

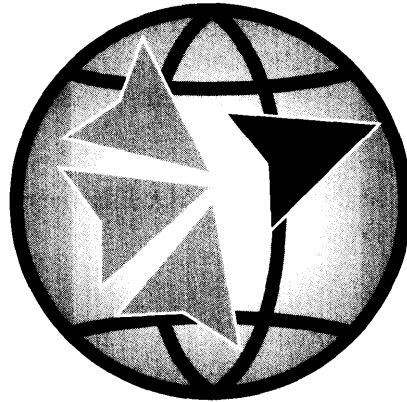
ENVIRONMENTAL ASSESSMENT
IN CANADA

Frameworks,

Procedures

& Attributes

of Effectiveness



A Report in Support of the International Study
of the Effectiveness of Environmental Assessment

by
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of Environmental Assessment

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1.0 INTRODUCTION

Environmental assessment is widely used in Canada as an instrument for development planning and decision making. The institutional arrangements for this purpose are both well developed and administratively complex. Canada is a federal state in which responsibility for EA is divided between the national level, ten provinces, two territories, municipal and First Nation jurisdictions. All of these jurisdictions have established operational EA systems which are characterized by a mix of common and distinctive elements. In addition, various joint EA regimes have been created under federal-provincial agreements, and separate processes are in place in a number of municipalities and in native jurisdictions.

Recently, comprehensive reforms were made to the federal and some provincial EA systems (e.g. Alberta, British Columbia, Nova Scotia). Other jurisdictions have made procedural adaptations within existing institutional frameworks (e.g. Ontario, Quebec). As well, the intergovernmental framework for EA coordination is being overhauled. These changes to law and process respond to acknowledged deficiencies in the effectiveness and efficiency of previous EA practice. In effect, a 'second generation' of Canadian EA systems are emerging, replacing or modifying the frameworks and processes that date from the seventies and eighties.

This report describes these developments. It reviews and compares the federal, provincial and territorial EA frameworks and processes, identifies the attributes of effectiveness for 'new generation' Canadian systems, and relates these to trends and issues of contemporary practice. The analysis has been undertaken as a joint initiative of Canada's EA Administrators and contribution to the ongoing work of the international study of EA effectiveness. As such, the report supplements the country status report prepared by Canada as part of the effectiveness study and provides a basis for further research and development of the enabling conditions of sound practice.



2.0 AN OVERVIEW OF CANADIAN EA SYSTEMS

The main features of federal and provincial EA systems are briefly described in this section. A three part review is undertaken focusing on:

- i) institutional frameworks, including law and other basic requirements;
- ii) process and procedures of EA application; and
- iii) interjurisdictional cooperation, including joint EA regimes established by federal-provincial agreements.

2.1 Institutional Frameworks

A composite 'at-a-glance' overview of institutional similarities and differences among Canadian EA systems is given in Figure 1. The provisions and arrangements made by federal, provincial and territorial governments are comparatively reviewed against 18 characteristics considered by Canadian EA administrators to be important. Each element is briefly reviewed and current practices are summarized. When combined, the elements provide a composite profile of Canada's EA systems and illustrate the respective credentials of the federal, provincial and territorial processes.

2.1.1 Environmental Assessment Legislation

Environmental assessment is formally legislated in ten provinces and one territory (Figure 1). The federal government passed the *Canadian Environmental Assessment Act* (Act) and "proclaimed it" in January 1995, thus bringing the statute into effect. Prior to this and since 1984, the federal environmental assessment process was guided by a Cabinet order. The Yukon Territory has no formal instrument. Land and resources in the Yukon Territory are generally covered by the federal legislation. The Ontario Environmental Assessment Act (1975) is the longest in use.

2.1.2 EA is a Planning Process and Impact Assessment

The federal process requires proponents to follow a logical planning process, as well as predicting and mitigating environmental impacts. This combination of a planning process and impact assessment is shared by four provinces and one territory. Six provinces and one territory require proponents to evaluate impacts, identify mitigative measures and assess the residual impacts of the project, but do not require a proponent to follow a prescribed process (Figure 1).



2.1.3 Definition of the Environment

One territory defines environment as being the physical and biological environments. The federal and four provincial jurisdictions also include the social and economic environments in so far as they may be affected by a change in the physical or biological environment. An impact on fisheries could affect the economic and social well being of a community and thus these economic and social impacts must be addressed. Six provinces and one territory use a broad definition of environment which includes physical, biological, social, economic, cultural and technical matters (Figure 1).

2.1.4 Public and Private Sector Application of EA

All jurisdictions apply EA to both the public and private sector with the exception of Ontario and Yukon (Figure 1). In Ontario, private sector projects which are similar to public sector projects, e.g., infrastructure and landfill sites are subject to environmental assessment. Other private sector projects such as hydroelectric dams, mines or industrial complexes can be made subject to the Ontario Environmental Assessment Act if other legislation is unlikely to be effective in achieving environmental protection as broadly defined in the Act. The Ontario government would pass a project specific regulation to do this.

2.1.5 Scope of Environmental Assessment Act or Policy

Four provinces apply environmental assessment to projects, activities, programs and plans. Five other provinces and the federal government apply environmental assessment to projects and activities only. Both territories apply it only to projects. The federal government has a separate EA process for federal government policies and programs based upon a Cabinet directive.

2.1.6 Size of Projects that are Assessed

Seven of Canada's provinces provide specific lists of projects that are assessed. These lists are usually compiled on the basis of the risks or threats to the environment. Other provinces and the federal government apply environmental assessment to major and minor projects. The federal government lists major projects which require comprehensive study. There are mechanisms for low impact projects to be screened out of the assessment process. Alternatively, a streamlined process, such as the class environmental assessment process in Ontario is used to environmentally assess minor projects. The ClassEA in Ontario, applies to projects which have (i) predictable effects, (ii) can be mitigated with known technologies, and (iii) are frequent in number and often small in scale. The territories apply environmental assessment to major projects which are usually determined by the Minister or government on a case-by-case basis.



2.1.7 Policy Level Environmental Assessment

Two Canadian jurisdictions, namely, Newfoundland and Nova Scotia have provision for policy level environmental assessment. The federal government, however, requires an evaluation of the environmental implications of policies submitted for Cabinet consideration. There is a procedure for doing this which is not part of the environmental assessment legislation. On occasion, other provinces have undertaken EAs with major policy elements, e.g. Ontario has done so for timber management and a 25-year energy demand-supply plan.

2.1.8 Cumulative Effects

The federal government, Alberta and British Columbia require proponents to assess the cumulative effects of their projects on the environment. In these three jurisdictions, this provision is explicit in new legislation. Some jurisdictions take the view that the responsibility to assess cumulative effects is implied or is explicit in various interpretative guidelines which have been produced to assist practitioners in environmental assessment. Other jurisdictions (those marked “X” in the Figure 1 column on Cumulative Effects) have no explicit or implied requirement to address cumulative effects.

2.1.9 Alternatives to the Project

The new federal Act and three provincial jurisdictions require proponents to address alternatives to the undertaking which are functionally different from the project under examination. For example, a proponent of a highway project may be required to examine alternatives such as rail in terms of its effectiveness in solving the problem and its environmental impacts. Most provinces and the federal government require proponents to examine alternative methods of implementing their project. This involves variations in design, e.g., a bridge versus a tunnel. Both territories only require a proponent to examine the specific project for which they are seeking approval.

2.1.10 Approvals Granted under Environmental Assessment

With one exception, all provinces issue a formal environmental assessment approval, licence or permit (Figure 1). These typically specify conditions of approval for the project to follow. Both territories, federal government, and Newfoundland provide advice to government regulators relative to environmental approvals. This advice is informal and non-binding. Upon receipt of this advice, government agencies proceed to evaluate the project and issue approvals as appropriate. There has been a trend to move towards issuing a formal EA approval with explicit conditions.



2.1.11 Provisions for Exemptions

Except for New Brunswick and Manitoba, all jurisdictions make provision for granting exemptions to proponents from the requirements of environmental assessment legislation (Figure 1). In some cases, the process for gaining an exemption is entirely discretionary and a matter for government to decide, as in the case of Ontario, Newfoundland, and Nova Scotia. In other circumstances, explicit criteria or thresholds are set forth for proponents to be granted an exemption as in the case of Quebec, British Columbia and Canada. In Saskatchewan exemptions can be granted in emergencies.

2.1.12 Public Involvement

Public involvement is a cornerstone of Canadian EA. It is explicitly required in legislation by seven provinces and the federal government. Other jurisdictions strongly advise proponents to provide for public involvement particularly of those who may be affected by the project or activity. Most jurisdictions provide guidance on appropriate mechanisms for public involvement.

2.1.13 Independent Review of Environmental Assessment by Panel or Board

All jurisdictions with the exception of Prince Edward Island and the Yukon provide for the use of an independent review panel or legally constituted board to examine environmental assessments in special cases. The special cases may constitute highly controversial projects, new technologies, or a major commitment of natural resources. A large hydroelectric project, nuclear waste disposal technology, or a pulp and paper mill are examples of projects that have been referred for independent panel review.

2.1.14 Authority of the Review Panel or Board

In most Canadian jurisdictions, the review panel or board provides recommendations to government (Figure 1) which it is not obligated to follow. However, the principle that those who heard the evidence are in a good position to judge matters, carries considerable weight. Two provinces, namely Alberta and Ontario, have review boards which make decisions. In these two jurisdictions, government essentially gives the decision making authority to the Boards who decide the matter based on the evidence placed before them. Under the *Canadian Environmental Assessment Act* an EA panel or mediator is required to come to a conclusion on project justifiability. A negative conclusion, namely that a project cannot be justified in the circumstances, can be overturned only by Cabinet Order.

2.1.15 Formality of the Panel or Board Carrying out the Review

In five provinces, one territory and federally, panels or boards are formally constituted but are not judicial (Figure 1). Thus the test of evidence in law courts and legal procedures are not necessarily adhered to, evidence is not sworn and cross examination of witnesses is infrequent. In four provinces, however, the process is judicial or quasi-judicial. This is essentially an adversarial process in which the views and opinions of various parties are tested and challenged before the hearing panel or board. Witnesses are examined and administrative justice rules prevail, e.g. fairness, impartiality.



2.1.16 Intervenor Funding for Panel or Board Process

Six provinces and two territories have no formal funding system to support participants in panel or board reviews (Figure 1). However, this is changing. Four provinces and the federal government now have formal intervenor funding processes. In the case of the federal and British Columbia jurisdictions, the government financially assists intervenors to present their case to the hearing panel or board. In Alberta, Manitoba and Ontario, the proponent pays the funding to intervenors at the hearing. The amount of funding is highly variable. In some jurisdictions the amount of funding is adjudicated by a panel. Such panels determine who should receive funding on the basis of their particular interest in the project or activity and what the amount of that funding should be.

2.1.17 Participant Funding Early in the Planning Process

Manitoba, British Columbia and the federal jurisdictions have specific provision for providing funding to interest groups early in the planning process. In the case of Manitoba, participant funding is on a discretionary basis. In the case of British Columbia and the federal government, participant funding is encouraged through guidelines on a voluntary basis. Other jurisdictions encourage proponents to make available some funding to help particular interest groups or other governments participate in the environmental assessment process, e.g., indigenous peoples.

2.1.18 Conflict Resolution Provision

Most jurisdictions do not provide for conflict resolution, however, this situation is changing. Five provinces currently use or promote mediation and conflict resolution throughout the environmental assessment process. The federal Act provides an opportunity to use mediation to reach consensus about the measures to address the adverse environmental effects of the project. This has the potential to avoid the time and expense for a panel review.

2.1.19 Conclusions

Environmental assessment in Canada is a living and evolving process. Canada, British Columbia, Alberta and Nova Scotia have recently changed their legislation. The trend overall is towards a bigger-picture, more comprehensive and increasingly democratic process for planning and decision making to meet the challenge of sustainability. Three institutional developments are improving EA performance.

Broader consideration of need and alternatives. There is a critical requirement to take a ‘big picture’ view of problems if sustainability is to be realised. Canadian practice has shown considerable progress in examining need and alternatives to a proposal. For example, Ontario Hydro’s twenty-five year Energy Demand-Supply Plan was subject to the Ontario EA process including a quasi-judicial hearing which resulted in the plan being withdrawn by the proponent when demand projections were revised. Highway authorities may be expected to take a broad transportation approach to solving problems rather than limiting the solution to increased highway capacity.



Extending and deepening public involvement. This is vital to enhanced allocation and management of environmental resources. Public involvement, through deeply entrenched Canadian EA processes, has changed over time from strictly information dissemination to broader consultative approaches. Direct public involvement in decision making is evident in many public sector projects. Recent enhancements to the federal system include an electronic public registry of projects, public consultation during comprehensive studies and mediation as an alternative to the well established public hearings or panel process. Environmental assessment is changing from being strictly an impact analysis into both a process involving public input and an impact analysis involving mitigation and monitoring.

Focus on cumulative effects. This is becoming a reality in many EAs. Two aspects to cumulative effects assessment are evident, firstly the cumulative effect of the project when added to past projects on key indicators of sustainability **such** as carrying capacity and secondly, the cumulative effect of the project and other proposed or potential projects on valued ecological and environmental resources. The latter is sometimes addressed through public policy development and land use planning. The West Castle decision of the Alberta Natural Resources Conservation Board dealt with the ecological footprint of a proposed mountain resort, encompassing cumulative effects, carrying capacity and biodiversity.

In Canada, environmental assessment is legislated and in most jurisdictions provides for specific EA approvals. In some jurisdictions other approvals are prohibited until the EA approval has been obtained, e.g. Canada and Ontario. There is a trend to define environment in broad terms so that it includes the biophysical, social, economic, cultural and technical environments.

2.2 Processes and Procedures

An overview of the procedural similarities and differences among Canadian EA systems is given in Figure 2. The processes followed by federal, provincial and territorial governments when applying EA are compared against 11 characteristics considered by EA administrators to be important. Each of these elements are reviewed in brief. When combined together, they provide a composite profile of Canadian EA processes and the main steps and activities that are undertaken.



Figure 1 - Overview of Environmental Assessment in Canada

JURISDICTION																		
	EA Act	EA Planning Process and Impact Assessment	Broad Definition of EA	Public & Private Sector	Scope of Act	Size of Projects	Policy Level EA	Cumulative Effects	Alternatives	Approvals Granted	Provisions for Exemptions	Public Involvement	Review of EAs	Authority of Review Panel or Board	Formality of Panel or Board	Intervenor Funding for Panel or Board Process	Participant Funding Early in Planning Process	Conflict Resolution Provisions
British Columbia	•	•	•	•	•	○	X	•	○	•	○	•	•	X	○	•	○	○
Alberta	•	•	•	•	○	○	X	•	○	•	X	•	•	•	•	○	X	•
Saskatchewan	•	•	•	•	○	•	X	•	○	•	X	•	•	X	•	X	X	
Manitoba	•	•	•	•	○	○	X	○	○	•	•	•	X	•	○	•	○	○
Ontario	•	○	•	○	•	•	X	X	•	•	X	○	•	•	○	X	○	○
Quebec	•	○	•	•	○	○	X	○	○	•	○	•	•	X	○	X	X	○
New Brunswick	•	○	○	•	•	○	X	○	○	•	•	•	•	X	○	X	X	X
Nova Scotia	•	•	•	•	•	○	•	X	○	•	X	•	•	X	○	X	X	X
Prince Edward Island	•	○	•	○	•	X	○	•	•				X		X	X	X	
Newfoundland	•	•	○	•	○	•	X	•	○	X	•	•	X	○	X	X	X	
Northwest Territories	•	•	X	•	X	•	X	X	X	○	○	X	•	X	○	X	X	X
Yukon	X	○	•	○	X	X	X	X	○	X		○	X	X	X	X	X	
Canada (CEAA)	•	•	•	•	•	X	•	•	○	○	•	•	X	○	•	○	•	

Key: See "Key to Figure 1" page 12.

Prepared: September, 1994

Compiled by: EA Branch, MOEE, Ontario from survey of jurisdictions.



KEY TO FIGURE 1

EA Act	<ul style="list-style-type: none"> • Legislated ○ Policy or guideline X No formal legal instrument
EA as Planning Process and Impact Assessment	<ul style="list-style-type: none"> • EA is Impact Assessment ○ EA is a Planning Process and Impact Assessment
Broad-Definition of Environment	<ul style="list-style-type: none"> • Biophysical, Socio-economic and Technical; direct and indirect ○ Biophysical and related socio-economic effects X Biophysical only
Public and Private Sector	<ul style="list-style-type: none"> • Public and Private Sector ○ Public Sector and selected private sector X Public Sector
Scope of Act/Policy	<ul style="list-style-type: none"> • Projects, Activities, Programs, Plans ○ Projects, Activities X Projects only
Size of Projects	<ul style="list-style-type: none"> • Major and minor impacts and large and small projects ○ Specific lists of projects X Major projects or as determined by Minister
Policy Level EA	<ul style="list-style-type: none"> • Included in legislation X Not included
Cumulative Effects	<ul style="list-style-type: none"> • Explicit requirement in Act or Regulation ○ Implied or guideline basis X Not required
Alternatives	<ul style="list-style-type: none"> • Explicit requirement to examine functionally different alternatives to the project e.g. rail vs. road vs. air ○ Explicit requirement to examine different alternative methods of implementing project e.g. sites or designs X Examine the project only
Approvals Granted	<ul style="list-style-type: none"> • Formal approval, licence or permit issued for EA with explicit conditions ○ Specialist advise to other agencies to issue their approvals X No formal or informal approval granted
Provision for Exemptions	<ul style="list-style-type: none"> • No provisions for exemptions ○ Exemptions based on defined thresholds or criteria X Discretionary exemptions granted by government
Public Involvement	<ul style="list-style-type: none"> • Statutory requirement in Act or Regulation ○ Voluntary and suggested in guidelines X No explicit requirement
Review of EAs	<ul style="list-style-type: none"> • Provisions for independent review by panel or board ○ In-house review X No provision
Authority of Review panel or board	<ul style="list-style-type: none"> • Decision making X Recommendations only
Formality of panel or board	<ul style="list-style-type: none"> • Judicial or quasi-judicial adversarial ○ Formal but not judicial X Informal
Intervenor Funding for panel or board process	<ul style="list-style-type: none"> • Government pays ○ Proponent pays X No formal funding
Participant Funding early in planning process	<ul style="list-style-type: none"> • Explicit statutory requirement ○ Voluntary, encouraged by guidelines X No requirements
Conflict Resolution Provisions	<ul style="list-style-type: none"> • Mediation or Alternative Dispute Resolution (ADR) offered as an alternative to review by board, agency or panel ○ Mediation or ADR offered throughout the EA Process X Conflict resolution not offered





2.2.1 Project Screening

Screening is a mechanism for evaluating the probable impacts of a project based upon past experience with similar projects. Eleven of the thirteen jurisdictions provide for project screening (Figure 2). The federal system provides a comprehensive study list that requires a detailed analysis of projects that are listed. Concurrently, the federal jurisdiction lists activities which are excluded from consideration. Many projects or activities which are not on the comprehensive study or exclusion lists are screened to ascertain the significance and mitigability of the impacts. If the screening has identified the need for further review, taking into account any appropriate mitigative measures, the Minister of Environment may be asked to refer the project to mediation or a panel review. Whereas other projects or activities which are shown to have mitigable impacts are screened out of further work under the environmental assessment legislation.

Similar processes exist in most of the provinces. In Ontario, a comprehensive class environmental assessment process is used for small or low impact projects such as minor power transmission lines, water supply works, local roads. The class environmental assessment process provides for studies and limited public involvement for minor impact projects and more detailed studies and public involvement process for larger projects still within the class environmental assessment. There are eleven classes of projects which follow this screened process in Ontario.

2.2.2 Scoping to Key Decision Topics

Approximately half of the jurisdictions have made provision for focusing environmental assessment on key decision topics (Figure 2). These include the federal system, five provinces and one territory. Other jurisdictions have maintained a comprehensive approach to assessment. However, it is expected that there will be a continued trend towards scoping to key decision topics with a view to improve effectiveness and efficiency.

2.2.3 Project Terms of Reference

Most jurisdictions develop specific terms of reference for a comprehensive environmental assessment at the beginning of the process. This requirement is legislated in some jurisdictions and is informal in others. These terms of reference are used as the basis for managing the process and determining the adequacy of the environmental assessment. Ontario has developed terms of reference for some groups of projects, for example, landfill siting projects.

2.2.4 Specific Mitigation

All jurisdictions require proponents to specify what mitigative measures they propose to apply in order to limit or ameliorate adverse effects of the project or activity. In a legislated environmental assessment process, these mitigative measures can constitute a legal and binding obligation on the proponent.



2.2.5 Filing an Environmental Assessment or Report

All jurisdictions with the exception of the Yukon require a proponent to file a document known as an environmental assessment or an environmental impact statement. Jurisdictions have specific guidelines which set out the content, organization and level of detail to guide proponents in the preparation of these documents.

2.2.6 Review of Environmental Assessment by Government and the Public

EA reports must also be available to the public who are given an opportunity to provide comment to the decision maker on the environmental assessment. All provinces and the federal jurisdiction require that the environmental assessment be formally reviewed by governments (Figure 2). In some jurisdictions, a formal government review report is published. Public notice is provided that this government review is available. Such notice is provided through newspapers and/or the electronic medium of a registry. The review of the environmental assessment will comment on the adequacy of the proponent's response to the project terms of reference, will identify outstanding information requirements and may recommend specific terms and conditions that should be imposed on the proponent by the approving authority.

2.2.7 Terms and Conditions of Approval

Ten out of thirteen jurisdictions make provision for imposing terms and conditions on any environmental assessment approval. These terms and conditions usually respond to information gaps, contingency plans, and other matters that can be resolved by a proponent taking specific action. In some jurisdictions, terms and conditions can be used to limit the extent of a development. Upon receiving an environmental assessment approval, the proponent must then evaluate whether a project remains viable under the conditions set.

2.2.8 Surveillance of Construction or Implementation

Only Alberta and Newfoundland formally carry out surveillance of construction or implementation of the project to ensure compliance with the conditions of approval (Figure 2). Most other jurisdictions carry out surveillance of some key activities related to the environment, e.g., construction activities within a river. The emphasis of the past has been on prediction and mitigation of impacts; the trend for the future is towards enhanced surveillance, monitoring and periodic auditing.

2.2.9 Monitoring of the Effects or Post-Construction Evaluation

Three provinces require that monitoring of environmental effects be carried out (Figure 2). This can be done by the proponent and reported to the legislated authority or as a matter of routine by local regulatory officials. Such monitoring would ensure compliance not only with environmental assessment approvals but also with other environmental legislation. Most jurisdictions undertake monitoring on a partial or optional basis. Often public complaints will trigger an investigation or inspection.



**Figure 2:
EA Procedures in Canada**

JURISDICTION	EA Procedures										
	<i>Project Screening</i>	<i>Scoping to Key Decision Topics</i>	<i>Project Terms of Reference</i>	<i>Specific Mitigation</i>	<i>EA or EIS Document Filed</i>	<i>Review of EA by Governments and Public</i>	<i>Terms and Conditions of Approval</i>	<i>Surveillance of Construction or Implementation</i>	<i>Monitoring of Effects or Post-Construction Evaluation</i>	<i>Periodic EA Audits of Approvals</i>	<i>Periodic Evaluation EA Process</i>
British Columbia	•	•	•	•	•	•	•	x	•	•	•
Alberta	•	•	•	•	•	•	•	•	•	•	•
Saskatchewan	•	•	•	•	•	•	•				•
Manitoba	•	x		•	•	•	•		•	x	•
Ontario	•	x	x	•	•	•	•	x	•	x	•
Quebec	x	x	•	•	•	•	•	•	•	x	•
New Brunswick	•	•	•	•	•	•	•	○		x	•
Nova Scotia	•	x	•	•	•	•	•	x	•	x	•
Prince Edward Island			•	•	•	•	•	•		•	•
Newfoundland	•	•	•	•	•	•	•	•	•	x	
Northwest Territories			•	x	•	•	•	○	x	x	
Yukon	•	•	x	•		x		•	x	x	x
Canada [CEAA]	•	•	•	•	•	•		x		x	•

KEY: • Yes ○ Partially/Optionally x No

Compiled by: EA Branch, MOEE, Ontario from survey of jurisdictions.

Prepared: September, 1994



2.2.10 Periodic Audits of Approvals

Currently, only three provinces carry out periodic audits of approvals (Figure 2). The province of Saskatchewan undertakes audits on an 'as-needed basis'. Many jurisdictions do not carry out such audits. Most jurisdictions anticipate public demand for such audits in the future.

2.2.11 Periodic Evaluation of the Environmental Assessment Process

Environmental assessment in Canada is a living process. It responds to changes in public expectations, attitudes and developing technologies. Most jurisdictions have carried out or are in the process of carrying out major reviews of their environmental assessment process (Figure 2). The federal government, British Columbia, Alberta and Nova Scotia have recently enacted new legislation governing environmental assessment. Saskatchewan intends to present new legislation to the provincial assembly. Ontario has concluded a major administrative reform of their environmental assessment process which reduced the time to conduct government reviews by 60%, developed extensive guidance for proponents and applied conflict resolution techniques to solving problems.

2.2.12 Conclusions

Despite the important developments described above, there are a number of problems with process efficiency and cost-effectiveness. The time, costs and uncertainties associated with EA are the subject of long standing complaints by industry and development proponents. Lack of complete harmonization between the EA systems also contribute toward duplication of work and increase time and cost burdens imposed on proponents (see below). Many improvements demanded by user and client groups can be easily implemented. These include firm timelines for completing the process, clear and explicit guidance to proponents and consistent administration of the rules of the game. All jurisdictions are moving in these directions, but this is also a time of 'downsizing' budgets and staffing in Canada.

2.3 Interjurisdictional Arrangements for Environmental Assessment

During the 1990s, the coordination of EA processes has become a significant preoccupation in Canada. Several initiatives are being pursued with a view to establishing a new interjurisdictional regime for the application of EA. These respond to long standing concerns with overcoming the problems of duplication, delay and inconsistency caused by division of responsibility for environmental protection between levels of government. Recent interest in process harmonization was triggered by several high-profile conflicts over EA requirements for water resource developments, two of which were the subject of litigation and judicial decisions. Superimposed on these events are new international conventions, regional and bilateral treaties and agreements on environmental protection which impinge upon EA practice, often requiring federal-provincial consultation.



2.3.1 Canadian Cooperative Federalism

Under the *British North America Act* of 1867, federal and provincial governments have broadly prescribed 'heads of power' related to what is now known as the environment. For example, the federal government retains responsibility for 'navigable' waters, fisheries, indigenous peoples **and** native lands, the territories and matters necessary for 'peace, order and good government' (a clause which has been **used** to expand federal powers). The provincial governments were assigned authorities for all (other) natural resources and crown (public) lands within their boundaries. In the case of the Northwest and Yukon Territories, there has been steady devolution of powers for environmental management to the territorial governments. As well, native peoples have been given considerable autonomy over the administration and disposition of lands and resources under a series of treaties and land claim agreements.

Cooperative federalism is the term widely used to describe the process of federal-provincial regulation and exchange to clarify and/or adjust the division of powers, in this case with regard to environmental protection and assessment. This has become an area of growing interest to legal and policy analysts. One commentator has recently described it as a 'soft-law twilight zone', where the public interest becomes 'lost in (intergovernmental) space'. By which he means environmental law and policy are articulated through an obscure, largely secret process 'that is inaccessible to the public, . . . almost unknowable even for lawyers. . . and largely escapes both legislative control and judicial review' (Gertler, 1993, 260). While this metaphor contains certain elements of truth, it also overlooks recent advances and the political checks and balances that are built into them.

2.3.2 The Impact of the Rafferty and Oldman Court Decisions

The legal impetus to recent Canadian developments in cooperative EA, stems from court decisions on the *Rafferty Alameda* (1989, 1990) and the *Oldman River* (1992) cases (for an analysis, see Lucas, 1993). In both instances, the interjurisdictional issue was whether the federal EA process should be applied to major dam projects which had undergone provincial assessment. A prior determining factor was that the federal Environmental Assessment and Review Process Guidelines Order (1984) was mandatory (legally binding) not discretionary, as previously believed. Federal approvals were required in the *Rafferty Alameda* project because the dam was located on an international river affecting water flows at the US border and in the *Oldman* project because the dam was subject to the *Navigable Waters Protection Act*. The political fallout and legal benchmarks associated with these decisions (*Rafferty* was upheld in the Federal Court of Appeal and *Oldman* went to the Supreme Court of Canada) signposted the need for a fundamental change in coordinating EA systems.



In addition, several previous areas of agreement were the subject of litigation and judicial review. These included:

- i) existing cooperative EA regimes, notably the James Bay Northern Quebec Agreement (Box 1);
- ii) evolving experience in establishing joint terms of reference for federal-provincial EA reviews (Box 2); and
- iii) an earlier generation of now lapsed general agreements respecting environmental quality (Box 3).

2.3.3 Legal Provisions for EA Cooperation

The *Rafferty* and *Oldman* cases, *inter alia*, precipitated the drafting of the *Canadian Environmental Assessment Act* (1995) to replace the EARP Guidelines Order. Several sections of the Act refer to and establish provisions for process coordination, including the delegation of EA responsibilities to the provinces under certain conditions of overlapping jurisdictions. As Kennet (1993) notes, the various provisions are primarily concerned with core functions of EA (information gathering, testing and dissemination) and are clearly aimed at protecting their integrity. He also identifies the relevant sections of the federal Act. Key requirements are paraphrased in Box 4, and cover, for example, harmonization of screening, comprehensive study and joint review panels.

To date, the *Canadian Environmental Assessment Act* (1995) contains the most detailed and specific legal provisions for process harmonization. Certain provincial laws also provide similar authorizations, including the substitution of EA procedures established by other jurisdictions. Alberta is an example (also described in Kennett, 1993). The province's *Environmental Protection and Enhancement Act* (1993) has provision for intergovernmental agreements and provides explicitly for joint EA that accord substantially with the Alberta Act and its specific provisions.

2.3.4 Principles for Process Harmonization

Under the auspices of Canadian Council of Ministers of the Environment (CCME), three reference documents on EA harmonization have been prepared. The CCME is a standing forum for cooperation on environmental matters. It sought interjurisdictional consensus on EA process harmonization through several steps, leading to a draft framework (see Box 5). Highlights of the CCME Draft Framework include:



- i) recognition that the federal and provincial processes are consistent in intent and principle;
- ii) acknowledgement of the need for clear rules that are consistently applied, eliminate unnecessary duplication and are sensitive to proponent needs and concerns for a timely and fair process;
- iii) statement of eighteen principles and items to be included in bilateral accords and issue specific agreements; and
- iv) commitment to establish a 'single window' for communication and coordination of matters affecting each party's EA process.

Negotiating these multilateral agreements occupies time and energy, such that it is sometimes questionable if the final agreement was worth the effort. The test, of course, lies in implementation; whether and how frameworks and agreements lead to concrete action and specific resolution of disputes. Before turning to this question, note that some Canadian legal and policy analysts have compared the CCME process unfavourable to an Australian initiative that led to a National Agreement on Environmental Impact Assessment (ANZECC 199 1). The concern is that the CCME process has been limited to broad principles and generalities, whereas the Australian agreement is more comprehensive and solidly founded (see Box 6).

2.3.5 **Bilateral Agreements**

The first bilateral agreement on process harmonization, the Canada-Alberta Agreement for Environmental Assessment Cooperation, was signed in August 1993. It is based on the principles set out in the CCME Draft Framework and provides for the establishment of subsidiary agreements on a range of specific issues. Federal and provincial officials consider the agreement represents an important step toward EA cooperation, and unquestionably it is when judged against the pre-Rafferty interjurisdictional regime.

In that context, the Canada-Alberta Agreement includes two important subsidiary protocols. These cover:

- i) joint panel reviews - with concise guidelines for the appointment of members of both governments; and
- ii) designated notification procedures - that both parties will follow with respect to projects potentially subject to joint EA.



Box 1: The James Bay Northern Quebec Agreement (JBNQA)

Established in 1975, the Agreement was signed by the Canada and Quebec governments, the Cree and Inuit, the James Bay Development and Energy Corporations, respectively, and Hydro Quebec. It established a complex regime of environmental and social impact assessment procedures. Two advisory committees were established to deal with environmental and social concerns of proposed developments for 'impact zones' north and south of the 55th parallel. South of 55°N, a tripartite Evaluation Committee, established under the James Bay Advisory Committee on the Environment, recommends to the federal, provincial and local Cree administrators the extent of EISs required for proposed development. North of the 55th parallel, the responsibility for preparation of guidelines is assigned to a Federal-Inuit Review Panel for development proposals specified under the Agreement. For other proposals, a bi-partite screening committee performs the same function. The Agreement has been the source of ongoing litigation and case law, including rulings that changes require the endorsement of all the signatories.

Box 2: Examples of Joint Terms of Reference for EA Reviews

- Terms of the Cooperative Review of the Alberta-Pacific (Al-Pac) Forest Industries Inc. Pulp Mill (1980)*.
- Canada-Nova Scotia Agreement to conduct a Public Environmental Assessment Review of the Proposed Halifax-Dartmouth Metropolitan Sewage Treatment Facility (1990).
- Canada-Manitoba Agreement on Terms of Reference for a Federal-Provincial Panel to conduct a Public Environmental Assessment Review of the Proposed Conawapa Project (1991).

* The Al-Pac Agreement has been the subject of several judicial reviews.

Box 3: Federal-Provincial Accords for the Protection and Enhancement of Environmental Quality

Seven **of** these Accords were concluded. Most are apparently no longer in force. Also, it is not entirely clear what operational impact the Accords had. Under the umbrella of the Can&-Alberta Accord, for example, there was a subsidiary Agreement concerning Environmental Impact Assessment of projects in Alberta. This lapsed at the end of its three year term, before the Court decision on the *Oldman* project. However, Alberta reportedly interpreted the Agreement as providing for a reduced federal role in EA; while the federal government reportedly initially refused to conduct an assessment, citing a parallel Canada-Alberta Fisheries Agreement (1987). It was eventually forced to do so by judicial ruling in favour of a suit brought by environmental interest groups.



While an important advance, some legal analysts consider the Canada-Alberta Agreement is open to criticism on close reading. For example, Kennet (1993) complains that the language is permissive rather than mandatory (i.e. couched in terms of 'may rather than 'shall'), and concludes that in large measure it is 'an agreement to agree'. Quite so. Much is, in fact, deferred to the conclusion of project specific terms of reference for cooperative EA. Canada and Manitoba have also signed a bilateral agreement.

The bilateral agreement can be seen as an interim step between the CCME Draft Framework and the flexibility that is necessary in particular cases. How it will work in practice remains to be seen. In the interim, other bilateral EA agreements are being concluded as a result of negotiation between the federal government and certain provinces specifically, British Columbia, Saskatchewan and Ontario. Finally, a national approach to EA has been discussed as part of the Prime Minister's initiative to improve the administration of the Canadian federation.

Box 4: Canadian Environmental Assessment Act: Provisions for Process Coordination

The relevant aspects are:

- i) provision for cooperation and delegation, respectively, of screening and comprehensive study (ss. 12[4], 17[1]);
- ii) the responsible authority must be satisfied that delegated procedures comply with the Act and regulations (s. 17[2]);
- iii) decision making authority following screening and comprehensive study cannot be delegated (ss. 29[1], 37[1]);
- iv) agreements for jointly established review panels are authorised (s. 40[2]);
- v) the agreements must be published prior to the hearings (s. 40[4]);
- vi) agreements shall provide for consideration of environmental effects and significance, public comments, mitigation, project need and alternatives, follow up, resource capacity and other factors (ss. 16[1] and [2]), (s. 41); and
- vii) jointly established panels are subject to various conditions regarding Ministerial appointment, unbiased appointees, fixed terms of reference, public participation and submission and publication of a report (s. 41).



Box 5: Toward Process Harmonization: Activities by the Canadian Council of Ministers of the Environment (CCME)

Statement of *Interjurisdictional Cooperation on Environmental Matters (CCME, 1990)*. This document includes a commitment to work towards EA harmonization, and to develop bilateral accords and issues specific agreements to promote cooperation.

Cooperative Principles of Environmental Assessment (CCME, 1991). The agreement noted the importance of cost-effective processes, minimizing uncertainty and duplication, promoting consistency and avoiding forum shopping. It also listed the common elements to these objectives, e.g., public participation, scope of review, procedures to improve flexibility and effectiveness.

Draft Framework for Environmental Assessment Harmonization (CCME, 1992). Building on the above document, the framework lists eighteen principles and items to be included in bilateral agreements. These concern notification, early identification of interests, communication and coordination, agreed time frame for EA, terms of reference for joint panel reviews, participant assistance, native participation, and monitoring and compliance with approvals.

Source: CCME (1990, 1991, 1992)

Box 6: A Comparison of Australian and Canadian Approaches to Interjurisdictional Cooperation

“Harmonization in Australia is based on a consensus regarding specific EA principles and a comprehensive intergovernmental agreement on environmental cooperation. In addition, a detailed agreement has been drafted that incorporates the ‘full faith and credit’ principle and specifies which EA process should apply in cases of overlapping jurisdiction. In Canada, foundations for harmonization are weaker, ‘full faith and credit’ has yet to be accepted as a general principle, and the CCME documents are notably short on detail. The CCME documents, when analysed with a lawyer’s eye, lack the logical structure, precision of language and attention to detail that one **would** expect in a statement of principles or framework agreement. Given these deficiencies, it is questionable whether the CCME process has achieved its potential in advancing EA harmonization at the multilateral level”.

Source: Kennet (1993, 313)



3.0 ATTRIBUTES OF EFFECTIVENESS OF EA SYSTEMS

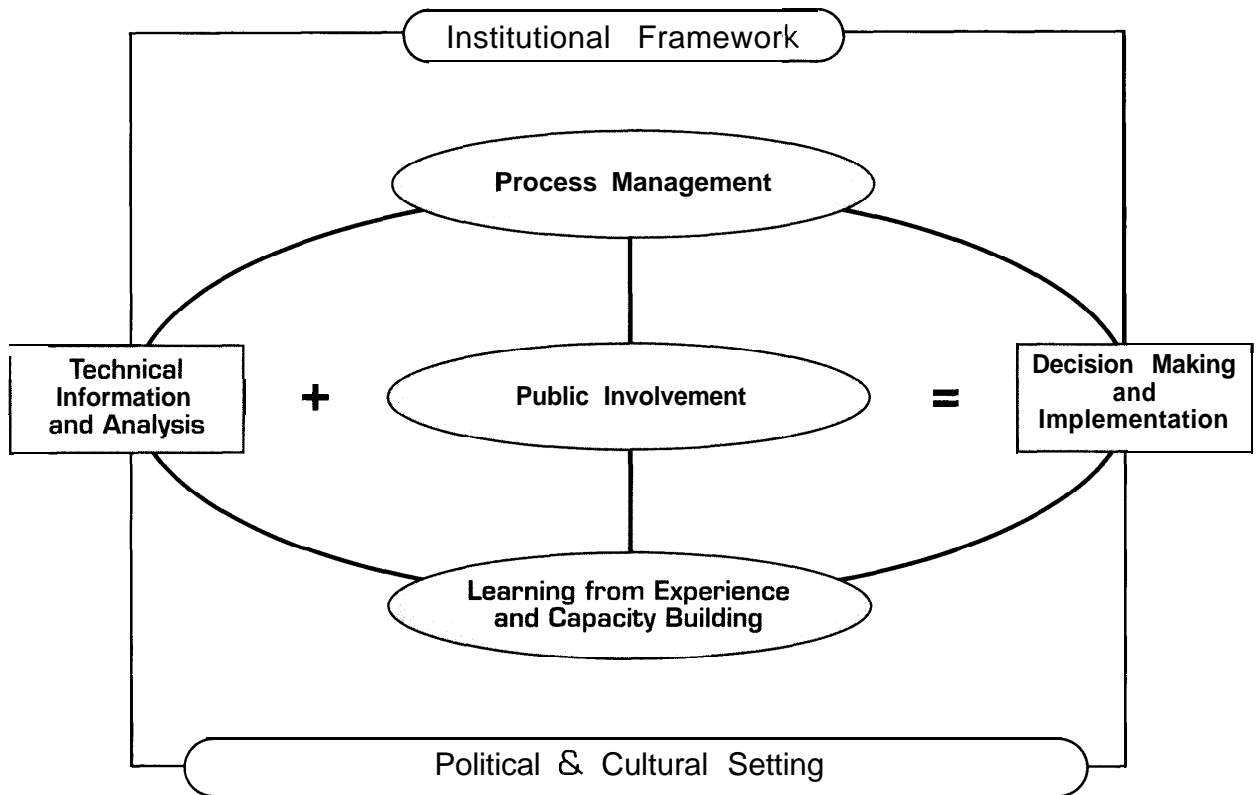
A wellfounded EA system –one that meets widely agreed objectives, principles, and criteria – is a cornerstone for good practice and effective performance. It does not necessarily follow these competencies will be achieved. However, the absence of such a system virtually guarantees the opposite result. On first glance, the trends described above suggest that the institutional frameworks and processesforEA established for federal, provincial and territorial jurisdictions provide the basis for sound practice. In this section, a closer look is taken at the attributes and aspects of effectiveness on Canadian EA systems, using Figure 3 as its initial frame of reference on the key sub-components and inter-relationships that influence how well these processes work in practice.

Figure 4 outlines ten key attributes of effectiveness for Canadian EA systems. We recognise that other attributes of effectiveness could be added but these are considered the most significant based on discussion with EA administrators and our own experience. These also draw on and correspond to EA principles and effectiveness criteria indicated in previous studies and the critical literature (e.g. Sadler 1990; Australia and New Zealand Environment Council 1992; Gibson 1993; Commonwealth of Australia 1994; and Wood 1995). As such, many of the listed attributes also may be relevant for evaluating the effectiveness of EA systems in other countries; some aspects, however, are specific only to federal states (e.g. interjurisdictional harmonization).

The effectiveness of federal, provincial and territorial EA systems – except for Quebec – are plotted individually in Figures 5 to 15 (see Annex 1). We have called these profiles EAOGRAMs. For each jurisdiction, the EAOGRAM was compiled by the senior EA Administrator responsible. This exercise was undertaken at their 1994 annual meeting, with profiles reviewed and updated subsequently. The matrix for analysis is outlined in Table 1; the ten attributes of effectiveness identified in Figure 4 were rated on five scales or dimensions (three in the case of attributes 9 and 10). While the EAOGRAMs are ‘self-diagnoses’ of system effectiveness, the analysis below is that of the authors. For each attribute of effectiveness, a brief description of the main dimensions is accompanied by an overview of jurisdictional trends, lessons of experience and implications for EA practice.



**Figure 3:
Framework of EA Effectiveness**



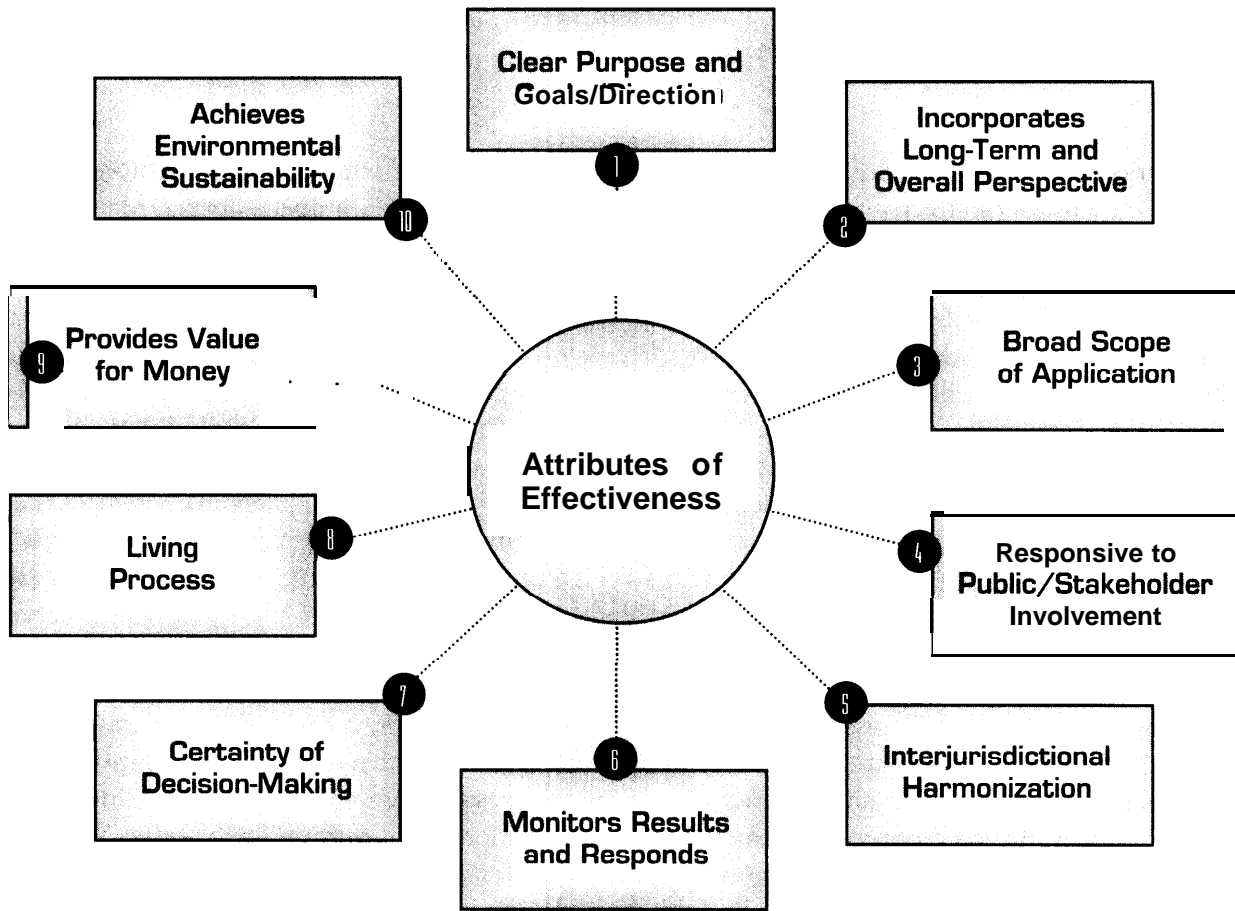
In brief, effectiveness is about how well EA works. This can be evaluated at the macro (systems) or micro (process-application) levels. Performance can be judged substantively (does it meet the assigned purpose, goals?) and procedurally (is it applied in accordance with established principles and provisions?). As indicated in the above Figure, the litmus test of effective performance is relevance for decision making (does EA facilitate informed choice?). The key determinants in this regard are the 3 r's (Sadler, 1990; 1994):

- rigorous technical analysis (e.g. employs best practicable science);
- responsive public involvement (i.e. provides appropriate opportunities for interested parties);
- responsible process administration (consistent, impartial enforcement of provisions and guidelines).

Finally follow up and feedback is the crucial link between these main components of EA activity and the institutional framework and broader political-culture of decision making of which it is part, as shown in Figure 3.



**Figure 4:
Attributes of Effectiveness**





Attribute 1: Clear Purpose and Goals

Establishing a clear purpose, with explicit goals, is an essential prerequisite for effective EA. Ideally, purpose, objectives and goals should be set out in legislation, supported by interpretative policies and procedures and backed by guidelines for the application and conduct of EA. Most Canadian jurisdictions have developed a suite of institutional arrangements along these lines. Some also have additional capability for day-to-day problem solving and trouble shooting. What constitutes clear purpose and goals can be represented by tiered, overlapping dimensions (see categories A to E in Table 1).

Jurisdictions which have recently passed new legislation or amended legislation have achieved the highest dimension of effectiveness for this attribute, namely British Columbia, Alberta, Manitoba and Canada.

There is a trend towards improved guidance and clarity of direction; it is based on the recognition that proponents and other participants in the process need to know the ground rules and have confidence that they will be consistently and impartially applied. In Ontario, for example, the class EA process, which guides the planning and development of projects of known impacts, has been upgraded substantially in recent years. Maintaining clear purpose and direction will continue to be a major challenge for EA administrators and practitioners. Canadian experience indicates the necessity of ensuring that changes in social values, environmental ethics and community concerns are reflected in the goals, principles and practices of environmental assessment; otherwise, the process becomes overly technical, bureaucratic and remote from the community which it purports to serve.

Attribute 2: Incorporates Long-Term and Overall Perspective

The philosophy of EA emphasises the importance of a holistic approach. A key attribute of effectiveness is to look beyond the immediate and short-term and consider the bigger picture. This integrative aspect, *inter alia*, is reflected by the range of factors considered in assessment and the breadth of definition of environment. As noted previously, some Canadian jurisdictions focus only on the biophysical factors, primarily at a project-specific level (dimension A, Table 1); others broaden the perspective progressively to include socio-economic (dimension B, Table 1) and cumulative effects (dimension D, Table 1). The broadest consideration would be to include biophysical, socio-economic, interjurisdictional, cumulative effects, biodiversity and sustainability as essential aspects of EA (dimension E, Table 1).



Jurisdictions with new legislation have responded to public demand that this attribute of effectiveness be enhanced and thus Alberta, British Columbia and Canada have incorporated most dimensions. As noted above the West Castle decision in Alberta took full account of cumulative effects and sustainability considerations when reducing the size of a resort development before granting approval. There is an evident trend toward examining the 'bigger picture' in Canadian EA (see also Attribute 3). Recently, the focus has expanded to encompass cumulative environmental effects, global change and sustainability considerations, e.g. no net loss concept as applied to wetlands and fish habitat at the landscape level. However., EA practice is constrained by the lack of well accepted or widely used methodologies for addressing these issues. This is a critical area for future work. Similar conclusions apply to social impact assessment (SIA), risk analysis and health impact assessment. These and other factors that are considered in EA still remain to be integrated with the predominant biophysical component(s).

Attribute 3: Broad Scope of Application

As initially developed, EA processes focused primarily on large projects (dimension A, Table 1). Subsequently, their application was broadened by the use of screening and scoping to match the process to the anticipated significance of project impacts (dimension B, Table 1). Now, many jurisdictions apply EA to large and small projects and related activities (dimension C). Some jurisdictions also apply EA to plans and programs (dimension D) and, to a lesser degree, to policies (dimension E).

The *Canadian Environmental Assessment Act* (1995) addresses projects both large and small and activities which are equivalent- to programs identified in dimension D (Figure 15). Nova Scotia, New Brunswick and Ontario examine many plans and programs under EA legislation. In Ontario the 25-year Electrical Energy Demand-Supply Plan and Timber Management Plan were examined through the EA process including extensive quasi-judicial hearings. A program for Flue Gas Desulphurization at several thermal power stations for Ontario Hydro was approved under the Ontario *Environmental Assessment Act* in 1989. Ontario's Class EA process offers a streamlined approach for small and repetitive projects with known environmental impacts, e.g. roads, urban water supply, wastewater processing, small power distribution lines.

With ecological deterioration now pervasive, EA processes which focus only on projects are partial and incomplete in their scope of application. Strategic environmental assessment (SEA) of policies, plans and programs is now widely accepted and increasingly used by practitioners. At this level, however, there is far less agreement on what constitutes workable approaches and appropriate methods.



Canadian experience to date indicates that EA methods and procedures developed at the project level are not always applicable to the strategic level, especially if broad policy is under review. It also shows that policy makers and mandarins often resist the intrusion of SEA on their turf, seeing it (understandably) as limiting their traditional powers and responsibilities. The challenge is to demonstrate that SEA is a practical means of implementing the sustainability principles and commitments, such as those concluded at the 1992 UN Earth Summit.

Attribute 4: Responsive to Public and Stakeholder Involvement

In many cases, proponents or regulatory authorities only disseminate information (dimension A, Table 1). When feedback is sought and can influence project design then consultation is occurring (dimension B, Table 1). The next dimension is participation of stakeholders and the public, characterized by the interaction with proponents and others responsible for project planning and disposition (dimension C, Table 1). When broad participation is encouraged and formal or informal mechanisms exist to resolve disputes amongst the parties, the EA process is functioning at dimension D. Finally, jurisdictions that use principled negotiation approaches to determine if and how projects will proceed are functioning at dimension E (e.g. use by proponents of community impact agreements).

The EA OGRAMs (Annex 1) show that most jurisdictions now provide for broad participation and dispute resolution (dimension D). Over the years EA processes throughout Canada are responding to community demand for participation. Failure to respond to these demands has resulted in the past to court challenges, e.g. *Rafferty Alameda* and *Oldman River Dam*.

Public and stakeholder involvement in EA requires a credible, open and disciplined process that focuses on key issues and the concerns held by individuals, groups and communities directly affected by a proposal. Recent experience demonstrates that, on occasion, interest groups commandeer the EA process to gain attention for issues that are not directly related to the proposal under review. By contrast, many provinces are recognizing the importance of consulting more extensively with First Nations, e.g. when their reserves or lands traditionally used for subsistence, recreation or spiritual purposes are likely to be impacted by proposals. Other key trends include the increasing reliance on public participation professionals in the EA process (e.g. to present technical information clearly and succinctly) and the increasing use of mediation and alternative dispute resolution techniques. Still, the basic challenge for many proponents and governments is to step beyond dissemination of information and to provide meaningful opportunities for public participation in EA, project planning and decision making.



Attribute 5: Interjurisdictional Harmonization

At the most basic level, an EA agency may act alone dealing with proponents to satisfy themselves that the project meets requirements (dimension A, Table 1). Intra-government coordination with agencies and departments with an interest in the project is represented by dimension B in Table 1. Interjurisdictional coordination involves taking account of the interests of neighbouring or other levels of government in the EA process (dimension C, Table 1). Formal agreements that set out the principles and responsibilities of each jurisdiction with respect to EA process management represent significant progress toward harmonization in a federal state (dimension D, Table 1), with the final stage comprising their linkage with the adherence to international laws and agreements to which a country is signatory (e.g. in Canada's case, the Espoo Convention on Transboundary EIA, UN Convention on Biological Diversity, North American Agreement on Environmental Cooperation [NAFTA]).

The Canadian EA process has entered into or is finalizing harmonization agreements with most provinces. International conventions have been ratified and thus Canada has achieved dimension E for this attribute. Manitoba, Alberta and British Columbia have harmonization agreements with Canada. Other provinces are in the developmental stage of similar agreements.

As noted previously, there is a strong trend towards interjurisdictional harmonization in Canada. This is driven by concerns about the duplication of work and extra costs that result from overlapping federal, provincial and territorial EA processes, the uncertainty that participants and proponents, respectively, can encounter in registering concerns or filing applications and the occasional problem of forum shopping by proponents, i.e. searching for the easiest approval in considering where to locate. Canadian EA administrators have proposed a uniform process for an extensive list of projects and activities, e.g. so that one document could meet the legislative, regulatory and policy requirements of all governments with provision for joint review and public hearings. The challenge of overcoming parochial interests and implementing a harmonized EA process across Canada remains a difficult one at a time of deficit management, government 'downsizing' and fears by the provinces and territories of federal offloading of costs as well as responsibilities.

Attribute 6: Monitors Results and Responds to Findings

A monitoring and response capability is fundamental to validate impact predictions and the efficacy of mitigation measures. If no formal mechanisms are in place for this purpose, the fall back position is reliance on public complaints (dimension A, Table 1). Next, jurisdictions may set monitoring responsibilities for proponents, including requirements for periodic reporting and documentation of results (dimension B, Table 1) and carry out periodic audits and investigations to ensure that



predicted impacts are not being exceeded or environmental standards are being met (dimension C, Table 1). A comprehensive approach to compliance monitoring encompasses the planning, construction and operational phases of a project, with results checked against environmental management plans for major projects and spot audits of smaller projects (dimension D, Table 1). Where comprehensive monitoring is complemented by contingency plans and similar response mechanisms, the EA process would be functioning at dimension E in Table 1.

The EA OGRAMs show the complete range of response for this attribute of effectiveness. The vast sparsely populated area of the Northwest Territories relies on complaints to initiate action, while British Columbia and Alberta provide for broad based monitoring and response systems. Other jurisdictions range across the dimensions B and C (Table 1).

The fundamental importance of improving impact predictability and achieving projected results for the environment is endorsed by EA jurisdictions in Canada. Increasingly, project approvals specify monitoring and reporting requirements for the project construction and operation phases; contingency plans are sought when there is uncertainty over impact predictions; and public liaison committees are established to provide a forum for exchange of information and resolution of issues (e.g. regarding adjustments to mitigation and compensation arrangements in the light of actual experience). The performance of these and other follow up mechanisms warrant careful scrutiny, with particular reference given to their utility in addressing residual risks and uncertainties. Recently, for example, the Ontario Environmental Assessment Board denied approval for a hazardous waste disposal complex to a crown corporation because of doubt over one aspect of the project. Monitoring and contingency planning may be an alternative approach to dealing with risk and uncertainty.

Attribute 7: Certainty of Decision-Making

Without clear ground rules, a proponent has little certainty about the EA process that will be followed and its relationship to decision making and project approvals (dimension A, Table 1). The completion of an acceptable EA or EIS as a mandatory step to gain project approval represents a minimum level of certainty of decision-making (dimension B, Table 1). At dimension C, the EA process will include specific timelines for certain aspects, e.g. deadlines for completing government review, for public comment, and for appealing decisions. Next, will be detailed schedules for decision-making activities, e.g. a hearing panel may have 120 days from receipt of a file to presenting a report, decisions by government must be made within explicit timeframes (dimension D, Table 1). The final dimension is represented by provision for legal recourse by proponents where a government agency failed to meet stipulated time limits, e.g. to claim payment of interest costs incurred as a result of delays.



The EAOGRAMs show that dimensions A through D are evident for this attribute. Newfoundland, New Brunswick and British Columbia provide the highest dimension of certainty in decision-making.

A significant trend toward establishing fixed timeframes is evident, thereby introducing greater certainty into the EA process, reducing delays and saving proponents time and money. In Ontario, for example, the pre- 1990 average time required to carry out a government wide review of an individual EA was 17.6 months; by 1995, this was reduced to 5.8 months with some reviews concluded in two months. Some jurisdictions have enshrined timeframes in regulation; others have made a policy or internal administrative commitment. In this regard, the innovative use of computerized information systems, assessment and decision tools promises to pay further dividends. Even so, it may be difficult to maintain the current momentum in the face of the budget and staff reductions that are occurring in many jurisdictions. Finally, these developments need to be reviewed in a cost effectiveness framework to ensure that they are not achieved at the expense of environmental protection objectives (see Attribute 9).

Attribute 8: Living Process

An effective EA process is dynamic; it responds to technological change, to peoples expectations for participation in decisions that affect their lives, to changing community values and to the capability of EA to meet expanded goals and deliver added benefits (e.g. sustainability assurance). First, EA processes tend to quickly incorporate new methodologies and approaches to impact analysis, based on technical and scientific research and development (dimension A, Table 1). The next levels of response are to technological change and to public expectations for involvement (dimension B, Table 1) and to changing values that communities place on various aspects of their environment (dimension C, Table 1). Efforts to improve institutional capacity to administer and conduct EA are represented as dimension D and a systematic and continuing approach to incorporate and integrate all of the proceeding items would constitute a fully adaptive or living process (dimension E, Table 1).

Canadian EA processes are dynamic. The federal government and three provinces have completely revised the legislation, procedures, technologies, etc. in the past two years. Manitoba has amended its legislation. Saskatchewan has undertaken public review of proposed revisions to the EA Act and process. Other jurisdictions, such as Ontario, have recently completed major administrative reform to the process.



EA in Canada is in the throes of change, exemplified by the overhaul of the federal and provincial systems. These reforms, based on widespread public consultation, are likely to be in place for some time. However, the legal and institutional frameworks remain to be implemented and tested. A critical proving ground will be how well the 'next generation' of EA processes work in balancing the competing demands of proponents for certainty and efficiency and of participants affected by a proposal for a full and fair review. These procedural considerations must be addressed without losing sight of the basic purpose of EA, namely to protect the functional integrity of environmental systems. Striking this balance will demand continued adaptation, process modification and fine-tuning, and a more systematic approach to research and professional development than is evident currently.

Attribute 9: Provides Value for Money

At first, little attention was given to the cost and time of completing EA requirements (dimension A, Table 1). Business and industry groups often complained (and still do) that EA is an impediment to decision making, a barrier to development and an unnecessarily complicated bureaucratic hurdle. Where processes have achieved moderate efficiencies in both the use of time and financial cost they are at dimension C and where the best possible results are achieved with the lowest possible resource inputs they are dimension E in Table 1.

The EA OGRAMs show that Alberta and British Columbia deem their EA processes to be cost-effective and time-efficient. Nearly all other jurisdictions are of the view that their processes are moderately efficient in cost and time.

Whether EA processes provide value for money is not readily identifiable. Typically, projects which have undergone major improvement as a result of EA are not subject to any audit accounting which demonstrates the benefits of the EA process. A major challenge for EA agencies and advocates is to show, rather than just state, the environmental and economic benefits that accrue from process application - preferably in quantifiable terms. This concern, in turn, is only a part of the growing interest in the effectiveness and performance of EA systems, processes and components. Ideally, evaluating how well EA works, what it delivers and which process steps and activities need to be strengthened should be an integral part of follow up mechanisms.



Attribute 10: Achieves Environmental Sustainability

In the final analysis, effectiveness is measured by the extent to which EA systems and processes meet their purpose(s) and goals. These are variously expressed but, typically, focus on betterment of the people and protection of the environment, recently extended to encompass the sustainability of natural resources and ecosystems. At this level, three dimensions of effectiveness are relevant:

- i) the results and benefits of EA are not evident, based on the evidence of monitoring or in the view of most users (dimension A, Table 1);
- ii) the results and benefits are evident for large projects, but not apparent in relation to the cumulative effects of many smaller projects (dimension C, Table 1); or
- iii) the results and benefits are apparent for all levels of activity or widely perceived as such by knowledgeable people, i.e. EA supports and contributes to the achievement of environmental sustainability (dimension E, Table 1).

The EA OGRAMs show that only Prince Edward Island, a province of **136,000** people, feels that the benefits are readily apparent of environmental sustainability. All other jurisdictions feel that these benefits are only evident on large projects or on some large projects.

On its own, an EA system, no matter how comprehensive, is insufficient to maintain environmental sustainability. Current rates and scales of ecological deterioration demand far reaching policy and institutional reforms - as identified in Agenda 21. In this context, EA is one of the keys to achieve sustainability by: 1.) addressing cumulative environmental effects; 2.) undertaking strategic environmental assessments to get at the source rather than treat the symptoms of ecological damage; and 3.) applying EA principles to resources management and land use planning.

Finally, the ethical, spiritual and cultural values of environmental sustainability remain to be incorporated into EA processes. This challenge of opening new insights on the human-earth relationship may not be something that many EA practitioners are comfortable with; but at a practical level it involves coming to grips with distributional issues which are currently neglected in many processes.



4.0 CONCLUSIONS AND RECOMMENDATIONS

Recently, important institutional reforms and procedural modifications have been made to Canadian EA systems. Their nature and scope vary jurisdictionally, as reported in Section 2. When considered collectively, these process developments represent a positive response to both long standing requirements and new realities of environmental protection. In this regard, we consider the following macro-trends in Canadian EA to be of particular importance and promise:

- addressing *cumulative* and *large scale effects*, which are now pervasive and add up to a new order of environmental deterioration expressed at regional and global scales;
- taking a *big picture* or *strategic* perspective on project and policy-level issues and relationships, including the plans and programs that lead to project initiation;
- *providing* a more *interactive* approach through the increasing use of public involvement and dispute resolution mechanisms;
- *developing monitoring processes* to validate predictions of impact and efficacy of mitigative measures; and
- *securing process effectiveness* and *efficiency* by giving attention to EA performance in meeting its goals and objectives, reviewing time and cost considerations in the context of the results achieved.

EA processes have changed how we make decisions and thus the decisions that are made. However, there are pros and cons, uncertainties and ambiguities associated with this transition. In Ontario, for example, the EA of the province's 25-year Energy Demand and Supply Plan followed a different process to that used in the past. Also, the outcome was different to what many expected - as a result of a sharp decline in energy demand. While seen as expensive and time-consuming, the EA process likely postponed projects and thus saved large investments which would have little hope of providing a return under the present economic climate. Similarly, the Timber Management Class EA was a new way of making decisions on harvesting and renewal of the timber resources of Ontario. While the public hearings were protracted (lasting 49 months), the process led to elaborate terms and conditions for timber management; brought into sharp focus and need for forestry policy realignment; and resulted in the Government of Ontario developing a *Crown Forests Sustainability Act* (1995), a conservation strategy for old growth policy and a forest harvesting policy. The big picture, rather



than the more narrow timber management focus, was given attention by government through legislative and policy changes outside the EA process. However, these initiatives probably would not have occurred without EA. The process would have been much shorter had the big picture framework preceded detailed timber management planning.

Of course, there is considerable room for improvement in Canadian EA process and practice. No purpose will be served here by a shopping list of things to do. As we see it, the main systemic weakness of EA in Canada is at the implementation stage. Certainly, monitoring and follow up mechanisms have been strengthened in the recent round of legal and institutional reforms. Still in question is whether these will add up to integrated processes that will provide coherent Feedback and permit EA practitioners to learn from their experience and that of others.

In this context, EA research, training and professional development in Canada also warrant scrutiny. These activities are expanding rapidly, often through international linkages, and comprise a broad informal movement to advance the state of the art of EA. However, they remain essentially *ad hoc* and uncoordinated, taken forward by a range of government and non-government organizations. Since the demise of the Canadian Environmental Assessment Research Council (1984- 1992) there is no focal mechanism for national cooperation in this area. By contrast, an increasing number of member states of the European Community have established national EA centres.

At a minimum, existing institutions and networks for EA cooperation and development should be strengthened. For example, the annual meeting of the Canadian EA Administrators could be linked to a standing forum on the status of practice. Further value could be added by preparing a short annual report or statement on Canadian EA trends, requirements, etc. (perhaps using the EAOGRAM approach). The feasibility of establishing a national EA Centre should also be investigated. Its aims might include: facilitating the exchange of information and experience; promoting professional development and skills enhancement; and building the knowledge base, technologies and tools for assessment. Other models for developing Canadian EA capacity should also be reviewed, such as a policy dialogue or practitioners round table, a research advisory council or a version of the UK Institute for Environmental Assessment (which provides for professional accreditation and is maintained by member fees).



Looking ahead, some crucial emerging challenges of EA process and practice need to be addressed. Here, we classify these into three overarching themes. As such, they encompass many of the specific issues that are referred to in this paper and that will continue to engage Canadian EA administrators and practitioners.

- *Application of EA as a sustainability instrument.* Following a period of significant institutional reform, the implementation of the new crop of EA laws, process and procedures warrants close attention. In particular, critical regard should be given to the function of EA as a sustainability instrument. Key areas for collaborative examination include: operational specification of sustainability concepts and principles (e.g. thresholds, indicators, capacities) and developing practical means of incorporating them into EA provisions, guidelines and procedure. This constitutes an immediate priority.
- *Upgrading core competencies in the 3 r's.* The reference here is to sharpening the *rigour* of impact science, the *responsiveness* of public consultation and *responsibility* of process administration. As identified in Figure 3, these are the building blocks for making informed choices. In this context, the respective challenges are to: 1.) cope with scientific uncertainty; 2.) to resolve interest based disputes; and 3.) to deliver more with less in terms of information and advice to decision makers and services to users of the process. New information and communication technologies promise to improve the productivity of practice in all three areas.
- *Investing in EA as a knowledge-based industry.* Little or no attention is given to EA in Canadian strategies for green industry. This is a regrettable oversight. We believe that there are significant benefits to be gained from positioning Canada as a 'centre of excellence' in EA. Our international leadership in this area can no longer be just assumed; it must be demonstrated by action and example. This means investing in EA as a knowledge-based, problem-solving industry that provides products and services which can give this country a competitive edge internationally. Research and development to upgrade domestic capabilities in the areas noted above can and should be seen as having a longer term pay-off.



Table 1 - KEY TO EAOGRAM

DIMENSIONS ATTRIBUTES	A	B	C	D	E
Clear Purpose and Goals/Direction	No Written Guidance	Policy and Procedures	Law, Policy and Procedures	C plus Administrative Practises	D plus Day to Day Problem Solving
Incorporates Long-Term and Overall Perspective	Bio-Physical and Project Specific	Biophysical and Socio-Economic Project Specific	B plus Interjurisdictional Considerations	C plus Cumulative, Effects Biodiversity	D plus Sustainability Considerations
Broad Scope of Application	EA on large Projects Only	Process matched to Significance of Effets	Large and Small Projects	Projects, Plans and Programs	D plus Strategic EA
Responsive to Public/ Stakeholder Involvement	Information Dissemination	Consultation	Limited Participation	Broad Participation and Dispute Resolution	Principled Negotiation
Interjurisdictional Harmonizaion	EA Agency acts alone	Within Jurisdiction Harmonization	Principles applied to external Jurisdictions	Interjurisdictional Agreements	D plus International Conventions applied
Monitors Results and Responds to Findings	Relies on Complaints only	Proponent reports periodically	Independent Sample audits	Broad Compliance Monitoring	Broad Monitoring and Response
Certainty of Decision-Making	EA Input Optional to Decision Maker	EA Input Mandatory to Decision Maker	B plus Limited Scheduling of Activities	B plus Detailed Scheduling of Activities	D plus legal Recourse for proponents
Living Process	Incorporates New EA Technologies	Incorporates EA Technologies and Public Involvement	Incorporates Changing Community Values	Responds to Improved Institutional Capacity	Can respond to all of the proceeding items
Provides Value for Money	Costly and Time Uncertainty		Moderately Efficient in Cost and Time		Cost-Effective Time Efficient
Archives Environmental Sustainability	Benefits not evident to most		Benefits evident on Large Projects		Benefits Readily Apparent

Prepared by : Derek Doyle, EA Branch, MOEE, Ontario, Canada.

September, 1994



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ANNEX 1- EAOGRAMS

Figure 5 - EAOGRAM for British Columbia, Canada

1	Clean Purpose and Goals/Direction	[Shaded]				
2	Incorporates Long-Term and Overall Perspective	[Shaded]				[]
3	Broad Scope of Application	[Shaded]	[]	[]	[]	[]
4	Responsive to Public/ Stakeholder Involvement	[Shaded]				[]
5	Interjurisdictional Harmonization	[Shaded]				[]
6	Monitors Results and Responds to Findings	[Shaded]				
7	Certainty of Decision-Making	[Shaded]				[]
8	Living Process	[Shaded]				
9	Provides Value for Money	[Shaded]				
10	Achieves Environmental Sustainability	[Shaded]			[]	[]
ATTRIBUTES OF EA EFFECTIVENESS		A	B	C	D	E
		D I M E N S I O N S				

Key: See "Table 1 Key to EAOGRAM".

Prepared by: Doug Dryden, Director, Environmental Assessment Branch, British Columbia; September, 1994

Figure 6 - EAOGRAM for Alberta, Canada

1	Clean Purpose and Goals/Direction	[Shaded]				
2	Incorporates Long-Term and Overall Perspective	[Shaded]				[]
3	Broad Scope of Application	[Shaded]	[]	[]	[]	[]
4	Responsive to Public/ Stakeholder Involvement	[Shaded]				[]
5	Interjurisdictional Harmonization	[Shaded]				[]
6	Monitors Results and Responds to Findings	[Shaded]				
7	Certainty of Decision-Making	[Shaded]			[]	[]
8	Living Process	[Shaded]				
9	Provides Value for Money	[Shaded]				
10	Achieves Environmental Sustainability	[Shaded]			[]	[]
ATTRIBUTES OF EA EFFECTIVENESS		A	B	C	D	E
		D I M E N S I O N S				

Key: See "Table 1 Key to EAOGRAM".

Prepared by: Bob Stone, Director, Environmental Assessment Branch Alberta; September, 1994



Figure 7 - EAOGRAM for Saskatchewan, Canada

1	Clean Purpose and Goals/Direction	[Shaded]				
2	Incorporates Long-Term and Overall Perspective	[Shaded]				
3	Broad Scope of Application	[Shaded]				
4	Responsive to Public/Stakeholder Involvement	[Shaded]				
5	Interjurisdictional Harmonization	[Shaded]				
6	Monitors Results and Responds to Findings	[Shaded]				
7	Certainty of Decision-Making	[Shaded]				
8	Living Process	[Shaded]				
1	Provides Value for Money	[Shaded]				
10	Achieves Environmental Sustainability	[Shaded]				
ATTRIBUTES OF EA EFFECTIVENESS		A	B	C	D	E
		D I M E N S I O N S				

Key: See "Table 1 Key to EAOGRAM".

Prepared by: Ron Zukowsky, Director, Environmental Assessment Branch, Saskatchewan; September, 1994

Figure 8 - EAOGRAM for Manitoba, Canada

1	Clean Purpose and Goals/Direction	[Shaded]				
2	Incorporates Long-Term and Overall Perspective	[Shaded]				
3	Broad Scope of Application	[Shaded]				
4	Responsive to Public/Stakeholder Involvement	[Shaded]				
5	Interjurisdictional Harmonization	[Shaded]				
6	Monitors Results and Responds to Findings	[Shaded]				
7	Certainty of Decision-Making	[Shaded]				
8	Living Process	[Shaded]				
1	Provides Value for Money	[Shaded]				
10	Achieves Environmental Sustainability	[Shaded]				
ATTRIBUTES OF EA EFFECTIVENESS		A	B	C	D	E
		D I M E N S I O N S				

Key: See "Table 1 Key to EAOGRAM".

Prepared by: Larry Strachan, Director, Environmental Approvals, Manitoba; September, 1994



Figure 11 - EAOGRAM for Nova Scotia, Canada

1	Clean Purpose and Goals/Direction	[Shaded]				
2	Incorporates Long-Term and Overall Perspective	[Shaded]				
3	Broad Scope of Application	[Shaded]				
4	Responsive to Public/ Stakeholder Involvement	[Shaded]				
5	Interjurisdictional Harmonization	[Shaded]				
6	Monitors Results and Responds to Findings	[Shaded]				
7	Certainty of Decision-Making	[Shaded]				
8	Living Process	[Shaded]				
9	Provides Value for Money	[Shaded]				
10	Achieves Environmental Sustainability	[Shaded]				
ATTRIBUTES OF EA EFFECTIVENESS		A	B	C	D	E
		D	I	M	E	N
		S	I	O	N	S

Key: See "Table 1 Key to EAOGRAM".

Prepared by: William Coulter, Manager, Environmental Review, Nova Scotia; September, 1994

Figure 12 - EAOGRAM for Prince Edward Island, Canada

1	Clean Purpose and Goals/Direction	[Shaded]				
2	Incorporates Long-Term and Overall Perspective	[Shaded]				
3	Broad Scope of Application	[Shaded]				
4	Responsive to Public/ Stakeholder Involvement	[Shaded]				
5	Interjurisdictional Harmonization	[Shaded]				
6	Monitors Results and Responds to Findings	[Shaded]				
7	Certainty of Decision-Making	[Shaded]				
8	Living Process	[Shaded]				
9	Provides Value for Money	[Shaded]				
10	Achieves Environmental Sustainability	[Shaded]				
ATTRIBUTES OF EA EFFECTIVENESS		A	B	C	D	E
		D	I	M	E	N
		S	I	O	N	S

Key: See "Table 1 Key to EAOGRAM".

Prepared by: Al Godfrey, Coordinator, Environmental Assessment Prince Edward Island; September, 1994



Figure 13 - EAOGRAM for Newfoundland, Canada

1	Clean Purpose and Goals/Direction	[Shaded]				
2	Incorporates Long-Term and Overall Perspective	[Shaded]		[White]		
3	Broad Scope of Application	[Shaded]				
4	Responsive to Public/ Stakeholder Involvement	[Shaded]		[White]		
5	Interjurisdictional Harmonization	[Shaded]				
6	Monitors Results and Responds to Findings	[Shaded]				
7	Certainty of Decision-Making	[Shaded]				
8	Living Process	[Shaded]				
9	Provides Value for Money	[Shaded]				
10	Achieves Environmental Sustainability	[Shaded]		[White]		
ATTRIBUTES OF EA EFFECTIVENESS		A	B	C	D	E
		D I M E N S I O N S				

Key: See "Table 1 Key to EAOGRAM".

Prepared by: Dr. Tony Blouin, Director, Environmental Assessment Division, Newfoundland; September, 1994

Figure 14 - EAOGRAM for Northwest Territories (Inuvialuit Settlement Area), Canada

1	Clean Purpose and Goals/Direction	[Shaded]				
2	Incorporates Long-Term and Overall Perspective	[Shaded]	[White]			
3	Broad Scope of Application	[Shaded]				
4	Responsive to Public/ Stakeholder Involvement	[Shaded]				
5	Interjurisdictional Harmonization	[Shaded]				
6	Monitors Results and Responds to Findings	[Shaded]	[White]			
7	Certainty of Decision-Making	[Shaded]				
8	Living Process	[Shaded]				
9	Provides Value for Money	[Shaded]				
10	Achieves Environmental Sustainability	[Shaded]				
ATTRIBUTES OF EA EFFECTIVENESS		A	B	C	D	E
		D I M E N S I O N S				

Keys: See "Table 1 Key to EAOGRAM".

Prepared by: Carey Ogilvie, Senior Policy Analyst, Department of Renewable Resources, Northwest Territories; September 1994



Figure 15 - EA OGRAM for Canada (Federal Process)

1	Clean Purpose and Goals/Direction					
2	Incorporates Long-Term and Overall Perspective					
3	Broad Scope of Application					
4	Responsive to Public/ Stakeholder Involvement					
5	Interjurisdictional Harmonization					
6	Monitors Results and Responds to Findings					
7	Certainty of Decision-Making					
8	Living Process					
9	Provides Value for Money					
10	Achieves Environmental Sustainability					
ATTRIBUTES OF EA EFFECTIVENESS		A	B	C	D	E
		D	I	M	E	N
		S	I	D	N	S

Keys: See "Table 1 Key to EA OGRAM".

Prepared by: Robert Connelly, Canadian Environmental Assessment Agency, Canada; January, 1996