

**CUMULATIVE EFFECTS ASSESSMENTS  
IN THE  
INUVIALUIT SETTLEMENT REGION:  
CURRENT AND POTENTIAL CAPABILITY**

**JANUARY 2002**

PREPARED FOR  
**THE ENVIRONMENTAL IMPACT SCREENING COMMITTEE  
AND THE ENVIRONMENTAL IMPACT REVIEW BOARD**



PREPARED BY  
**KAVIK-AXYS INC.**



**KA019**

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**Prepared for:**  
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**Inuvik, NWT**

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## Preface

Applicants for authorizations to undertake activities in the Inuvialuit Settlement Region need to understand the priority that Inuvialuit place on environmental issues. Applicants also need to understand the importance of consulting with the Inuvialuit and their institutions to ensure that mitigation of project effects is to the highest standard.

The Inuvialuit Final Agreement (IFA), dated June 5, 1984, settled the land claim of the Inuvialuit in the Western Arctic Region of Canada. This agreement was “approved”, given effect and declared valid” by section 3(1) of the *Western Arctic (Inuvialuit) Claims Settlement Act*, being Chapter 24, 32-33, Elizabeth II of the Statutes of Canada.

The Act further provided in section 3(2) that the beneficiaries under the Agreement “shall have the rights, privileges and benefits set out in the Agreement”, and in section 4 that the provisions of the Act and the of the Agreement will prevail over any other law applying to the Territory in the event of inconsistency or conflict.

Being a land claims settlement within the meaning of section 35 of the *Constitution Act*, 1982, the Agreement is thereby affirmed as an existing aboriginal right. In consequence of these statutory provisions, the terms of the Agreement are given a preferred status over all other federal and territorial laws within the defined Inuvialuit Settlement Region in the Western Arctic.

The Inuvialuit negotiated the IFA to avoid repeating the experience of the late 1970s when they felt sidelined by the proponents of development in the Mackenzie Delta. As project descriptions come forward for renewed activity in the Inuvialuit Settlement Region, institutions established by the IFA will exercise their mandates in pursuit of the goals specified by the IFA, namely:

- to preserve Inuvialuit cultural identity and values within a changing northern society
- to enable Inuvialuit to be equal and meaningful participants in the northern and national economy and society
- to protect and preserve the Arctic wildlife, environment and biological productivity

Inuvialuit participate in development economically as well as through co-management of fish and wildlife and in review of project descriptions. The Inuvialuit have expressed their interest in having resource development proceed by consenting to the issuance of exploration rights by the Crown and by the Inuvialuit Regional Council. They are, however, equally determined to ensure that development will not occur at a long-term cost to the land that has sustained their well-being for generations. Wise stewardship of the land is central to the vision that Inuvialuit have for the future landscapes of the Inuvialuit Settlement Region.

*The most important thing that we have is our land and waters and because we have looked after them, they have supported us for many generations and if we continue to ensure they are cared for – they will support us for many generations to come.*

Billy Day 1993



## Authorship

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## Executive Summary

The purpose of this report is to review the tools available to the Environmental Impact Screening Committee (EISC) and the Environmental Impact Review Board (EIRB) to undertake cumulative environmental assessment and management of the effects of activities in the Inuvialuit Settlement Region (ISR).

Two sets of capabilities or “tools” are considered here: “process tools” that are available in the context of legislative mandate and capacity under the IFA, and “technical tools” available given the current information and understanding of resources in the ISR.

This review is undertaken with two cautions. First is the observation that no jurisdiction has yet achieved a satisfactory approach to dealing with cumulative effects assessment and management, and secondly, that an effective approach is all the more difficult where roles and responsibilities are divided across a range of participants. Objectives, therefore, need to be defined in a realistic way that is cognizant of constraints as well as opportunities. The objective for institutions of the IFA is framed as the following question:

*How can the institutions of the IFA promote evolution of the practice of cumulative effects assessment and management over the long term, while continuing to carry out effectively the mandate set out by the IFA?*

The analysis of “process tools” distinguishes tools for cumulative effects assessment, which is largely the province of the EISC and EIRB, from those for cumulative effects management over which the co-management institutions have more direct control. The conclusions emphasize the importance for each IFA institution to act within the mandate established by the IFA in the interest of maintaining credibility and influence in government decision processes in the long run.

The review of technical tools concludes that there is a wide array of tools available in the ISR to support the assessment and management of cumulative effects. Work undertaken by co-management institutions, for example, on Community Conservation Plans provides a stronger basis for understanding conservation priorities in ISR than is available for many other regions in the country. Further work is needed on these and other technical tools, which should be discussed to improve their usefulness in assessment processes for specific projects and for managing project contributions to environmental effects, cumulative or otherwise.





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## Abbreviations

CC	Community Corporation
CCP	community conservation plan
CEA	cumulative effects assessment
CEAA	<i>Canadian Environmental Assessment Act</i>
CEAM	cumulative effects assessment and management
CEMA	Cumulative Effects Management Association
COGOA	<i>Canada Oil and Gas Operations Act</i>
CSR	Comprehensive Study Report
CWS	Canadian Wildlife Service
DF	disturbance factor
DFO	Department of Fisheries and Oceans
DIAND	Department of Indian Affairs and Northern Development
EIA	environmental impact assessment
EIRB	Environmental Impact Review Board
EIS	environmental impact statement
EISC	Environmental Impact Screening Committee
EISRP	environmental impact screening and review process
EL	exploration license
ELC	Ecological Land Classification
EMS	environmental management system
ESRF	Environmental Studies Research Fund
FJMC	Fisheries Joint Management Committee
GIS	geographic information system
GNWT	Government of the Northwest Territories
HTC	Hunters' and Trappers' Committees
IBP	International Biophysical Programme
IFA	<i>Inuvialuit Final Agreement</i>
IGC	Inuvialuit Game Council
ISR	Inuvialuit Settlement Region
ILA	Inuvialuit Land Administration
IRC	Inuvialuit Regional Corporation
IRM	Integrated Resource Management
IRRCMP	Inuvialuit Renewable Resource Conservation and Management Plan
IUCN	International Union for the Conservation of Nature
MOU	Memorandum of Understanding
NEB	National Energy Board
NRTEE	National Round Table on the Environment and Economy
NWT	Northwest Territories
OGP	Operating Guidelines and Procedures
PCBTC	Porcupine Caribou Board Technical Committee
RA	responsible authority
RSDS	Regional Sustainable Development Strategy
RWED	Resources, Wildlife and Economic Development
VEC	valued ecosystem component
WMAC (NWT or North Slope)	Wildlife Management Advisory Council
ZOI	zone of influence



# **1 Introduction**

## **1.1 Purpose**

The purpose of this report is to review the various tools available to the institutions of the IFA to assess and manage the cumulative environmental effects of multiple activities proposed for the Inuvialuit Settlement Region (ISR).

The report discusses the process tools and the technical tools available to certain of the institutions established by the IFA to influence cumulative effects assessment and management. Because the responsibilities and capacities for these functions are widely dispersed across government institutions and agencies as well as institutions of the IFA, there is no imminent prospect of a fully integrated approach to cumulative effects. Nevertheless, there is progress that can be made on various fronts, and the purpose of this report is to consider these opportunities.

## **1.2 How to Use this Report**

This report considers the interests of a wide range of participants in environmental assessment processes in the ISR. The context for this interest is discussed in Section 2. Section 3 discusses the legislative and administrative context in the ISR.

Section 4 considers “process tools” available given the legislative mandate conferred by the IFA, and these are categorized by institution.

The technical tools described in Section 5 are those developed by co-management institutions together with government agencies. These tools advise assessment processes, but have greater potential for influencing management.



## 2 Cumulative Effects Issues in the Inuvialuit Settlement Region

The development of a balanced economy will be vital to the quality of life in the ISR in the years to come. The aspirations of the region's people will be met if natural resource development is balanced through effective management of cumulative effects as part of a coordinated policy framework (NRTEE 2001, *Inuvialuit Renewable Resource Conservation and Management Plan* 1988, IUCN 1993). While there is renewed interest in the jobs and revenue associated with developing the ISR's hydrocarbon reserves, there is also concern about potential cumulative effects from all types of human activity.

The projects that are selected to proceed will produce effects on the environment. Over time, a pattern of development will emerge and the intensity of human activity in the region will increase. Local effects will start interacting in a cumulative way and impacts on the environment will extend across parts of the region.

The emerging pattern of development will occur in an area where the subsistence economy is *as important* as the wage economy. People in the ISR rely on country foods not just for social, cultural and nutritional reasons but also because they derive a fundamental part of their identity from the time that they spend on the land "re-creating" themselves. Most people in the region want to see a future landscape that affords them the opportunity to choose between participating in the wage economy, the subsistence economy or to seek a balance in their lives between the two.

People are concerned about the impacts of individual projects as well as cumulative effects from multiple projects. They are also concerned about new trails and roads that may increase harvesting pressures in traditional areas. Hunters in spring camps welcome the change in diet from caribou, moose and fish to the fat-rich diets of the returning geese. Social ties are renewed in camps and the culture of sharing is reinforced with gifts of meat when the hunters and their families return to their home communities. Similar positive social forces occur during summer whaling and fall hunts for caribou and moose.

Industrial developments can affect traditional lifestyles if they change the distribution, abundance or productivity of the renewable resources that are important to the subsistence economy. Industrial development can also affect the quality of life of individuals while they are spending time on the land. Ideally, resource extraction activities are separated in space and time from traditional camps and hunting, fishing, whaling and trapping activities so that evidence of industrial activity does not intrude upon or displace these activities. Complete separation may not be possible however and that raises the question of how much evidence or effect of development is tolerable or acceptable. People's tolerance to the evidence of industrial development and its associated access varies among individuals and cultures; hunters and fishermen from outside the ISR who are paying guides and outfitters to take them into pristine environments are particularly sensitive.

Industrial activity becomes more noticeable as its extent increases; it may be noticeable first as a reflection of light on distant clouds at night, then as air traffic and then as infrastructure on the horizon and so on (IUCN 1993). The application of state-of-the-art mitigation techniques such as task lighting (while not compromising safety) can significantly reduce the potential effects that can be associated with developments.



It is not possible to forecast the pattern of potential development in the ISR with accuracy because of uncertainty associated with the definition of the underlying geology and with the markets. However, the potential for development of the gas reserves that lie beneath the Mackenzie Delta and the adjacent areas of the Beaufort Sea is significant. The following summarizes future possibilities (from KAVIK-AXYS 2001a).

Most of the area has been leased and is the subject of intensive exploration. In 1999, four exploration leases (EL) were issued for the Mackenzie Delta Region at a bid price of \$183 million. The Year 2000 call for bids netted nearly half a billion dollars in work commitments on nine new ELs.

The first phase of Delta gas development is likely to focus on about 6 tcf of natural gas in three fields: Imperial Oil's Taglu field on Richards Island, Gulf Canada's Parsons Lake northeast of Inuvik and Shell's Niglintgak discovery. There are a variety of ways that gas from these fields could be routed to market, with gas production and gas plant at each of the field. The development of such fields will require the construction of gravel roads and wellpads, and elevated or buried pipelines. Supporting facilities include processing plants, waste-handling facilities, power plants, gravel mine sites and base camps. These facilities may be in place for more than twenty years.

The Mackenzie Delta will likely see a major increase in winter seismic work. As much as 3000 km of 2D seismic and 1000 sq km of 3D seismic are planned for both Crown and Inuvialuit lands. The first new exploratory well to be drilled will be the Petro-Canada well at Kurk. In addition to exploration lands, 53 significant discoveries have been made in the Mackenzie Delta Area and are held under significant discovery licenses. As exploration momentum increases, it is anticipated that the delineation of existing discoveries will further increase activity. It is assumed that this will result in a major increase in drilling next year. Based on well commitments for the various ELs, a drilling peak is expected in the winter of 2004/2005. A conservative estimate suggests that more than 30 exploratory wells may be drilled between winter 2002 and 2005. Discoveries will almost certainly spur additional drilling on high-potential areas on the ELs; therefore, this number is probably conservative.

Rig demands for this development scenario will be high. If there is one well per rig per season, then four to five rigs will be needed. Drilling is unlikely to be evenly spread so demand for rigs in 2003–2005 is likely to be very high. Rig availability may be the limiting factor in the amount of exploratory drilling that could take place.

The original peoples of the ISR have a unique opportunity to move forward with development of non-renewable resources while minimizing adverse cumulative effects on the environment. The Inuvialuit have become meaningful participants in the wise stewardship of natural resources in a way that has captured the attention of the global conservation community.

### 3 Legislative Context

Development of an appropriate approach to cumulative effects assessment and management must first consider the legislative and administrative context in the ISR. This context determines the mandate and authority for the various participants in environmental assessment and therefore the range of options available.

The purpose of this section is to highlight the aspects of existing arrangements relevant to cumulative effects assessment and management (CEAM) that create constraints and opportunities for the institutions of the *Inuvialuit Final Agreement* (IFA). Rather than review information on processes that may be familiar to the reader, summary charts and references have been noted in Appendix 2.

#### 3.1 Existing Arrangements Relevant to CEAM

**There are multiple participants with roles and/or responsibilities for environmental assessment in the ISR**

The *Inuvialuit Final Agreement* of 1984 defines the interest of Inuvialuit in decision-making on developments within the ISR, and sets out the terms for the engagement of Inuvialuit in such decisions. Further to these arrangements, laws of general application, such as the *Canadian Environmental Assessment Act* (CEAA), define roles and responsibilities for federal government authorities and some territorial authorities in environmental assessment and management of resources within the ISR. As a result, a large number of institutions, departments and agencies participate in regulating environmental assessment and resource management.

While these arrangements have important benefits for ensuring that Inuvialuit and other interests are consulted in decision making, they do not make assessing and managing cumulative effects any easier. In the ISR (as in every other jurisdiction in Canada), existing institutions, jurisdictions and procedures have been developed to deal with assessment and management of the effects of individual projects, or the management of particular species or areas.

The experience across the country is that the challenges presented by cumulative effects assessment and management exceed the capacity of existing institutions and processes to deal with them, and that the distribution of roles and responsibilities among multiple parties compounds the task.

#### **The Inuvialuit Final Agreement Takes Precedence**

The *Inuvialuit Final Agreement* is a land claim agreement under subsection 35(3) of the *Constitution Act* (1982), and takes precedence on all matters that it covers. To the extent of any inconsistency between the IFA and any other federal, territorial or municipal laws, the IFA prevails to the extent of the inconsistency.

Section 11 of the IFA sets out a formal environmental impact screening and review process (EISRP) to examine proposed developments that are subject to screening, and defines the roles and mandates of the EISC (Environmental Impact Screening Committee) and the EIRB (Environmental Impact Review Board) respectively for environmental screening and review.

The IFA requires that unless and until the provisions of Section 11 have been met, no licence or approval may be issued that would enable the proposed development to proceed (s. 11 (31)).

The IFA identifies three goals:

1. to preserve Inuvialuit cultural identity and values within a changing northern society
2. to enable Inuvialuit to be equal and meaningful participants in the northern and national economies and societies
3. to protect and preserve the Arctic wildlife, environment and biological productivity

**The IFA entails different roles and mandates among Inuvialuit co-management institutions and the EISC and EIRB**

The IFA asserts quite different roles and responsibilities for each institution, and is not prescriptive about the way in which the various institutions resolve issues.

For environmental assessment — specifically for environmental screening and review — the authority and accountability is clearly vested in the EISC and EIRB. The results of the work of the EISC and EIRB feed into the environmental assessment process of government, which then influences management of project and cumulative effects.

This is quite different from the role of the other IFA bodies, which have a more direct contribution to environmental management. These bodies also perform functions that affect the quality of the information that can be used in environmental assessment.

It is important for the approach to assessment and management of cumulative effects to recognize the differences in the roles and capacities among IFA institutions, so that their resources are put to most effective use.

**The essential responsibility of the EISC and EIRB is to fulfil the requirements of the IFA**

In simple terms, the EISC and EIRB must produce determinations/decisions for individual proposed developments based on evaluation of the information before them, and a collective (panel) assessment of the “significant negative environmental effects” or significant negative impacts on present or future wildlife harvesting that the development could cause.

**The IFA requires the EISC and EIRB to perform their functions “expeditiously”**

The IFA requires that upon receipt of a project description, the EISC “shall expeditiously determine if the proposed development could have a significant negative environmental impact” (s. 11 (13)). Through development of procedures and diligent administration, the EISC has achieved a record of dealing expeditiously with screenings; screening typically occurs within fifty days of receipt of a completed submission.

In the case of the EIRB, the IFA requires the EIRB to review expeditiously all projects. To date, most applications have been dealt with fully by the EISC without further referral to the EIRB.

**The IFA does not define “significant negative environmental effects” but allows the EISC and EIRB to define them at their discretion**

The definitions section of the IFA does not elaborate upon “significance” or “environmental”. Some indication is given in the goals (IFA s. 1(c), s. 13(1)(a), s. 13(1)(b)), but the IFA allows the EISC and EIRB to develop the rules and procedures

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that they require to fulfil their functions under the IFA. The definition accepted by the EISC is set out in Appendix B of the *EISC Operating Guidelines and Procedures*. The definition of environment used by the EIRB is set out in the glossary of the *EIRB Operating Procedures*.

**There is no explicit requirement under the IFA regarding cumulative environmental effects. The requirements for cumulative effects assessment and for making decisions based on cumulative effects are discretionary on the part of the EISC and EIRB**

To the extent that proponents are required to deal with cumulative effects, it is through the stipulations of the procedures and guidelines of the EISC and EIRB, as developed and adapted by those bodies. These procedures and guidelines are periodically revised.

At present, the EISC requirements regarding cumulative effects are contained in the *EISC Operating Guidelines and Procedures*, including:

- The requirement (s. 11) that proponents in their Project Description **“identify and assess the cumulative effects of the proposed development and other activities in the area”**
- The requirement (s. 4.4(6)) that **“proponents are expected to identify and assess the cumulative effects of the proposed development and other activities in the area to the best of their ability”**
- In Appendix D, one of the questions that the EISC will consider when coming to a decision on the potential for “significant negative environmental effects”, is No. 10 **“what are the cumulative effects of the proposed project?”**

Included in the list of factors in Appendix D are two factors regarding community conservation plans (CCPs). The EISC deliberations take into consideration whether there is a conflict between the development and Inuvialuit CCPs and whether the proposed development is in category C, D, or E.

The requirements of the EIRB are defined in the EIRB’s *Operating Procedures*, similar to those of CEAA, in the interest of improving the suitability of the EIRB review process as a substitute for a CEAA panel review:

- S. 10 sets out the requirements for the environmental impact statement (EIS) prepared by the proponent, including 10.2.1(c), information on **“the nature, significance and uncertainties concerning the potential environmental effects of the alternatives, (including cumulative effects)”**. (“alternatives” refers to reasonable alternative means of achieving the purpose, from s. 10.2.1(b)).
- Under 14.3.2(e), every review by the EIRB shall include consideration of (in addition to other factors), **“the environmental effects of the development, including the environmental effects of malfunctions or accidents that may occur in connection with the development and any cumulative environmental effects that are likely to result from the development in combination with other developments or activities that have been or will be carried out.”**
- Under 14.3.2(i), in the event that the review is a substitution for a CEAA panel review, the EIRB Panel **“may consider any other matter relevant to the assessment, that the Minister, after consulting with the EIRB and the regulatory authority, may require to be considered.”**

### 3.2 Relationship of Screening and Review to CEAA and Subsequent Regulatory Processes

#### **The *Canadian Environmental Assessment Act* (CEAA) applies fully in the ISR**

Environmental assessment of projects in the ISR is complicated by the application of CEAA (implemented in 1995), which has been superimposed upon the arrangements under the IFA. Under s. 11(32) the IFA does not restrict the power of the government to carry out environmental impact assessment and review under the laws and policies of Canada.

For all but the most minor activities, developments on both Crown and Inuvialuit owned lands in the ISR are subject to the requirements of CEAA, in addition to whatever requirements must be met pursuant to the IFA. There are a large number of triggers under the CEAA Law List and Inclusion List for northern activities, capturing many activities that would not be subject to CEAA “south of 60”. There is also potential for more triggers to be added, for example when species at risk legislation is passed and implemented.

#### **All oil and gas activities in the ISR will be subject to both CEAA and the IFA**

In relation to oil and gas activities, currently the main source of development applications in the ISR, no activities may be undertaken in the NWT without first obtaining authorization from the National Energy Board (NEB) pursuant to the *Canada Oil and Gas Operations Act* (COGOA). As a consequence, all oil and gas activities proposed for the ISR will be required to meet both the requirements of CEAA and of the EISRP. This will be true for oil and gas activities in the ISR whether on Crown lands or on Inuvialuit-owned lands.

#### **The EISC determination is advisory in subsequent environmental assessment and regulation**

While it is necessary that IFA requirements be met (in that developments that are subject to screening are in fact screened, and if necessary, reviewed before an authorization may be issued), the outcome of screening or review is not conclusive. Neither the EISC nor EIRB has final decision-making authority either on whether the project may proceed, or on what terms or conditions are in fact attached to an authorization.

More precisely, in the case of the EISC, a determination under s. 11(13(a)) is advisory; i.e., a determination that the development will have no significant negative environmental impact and may proceed without further review under the IFA. The IFA requires that the outcome of the determination be communicated in writing to the authority competent to authorize the development, whether that authority is a department or agency of government, or in the case of activities on Inuvialuit owned lands, the Inuvialuit Land Administration (ILA). The form that the determination takes is a simple letter to the authority advising which of the options (a, b or c) has been arrived at by the EISC. There are no recommendations for terms and conditions that ought to be appended to authorizations; however, the EISC may attach to the letter communications from other reviewers that refer to appropriate mitigation measures.

In current practice, the responsible authority (RA) under CEAA takes the EISC screening determination into account in coming to its own screening decision, and may accept the EISC determination as satisfying its screening requirements. Nevertheless, the RA retains the responsibility for coming to a screening decision under CEAA. If the proposed development does proceed to the regulatory stage, then the EISC determination is taken

into account in the regulator's consideration of the project, but the regulator has the final say on whether or not to authorize the development and on what terms and conditions shall be attached to that authorization.

In instances in which the EISC determination is pursuant to s. 11(13)(b) or s. 11(13)(c), the function of the EISC is not advisory, but entails further action under the IFA. If the EISC decides the project could have significant negative environmental impact, the project is then subject to assessment and review under the IFA, either by the EIRB or by another review authority (s. 11(15) and s. 11(16)). Alternatively, the EISC may determine that the proposal has deficiencies that warrant a termination of consideration, and that a new project description must be submitted. In either of these cases, further action is required before the requirements of the IFA are discharged and before the project may proceed to regulatory authorization.

#### **The EIRB decision includes recommendations for mitigation**

In the case of the EIRB, the IFA charges the EIRB with reviewing all projects referred to it by the EISC. On the basis of the evidence and information before it, the EIRB must recommend to the government authority competent to authorize the development whether or not the development should proceed, and if so, what terms and conditions should be applied by the appropriate regulatory authority, including mitigative and remedial measures, appropriate monitoring requirements and an estimate of potential liability of the developer. The IFA also enables the EIRB panel to recommend that the development be subject to further assessment and review.

Upon receipt of the recommendations of the EIRB, the government authority is required to consider, among other factors, the recommendations of the EIRB and decide whether or not the development should proceed and, if so, on what terms and conditions. If the EIRB recommendation is for further review, it is up to the government authority to decide whether or not further review should be undertaken, and on what terms and with what information the review should proceed. S. 11(29) sets a 30 day time limit for the government authority to give reasons for varying from the EIRB's recommendations.

These stipulations increase the force of the recommendations made by the EIRB to the authority, and require that serious consideration be given to the advice of the EIRB. There is also an opportunity for the role of the EIRB to be enhanced in cases of substitution for a panel review process under CEAA. Even as a substitute panel under CEAA the impact of the panel decision and recommendations is still advisory in nature.

#### **The ability of the EISC or EIRB to influence the decisions of the RAs under CEAA, of other regulators, or of the ILA is not assured**

The EIRSP processes are not determinative, but advisory. Ultimately the accountability for the decision rests with the government authority (i.e., the Crown) for decisions on Crown lands, or the ILA for decisions within its mandate. When used as intended, the determinations/decisions produced by the EISRP should have substantial weight in the government's considerations; however, it is up to the Crown and its agencies to come to their own conclusions on the balance of the full range of factors before them. Similarly, the advice of the EISC and EIRB is taken into account by the ILA commission decision on whether to authorize an activity and under what terms and conditions.

#### **The impact of the advice from EISC and EIRB will be determined in the long run by the credibility of the EISC or EIRB, and the quality and reliability of their decisions**

What determines the extent to which the determinations/decisions of the EISC/EIRB prevail in the final decision of the Crown?

Obviously, the answer varies with any particular project in a particular context. However, in the long term, the weight given to advice from an environmental screening/review body in a public government decision ought to turn on the perceptions of the legitimacy and fairness of process, soundness of consideration, reasonableness of conclusions, and conformity with sound principles of public policy, accountabilities and mandates.

The implication for the EISC and EIRB is that the force of the determinations, decisions, and recommendations will be determined in the long run by their credibility and perceptions of the quality and reliability both of processes and outcomes.

**There are opportunities in legislation for coordination between CEAA and IFA environmental screening, review and assessment processes**

If a proposed development triggers CEAA, then projects subject to screening under the IFA must meet both CEAA and IFA requirements. Various options are available under CEAA for coordinating its processes with screening and review processes under the IFA. There remains a requirement for RAs to ensure that the requirements under CEAA, including those for cumulative effects assessment, are met before authorizations or actions are taken that allow the project to proceed. As well, while an RA may delegate the preparation of a comprehensive study report (CSR) or a screening report, it may not delegate the responsibility to come to a decision based on such reports.

The outcome of the EISC determination or EIRB review may be an input to any level of environmental assessment (EA) under CEAA.

As is the case with the IFA EISRP processes, EA processes under CEAA provide information for the decision-making processes and regulatory authorization process, but decisions are advisory, not determinative. Even when the decision maker (the RA, Minister or cabinet, depending on the circumstances) decides that a project can proceed, this decision does not assure subsequent authorization: a positive EA outcome merely allows the project to proceed to regulatory review as required given the nature of the activity and pursuant to existing legislation and regulation.

## 4 Process Tools

### 4.1 Opportunities and Constraints

The terms of the IFA assure for the EISC (and the EIRB if a referral is made to it) a role and a voice in governmental decision-making on developments that may affect the ISR. At the same time, the IFA constrains this role, and sets limits on the tools available to the EISC and EIRB to influence government authorization decisions. The IFA requires that the EISRP be dealt with before the government makes a decision, but does not require that the determinations, decisions or recommendations be accepted or implemented, either in the environmental assessment stage or in subsequent regulatory processes.

The resources available to the EISC and EIRB are also constrained. At present, the EISC and EIRB have limited staff, responsible for a wide range of coordinative and administrative tasks.

Nevertheless, the EISC and EIRB are in a strong and unique position to evaluate development proposals and to influence authorization processes. This capacity to influence comes only partly from specific legal requirements under the IFA. More important is the authority of the IFA, the respect for the IFA as a land claim settlement agreement, and the respect that the EISC and EIRB have earned over the years as competent and serious assessors.

A basic premise of this report is that the respect and credibility of the EISC and EIRB are its greatest strengths. The force of the determinations, decisions and recommendations of the EISC and EIRB to influence government decision-making will depend in the long run on the credibility of these institutions and the quality of their decisions. In general terms, the importance of maintaining authority and credibility in the long run recommends the following principles:

- Determinations and decisions need to meet a high standard of consistency, neutrality, fairness of process, soundness of analysis, and reasonableness of conclusions.
- Actions taken must be fully in keeping with the accountability and mandate as set out in the IFA. In the long run, the strength and authority of the IFA is the most vital asset to the ISR.
- Care needs to be taken in defining requirements, not only for the proponent, but also for the EISC and EIRB. For example, if the task (of assessing cumulative effects) is defined in such a way that it is beyond the capacity, resources or mandate of the EISC/EIRB, the long-term ability of the EISC/EIRB to influence decisions will be impaired.

The following lists the mandate and functions of the EISC, EIRB and co-management institutions under the IFA.

### 4.2 Mandate of IFA Institutions

Table 4-1 lists the mandate and essential functions of the environmental review and co-management institutions of the IFA.



**Table 4-1 Mandate and Functions**

<b>IFA Screening and Review Bodies</b>
<p><i>Environmental Impact Screening Committee</i></p> <ul style="list-style-type: none"> <li>• Responsible for expeditiously conducting screening, as defined by IFA s. 11. The IFA defines the screening function in relation to a specific development proposal.</li> <li>• The requirements of IFA s. 11 must be dealt with before government may make decisions to allow proposed developments to proceed (IFA s. 11(31))</li> <li>• Discretion in definition of environmental effect, including definition of cumulative environmental effect</li> <li>• Discretion in the identification of criteria for significance</li> <li>• Discretion to establish procedures to ensure reasonable and expeditious consideration of applications, including information requirements for the project description</li> <li>• Screening determination has a persuasive force with proponents. Risk of a decision under (b) referral, or (c) deficiency implies possibility of delay and additional costs               <ul style="list-style-type: none"> <li>• contacts sources for comment on the project description to assist in determination from Appendix D of EISC OGP: IGC, HTC, WMAC (NWT and North Slope), FJMC, and government departments (e.g., CWS, DFO, RWED)</li> <li>• consults Community Conservation Plans</li> <li>• issues letter to competent authority</li> </ul> </li> <li>• EISC may take measures to inform and educate its members on processes, activities, and VECs as required</li> </ul>
<p><i>Environmental Impact Review Board</i></p> <p>The EIRB is required to review expeditiously all projects referred to it and on the basis of the evidence and information before it recommends:</p> <ul style="list-style-type: none"> <li>• Whether or not the project should proceed</li> <li>• Terms and conditions, mitigation measures, monitoring and follow-up, in relation to the specific project application under review</li> <li>• Whether further review should be required</li> <li>• An estimate of potential liability of developer</li> </ul> <p>Also, there is:</p> <ul style="list-style-type: none"> <li>• a requirement for the competent authority to whom a decision is communicated to give reasons in writing for not accepting such a recommendation</li> <li>• discretion in definition of environmental effect, including the definition of cumulative environmental effect</li> <li>• discretion to establish procedures, including information requirements for the environmental impact statement</li> <li>• a mandate defined in relation to a specific development proposal</li> <li>• a review/decision process that is persuasive with proponents due to the influence in government decisions, risk of further review, and effect of estimate of potential liability</li> </ul>

**Table 4-1 Mandate and Functions (Cont'd)**

<i>Environmental Impact Review Board (Cont'd)</i>
<ul style="list-style-type: none"> <li>• capacity to call for class assessment prior to initiating review of a specific development proposal, which could provide a basis for general policies about similar developments</li> <li>• capacity to call for special investigation into relevant issues</li> <li>• capacity to enter into agreements with other bodies on matters of procedure</li> <li>• capacity to hire a technical advisor</li> <li>• capacity to convene a workshop to assist the Board in its review</li> </ul>
<b>Other Inuvialuit Co-management Institutions</b>
<i>Wildlife Management Advisory Council (WMAC, NWT)</i>
<ul style="list-style-type: none"> <li>• Advises ministers on wildlife legislation, policy and management</li> <li>• Maintains <i>Inuvialuit Renewable Resource Conservation and Management Plan (RRCMP)</i> (1988)</li> <li>• Works with communities on conservation plans</li> <li>• Supports research, including if it so decides matters important to cumulative effects assessment and management</li> <li>• Advises wildlife management boards and EISC/EIRB on wildlife issues</li> <li>• Recommends quotas for migratory game (e.g., caribou), creating a direct management role through setting of quotas that take into account cumulative stressors</li> <li>• Manages subsistence harvest</li> <li>• Participates in development of species management plans, which may contain advice for proponents on how to minimize impacts, as well as information for use in screening/review</li> </ul>
<i>Wildlife Management Advisory Council (WMAC, North Slope)</i>
<ul style="list-style-type: none"> <li>• Advises Ministers on policy and management</li> <li>• Role in parks management</li> <li>• Develops the <i>North Slope Conservation and Management Plan</i>, an important source of information on data and priorities</li> <li>• Supports research, including, if it so decides, research on matters with cumulative effects concerns</li> </ul>
<i>Fisheries Joint Management Committee (FJMC)</i>
<ul style="list-style-type: none"> <li>• Advises Minister of Department of Fisheries and Oceans (DFO) on policy and management</li> <li>• Sets harvesting quotas for fish and marine mammals; i.e., a direct management role</li> <li>• Sponsors research, including if it so decides, matters related to cumulative effects</li> <li>• Manages public registration system for fishing on Inuvialuit owned lands</li> <li>• Participates in development of species management plans, which can provide information and guidance for screening/review</li> </ul>

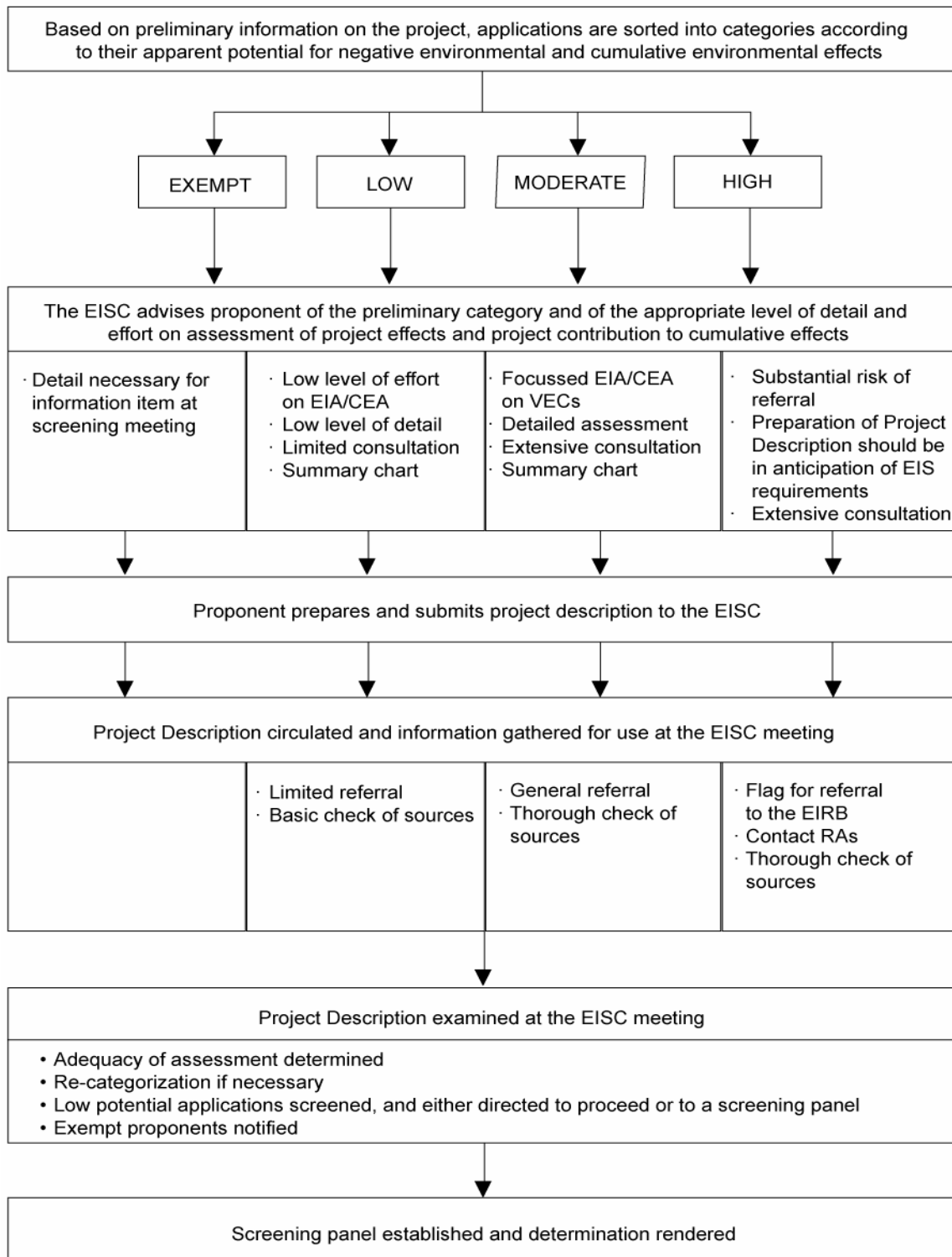
**Table 4-1 Mandate and Functions (Cont'd)**

<b>Inuvialuit Institutions</b>
<p><i>Inuvialuit Game Council (IGC)</i></p> <ul style="list-style-type: none"> <li>• Represents collective Inuvialuit interest in wildlife</li> <li>• Appoints Inuvialuit members to EISC, WMAC, FJMC, and other bodies considering interests of wildlife and environment in the ISR</li> <li>• Through WMAC, advice to government on policy, administration, legislation, and international negotiation positions</li> <li>• Provides comments to EISC and EIRB on development proposals in relation to cumulative effects assessment and management</li> <li>• Assigns community hunting areas</li> <li>• Allocates Inuvialuit quotas</li> <li>• Assists WMAC on request</li> <li>• Enters harvester claim resolution agreements</li> </ul>
<p><i>Hunters' and Trappers' Committees (HTCs)</i></p> <ul style="list-style-type: none"> <li>• For community planning areas</li> <li>• Advises IGC on local wildlife matters</li> <li>• Sub-allocates quotas</li> <li>• Sets bylaws regarding exercise of certain preferential harvesting rights</li> <li>• Reviews development proposals and comment to EISC, providing a critical source of information on wildlife matters within planning area</li> <li>• Participates in development of community conservation plans, including conservation priorities in the planning area</li> <li>• Advises ILA (through IGC) on whether project could have significant negative impact on wildlife harvesting</li> </ul>

**4.3 Pre-screening**

The EISC could consider “pre-screening”, in which the secretary, in consultation with the chair of the EISC, sorts applications according to the apparent potential for environmental impacts, including cumulative effects. This sorting does not prejudice in any way the outcome of the screening. Categorizations can be changed upon closer examination of the application (see Figure 4-1).

**Figure 4-1 EISC Pre-screening Process**



## 4.4 Tools to Advance CEAM

The risk of damage from cumulative environmental effects of multiple activities is a matter of acute public concern. Members of the EISC and the EIRB, other Inuvialuit institutions, and Inuvialuit and non-Inuvialuit residents of the ISR want to ensure that such effects are anticipated, managed and monitored to prevent damage.

There is no jurisdiction anywhere that has achieved a satisfactory approach to assessing and managing cumulative effects. Objectively, there are problems with the science of assessment and challenges of governance that are many years away from resolution. Subjectively, the issue has become caught up in adversarial debates that make calm and measured consideration difficult. Progress requires political will and integration of decision making among a large number of participants. Progress can only be evolutionary and will be slow and frustrating.

Determinations on cumulative effects, their significance and acceptability will be required long before satisfactory scientific and governance tools have been developed. Such determinations will have to be made in a qualitative manner, based on imprecise information and much uncertainty (this is also true of determinations of individual project effects: available knowledge systems do not provide certainty about future environmental effects).

No single participant will be able to find a simple, satisfactory approach to cumulative effects assessment or management. This is true in the ISR, and in every jurisdiction in Canada. The best that can be hoped for, and worked towards, is an evolutionary process toward greater knowledge and skill in assessment and management.

**How can the institutions of the IFA promote evolution of the practice of cumulative effects assessment and management (CEAM) over the long term, while continuing to effectively carry out the mandate set out by the IFA?**

Tables 4-2, 4-3 and 4-4 build upon the tool lists provided above and the principles of conserving long-run credibility. They describe tools available, in keeping with the IFA mandate, to build capacity to screen, assess and manage cumulative effects.

**Table 4-2 Tools for the EISC to Advance CEAM**

<b>Tools</b>	<b>Considerations</b>
Definition of environmental effect, including cumulative environmental effect	<p>Requirements within mandate under the IFA for individual project screening</p> <p>Fair and reasonable: balance between interest and concern of EISC regarding cumulative effects and what is feasible for proponents given the current state of the science of cumulative effects and information sources</p> <p>Focussed and clear scope</p> <p>May change over time as CEA improves (i.e., evolutionary)</p>
Information requirements for project description	<p>Need for greater clarity and precision regarding CEA, for both proponents and EISC</p> <p>Need to ensure CEA addressed by proponent</p> <p>Ensure that information required is actually obtainable (i.e., proportional and feasible) within a timeframe and budget in keeping with scale and duration of project</p> <p>Guidance on assumptions regarding other projects, activities, stressors</p> <p>Guidance on significance</p> <p>Guidance on expectations of EISC regarding standards by which CEA will be judged</p>
Screening determination (a) acceptance (in letter to competent authority)	<p>Interpretation of mandate under the IFA is that the EISC undertakes a determination only, and has no authority to recommend terms or conditions of authorization; e.g., for mitigation</p> <p>In coming to its determination, the EISC makes assumptions; e.g., regarding implementation of mitigation measures outlined in the project description. In cases where the EISC considers it warranted, the letter to the government authority could set out the key assumptions upon which its determination of no significant environmental effects, including cumulative effects, is based.</p>
Screening determination (b) referral for further review (in letter to competent authority)	<p>Threat of delay, cost and much more work to meet EIRB requirements</p> <p>Must be justified by risk of “significant negative environmental effects”. If a subsequent review casts doubt on the EISC determination and if extra time and costs incurred are not warranted, there is a risk of loss of credibility.</p>
Screening determination (c) deficiency (in letter to competent authority)	<p>Threat of delay while another project description is prepared and submitted</p> <p>Information required must be obtainable, proportional and within the capacity of the proponent. If not, decision may be open to challenge based on policy considerations.</p>

**Table 4-2 Tools for the EISC to Advance CEAM (Cont'd)**

<b>Tools</b>	<b>Considerations</b>
Use of sources	<p>Currently, EISC solicits comments on project descriptions from various Inuvialuit, co-management, territorial and federal institutions</p> <p>Development of the capacity of these other institutions for CEAM in the ISR will improve these sources of advice to the EISC (and also to EIRB) on cumulative effects of particular projects</p> <p>Consider:</p> <ul style="list-style-type: none"> <li>• development of geographic information system (GIS) compilation of data feedback from projects</li> <li>• encouragement of selective regional cumulative effects initiatives, to the extent that these can be expected to produce useful information</li> <li>• encouragement of allocation of resources to CEAM; e.g., consider letter to Environmental Studies Research Fund (ESRF) for allocation of research funds on CEAM to areas of imminent activity</li> </ul>
Use of previously conducted assessments on area	<p>EISC is required by IFA s. 11(14) to take into account prior environmental impact review processes. Screening of oil and gas activities therefore must consider reviews previously undertaken on hydrocarbon activity in the Beaufort/Delta, to the extent that is considered relevant.</p>
<p>Use of relationship to CEAA processes, in particular, draw on CEA by Responsible Authorities under <i>Canadian Environmental Assessment Act</i></p> <p>For developments subject to CEAA, including all oil and gas activities in the ISR</p>	<p>Whatever the EISC decides to do on cumulative effects assessment, RAs are required by law to assess cumulative environmental effects:</p> <ul style="list-style-type: none"> <li>• EISC could specifically request comment from the RA regarding cumulative environmental effects</li> <li>• In the case of oil and gas activities, EISC could develop a protocol or MOU with the National Energy Board regarding screening, with particular points regarding CEA; e.g., agreement regarding requirements for proponents to monitor and provide data on VECs within leases</li> <li>• CEAA has a provision allowing for class screenings that could be a useful source of information for EISC</li> <li>• CEAA amendments will allow for area assessments that could be a useful source of information for EISC</li> </ul>
Use of community conservation plans (CCPs)	<p>Good source of conservation priorities. EISC consults CCPs when screening.</p> <p>CCPs are large scale plans. EISC has to consider underlying data and assumptions when making determinations for a particular project.</p>
Compilation of guidelines/advisories	<p>Used to compile recommendations on altitude restrictions for over-flights</p> <p>Helpful to proponents, who otherwise have to deal with many sources</p> <p>Could be used to encourage use of measures to minimize cumulative effects</p>

**Table 4-3 Tools for the EIRB to Advance CEAM**

<b>Tools</b>	<b>Considerations</b>
Definition of environmental effect, including definition of CEA	Definition is in line with that under CEAA, in order to enhance the substitutability of EIRB panel review for CEAA panel review Are further changes required?
Information requirements for EIS	Requirements are in line with CEAA, for purposes of substitutability Are further changes required?
Decision to recommend whether project should proceed or not	Competent authority must give reasons in writing for varying from EIRB recommendations, under IFA. If EIRB panel is a substitute panel, CEAA requires that the Governor in Council (effectively federal cabinet) formally responds to a panel report.
Decision to recommend further review	Constitutes recommendation to competent authority Effectiveness of this tool will depend on what form of EA is being undertaken with CEAA, and timing
Recommendations on terms and conditions, mitigation measures, monitoring and follow-up	Extent to which a recommendation will be accepted will depend on the case made by the EIRB Panel Report: <ul style="list-style-type: none"> <li>• on credibility, fairness, thoroughness of review process</li> <li>• on legitimacy of panel: unbiased, neutral, independent, free of political influence, impartial in relation to proponent and in relation to those who will decide on recommendations</li> <li>• on the technical merits of the case made for it, soundness of knowledge used and reasoning</li> <li>• on “correctness” of recommendation in relation to legislative and administrative context, in particular to mandate of panel</li> </ul> The following characteristics of recommendations based on environmental review will strengthen the case to the authority for accepting them: <ul style="list-style-type: none"> <li>• Recommendation must be reasonably achievable, within reasonable capacity of proponent to perform, reasonableness of time, cost and effort in relation to project and to impacts of project</li> <li>• Recommendations can be undermined by errors in law, procedure or fact</li> <li>• Recommendations should not entail requirements of other private parties, or public parties who cannot be bound through process</li> <li>• Any recommendation that is perceived to be biased or unfounded can undermine the force of other recommendations</li> <li>• If recommendation is made to the government, must be within the capacity of government</li> </ul>



**Table 4-3 Tools for the EIRB to Advance CEAM (Cont'd)**

Tools	Considerations
Capacity to call for class assessment (s. 15.4.3), on motion of the EIRB	<p>EIRB may call for a general assessment of a class of developments prior to initiating review of a specific development proposal, to establish general policies about similar developments (“similarity” will be a matter of opinion of the EIRB)</p> <p>Needs to be done early, so similar projects can be dealt with consistently</p> <p>Needs to justify resources</p>
Capacity to call for “special investigation”	<p>EIRB Chair may appoint any qualified person to conduct a special investigation into relevant issues and report to the review panel</p> <p>Difficulty of selecting appropriate person. Once called for, must wait upon conclusions. Costly.</p>
Use of relationship to CEAA processes	<p>CEAA has provisions that allow for class screenings</p> <p>Amendments to CEAA in parliament will alter the role of the Canadian Environmental Assessment Agency in comprehensive studies (that would apply to many offshore oil and gas activities)</p> <p>CEAA amendments will also introduce “area assessments”</p>

**Table 4-4 Summary of Options to Consider for Advancing CEAM**

Institution under IFA	Options to Consider
EISC	<p>Development of the EISC definition of environmental effects to include cumulative effects</p> <p>Clarification of expectations and requirements of the proponent for the project description</p> <p>Use of determination should take care to maintain a high standard, consistency with mandate, reasonableness of conclusion, and preserve credibility in long run</p> <p>Elaboration of screening determination (a) letter to competent authority, to ensure that the key assumptions of the screening determination are clear</p> <p>Encourage improvement in sources of information available; e.g., from GIS, ESRF</p> <p>Use the relationship of IFA processes to Canadian environmental assessment processes to build IFA capacity to assess cumulative effects</p> <p>Draw on RAs and federal authorities (specialist departments) as a source of expertise and information</p> <p>Consider development of protocols, understandings with NEB regarding screening processes for oil and gas projects, with particular attention to CEA and monitoring</p> <p>Explore potential for CEAA class screenings, and once CEAA amendments are passed, for area assessments that would provide a useful source of information for determinations/decisions</p>

**Table 4-4 Summary of Options to Consider for Advancing CEAM (Cont'd)**

<b>Institution under IFA</b>	<b>Options to Consider</b>
EIRB	<p>Clarification of expectations and requirements of the proponent in the preparation of EIS</p> <p>Use of recommendations. Whether or not the recommendation is accepted depends on both process and conclusions. Poor recommendations can undermine others. Recommendations are more likely to be adopted if they are achievable, reasonable and do not entail requirements on other parties.</p> <p>When multiple applications are expected, the EIRB can consider a call for class assessment on its own motion to provide information on activity, effects on VECs, cumulative effect's processes and best practices in cumulative effects management as input to both EISC screening, and if referred, EIRB review</p> <p>Use the relationship of IFA processes to CEAA processes to build IFA capacity to assess cumulative effects</p> <p>Explore potential for CEAA class screenings, and once CEAA amendments are passed, for area assessments that would provide a useful source of information for determinations/decisions</p>
WMAC FJMC IGC HTC CC	<p>Encourage the development of capacity within the ISR for CEAM, so that sources of information available to EISC/EIRB are improved, specifically:</p> <ul style="list-style-type: none"> <li>• development of GIS compilation of data feedback from projects</li> <li>• encourage selective regional cumulative effects initiatives, to the extent that these can be expected to produce useful information</li> <li>• encourage allocation of resources to CEAM; in particular, consider letter to ESRF for allocation of research funds on CEAM to areas of imminent activity in the ISR</li> <li>• build on CCPs</li> </ul> <p>Provide direct advice to Ministers regarding CEAM</p> <p>Undertake or sponsor research on aspects of wildlife management that would strengthen the basis for comment to EISC/EIRB regarding CEAM</p> <p>Continue work on species management plans as input to EISC/EIRB</p> <p>Work on guidelines/advisories available to proponents regarding appropriate cautionary and mitigation measures for avoiding cumulative effects</p> <p>Direct management role (e.g., setting of quotas) to take into account cumulative stressors</p>
ILA	<p>Include as part of current review of ILA rules and procedures examination of terms and conditions that may be attached to authorizations in relation to CEAM</p> <p>Consultation, coordination with NEB regarding its authorization processes and terms and conditions attached to authorizations under COGOA to avoid unnecessary duplication</p>



## 5 Technical Tools

The purpose of this section is to describe the range of tools that the EISC and EIRB can use as they evaluate applications with respect to the potential for cumulative effects. This section is written from the perspective of an individual project application, as this is the situation that the EISC and EIRB will encounter most frequently. The assessment of potential cumulative effects from a regional perspective needs to be the subject of a regional cumulative effects management framework initiative.

The available tools could be applied systematically in the following logical sequence with respect to an individual project application:

1. review of application from the proponents including the project description and the description of anticipated residual cumulative effects after mitigation
2. reference to any available GIS map of the region where the project occurs (both 1:250,000 and 1:50,000 scales)
3. review of committee members' general knowledge of the distribution, abundance and productivity of renewable resources as well as the general environmental conditions in the immediate and general areas of the proposed project
4. review of committee members' general knowledge of all human activities in the area of the proposed project and comparison with the proponent's project inclusion list
5. review of locations of traditional harvesting sites from the Inuvialuit and Gwich'in harvest studies and the locations of camps used for hunting, fishing, trapping and whaling
6. review of species management plans for the area of the proposed project and consideration of the goals and thresholds in these plans (e.g., for grizzly bears, caribou and beluga)
7. review of community conservation plans for the affected area
8. review of all protected areas including parks, migratory bird sanctuaries and marine protected areas
9. review of projections provided by the proponent in the Project Description or EIS of the zone of influence and disturbance factors of the proposed development on all VECs
10. review of responses to requests to each RA that describe any special restrictions on land use or sensitivities in the affected area
11. review of statement of anticipated cumulative effects from pending and approved projects that are within or close to the area of the proposed project
12. development of a map (jointly supported and coordinated by the EISC and EIRB and government authorities) that displays the cumulative effects of the worst case scenarios for all of the projects in the affected area

Some of these tools are described briefly in the following sections.

## 5.1 Project Applications

An application from the proponent reflecting the *Operating Guidelines and Procedures* of the EISC (s. 4.4) or the *Operating Guidelines* of the EIRB (s. 10) will include a detailed description of the proposed project and a projection of anticipated environmental impacts with respect to air, water, soils, fisheries and aquatics, vegetation, wildlife, resource use and cumulative effects. These guidelines and procedures are the most important tool available to the EISC and EIRB to explain their requirements and to ensure that proponents understand the expectations placed on them (e.g., in using local, traditional knowledge or meeting other special requirements). The document produced, the Project Description for the EISC or the EIS for the EIRB, forms the basis for the understanding and assessment of the proposed development. Members of the screening committee and review board will rely on these documents to immerse themselves in the details of the proposed project so that they can fully appreciate the various ways that the project could conceivably affect the air, water, land, plants and animals in the area.

## 5.2 Digital Map of Project Area

GIS provides a powerful tool that enables members of the EISC and EIRB to accurately put a proposed project in its geographic context. They can commission maps that show the footprint of the proposed project in a virtual environment. Maps provide an extremely useful focal point to facilitate review of analyses of potential cumulative effects. In particular, maps showing an up-to-date view of the landscape marked with past, current and proposed activities provide an overview essential to the understanding of potential cumulative effects. This becomes especially useful when combined with the results of analytical tools such as viewshed and plume dispersion models.

## 5.3 Review of General Knowledge of Committee Members

Harvesting for subsistence purposes is prevalent in the ISR. The members of the EISC and EIRB have an intimate understanding of the natural world around them. Committee members are in a position to review the proponent's statements regarding local knowledge and the relative sensitivity of the environment, question those statements, and solicit additional information that will extend their own knowledge of the status and potential vulnerability of renewable resources in the project area.

## 5.4 Special Requirements of Regulatory Authorities

In order to meet the requirements of the respective operating guidelines, the proponent will have consulted with the regulatory authorities (RAs) in the course of writing their assessment documents and should be generally aware of the issues that the RAs would like to have addressed in the environmental management system. The RAs may have also published guidelines or issued letters that list specific terms and conditions that they would like to see addressed. For example, GNWT RWED's brochure "*Safety in Bear Country*", DFO's letter "*DFO Additional Requirements for Seismic Activity Project Descriptions for the Purposes of Environmental Assessments*", Canadian Wildlife Service's "*Evaluating Effects of Proposed Oil and Gas Developments on Migratory Bird Habitat and Populations in the Mackenzie Delta*" and the ILA's memorandum "*ILA's Information Requirements for Project Applications*". It is the responsibility of the proponent to confirm with the RAs that they have the most current information on requirements for planning activities.

## **5.5 Project Inclusion List**

The application from the proponent should include a section that is typically referred to as the “project inclusion list”. This section provides a list of all the known past, current and reasonably foreseeable human activities within the largest of the regional study areas as used in the proponent’s submission. The EISC and EIRB generally have an understanding of the full historical extent of human activities that goes beyond the knowledge of the proponent. Committee members are in a position to check the veracity of the proponent’s list and start the process of making inferences about potential cumulative effects (e.g., current moose densities in the ISR vary among watersheds inversely with the level of human activity and the hunting that is associated with that activity).

## **5.6 Traditional Hunting Camps**

The Inuvialuit and Gwich’in harvest studies have not provided maps that show the locations of traditional hunting, fishing, trapping and whaling camps in the ISR. There are more than 350 camps in the ISR. Some information is available on harvesting from the CCPs. Also, the proponent is expected to contact any camp owners within a certain distance of the activity. Consultation with camp owners should be undertaken so the proponent can evaluate potential conflicts and potential cumulative effects by examining the location of the camp, the season(s) when it is used, the purpose, the intensity and the extent of activity, access to the camp, and whether or not the camp has an incinerator and an electric fence. Committee members will have local knowledge to draw upon to confirm these assessments, and can also have staff check with the HTC involved.

## **5.7 Species Management Plans**

Species management plans have been produced for several species of interest in the ISR including fish, marine mammals, migratory birds and terrestrial wildlife. These plans are a valuable tool that can be used by the EISC and EIRB in their review of cumulative effects. The plans have been developed through a rigorous process of community consultation that draws on decades of local knowledge and scientific research into the distribution, abundance, productivity and trends of individual species. The plans represent a vision for the future of individual species within the context of the function that they play in their ecosystems.

This vision is implemented through the application of principles, goals, objectives and action plans that focus on the animals and their habitats. In general, plans have been developed with an awareness of the need for habitat conservation and the relative role of the EISC and EIRB in the environmental assessment and review process.

Proponents should also consult these plans when developing their Project Description or EIS.

The following examines three species management plans as examples to illustrate the potential application of such plans to the review and evaluation of cumulative effects assessments.

### **5.7.1 Grizzly Bear Plan**

The WMAC (NWT) and the WMAC (North Slope) transmitted to the Ministers responsible for wildlife for Yukon and NWT and to the Canadian Heritage Minister the

*Co-management Plan for Grizzly Bears in the Inuvialuit Settlement Region, Yukon Territory and Northwest Territories* in June 1998. The letter of transmittal emphasizes the need for “the continued cooperation and effort of all of those who participated in the plan’s preparation if it is to be effectively implemented.”

The management goals for bears are:

1. to maintain current population size by ensuring that the total number of bears removed through harvest, defence kills and illegal hunting each year is sustainable
2. to allow recovery of populations in the event that over-harvesting occurs by reducing quotas or closing areas for hunting
3. to maintain current areas of grizzly bear habitats

The plan also includes seven goals for managing people in the ISR, including the following goal:

*“to promote cooperation among Canadian and American Territorial, Federal and State government agencies and wildlife co-management boards and other land claim organizations in the Inuvialuit, Gwich’in, Sahtu, Nunavut, and Vuntut Gwitchin settlement areas/regions, and Alaska”*

The EISC and EIRB should focus their reviews of assessments of potential effects of developments on grizzly bears on three topics: the sustainability of total mortality, the general conservation of habitat and the maintenance of core security habitat.

The grizzly bear plan was developed during the 1985–1998 period when there were few or limited pressures from industrial development in the ISR. The plan provides a solid basis for the management of bears and people and can now be taken further so that habitat goals can be transposed into GIS databases that are designed to accommodate ecological land classification (ELC) systems. This task can build on the grizzly bear habitat classification work that has already been noted in the plan (p. 7).

The grizzly bear plan includes a set of management principles. The third principle of sustainable development states:

*“Recognize the value of grizzly bears and the importance of their habitats when evaluating potential land-use activities (e.g., tourism; mineral, oil, and gas exploration and development, transportation corridors).”*

The plan notes that 28 percent of the habitat of grizzly bears in the ISR is completely protected by virtue of the establishment of Ivvavik National Park, Tuktoyaktuk National Park and the Yukon North Slope special conservation area. The plan also states that denning habitat in the ISR is not considered to be limiting.

The plan establishes an annual total allowable harvest for the community hunting areas of Paulatuk, Tuktoyaktuk, Inuvik and Aklavik based on a sustainable harvest rate of 3 percent of bears two years and older. No more than 33 percent of the harvest can be females. All bears killed in defence of life or property in each community’s hunting area must be accounted for under their community quota.

As stated in the plan:

*“all proposed developments that are likely to cause negative environmental impacts in the Settlement Region are screened by the EISC to determine whether the development could have a significant negative impact on present or future harvesting. If the EISC determines that a proposed development could have a significant negative impact on*

*present or future wildlife harvesting, it can refer the proposed development to the EIRB for public review. After its review, the EIRB can recommend to the government authorities, terms and conditions to mitigate or minimize negative impacts on wildlife harvesting. The EISC typically reviews proposals to ensure that garbage is disposed of properly, advises the proponents to review the "Safety in Bear Country, A Reference Manual" produced by DRWED – NWT, recommends that a bear monitor be hired and cautions the proponent about the economic impacts on affected HTC/communities if problem bears are killed."*

## 5.7.2 Bluenose Caribou Plan

The draft *Co-management plan for the Cape Bathurst, Bluenose-West and Bluenose-East caribou herds, Northwest Territories and Nunavut* is under consideration by the WMAC (NWT), the Gwich'in Renewable Resource Board, the Sahtu Renewable Resource Board and the Nunavut Wildlife Management Board.

The goals of the plan are expressed in a substantially different format than the goals in the grizzly bear plan. The goals for the "range use" category for March of 2004 are expressed as follows:

*"Maps will be available that show the seasonal ranges of the Cape Bathurst, Bluenose-West and Bluenose East caribou herds, and people will know how important each seasonal range is to the herds. The importance of pre-calving, calving and post-calving ranges will be known. Muskox and reindeer management plans will be implemented within the range of each herd. People will know how muskox and caribou, and reindeer and caribou interact. The communities will be implementing fire action plans for traditional harvesting areas."*

The plan notes that RWED will use the same approach as that used by the Porcupine Caribou Board Technical Committee (PCBTC) to rank the importance of the seasonal ranges of the Bluenose herd. The PBTC used the criteria of energy balance, reproductive contribution, tolerance to disturbance, escape requirements, intensity of use and availability of alternate ranges to derive the following ranking of habitats in descending order of their relative importance and tolerance to disturbance:

1. pre-calving, calving and post-calving ranges
2. early summer and mid-summer ranges
3. late summer and fall migration, and spring migration routes
4. rut and late fall and winter ranges

The plan states:

*"The calving and post-calving range of the Cape Bathurst herd falls within Inuvialuit 7 (1) a and 7 (1) b lands. Any developments proposed for areas within the 7 (1) a portion must be reviewed by the Environmental Impact Review Board.<sup>1</sup> Most of the calving and post-calving ranges of the Bluenose-West herd are protected by Tukut Nogait National Park. The calving and post-calving ranges of the Bluenose-East herd are not currently protected. Once the seasonal ranges of the three herds are defined, areas that require further protection will be identified and necessary, protective or mitigative measures will be proposed.*

1. Since publication of the Plan, the status of the lands in question has changed, and consideration by the EIRB is no longer required for the lands in question.



*In summer 1998, Parks Canada Agency started to map vegetation types within Tuktot Nogait National Park and adjacent areas using Landsat TM imagery. Vegetation maps of those areas were scheduled for completion during 2000. RWED, in consultation with Parks Canada Agency and the University of Fairbanks, Alaska, is developing a research proposal to assess the types, quality and abundance of the forage available in the park and adjacent areas and on the Cape Bathurst Peninsula for caribou during the calving and post-calving period. This work will also help define where important calving and post-calving habitats are in these areas.”*

### 5.7.3 Beluga Plan

The *Beaufort Sea Beluga Management Plan* (1998, Third Printing with Motion 010206.005 of February 9, 2001)<sup>2</sup> was developed by the Fisheries Joint Management Committee (FJMC) in cooperation with the HTC's of Aklavik, Holman, Inuvik, Paulatuk, Sachs Harbour, Tuktoyaktuk and the Department of Fisheries and Oceans.

The specific goals of the plan are:

1. to maintain a thriving population of beluga in the Beaufort Sea
2. to provide for optimum sustainable harvest of beluga by Inuvialuit

The objectives for sustainable harvest are:

1. to provide for a level of harvest that generates the greatest net benefit to the Inuvialuit while ensuring the long-term sustainability of beluga in the Canadian Beaufort Sea
2. to ensure an efficient harvest and low loss rate

The conservation and protection objectives are:

1. to protect beluga, beluga habitat and beluga harvesting
2. to provide guidelines and information to assist the government, the environmental impact screening and review process and the Inuvialuit Lands Administration in their evaluation of development proposals that may affect beluga, beluga habitat or beluga harvesting
3. to provide guidelines to assist industry in preparing developmental proposals

The beluga plan establishes four management zones, the most sensitive of which is Zone 1(a). As stated in the plan:

*“the guidelines for each zone are intended to provide specific guidance to Inuvialuit cooperative management bodies and government agencies for their use in the evaluation of any development proposals that may affect the well being of the beluga resources, the harvesting of that resource or beluga habitat.”*

Proponents are advised to consult directly with the FJMC regarding the status of the plan and of further initiatives undertaken to advance beluga protection. The IGC and IRC jointly wrote to DIAND (January 8, 2001) asking that Zone 1(a) be “maintained off-limit to any seismic or other hydrocarbon exploration activities until further notice”. In the meantime, a joint integrated management planning initiative has been underway toward clarifying and strengthening management provisions in the plan.

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2. Regarding review of seasonal mining provisions from the existing Beluga Management Plan and a statement that no mining activities will be permitted within or along the shores of any Beluga Management Zone 1.

## 5.8 Community Conservation Plans

Community conservation plans (CCPs) were developed in 1993 for each of the six Inuvialuit communities and then updated in 2000. The creation of these plans was the first objective of the *Inuvialuit Conservation and Management Plan* (1988), a document jointly prepared by the Wildlife Management Advisory Council (NWT) and the Fisheries Joint Management Committee in partial fulfillment of their obligations under the *Inuvialuit Final Agreement*. The CCPs are intended to provide guidance to all those with an interest in the planning areas associated with each of the communities. The plans describe a strategy to address five broad goals:

1. to identify important wildlife habitats, seasonal harvesting areas and cultural sites and make recommendations for the management of these areas
2. to describe a community process for land use decisions and managing cumulative impacts that will help protect community values and the resources on which priority lifestyles depend
3. to identify educational initiatives for the Inuvialuit and others interested in the area, which will promote conservation, understanding and appreciation
4. to describe a general system of wildlife management and conservation and identify population goals and conservation measures appropriate for each species of concern in the planning area using the knowledge of the community and others with expertise
5. to enhance the local economy by adopting a cooperative and consistent approach to community decision making and resource management

Each of the CCPs designates the lands in the community's area of interest into one of five categories according to the following criteria:

1. **Category A:** Lands and waters where there are no known significant and sensitive cultural or renewable resources. Lands and waters shall be managed according to current regulatory practices.
2. **Category B:** Lands and waters where there are cultural or renewable resources of some significance and sensitivity but where terms and conditions associated with permits and leases shall assure the conservation of these resources.
3. **Category C:** Lands and waters where cultural or renewable resources are of particular significance and sensitivity during specific times of the year. These lands and waters shall be managed so as to eliminate, to the greatest extent possible, potential damage and disruption.
4. **Category D:** Lands and waters where cultural or renewable resources are of particular significance and sensitivity throughout the year. As with Category C, these areas shall be managed so as to eliminate, to the greatest extent possible, potential damage and disruption.
5. **Category E:** Lands and waters where cultural or renewable resources are of extreme significance and sensitivity. There shall be no development on these areas. These lands and waters shall be managed to eliminate, to the greatest extent possible, potential damage and disruption. This category recommends the highest degree of protection in this document.

Figure 5-1 provides a general overview of the distribution of category B, C, D and E lands in the ISR; the reader is referred to the year 2000 revised version of each of the

plans for specific details (available at [www.bmmda.nt.ca](http://www.bmmda.nt.ca)). Figure 5-2 maps the highest designation across the ISR for any given area.

The CCPs also provide guidelines with respect to general considerations, subsistence and commercial harvesting and guidelines for tourism. These guidelines advocate restrictions on the altitude of aircraft, the proximity of activities to wolf dens and the intensity of tourism in the region.

The plans also contain sections on the management of cumulative effects. Specifically, the plans state that “the successful management of cumulative impacts involves the following three steps:

- clearly identify the type of environment and lifestyle you want in the future
- monitor environmental change
- make appropriate decisions”

The plans then extend the framework for managing cumulative effects to include the following concepts:

*In order to better account for incremental or gradual losses of wildlife habitat resulting from changes in land use over time, the Community, as represented by the HTC and Community Corporation, will re-designate areas of remaining habitat in a given land use category (Category A, B, C, D) to a more protective category (Category B, C, D, E) in proportion to the amount of effective habitat lost or affected by the authorized land use.*

*For example, if a proposed land use has negative effects on five percent of Category A wildlife habitat, then five percent (or any other amount) of what Category A habitat remains would be re-designated Category B or higher until such time as the impact of the land use has stopped and the land restored to its original ecological productivity.*

The CCPs are a valuable tool for proponents, providing a source of information and a basis for consultation on conservation priorities; and for the EISC and EIRB, as an indicator of community concerns. These plans are however not land use plans, and do not take into account socio-economic or other community interests in development of non-renewable resources. They are also drawn to a large scale and are layered with a range of data sets that varies seasonally. It is up to the EISC and EIRB to evaluate the information provided in the CCPs, and to decide on how to weigh that information together with other sources.

**Figure 5-1 Inuvialuit Settlement Region: Community Conservation Plans' Categories B, C, D and E**



**Figure 5-2      Inuvialuit Settlement Region: Community Conservation Plans' Categories of Highest Land Use Guideline**



## 5.9 Parks and Protected Areas

The application from the proponent should identify the boundaries of any parks, migratory bird sanctuaries, marine protected areas and international biological program (IBP) sites that are relevant to the consideration of the proposed project. The project may fall within one of these areas, be in close proximity to a protected area or may have projected zones of influence that could affect the ecological integrity of a protected area. Reviewers of the proponent's assessment will need to conduct their own, independent due diligence to evaluate the conclusions in the proponent's assessment. It would be helpful if spatial information on parks and protected areas could be available as a layer in an integrated GIS database (see Appendix 3 for details).

## 5.10 Zones of Influence and Disturbance Factors

The proponent should identify zones of influence (ZOI) and disturbance factors as part of their assessment of environmental effects and cumulative environmental effects. A ZOI is the area around a proposed project where VECs could be directly affected by the proposed project. The radius of the ZOI will vary with each VEC. The radius varies because the sensitivity of the VEC to disturbance varies as well as the type of disturbance.

Fish, marine mammals, terrestrial wildlife and migratory birds may see, smell, hear or detect the sight, odour, sound or vibrations from a project. These species could also be affected by odourless contaminants and the fragmentation of their habitat. Responses to disturbances can be acute if the stimulus from the project mimics a predator (e.g., caribou will react strongly to the silhouette of a dog moving along the horizon). The response to disturbance may fade with repeated exposure to stimulus with no negative consequences (habituation).

The term "disturbance factor" or "disturbance coefficient" (DF) refers to the estimated degree of disturbance along the radius of the zone of influence. For example, grizzly bears on Richards Island may completely avoid the area within 2 km of an industrial project and reduce their use of the area within the next 8 km by 50% (Harding and Nagey 1977). In this case, the radius of the ZOI is 10 km, with the DF represented as a 100% reduction in habitat effectiveness in the first 2 km and a 50% reduction in the next 8 km. In the case of the assessment of the Diavik Diamond Project, the radius of the ZOI was determined by estimating the level of ambient noise in the Lac de Gras area, and then finding the noise isopleth from blasts at the project site that was just below the ambient noise level. The 10 km radius therefore corresponds to the maximum distance at which a bear could detect the project and react to it.

Reviewers of the proponent's assessment of potential cumulative effects will need to examine the ZOIs and DFs for each of the VECs and consider the projected effects and their potential interaction with the effects of other projects.

## 5.11 Cumulative Effects from Other Projects

The proponent's applications should refer to the projected cumulative effects from other past, existing, or reasonably-foreseeable projects in the region that could interact with the effects of the proposed project. Reasonably-foreseeable projects are those projects that are publicly announced, preparing for review, under review, approved, and under



construction. Reviewers will be in a position to draw on their own local knowledge of other projects as they evaluate the proponent's projection.

## 5.12 Worst-Case Scenarios

A specific requirement for the EIRB when undertaking a review is to consider the worst-case scenario. Analysis of such scenario is also useful in the examination of cumulative effects. This evaluation can be done in a systematic way by first looking at emissions/discharges from the project that could be released into the air, into the water, onto the soil, onto the vegetation or that could affect the structural integrity of substrates such as permafrost. These potential effects on the environment can be hand-drawn on a map. Once this systematic effort is complete, the reviewers can shift their focus to the receiving environment and the VECs that may be subjected to effects and cumulative effects.

Potential cumulative effects *must* be reviewed in the context of the receptor. If, for example, there could be occasional but loud noise disturbance to bowhead whales, then the reviewers will need to appreciate the underlying ecology of this species and its sensitivity to such disturbance. Bowheads can live for more than two hundred years and the Bering Sea stock of about 8,000 animals migrates through the Beaufort Sea during September and October, then along the North Slope to the Chukchi and Bearing seas. Recent evidence suggests that bowheads are reacting to seismic activity in the marine environment by changing their migratory route by up to 30 km from the source of the disturbance. Reviewers need to consider both the details of the proposed project and the ecology of the region in order to examine the potential interactions between the project and the receiving environment.

## 5.13 Thresholds

Standards may be set by government agencies to protect human and environmental health (e.g., air quality and water quality standards) or to ensure fair allocation of a resource (e.g., limits on groundwater withdrawal or use of surface water). Examples include the Canadian Council for Ministers of the Environment (CCME) standards for potable water, air quality standards for the Northwest Territories, and guidelines for water withdrawal (i.e., through the water licensing process).

For many environmental components such as fish and wildlife populations, vegetation diversity and traditional use, regulatory standards do not exist, nor is development feasible given the complexity of determining acceptable standards and measuring the resource state.

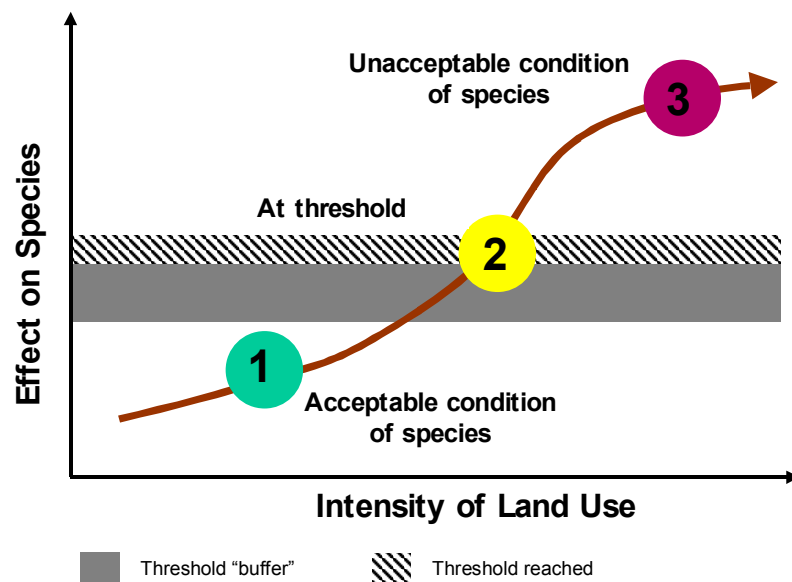
A threshold is a point or a range of values at which a resource or VEC undergoes an unacceptable change or is impacted at an unacceptable level, either from an ecological or social perspective. Thresholds may be expressed as:

- a subjective desired state (e.g., a stated objective in a community conservation plan or land use plan)
- a trend (e.g., maintenance of a certain growth rate in a fish or wildlife population or sustainable harvest)
- a specific numerical value or range of values (e.g., maximum access density per square kilometre)

In general, the assessment of significance for a project's contribution to cumulative effects will fall into one of three levels (see numbered points in Figure 5-3):

1. project effects will add to low levels of cumulative effects, which will remain well below any threshold or regional objective for the resource or VEC in question, even with the addition of project effects
2. project effects will add to existing cumulative pressures that are approaching a threshold or regional objective for the resource in question, resulting in the resource being pushed into an unacceptable state or health with the addition of project effects
3. project effects will add to existing cumulative pressures that have already exceeded or will imminently exceed a threshold or regional objective for the resource in question, even in the absence of the project in question

**Figure 5-3 Threshold Scenarios for a Wildlife Species**



Within the ISR, a project or activity resulting in a category 2 impact would usually be considered significant. Projects or activities resulting in a category 1 impact may be acceptable, depending on the degree to which project effects impact a specific resource or VEC, and the importance of that VEC to traditional harvesting, other land uses and regulatory agencies. A category 3 impact will usually be considered as significant. There may, however, be merit in permitting a project or activity to proceed if it will only result in a minor incremental effect in an area already supporting multiple land use activities that have already compromised the resource in question.

At present in the ISR and the broader NWT, numerical standards and thresholds have only been established for some parameters pertaining to air quality and surface water quality (e.g., chemical contaminants, sediment loads). Standards and thresholds have not been developed for biological resources (e.g., soils, vegetation, fish and fish habitat, terrestrial and marine mammals and birds), traditional land uses and resource use.

The CCPs and the Mackenzie Delta-Beaufort Sea Land Use Plan (RLUPC 1990) provide some guidance on acceptable types and amounts of industrial development in different

land units within the ISR. Wildlife management plans (e.g., grizzly bear, barren-ground caribou) provide management goals for specific populations and species that can be used to develop qualitative to semi-quantitative thresholds for some species and species groups.

For many resources and land uses, the development of thresholds must take into account social factors and values and public policy, as well as ecological sustainability. Because of this, responsibility for the development of thresholds and new standards most appropriately lies with the various land use administrators. Identification of potential thresholds for some resources and land uses may be developed in the future.

In the interim, the following can be used to help establish possible thresholds for use in CEA, ideally through a jointly coordinated and supported initiative involving Inuvialuit, territorial and federal participation:

- During consultations with Hunters' and Trappers' Committees and community residents, discuss how community conservation plans and the community's needs and desires can contribute to evaluation of significance.
- Work with regulatory and management agencies within the NWT to develop regional objectives or thresholds for specific VECs.
- In the absence of established thresholds or standards, use standards and thresholds from other jurisdictions, with the proviso that geographic, ecological and social differences are taken into account.
- Use best professional judgement, including peer review and consensus.

## 5.14 Significance

Suppose a seismic program is being proposed somewhere in the Delta for the coming winter. There already are a few other proposed for that time, some occurred last winter, and it is likely that more exploration and possibly drilling will continue into next year. Caribou move through the project area. The caribou are hunted. How do you know if, this time, the proposed project will be the one to finally cause a problem with the caribou? For example, they no longer pass through the area that would be occupied by the proposed project, and instead go elsewhere. That "elsewhere" may then reduce the success of the hunt and may move the caribou to habitat of lesser quality.

How do you know if the project's effects are "significant" or "not significant"? First, there is no single approach to evaluating significance. That said, there are many contributors to an evaluation of significance that may be used. The Proponents Guide (KAVIK-AXYS 2001b) provides details on a suggested approach, that if done by assessors, leaves the job of the reviewers to verify that evaluation and to combine those results with criteria of their own. The approach provided is based on the following:

- identification of any obvious, direct conflicts
- ranking the project's effects based on magnitude of change and overall trend of the resource
- establishing an appropriate management response in recognition that individual proponents do not necessarily have to carry the full burden of managing such effects, and that the most appropriate response may be through regionally coordinated initiatives

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## 5.15 Environmental and Land Use Database

To facilitate screenings of Project Descriptions by the EISC and reviews of EISs by the EIRB, it is recommended that a digital regional database and data management system be developed. The database could be used by the EISC and the EIRB to:

1. Identify other past, present and reasonably-foreseeable human activities and developments in the region that may interact with the effects of the project being screened or under review.
2. Provide information on key environmental components (e.g., air, water, fish, wildlife, vegetation) and traditional and human uses that may be affected by cumulative effects.

In combination with a range of analytical tools, these two types of information could be used to complete assessments of the status of key environmental components and human uses for comparison with regional standards or thresholds for environmental health and sustainability, as well as quality of use and experience for traditional harvesting and other human uses (e.g., spiritual/cultural, recreational). Through comparisons with these standards and thresholds, the database can be used to help determine if a project-specific contribution to cumulative effects will be acceptable.

The regional databases on human activities and development, environmental components, and human uses could also be employed by proponents to assist in the preparation of cumulative effects assessments for screening applications and environmental impact statements. By providing proponents with a standard regional database for assessment of cumulative effects, there is also likely to be greater consistency among applications in the analysis of cumulative effects. With the establishment and enforcement of data collection and management standards, new information from analyses and field studies by proponents could be used to update and improve the regional database.

Resource management agencies such as the Canadian Wildlife Service (CWS), Department of Fisheries and Oceans (DFO) and the NWT Resources, Wildlife and Economic Development (RWED) can also provide important data on the status of certain species and human use. Conversely, any database developed by the EISC and EIRB may be of value to these agencies through the provision of new data and analyses from proponents.

A regional database can therefore offer a range of direct and indirect benefits to the EISC and EIRB, as well as to proponents and resource management agencies. Development of a database would include identifying the types of information that should be included, management for updating, linkages with the EISC and EIRB processes, and linkage with the land use permitting systems for the ISR.

## 5.16 Monitoring

The quality of decisions on the management of cumulative effects in the future could be enhanced if there were a regional monitoring program for the ISR. A comprehensive monitoring program could be phased in at the same time that a regional Geographic Information System is established to collect and display environmental and land use information. The establishment of a systematic approach to monitoring at this early stage of development in the ISR would allow the institutions established by the IFA to learn from the experiences of each of the approved projects and apply the results of lessons learned to the adaptive management of new projects.

## 5.17 Scenario Forecasting

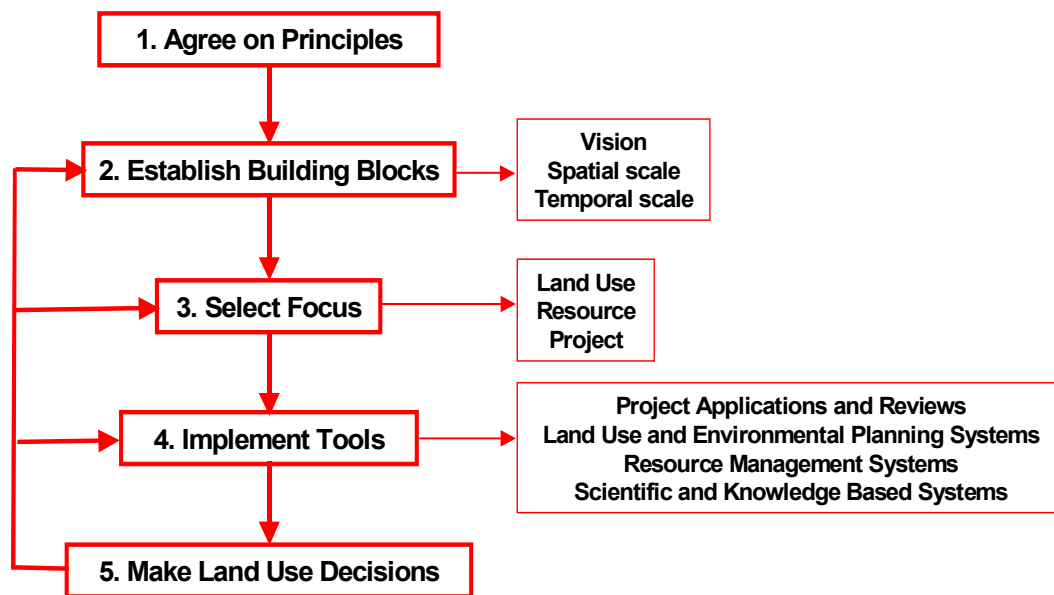
There is a general concern among the members of the Hunters’ and Trappers’ Committees about the fate of the landscapes in the ISR. This concern is being expressed to the EISC and EIRB at the same time that new opportunities for natural gas developments are coming forward. Proposals may be submitted for seismic programs, exploration wells, borrow pits, access roads and pipelines as well as other kinds of developments including tourism. Members of the EISC and EIRB are being asked to evaluate proposals without the availability of thresholds, a regional land use plan and a framework for the assessment and management of cumulative effects. In the absence of these, committee members may find that scenario forecasting offers a perspective on the potential range and implications of developments. Scenario forecasts that show a low, medium and high extent and intensity of development then provide an indication of what the landscape may look like and therefore what the implications may be to VECs and traditional resource use.

## 5.18 Cumulative Effects Management Frameworks

One view of a “perfect world” is that it is a place where potential cumulative effects can be examined against a backdrop of a regional effects framework that has been established through a process of consensus. Such a regional framework could take the form of a regional land use plan that has been solidly endorsed by both beneficiaries and Ministers.

Figure 5-4 displays a schematic representation of a generic framework. The framework’s five steps provide a basis for establishing objectives, focus, selection of appropriate tools (of which there are four general types as shown). F

**Figure 5-4 Example of Cumulative Effects Management Framework**



from DOE 2000

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## 6 Conclusions and Recommendations

The responsibility for the assessment and management of environmental impacts, cumulative and otherwise, is widely shared among government and IFA institutions in the ISR. It is therefore not possible to outline an integrated strategy for cumulative effects assessment and management for implementation by the IFA institutions alone.

Instead, this analysis describes the tools that are or could be available variously to the EISC, EIRB, other co-management institutions and to certain Inuvialuit institutions; i.e., IGC and HTCs. The challenge for all IFA institutions is to meet the accountabilities to the IFA today, to build capacity for cumulative effects assessment and management over time, and to preserve the influence of IFA institutions for the long run.

### 6.1 EISC and EIRB

The institutions charged with the IFA Environmental Impact Screening and Review Process do not have direct control over decisions on environmental assessment or on authorizations, but are in a strong position to influence these decisions. The most important factor in the long term influence of the EISC and EIRB in project effects management is the credibility of these institutions and the quality and reliability of their work. The recommendations provided here for tools to advance cumulative effects assessment and management are developed in the context of the mandate under the IFA for the screening and review of individual projects. While it may be tempting to make recommendations for regional cumulative effects initiatives as a precondition for specific projects, this report suggests the long term effectiveness of the EISC and EIRB will be better enhanced by developing sound, defensible approaches to project-specific assessment and by encouraging state-of-the-art management of those individual project effects.

The tools available to EISC or EIRB in the short term are more limited than those available in the longer term. In the short run, EISC is advised to build a relationship with the National Energy Board regarding cumulative effects assessment of oil and gas activities, and to consider elaboration of the screening determination (a) letter to ensure that the Responsible Authority understands the assumptions regarding mitigation used in coming to the determination. In the medium run, EISC can elicit better Project Descriptions from proponents by clarifying the requirements and expectations for analysis of a project's potential contribution to cumulative effects. In the long run, participation in collective efforts to develop thresholds for specific resources and in inter-jurisdictional initiatives to develop regional cumulative effects assessment resources will improve the EISC's and EIRB's capacity to review the effects of individual projects.

### 6.2 Co-management Institutions

The ability of an IFA institution to influence cumulative effects assessment and management varies depending on the mandate and tools available to the institution. While the EISC and EIRB have more influence over cumulative effects *assessment*, there is more capacity to influence cumulative effects *management* by the WMAC (NWT), WMAC (North Slope) and FJMC. These organizations can influence management directly by providing advice to Ministers on policy and management of wildlife resources, which reasonably includes cumulative effects issues.

The process tools available to these organizations for developing cumulative effects assessment in the ISR are mainly through improving the sources of information available to the EISC and EIRB when reviewing particular projects. By directing research and other effort to a better understanding of mitigation of project and cumulative effects, the co-management organizations can improve the advice they provide to the EISC and EIRB regarding the environmental management systems proposed by the applicant.

These organizations are better placed than the EISC and EIRB to contribute to the development of technical tools. For example, by developing additional species management plans, elaborating existing plans to include wildlife management guidelines, by developing multi-species plans that incorporate contemporary thinking on biodiversity and to develop regional databases, these organizations can improve the technical tools available both for screening and review of individual projects and for assessment and management of regional cumulative effects.

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## Appendices



## Appendix 1: Summary of Technical Tools

Category	Tools
Project Applications/Reviews	Joint reviews/information from decisions on project environmental assessments (tiered management)
	Conventional “best-practice” project mitigation and monitoring (e.g., low-impact seismic, avoidance line clearing)
	Geophysical field reports, environmental field reports, conservation and reclamation plans
	Environmental protection plans
	Joint development plans and combining of infrastructure
Assessment/Modelling	Risk assessment
	Implementation of thresholds
	Environmental sensitivity/constraints mapping
	Landscape indices (e.g., patch size, edge length)
	Land use indices (e.g., road density)
	Scenario forecasting (e.g., ALCES)
	Data and mapping (e.g., ELC, GIS, digital land mapping, environmental zones mapping, geo-admin zones)
Resource Management Systems	Species management plans (e.g., caribou protection plans)
	Habitat conservation (e.g., caribou strategic plans and guidelines, ungulate corridors)
	Watershed management
	Wildlife management boards/committees/government agreements
	Hunting/trapping/fishing permits
	Sub-surface land sales system (DIAND and ILA)
Scientific/Knowledge-based Systems	Regional land use and environmental mapping database
	Incorporation of traditional knowledge
	Regional ecological monitoring
	Identification of thresholds

Category	Tools
Environmental/Environmental Planning Systems	Regional land use plans (RLUP)/community conservation plans (CCP)/integrated resource management (IRM)
	Integrated landscape management (ILM)
	Regional access management/linear corridor controls/regional transportation strategies
	Regional industry coordinated frameworks/multi-stakeholder committee (e.g., CEMA, RSDS)
	Protected spaces planning
	Sustainable development strategy/goals and management objectives
	Land use guidelines (e.g., exploration, road/trails, seismic, quarries)/resource extraction controls
Operational Guidelines	Geophysical operating guideline
	Guidelines for alternative soil handling procedures during pipeline construction
	Construction “best practices”
	Codes of practice (e.g., oil production sites, exploration operations, water course crossings, telecommunication lines)

## Appendix 2: Flow Charts Relating Environmental Assessment and Regulatory Processes

The EISC and EIRB are created by the Inuvialuit Final Agreement (IFA), section 11, which sets out a formal environmental impact screening and review process (EISRP) to examine proposed developments that are subject to screening. The IFA requires that unless and until the provisions of section 11 have been complied with, no licence or approval may be issued that would enable the proposed development to proceed (s. 11.(31)). This requires government agencies/departments, both federal and territorial, to ensure that the requirements of s. 11 are dealt with before an authorization is issued. The authorities for the EISRP are the EISC and EIRB.

For a generalized description of the EIRB and EISC processes and the way in which ISR, the reader may refer to Sloan 2001.<sup>3</sup> This Guide is part of the Regulatory Roadmaps Project, and was jointly sponsored by the federal Department of Indian and Northern Affairs, the Inuvialuit Regional Corporation, and the Canadian Association of Petroleum Producers.

The particular focus of the Guide was the regulatory process for authorization of oil and gas activities; however, the relationships would be similar for other development activities in the ISR where such activities are subject to CEAA.

Authorization processes are described in the Guide using annotated charts. The accompanying text was developed with input from the EISC and EIRB, and the charts of their processes are adapted directly from the flow charts in the EISC and EIRB procedural documents. Other charts show the relationship under current arrangements among the CEAA, NEB, other federal RAs, and the EISC and EIRB. Charts 3 and 4 describe the processes for obtaining authorization for oil or gas exploration activity, either as a geophysical program or exploratory drilling.

**Table A2-1 List of Suggested Charts for Referral**

Chart EISC	Environmental Impact Screening Committee Process
Chart EIRB	Environmental Impact Review Board Process
Chart SSD	EIRB Small Scale Development Procedure
Chart SPR	EIRB Standard Public Review Procedure
Chart CEAA	Canadian Environmental Assessment Act Process
Chart NEB	COGOA Authorization Process in the Settlement Region
Chart 3	Geophysical or Drilling Authorizations on Federal Crown Land in NWT (Settlement Region)
Chart 4	Application for Geophysical or Drilling Authorizations on ILA 7(1)(a) Lands and 7(1)(b) Lands

3. Sloan, J. E. 2001. A Guide to Regulatory Approval Processes for Oil and Natural Gas Exploration and Production in the Inuvialuit Settlement Region. The Regulatory Roadmaps Project



## **Appendix 3: Development of a Regional Database**

### **Information Requirements**

The regional database should include information on human activities and land use, as well as information on environmental components and traditional and other human uses. Because cumulative effects assessments must address the effects of past, present and reasonably-foreseeable human activities and infrastructure on environmental and social components, and because effects can be manifested over broad spatial areas, the database must provide spatially-explicit data, as well as temporal changes and trends.

### **Human Activities and Land Use**

The regional database on human activities and infrastructure should eventually encompass the full range of human land uses within the ISR. This should include all industrial and recreational activities, as well as traditional and cultural use. Ideally, the database should provide information on the location, footprint, specific type of use, season of use, time and/or frequency of use, and intensity of use (e.g., numbers of people, number of vessels).

Based on recent and probable future industrial uses in the ISR, priority should be given to the compilation of spatial and temporal data on:

- Seismic exploration
- Exploratory drilling
- Major supply centers and camp accommodations
- Borrow sites
- Winter roads
- Pipelines
- Offshore artificial islands and drill sites
- Mineral exploration
- Aircraft activity (e.g., common flight lines, number of flights)
- Barge and shipping activity

Databases should also be developed on recreational and traditional land uses, including:

- Recreational and traditional hunting and fishing
- Permanent facilities (e.g., lodges, cabins) and camp sites (including season, duration and intensity of use)
- Temporary campsites
- Common travel routes

The Inuvialuit Harvest Study will provide a particularly important source of information on traditional use.

There may be sensitivities about the collection, management and use of information on certain traditional and cultural uses and some industrial uses. For example, information on burial sites, spiritual sites and perhaps even some harvesting sites may have to be



restricted from broad public use. Similarly, the precise location of some industrial uses (e.g., mineral exploration, exploratory drilling) may be considered confidential by the proponent. As a result, it will likely be necessary to develop protocols for access by various types of users to these databases. As noted later, provision of data by proponents to the database may also mean that proponents should have freer access to certain databases.

### **Status of Ecosystem Components and Human Use**

To complete a cumulative effects assessment, it is also necessary to understand the status of key environmental components and human uses. Information should include traditional and scientific information on long-term trends and changes.

For biophysical environmental components, information should ideally eventually include information on the quality of the environment, population numbers and composition (e.g., age and sex structure, reproductive success, survival), habitat use, habitat quality and availability, seasonal and migratory movements, and contaminant levels. For practical purposes, the database should first focus on those environmental components which are (i) of high importance to the Inuvialuit and (ii) are most at risk of being detrimentally-affected by cumulative effects given the types of past, present and reasonably-foreseeable human activities and infrastructure. High priority environmental components might include:

- Air quality
- Surface and ground water quality
- Ocean chemistry
- Anadromous fish (e.g., char)
- Harvested freshwater fish (e.g., whitefish, grayling, cisco)
- Waterfowl (e.g., tundra swans, white-fronted geese, snow geese)
- Marine mammals (e.g., beluga whale, bowhead whale, ring seal, polar bear)
- Large mammals (e.g., barren ground caribou, Peary caribou, grizzly bear, muskox, moose, wolf)
- Furbearers (e.g., Arctic fox, muskrat, beaver)

In addition, a concerted effort should be made to develop a spatial database on the major biophysical units within the ISR. Information on biophysical units (or major vegetation cover types) is of importance not only in documenting the status of identifiable ecological units on the landscape, but also as a basis for assessment of wildlife habitat. Where possible, biophysical mapping (which integrates information on landform, soils, vegetation cover and moisture) should be developed in preference to vegetation maps, as the former provides a much stronger basis for environmental assessment than the latter.

For human uses, the database should build on that already described for human activities and land uses described above. Specifically, the database should also include information on the quality of the experience, in addition to locational, temporal and operational details. For example, some industrial developments or recreational uses may detrimentally affect the quality of experience for traditional uses as a result of noise, odor and/or aesthetic/visual changes.

The identification of priorities for development of databases for environmental components and human use should be based on input from the Inuvialuit communities (e.g., the Hunter and Trapper Committees) and the Inuvialuit co-management organizations (e.g., IGC, FJMC, WMAC), as well as from various federal and territorial agencies that are responsible for management of these environmental resources (e.g., CWS, DFO, RWED).

### **Linkage to the EISC and EIRB Processes**

The regional databases described above will be useful to proponents in completing the screening applications for submission and review by the EISC. Information compiled by the proponent may also be useful in updating the regional databases.

#### *Use of the Regional Databases for Completion of Screening Applications and EIAs*

The financial costs and time requirements for development of regional databases on human activities and infrastructure, as well as regional databases on key environmental components, are often one of the most significant impediments to the completion of CEAs by project proponents. There is also substantial variation in how different applicants measure and characterize other activities and projects, and how they assess the effects of their project and other projects and activities on key resources.

The development of a regional database on human activities and infrastructure would therefore greatly aid proponents in more consistently placing their project in the context of other developments and uses with environmental effects similar to their own. Information on key environmental components and human use would help proponents assess changes in the status of key species, resources and uses as a result of their project's contribution to cumulative effects. Access to both of these types of databases would help ensure that applicants for projects within the ISR will begin from a similar information base, therefore promoting greater consistency among different applications and assessments. As noted below, use of the regional databases by applicants would likely require the establishment of data standards, liability exemptions, and cost recovery mechanisms.

The regional database would also aid the EISC and EIRB in confirming that the applicant's CEAs have adequately considered other projects and activities in relation to the proposed project. In some cases, the EISC and EIRB may use the databases to complete their own CEAs, for example, in completing a regional assessment to determine if the cumulative effects of certain activities are approaching a regional threshold.

#### *Updating of the Regional Database Using Screening Applications and EIAs*

As screening applications are submitted, information will be provided by proponents that may be useful in updating and improving the existing databases on human activities and infrastructure, environmental components, and human use. Resource management agencies (e.g., CWS, RWED, DFO) may also be able to provide new information through their input to screenings or environmental reviews.

During the initial development of the databases, such inputs are likely to consist of hard copy information as opposed to spatially-referenced digital information. Input of this information will therefore require digitization of data on the proposed project (spatial, temporal and operational attributes), new data on environmental resources and human use, and analyses of effects on environmental resources and human use.

However, as the database is developed, protocols should be developed for submission of supporting data with screening applications and environmental reviews. For example,

data might be required to be submitted in a specific spatial format for map-based data or a specific digital format for attribute data. The B.C. Resource Inventory Committee and the Alberta Conservation Data Centre have developed protocols and standards for environmental data collection and management that may be of use in developing protocols and standards for regional databases in the ISR.

### **Linkage to Land Use Permitting and Project Approvals**

Substantial information on human use and development is obtained on an annual basis by Inuvialuit, territorial and federal agencies such as the Inuvialuit Land Administration, RWED and DIAND as part of their land use and permitting processes. The National Energy Board will also be an important source of information on oil and gas activity. Transport Canada will be able to provide some information on air traffic, whereas the Canadian Coast Guard would be able to provide some information on shipping traffic on the Mackenzie River and in the Beaufort Sea.

Information from these various agencies will be important in initially developing the regional databases on human activities and infrastructure. To facilitate updating of these databases, it is recommended that electronic mechanisms be developed for sharing data on land use permits among Inuvialuit, territorial and federal agencies. It is expected that a regional database of this type would be useful to some of these permitting agencies in ensuring that they meet their regulatory requirements under acts such as the *Canadian Environmental Assessment Act*.

### **Sharing of Resource Information**

A number of agencies already collect and manage large databases on environmental components and human use; these include:

- Environment Canada: climatic data, environmental quality (air, water) and hydrological data;
- DFO: Fish population and habitat information;
- CWS: Migratory waterfowl and some species of marine and terrestrial mammals;
- RWED and Yukon Renewable Resources: Furbearer and large mammal populations and habitat use and availability; and
- IGC: harvest data

While the EISC and EIRB could maintain their own databases on these environmental components and human uses, this would be redundant with other agencies, as well as costly and staff intensive. Instead, it is recommended that mechanisms be developed for sharing of data among these agencies. The EISC and EIRB would have access to databases for specific environmental components and human use. In exchange, the EISC and EIRB would share new information and updates obtained through the screening applications, environmental reviews and associated field studies.

Restrictions on release of some environmental and human use data would be required to ensure that information on sensitive species, special use habitats (e.g., raptor nest sites, bear den sites), archaeological and cultural sites, and preferred harvesting sites are not available to the broad public, and that potential users of this information have valid reasons for accessing this information.

### **Management of the Database**

There will be a number of considerations in establishing and managing the regional databases, including:

- Responsibility for provision of staff, hardware and software for management and maintenance of the databases
- Funding for management and maintenance of the databases
- Quality assurance and quality control
- Liability
- Confidentiality

It is assumed that the management and maintenance of the database could be coordinated through the IGC, with specific responsibilities assigned to the EISC, EIRB and ILA. Agreements would have to be developed and agreed upon with various territorial (NWT and Yukon) and federal agencies for sharing of information, cost sharing and quality assurance/quality control.

Consideration should also be given to the costs for management and maintenance of the databases. Cost recovery mechanisms are often employed in managing and maintaining other regional databases. For example, commercial users (proponents, consultants, industry) might be asked to pay a fee based on the staff and equipment costs to access specific data sets, as well as a portion of the costs to maintain and update the database.

While Inuvialuit organizations, in combination with territorial and federal agencies may be the principle contributors to the initial establishment of the regional databases, a wide range of project proponents, consultants, and academic researchers could provide information at a future date. If the databases are to maintain their usefulness and reliability, it will be essential that standards are developed for data quality assurance and quality control.

Use of the regional databases by project proponents and others could result in exposure to legal liabilities for errors and omissions. It is recommended that users of the regional databases be required to sign a liability waiver prior to the use of any information from the regional database.

As noted earlier, some types of information on traditional use, cultural and archaeological sites, and industrial uses are considered to be confidential. If these data sources are going to contribute information to the regional database, it will be important that conditions for release of this information are well established. Users of confidential information will have to agree to conditions on the use and release of the information. It is also likely that only certain types of users would have access to confidential information. Similar restrictions would have to apply to databases on environmentally-sensitive information (e.g., nest sites, salt licks, den sites, migration routes).

