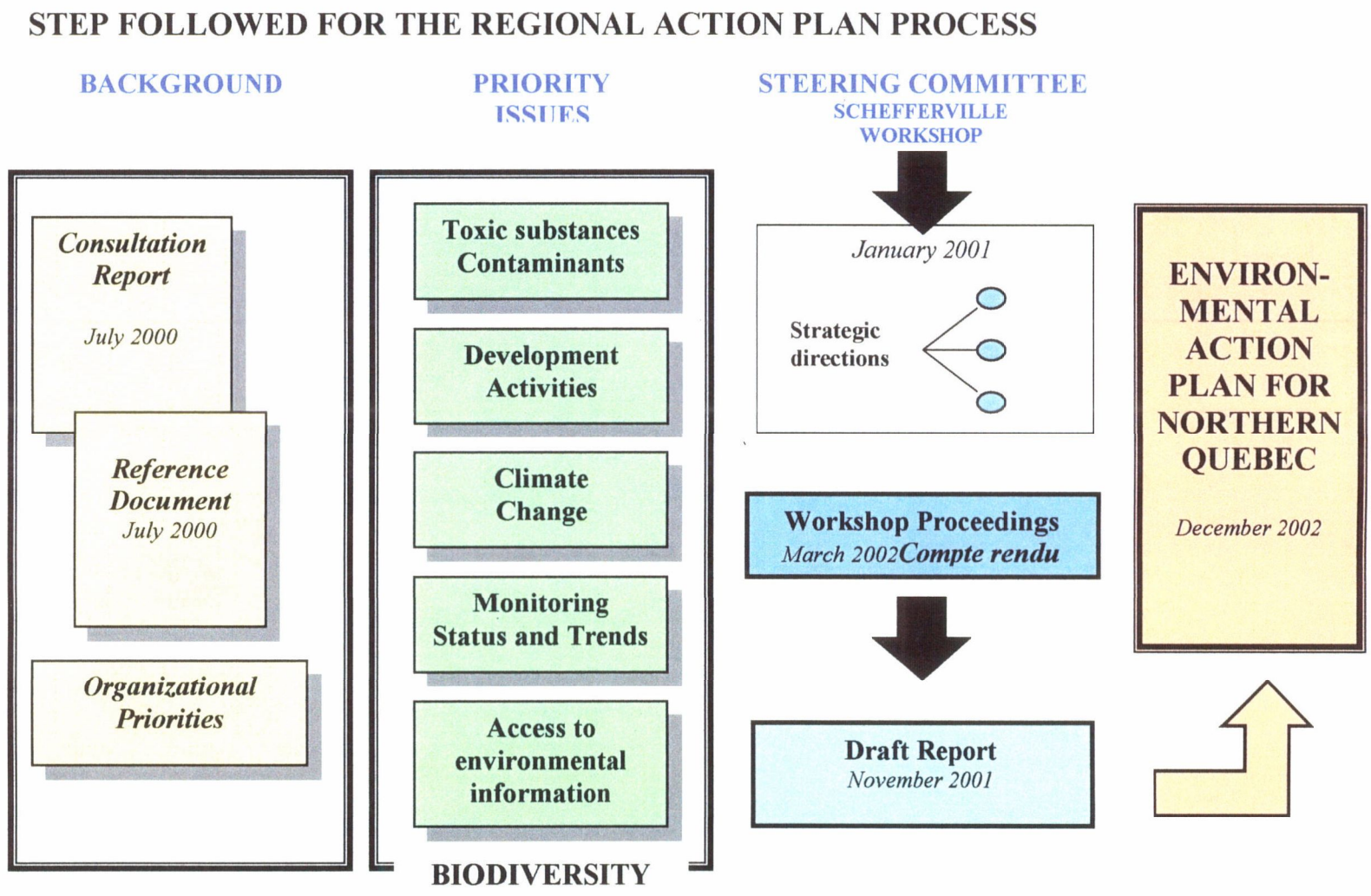
Figure 4 on the next page illustrates the process used by the Steering Committee to formulate the regional action plan. The committee agreed on strategic directions for the action plan at a workshop in Schefferville in January 2001.

This environmental action plan therefore represents a consensus among Steering Committee representatives on the activities that Quebec Region partners wish to promote under the next phase of the NEI.

In the following pages, summary tables set out the objectives, actions and results for each of the NEI priority issues. Each table is preceded by a description of the general context and followed by an explanatory text detailing the scope of the actions to be undertaken.

Lastly, the action plan respects the NEI's vision and objectives and is based on the main priorities outlined in the NEI. At the same time, the plan provides enough flexibility so that it can evolve over time and be adapted to the special administrative context created by the huge territory covered by the NEI.

Figure 4


STEP FOLLOWED FOR THE REGIONAL ACTION PLAN PROCESS
BACKGROUND
PRIORITY ISSUES
STEERING COMMITTEE
SCHEFFERVILLE WORKSHOP
Consultation Report
July 2000
Reference Document
July 2000
Organizational Priorities
Toxic substances Contaminants
Development Activities
Climate Change
Monitoring Status and Trends
Access to environmental information
BIODIVERSITY
January 2001
Strategic directions
Workshop Proceedings
March 2002Compte rendu
Draft Report
November 2001
ENVIRON-MENTAL ACTION PLAN FOR NORTHERN QUEBEC
December 2002

Issue 1: Effects of toxic substances and contaminants on northern ecosystems

Background

Over the years, certain areas in Northern Quebec have been contaminated as a result of natural resource exploration and development activities, as well as activities by governments and communities. In addition, Northern Quebec also receives transboundary pollutants transported over great distances by air mass movements. Because of its cold climate, the North becomes a sink for these pollutants. Toxic substances, particularly persistent organic pollutants, may end up in human beings and wildlife.

Of the several hundred abandoned mineral exploration sites in Northern Quebec, most harbour hazardous wastes. These must be characterized in order to restore the sites and prevent risks to the northern environment and residents' health.

The approaches and quality criteria currently used in southern Quebec for managing hazardous waste are not adapted or applicable to northern realities. The development of new management approaches must be encouraged. The Steering Committee is aware of the fact that the NEI has a limited range of action in this area. The NEI does not have a mandate to undertake site restoration work, although it can assist in the site prioritization process. The following proposals take this into account.

Summary table: Toxic substances and contaminants

Issue	*Objectives*	*Actions*	*Deliverables/ Results*
1. Toxic substances and contaminants	11. Develop support and management tools for inventorying and characterizing contaminated sites in Northern Quebec.	111. Synthesize information on contaminated sites in Northern Quebec.	111.1 Bibliography of existing studies and reports on contaminated sites in Northern Quebec. 111.2 List of contaminated sites in Northern Quebec. 111.3 Summary chart with basic information on the types of contaminants found, their source and the progress of restoration. 111.4 Georeferenced database on potential contaminated sites (decommissioned or not) of various types.
		112. Establish a management approach for contaminated sites by adopting criteria for soil, air and water that are adapted to the northern environment.	112.1 Technical reports on: - The various approaches - Criteria for soil, air and water
		113. Develop a methodology for inventorying and prioritizing contaminated sites that takes account of environmental and human health risks in Northern Quebec.	113.1 Technical reports on: - inventory methodology - prioritizing methodology - environmental risks associated with acting and doing nothing - human health risks

Issue	*Objectives*	*Actions*	*Deliverables/ Results*
		114. Support research and development in new technologies (e.g., satellite imagery, IKONOS).	114.1 Scientific articles on applications of IKONOS imagery.
		115. Support research and development on water and soil treatment methods in remote areas.	115.1 Technical reports and articles on water and soil treatment methods in remote areas.
		116. Train local and regional project participants how to inventory and prioritize contaminated sites and use new technologies.	116.1 Training workshop in communities on inventorying and prioritizing sites. 116.2 List of new technologies on CD-ROM.
	12. Inventory and prioritize sites contaminated by mineral exploration.	121. Document the approach used to acquire information on the location of sites and the presence of contaminants through local knowledge.	121.1 Report on using local knowledge in inventorying contaminated sites in NEI territory.
		122. Carry out a preliminary inventory of contaminated mineral exploration sites.	122.1 Preliminary inventory report on contaminated mineral exploration sites in NEI territory.
		123. Complete preliminary characterization and prioritize contaminated mineral exploration sites.	123.1 Technical report on characterizing and prioritizing contaminated mineral exploration sites in NEI territory.
	13. Help communities to identify and solve local problems related to the presence of toxic substances and contaminants.	131. Prepare environmental reports for targeted problems, particularly mining activities.	131.1 Series of summary environmental reports.

Issue	*Objectives*	*Actions*	*Deliverables/ Results*
		132. Develop a technical guide for managing, and making decisions on, toxic substances and contaminants.	132.1 Technical guide for local officials.
		133. Encourage the establishment of integrated regional plans for the disposal of toxic substances.	133.1 Integrated regional plans for disposal of toxic substances.
		134. Develop a program to monitor hazardous materials management in Northern Quebec.	134.1 Information sheets on hazardous materials adapted to the northern context. 134.2 Hazardous materials recovery programs for northern communities. 134.3 Establishment of mechanisms for sharing information on recycling, reusing and recovering hazardous materials.

Explanatory text: Toxic substances and contaminants

Objective 11. Develop support and management tools for inventorying and characterizing contaminated sites in Northern Quebec

Action 111: A synthesis of the available information will allow us to put together a structured list of existing studies and reports on contaminated sites in Northern Quebec. The synthesis will be used to prepare a summary chart for the entire NEI territory, incorporating basic information on such things as the locations of contaminated sites, the type of contaminants found, sources and the progress of restoration work. It will also allow the risks of taking action or doing nothing in an environment as sensitive as that of Northern Quebec to be assessed. In addition, the synthesis will allow us to identify the types of problems experienced by the various stakeholders.

The information synthesis will also allow us to collate information on, and examine, past and ongoing efforts to restore and rehabilitate contaminated sites in Northern Quebec. Examples include:

- The Mid-Canada Line clean-up project (National Defence, Kativik Regional Government (KRG), Quebec Department of the Environment (MENV), Environment Canada (EC) and Naskapi Nation of Kawawachikamach (NNK));
- The Cape Hope Advance project (Transport Canada, Environment Canada, Makivik Corporation, etc.);
- Project to decommission former HQ/JBEC exploration sites (Cree Regional Authority (CRA) and Hydro-Québec (HQ));
- Nitchequon Station project (CRA and Transport Canada);
- Fort George Island Characterization and Restoration Project (HQ, CRA and INAC for preliminary characterization studies);
- A number of studies carried out by Cree communities between 1993 and 2001 on soil and groundwater contamination, as well as many soil restoration projects;
- In addition, the CRA has developed a georeferenced database, called GEDICC, on contaminated sites in the communities (over 10,000 results of site soil and water analyses).

The synthesis could also be used to create a georeferenced database of information on potentially contaminated sites (decommissioned or not) of various types. The various agencies involved in Northern Quebec could add information to the database.

Action 112: The information obtained will help to identify and fine-tune a comprehensive approach for managing contaminated sites in Northern Quebec. The approach to be developed could be based on soil, water and air quality classification criteria—for example, those established by the Canadian Council of the Ministers of the Environment (CCME) and the St. Lawrence Centre—or land-use criteria such as those used by the Quebec Department of the Environment (MENV). The management approach should be based on these criteria and must be adapted to the realities of Northern Quebec. The suitability of these criteria in a remote northern environment will have to be assessed.

Action 113: The management approach adopted and information synthesis obtained will allow a working methodology to be developed to inventory and prioritize contaminated sites and characterize them in greater detail. The expertise and experience obtained by the various agencies working in the North represents a considerable contribution to the development of a new inventory methodology. Both environmental and human health risks must be taken into account in such a methodology.

Actions 114 and 115: Defining a management approach, assessing environmental risks, establishing criteria and developing a working methodology will require some research and development of new technologies (e.g., GÉTIC's use of IKONOS imagery to inventory sites). The emphasis will be on R&D on water and soil treatment methods that can be used in remote areas. Methods used in urban areas cannot always be used in the North. The lack of electricity and the harsh climate are some of the limiting factors that must be examined in greater depth. Disseminating this R&D will be crucial for Aboriginal and scientific communities. Dissemination methods must be adapted to the needs of northern communities.

Action 116: Finally, in conjunction with efforts to build the capacities of Aboriginal communities, such as those undertaken by the Fondation Hydro-Québec (FHQE) and the Department of Indian Affairs and Northern Development's Environmental Capacity Development initiative (ECD), training programs should be developed that are tailored to the needs of local stakeholders. This will allow the latter to acquire the necessary skills and understanding needed to attain greater autonomy in the environmental management of contaminated sites. In addition, to keep better track of information on new technologies, we suggest that it be kept on a CD-ROM that can be distributed to those who need it.

Objective 12. Inventory and prioritize contaminated mineral exploration sites

Action 121: Objective 12 coincides with the work of GÉTIC, the Kativik Regional Government and the Makivik Corporation to inventory and characterize contaminated mineral exploration sites in collaboration with the Naskapi Nation of Kawawachikamach. In their efforts to obtain information on the location of contaminated sites, these organizations have used an information gathering method based on local knowledge that is worth documenting, as it appears to have achieved the desired results.

Actions 122 and 123: Carrying out preliminary inventories and compiling the results will allow us to determine the nature and extent of the contamination present at these sites and decide whether a more detailed characterization is warranted according to priorities established for the NEI territory.

Objective 13. Help communities identify and solve local problems related to the presence of toxic substances and contaminants

This objective is a response to the pressing need for assistance expressed by Aboriginal communities. The number of actions could be expanded according to needs and concerns.

Action 131: A number of problems have arisen due to mining activities in Northern Quebec. The presence of unrehabilitated mining and mine waste, the flooding of open pit areas with groundwater to form lakes, and poor drinking water quality immediately come to mind. A series of environmental reports is required to assess the impacts of mining activities.

Action 132: Currently, several technical guides are available on contaminant sources and emergency mitigation measures, but this information must be adapted to the northern context. The technical guide developed must determine what methods are available to quickly and efficiently treat or dispose of hazardous and toxic products in remote areas. It should at least identify appropriate methods for the temporary storage, treatment or disposal of hazardous materials. The guide will assist in the identification of contaminant sources and outline the procedure to be followed for the efficient treatment or disposal of toxic substances in remote areas. Regional and local bodies and governments must work together to formulate a co-ordinated approach.

Action 133: The province's current integrated waste management program does not apply to regions north of the 49th parallel. For example, paint manufacturers all over Quebec have set up a paint recovery and disposal program that does not apply to northern communities, which face prohibitive costs for disposing of these products. Setting up integrated regional plans for toxic substance disposal is one solution to favour in the northern context.

Action 134: The presence of hazardous natural materials in remote areas is another ever-present problem for northern governments. To help communities, we propose that public awareness programs and tools for identifying and recovering hazardous materials be developed. Establishing mechanisms for information exchange on hazardous materials is an essential tool for the effective dissemination of information between communities.

Issue 2: Effects of climate change on northern ecosystems

Background

Concerns about climate change (CC) in Northern Quebec are linked in particular with changes northern residents will be called upon to make to their lifestyle and traditions. In this context, the NEI must encourage the acquisition and accessibility of information on CC in Northern Quebec. To achieve this, the relationships between CC and such things as ecosystems, resources, impacts on harvesting activities, traditional ways of life and ecotourism must be established.

The conclusions reached by the Quebec Region NEI Steering Committee at the Schefferville workshop in January 2001 are consistent with the conclusions of the group that worked on the *Canada Country Study: Climate Impacts and Adaptation.* CC may affect:

- *the distribution of animals and other resources on which the northern subsistence economy is based;*
- *the use of traditional knowledge and local adaptations;*
- *the health of people living in the North through dietary dislocations and epidemiological changes.*

According to this Canada-wide study, future research should focus on:

- *linking available biological/ecological information on the impacts of climate change to local resource use and the northern economy;*
- *developing adaptive management strategies with emphasis on the resilience of social and ecological systems, and on flexibility to respond to uncertainty and largely unpredictable climate change;*
- *studying the issue of the health of northern populations relative to the implications climate change has for the long-term availability of country foods.*

In May 2002, the Quebec government created the Ouranos consortium, which deals with climatology and climate change adaptation. Under the NEI, we will work to develop partnerships with this agency through the initiatives proposed in the action plan.

The objectives laid out in the action plan target, first of all, the gathering of information on climate change in Northern Quebec and its dissemination to the community. Then, an effort will be made to find ways to adapt to CC in co-operation with northerners. In the action plan, the emphasis will be mainly on the adaptability of northerners to climate change, in the hope of developing strategies based on the problems anticipated in adapting to CC over the longer term.

Summary table: Climate change

Issue	*Objectives*	*Actions*	*Deliverables/ Results*
2. Climate change (CC)	21. Assess, with Aboriginal communities and northern residents, the current state of scientific and local knowledge on CC in Northern Quebec.	211. Document and produce a summary of information on CC and its impact on Northern Quebec.	211.1 Summary report on status of CC in Northern Quebec.
		212. Document historical effects of CC on northern cultures.	212.1 Report on historical effects of CC on northern cultures in Northern Quebec and the Canadian Arctic.
	22. Develop strategies for adapting to CC in co-operation with Aboriginal communities in Northern Quebec.	221. Solicit opinions of Aboriginal communities and northern residents on adaptive strategies.	221.1 Report on opinions of Aboriginal communities and northern residents on adaptive strategies. 211.2 Video of testimony showing adaptive capacities of Aboriginal communities and northern residents to CC.
		222. Assess the effects of CC on traditional activities, emphasizing changes in Aboriginal peoples' traditional and subsistence activities.	222.1 Report on changes in traditional and subsistence activities caused by CC.
		223. Examine effects of CC on access to land and resources in the North.	223.1 Report on impact of CC on access to land and resources.
		224. Define the limits of adapting northern subsistence economies to CC.	224.1 – 226.1 The products and procedures associated with these objectives must be discussed with the main partners.
		225. Identify adaptive management strategies.	

Issue	*Objectives*	*Actions*	*Deliverables/ Results*
		226. Document changes/effects of CC from a local perspective.	
	23. Inform northern residents about the status of CC in the North.	231. Disseminate and present information on CC to northern communities.	231.1 Video explaining CC process (why/how). 231.2 Thematic fact sheets on the Internet. 231.3 Information meetings on CC. 231.4 Guide to promote awareness of impacts of CC on resource species.

Explanatory text: Climate change

Objective 21. Assess, with Aboriginal communities and northern residents, the current state of scientific and local knowledge on CC in Northern Quebec

Action 211: This action will provide a snapshot of the situation of climate change and its effect on ecosystems and traditional ways of life in Northern Quebec. It will be necessary to define the scope of the phenomenon of climate change and focus on its main consequences, both in the present and the near future. It will be important to fully understand the situation if we are to be able to make short- and medium-term predictions. At present, several studies, projects and databases[3] are responding, at least in part, to the issues raised by this action. The next step will be to gather information to obtain the most accurate picture possible for Northern Quebec.

Action 212: To paint the most accurate picture possible, not only the scientific but also the historical aspects of the effects of climate change on cultures must be dealt with. This type of study could focus on communities in Northern Quebec as well as in the Canadian Arctic.

Objective 22. Develop strategies for adapting to CC in co-operation with Aboriginal communities in Northern Quebec

Actions 221 and 226: This objective focuses on the long-term prospects for Aboriginal ways of life. According to the Canada Country Study, "*there is much evidence that Aboriginal societies will be able to adapt to minor climate fluctuations—as they have done for centuries—whether they be of short or long term duration.... The types of changes anticipated to accompany climate change as described, however, are likely to severely challenge the capacity to adapt of many subsistence societies. The effects are likely to be widespread, with regional variations, and attempts to modify or prevent events/effects for vast northern regions are not likely to be viable once the impacts begin to be felt.*" Therefore, it is crucial to exchange information with local communities, examine changes to their traditional and non-traditional activities and define the limits of the ability of northern subsistence economies to adapt.

Furthermore, as the Canada Country Study states, "*research is needed to develop adaptive management strategies with the capacity not only to*

[3] Canada Country Study on CC and Quebec study on CC (northern component); LICHEN project (Liaison and Information on Changes in Habitats and Ecosystems in the North); OURANOS or consortium on climatology and climate change adaptation (Consortium en climatologie et en adaptation aux changements climatiques); database of CRIACC or climate change impact and adaptation resource centre (Centre de Ressources en Impacts et d'Adaptation au Climat et à ses Changements).

track changing conditions, but also to provide the flexibility to respond to uncertainty and environmental complexity in the context of rapid, and largely unpredictable, change. Adaptive management in this context refers to feedback learning, learning-by-doing and policies designed as experiments from which resource managers can learn.... The implementation of effective adaptive management capacity will be a key factor influencing the extent to which the subsistence economy can be sustained in the years ahead."

Objective 23. Inform northern residents about the status of CC in the North

Action 231: This objective mainly involves promoting awareness and disseminating information to northern residents on the status of climate change. It is important to ensure that northern residents have access to the results of studies carried out in the North.

Issue 3: Effects of development on northern ecosystems

Background

Development activities pose significant environmental concerns in Northern Quebec. Since the James Bay and Northern Quebec Agreement was signed in 1975, several large-scale development projects have been carried out in Northern Quebec, with significant consequences for the region's natural and social environments. Over the years, development activities have also resulted in the creation of temporary work camps that have also had an impact on the environment. During the last few decades, Aboriginal nations have experienced strong demographic growth and a significant movement to a more sedentary lifestyle. This has increased the urgency for the sound environmental management of development activities in the region.

Numerous sectoral environmental studies have been carried out under the environmental and social protection regimes of the JBNQA and NEQA on the impacts of development projects; a number of stakeholders were involved in conducting the studies (mainly Hydro-Québec, the James Bay Energy Corporation (JBEC) and the James Bay Mercury Committee). However, no comprehensive assessment of the cumulative effects of these projects on the environment and social systems has been carried out. The understanding and perceptions of the consequences of the projects have changed considerably over the past 25 years. New concepts such as cumulative impacts, environmental carrying capacity and strategic environmental assessments have been developed. It is crucial that special attention be paid to these ideas in a northern context.

The aim of this action plan is not to reinvent existing approaches, but rather to make use of them, be inspired by them, and adapt them as necessary to the context of Northern Quebec. In order to achieve consistent development, existing planning documents must be respected and taken into account. Emphasis must be put on developing and designing tools and mechanisms to promote and ensure the better integration of environmental concerns in development projects, based on a co-ordinated and integrated perspective.

Summary table: Development

Issue	*Objectives*	*Actions*	*Deliverables/ Results*
3. Development	31. Promote the development of an integrated approach to planning development projects in Northern Quebec.	311. Carry out a literature review on existing consultation and partnership processes in the area of research.	311. Report on consultation and partnership processes for research and development activities in the North.
		312. Carry out a literature review on incorporating local knowledge in scientific reports and scientific literature in general.	312.1 Summary sheets showing various methods of incorporating local knowledge into scientific literature.
		313. Identify and validate rules and principles of research in Northern Quebec.	313.1 Review of research rules and principles. 313.2 Guide or manual to ensure equitable participation of Aboriginal groups in project development.
	32. Develop a framework for the regional management and assessment of the cumulative impacts of development in the North.	321. Identify the main integrating themes that can be used to prepare a framework for assessing the cumulative impacts of development in the North. Suggested themes: a) Fauna and flora b) Aboriginal nations c) Traditional activities d) Traplines e) Opening up of land f) Forest fires g) etc.	*For each theme*: 321.1 Literature review of scientific methods for assessing cumulative impacts. 321.2 Overview of the state of existing knowledge. 321.3 Shortcomings in terms of basic data.
		322. Synthesize the information on similar projects carried out elsewhere in Canada involving a framework for assessing and managing cumulative impacts.	322.1 Summary report of evaluation and management frameworks that are

Issue	*Objectives*	*Actions*	*Deliverables/ Results*
			applicable to the Northern Quebec situation.
		323. Identify areas to be protected in NEI territory.	323.1 Map identifying areas to be protected based on regional characteristics.
	33. Incorporate the concept of strategic environmental assessment in the decision-making process on development projects in Northern Quebec.	331. Inform, and promote awareness among, the various stakeholders on the use of the strategic environmental assessment approach (SEA) in a northern context.	331. Information and awareness activities on using SEA in a northern context.
		332. Prepare a summary of current knowledge on the following themes: • Hydro-electric development and river diversion; • Mining development; • Forestry; • Transportation infrastructure development; • The shift to an increasingly sedentary lifestyle among the Inuit; • Development of outfitters and ecotourism; • Etc.	332.1 Report on current knowledge of development in the North.

Explanatory text: Development

Objective 31. Promote the development of an integrated approach to planning development projects in Northern Quebec

Action 311: The co-operation of all stakeholders in the North, including local communities, is clearly beneficial in carrying out development projects in Northern Quebec. Too often, we forget to involve, consult or even inform local residents when a project is being carried out. Reviewing existing consultation and partnership mechanisms will allow the most appropriate methods for the northern context to be identified.

Action 312: For many, local (and traditional) knowledge represents a very important source of information for carrying out research projects. Increasingly, reference is being made to such knowledge, but it is difficult to take this knowledge into account in some works, particularly scientific literature. Many studies have examined this problem. A literature review summarizing information on incorporating such knowledge in scientific literature on the North would be very useful for both researchers and Aboriginal communities. It is also crucial to assess the way in which, and to what extent, local (and traditional) knowledge has been taken into account in impact assessment studies on development projects in the North. The greater use of local knowledge will provide communities with an opportunity to get more involved at all stages of the research process.

Action 313: While research is usually thought of as a positive contribution to the social and physical environment of the North, it must also respect northern residents and involve them in research activities. To achieve this, research must not only be explained in clear terms, conducted according to ethical principles and used in a constructive manner, but it must also be guided by principles that take into account every possible way northern communities can become involved in research activities. Mutual respect will be cultivated through partnerships and genuine consultations and will contribute to the advancement of all aspects of science in the North (Association of Canadian Universities for Northern Studies – ACUNS 2000). Similarly, it will be necessary to compile existing rules and principles and make sure that they ensure the equitable participation of Aboriginal communities in northern development.

Objective 32. Develop a framework for the regional management and assessment of the cumulative impacts of development in the North

Action 321: It is crucial that the methodology for, and definitions of, cumulative impacts are well understood and shared by the various stakeholders in the North.

To achieve this, a framework must be developed for the regional assessment of cumulative impacts of development in the North.

In addition, since environmental assessments are often based on fragmentary knowledge (i.e., based on economic aspects only), taking an inventory of, consolidating and identifying shortcomings in information at a regional level are also a prerequisite to planning new development.

Action 322: To encourage the conservation of ecosystem biodiversity, areas to be protected must be identified throughout the NEI territory based on regional characteristics.

Objective 33. Incorporate the concept of strategic environmental assessment in the decision-making process on development projects in Northern Quebec

Action 331: Strategic environmental assessment (SEA) is a systematic process for evaluating the potential environmental consequences of draft policies, plans, programs and proposals to ensure that these impacts are addressed from the very beginning of the decision-making process, on par with economic and social considerations. Since the NEI action plan for the Quebec region emphasizes working towards sustainable development, SEA is an invaluable tool that will provide decision makers with the information they need to make informed decisions when planning development activities.

Action 332: Cumulative effects refer to changes to the environment caused by development in combination with other past, present and future actions. An assessment of the cumulative effects of planned actions combined with an action plan for mitigating undesirable effects are crucial in order to at least mitigate disturbances to the northern environment. Some sectors in Northern Quebec are under pressure from development. It is recognized that a rigorous assessment must be carried out and that a clear, well-defined framework for managing the cumulative effects in these regions must be developed.

Although many elements of this framework are already in place and there have already been many initiatives incorporating the notion of cumulative effects, both in the North and in the rest of Canada, work must now be done to build on the experience and knowledge acquired from these projects[4] in order to better define a working framework and to identify and

[4] Other projects on cumulative effects have already been undertaken in the Northwest Territories, notably the West Kitikmeot/Slave Study, the Coppermine River Cumulative Effects Water Monitoring Program and the Mackenzie Valley Cumulative Effects Monitoring Program.

remedy any shortcomings that may exist. It is crucial to amass all the knowledge that has been acquired on different types of development in the North, while at the same time supporting efforts undertaken by partners.

Establishing such a framework should allow the cumulative environmental effects of current and future development projects in Northern Quebec to be well managed. Scientific and local knowledge must be taken into account and the environmental and socio-economic effects of development must be integrated.

Other initiatives in Canada may also provide a source of valuable information: Natural Resources Canada's initiative related to cumulative effects and mining, the Regional Sustainable Development Strategy for the Athabasca Oil Sands Area, which is being led by the Alberta government, and the Northern Ecosystem Initiative (AXYS Environmental Consulting Ltd, 2000).

Issue 4: Monitoring status and trends in northern ecosystems

Background

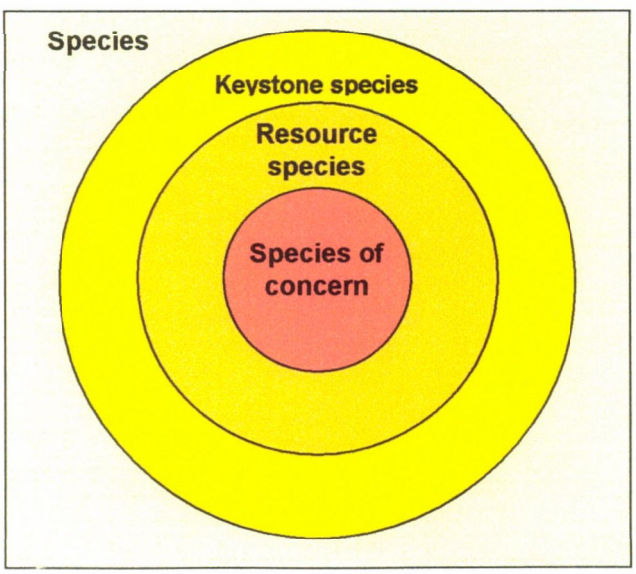
Northern ecosystems have been undergoing a number of observable changes. However, it is difficult to predict the duration, geographical extent and repercussions of these changes at the current time. Data acquisition and repeated observations of selected parameters will allow these changes to be better monitored and trends to be identified. The establishment of a monitoring network for northern ecosystems must be done in partnership to develop interactive databases for monitoring activities. Such networks also provide the opportunity to set up a warning system to prompt specific conservation measures and areas of research.

Although there is less biodiversity in northern ecosystems than elsewhere, the populations of the species that do occur in the North are often sizeable. For dozens of North America's species of migratory birds, a large percentage of their breeding and moulting grounds are found in Northern Quebec, as are the preferred habitats of numerous mammals and certain species of fish. Some sectors and zones have already been assigned special status by their designation as marine parks or protected areas. Although most northern ecosystems remain relatively untouched, Northern Quebec cannot escape the environmental effects of human activities. Elements of some ecosystems are already in obvious peril.

Inasmuch as biodiversity is an indicator of the health of an ecosystem, knowledge of the region and the establishment of key indicators will be indispensable preconditions to balanced development planning and natural resource management. In this context, an important parameter to be taken into account is the species. In the following table, the term "species" is associated with several different meanings. To understand the proposed actions, the following definitions should be taken into account:

- *Keystone species*: any plant or animal species characterizing a given habitat. In general, a keystone species contributes to the structure and composition of the ecosystem and to the different processes that it may engender.
- *Resource species*: any species of plant or animal used by Aboriginal or local communities in their traditional, subsistence, sport or commercial activities and any species that is guaranteed or reserved for them under agreements or treaties.
- *Species of concern*: designates any native plant or animal species that has been demonstrated to have conservation problems or that has shown a decline in an entire region or a significant part of the region it occupies.

Figure 5: Species concept



Summary table: Monitoring ecosystem status and trends

Issue	*Objectives*	*Actions*	*Deliverables/ Results*
4. Monitoring ecosystem status and trends	41. Organize the development of an integrated network for monitoring northern ecosystems.	411. Establish broad objectives and parameters for the integrated monitoring network.	411.1 Technical report on broad objectives and parameters for an integrated monitoring network.
		412. Identify, inventory, classify and prioritize wildlife habitats in Northern Quebec according to traditional knowledge, Aboriginal communities' needs and values and sport and recreational considerations (land, aquatic, estuary and marine environments).	412.1 Summary report based on main animal and plant species of interest to communities. 412.2 Maps/atlases of species of interest. 412.3 In the long term, study reports on: - Biodiversity - Habitats - Keystone species - resource species
		413. Define crucial and change-sensitive habitats used by species on which Aboriginal communities depend.	413.1 Database on crucial habitats for species such as caribou, waterfowl, polar bear, salmon, etc.
		414. Develop a set of environmental indicators and criteria to monitor and understand environmental trends or changes.	414.1 Criteria and indicators for environmental changes.
		415. Take regular inventories of keystone and resource species in selected habitats.	415.1 Reports on the inventory of keystone and resource species.
		416. Assess the health of resource species.	416.1 Study report on the health of resource species. 416.2 Database on the health of edible resource species.

			416.3 Quality criteria for the consumption of resource species.
		417. Carry out regular monitoring of species of concern.	417.1 Database on the species of concern.
		418. Ensure compliance with scientific research ethics in the North.	418.1 Simplified guide explaining rules and principles of ethical research in the North.
	42. Promote the establishment of a network to monitor and assess the status of northern ecosystems.	421. Institute, depending on local characteristics, a protocol for monitoring and assessing networks involving: • air and water quality • toxic substances and contaminants • biodiversity	421.1 Protocol that describes data gathering methods adapted to the local culture and evaluation criteria for each of the networks selected.
	43. Ensure sustainable harvesting of wildlife and plants.	431. Promote and support the development of mechanisms to allow Aboriginal agencies to participate in surveys to evaluate harvests (plants and wildlife).	431.1 Protocol for harvest assessment and information sharing. 431.2 Status report on harvesting by species or group of species. 431.3 Database on Aboriginal and non-native harvests. 431.4 Five-year follow-up assessment of harvesting. 431.5 Capacity-building program for Aboriginal communities.

Explanatory text: Monitoring ecosystem status and trends

Objective 41. Organize the development of an integrated network for monitoring northern ecosystems

Actions 411 to 415: To develop an efficient network for monitoring northern ecosystems, the first step is to ask questions about the fundamentals of an integrated network and determine the objectives (wildlife, plants, climate change, water, etc.) and parameters (species, GHGs, coliforms, etc.) for the network. Subsequently, an effort must be made to ensure that the network developed reflects these objectives and parameters. Obviously, the actions described in this integrated action plan are not sufficient to set up a monitoring network in Northern Quebec. By organizing the development of an integrated monitoring network, we mean initiating a project to develop such a network and the NEI does not pretend to be able to establish such a network on its own. Instead, partnerships must be forged with other organizations to achieve this goal.

Acquiring basic knowledge on northern ecosystems is essential for adopting suitable management and monitoring measures. A greater understanding of wildlife habitats and populations in Northern Quebec will allow us to more accurately determine objectives for the network.

In addition, the monitoring network must be based on not only scientific knowledge, but also traditional knowledge. In our research on ecosystems, by focusing our efforts on resource species—in other words, species identified as significant to Aboriginal groups (species used for traditional or subsistence activities as well as any species that are reserved or guaranteed to Aboriginal groups under the JBNQA and NEQA, for example)—we should be able to more quickly obtain an initial draft plan for monitoring northern ecosystems.

The establishment of criteria and indicators for the integrated monitoring network will allow changes (trends) in the environment to be monitored, understood and assessed.

Actions 416 and 417: Knowledge of the health of resource species (see Figure 6 below for a non-exhaustive list of such species in the NEI territory) is crucial, considering the sensitivity of the environment and the numerous stress factors affecting Quebec's northern ecosystems. The Northern Contaminants Program (NCP) has already set quality standards for game.

Figure 6: Partial list of resource species

Furbearing animals
Beaver
Otter
Lynx
Marten
Muskrat
Fox
Arctic fox
Mink

Small game
Ruffed Grouse
Spruce Grouse
Ptarmigan
Hare
Porcupine

Big game
Caribou
Moose
Black Bear
Polar Bear

Fish
Northern pike
Whitefish
Aureate
Sturgeon
Monkfish
Chub
Arctic char
Brook trout
Atlantic salmon
Salmon
Lake trout

Marine mammals
Beluga
Walrus
Seal

Waterfowl
Brant
Canada Goose
Ducks
Loons
Lesser Snow Goose

Action 418: There are currently a number of codes of ethics for scientific research. Awareness of the ethical principles of scientific research in Northern Quebec must be improved. One of these principles is that mutual respect will develop from meaningful consultation and partnership, and will help to advance northern scholarship of all sorts (Association of Canadian Universities for Northern Studies – ACUNS 2000).

Objective 42. Promote the establishment of a network to monitor and assess the status of northern ecosystems

Action 421: To ensure the effective implementation of the monitoring network, a protocol should be developed for monitoring and assessing the various networks, taking into account local communities and environmental characteristics.

Objective 43. Ensure sustainable harvesting of wildlife and plants

Action 431: Gathering and subsistence hunting are traditional activities of vital importance to Aboriginal communities in the North. The James Bay and Northern Quebec Agreement (JBNQA)[5] gives Aboriginal peoples priority with regard to harvesting through agreed-upon guaranteed harvest levels that neither put species in jeopardy nor reduce harvesting potential at other places on species' migratory routes.

Data on the Aboriginal harvest of migratory birds are urgently needed, since the only data on this subject are from the late 1970s (James Bay and Northern Quebec Native Harvesting Research Committee).

Some Aboriginal organizations already have methods for collecting harvesting data, particularly if they have an administrative agreement over a particular territory and the funding associated with it. Aboriginal organizations want to maintain control over their harvesting data. The NEI recommends an approach stressing the improvement, strengthening, maintenance and further development of existing methods of data collection. Aboriginal communities also wish to participate in monitoring wildlife populations. It is crucial to emphasize the creation and updating of databases. Such databases, belonging to individual communities, must be structured to facilitate the exchange of information and data between communities.

[5] JBNQA (Section 24): This section defines all the concepts related to conservation and co-management. Some regimes and mechanisms in the JBNQA take precedence over any other initiative involving Aboriginal harvests. Note that the Hunting, Fishing and Trapping Regime established under the agreement affects three of the four Aboriginal nations in the NEI territory.
Chapter 15 of the NEQA covers the hunting, fishing and trapping regime for the Naskapi, including the concept of priority harvesting by the Naskapi.

Issue 5: Access to environmental information for Northern Quebec

Background

Often scientific information and information obtained through traditional knowledge are not compiled and popularized for those who wish to use them. Aboriginal communities are aware that many scientists are carrying out research in the North, but feel they are rarely informed of the results once the work is over. Conversely, scientists working in this field have remarked that local Aboriginal peoples lack sufficient information on changes affecting northern ecosystems. In order to promote an adequate understanding of the various situations affecting the environment, it will be necessary not only to keep Aboriginal groups well informed, but also, more importantly, to promote training and raise awareness in Aboriginal communities, particularly among young people.

The appropriate use of local knowledge often allows a detailed picture to be obtained of certain local environmental situations that scientific research could not provide on its own. Some instances where local knowledge has been used show that it can help improve scientific research programs, provide baseline data for environmental assessments and ensure proper monitoring of development projects both while they are under way and after their completion.

Interpretation and communication methods differ depending on the groups of individuals involved. Scientists interpret results in writing according to established standards, thus facilitating communication and understanding throughout the entire academic community. Among Aboriginal people, the interpretation and presentation of findings is done differently. Unlike scientists, Aboriginal people interpret their results in the broader context of tradition, culture, spirituality and knowledge passed on by their ancestors. Traditional knowledge is transmitted by observation, direct experience and experimentation, and such transmission is usually governed by oral culture.

Throughout the consultation process with Aboriginal nations in Northern Quebec and during the NEI Steering Committee's workshop in Schefferville, Aboriginal groups expressed concerns about how traditional knowledge is perceived and might be used and interpreted in scientific studies. The traditional ecological knowledge of the Elders and other members of their community is all too often underestimated or poorly used.

These concerns give rise to four essential activities for ensuring access to environmental information in Northern Quebec: synthesis, popularization, dissemination and communication. Popularization requires that information be repeatedly reworked so that people without specialized knowledge can understand it. After popularizing the information, ways of disseminating it must be organized and communication must be enhanced among those involved.

Summary table: Access to environmental information for Northern Quebec

Issue	*Objectives*	*Actions*	*Deliverables/Results*
5. Access to environmental information for Northern Quebec	51. Promote the development of an integrated network for scientific information and local environmental knowledge.	511.Compile local knowledge about northern ecosystems.	511.1– *For Aboriginal communities and northern residents* A- Visual synthesis (written or video) B- Newspaper articles 511.2– *For the scientific community* A- Report on data acquisition methods, standards and guidelines B- Thematic workshops C- Training courses
		512. Develop a documentary base and factual database for local knowledge.	512.1 Qualitative and quantitative database. 512.2 Presentation of georeferenced data in a Geographic Information System (GIS).
		513. Make the liaison centre concept operational: • Compile scientific knowledge on NEI issues • Bring together the scientific and local knowledge databases, GIS representations and documents and reports on northern ecosystems • **Synthesize** scientific information • **Popularize** complex concepts • **Disseminate** information to the scientific and Aboriginal communities • **Communicate** newly acquired information • **Maintain** the centre	513.1 Creation of the **LICHEN**[6] liaison centre: • Integrated system for accessing databases, GIS representations and publications and reports (PDF) • Integrated network for compiling, synthesizing and popularizing information • Central point for acquiring, disseminating and communicating information
	52 Disseminate	521. Develop tools adapted	521.1– *For Aboriginal*

[6] **LICHEN**: Liaison and Information on Changes to Habitats and Ecosystems in the North

	information to northern communities.	for northerners.	*communities and northern residents* A- Dissemination tools adapted to local communities e.g.: videos, posters, audio materials, Web sites, etc.

Explanatory text: Access to environmental information for Northern Quebec

Objective 51. Promote the development of an integrated network for scientific information and local knowledge about the environment

Action 511: The purpose of this action is to compile information on northern ecosystems. As stated by the Working Group on the Canadian Information System for the Environment (CISE 2000), information on local knowledge will have to be assembled, analysed and interpreted by Aboriginal people according to certain standards and guidelines so as to create a multi-purpose product that the entire community can use. Work already completed by the Makivik Corporation as part of the Land Use and Ecological Knowledge Project of the Inuit of Nunavik is one practical application of local knowledge.

Action 512: Once local knowledge has been compiled, it will be important to develop tools that can be used by environmental workers. Data from local knowledge that cannot be georeferenced can be compiled in a qualitative database of documentary information, while georeferenced factual data can be put in a second, quantitative database. Once again, work done by the Makivik Corporation, and by Howell (Environment Canada's Ecological Monitoring and Assessment Network) and the Innu of Labrador (*Ashkui Project of the Innu Nation in Labrador),* are practical examples of how this sort of activity can be carried out.

Action 513: This action arose from discussions at the Schefferville workshop. The idea of creating the LICHEN centre (short for Liaison and Information on Changes to Habitats and Ecosystems in the North) was drafted into a proposal entitled *Community Empowerment in Action: Elaboration and experimentation of a strategy to promote and facilitate access to environmental knowledge* that will be financed by the NEI and managed by the INRS and the Cree Regional Authority (CRA).

The project team hopes to develop and implement a two-way access-to-information strategy accompanied by specific measures to lay the groundwork for a working centralized system for accessing scientific and traditional Aboriginal environmental knowledge, thus benefiting northern communities and everyone else working on environmental issues.

The project will help enhance northern communities' capacities in environmental and information management while improving communication among the various stakeholders and workers in this field. LICHEN could have a role to play in the *Centre de Ressources en Impacts et Adaptation au Climat et ses Changements* (CRIACC) project proposed by the Meteorological Service of Canada (MSC).

Sub-actions will have to be included in the creation of the LICHEN liaison centre and will contribute to making all databases that might be created

under this action plan available. Bringing together these databases will also allow us to have a visual representation of the georeferenced data through maps or atlases (Geographic Information System or GIS). The *Quebec–Labrador: from Sciences to Communities* proposal, funded by the NEI and carried out by the Cree Regional Authority, is an example of the work to be carried out as part of this activity.

Objective 52. Disseminate information to northern communities

Action 521: To keep Aboriginal groups well informed about environmental issues in the NEI territory, communication tools adapted to the different communities must be developed.

Appendix

Quebec Region NEI Steering Committee

In 1999, the Quebec Region developed a regional information and consultation strategy to encourage potential partners to join with EC–Quebec Region to reach a consensus on environmental priorities in the North and develop together a partnership plan based on the NEI's four main priorities (climate change, biodiversity, toxic substances and contaminants, and the impacts of development). During the regional consultations, stakeholders expressed a strong desire to actively participate in the regional management of the NEI.

Based on this feedback, the Quebec Region decided to establish a Regional Steering Committee for the NEI. The Regional Steering Committee is made up of representatives of 10 different organizations[7] concerned with Quebec's northern environment. The committee's mandate is to co-ordinate, facilitate and encourage regional co-operation among stakeholders in planning, managing and implementing environmental programs (at the provincial, federal and other levels) of interest to stakeholders in Northern Quebec under the NEI.

The Committee's objective is, first, to ensure the participation of partners in developing and implementing the NEI in the Quebec Region and, second, to act as a centre for information exchange and co-operation on environmental issues in Northern Quebec, in order to determine areas of action, priorities and regional objectives and ensure these objectives are met under the NEI.

Based on the NEI's vision, objectives and priorities, the Steering Committee has developed its own integrated action plan, which it will use as a roadmap and guide for future work under the second phase of the Northern Ecosystem Initiative.

[7] Cree Regional Authority (CRA); Kativik Regional Government (KRG); Nation Innu de Matimekush-Lac John; Naskapi Nation; Centre d'Études Nordiques (CEN); Groupe d'études Inuit et Circumpolaires (GÉTIC); Hydro-Québec; Société de la faune et des parcs du Québec; Department of Indian Affairs and Northern Development; Environment Canada

Brief description of mandates of member organizations of the Quebec Region NEI Steering Committee

♦ *Environment Canada – Quebec Region*

Environnement Canada Environment Canada

EC's activities and programs in Northern Quebec arise under laws of general application (Migratory Birds Convention Act, Canadian Environmental Protection Act, Canadian Environmental Assessment Act and Species at Risk Act), agreements (James Bay and Northern Quebec Agreement and Northeastern Quebec Agreement) and the committees stemming from these laws and agreements. EC's main programs include the Meteorological Service of Canada (studies and surveys on meteorological conditions), Canadian Wildlife Service (studies on migratory bird populations) and the Environmental Protection Branch.

Environment Canada is also represented on the following environmental committees created under the JBNQA:

- JBACE: James Bay Advisory Committee on the Environment
- KEAC: Kativik Environmental Advisory Committee
- HFTCC: Hunting, Fishing and Trapping Co-ordinating Committee.

♦ *Naskapi Nation of Kawawachikamach (NNK)*

NASKAPI NATION OF / NATION NASKAPI DE KAWAWACHIKAMACH
C.P. / P.O. Box 5111
KAWAWACHIKAMACH, Nouveau-Québec,
G0G 2Z0

The Naskapi are signatories to the Northeastern Quebec Agreement signed in 1978. Since 1982, they have lived in Kawawachikamach, located approximately 15 km from Schefferville, where the 800 or so residents have an area of 4,144 km^2 Category II land where they hunt, fish and trap.

The Naskapi Nation is managed by a band council operating under the Cree–Naskapi (of Quebec) Act. The council's responsibilities include:

- acting as the local government on Category IA-N land;
- managing Category IA-N land and its natural resources;
- regulating the use of buildings;
- controlling the Nation's finances;
- promoting community development;
- promoting and preserving Naskapi culture, values and traditions.

The Naskapi lived a nomadic life, depending almost exclusively on the caribou to survive; their movements were dictated by the migration of the herds. Beginning in 1956, they shared the Lac John reserve with the Montagnais (Innu) and, in 1972, both groups moved onto the Matimekush reserve. After the signing of the Northeastern Quebec Agreement in 1978, the Naskapi settled in Kawawachikamach in 1982. The land regime

established under the NEQA defines the extent of Naskapi territory and associated rights.

In 1996, the name "Naskapi Band of Quebec" was officially changed to "Naskapi Nation of Kawawachikamach (NNK)."

Under the Cree–Naskapi (of Quebec) Act, the Naskapi Band Council has the following responsibilities:

- acting as the local government for Category IA-N lands ;
- managing Category IA-N land and its natural resources;
- regulating the use of buildings;
- controlling the Nation's finances;
- promoting community development;
- promoting and preserving Naskapi culture, values and traditions.

The Nation also has a seat on the Hunting, Fishing and Trapping Co-ordinating Committee.

♦ *Nation Innu de Matimekush–Lac John (NIMLJ)*

Of the nine Innu communities in Q ebec, the Matimekush–Lac John band is the farthest north. The Innu moved to the outskirts of Schefferville in the 1950s, attracted by mining development. In 1968, Indian and Northern Affairs Canada granted the community the status of a self-governing band with its own band council.

Economic activity in the community of 772 people focuses on administration, trade, construction and crafts.

The Innu are not signatories to the JBNQA and NEQA agreements.

♦ *The Inuit of Quebec*

The roughly 9,000 Inuit of Nunavik live in 14 northern villages, which have municipal status and fall under the jurisdiction of the Quebec government.

The Inuit are represented on the Steering Committee by the Kativik Regional Government (KRG) and the Makivik Corporation. These two agencies were established pursuant to the signing of the James Bay and Northern Quebec Agreement (JBNQA).

The Kativik Regional Government is a non-ethnic body that acts as a supra-municipal government. It provides communities with technical and engineering services and, in particular, manages environmental and planning programs.

The KRG represents the Inuit on various environmental committees such as the Kativik Environmental Advisory Committee, Kativik Environmental Quality Commission and Kativik Environmental Review Panel.

The Makivik Corporation is an ethnic organization that represents and promotes Nunavik's interests. Its primary mission is to protect the integrity of Inuit rights and manage the compensation funds provided for in the JBNQA. It works to further the political, social and economic development of Nunavik.

The Makivik Corporation manages the Nunavik Research Centre, which carries out studies on wildlife and environmental issues. The corporation also represents the Inuit on the Hunting, Fishing and Trapping Co-ordinating Committee.

♦ *Eeyou Istchee (Cree)*

The 12,000 Cree of Northern Quebec live in nine communities, five of which are inside NEI territory; in addition, the traplines of two communities (Mistissini and Nemaska) partially overlap NEI territory. Local governments operate under the *Cree–Naskapi (of Quebec) Act.*

Under the James Bay and Northern Quebec Agreement (JBNQA), the Cree are represented by two bodies, the Grand Council of the Crees (Eeyou Istchee) and the Cree Regional Authority (CRA).

The Grand Council of the Crees (Eeyou Istchee) is a political body that ensures that the rights and interests of Crees in Quebec are protected.

The Cree Regional Authority (CRA) acts as a regional government, providing services to the nine Cree communities in various sectors, including the environment. The CRA participates on various environmental committees such as the James Bay Environmental Advisory Committee; the Hunting, Fishing and Trapping Coordinating Committee; Evaluating Committee; Provincial Review Committee and the federal Environmental Review Panel.

- ***Centre d'études nordiques (CÉN)***

Established in 1961, this interuniversity research centre is part of Laval University. The primary mandate of the northern studies centre is to study the natural ecosystems of Quebec's North. Areas of research include permafrost studies, shoreline stability, the effects of UVB radiation on lakes, forest ecology, caribou, Snow Geese and large subarctic lakes.

The centre has a research station at Kuujjuaraapik and six research laboratories working in the areas of dendrochronology, paleoecology, wildlife ecology, environmental telemetry, carbon 14 dating, remote sensing and climate change. It also has 72 climate stations scattered over Northern Quebec.

- ***Groupe d'études inuit et circumpolaires (GÉTIC)***

Established in 1987, GÉTIC is a multifaculty, multidisciplinary group based at Laval University. The main areas of activity of this Inuit and circumpolar studies research centre are social sciences and the humanities. It specializes in the study of Aboriginal populations in the North (arctic and subarctic environments north of the 55th parallel).

It is active on the local, national and international scenes. Areas of research include social cohesion and living conditions in the Arctic; sustainable development; and traditional Aboriginal knowledge in various fields, including the environment. The group's publications include reports, monographs, manuals and dictionaries.

- ***Indian and Northern Affairs Canada (INAC)***

Affaires indiennes et du Nord Canada / Indian and Northern Affairs Canada

INAC is responsible for delivering programs and services to Aboriginal people. In Northern Quebec, it is also called upon to carry out federal responsibilities arising under the James Bay and Northern Quebec Agreement (JBNQA) and the Northeastern Quebec Agreement (NEQA), signed respectively in 1975 and 1987 with the Cree, Inuit and Naskapi nations. It is also a member of the various environmental committees created under the JBNQA (JBACE, KEAC, HFTCC).

INAC is also represented on the NEI Steering Committee by the director of the Environment and Natural Resources Directorate.

- ***Hydro-Québec***

Hydro Québec

H dro-Québec is a Crown corporation established in 1944 by the Quebec government. Its goals are to supply energ and to carry out research and promotion work in th a a f energ , gv conversi , g conservation and all fields related to or associated with energy.

In the 1970s and 1980s, Hydro-Québec constructed and developed major hydro-electric projects in Northern Quebec. The La Grande complex provides roughly 15,000 MW of electricity transmitted through the distribution network to southern markets. It also supplies electrical power to northern communities.

In addition, since the commissioning of the La Grande complex, Hydro-Québec has conducted environmental studies in Northern Quebec, mainly on mercury and the environmental monitoring of the La Grande complex.

The corporation's other areas of research include ice cover, flow, water levels, water quality, riparian habitats and caribou habitat.

- ***Société de la Faune et des Parcs du Québec***

Société de la faune et des parcs Québec

The mandate of the Société de la faune et des parcs du Québec, Quebec's wildlife and parks corporation, is to ensure the conservation and development of wildlife and wildlife habitat, as well as the development and management of parks for conservation, educational and recreational purposes.

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