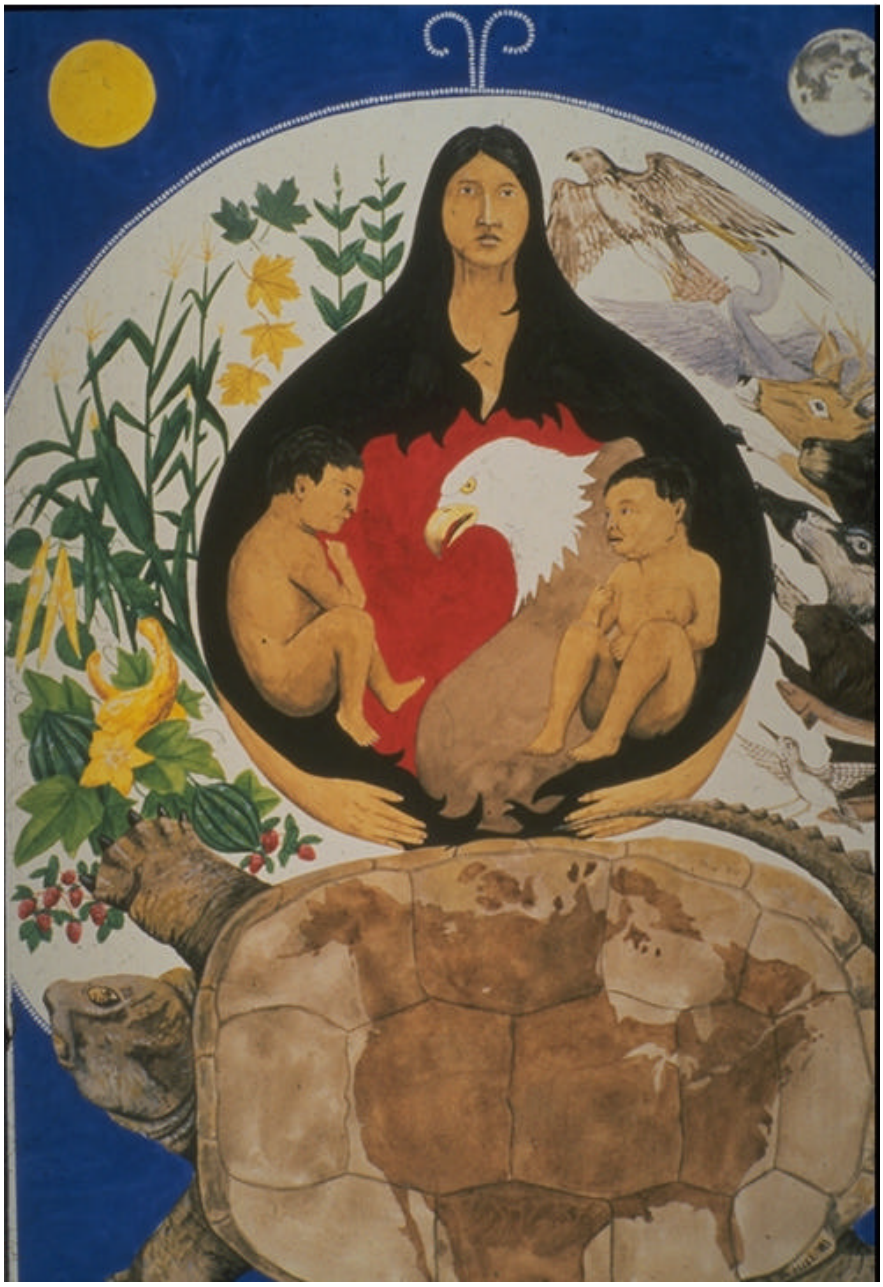
Health Canada Santé Canada

Canadian Handbook on Health Impact Assessment:

The Basics



This document has been divided into a series of files for easier downloading from our web site.

Part 2 of 2

Canada

4 EA WITHIN A CANADIAN CONTEXT

To gain a better understanding of EA within Canada, the focus of this Chapter will include:

- Progress and achievements in EA
- EA legislation in Canada
- Focusing on health in EA legislation in Canada
- Suggested readings

Progress and Achievements in EA

Pursuing economic development and growth without compromising a sustainable environment has led to the introduction of EA – a decision-making tool designed to help maintain that balance. Today, EA has evolved into an integral element of environmental policy in Canada and elsewhere. As one of the first countries to practice EA and be recognized internationally as a world leader in this field, Canadians have a reason to be proud. Far from suggesting that we should be complacent, the following is an indication of the areas where further progress in EA within Canada is being made.

- The proclamation of the *Canadian Environmental Assessment Act* came into force in January 1995. This Act became significant as it enshrined EA in federal legislation for the first time. More importantly, it became representative of the growing concern for the environment and demonstrated government's recognition of the stature of the EA process as an effective means to integrate economic growth and sustainable development into decision-making. At this time, the Canadian Environmental Assessment Agency was established to administer the Act. All provinces in Canada currently have legislated requirements for EA of projects as well.

The concern that Canadians have about environmental issues continues to be expressed in terms of personal health, the health of one's family, and the health of future generaitons.

We know that the quality of life depends on a clean and healthy environment.

We also know that our health is primarily our own responsibility and that we can protect ourselves from most hazards. To do so, however, we need accurate, timey and appropriate information.

"Notable achievements have been made in integrating environmental considerations into economic and sectoral policies. Examples include the legislated environmental assessment process, (and) the environmental analysis of policy proposals and legislation."

OECD Environmental Performance Reviews: Canada, 1995

- The integration of environmental considerations into proposed policies, programs and plans is emerging more frequently at all levels of government. In fact, the position of a Commissioner of Environment and Sustainable Development was established under the *Auditor General's Act.* Amendments to this Act required federal departments to prepare sustainable development strategies for submission to Parliament in December 1997, with annual reporting of departments' progress thereafter.
- In January 1994, the North American Free Trade Agreement (NAFTA) entered into force between Canada, the U.S. and Mexico. This Agreement represents a milestone for environmental protection as it is among the first to address environmental issues within a trade agreement. The North American Commission on Environmental Cooperation was established to protect, conserve and enhance the environment by monitoring and reporting on the environmental impacts of the NAFTA. All three countries require foreign companies to adhere to their countries' EA procedures.

Environmental Assessment Legislation in Canada

Each jurisdiction in Canada has different EA legislation and requirements. For example, unlike most other EA processes in Canada, federal EAs are based on the principle of self-assessment. In other words, the federal department responsible for a project is also responsible for the preparation of the EA. In contrast, provincial legislation usually states that the Minister of the Environment is responsible for making decisions about the EA, rather than the minister responsible for the project. The provincial and federal legislative requirements for including health in EA in Canada are highlighted in Table 4.2.

In most Canadian jurisdictions (municipal, provincial, federal), EA provides information for making decisions about whether or not projects should be supported or permitted to proceed. In other words, EA is usually an aid to decision-making, rather than an approval process for projects. One exception to this is Ontario, where EA can be a decision-making process.

In Canada, all three levels of government share responsibility for health although constitutionally, health is primarily a provincial responsibility. Municipal or local health departments are often responsible for routine services, such as ensuring food, hygiene, water sampling and responding to complaints. Provincial environment and health ministries are involved in a wide range of issues, including environmental monitoring, risk assessment, setting standards, guidelines and objectives, and planning and approvals. The federal government is active in establishing guidelines for environmental health. It is important for EA professionals to be aware of the responsibilities of different levels of government and to consult with health and labour ministry staff at different levels of government, since responsibility for environmental, occupational and public health is shared.

Subject to the scope of the relevant statutes, proponents of projects must carry out an environmental assessment under federal and/or provincial legislation, depending on whose jurisdiction the project and effects occur. The *Canadian Environmental Assessment Act* (1995) is the main governing piece of legislation to be followed under the federal process. In addition, there are EA requirements found in other federal statutes attached to the issuance of certain permits or licenses or in self-government and land claims settlement agreements with First Nations. All Canadian provinces and territories, however, also have their own distinct legal procedures and requirements. That is why some projects require authorization from both the federal and provincial or territorial government. For this reason, EA practitioners should bear in mind which EA process must be followed.

Although the procedures among the provinces (and the federal process) are comparable, each system has a unique perspective on how EA should be carried out within its jurisdiction. Table 4.1 offers some of the similarities and differences among the federal and provincial EA systems.

Table 4.1
Overview of Environmental Assessment in Canada

	BC	Alta	Sask	Man	Ont	Que	NB	NS	PEI	Nfld	NWT	YT	Canada (CEAA)
EA Act	|	|	|	|	|	|	|	|	|	|	|	×	|
EA Planning Process and Impact Assessment	|	|	|	|	o	o	o	|	o	|	|	o	o
Broad Definition of EA	|	|	o	|	|	|	o	|	o	o	×	|	o
Public and Private Sector	|	|	|	|	o	|	|	|	|	|	|	o	|
Scope of Act	|	o	o	o	|	o	|	|	o	o	×	×	o
Size of Projects	o×	o×	|	o	|	o	o	o	|	o	|	×	|
Policy Level EA	×	×	×	×	×	×	×	|	×	|	×	×	×
Cumulative Effects	|	|	o	o	×	o	o	×	o	×	×	×	|
Alternatives	o	o	o	o	|	o	o	o	|	|	×	×	|
Approvals Granted	|	|	|	|	|	|	|	|	|	o	o	o	o
Provisions for Exemptions	o	×	×	|	×	o	|	×	o	×	o	×	o
Public Involvement	|	|	o	|	o	|	|	|	o	|	×	o	|
Review of EAs	|	|	|	|	|	|	|	|	o	|	|	o	|
Authority of Review Panel or Board	×	|	×	×	|	×	×	×	×	×	×	×	×
Formality of Panel or Board	o×	|	|	|	|	o	o	o	o	o	o	×	o
Intervenor Funding for Panel or Board Process	|	o	×	o	o	×	×	×	×	×	×	×	|
Participant Funding Early in Planning Process	o	×	×	|	×	×	×	×	×	×	×	×	o
Conflict Resolution Provisions	o	|	o	o	o	o	×	×	×	×	×	×	|

Compiled by: EA Branch, MOEE, Ontario from survey of jurisdictions.
Prepared: September 1994

Explanations and symbols for this table can be found on the following page.

Explanation for Table 4.1

EA Act	|	Legislated
	o	Policy or Guideline
	×	No formal legal instrument
EA as Planning Process and Impact Assessment	|	EA is Impact Assessment
	o	EA is a Planning Process and Impact Assessment
Broad Definition of Environment	|	Biophysical, socio-economic and technical; direct and indirect
	o	Biophysical and related socio-economic effects
	×	Biophysical only
Public and Private Sector	|	Public and Private Sector
	o	Public Sector and Selected Private Sector
	×	Public Sector
Scope of Act/Policy	|	Projects, Activities, Programs, Plans
	o	Projects, Activities
	×	Projects only
Size of Projects	|	Major and minor impacts and large and small projects
	o	Specific lists of projects
	×	Major projects or as determined by Minister
Policy Level EA	|	Included in legislation
	×	Not included
Cumulative Effects	|	Explicit requirement in Act or Regulation
	o	Implied or guideline basis
	×	Not required
Alternatives	|	Explicit requirement to examine functionally different alternatives to the project, e.g., rail *vs* road *vs* air
	o	Explicit requirement to examine different alternative methods of implementing project, e.g., sites or designs
	×	Examine project only
Approvals Granted	|	Formal approval, licence or permit issued for EA with explicit conditions
	o	Specialist advice to other agencies to issue their approvals
	×	No formal or informal approval granted
Provision for Exemptions	|	No provisions for exemptions
	o	Exemptions based on defined thresholds or criteria
	×	Discretionary exemptions granted by government
Public Involvement	|	Statutory requirement in Act or Regulation
	o	Voluntary and suggested in guidelines
	×	No explicit requirement

Explanation for Table 4.1 (cont'd)

Review of EAs	|	Provisions for independent review by panel or board
	o	In-house review
	×	No provision
Authority of Review Panel or Board	|	Decision-making
	×	Recommendation only
Formality of Panel or Board	|	Judicial or quasi-judicial adversarial
	o	Formal but not judicial
	×	Informal
Intervenor Funding for Panel or Board Process	|	Government pays
	o	Proponent pays
	×	No formal funding
Participant Funding Early in Planning Process	|	Explicit statutory requirement
	o	Voluntary, encouraged by guidelines
	×	No requirement
Conflict Resolution Provisions	|	Mediation or Alternative Dispute Resolution (ADR) offered as an alternative to review by board, agency or panel
	o	Mediation or ADR offered throughout the EA Process
	×	Conflict resolution not offered

Compiled by: EA Branch, MOEE, Ontario from survey of jurisdictions in *Environmental Assessment in Canada: Frameworks, Procedures, and Attributes of Effectiveness.* Minister of Supply and Services Canada, 1996.

On rare occasion, projects can trigger both federal and/or provincial EAs. Governments recognize the complexity and potential for duplication of having to comply with provincial, and municipal requirements concurrently. For this reason, federal and provincial governments are working to harmonize their EA processes. To date, harmonization agreements have been reached between the federal government and two provinces, Alberta and Manitoba. An agreement in principle with British Columbia has been established and other provinces are quickly following suite. These agreements acknowledge that cooperative approaches between the two levels of government are the most appropriate measures to take to ensure effective and efficient processes.

Health Within EA Legislation in Canada

Including health in EA in Canada has been recognized by the provinces under different legislative acts and requirements. Table 4.2 summarizes the current requirements for including health and well-being in EA in major Canadian jurisdictions (Health Canada, 1994).

Table 4.2
Requirements for Including Health in EA in Canada (1994)

Jurisdiction	EA Legislation	Status
British Columbia	*Environmental Assessment Act*	Health is mentioned in several places. "Effects" are defined as including health and the purpose of the Act includes the assessment of "health effects".
Alberta	*Alberta Environmental Protection and Enhancement Act*	Health is included in the definition of an "adverse effect" and the definition of "environment" includes "all living organisms" which covers human life.
	Alberta Public Health Act	Requires municipal health departments to assess the health and environmental effects of proposed waste facilities.
Saskatchewan	*Environmental Assessment Act*	Health is included in the definitions of "contaminant" and "pollution".
Manitoba	*Environment Act*	Health is included in several definitions, including "development", "pollutant" and "environmental health".
Ontario	*Environmental Assessment Act*	The definition of "environment" includes human life.
Quebec	*Environmental Quality Act*	Section 20 states that nothing may be discharged into the environment that "is likely to affect the life, health, safety, welfare or comfort of human beings".
New Brunswick	*Clean Environment Act*	Human life is included in the definition of "environment".
Nova Scotia	*Nova Scotia Environmental Assessment Act*	The definition of "environment" includes a reference to human life.

Table 4.2 (cont'd)

Jurisdiction	EA Legislation	Status
Newfoundland	*Environmental Assessment Act*	The definition of "environment" includes "human life" and "the social, economic, recreational, cultural and aesthetic conditions and factors that influence the life of humans in a community".
Prince Edward Island	*PEI Environmental Protection Act*	"Environment" is defined as including human life.
Northwest Territories	*Canadian Environmental Assessment Act*	See below.
Yukon Territory	*Umbrella Final Agreement of Land Claims Agreement*	A development assessment process is currently being developed.
	Canadian Environmental Assessment Act	See below.
Federal Government	*Canadian Environmental Assessment Act*	The definition of an "environmental effect" includes any change in health or socio-economic conditions that are caused by the project's environmental effects.

One health area of federal jurisdiction is Aboriginal health. Chapter 5 will discuss the unique situation of Aboriginal people within the Canadian Constitution and the role of Aboriginal people in EA.

Suggested Readings

Canadian Environmental Assessment Agency in Collaboration with Environment Canada. *Environmental Assessment in Canada: Achievements, Challenges and Directions*. Minister of Supply and Services Canada, 1996.

Doyle, Derek and Sadler, Barry for CEAA and UMA Engineering Ltd. *Environmental Assessment in Canada: Frameworks, Procedures and Attributes of Effectiveness*. Minister of Supply and Services Canada, 1996.

Organization for Economic Cooperation and Development, *OECD Environmental Performance Reviews: Canada*. ISBN 92-64-14546-X, October, 1995.

Notes:

Notes:

5 ABORIGINAL HEALTH AND TRADITIONAL KNOWLEDGE

Aboriginal people occupy a unique place in Canadian society; culturally, historically, geographically and legally. In order to understand the responsibilities of those conducting EAs to Aboriginal people and the possible roles of Aboriginal people in EAs, this Chapter will discuss:

- Who are Indigenous people?
- Aboriginal definition of health
- Health impacts on Aboriginal communities
- Aboriginal interests in land – reserves and traditional territories
- EA legislation
- Fiduciary duty
- Federal or provincial responsibility?
- Traditional knowledge and its origins
- What is traditional knowledge
- Health and traditional knowledge
- Using traditional and western knowledge together
- Future prospects for including traditional knowledge in health
- Suggested readings

Who are Indigenous People?

Before discussing Aboriginal health and the role of Aboriginals in the EA process, it is necessary to define who are Indigenous people. According to the International Labour Organization, there are about 5,000 different Indigenous or tribal peoples living in seventy countries. The total world population of Indigenous and tribal people is estimated at about 300 million, mostly in Asia. In Canada, Indigenous peoples include Indians, Inuit and Métis. These peoples are collectively referred to as Aboriginal.

The term "First Nations" is often used by Aboriginals to refer to "Indians". The term Aboriginal and Indigenous are synonymous.

Aboriginal Definition of Health

Aboriginal people have traditionally gone further in their holistic view of health than even the World Health Organization's comprehensive definition which was discussed in Chapter 1. However, all Aboriginal communities probably do not share the same definition of health. Equally important, there can be significant social and cultural differences among the different communities. The definition of health by the First Nations of British Columbia is but one among a multitude of definitions offered by Aboriginal groups and states:

> Health
> "obtaining and maintaining a balance of all aspects of the self – mental, emotional, spiritual and physical – with and through the help and involvement of the family and the community"
> First Nations of British Columbia

This broad definition not only illustrates the interconnection between all aspects of a person's life, and the effect that a problem in one area can have on the others; it also shows the great value that Aboriginal people place on the community. For many, this sense of attachment to the community is as close as family, and the sense of attachment to the land goes far beyond any individualized concept of ownership. The people, the elements, the plants and the animals are all interconnected, on the physical and spiritual planes.

Health Impacts on Aboriginal Communities

Many development projects may have a major impact on the environment of Aboriginal communities, especially those located downstream or downwind of the project. Air- and water-borne contaminants may be carried into the community, and can pose serious health risks to the inhabitants. Also, the greater the reliance of community members on wild food such as game and fish, the higher the health risk, as the animals also ingest the contaminants and pass them on in higher doses when used for human consumption. In this way, Aboriginal communities experience a potentially far greater health impact than other communities, in the same geographic area, that do not rely on wild food. The impact of the projects on the environment and the consequent loss of fish and wildlife also negatively impact on the possibility for Aboriginal people to pursue their traditional lifestyles, and to pass these on to future generations.

Aboriginal communities that may be directly affected by a project should be involved from the outset in the EA conducted for that project (whether or not the EA is triggered or conducted under a federal or provincial EA process). Their close connection to and additional reliance on the natural environment makes Aboriginal people especially concerned with the healthy preservation of that environment, which in turn, increases the possibility of negative health effects of a project on Aboriginal individuals and communities.

It is therefore necessary for all levels of government to develop specific processes, within or in addition to their regular public consultation procedures, to fully inform and involve local Aboriginal communities that could experience negative environmental impacts of projects.

Aboriginal Interests in Land

There are two broad types of Aboriginal interests in land - reserve lands and traditional territories – each of which need to be addressed in the EA process.

In the provinces, reserves are areas that have been set aside for the exclusive "use and benefit of Indians" under the *Indian Act*. They are run by Band Councils elected by members of the community, and are officially considered to be federal lands as these lands are owned by the federal government. Individual Aboriginal people belonging to a band which has a reserve often have exclusive possession of allotments on the reserve. Band Councils administer the rest of the reserve. All land transactions on reserve are effected exclusively by the federal government, usually at the request of the Band Council or an individual band member. Band Councils and band members who have allotments, may ask the federal government to sell, lease or otherwise dispose of their interests. Band Councils usually do so with the consent of the community and by first surrendering or designating the land to the federal government. The government sometimes negotiates the transaction on behalf of the Band.

Traditional territories are much larger land areas, often encompassing thousands of hectares, where Aboriginal communities have historically carried out a range of traditional activities. These lands are used for subsistence activities such as hunting, trapping, fishing and other resource harvesting, but they also serve vital social, medical and spiritual needs and may contain sacred sites and burial grounds.

EA on Reserves

The *Canadian Environmental Assessment Act* (CEAA), which came into effect in 1995, requires that projects having environmental impact, and that are to be carried out wholly or partially on an Indian reserve be subject to an EA as outlined under regulation. However, in the current era of increasing self-government by Aboriginal people, it is not appropriate for government to impose its process on First Nations governments without their participation. CEAA allows for the development of regulations regarding EA on reserves, and the federal and Aboriginal governments are currently discussing whether such regulations should be developed, and if so by whom, or whether First Nations should develop and implement their own EA processes.

Until such time as these issues are resolved, an Interim Measures Agreement is being developed. The Interim Measures Agreement, once in place, will apply when the federal government involvement with a project is limited to funding only. In the absence of the Indian Lands and Funding Regulations, to be developed under CEAA, the federal government and First Nations have no legal obligations to undertake EAs thus creating a gap in the legislation. The other CEAA triggers (proponent, Law List, land management) are presently administered by the federal government.

EA for Projects on Traditional Territories

Throughout Canada, some territories are currently the subject of land claims by various groups of Aboriginal people, based on their historical and on-going use of those lands for traditional purposes. Only a few of these claims over traditional territories have been accepted by the federal government for negotiation. Aboriginal people also present these claims as a basis to respond to the needs of Aboriginal communities, since if they are going to achieve any meaningful degree of self-government, they require control of a land base that will support – physically and economically – their growing populations. Negotiations are under way involving First Nations, federal and provincial governments to resolve these claims and come up with an equitable distribution of not only the land, but also the rights to the resources on and under that land, and the appropriate management of both lands and resources.

Often projects undergoing an EA are also situated within traditional Aboriginal territories, which are the subject of land claim negotiations. Aboriginal people may be concerned that their rights are being prejudiced by developments on these lands before the claims are settled.

EA Legislation

Under the *Canadian Environmental Assessment Act* (CEAA), there are three levels of EA for projects that fall under its jurisdiction: screening, comprehensive study and mediation or assessment by a review panel. In any case, the following factors must be included: environmental effects of a project and their significance must be assessed, relevant comments from the public, and mitigation measures. "Environment" is defined extremely broadly in the CEAA to include "land, water and air... all living organisms, and... interacting natural systems." "Environmental effect" is defined in part as:

> "any change that the project may cause in the environment, including any effect of any such change on health and socio-economic conditions, on physical and cultural heritage, on the current use of lands and resources for traditional purposes by Aboriginal persons, or any structure, site or thing that is of historical, archaeological, paleontological or architectural significance."

"Environment" means the components of the earth and includes:
(a) land, water and air, including all layers of the atmosphere,
(b) all organic and inorganic matter and living organisms,
(c) the social, economic, recreational, cultural, spiritual, and aesthetic conditions and factors that influence the life of humans and communities, and
(d) a part or combination of those things referred to in (a) and (c) and the interrelationships between two or more of them.

Innu Nation, 1996
Voisey's Bay, MOU

The federal role is Aboriginal-specific; the provincial role is based on equity to all residents. Both are, however, subject to the demands of the honour of the Crown, and this must mean, at a minimum, that the Aboriginal people to whom the Crown in all its' emanations owes an obligation of protection and development, must not lose the benefit of the obligation because of federal-provincial jurisdictional uncertainty.

Pratt, 1989

Clearly, the federal government has bound itself to ensure that the broad range of Aboriginal people's interests are adequately taken into account. While no such Aboriginal-specific provisions exist in provincial EA legislation, the requirements for public consultation and assessment of health effects are similar, and include Aboriginal people implicitly as part of the provincial population.

Fiduciary Duty

Fiduciary duty is variously defined, and the interpretation of the scope of the duty varies even more widely. In general, where one has control over the interest of another arising from a trust, the first person has a general duty to act primarily in the interest of the other party. Canadian courts have recognized that certain specific fiduciary duties may apply to the Crown in certain circumstances.

The *Guerin* Case – Reserve Lands

This 1984 case involved the lease of reserve land to a non-Indian party. The federal government obtained the land surrender on the understanding that certain terms would be included in the lease, but proceeded to negotiate a lease that was far less favourable to the band than the one they had agreed to on surrender. The band sued the government and the case went to the Supreme Court of Canada.

The Court recognized that the Aboriginal interest in land predates contact with Europeans, and characterized the duty of the federal government to Aboriginal people as fiduciary in regard to land holdings.

> The Indians' interest in land is an independent legal interest. It is not a creation of either the legislative or executive branches of government... Where by statute, agreement or perhaps by unilateral undertaking, one party has an obligation to act for the benefit of another, and that obligation carries with it a discretionary power, the party thus empowered becomes a fiduciary. Equity will then supervise that relationship by holding him to the fiduciary's strict standard of conduct.

Because federal government intervention is necessary under the Indian Act for the band to comply in a transaction involving reserve or surrendered land, the government is therefore required to act in the best interest of the band.

The *Sparrow* Case – Aboriginal Rights

The 1990 Supreme Court decision in *Sparrow v. the Queen* extended the scope of the fiduciary relationship far beyond reserve land and elaborated it to include protection of Aboriginal rights as recognized and affirmed by section 35 of the

Constitution. Any legislative infringement on existing Aboriginal rights must be justified by the Crown; the government must show that a valid legislative objective exists which is consistent with the fiduciary relationship between it and Aboriginal people, and that Aboriginal rights are only infringed to the extent necessary to meet that objective.

This does not protect Aboriginal rights absolutely, but does give them a very high degree of protection. For example, where fishing is at issue, the only justification for infringement of the Aboriginal right to fish (for food, social and ceremonial purposes) was identified as species conservation. The interests of all other users of the resource are subordinate to the Aboriginal right, and it is the duty of the federal government to protect that right.

Federal or Provincial Responsibility?

Whether the provincial governments are themselves legally obliged to act in the interests of Aboriginal people, beyond their responsibilities to every resident of the province, is a question still subject to great debate.

Where by agreement a provincial government is conducting a federally triggered EA using the province's own process, the federal government should ensure that Aboriginal people are appropriately involved, and that assessment is made of all factors that are required to be considered by CEAA. These include the possible effects of a project on Aboriginal people's immediate and future health and well-being, and on their ability to pursue aspects of a traditional lifestyle. Adequate public consultation must take place since each Aboriginal group is culturally and socially distinct and it cannot be assumed that the interests of and impacts on one Aboriginal group are representative of all Aboriginal groups.

Where Aboriginals could be potentially affected by a project, the use of EA processes may assist in assessing the impact on Aboriginal interest, where such exist and where there may be a fiduciary duty. Furthermore, including Aboriginal people in the EA process, from the outset of the process, could reduce costs to proponents which are incurred by having to redo large sections of study reports, and conduct whole new studies, when the effects of the project on Aboriginal communities have not been initially or adequately considered. There is, however, a more fundamental reason for seeking the input of Aboriginal people. Aboriginal people are able to bring their unique perspective on environmental protection and sustainable use of resources to the EA. This is what is commonly referred to as 'traditional knowledge'.

Traditional Knowledge and Its Origins

All cultures have knowledge vested in their traditions. It can be as simple as a recipe handed down through generations, or a way of thinking about the world. It can be as formal as a traditional song or story, or it can be as informal as a manner in which people carry out a routine task. Typically, the farmer's understanding of the plants and soil, the fisherman's insight of the water and marine ecosystem, or the hunter's perception of animal practices are but a handful of sources of traditional knowledge.

One of the most well documented groups which have significantly contributed to the concept of traditional knowledge are Indigenous peoples. Indigenous peoples often do not have formal written databases of knowledge. Some capture the knowledge in imagery, such as the ancient wall paintings in France, or in Australia, or of the North American Indians. Most have traditional songs, stories, legends, dreams, methods, and practices. Sometimes it is preserved in the form of memory games, initiation rites, ceremonies, or dance. Occasionally it is preserved in artifacts handed from father to son, or mother to daughter.

Where the Indigenous peoples themselves have disappeared – such as in the case of the Lescault rock paintings, the knowledge is gone as well. Currently within Indigenous communities, competition from European-derived cultures can capture the imagination of the young, teach them in western ways, and limit the capacity of the elders to pass on traditional knowledge to the young.

What Is Traditional Knowledge?

Traditional knowledge is shaped by the mythology of the people with the knowledge. For example, in European-derived culture, the Judeo-Christian mythology begins with an assumption that the world was created by God in six days and that God had the form of a man giving man dominion over nature. The legend of the Garden of Eden separated humankind and the natural world allowing people to make observations of nature from afar – from an objective viewpoint.

The following descriptions of the characteristics of Indigenous traditional knowledge are the result of a workshop on environmental assessment held in Inuvik in November 1995 (Circumpolar Aboriginal People and Co-management Practice, November 20-24, 1995, Coordinated by the Inuvialuit Joint Secretariat). These are the words of Inuit people answering the question, "What do we mean by traditional knowledge?"

- "It is practical common sense based on teachings and experience passed on from generation to generation."
- "It is knowing the country; it covers knowledge of the environment (snow, ice, weather, resources), and the relationship between things."
- "It is holistic – it cannot be compartmentalized and cannot be separated from the people who hold it. It is rooted in the spiritual health, culture and language of the people. It is a way of life."
- "Traditional knowledge is an authority system. It sets out the rules governing the use of resources – respect; an obligation to share. It is dynamic, cumulative and stable. It is truth."
- "Traditional knowledge is a way of life – wisdom is using knowledge in good ways. It is using the heart and the head together. It comes from the spirit in order to survive."
- "It gives credibility to the people."

The Words of the Director General of UNESCO (Mayor, 1994)

The Indigenous peoples of the world possess an immense knowledge of their environments, based on centuries of living closer to nature. Living in and from the richness and variety of complex ecosystems, they have an understanding of the properties of plants and animals, the functioning of ecosystems and the techniques for using and managing them that is particular and often detailed. In rural communities in developing countries, locally occurring species are relied on for many – sometimes all – foods, medicines, fuel, building materials and other products. Equally, peoples' knowledge and perceptions of the environment, and their relationships with it, are often important elements of cultural identity.

Recognition of Traditional Knowledge

Although the recognition of traditional knowledge as having any validity or value has been slow in western societies, it is now beginning to gain credibility. Western traditional knowledge provided the basis for much of western medicine, centuries of herbalist knowledge accumulated in the early writings of travellers, clerics, and natural historians.

Acceptance of the idea that ecological knowledge (a recent concept in science – starting about 1930), has existed in traditional knowledge for thousands of years is only a few years old. The Brundtland Commission in 1987 was the first to offer some credence to the concept. Very recently, the Biodiversity Convention, Agenda 21, the Rio Declaration and Forest principles provided a contemporary context for traditional knowledge.

The Content of Traditional Knowledge

Traditional knowledge is a system of knowledge. While it is not possible to disassemble the knowledge in the same manner that science can be parsed, nonetheless, there are categories that parallel science within the traditional knowledge base.

Classification: the understanding of specific elements of factors in the environment, such as the plants, animals, soil, water, air, weather and environmental phenomena;

Technology and Resource Management: the development and use of traditional technology for farming, hunting, forestry, fishing, trapping, and managing the resources for the use of both current and more importantly, future generations.

Ecology, Evolution, and Systematics: the understanding and awareness of the "web of life". This includes the concept of origins of interrelatedness of types of animals, plants, and rocks. It understands the dynamic interrelationships of current ecological members of the same areas.

This last element of traditional knowledge is the most powerful, but also the least addressable from a scientific point of view. The basis for the traditional understanding assumes a holistic view including language, culture, practice, spirituality, mythology, customs, and even the social organization of the local communities. Scientific practice excludes the humanistic perspective, although it includes humans as animals.

Around the world, there is a sense of urgency to "collect" traditional knowledge because as the elders die, so the knowledge dies with them. The parts of the traditional knowledge base that are currently being collected most actively are both the classification and the technological aspects. Databases of many types are springing up, and some are available outside the traditional communities. There are inherent problems in making use of this knowledge – it is missing the contextual elements derived from the holistic and very personal approach that characterizes traditional use of the knowledge.

One of the problems with collecting the information in this manner, and missing the contextual elements is that the temptation is to compare scientific and traditional answers. For example, the Inuit people have a far richer and more subtle understanding of the characteristics of ice and snow than does science. In fact, some of the Inuit classification is accessible only by virtue of its relationship to human activities and feelings. In South America, some of the Indian tribes have

a classification system for trees that identifies many species that science does not, and appears to miss obvious species that science recognizes. Once again the classification systems have a different set of assumptions, so are not directly comparable. The species that appear to have been missed turn up as recognizable in other contexts for the native people. The extras from a scientific perspective are identified by traditional people either because science simply missed them, or because ecological variants have equal importance to genetic species from a traditional standpoint. These comparisons also sometimes incorrectly lead western practitioners to trivialize the traditional understanding because they do not have the whole concept included in the cultural and other values of traditional knowledge.

Health and Traditional Knowledge

Within an Indigenous community, there is a sharing of the knowledge base (as compared to hunting and fishing which are basically the domain of the male) between the sexes. Males tend to have dominion over the larger and more abstract issues of health, and the traumatic treatments. Women, by contrast, are the keepers of the practical remedies for common maladies, and also of much of the knowledge of pharmaceuticals and herbal remedies.

In the Declaration On The Rights of Indigenous Peoples in 1994, Article 24 stated that Indigenous peoples have the right to their traditional medicines and health practices, including the right to the protection of vital medicinal plants, animals, and minerals. The declaration further claims the requirement of States to respect Indigenous medicine, pharmacology, health practices and promotion, including preventive and rehabilitative practices (section 3, article XII on health and well-being).

On the Matter of Ownership of Traditional Knowledge

Each local community considers its knowledge to be owned by that community. There is also a sense of common ownership when the knowledge of one local community is also the knowledge of another community. It is regarded as intellectual property, much as the written word or an artistic expression in the form of a painting, poem, or film is regarded as intellectual property.

Indigenous people have shared this knowledge freely in the past and have rarely received proper compensation or recognition for it. Today, Indigenous people feel the keepers of the knowledge who share it should be compensated – just like any other professional – for doing so.

Table 5. 1
Comparisons Between Traditional and Western Scientific Knowledge Styles

Indigenous Knowledge	Western Scientific Knowledge
Assumed to be the truth	Assumed to be a best approximation
Sacred and secular together	Secular only
Teaching through story-telling	Didactic
Learning by doing and experiencing	Learning by formal education
Oral or visual	Written
Integrated – based on whole systems	Analytical – based on subsets of the whole
Intuitive	Model or hypothesis-based
Holistic	Reductionist
Subjective	Objective
Experiential	Positivist

Table 5.2
Comparisons Between Traditional and Western Scientific Knowledge In Use

Indigenous Knowledge	Western Scientific Knowledge
Lengthy acquisition	Rapid acquisition
Long-term wisdom	Short-term prediction
Powerful predictability in local areas	Powerful predictability in natural principles
Weak in predictive principles in distant areas	Weak in local areas of knowledge
Models based on cycles	Linear modelling as first approximation
Explanations based on examples, anecdotes, and parables	Explanations based on hypotheses, theories, laws
Classification ■ mix of ecological and useful application ■ non-hierarchical differentiation ■ includes everything natural and supernatural	Classification ■ based on phylogenetic relationships ■ hierarchical differentiation ■ excludes supernatural

Using Traditional and Western Knowledge Together

In recent years, there has been an increasing acceptance, if tentative, of Indigenous knowledge in many fields. But there is both danger and benefit in these first communications.

Romanticism of Indigenous sacred beliefs, natural resource management, and health care can be very destructive and even dangerous. Often these are exploited with no care for the consequences of misusing these knowledge bases. Practitioners investigating these areas should always be aware of the existence of charlatans. In fact, more than one elder has told of tiring of the constant and seemingly silly questions of anthropologists. Indigenous people also became jaded because they came to realize the information they passed on never benefited the community that owned it, and they never received copies of the results of the studies. To amuse themselves, the elders sometimes made up inane and false "Aboriginal" knowledge, knowing that the professors would never know the difference.

By contrast, when Indigenous knowledge is used in its original context, and in partnership with western knowledge, the combination is often much more powerful a tool than either used alone. The most important examples of this are to be found in resource management, where both scientists and Aboriginal hunters, trappers, or fishermen work together giving equal weight to both types of knowledge. The practice of co-management was pioneered and is currently being developed most effectively in Canada. It is not, however, an easy process – it requires a hands-off style of governing the actions of the on-the-ground members of the co-management team. Often the information base is not easily written down, and if bureaucracy interferes too much, or if too sceptical members are chosen from the western side, the intimate relationship and trust amongst the members is lost, and the process of co-management can fail.

Co-management does exist to a certain extent in the health field. One example is the official recognition of the contribution of Aboriginal medical interpreters who act as cultural brokers, mediators, translators, stress-relievers, health care service dispatchers, etc. Without their input and guidance, many patients would be at a loss in the western medical system. Nonetheless, much work remains to integrate western and indigenous knowledge. What is needed is a true and trusting partnership, rather than the usual attitude of testing to see if the efficacy of traditional knowledge can be disproved. Modern medicine is also rapidly broadening its viewpoint from being a practice of health care to a practice of ensuring well-being. This changing perspective matches the attitudes of many Indigenous practices.

Future Prospects for Including Traditional Knowledge in Health

To create such a partnership will require research to assemble and examine case-studies with the cooperation of Indigenous peoples. Once the required comfort level is reached, role-playing in the format of training workshops in documented case studies would enlighten the practitioners on both sides. Just as in the development of co-management of natural resources, the development of acceptable medical protocols would take time. This is not to say that progress has not been achieved in the integration of western and Aboriginal health systems. Indeed, many users are integrating practices from both approaches despite a lack of official recognition by the medical community. For example, some people seek alternative medical help to see who will provide better support whereas others try to maximize the benefit by combining both approaches. However, if similar increased effectiveness were achieved in medical care to what has been achieved in natural resource management, it could represent a remarkable improvement and lowering of costs.

Suggested Readings

Armason, T., Hebda, R.J., and T. Johns. Use of Plants for Food and Medicine by the Native Peoples of Eastern Canada, 1981.

Berkes, F. Traditional Ecological Knowledge in Perspective. University of Manitoba, Winnipeg, Manitoba.

Berkes, Fikret, P. George, R. Preston and J. Turner. The Cree View of Land and Resources: Indigenous Ecological Knowledge. TASO Report, Second Series No. 8, 1992.

Bodeker, G. Traditional Knowledge into the Twenty-First Century: Traditional Health, Knowledge and Public Policy. Nature and Resources 30(2): 5-16, 1994.

Booth, A.L. and H.L. Jacobs. Ties that Bind: Native American Beliefs as Foundation for Environmental Consciousness. Environmental Ethics 12(1): 27-43, 1990.

DeFaveri, I. Contemporary Ecology and Traditional Native Thought. Canadian Journal of Native Education 12(1): 1-9, 1984.

Department of Justice Canada. "Fiduciary obligation of the Crown towards Aboriginal peoples: implications for federal managers", in *Justice Echo*, No. 11, June 1991.

Environment Law and Policy, [June or July issue] 1996, Carswell Publications.

Harp, W. Ecology and Cosmology: Rain Forest Exploitation Among the Embera-Choco. Nature and Resources 30(1): 23-27, 1994.

Hughes, J.D. Forest Indians: The Holy Occupation. Environmental Review.

Inglis, J.T. (ed.) Traditional Ecological Knowledge: Concepts and Cases. International Program on Traditional Ecological Knowledge and International Development Research Center. Ottawa, 1993.

Interdepartmental Working Group to the Committee of Deputy Ministers on Justice and Legal Affairs. *Fiduciary Relationship of the Crown with Aboriginal Peoples: Implementation and Management Issues – A Guide for Managers*, Government of Canada, October 1995. This report contains an analysis of the duties owed from a governmental management and implementation perspective. Of particular interest to those responsible for conducting EAs will be the statements of principles to be followed in dealings with Aboriginal people:

Annex I: General Principles of Consultation for Fulfilment of Specific Legal Duties of a Fiduciary Nature;
Annex II: Principles for Prudent Management of Aboriginal Lands and Resource Interests Held by the Crown; and
Annex III: Principles for Actions Affecting Section 35 Aboriginal and Treaty Rights.

Johnson, Darlene M. "A Theory of Crown Trust Towards Aboriginal Peoples", *Ottawa Law Review*, Vol. 18, No. 2, 1986.

Johnson, M. Research on Traditional Environmental Knowledge: Its Development and Its Role. Dene Cultural Institute. NWT.

Linden, E. Lost Tribes, Lost Knowledge: When Native Cultures Disappear, So Does a Trove of Scientific and Medical Wisdom. Time, September 23, 1991.

Martin, G.J. and A. Semple. Traditional Knowledge in Tropical Environments: Joint Ventures in Applied Ethnobotany. Nature and Resources 30(1): 5-17, 1994.

Marc, Magali. "Paying the Environmental Bill: The Environmental Deficit and its Effects on Human Rights and the Rights of Communities", in Ryszard I. Cholewinski, ed., *Human Rights in Canada: Into the 1990s and Beyond*, Human Rights Research and Education Centre, University of Ottawa, 1990, p 183.

Morse, Bradford. "Government Obligations, Aboriginal Peoples and Section 91(24) of the *Constitution Act, 1867*", in David C. Hawkes, ed., *Aboriginal Peoples and Government Responsibilities*, Ottawa: Carleton University Press, 1989, p 59.

Ontario Ministry of Health, *New Directions: Aboriginal Health Policy for Ontario*, Queen's Printer for Ontario, 1994.

Owen, David P. "Fiduciary Obligations and Aboriginal Peoples: Devolution in Action", [1994] 3 *Canadian Native Law Reporter*, p 1.

Pratt, Alan. "Federalism in the Era of Aboriginal Self-Government", in David C. Hawkes, ed., *Aboriginal Peoples and Government Responsibilities*, Ottawa: Carleton University Press, 1989.

Streather, A. Traditional Ecological Knowledge. A Sourcebook, 1992.

Thomas, G. Traditional Knowledge into the Twenty-First Century: Traditional Ecological Knowledge and the Promise of Emerging Information Technology. Nature and Resources 30(2): 17-21, 1994.

ON THE WEB:

www.treaty7.org	Dene Cultural Institute
www.native.org	The Selkirk Healing Centre
www.merlin.com.au	Aboriginal Health Videos
www.anac.on.ca	Aboriginal Nurses
www.afn-ntb.ca	Assembly of First Nations

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6 EA ON AN INTERNATIONAL LEVEL

This Chapter will examine the situation of health and EA at an international level. The discussion will focus on the following:

- Current international situation
- Environmental factors most pressing on human health
- Responsibility of the World Health Organization (WHO) and other agencies to promote health and the environment
- Progress to date
- Suggested readings

Current International Situation

Canada is not alone in its attempt to strengthen and improve the EA process. Over the last 25 years, industrialized and developing countries alike have contributed to EA's increased acknowledgement as an important contributor to the decision-making process for development projects. Despite considerable progress with respect to laws, methods and procedures over the years, there is still much more to be done for EA to reach its full potential in its applicability within all countries and its ability to contribute to the decision-making process.

> "EA has now become institutionalized in over 100 countries and is a standard practice in business."
>
> Dorais, 1996

Environmental Factors Most Pressing on Human Health

The problems that developing countries face are different and much more intense than those of more developed countries. In developing countries, an enormous range of physical and social factors (known as "traditional" hazards) can impede human health. The most prevalent factors are:

- growing population size which increases the pressure on resources and on the ecosystems necessary to support human activity;
- poverty which is closely related to ill-health, premature death and degradation of the environment;
- unsafe and insufficient supplies of drinking water and the provision of basic sanitation and waste management to impede the propagation of infectious diseases;
- inadequate shelter, indoor air pollution; and
- lack of nutritious food, the poor handling of food, and pesticide toxicity.

Rapid and uncontrolled urbanization in developing countries has created severe air and water pollution which compounds the health problems related to poor housing and overcrowding. In turn, overcrowding encourages the spread of infectious and waterborne diseases such as schistosomiasis and malaria.

Developed countries experience health problems related to air pollution, municipal waste, poor management of toxic chemicals and hazardous wastes, as well as those related to unhealthy diets, alcohol, smoking, drug abuse, crime and other psycho-social problems. These are typically referred to as "modern" hazards. Whereas developed countries suffer almost exclusively from modern hazards, developing countries are usually affected by both modern and traditional hazards. As such, it is essential that developing countries incorporate health considerations into EA since they are much more susceptible than developed countries to changes in their physical and social well-being, with the introduction of development projects.

Actions of the World Health Organization and Other Agencies

> "Health is a state of complete physical, mental and social well-being and not merely the absence of disease and infirmity. The enjoyment of the highest attainable level of health is one of the fundamental rights of every human being without distinction of race, religion, political belief, economic and social condition."
>
> WHO Constitution, 1994

The World Health Organization (WHO) has been at the forefront in the drive to include health on the environment and development agenda. The subject of "health and environment" as studied by the WHO Commission on Health and Development encompasses the health consequences of humans with their physical (i.e., natural and man-made physical, chemical and biological factors), social conditions (i.e., values, customs, and beliefs), and structures (i.e., those affecting access to employment and education, and policies) (WHO, 1993). The four main principles for "environmental health impact analysis" are:

(1) health should be one of the fundamental considerations in the approval of projects, policies and plans;

(2) greater consideration should be given to the health consequences of projects, policies and plans in EA;

(3) EA should provide the best factual information on the health consequences of projects, policies and plans; and

(4) information on health impacts should be available to the public.

World Health Organization, 1987

Despite a decade of improvements in studying and searching for ways on how human health is influenced by environmental factors, the Commission on Sustainable Development (CSD, 1997) identified several unresolved issues that warrant special attention:

- the need to better integrate health into environmental impact assessment procedures;
- the need for effective and efficient environmental health information systems; and
- the need to improve knowledge of environment-health linkages.

At the **Ottawa Conference** in 1986, the World Health Organization, along with Health and Welfare Canada and the Canadian Public Health Association, agreed on the **Ottawa Charter for Health Promotion**. The Charter sees health in the context of the interaction between the person and the environment. It recognizes the elements of our social environment, including peace, shelter, education, food, income, social justice and equity all as prerequisites for health.

For the first time at an international level, the Charter recognized the fact that our physical environment is important to health, and expressed the need for a "stable ecosystem and sustainable resources". As well, it called for the creation of a supportive environment.

The **Health for All Strategy and Policy** was developed during 1977-79 and was subsequently adopted by all WHO member states. It is based on primary health care, community involvement in health care delivery and the application of appropriate technology for health. The draft renewed Health for All, which will be presented to the World Health Assembly in 1998 for world-wide adoption, emphasizes that health is the "*foundation on which all human endeavour rests*" and that "*health is central to development*". Health and development are linked by four key elements: (i) combatting poverty; (ii) promoting health in all settings and within all sectors; (iii) incorporating health in sustainable development plans; and (iv) governance to ensure that health is central to development. Target 19 of the **Health Policy for Europe** (Health for All 38 Targets, 1991 and draft 1998) recognizes the need to establish environmental impact assessment and monitoring and to linking environment and health information (WHO, 1991; 1998).

After the adoption of the Ottawa Charter, the **WHO Healthy Cities movement** began to take form in 1986 and soon became the pilot project for WHO. In line with "*Think Globally, Act Locally*", the slogan for the United Nations Environment Program, the Healthy Cities program has initiated long-term urban health and development initiatives which aim to improve the health and well-being of people living and working in cities (Tsouros, 1992). The philosophy of the movement is based on four key principles:

- that health should be an integral part of settlements management and development;
- that health can be improved by modifying the physical, social and economic environment;
- that conditions in settings such as the home, school, village, workplace and city, profoundly influence health status; and
- that inter-sectoral coordination for health is necessary at the local level.

The Healthy Cities approach seeks to ensure that health does not remain the exclusive affair of health departments and professionals, but that all development sectors and agencies, including those dealing with housing, local government, agriculture, industry, transport and planning, address health issues in their work. The **Municipal Health Plan** process, involving the collaboration of many different agencies and the use of urban indicators to help us better understand our cities, is a useful tool for removing barriers to integrative approaches, and uses communication, education and information transfer.

Over the last decade, the Healthy Cities project has generated a large amount of practical knowledge concerning strategies and structures for more integrated approaches to health and development at the local level. Examples from all continents were reviewed during the Habitat II Dialogue in June 1996. Networks of cities in all regions of the world have been formed to make health an integral component of settlements planning and management.

In Canada, the **Healthy Communities Project** and **Villes et Villages en Santé** were developed in the late 80's under a joint venture of the Canadian Institute of Planners, the Canadian Public Health Association and the Federation of Canadian Municipalities. It helps communities build a commitment to healthy environments through projects, communication and cooperation. More than 100 municipalities across Canada participated in this effort.

In the early 1990's, a second initiative called **Strengthening Community Health** supported strategies for community collaboration and increased citizen participation. Sponsored by the Canadian Public Health Association, with funding from the Department of Health, the initiative resulted in a wide variety of undertakings. These range from creating provincial networks for coordination and communication to sponsoring local workshops for skills development and training.

At the **United Nations Conference on Environment and Development** – also called the **Earth Summit** – held in Rio de Janeiro (1992), with recommendations from the WHO Commission, more than 150 member states adopted **Agenda 21** – an action plan to guide future strategies for health and environment activities on a national and international level. The Rio process had its roots in the 1972 Stockholm Conference on the environment. In the 20 years between Stockholm and Rio, global environmental threats and the link between environment and development and human well-being became recognized, and the concept of "sustainable development" became a mainstream issue with the Brundtland Commission (WCED, 1987). The international consultation process established in Rio will continue for the next five years.

The WHO Commission also acknowledges that good health and well-being can neither be attained nor maintained in hazardous or deteriorating environments. The WHO has developed a nine-step procedure for integrating health in EA (WHO, 1987). In fact, WHO's new "Paradigm for health: a framework for new public health action", states the following:

> Human health should be seen in a physical, social, behavioural and ecological context. In this holistic model, promotion of health plays a prominent part. Health promotion activities should involve other sectors making a contribution to health, such as education, food, nutrition, and environment.
>
> WHO, 1987

In evaluating progress made since Rio concerning environmental threats to human health, the WHO acknowledges the changing pattern of environmental health hazards and associated health risks, moving from "traditional hazards" (poverty and insufficient development) to "modern hazards" (rapid development and consumption of natural resources). With time and economic development, it has come to be called the "risk transition". A health-and-environment cause-effect framework inspired by work on "sustainable development indicators" by OECD (1993) and CSD (1996) has been developed. It simplified the complex cause-effect relationships operating between driving forces, environmental pressures, environmental states, human exposures, health effects and actions aimed at minimizing these effects (WHO, 1997).

Five years after the Earth Summit: Since the Rio Conference (1992) and the adoption of Agenda 21, the follow-up and up-to-date assessment of the impact of environmental hazards on health at the local, national and global levels are still a major preoccupation. Many international conferences on health and environment have stressed that sustainability concerns not only relate to the environment, but to a whole range of social, economic and political factors. Among these components of sustainability, however, health, in particular, stands out. Health has become a concern for almost every sector in society and not only the "health sector".

Selected International Conferences on Health and Environment and Related Issues Since 1992

1994

- International Conference on Population and Development, Cairo, Egypt
- Second European Conference on Environment and Health, Helsinki, Finland

1995

- UN World Summit for Social Development, Copenhagen, Denmark
- Fourth World Conference on Women, Beijing, People's Republic of China
- Pan American Conference on Health and Environment in Sustainable Development, Washington, USA (PAHO)

1996

- UN Conference on Human Settlements (Habitat II), Istanbul, Turkey
- One Decade after Chernobyl: Summing Up the Radiological Consequences, Vienna, Austria (IAEA/WHO/EU)
- World Food Summit, Rome, Italy

Source : WHO, 1997

The World Health Organization is not the only international organization striving to incorporate health considerations into development projects. The European Union, the World Bank, the United Nations Program for Environment, the Economic Commission for Europe, the International Labour Organization, and the Food and Agriculture Organization are among the other organizations that have requirements or principles for including potential health effects of projects within EA.

Another organization that has been set up to advance the state of the art and effectiveness of EA has been the International Association for Impact Assessment (IAIA). The IAIA, with memberships from numerous countries and international agencies, has recently conducted an international study on the effectiveness of EA which looked at integrated approaches of linking the biophysical, economic and social elements of EA (Sadler, 1996). The study has identified health as an important focus for the application of EA.

> The environment-and-health problems faced by many people throughout the world pose a challenge of near Herculean dimensions. It is clear that new approaches are urgently needed to tackle such problems in the future.
>
> WHO, 1997

The next step in looking toward the 21st century should concentrate on resolving the following issues.

Recent international meetings have made it evident that health-and-environment concerns increase in priority on the broad environment and development agenda. The problems facing the health sector today are increasingly complex, multi-disciplinary in nature, often ill-defined and solutions to them are uncertain. New and innovative approaches are needed to integrate and operationalize concepts of environmental sustainability, economic development and community participation. The need for an integrated framework addressing the links between key driving forces, the pressures which they exert on the environment, the resulting state (or quality) of the environment, human exposures and health effects could bring more effective action.

The reassessment of the "Health for All Strategy" to culminate in a Renewal Strategy remains the overriding vision for health in the 21st century. It provides support for many of the key concepts, policies and strategies recommended in Agenda 21. Renewal will incorporate three main dimensions:

- reaffirming the "Health for All" principle;
- applying what has been learned from experience and research in the last 20 years; and
- adapting existing approaches or introducing new ones to face new realities.

Finally, new health information systems and databases are urgently required in support of policy and decision-making, planning and evaluation. Additional resources (i.e., people or funding) are unlikely to be forthcoming in the future of EA. As such, the solution is to promote awareness through education and communication to ensure that those carrying out EA's will recognize the health component to its full extent. The World Health Organization, the United Nations Environment Program, the International Association for Impact Assessment

and other international agencies can play an integral role in educating and distributing information. Special efforts should also be made to ensure that EA practitioners and health professionals in developing countries are aware of the benefits of including health in EA.

Progress Around the World

For the health professionals within Canada, the concept of sustainable development implies the integration of environment, economic and community considerations to achieve the health and well-being of the present generation, without sacrificing the health and well-being of future generations. In November 1993, the status of environmental health impact assessments was reviewed in Malaysia by representatives from China, Hong Kong, Japan, Malaysia, New Zealand, Papua New Guinea, the Philippines and Vietnam. Representatives from the UNDP/World Bank Water & Sanitation and Urban Management Programmes were also present. Participants recognized that although most countries in the western Pacific region had an EA process, human health impacts were not sufficiently taken into account. All of the participants agreed that the following measures were necessary to ensure that health impact assessments become a standard component of EA at a national level: (1) improved intersectoral collaboration; (2) greater circulation of health risk information; (3) establishing guidelines to ensure community involvement; (4) government commitment; and (5) a good regulatory framework and reorientation of health services.

The Commission of the European Communities (CEC) and its 29 member countries adopted the European Charter, a policy regarding health and the environment. The Charter is seen as a major accomplishment in the development of both public health and environmental policies with cooperation among many European countries (WHO, 1990).

Specific examples of recent progress in health impact assessment are:

- The Environmental Division of the Asian Development Bank has produced guidelines dealing with environmental impact assessment, social impact assessment, environmental risk assessment and human health impact assessment.
- Australia has developed a National Framework Document (1992) for health impact assessment in environmental impact assessment.
- The British Medical Association has published (1998) the book entitled: “Health and Environmental Impact Assessment: An Integrated Approach”.

- New Zealand's Public Health Commission published its 1995 Guide on Health Impact Assessment.
- The Environmental Division of the Overseas Development Administration has included reference to human health in its environmental manual on assessing development projects.
- The World Bank's Environmental Sourcebook includes reference to the integration of environmental and health impact assessments.

Although major improvements have been made to the EA process in considering health effects, they have mostly dealt with biophysical health and have neglected to sufficiently take well-being into account, although this is slowly changing. The final Chapter will highlight areas that can strengthen health considerations in the EA process.

Suggested Readings

Birley, M.H. and Peralta, G.L., 1992. *Guidelines for the health impact assessment of development projects.* Asian Development Bank Environmental Paper No. 11.

British Medical Association, 1998. *Health and environmental impact assessment: An integrated approach.* Earthscan Publications Ltd., London. Environment and Health Series.

Evan, C., Young, A., Bryant, E., and Calvert, D. 1992. *National framework for health impact assessment in environmental impact assessmental assessment.* University of Wollongong.

Giroult, E. WHO Interest in Environmental Health Impact Assessment. In P. Wathern (ed.) *Environmental Impact Assessment: Theory and Practice*. Unwin Hyman, London, U.K., 1988.

Health and Welfare Canada, *Health and Environment in Canada – A Vital Link,* Ottawa, 1992.

Overseas Development Administration, 1992. *Manual of environmental appraisal.* Revised edition. London: Overseas Development Administration.

Public Health Commission, 1995. *A guide to health impact assessment. Guidelines for public health services and resource management agencies and consent applications.* Wellington, New Zealand.

Sadler, Barry for CEAA and IAIA. *International Study of the Effectiveness of Environmental Assessment.* Minister of Supply and Services, Canada, 1996.

WHO/EU/European Sustainable Cities Campaign/Healthy Cities Network, *Sustainable Development and Health: concepts, principles and framework for action for European cities and towns,* edited by Price and Dubé, Copenhagen, 1997.

WHO, Healthy Cities project: *A Project becomes a Movement, Review of Progress 1987-1990,* Copenhagen, 1991.

WHO/OECD/Ayuntemiento de Madrid, *Our Cities, Our Future: Policies and Action Plans for Health and Sustainable Development,* edited by Tsouros and Price, Copenhagen, 1996.

World Bank, 1997. *Environmental assessment sourcebook update, no. 18 – Health aspects of environmental impact assessment.* Washington, World Bank.

World Health Organization, *Draft Global Strategy for Health-for-All,* Geneva, Switzerland, 1998 (to be adopted at the World Health Assembly in 1998).

World Health Organization, *Health and Environment in Sustainable Development, Five years after the Earth Summit,* Geneva, Switzerland, 1997.

World Health Organization. *Health & Safety Component of EIA.* Report on a WHO Meeting, Copenhagen, Denmark, 1987.

World Health Organization, *Our Planet, Our Health,* Report of the WHO Commission on Health and Environment, Geneva, Switzerland, 1992.

World Health Organization, *The Urban Health Crisis,* Geneva, Switzerland, 1993.

World Health Organization. *WHO Global Strategy for Health & Environment.* Geneva, Switzerland, 1993.

Notes:

7 FORGING AHEAD

So what is the future outlook for health in EA? This Chapter will be dedicated to discussing important issues for future consideration including:

- Strengthening health considerations in EA
- Increasing awareness and education
- Strengthening cooperation between EA practitioners and health professionals
- Assessing cumulative health effects
- Dealing with risk perception
- Greater public consideration and community action
- Improving follow-up and monitoring process
- Conclusions
- Suggested readings

Strengthening Health Considerations In EA

Principle 17 from the 1992 Declaration of Principles of the United Nations Conference on Environment and Development (UNCED) held in Rio de Janeiro, Brazil, states that:

> "Environmental impact assessment, as a national instrument, shall be undertaken for proposed activities that are likely to have a significant adverse impact on the environment and are subject to a decision of a competent national authority."

After analyzing the progress achieved since UNCED, the UN Commission on Sustainable Development stated, at its fifth session in April 1997, that an unfulfilled expectation was the fact that health impact issues were not included within the environmental impact assessments of development projects. According to the UN Commission, this is due, in part, to the lack of analytical capacity within the ministries of health.

The concept of sustainable development acknowledges the importance of the environment in maintaining and improving health, as well as the significance of social and economic conditions. We need a healthy environment to provide the resources that enable us to be healthy. Sustainable development requires that environmental, economic and community considerations be taken into account in both public and private sector decision-making. An open and transparent reconciliation of economic development, community needs and environmental quality through an evidence-based decision-making process is paramount.

Hopefully, this Handbook has been able to provide you with a better understanding about EA and the current situation of health within it. So where does this leave us? Perhaps our greatest priority is to strengthen health considerations within EA that is consistent with currently-accepted definitions of health (such as that used by Indigenous peoples) as well as the known determinants of health. This requires taking into account a community's social well-being and not just a person's physical well-being.

Procedures, methods and indicators for assessing comprehensive health effects are not as well developed as those for measuring biophysical health effects. However, methods, practices and procedures applied in social impact assessment (SIA) can be an effective tool in EA. SIAs are ideal since they are a reasonably well-developed component of EA with established approaches and measures that could be linked to health. Granted, that while SIA has not yet been effectively related to health and well-being, it does, however, represent an opportunity for viewing health and well-being in a broader context.

There are other challenges facing us in achieving our goal to incorporate health considerations in EA. These challenges include: (1) increasing awareness and education; (2) strengthening cooperation between EA practitioners and health professionals; (3) assessing cumulative health effects; (4) dealing with risk perception; (5) greater public consideration and community action; and (6) improving the follow-up and monitoring process.

Increasing Awareness and Education

The major reason why health is not sufficiently included in EA is lack of awareness. This deficiency can be two-fold: (1) EA practitioners, health professionals, decision-makers, and the public may lack awareness of the benefits of including health in EA; and/or (2) this same group might not be aware of the full scope of EA - or at least the generally accepted definition of health put forward by the World Health Organization and the known determinants of health.

There are also individuals who are of the opinion that health is automatically protected within EA if environmental protection measures are adequate. This is naive and inaccurate since it does not take account of the physical health of humans (e.g., bioaccumulation) or the social, community and psychological aspects of health and well-being.

The World Health Organization has recognized the need to increase the importance and benefits of including health in EA. Four of its objectives state (World Health Organization, 1987):

(i) inform health professionals (including public health doctors, toxicologists and epidemiologists) of the preventive opportunities offered by EA;

(ii) persuade decision-makers (i.e., politicians, policy-makers, etc.) and EA practitioners (i.e., EA commissions) of the dangers of not considering health effects;

(iii) inform EA practitioners of the importance of health in EA; and

(iv) inform the public of the value of EA in maintaining and protecting health.

Strengthening Cooperation Between EA Practitioners and Health Professionals

As it stands, health professionals need to become more actively involved in the EA process and work in collaboration with EA practitioners to ensure that the full scope of EA is not overlooked. One might point to educating health professionals to convince them of the necessity of their role and responsibility in EA. This approach, however, does not facilitate their involvement and ensure their collaboration with EA practitioners. This suggests that appropriate mechanisms should be implemented to facilitate their cooperation with EA practitioners through joint committees for scoping and determining significance, ensure collaboration between health and environmental agencies, and provide training programs to discuss the responsibilities of the other in EAs.

Health professionals and EA practitioners should also be made aware of the positive repercussions that a thorough EA could have on health and well-being. Ensuring that the physical and social aspects have been properly assessed and dealt with in an EA, can serve as a preventative check to protect against possible physical harm or mental anguish suffered by individuals during or after the implementation and operation of a development project.

Assessing Cumulative Health Effects

In 1992 almost two out of every three people surveyed within Canada said that their health has likely or has definitely been affected by environmental pollution. The risk to health from pollution is undeniable. However, there is a growing consensus that our health is also influenced by other factors. The term determinants of health (see Chapter 1) is now increasingly used to refer to the many factors thought to contribute to the health of populations. They include our social and economic environment, our physical environment, our personal health practices, our individual capacity and coping skills, the availability of health services and other factors such as gender and culture.

Thus the impact of a development project on the biophysical environment is only one of a number of impacts which cumulatively affects the overall health of an individual or a community. Impacts from the development project can be positive (such as the creation of jobs – unemployment and underemployment are associated with poorer health) or negative (release of toxic substances either singly or in complex combinations into the air, water, food or soil).

Historically, environmental impact assessment has focused attention on the movement of contaminants or other hazards through the air, water, food and soil and the resulting human health implications. There is a pressing need to monitor and assess the impacts that development projects have on the other determinants of health so that a truly holistic (cumulative) impact assessment is done.

Dealing with Risk Perception

Risk assessment, the systematic collection, analysis and interpretation of selected environmental or health-related data and the subsequent development of possible options for managing the risks involved with the development project, including consideration of environmental or health benefits is a cornerstone to environmental impact assessment and/or health impact assessment. Risk management involves the selection and implementation of a strategy for mitigating or remediating the risk. Risk management must take many factors into account, including social, economic and environmental considerations.

Attitudes and perceptions about health risks associated with development projects can have an important effect on an individual and/or a community. One of the central challenges for risk communicators is that the risks that have significant health outcomes and the risks that upset the community are not always one in the same. There is often no correlation between the ranking of health risks by experts and public outcry over the same risks. At the individual level, perceptions of health risks can lead to a number of negative health outcomes (i.e., stress, increased blood pressure, sleeplessness, lowering of the individuals immune system, etc.), while at the community level, it can lead to social discord or even to social violence. Development of effective risk communication techniques is a key challenge, so that appropriate environmental, social and economic considerations can be taken into account in both public and private sector decision-making.

Greater Public Consideration and Community Action

The World Commission on Environment and Development's (Brundtland Commission) report, *Our Common Future*, expressed optimism that the world could solve its environmental and economic development problems "in a more open, fair, and just manner". Reconciling the need for economic development, environmental quality and community acceptance necessitates the recognition of the needs for integrated decision making at all levels of society – the individual level, the community level and within and among all levels of government (municipal, provincial and federal). Conflicts arising from risks (real or perceived) associated with development projects need to be examined openly, in an informed manner using the best tools available. The essence of public involvement is two-way communication.

Project managers often delay going to the public until they feel that they have completed their background research and planning. This approach, often referred to as the 'DAD' (Decide, Announce and Defend) approach has often resulted in public outcry and delays in project implementation. Public participation in project planning, before any irrevocable decisions are made, ensures that the views of the community are known and considered when important decisions regarding the project are taken. An important aspect to effective public participation is the extent to which participants are able to exercise power in decision-making, especially when it is perceived that the decision(s) will impact on an individual's health, the health of their children or the health of their community.

Which decision to make is not always clear cut. Many factors must be taken into account during the decision-making process, including the nature of the health/environment concerns and the likelihood that the concerns will occur, uncertainties in the science, health benefits, public perception, economic impacts, social, political and cultural implications, as well as the technical and economic feasibility of the remedial options being considered. However, the final decision and the reasons for the decision, must be clearly articulated to the public that have participated in the identification of the health concerns. Issues that seem obvious to the project manager or health professional, might not be obvious to the impacted community. If the environmental/health impact assessment is perceived to be incomplete or biased toward the interests of the project proponent, it will not be trusted or accepted by the community. The environmental/health impact assessment report should be a comprehensive and balanced summary of the scientific, public, economic and social concerns, and be available to all interested parties.

Improving the Follow-Up Monitoring Process

Chapter 2 examined the follow-up monitoring process and suggested that this phase represented a major area of weakness in EA. Without some sort of systematic follow-up monitoring mechanism, we stand to continuously thwart any chance we might have of accurately assessing the full impact of projects. We cannot continue carrying out a fragmented EA. If carried out effectively, follow-up monitoring could undoubtedly strengthen our knowledge base since cumulative effects influencing physical and social well-being could be better understood once a project has been implemented. This information would consequently serve to provide a more accurate depiction for future assessments of a similar nature. Furthermore, systematic follow-up monitoring could also aid in

the development of health indicators, particularly with respect to social and community health. These indicators could then be useful as baseline information and in determining significance of the potential effects.

Conclusions

As our knowledge base on how to carry out sound environmental assessments improves, all stakeholders in a development project will realize the importance of environmental assessment in decision-making. As our experience in environmental assessment improves, so should the interactions among resource experts, economists, policy experts and environmental, social and human health scientists. The ultimate goal of these interactions is to truly integrate economic, environment and health considerations in decisions regarding development projects, so as to ensure that the basic concepts of Sustainable Development are adhered to.

The goal of this Handbook is to encourage and promote an integrated approach to developing a human health perspective within the framework of environmental assessments. It is not intended to be a standard. Volume 1 consolidates the ideas expressed at the six regional, multi-sectoral workshops held between the fall of 1995 and the spring of 1996, on the role of health professionals in environmental assessment. There was a consensus at all of the workshops that national guidance material on health within environmental assessment was needed in Canada and that it should include advice on assessing effects on socio-cultural health and occupational health as well as physical health. This would be consistent with the World Health Organization's definition of health and the known determinants of health. It was suggested that because different people have different levels of familiarity with the issues associated with including health in environmental assessment, there may be a need to prepare more than one guidance document. Volume 1 of the Handbook introduces the concepts of health impact assessment and presents the rationale for the necessary presence of the health sector in the area of environmental assessment, as well as a summary of current practices in Canada and other countries. Volume 2 will present criteria for conducting an analysis and provide detailed examples of impacts as a reference to health professionals, based on the principles of sustainable development. The third volume of the Handbook will provide a summary of the methodological approaches which are widely used in Canada at the present time. The three volumes will be finalized in the year 2000, once the consultations currently under way have been completed.

Even though this Volume has undergone extensive multi-stakeholder consultations, it is important to bear in mind that the Handbook was designed in order to allow for expansion and modification in the future. The Handbook is published as a binder, which allows pages to be inserted, deleted or modified with relative ease. Changes to this Volume or Volumes 2 and 3 will be recorded on the inter-net at the website address:

http://www.hc-sc.gc.ca/oeha (for English); and
http://www.hc-sc.gc.ca/behm (for French).

and will be available for downloading free of charge. Efforts are underway to have the Handbook (all three volumes) translated into other languages as well, so that the Handbook can serve a wider audience. The translated versions will be posted at both the English and French websites listed above.

The overall objective of the three Volumes is to develop and promote partnerships and new alliances of support for health impact assessment. The development of leadership in this new evolving area so that health impact assessment can be sustained as a continuing process within environmental impact assessment at all levels is an important strategy to mobilize greater social and political commitment for the World Health Organization's total Health-for-All movement. It is hoped that these three Volumes will promote self-reliance and enable others outside of the health professions, particularly at the community level, to take greater responsibility for their own health and the health of their community, through informing and educating them and developing their own leadership potential.

Suggested Readings

United Nations, *Report of the United Nation Conference on Environment and Development.* Rio de Janeiro, Brazil, June 3-14, 1992.

World Health Organization. Health and Safety Component of Environment Impact Assessment. Report on a WHO Meeting. Copenhagen, Denmark, 1987.

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APPENDIX

Glossary

Decision-Makers: Persons (e.g., cabinet ministers, senior officials, regulatory authorities, etc.) who help determine if the project should be permitted to proceed or not.

Environmental Assessment (EA): A comprehensive and systematic process, designed to identify, analyze and evaluate the environmental effects of a project in a public and participatory manner; environmental assessment involves the use of technical experts, research and analysis, issue identification, specification of information requirements, data gathering and interpretation, impact prediction, development of mitigation proposals, external consultations, and report preparation and review. In this Handbook, the term “environmental assessment” is used synonymously with “environmental impact assessment”, “impact assessment”, etc.

Environmental Assessment Practitioner: someone who is involved in carrying out an environmental assessment (i.e., government employee, knowledgeable person in the EA field, etc.)

Government Departments/Ministries or Agencies: The federal, provincial, and/or territorial government institutions partaking or providing guidance in the EA.

Health: A complete state of physical, mental and social well-being and not merely the absence of disease or infirmity (WHO, 1967). Consistent with this definition, health has been defined in this Handbook in terms of its physical and socio-cultural dimensions. “Health and well-being” is synonymous with this definition of “health”, and has been used to emphasize the inclusion of physical health and socio-cultural well-being.

Health professional: A person who has formal education and/or experience in how the environment can affect human health and well-being. Includes professionals in the medical field (i.e., doctors, nurses, epidemiologists, toxicologists, etc.), professors and experts in the social science field, and the occupational health and safety experts in government and industry.

Health promotion: The combination of educational and environmental supports for actions and conditions of living conducive for health. "Environmental", in this context, usually refers to the social, political, economic, organizational, policy, and regulatory circumstances bearing on health and not the physical environment nor the provision of medical services.

Project: Any proposed physical undertaking or activity required to undergo an EA. Most EA legislation defines the types of development projects subject to EA requirements.

Proponent: An individual, organization or company that proposes a development project.

Public: Local residents, environmental groups, Aboriginal people, local businesses and other citizens. Does not include proponents or government departments (see definition of stakeholder).

Social Impact Assessment: The process of identifying, assessing and mitigating the social effects of development projects.

Social learning theory: Supports the ideas that people self-regulate their environments and actions and, though people are acted upon by their environments, they also help create their surroundings.

Stakeholder: Any individual, organization or company that has an interest, financial or otherwise, in a project. Types of stakeholders commonly associated with EAs include the proponent, government departments, local residents, environmental groups, Aboriginal people, local businesses and others (see definition of the public).

Task Force Members on the Federal/Provincial/Territorial Committee on Environmental and Occupational Health

Environmental Health Services Branch
Alberta Health
Edmonton, Alberta

Planning and Innovation Division
Department of Environment
Winnipeg, Manitoba

Community and Environmental Health Unit
Department of Health and Community Services
Fredericton, New Brunswick

Technical Services Division
Labour Canada
Ottawa, Ontario

Health Protection Branch (2 representatives)
Health Canada
Ottawa, Ontario

Medical Services Branch
Health Canada
Ottawa, Ontario

Direction de la santé publique
Ministère de la santé et des services sociaux
Québec, Québec

Activities Carried Out by the Task Force

Chronology of Events:

Sept.	1992	Task Force Formed
Sept.	1993	Review of National and Provincial/Territorial Literature
Mar.	1994	1st Draft (reviewed by Task Force)
Sept.	1994	2nd Draft (reviewed by Federal/Provincial/Territorial Committee on Environmental and Occupational Health)
Oct.	1994	3rd Draft (translated and distributed for comment)
Sept.	1995	Workshop Halifax (multistakeholder)
Nov.	1995	Workshop Winnipeg (multistakeholder)
Nov.	1995	Workshop Montreal (multistakeholder)
Dec.	1995	Workshop Toronto (multistakeholder)
Jan.	1996	Workshop Vancouver (multistakeholder)
Mar.	1996	Workshop Ottawa (federal government)
June	1996	Consolidated Workshop Proceedings Published
Apr.	1997	Draft Canadian Health Impact Assessment Guide, Volume 1: The Beginner's Guide

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