

“The Nasty Game:”

The Failure of Environmental Assessment in Canada



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This independent public report was commissioned by the Walter & Duncan Gordon Foundation in Toronto in September 1996. It looks at the troubled history and repeated failings of federal environmental assessment in Canada.

Over a three-month period, the author reviewed most of the significant literature on the topic and interviewed more than 50 scientists, lawyers, bureaucrats, business people, environmentalists and consultants. Because this report was specifically written to open and focus public debate, it is brief, blunt and referenced. It also includes suggestions and ideas for debate and reform. The conclusions are solely those of the author, who has written about economic and environmental issues for two decades.



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Executive Summary

Environmental assessment (EA) has become a cynical, irrational and highly discretionary federal policy in Canada. What should be a coherent and democratic filter to ensure that ecological and economic follies do not ruin Canada's natural riches has become a bureaucratic exercise that is neither cost-effective nor conservation-minded.

Increasing litigation, conflict of interest, missing assessments and scientific rebukes are all evidence of the government's reluctance to uphold the law on EA and apply it fairly. While a formal complaint on non-compliance has been brought before NAFTA's Commission For Environmental Cooperation, the Sierra Club of Canada is now suing the government for failing to assess the fiscal and environmental impacts of nuclear reactor sales to China.

The government's calculated exclusion of the \$1.5-billion CANDU sale from an EA not only highlights a history of shoddy practices but sends an unmistakable message to the public: there is one law for the government and another for everyone else. Voisey's Bay Nickel Company, which has already spent \$20 million on its impact statement on the effects of a \$5-billion nickel mine that will supply Asian markets, might well ask why it is following a process that is openly belittled by Ottawa.

As a consequence members of both industry and the environmental movement now agree that EA suffers from a profound lack of leadership and direction. "Someone in Ottawa has to decide they are going to make this thing work and assume the responsibility to do so," charges Justyna Laurie-Lean of the Mining Association of Canada. It is a charge echoed across the country.

Many of the current problems stem from a two-year-old law that even lawyers describe as the most complicated and convoluted legislation ever to exit Parliament. Neither a mining executive nor a Dene hunter could tell by reading the Canadian Environmental Assessment Act (CEAA) or its 491-page user's guide that predicting the impact of industrial development on the land requires fidelity to three principles: it must be done before the project has been designed, it must focus on significant effects and it must be done even-handedly. On any scale most federal EAs in the last seven years violate all of these principles.

Under CEAA there is no independent authority to conduct assessments. There are no penalties for non-compliance nor clauses preventing widespread conflict of interest. Because CEAA makes every government department a "responsible authority," there are few standards and there is little consistency and almost no responsibility. When the Department of Indian Affairs and Northern Development recently assessed the impact of BHP's diamond mine on the Great Slave Geological Province, it offered the company no

guidance. Incredibly, it made all important impact agreements outside of the EA process. As one official noted: "In the end a lot of cheques were cut and everyone got a deal. But it's not clear an EA was ever done."

When the phenomenon of EA burst upon the public scene in the 1970s it quickly became adopted in more than 100 countries around the world. Responding to citizens' concerns about the loss and destruction of natural capital such as rivers and forests, the government of Canada cautiously followed the world leader in EA, the United States, by introducing an ad hoc program that later became a four-page policy subject to ministerial discretion. Litigation for non-compliance forced the government to introduce a law in 1995.

In the last 25 years more than 50 major projects worth more than \$50 billion have been publicly reviewed for significant environmental effects including dams, oil wells, highways, uranium mines and airport expansions. Yet no one has ever checked on the value or quality of these assessments. "There is little systematic or collected evidence of how past assessments have made any contribution to the health of the environment or have improved the economic development in Canada," says Husain Sadar, a former EA bureaucrat and now director of Carleton University's Impact Assessment Centre. "Not a single country outside of Canada would call us a leader in EA anymore."

In the absence of clear direction and leadership, impact statements for EAs have become increasingly jargon-laden, wordy and obtuse. Masses of inaccurate and poor data now pose as science. Charges David Schindler, a world-renowned ecologist at the University of Alberta: "Every one of these things is done as though it were on another planet. There is no learning and most would not pass a scientific peer review."

In an attempt to end the duplication of EAs among federal and provincial authorities, Ottawa has embarked on an Orwellian mission called "harmonization." Yet in reality this means contracting out constitutional responsibilities for the environment to provinces who no more want to uphold these responsibilities than Ottawa currently does.

When done properly, the difficult practice of EAs can save money, conserve resources and impose limits on development in areas suffocating from too much progress. Justice Thomas Berger's review of the Mackenzie Valley pipeline in the 1970s, still a model of EA excellence, literally saved the national economy billions of dollars and insured the possibility of aboriginal homelands. The World Bank now values the decision-making tool so highly that it doesn't approve a loan without an EA. And so on.

But without major reforms and critical leadership Canada's arbitrary practice of EA will only reap international ridicule, corporate censure, public unrest, and continued litigation.

Both the business and environmental communities have forwarded sensible and economic

solutions. For starters, the law must be simplified and must respect key principles. As the Liberal Red Book recommends, there should be one strong, independent agency that sets the rules, monitors the results and applies the law fairly to all.

Last but not least, harmonization should mean only one thing: one good federal law administered by 10 provinces and two territories guaranteeing one prudent assessment per significant project in the public interest.

Without a rational and consistent means of defending the public good, the government can no longer claim to be a defender of that good.

Significant Thoughts

“We must make politicians, administrators and technicians personally responsible for useless, unjust and unsuccessful projects that are shown to be such.” Jacques Ellul

“Mere interest without application, mere assent without amendment – I can do nothing whatever with men of such calibre.” Confucius

“But a conservation effort that concentrates only on the extremes of industrial abuse tends to suggest that the only abuses are the extreme ones when, in fact, the earth is probably suffering more from many small abuses than from a few large ones.” Wendell Berry

“Examine each question in terms of what is ethically and esthetically right, as well as what is economically expedient. A thing is right when it tends to preserve the integrity, stability and beauty of the biotic community. It is wrong when it tends otherwise.” Aldo Leopold

Scoping the Problem

Last fall a delegation from Vietnam visited Ottawa in pursuit of wisdom. The Vietnamese came to learn something about environmental assessment (EA), the science of predicting the environmental consequences of certain kinds of development on the land. Canada, they thought, was supposed to be a leader in the field.

Canadian officials, of course, gave them a glowing and lengthy presentation about the year-old Canadian Environmental Assessment Act (CEAA). And they handed out weighty tomes on the glories of EA. But after the delegation left and thought about the government's presentation, they arrived at their own blunt assessment: "You are a rich and big country. But we found all this totally confusing."¹

Had they consulted scientists, the business community, lawyers or environmentalists, the delegation would have left with an even harsher evaluation of CEAA. In addition to being exposed to the law's maze-like complexity, they might have learned that the government applies EA the same way the Indonesian government conducts business – selectively and shadily. The Vietnamese would have learned that the same government that requires an EA on the construction of a \$250-million coal mine² supplying Asian markets blithely subverts the law for a \$4-billion sale of CANDU reactors to China; that the same government that conducts a hearing on a \$750-million gas pipeline to the U.S. has yet to examine the effects of \$25 billion worth of investment upstream in the Canadian tar sands.

Had the Vietnamese asked Alastair Lucas, a former employee of Environment Canada and now an environmental law professor at the University of Calgary, they would have learned of the system's true bureaucratic nature: "We have created a system where industry hires consultants and submits material that is reviewed by bureaucrats and more consultants. ... It's not a rational process." After doing EAs for 25 years, Canada still doesn't have a model or standard template for studying the impact of a dam or gold mine.

Had they approached Husain Sadar, once a senior bureaucrat in charge of EA and now director of Carleton University's Impact Assessment Centre, they would have learned of the government's lack of accountability. Although more than 50 public panel reviews on transportation, nuclear or energy developments worth at least \$50 billion have been conducted in Canada, no one has checked on the quality or value of these assessments.³ "There is little systematic or collected evidence of how past assessments have made any contribution to the health of the environment or have improved the economic development in Canada," says Sadar. "Not a single country outside of Canada would call us a leader in EA anymore."

If the delegation had asked scientists about the quality of research now used in assessments, they would have heard about a seemingly endless amount of data dressed

up as science. Charges David Schindler, a world-renowned ecologist at the University of Alberta who refuses to sit on another panel until the system is reformed: “Every one of these things is done as though it were on another planet. There is no learning and most would not pass a scientific peer review.”

And had they asked business leaders and environmentalists, they would have heard almost unanimous criticism of the government's lack of leadership. “Someone in Ottawa has to decide they are going to make this thing work and assume the responsibility to do so,” argues Justyna Laurie-Lean of the Mining Association of Canada. Mike Sawyer of Alberta's Rocky Mountain Ecosystem Coalition echoes that sentiment: “There is no political will to do EA. And in the absence of that commitment, the process will always be manipulated and abused.” Concludes Fred Roots, a senior scientist with Environment Canada, “Changing the structures we have for EA is not going to help if the people who make decisions don't want to do it in the first place.”

Last but not least, had the delegation visited with Robert Page, the dean of environmental design at the University of Calgary and one of the authors of a highly praised EA on the future of Banff National Park,⁴ they would have learned of the consequences of so many words without deeds. “Within 10 years there will be a series of events that will show how poorly the interests of the public have been served. The gap between what officials are saying and what is really happening is widening and widening. After a while the people will see that the emperor has no clothes and there will be hell to pay.”

What's an EA?

Environmental assessment is a big term for a simple idea. A proper impact audit makes sure that all the big effects of a project, program or policy, are well known to the public at the early stages of planning. Given a jumble of conflicting numbers and eloquent words, an EA asks a fairly unique question: “And then what?” After weighing the impacts and costs to creatures, plants and human communities, an EA gives a public agency or public representatives all the evidence they need to make an informed decision: a go or no-go. “That's it. It's no more compelling than that,” notes Rodney Northey, the author of a 761-page guide to CEAA.⁵ “But we haven't got a process that makes it that simple.” Adds the Toronto lawyer: “It's only been made complicated because politicians don't want to live with the consequences that many projects shouldn't proceed.”

As a democratic planning tool, an effective EA presents citizens with economic alternatives to the project. It also estimates costs and benefits. By its nature, an EA is both an evolving science and a predictive art. It, too, is a profoundly conservative practice that should serve as a filter against folly. Many businesses call it a “look before you leap” policy. Good EA, in fact, tries to respect the spirit of an old Shaker proverb: “to work as though we have a thousand years to live, and as though we were to die tomorrow.”

To identify, predict and assess the consequences of industrial activity on the land, an EA must respect three basic principles.

It must be done before the project has been approved or designed.

It must focus on significant effects or the big issues.

It must do so as even-handedly as possible.

“Failure to do any one of these things results in an unsatisfactory process,” notes Northey.

Both environmentalists and the business community now agree that Canada's assessment process routinely violates all three principles. Dams have been built while under review and no-go recommendations such as the gigantic bridge to Prince Edward Island have been overturned by politicians intent on buying regional votes.⁶ Big issues such as cumulative effects are either not understood or blatantly ignored.

Although the principles of EA are simple, its evolving practice is complicated and value-laden. Predicting the impacts of a particular pulp mill on the boreal forest might look like a basic engineering exercise but it's never that straightforward. The infant science of understanding ecosystems invariably comes with incomplete and inadequate information and many unknowns. As a result EA more closely resembles the dilemmas of good parenting or weather forecasting: once the known facts are established (the science), the final conclusions are based on wisdom, experience and a moral code that respects, for want of a better word, Providence or Creation.

The key principles of environmental assessment have been known to traditional societies for thousands of years and re-emerged during the great ideological war between Progress and the Environment in the 1970s. Looking for a means to adjudicate the concerns of both camps, politicians chose impact assessments as a way of ensuring that a national economy conserved as much as it consumed in natural riches. EA has since become a tool to promote “sustainable development,” or the practice of smart growth.

Effective EA, for example, would recognize that certain regions of the country, such as the Fraser River basin, are now overloaded by industrial activity, and can house no more development without irreparable harm. Good EA, then, can only be effective by imposing limits and discipline on an economy. Fred Roots of Environment Canada recently wrote that a well-tailored EA program forces a nation to ask an important question: “How much do we really want to change our practices and institutions today in order to reduce costs and environmental degradation tomorrow?”⁷

In 1970 then American president Richard Nixon created the grandfather of all green auditing policies, the National Environment Policy Act (NEPA). To this day NEPA “is

intended to help public officials make decisions that are based on an understanding of environmental consequences, and take actions that protect, restore, and enhance the environment.”

Nearly 100 countries around the world now practice some kind of green assessment. That's quite a remarkable feat for a public policy that didn't exist 30 years ago. Even institutions as big and controversial as the World Bank endorse EA. It now refuses to loan money for projects that haven't been rigorously assessed for environmental and social impacts. Other banks and insurance companies are following its lead.

Not surprisingly, EA is a big billion-dollar business that employs an army of Ph.Ds which, in turn, produces much paper. There are now world congresses on EA, journals devoted to the topic and thousands of consultants practicing it. Experts in EA have even developed their own dense professional language. They talk a lot about “strategic EA,” “responsive consultation,” “biocentrism” and “sustainability instruments.” Many environmentalists have also taken up this lingo. But much of this doublespeak has the effect of obscuring important ideas and discouraging public participation, the hallmark of good EA.

Canada's very first EA, the Mackenzie Valley Pipeline, still stands as a singular model of excellence. Established by the Privy Council in 1974, it focused on the social, economic and environmental effects of the Arctic Gas Pipeline or what the company boasted would be “the greatest construction project, in terms of capital expenditure, that private enterprise has ever taken anywhere.”⁸

Headed by Justice Thomas Berger, the public inquiry reviewed what scientists, economists and native elders had to say about bringing more than \$8 billion worth of progress to the Arctic, namely 1,100 miles of pipeline, 6,000 construction workers and 600 water crossings. Berger looked at alternatives such as diversifying the native economy and all the potential effects, good and bad, for caribou as well as the Inuit, the Dene and the Métis. After three years and \$5 million, Berger found the environmental losses irreparable, the social impact devastating and the economic benefits limited. He prohibited development in northern Yukon and recommended a 10-year postponement of industrial activity in the Mackenzie Valley until land claims had been settled. It was Canada's first “no-go” and it was written in plain English.

Industry, of course, never built a pipeline and thereby saved tens of billions of dollars. As Berger recommended, national parks and ecological reserves have since been established; a few land claims have even been settled. Berger achieved these national savings by respecting the basics of EA: he looked at all the big issues early and in a balanced manner. The Canadian government, which owns or manages 41 per cent of the nation's land mass, has yet to establish a coherent process that duplicates the spirit or integrity of Berger's public review.

Historical Terms of Reference

In 1973, just before Berger began his great pipeline narrative, the Canadian government established its first “environmental assessment and review process.” But EARP, or “BEARP” as some still call it, set an unBerger-like tone by establishing a weak and loose process. This legacy still haunts CEAA.

Fearing legislation that might invite lawsuits or force compliance with the principles of environmental accounting, the federal government cobbled together “a set of guidelines that looked like a comic book with illustrations,” recalls Alastair Lucas, who worked for Environment Canada at the time. This largely in-house screening process prompted federal departments to bring forward really damaging projects for public review.⁹

“For the first 10 years, a few bureaucrats applied the process arbitrarily and in an uneven way,” says Lucas. Very few projects ever made it to a public review and these resembled “little academic conferences where bureaucrats and experts sat around talking ... It was bizarre.” While Canada publicly reviewed six projects in 1978, the United States studied thousands.

To understand this glaring disparity, William Rees, an ecologist at the University of British Columbia, performed the first and only complete audit on federal environmental assessments in 1987.¹⁰ (The Auditor General is now completing a formal review of current practices.) Rees found that of 18 government departments only one, Transport Canada, had a screening process and kept reliable records. Then, as now, the government wasn't really committed to the principle of EA at all. “Ottawa likes to look at politics, technology and feasibility,” says Robert Gibson, an environmental professor at the University of Waterloo. “They still don't want an environmental agency to have more power or to upset the way they decide things.”

As a result, little got reviewed. And politics solely determined what projects made it to a public panel. Due to the popularity of the Berger inquiry and the influence the Canadian Arctic Resource Committee (a public interest group representing northern concerns) most of the projects that got “EARPed” were largely northern or rural. These included an exploratory drilling well in Lancaster Sound, oil and gas developments in the Beaufort Sea and uranium mines in northern Saskatchewan. Meanwhile significant developments such as funding for the Westray Mine, the reduction of the Atlantic cod fleet and the construction of the Mirabel Airport, a fiscal disaster of white elephant proportions, conveniently escaped scrutiny.

In the beginning public review panels often consisted of government employees as opposed to citizens with particular expertise. At the hearings on oil projects for South Davis Strait, the oil companies had much higher standards of environmental safety than

the bureaucrats. During the Lancaster Sound review, citizens had to threaten legal action in order to open hearings for public questioning. And cabinet ministers continued to undermine the whole process by bluntly informing panels that a “no-go” decision was unacceptable. During the lengthy and controversial hearings studying low-level military flights over Labrador and eastern Quebec, the Minister of the Environment even lectured the panel that they couldn't rule against more flying¹¹ and so on. For these and other reasons, the Innu still call the process “a nasty game.”

In spite of these failings, the panel reviews established some milestones in EA. They secured the right and reinforced the significance of public participation. (At the Alberta-Pacific Environmental Impact Assessment review in 1989, public comment on a giant pulp mill led to scientific studies on gender-bending chemicals, now one of the hottest fields in environmental science.¹²) Panels such as the Westcoast Offshore Hydrocarbon Exploration Review in 1986 proved the need “for government reviews of broad industrial activities within large geographic regions.” And some panels actually stopped a lot of bad energy projects. (To this day many oil executives exclaim that, “If the government didn't force us to do EAs, we would have to invent it ourselves.”¹³)

For a while “no-go” was part of the EA vocabulary. The Lancaster Sound panel recommended a “no-go” because it didn't think the government should spend or exploit natural capital for which no inventory existed. Uranium mines and plants got no-gos. And many other projects were delayed or postponed because of unacceptable risks or poor impact statements. As a consequence nearly a half dozen developments never got built.

In 1984, the government introduced very clear guidelines for conducting public screenings and public reviews. Although Ottawa said the guidelines “shall apply” to all government projects and programs, political discretion ruled the day. Most departments still considered EARP a nuisance or “an ineffectual paperwork ritual.” The majority of government screenings simply flashed a green light and public reviews took place with the frequency of solar eclipses.

The public, however, took the guidelines more seriously than Ottawa did and launched approximately 70 court cases towards the end of the 1980s.¹⁴ Most of these cases simply asked the government to abide by its own “shall apply” guidelines. Even inshore cod fishermen asked for an environmental audit of licencing policies, a request that might have lessened Canada's greatest economic disaster of this century. But most of the challenges failed – with three important exceptions.

In northern Quebec, the Cree launched a series of aggressive court actions in 1991 to force federal and Quebec officials to honour the law and begin an EA of the multi-billion-dollar Great Whale Hydroelectric Project. Faced with a public audit and strong U.S. opposition, Hydro Quebec then canceled the scheme. Numerous court decisions also forced panel reviews of two politically motivated dams with clearly bad economic and ecological

impacts on the prairies: Alberta's Oldman Dam and Saskatchewan's Rafferty-Alameda Dams. In a complete mockery of EA, both reviews occurred after construction was well advanced. But these embarrassing court decisions, which interpreted the guidelines as an enforceable order, warned Ottawa that it had a legal obligation to properly assess projects, whether it wanted to or not.

The other rulings, however, show that Canada's justice system has a much more myopic understanding of EA than the public. Although Canadians need the courts to take a tough-minded approach to conservation in the public interest, Northey's exhaustive review of CEAA reveals that public panel reviews and the courts have chosen different paths.

Panels have tended to occupy the high ground by emphasizing the need for EAs of policies, programs and megaprojects. The courts, however, have applied EA only to physical developments. While panels have called for early assessment, the courts have favoured getting reviewed projects built. Although panels have sought regional studies of impacts, the courts have focused on narrow project-by-project definitions. Last, but not least, the panels have repeatedly described the need for independent and objective decisions. The courts, however, have championed self-assessment and politics as usual. The current law reflects the narrowness of these judicial interpretations.¹⁵

The court decisions effectively weakened an ad hoc program. "Ever since the courts got involved, the big picture need for EA has been obscured," says Northey. "We've had narrower application, less objectivity and little long-term planning."

By the 1990s, both industry and the environmental movement realized that EA had become a political fiasco. The provinces, which considered the process "a Trojan horse" of federal intervention, flaunted the law and pursued their own resource extraction projects anyway. And when Ottawa didn't like what the panels recommended, the federal government simply set up alternative panels that quickly rubber-stamped federally funded make-work projects such as the fixed link with Prince Edward Island. With political discretion defining the game, the integrity of the process evaporated. When the Innu of Labrador and Quebec, the people most affected by low-level buzzing of military aircraft, boycotted the public hearings studying impacts of the flights, federal EAs lost even more credibility. To this day, many prominent scientists and citizens refuse to participate in public panel reviews. In the last six years most panels have ended with litigation, controversy or dissatisfied parties all around.

Six years ago Environment Minister Robert de Cotret finally promised "an assessment process which was more powerful in its impact on decision making than any other environmental assessment legislation in the world."¹⁶ Few citizens or business leaders held their breath.

The Law

The Canadian Environment Assessment Act fills more than 50 pages and came into force in 1995 after five years of dithering and debate. The government calls it “a tool for decision makers,” and claims that the act sets up an open and balanced process to gauge environmental effects. Yet lawyers, business leaders and citizens unanimously agree that it is one of the most complicated pieces of legislation they have ever read.

Ecologist William Rees of the University of British Columbia correctly notes that “the law is a book and impenetrable unless you are a lawyer.” Adds Northey, a lawyer: “If anyone can read CEAA in one sitting, then they should have their head examined. ... Clearly, it wasn't written for anyone who wants to do an environmental assessment.” Ian Scott of the Canadian Association of Petroleum Producers observes: “If you want public input then why does the government make it so complicated that the public can't get into it?”¹⁷

To assist government employees in deciphering the law, a training manual comes in a thick binder. It includes six different sections including a copy of the law, regulations, a user's guide and a citizen's guide – a total of 491 pages. The old EARP review guidelines consisted of six pages and no training manual.

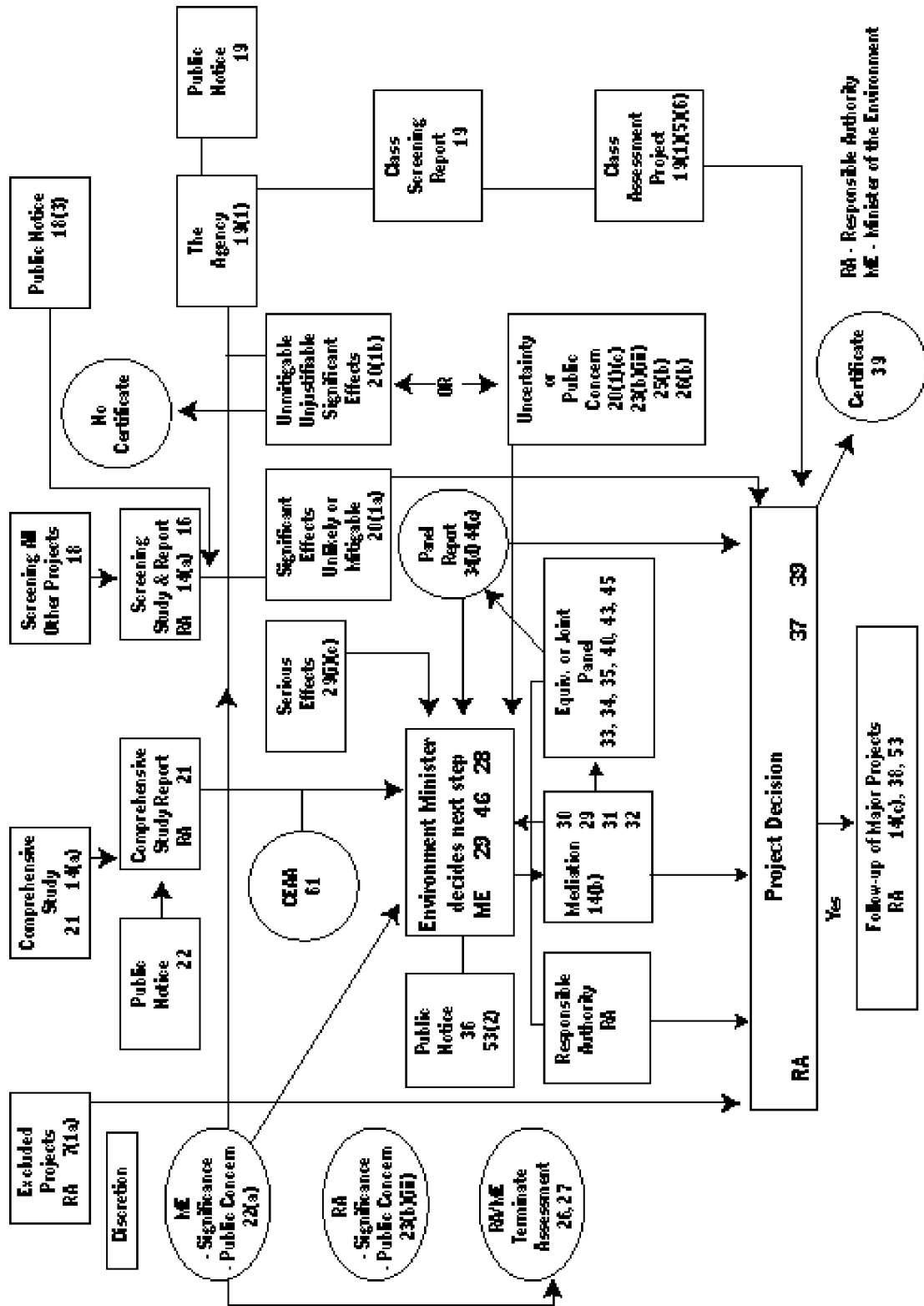
The preamble of the act commits Canada to using EA as a tool to conserve and enhance environmental quality and to ensure “that economic development is compatible with the high value Canadians place on environmental quality.”

Contrast these ambiguous words with the mission statement of the Nunavut Impact Review Board: “to use traditional Inuit knowledge and recognize scientific methods in an ecosystem analysis to assess and monitor on a site-specific and regional basis the environmental, cultural and socio-economic impacts of proposals. ... and to determine whether proposals should proceed to develop, and if so, under what conditions.” In other words the tundra, rivers and coast of the Nunavut Settlement Area come first.

CEAA defines its purposes as threefold: to guarantee that environmental effects are duly considered by federal departments or “responsible authorities;” that significant adverse effects don't affect communities outside of the project area; and that the public has a say. Period. According to the act, just about any agency or government can be a responsible authority except a province. There is no clear mention of ever making a go or no-go decision. Worse still is the exclusion list. Crown corporations and harbour commissions, for example, don't have to follow the rules. To find out who or what is included and excluded, one has to wade through four regulations.

The act is narrow in scope. It confines assessments to projects or “physical activities.” The old EARP guidelines applied to all kinds of undertakings and even permitted regional planning and reviews of big industrial developments. CEAA doesn't really allow for such

Steps in Reformed Assessment Process



Source: Canadian Association of Petroleum Producers

flexibility. Policies and programs whose impacts could be more ruinous than any one project are excluded from the act.

An EA only happens when the government does one of four things: when it proposes a project, funds a project or allows one to take place on federal land. A number of federal laws such as the Fisheries Act or Navigable Waters Act can also trigger an assessment.

An assessment can take as many routes as caribou trails on the barren grounds. But it always begins with a screening or simple evaluation of significance. The screening may, in turn, lead to a comprehensive review (most mining projects fall into this category), a public panel review or mediation.

Under the old guidelines initial screenings tried to highlight what mattered: “potentially adverse effects” that were “insignificant or mitigable;” “unknown effects;” “significant effects;” or “unacceptable effects.”

The new act muddies this language. It refers to projects “not likely to cause significant effects,” “likely to cause significant adverse environmental effects that cannot be justified in the circumstances,” “uncertainty about likely effects” and public concern about a project. The point of good EA, however, is not whether bad things are likely to occur but whether they may occur and whether they have been adequately studied. “This act doesn't address that objective,” says Northey.

While the old EARP guidelines clearly considered the “general socio-economic effects of the proposal,” the new act doesn't. The only time the act mentions social or economic effects is when “any change that the project may cause in the environment” affects people. “CEAA doesn't look at the full socio-economic picture. How is that compatible with sustainable development?” asks Northey. Although the law includes a provision for looking at “cumulative effects” in public reviews, the term is never defined.

When it comes to final decisions, ministerial discretion is king. The act is full of “mays” instead of “shalls.” Public reviews may recommend a “no” but the cabinet can always say “yes.” Like the old EARP guidelines, panel decisions are not binding.

The principle of self-assessment, which defined EARP, also dominates the spirit of CEAA. This means that the government agencies proposing projects are responsible for assessing the impacts as well as the quality of any follow-up program. As a consequence the law allows the self-interest of government bureaucracies to constantly supersede the public interest. Moreover, the act imposes no penalties for those who fail to uphold the law or uphold it badly.

The act arrived with its own agency in 1995. The Canadian Environmental Assessment Agency is responsible for administering the law, running a public registry of screenings and reviews on the Internet, training responsible authorities and preparing guidelines for its enforcement. It sits in Hull, Quebec, on the 14th floor of the Fontaine building. It employs approximately 95 people and has a budget of \$7 million. Ottawa says every federal department now has a budget for EA and claims to spend \$40 million a year on assessments.¹⁸

BHP: The Law In Action

No event better illustrates the crisis of EA than the great diamond rush in the central Arctic. Ever since geologist Charles Fipke found the precious gem in kimberlite pipes under Arctic lakes in 1990, a small army of companies has staked claims throughout the Great Slave Geological Province in the Northwest Territories, an area larger than Italy.

The region's first diamond mine is grand in scale and impact. Owned largely by BHP, one of the world's biggest mining firms, the mine's mega-economics promise to transform the NWT into a "diamond republic" just as surely as Inco's \$5-billion mine in Voisey's Bay will turn Labrador into a "nickel republic."

Provided the diamond cartel remains stable (a subject never addressed during the review), the mine could increase Canada's GDP by \$6.2 billion over its predicted 25-year life span. With revenues of half a billion a year, the mine will also become the largest purchaser of goods and services in the North, as well as its largest industrial employer, with an annual payroll of \$32 million.

Pulling diamonds out of the Arctic doesn't involve chemicals but it does take a lot of earth moving. The company estimates that the mine will create 40 million tonnes of "waste rock" a year. Because the diamond-bearing kimberlite pipes are located underwater, BHP proposes to "dewater" 15 lakes or fill them with tailings. Another 43 streams will lose their lives. Moreover, the \$750-million development sits smack in the middle of one of the world's last great wildernesses, Canada's barren grounds. What was once a home only to the Bathurst caribou herd, grizzly bears and wolves has now become the industrial economy's self-professed "corridor of hope."

After viewing videos in 1995 supplied by BHP, the Department of Indian Affairs and Northern Development (DIAND) finally became a diamond believer. It belatedly recommended an impact study and public review under the old EARP guidelines but "in the spirit of CEAA." The government first approached David Schindler of the University of Alberta, one of the world's top aquatic scientists, to serve on the panel. "Their terms of reference focused on one little spot and everyone knows there is going to be more than

one mine,” says Schindler. “I told them unless you do a regional assessment, I won't consider it.” The government never phoned Schindler back.

DIAND, the so-called responsible authority, eventually appointed a four-person panel. Not one member had any expertise in ecological science. Nor did the panel hire any technical experts during the 18-month-long hearings to help wade through BHP's eight-volume, 37-kilogram impact statement. While the company paid \$14 million for this environmental analysis, the government provided only \$250,000 for the public to challenge or review it. BHP submitted its impact report just four months after Ottawa decided what significant things should be examined.

Throughout the hearings the government acted as much as a proponent of the development as BHP. From the beginning, DIAND declared that the mine was good and that its environmental effects could easily be managed. This had a dramatic impact on the hearings. “In doing so they ruled out any dissenting voices from government,” notes Robbie Keith, the former chair of the Canadian Arctic Resources Committee (CARC). “What government scientist is going to stand up and say, 'I have some reservations,' when Ottawa takes a side like that?” Most international courts of law would have recognized the behaviour of the Canadian government as “conflict of interest.”

As a consequence federal scientists and bureaucrats set new lows for public accountability at the hearings. Human Resources, the people responsible for job training, never appeared. Heritage Canada and Environment Canada never spoke about wilderness protection. And so on. “How can we hold the Department of Environment accountable for its duplicitous performance?” demanded an angry Monty Hummell of the World Wildlife Fund after the hearings. “I felt betrayed.”¹⁹

In the end the review panel gave the mine “a go.” It concluded that “environmental effects of the project are largely predictable and mitigable.” It did so even though the panel and the government admitted that the Great Slave Geological Province, like Lancaster Sound in 1979, remained an ecological mystery.²⁰ Nobody really asked how scientists could safely predict significant effects in a region with little baseline ecological data. The cumulative effects of other developments, including an existing gold mine, a proposed second diamond mine, an infant road network, and the dramatic borings and earth moving of further diamond exploration were ignored. Nor were the climatic effects of burning fossil fuels at the project site ever raised. (The mine will increase NWT's greenhouse contributions by 16 per cent.) The problematic nature and stability of the diamond cartel operating in a nation committed to free trade wasn't debated. And the fiscal impact of a diamond boom on publicly funded infrastructure and services went unstudied.

A recent CARC newsletter aptly summed up what many environmentalists thought of the EA game: “We conclude that the environmental assessment of the BHP diamond mine was fundamentally flawed; the process was neither rigorous, comprehensive, nor fair. This, we

believe, is why the recommendations of the four-person panel are weak and insipid. Once more, environmental assessment itself is at issue.”²¹

From BHP's perspective the process was equally bizarre and unjust. When the company learned a public review was imminent, it approached the federal assessment office in Vancouver and asked for a model panel report. It got none. “We wanted to know what was going to be involved and didn't get any answers,” says Karen Azinger, BHP's manager of external affairs. “Maybe we asked the wrong questions.” Yet other private-sector proponents have been similarly frustrated for 25 years.

Company research revealed that more than 50 projects had been EARPed and that reviews had taken anywhere from eight months to 10 years. It also discovered that the only mining projects ever to be reviewed were a group of five Saskatchewan uranium properties. “It's still not clear to me what projects have to go through a review and why we had to go through what we did,” says Azinger.

When the government set its terms of reference, it delivered a big surprise to BHP: “full and equal consideration of traditional knowledge.” “We asked DIAND what this meant and the government was pretty unhelpful,” says Azinger. “Not a single federal department had any regulations or guidelines for traditional knowledge. Not a single department has yet incorporated it.” Even CEAA doesn't have a pamphlet on what it means. Yet BHP was asked to do what the government is not doing. Both the panel and BHP later admitted that traditional knowledge, a people's memory of the land, was not truly considered.

Like many public watchdog groups at the hearings, BHP found the government incompetent. DIAND provided little assistance in steering BHP through the north's Bosnian-like land claims. It also became apparent that DIAND knew little about EA. To this day, DIAND has no policies on mine reclamation or sustainable development.

But the most damning event came at the end of the process, when the panel tabled its report. DIAND Minister Ron Irwin accepted “the go” but then imposed more conditions on the company. He gave BHP just 60 days to conclude Impact Benefit Agreements (IBA) with aboriginal communities as well as to negotiate a final environmental agreement for an independent monitoring agency. “We jumped 10 feet, then they raised the bar and piled this stuff on us,” says Azinger. “The minister had no legal right to comment on these things. It was precedent setting.” These important issues, which a reasonable EA process should have addressed and spelled out, once again reflected the weaknesses of Canada's irrational system.

Throughout the EA process, BHP never knew if the government was playing baseball, football or soccer. And the next diamond proponent won't likely find the rules any clearer than BHP did.

BHP: Rational Alternatives

A responsible government would not have put so many carts before so many horses. For starters, it would have begun a study of the land and its wildlife in the diamond zone as early as 1992 during the rush. This would have provided the science and traditional histories needed to shape an effective assessment. This work, which Ottawa still considers a separate issue, has not yet begun.

Good government would have settled the land claims before embarking on a panel review or set up a regional planning board in the interim. An honest and focused bureaucracy then would have provided BHP with clear criteria and standards to ensure the company spent money on science that mattered as opposed to science that covers all the political bases. It would have recognized the need for a regional or generic industrial activity review as opposed to a single project review. Last but not least, as a proponent of the project, DIAND would have ensured the independence and objectivity of the review by turning it over to another agency.

(A prudent government would also have recognized that Impact Benefit Agreements, private deals between companies and communities that often involve monetary compensation for the loss of clean air or hunting grounds, have the potential to undermine the entire EA process. “Here we have these private agreements” notes Robbie Keith, “but EA is a public process designed to protect the public interest. Somehow or other we've got to sort this thing out.”)

Given the government's negligence and sloppiness, it's not surprising that the EA ended up being used for things it was never intended for: a debate about land claims, as opposed to a debate about the effects of diamond mines in the North. And nobody knows whether the second diamond mine will be submitted to the same tortuous, costly and frameless exercise. As one government official noted: “In the end a lot of cheques were cut and everyone got a deal. But it's not clear an environmental assessment was ever done.”

To appreciate the poor standards set by the BHP review, just consider the terms of reference recently set for a \$5-billion nickel mine in Labrador. The proponent, the Voisey's Bay Nickel Company (VBNC), a subsidiary of Inco Limited, might well ask why the government demands that it pass an altogether different environmental test by establishing “need,” “purpose,” “alternatives to the undertaking” and “effects on biodiversity” when BHP was never asked such questions.²² And BHP might well inquire why Inco is not being asked to incorporate “full and fair consideration of traditional knowledge.” Inconsistency, it seems, is the only consistent hallmark of federal assessments.

Significant Issues

Alternatives

Unlike Canadian law, the U.S. National Environmental Policy Act recognizes that EA should encourage full and open discussion of economic alternatives, “which would avoid or minimize adverse impacts or enhance the quality of the human environment.”²³

In other words, if the impact is significant, look at alternatives. Could other developments such as a railway, highway, ferry or bicycle path create more jobs, do less damage and still fulfill the original need of moving people about? “The heart of any impact statement is a thorough discussion of alternatives so that objective decision makers can pick the most environmentally acceptable development,” says William Tilleman, a lawyer and chairman of Alberta's Environmental Review Board. “But this issue is unanimously ignored at the federal level in Canada.”

When public outcry forced Ottawa to assess northern pulp mills in Alberta, the forests were excluded from any impact statement. This meant citizens could not ask if tourism and smaller wood projects would achieve more employment and revenue with less cost. And it's unlikely that the current review of an open-pit coal mine in the Rockies by Cardinal River Coals will ask if the region's natural capital could better be spent on the creation of another national or provincial park. Or if old mines in the Rockies should be re-opened before scarring more landscape.

Several years ago, a New Brunswick Crown corporation proposed a \$45-million coastal highway along the Bay of Fundy.²⁴ The object was to make a wild and beautiful place just another roadside attraction. A comprehensive impact statement looked at all kinds of things except an alternative development. The agency argued that the government had set aside money for a highway and that was that.

The public didn't agree. When the EA came to public review, several groups pointed out that “rubber-tire tourism” was not only dying but made poor use of the region's natural capital. A coalition of citizens, including New Brunswick's Economic Development and Tourism Department, argued for more jobs and less damage – a \$10-million eco-tourism project with only a small highway upgrade. In this case a half-million-dollar EA led to a scaled-down project that saved 35 million tax dollars and actually protected the coast. Unfortunately this is the exception, not the rule, in EA.

Non-compliance

The recent sale of CANDU reactors to China, one of the world's least democratic and least environmentally sensitive nations, illustrates the degree to which the Canadian government selectively applies the law. According to CEAA, whenever the government provides “financial assistance to the proponent” whether in or “outside of Canada,” an

assessment for adverse effects must be done. The multi-billion-dollar loan to China to buy old nuclear technology long subsidized by Canadian taxpayers clearly falls in this category. But the government has exempted this bad sale from public scrutiny.

Ottawa argues that the true lender is the Export Development Corporation, a Crown agency. The government says no EA is required because the law doesn't apply to Crown corporations with no EA commitments. This cynical interpretation of the law and cynical use of taxpayers' money means that as long as any federal department gets friendly Crown corporations to do its bidding, the project will go unexamined.

As a consequence, Canadians will never know if their \$1.5- to \$4-billion loan could not have been spent more prudently on reducing the debt or funding energy alternatives or environmental work at home. (The China loan could easily pay for all EAs for the next 50 years.) Citizens also won't know how the Chinese propose to dispose of their nuclear garbage or if it will return to Canada when the CANDU dies in 40 years. Nuclear waste has a shelf life of 10,000 years and no country has yet figured out how to dispose of it safely. A public review panel in Canada has struggled for eight years on this very topic.²⁵ Canadians also won't know if CANDU technology, a dated product never submitted to an independent public review, is safe enough to export.

The message, however, is unequivocal: there is one law for the government of Canada and another one for BHP, Inco and Cardinal River Coals. The Sierra Club is currently suing the Government of Canada on this issue.

Canada's reluctance to enforce the law is also the subject of a complaint before NAFTA's Commission for Environmental Cooperation. Under NAFTA, the citizens of Mexico, Canada or the United States can file cases of bad environmental work. Both the governments of Mexico and Canada have charges pending against them.

In Canada's case, the complaint concerns pure and simple law breaking. Consider, for example, Sunpine Forest Product's attempt to build a 41-kilometre-long road with 22 river or stream crossings in the eastern slopes of the Rocky Mountains.²⁶ Because this project will affect prime trout habitat, an EA should have been triggered under the Fisheries Act. The Department of Fisheries and Oceans (DFO) initially refused to uphold the law and refused to screen the project. When finally pressured to do so, it failed to identify the correct species of fish (cutthroat trout) or even to acknowledge provincial assessments which found the project unnecessary. Existing roads, said provincial authorities, would serve the company's needs just fine.

But Sunpine is just part of much larger problem of non-compliance. Since 1995 DFO has issued "letters of advice" to companies or government agencies whose developments might destroy fish real estate. These letters have replaced "authorizations" which indicated significant impacts and triggered at the very least a screening. In 1991 DFO

issued 12,000 authorizations. Last year it gave out fewer than 250 and none in Quebec. “The letters of advice are a clear attempt to avoid triggering CEAA,” explains Martha Kostuch, an environmental activist and Alberta veterinarian who brought forward the complaint. The letters effectively “invent a decision-making process which frustrates the intention of Parliament and usurps the role of CEAA,” she adds. A majority of the people interviewed for this report considered DFO to be the government department most reluctant to apply the act.

In addition, many observers are concerned about “missing projects,” developments that should have triggered CEAA but haven't for political or fiscal reasons. Large hotel projects in Banff National Park and Jasper National Park were proposed in 1994 but the public has heard nothing since. A multi-billion-dollar expansion is underway in Alberta's tar sands, but there is no sign of a regional or generic EA. Big forestry developments in Manitoba have also eluded the EA game.

Since the beginning of CEAA, the government claims to have screened more than 6,000 projects, performed 10 comprehensive studies and started four panel reviews: Sunshine Ski Development (Alberta), Express Pipeline (Alberta), Voisey's Bay Project (Labrador) and Cheviot Coal Mine Project (Alberta). These numbers indicate that either the government has become an environmental saint or that it's just as reluctant to launch an assessment in the 1990s as it was in the 1980s. The Mining Association of Canada and most environmentalists suspect the latter.²⁷ So, too, does William Ross, an environmental professor at the University of Calgary who has served on five different public review panels: “The expectation was that a great number of public reviews would be done under CEAA, when in fact we have headed in the other direction. Why is that? Are we building fewer projects? I don't think so.” Ross suspects that decisions are simply being made in the interests of developers and government agencies to avoid reviews and thereby cut costs.²⁸

Focus

Without clear criteria, fair standards or a powerful focus, EA has degenerated into a paper game. Cardinal River Coals, a firm proposing a \$250-million open-pit coal mine outside of Jasper National Park, has already amassed 12 volumes of data for its impact statement for a panel review scheduled for next year. BHP produced a “small coffin” of documents that came in eight volumes. “I am not sure who it is serving,” says Charlie Ferguson, Inco's vice-president of environmental affairs. Adds CEAA expert Rodney Northey: “Without a focus you get a mass of data with no highs or lows. You just have one big, thick grey mass.”

Because each of these companies had to prepare impact studies for different “responsible authorities,” there is no continuity. And in the absence of clarity and focus, proponents try to make up the difference with snowdrifts of paper that contain more data than

assessment. “In our case,” says Ferguson, “we'll be supplying one of these big, fat, intimidating documents to an agency (DFO) that would rather we didn't and they should admit that.” By making every government department responsible for doing EAs, Ottawa has effectively enshrined a lot of irresponsibility – something industry knows all too well.

Forests of paper also hide bad science. In BHP's impact opus, one study claimed to identify all the aquatic organisms to genus when in fact it only named them to a family or order. “In another ecosystem their level of taxonomic distinction would have failed to show the difference between humans and chimpanzees,” explains David Schindler of the University of Alberta.²⁹ “It's a totally inadequate job and makes it difficult to go back and assess losses in biodiversity.”

BHP's studies also refer to many activities as “sustainable developments” when in fact they are not. “By their own admission they say they are going to drain 15 lakes and 43 streams. I've never seen a definition that would indicate that such activities are sustainable. Call it what you want, but don't call it sustainable,” says Schindler.

A dissenting decision on the recent approval of the Express Pipeline project to carry Alberta crude oil to U.S. markets found similar scientific holes. The dissenter, Glennis Lewis, a scientist and lawyer by training, charged that Express Pipeline's baseline data was inadequate and incomplete.³⁰ The \$750-million pipeline, now completed, cuts through the most threatened ecosystem in Canada, fescue grasslands. Wrote Lewis: “It is difficult to see how Express can so confidently assert that mitigation options will eliminate any adverse environmental effects when the studies it relies upon are hampered by significant data deficiencies.”

These deficiencies include a lack of grassland studies, few details on range plant species, and poor surveys of wildlife in the region. Express also pursued “an ad hoc committee” approach to cumulative effects. The big players in Canada's tight pipeline industry know that the four-member panel's final vote could have been two to two (another panelist leaned toward a “no-go” but voted yes) and that Lewis's dissension accurately highlighted the lack of rigour in the process. Unlike the government, industry knows that the data amassed by Express did not meet the burden of proof imposed by law.

This proliferation of bad science is also aggravated by the fact that proponents are free to hire their own EA consultants to do an impact statement. Environmental assessment is a field without standards, uniform training or professional guidelines, so a great many consultants essentially serve as “biostitutes,” scientists who sell out to the highest bidder.

One study on the Beaufort Sea oil and gas development³¹ found proponents consistently underplayed bad effects while inflating project benefits. Proponents took an original consultant's work and reworked it to sound even more benign, with the consequence that 86 per cent of the changes favoured a “go.” In the impact statements prepared by Cardinal

River Coals, consultants refer to the mine's "significant" potential to wipe out grizzly bears in the area. Yet the company's summary refers to these matters as insignificant. Most consultants will alienate the environment before they alienate their clients with damning conclusions that could foreclose on future business opportunities. The current system pretends such serious and untenable conflicts of interest do not exist.

Jurisdiction

In Canada the federal government and each of the provinces now have their own EA policies, some strong and some weak. But given the nation's constitutional battles and the Quebec crisis, the focus is never on best practice but who should do (or avoid) an EA and when. Alberta and Quebec, provinces that behave like quasi-national states, have been the most adamant about being above federal law. To complicate matters, the northern land claim settlements, Nunavut and Inuvialuit, actually have much more comprehensive policies than Ottawa and want nothing to do with CEAA.³²

But that's just the beginning of the EA maze. When various agencies and boards such as the National Energy Board or Alberta's Energy and Utilities Board are added to the picture, Canada actually has as many as 200 "major EA regimes."³³ Notes William Ross of the University of Calgary: "I have yet to see any research that explains why Canada needs all these different EAs. ... It just leads to confusion on behalf of all participants."

It also leads to overlap, duplication and the latest development, a myriad of joint federal/provincial hearings. As a result there is a great deal of talk about "harmonization," which often means letting everyone do what they want, doing EA twice or doing it once with two discretionary sets of rules. Mining companies report as many as 60 bureaucrats showing up at one "harmonized" review in British Columbia led by a young fisheries biologist who knew nothing about mining or EA. Other companies report finishing one provincial process only to find they had just triggered a federal review with additional costs and no apparent benefits to the public.³⁴

A comparative study³⁵ of how federal governments in Australia and Canada have worked out EA recently concluded that national leadership with regional management was the goal but rarely the reality.

Both Ottawa and Canberra clearly prefer to let the provinces and states carry out federal responsibilities for lack of funds or interest. Ottawa, for example, didn't want to stop Alberta from building a \$500-million dam on the Oldman River or prevent Grant Devine's Tories from erecting two dams on the Souris River. Aboriginal concerns, the fisheries and international treaties spoke of clear federal responsibilities. But it took extensive court action to force Ottawa to accept its responsibilities and only then half-heartedly.

Such willingness to blithely ignore or contract out federal obligations has created big problems of “political legitimacy and legal validity” as well as many shoddy EAs. It has also undermined the public interest.

As Robert Page, dean of environmental design at the University of Calgary explains, federal/provincial wrangling about EA is really an adolescent dispute in a house with no adults. “The provinces are arguing vigorously for control of EA because they own the natural resources and believe the environment should be an aspect of resource planning. The feds no longer have the money or the will to enforce national standards in the environment. The provinces want the jurisdiction in order to exploit resources as opposed to enforcing standards. For them it's really a matter of excluding the feds from properly enforcing environmental regulations.” The vague agreements pouring out of meetings attended by provincial environment ministers merely underscore this point, as do the highly inconsistent terms for joint federal/provincial reviews. The provinces almost invariably use discretion as liberally as Ottawa in order to get forestry plans and other developments exempted.

The Australian study had two answers to this chronic dilemma of irresponsibility and lack of accountability. The first was to note that federal governments can't contract out their responsibilities without changing the constitution. And it's highly unlikely the public would ever give the Canadian government the constitutional right to ruin the land and betray the public interest. The second strikes to the heart of this report: federal governments have the constitutional means to set good procedures and high standards. “Whether they do so,” concluded the study, “will be a question of political will.”

Objectivity

This year the Canadian Environmental Assessment Agency published a report card on EA.³⁶ The foolishness of the exercise was highlighted by the fact that the assessors all graded their own performance on a nifty graph called an “EAOGRAM.” The predictable outcome: neither the federal government nor its provincial partners did badly.

Although the principle of self-assessment is valid for some undertakings, it should not be the starting point for a policy the government doesn't want to uphold. The public should no more trust bureaucrats to assess their own environmental work than they should trust third-graders to design their own report cards.

As William Rees and dozens of lawyers, academics and public interest groups have repeatedly pointed out, “self-assessment obliges the initiator/proponent to identify all the socio-economic and ecological reasons for not proceeding with his own enterprise. This provides little incentive for the initiator to be scrupulous in the identification of impacts, and leads to inevitable distortions in the interpretation of results, most likely in the proposal's favour.”³⁷

Ottawa tacitly recognized this conflict of interest when it abruptly changed the responsible authority for the Express Pipeline panel review. The National Energy Board (NEB) started the process as the responsible authority. It ran the hearings only to realize that, as a decision-making body, it couldn't comment on its “go” decision without being in conflict of interest. At the last moment DFO, a department that never even appeared at the hearings, suddenly found itself responsible for a pipeline it knew little about! Notes Mike Sawyer, an environmentalist who contested the hearing's rigour and propriety: “That's a remarkable thing to happen, for a responsible authority to suddenly become not a responsible authority.”

Many years ago Aldo Leopold, the father of North America's conservation movement, ably pointed out why self-assessment failed to conserve anything.³⁸ He cited the example of Wisconsin's farmers whose topsoil was slipping seaward. Someone thought the farmers might take care of the land if they wrote their own rules. The government offered money and machines to help. The farmers never wrote any rules, and though there were some improvements in strip cropping and the like, the soil kept slipping seaward. “The farmers, in short, have selected those remedial practices which were profitable anyhow,” concluded Leopold, “and ignored those which were profitable to the community, but not clearly profitable to themselves.” The Canadian government hasn't behaved any differently than Wisconsin's farmers.

Uncertainty

To corporations, a federal assessment still represents a swamp of legal and fiscal uncertainties. In the absence of clear standards, companies don't know what or even how much assessment to do. They often can't figure out when the law will be triggered or what the requirements will be or who the responsible authority is.

This lack of clarity, in turn, results in big expenses as companies scramble to cover all conceivable bases. It also explains why BHP spent \$14 million on its impact statement and why Inco has already spent \$20 million on its EA for Voisey's Bay. Most of these sums were spent before any responsible authority identified what might be significant. “After 10 or 15 years of doing assessments on mines or dams the costs should come down,” argues Husain Sadar at Ottawa's Impact Assessment Centre. “But that hasn't happened.” Scientists have amassed an incredible volume of research on the downstream effects of dams in the last 30 years, yet none of this science has ever been used to fashion a comprehensive template for any proposed dam in Canada. Instead, the government prefers to reinvent the wheel with every project, inflate costs and exercise its political discretion.³⁹ The alarming and increasing expenditures beg another simple question: What government could say no to a proponent after asking so much and providing so little to the process?

One businessman recently described the whole experience of doing an EA this way: “It's like taking a briefcase full of hundred-dollar bills and walking up to a building with a big wall and one door. There is nothing on the building except a set of instructions to open the door and deliver the money. Following the instruction, I open the door and see a landslide of rocks coming at me. I drop the briefcase before the rocks spill out the door.”⁴⁰

Monitoring

EA is a unique exercise about making predictions. And forecasting can be a dangerous task if no one tries to find out how accurate the forecasts were, what really happened and if any mitigation worked. “If you spend \$10 million on an EA, isn't it worth following up?” asks Husain Sadar, director of Ottawa's Impact Assessment Centre. “Yet Canada has continually failed to do that.”

Whenever projects have been monitored, surprising and unforeseen effects have often appeared. For example, an EA of a mine developed by Charlie Ferguson at Inco Limited predicted an acid problem with mine tailings. “We were wrong,” says Ferguson. “The waste rock created an alkaline problem. We just sampled the wrong thing.”

The South Indian Lake reservoir in northern Manitoba (all part of the Churchill River diversion scheme) missed many significant effects and killed a local, self-sufficient economy. By raising water levels and increasing the muddiness of the water, the project changed the colour of whitefish, an important commercial fishery for aboriginals. Whitefish that aren't white don't have much dollar value in the market place. Whitefish with high mercury counts also don't sell well. As annual incomes of \$35,000 a year plummeted among fishermen, alcohol abuse rose. So, too, did other social problems. Yet no one had predicted this horrible chain of effects.⁴¹ Most of Manitoba's hydroelectric projects have not been monitored.

This lack of accountability is well known both to business leaders and scientists. Without any follow-up, bad science is not exposed, ineffective mitigation methods are not abandoned, politicians or technicians are not held accountable for their bad work and the land continues to be ruined by unforeseen effects. “There is just no learning curve in our system,” says David Schindler of the University of Alberta.

Cumulative Effects

The law requires that every federal assessment now consider “any cumulative environmental effects” (CE). In practice the government rarely upholds this difficult obligation. The NWT Diamonds Project review studiously ignored the effects of more than one diamond mine in the Arctic and Express Pipeline openly admitted to treating CE in a cursory manner. Just about everyone interviewed for this report identified CE as a major problem.

Although assessment consultants all seem to have a different definition for CE, it generally means asking this question: What further environmental changes will occur if the development or project is repeated or added to over time? CE recognizes that a river might accept one pulp mill but not two; that several pollutants may mingle over decades to produce toxic offspring; and that the removal of creatures and plants from a landscape may abruptly create a killing biological avalanche. In short, CE is an argument for regional planning and baseline studies. Notes Robert Page of the University of Calgary: “It assumes a level of data which is available for very few projects. ... CE is a damned difficult thing to do that requires tough science and tough data.”

To date only two or three studies, including Alberta's Northern River Basin Study and the Banff-Bow Valley Summary Report, have examined CE with any degree of integrity.⁴² “We need a lot more work done in this area,” says Page. “Until we do 20 comprehensive reviews we'll still just be blowing in the wind on CEs. We learn by doing in this field and right now we are not doing enough.”

The Government Response

Ottawa recognizes that its procedures for panel reviews have been terribly inconsistent. Consequently, it has accepted a new set of guidelines drafted by an advisory committee. “That won't solve all the problems, but it will help,” says James Clarke of the Canadian Environmental Assessment Agency. The new guidelines will indeed deliver some order and predictability to the process but they won't guarantee that projects that need public reviews will get them.

In spite of a history of broadly focused panel reviews, the agency does not believe that EAs are the right vehicle to address larger questions. That's something for land claim settlements or regional planning, say agency officials. As such the agency believes its project-by-project model for assessment is quite satisfactory. It also negates the principle of cumulative effects.

Ottawa recognizes that the provinces really want the federal government out of the assessment game. Yet the agency contends that Ottawa isn't prepared to leave the field until some standards have been set. It proposes that the Canadian Standards Association create a reliable, uniform and auditable screening process. Although such standards are desirable, they can be no substitute for leadership. Similar initiatives on “process efficiency” and “cost recovery” seem premature given the law's complicated character and the government's history of non-compliance.

Ottawa also remains committed to making every government department responsible for environmental assessment. “If it becomes a centralized exercise, how can you expect other

departments to integrate EA into their early decision making?” argues Michel Girard, a senior agency official. “If you want a government to pursue sustainable development, you have to give it the tools to make these decisions on a daily basis.” Yet this approach ignores the reality of EA in Canada. Not only do few departments know how to use EA, even fewer seem to have the will to apply the process in the public interest.

In the meantime, the agency is trying to catch up with events. It says it is developing guidelines on traditional knowledge, cumulative effects and finally a detailed guide for follow-up programs. But with the principles of self-assessment, ministerial discretion and no penalties firmly enshrined in the act, the agency's guidelines will likely be as effective as a toothbrush for a man with no teeth.

In sum, the government continues to regard EA as a largely bureaucratic and administrative exercise that the government can apply, rework or abandon at will.

Conclusion: The Cumulative Effects of Bad Work

Nearly 800 years ago, the inhabitants of Easter Island drove their economy to ruin by destroying the island's forests, soils, fisheries and sources of fresh water. As a consequence, a population of 10,000 people collapsed and free market cannibalism prevailed. By the time Europeans arrived on the scene, no one remembered how the famous stone monuments had been erected.

Had Easter Island employed Canada's EA program, only individual projects of tree cutting or dolphin netting would have been reviewed. No big studies of forestry programs or policies would have occurred and significant issues would have been kept hidden. The motto of “more jobs, less damage” wouldn't have been heard on the island.

The chief and his retinue of “responsible authorities” would have exercised discretion as opposed to doing the right thing. They would have set inconsistent and narrow terms of reference for reviews. They would have replaced any Polynesian panel recommending a “no-go” with a more agreeable group. Proponents of big tree-cutting schemes would have spent large amounts of labour and capital on isolated impact statements without ever knowing their effect on conservation or future developments. And so on. With “the tyranny of small decisions” prevailing, Easter Island would have spent all its natural capital before recognizing there was nothing left in the island's natural resource base except human flesh. Yet at international conferences it could have boasted, “We're OK. We do EAs.”

Just about everyone involved in federal EA knows it is largely a political opera. It provides little or no guidance for business yet demands they participate in an inconsistent and unpredictable process with no standards and no cost controls. And it creates the

illusion of environmental responsibility, when in fact no one is defending the public interest or the environment. When all government departments are responsible authorities, it seems all are equally irresponsible. "Ottawa just doesn't want to do things that subvert the old ways of how they like to work," concludes Robert Gibson of the University of Waterloo.

Both business and citizens' groups generally agree that the law has to be set up to allow a fair process that leads to an explicit "go" or "no-go" decision. "Until that happens," argues Alastair Lucas, "we are going to spend money in ways that any good auditor general would have trouble with. And the public will remain suspicious about the whole process."

Canada is further from that goal now than it was a decade ago.

Ideas for Debate

1. Given the inadequacies of the current law and the poverty of federal leadership, the public and the private sector could boycott the process, sue the government or actively work to remove the politicians in power. Notes Robert Gibson: “The public has to say, 'Do it right or you are cooked!'”
2. The current act is scheduled for review by the year 2000. Public action might focus on simplifying and clarifying the legislation so that both a Dene hunter and a mining executive can understand it. A new act must respect the importance of early assessments and objective decision making and place a clear focus on significant and cumulative effects. EA needs a new start in Canada.
3. The old EARP guidelines, strengthened by panel decisions that are binding on the government, would be “10 times more effective and prudent than the current legislation,” argues Husain Sadar.
4. How can the government justify a process that continually places uncertain and inflationary costs on the proponent? Industry needs a cost-effective analysis of EAs and should commission an independent study from one of the nation's universities.
5. The current Orwellian practice of “harmonizing” federal and provincial environmental laws is a sham and will lead to greater confusion, greater antagonism and more litigation. Harmonization should mean, as Rodney Northey notes, only one thing: “one good federal law administered by 10 provinces and accountable to the public.”
6.
 - a) One good law requires one good agency. This agency should offer citizens judicious recourse for bad decisions. (The Red Book of the Liberal Party actually recommends an unfettered agency.) This agency should be an independent decision-making authority modeled after the old Fisheries Research Board of Canada or Alberta's now defunct Environmental Conservation Authority. Its duties might include the following: administering a comprehensive and clear act; conducting public reviews and investigating public complaints; periodically auditing impact statements; regularly monitoring programs for honesty and effectiveness; conducting impact statements when the proponent doesn't want to do one; acting as a scientific bank of ecological information for better land-use planning; and educating the public.
 - b) One good agency should mean high and uniform standards across the country, but it doesn't have to spell centralized control. A competent federal agency concerned about best practices would license provincial, municipal or aboriginal bodies to perform EAs.

7. Environmental assessment makes no sense without regular follow-up. Agencies and corporations must regularly check their work by identifying which predictions actually came true, which predictions did not and what Mother Nature threw in for surprises. They must also look at which tools or techniques lessened damage to the land and which didn't. To date, the learning curve on what worked begins and ends at zero.
8.
 - a) Contrary to current practices, the decisions of public panel reviews should be binding on the government. Failing that, the recommendations should go to an independent agency for a go/no-go decision. This would immediately end the political meddling and restore credibility to a process mired in conflict of interest.
 - b) William Rees proposes a new model for EA that would end all conflict of interest. It would have the proponent focus on sound design while consultants, responsible to a neutral agency, would assess all biophysical effects. The affected community would prepare a socio-economic impact analysis. Government agencies would then prepare a fiscal impact report on how the project will affect government infrastructure and services. Finally, a panel review would study all these impact reports. Notes Rees: "Compared to other approaches, this model serves better to raise public consciousness, even the odds, contribute to balanced decision making, and enhance fiscal and political accountability."
9. Once a reasonable, effective and fair process that leads to go or no-go decisions has been created, companies or project proponents including government agencies with big proposals should decide who pays what and how. Until then all discussion about cost recovery is premature.
10. EAs have lost their credibility in Canada because they almost never say "no." The Banff-Bow Valley Study for Heritage Canada set six principles of caution that should guide all EAs and serve as the new preamble for CEEA:

Nature is valuable in its own right. Government must be willing to take action in advance of full, formal, scientific proof. People proposing a change are responsible for demonstrating that the change won't have a negative effect on the environment. Today's actions are tomorrow's legacy. All decisions have a cost. Exercising caution may mean some people must forgo opportunities for recreation or for profit.⁴³
11. Excluding the China deal from an EA is bad work. It undermines the law, discourages good assessments and diminishes the honour of effective government. If Ottawa fails to review this cynical decision, an alliance of businesses, academics and citizen groups should conduct a proper public review. The law must be applied to all or none.

12. Good law would distinguish and permit three kinds of impact assessments: one that looks at the significance and cumulative effects of particular projects; one that examines the effects of potential projects on a particular homeland; and one that looks at a range of generic industrial activities or policies proposed within one large piece of real estate, such as diamond mines in the NWT or tar sands developments in the boreal forest. In the absence of proper regional planning, a big-picture review should precede the small review. Any large industrial review should be paid for jointly by government and the industry concerned. Big reviews should speed up project reviews.
13. The more significant the impacts, the longer the review. The Australians set a three-year period for proper assessments while Canada suggests 14 months. Although companies need reliable and prudent time frames, there should be a simple gradient of time schedules that fairly reflect the size, scale and significance of the project.
14. International organizations such as the World Bank and foreign governments such as Australia and the Netherlands conscript universities or independent agencies to develop sane and simple methodologies and standards for supporting EA. Ottawa has made no significant contribution in this area. The Impact Assessment Centre at Carleton University is perhaps the only organized research unit in Canada with an exclusive focus on assessment and it gets no government funding.
15. End the envirospeak. The U.S. National Environmental Assessment Agency sets limits on the paper chase. The text of impact statements submitted to panel reviews should be less than 150 pages and for megaprojects less than 300 pages. Canada must do the same and insist, as NEPA does, that all reports be written in plain English.
16. EA needs a frame of reference, preferably a regional planning process.
17. No industrial development should be permitted on aboriginal homelands until land-claim settlements have created a context for EA. Both Nunavut and Inuvialuit offer models for impact assessment that companies generally rate as fairer and clearer than CEAA.
18. The great interest that banks and insurance companies have expressed in EA stands untapped. Citizens might well get governments to uphold their responsibilities by getting financial institutions to lobby for good laws, strong criteria and clear standards. Five Canadian banks have already signed a UN agreement to do just that.⁴⁴

19. Canada needs a National Policy Assessment Agency that would evaluate the environmental impacts and cumulative effects of new and existing national policies. This agency should be part of the Auditor General's Office.
20. All resources should be put into making EA practices more effective as opposed to more legal. Generally speaking, the fewer the lawyers involved, the better the process.

References

1. Source: Husain Sadar.
2. The Cheviot Coal Project, a proposed 23-kilometre-long strip mine outside of Jasper National Park, is now the subject of a joint provincial/federal review.
3. See Husain Sadar, "The Need to Review the Federal Contribution to Environmental Impact Assessment (EIA) Effectiveness in Canada," p. 4.
4. The Banff-Bow Valley Study is a good example of what every federal EA should strive to be. It recommended "stricter limits to growth," not only to protect the park's ecosystem but to sustain a \$5-billion tourism industry.
5. See Rodney Northey, *The 1995 Annotated Canadian Environmental Assessment Act and EARP Guidelines Order*.
6. The panel reports on the Oldman Dam, Rafferty-Alameda Project and Northumberland bridge all clearly document a process betrayed by federal and provincial politicians.
7. See Fred Roots, "Environmental Impact Assessment: What Does it Mean in the 1990s and What is the Role of the University?," p. 17.
8. See Thomas Berger, *Northern Frontier: Northern Homeland, Report of the Mackenzie Valley Pipeline Inquiry, Volume 1*, p. 16.
9. For a summary of panel reviews see Appendix 2.
10. See William Rees and Peter Boothroyd, "A Background Paper on EARP Reform – Activities," pp. 6-11.
11. See Rees and Boothroyd, *Process and Structure*, p.15.
12. See *Alberta Environmental Protection, 1996, Northern River Basins Study: Report to the Ministers*, pp. 89-102.
13. Source: William Ross.
14. See Northey, pp. 255-274.
15. See Northey, p. vii
16. See Alison Delicaet, "The New Canadian Environmental Assessment Act: A Comparison with the Environmental Assessment Review Process," p. 500.

17. For the best review of the new act's deficiencies see Robert Gibson, "The New Canadian Environmental Assessment Act: Possible Responses to its Main Deficiencies." See also Northey's comprehensive overview, pp. 585-754.
18. Overall the Canadian government spends \$125 billion a year.
19. The WWF filed for a judicial review of the BHP panel's recommendations but settled out of court. Ottawa has agreed to develop a plan for protected areas and to amend CEAA so that future reviews will have to take into consideration the impact on lands slated for protection from industrial activity.
20. A news release from the Canadian government (1-9632 Backgrounder #5) simply states, "there is little data about this huge region, especially in relation to the possible cumulative effects of the various potential mining and related infrastructure developments." Ottawa's million-dollar panel review on BHP didn't change this reality.
21. *Northern Perspectives*, Fall/Winter 1996, pp. 1-4. See also Susan Wismer, "The Nasty Game: How Environmental Assessment Is Failing Aboriginal Communities in Canada's North."
22. See *Draft Final Memorandum of Understanding on Environmental Assessment of the Proposed Voisey's Bay Mining Development*, p. 10.
23. *U.S. Code of Federal Regulations*, 40, p. 283.
24. See Derek Doyle, *Canadian Case Studies on the Effectiveness of Environmental Assessment*, pp. 51-54.
25. See Appendix 2, Panel Review 45.
26. See Article 14, Submission made by the Friends of the Oldman River to the Commission for Environmental Cooperation, October 1, 1996.

27. In a document on problems encountered with CEAA, the Mining Association of Canada makes the following points on law evasion: "The many law list triggers are all laws and regulations created for other purposes. Many are not designed to be clear-cut triggers for an assessment process. To make matters worse, officials are reluctant to launch an assessment. An assessment absorbs scarce departmental resources, and there are no incentives in the process to make launching an assessment desirable for an official. Requests for a decision can languish for months or years. ... Moreover, ministerial discretion for setting conditions on an approval following a CEAA process is seen as limitless, and beyond strictly environmental issues. Thus the careful work of Parliament in defining the scope of an act or regulation, based on clear federal jurisdiction, may in practice be turned into discretionary decisions, without accountability to Parliament."
28. This has always been the case. "Bulletins of Initial Assessment Decisions" published annually by the government in the 1990s show that 99 per cent of all screenings resulted in a go with no adverse effects or a go "because the potentially adverse impacts may be mitigated with known technology."
29. Even today, David Schindler's short 1976 essay on "The Impact Statement Boondoggle" accurately reflects the poor use of science in most environmental assessments. See Appendix 3.
30. National Energy Board/CEAA, *Express Pipeline Project*, pp. 132-150.
31. See Rees and Boothroyd, *Process and Structure*, p. 15.
32. Larry Pokok Aknavigak, chair of the Nunavut Impact Review Board, spells out his position clearly: "We will manage our own resources. ... Environmental assessment in the Nunavut Settlement Area will be done by our Impact Review Board and not CEAA."

The Inuvialuit Final Agreement offers another clear assessment model. It clearly defines a simple screening process, a panel review that ends with a "go" or "no go" decision and developer liability for wildlife losses.

33. See CEAA, *International Study of the Effectiveness of Environmental Assessment*, p. 25.
34. Interviews with K.D. Ferguson of Placer Dome Canada Limited, Vancouver and Peter Campbell of Princeton Mining, Vancouver.
35. Alex Gardner, "Federal Intergovernmental Co-operation on Environmental Management," pp. 28-38.
36. See Derek Doyle and Barry Sadler, *Environmental Assessment in Canada*, pp. 39-44.

37. Rees and Boothroyd, *Process and Structure*, p. 5.
38. Aldo Leopold, *A Sand County Almanac*, pp. 244-245.
39. See Husain Sadar and William J. Stolte, "Canadian Experience in Environmental Impact Assessment," pp. 13-25.
40. Source: William Tilleman.
41. Source: David Schindler and Charlie Ferguson.
42. For a thorough discussion of cumulative effects see George Hegmann and G.A. Yarranton, *Cumulative Effects and the Energy Resources Conservation Board's Review Process*, Macleod Institute for Environmental Analysis, University of Calgary.
43. See Robert Page et al. *Summary Report of the Bow Valley Task Force*, p. 13.
44. UNEP Secretariat, Concepts and Principles in "A Statement by Banks on the Environment and Sustainable Development."

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Appendix 1: Key Interviews

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Appendix 2: Panel Review Summaries

Summaries of Public Panel Reviews: 1975-1996

1. Nuclear Generation Station, New Brunswick. Recommendation: Go. Generator Built. 1975
2. Wreck Cove Hydro Electric Project, Wreck Cove, Nova Scotia. Recommendation: Go. Project Built. 1977
3. Alaska Highway Pipeline, Yukon Territory, Interim Report. Recommendation: Go for Yukon Routes. 1977 (See panel #10)
4. Eldorado Uranium Hexafluoride Refinery, Port Granby, Ontario. Recommendation: No go. Project Not Built. 1978 (See panel #8)
5. Shakwak Highway Project, Yukon Territory. Recommendation: Go. Project Built. 1978
6. Eastern Arctic Offshore Drilling-South Davis Strait Project, Arctic Ocean. Recommendation: Go. Project not built. 1978
7. Lancaster Sound Drilling, Arctic Ocean. Recommendation: No go-lack of information on land. Project not built. 1979
8. Eldorado Uranium Hexafluoride Refinery, Blind River, Ontario. Recommendation: Go. Projects built. 1979
9. Roberts Bank Port Expansion, Vancouver, British Columbia, Recommendation: Go for limited expansion only. Port expanded. 1979
10. Alaska Highway Gas Pipeline, Yukon Territory. Recommendation: Revise impact statement. 1979 (See panel #17)
11. Banff Highway Project, Alberta. Recommendation: Go. Highway improved. 1979
12. Boundary Bay Airport Reactivation, Vancouver, British Columbia, Recommendation: Go. Airport reactivated. 1979
13. Eldorado Uranium Refinery, Corman Park, Saskatchewan. Recommendation: No go – uncertain social impacts. Refinery abandoned. 1980
14. Arctic Pilot Project (Delivering gas by ships from Arctic on a year-round basis) Recommendation: Go. Project not built. 1980

15. Lower Churchill Hydroelectric Project, Labrador, Newfoundland.
Recommendation: Go. Dam not built. 1980
16. Norman Wells Oil-Field Development and Pipeline Project, Arctic Ocean.
Recommendation: No go – deficient planning at this time. Project eventually built.
1981
17. Alaska Highway Gas Pipeline Project Routing Alternatives, Yukon Territory.
Recommendation: Go for Whitehorse route. Cabinet reverses recommendation but
pipeline not built. 1981 (See panel #21)
18. Banff Highway Project, Alberta. Recommendation: Go. Road twinned and built.
1982
19. Hydrocarbon Production Proposal, Beaufort Sea, Arctic Ocean. Recommendation:
Expand terms of reference to include international concerns. Terms changed. 1982
(See panel #25)
20. CP Rogers Pass Development, Glacier National Park, British Columbia,
Recommendation: Go for some construction: more study for other activities. 1982
(See panel #22)
21. Alaska Highway Gas Pipeline, Recommendation: Go. Pipeline not built. 1982
22. CP Rail Rogers Pass Development. Recommendation: Go. Railway track built. 1983
23. CN Rail Twin Tracking Program, British Columbia. Recommendation: More study
and expanded terms of reference. Done. 1983 (See panel #27)
24. Venture Gas Field, Atlantic Coast, Nova Scotia. Recommendation: Go. Project not
built. 1983
25. Beaufort Sea Hydro Carbon Production, Arctic Ocean. Recommendation: Go for
small scale developments. Gas developments not built.
26. Port of Quebec Expansion Project, Quebec City, Quebec. Recommendation: Go.
Tidal flats never filled. 1984
27. CN Rail Tracking Program, British Columbia. Recommendation: Go. Double track
built. 1985 (See panel #30)
28. Second Nuclear Reactor, Point Lepreau, New Brunswick. Recommendation: Go.
Reactor built. 1985

29. Hibernia Development Project, Grand Banks of Newfoundland. Recommendation: Go. Oil wells built. 1985
30. Fraser-Thompson Corridor Review. Recommendation: Development with careful planning. Companion study for CN Rail Tracking Project. 1986
31. West Coast Offshore Hydrocarbon Exploration, Hecate Strait and Queen Charlotte Sound, British Columbia. Recommendation: Go for seismic survey only. Oil drilling didn't proceed. 1986
32. Sea Island Fuel Barge Facility, Vancouver, British Columbia. Recommendation: No go – unacceptable risks to fishery. Barging of jet fuel abandoned. 1989
33. Northumberland Strait Crossing Project, Prince Edward Island. Recommendation: No-go – harmful effects unacceptable. Government appointed new panel that said "go." Bridge built. Litigation. 1990.
34. Northern Diseased Bison, Wood Buffalo National Park, Alberta. Recommendation: Cull diseased bison. Project's status uncertain. 1990
35. Celgar Expansion Review Panel, British Columbia. Recommendation: Go. Pulp mill expands. 1990
36. Alberta-Pacific Environment Impact Assessment Review Panel, Alberta, Recommendation: No go-inadequate data and unknown risks for downstream river users. Provincial government sets up a technical panel that gives a "go." Pulp mill built. Litigation. Regional scientific study completed this year. 1990
37. Port Hardy Ferrochromium Review Panel, British Columbia, Recommendation: No go – site unacceptable. Project abandoned. 1991.
38. Oldman River Dam Safety and Design Report, Alberta. Recommendation: Plans adequate. 1991
39. Vancouver International Airport Parallel Runway Project, British Columbia. Recommendation: Go. Runway built. 1991
40. Rafferty-Alameda Project, Saskatchewan. Recommendation: No decision – not enough information. First panel resigned; second panel appointed to look at mitigation only. Dams built. Extensive litigation. 1991
41. Oldman River Dam, Alberta. Recommendation: No-go: decommission dam or mitigate thoroughly. Dam built. Litigation. 1992

42. Air Traffic Management in Southern Ontario. Recommendation: Go for one north-south runway at Pearson International. Government rejects panel view and proceeds. Litigation and controversy follow. Issue unresolved. 1992
43. McArthur River Underground Exploration Program, Saskatchewan. Recommendation: Go. Uranium exploration proceeding. 1993
44. Halifax Harbour Cleanup Project, Nova Scotia. Recommendation: Go. Project not developed. 1993
45. Uranium Mining Development in Northern Saskatchewan. Recommendation: Go for two mines; no-go for another mine. Two mines still under review. Ongoing since 1993
46. Nuclear Fuel Waste Management and Disposal Concept. Review of dumping nuclear waste underground ongoing since 1989
47. North Central Transmission Line Project, Manitoba. Recommendation: Go. Electrical lines not up yet. 1993
48. Low-level Military Flying Activities in Labrador and Quebec. Recommendation: Go. Low-level flying never stopped during this record nine-year-long, multi-million-dollar review. Most aboriginals refused to participate. Litigation. 1995
49. Pine Coulee Water Management Joint Review Panel, Alberta. Recommendation: Go: Dam not built. 1995
50. Lachine Canal Decontamination, Quebec: Recommendation: Not justified. Yet portions of project completed while under review. No government response yet. 1996
51. Dry Storage of Irradiated Nuclear Fuel, Quebec. Recommendation: Go. Project built. 1996
52. Elliot Lake Uranium Mines Decommissioning, Ontario. Recommendation: Go. No government response yet. 1996
53. NWT Diamonds Project, NWT. Recommendation: Go. Mine under construction. More mines pending. Legal action settled out of court. 1996
54. Express Pipeline Joint Review Panel, Alberta, Recommendation: Go. Dissenting Opinion: No-go – inadequate data. Crude oil pipeline built. Litigation. 1996
55. Sable Gas Projects, Nova Scotia and New Brunswick. Due in 1997.

56. Terra Nova Development, Newfoundland. Due in 1997.
57. Sunshine Ski Development, Alberta. Temporarily on hold.
58. Voisey's Bay Mining Development, Labrador. Ongoing.
59. Cheviot Mine Project Joint Panel Review, Alberta. Ongoing.

Sources: Rodney Northey. *The 1995 Annotated Canadian Environmental Assessment Act*. 493-576; Canadian Environmental Assessment Agency; Husain Sadar.

Appendix 3: Impact Boondoggle

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The Impact Statement Boondoggle

The demand for “impact statements” evaluating the environmental consequences of human activities in natural ecosystems seemed a natural outgrowth of the rise in ecological awareness of the 1960s. This idea, designed to protect our natural resources, has to some extent pacified the demands of ecologically concerned citizens. These citizens should have another look. Having seen the results of many of these impact studies and evaluated proposals for second-generation studies, I believe that the idea has backfired.

Many politicians have been quick to grasp that the quickest way to silence critical “ecofreaks” is to allocate a small proportion of funds for any engineering project for ecological studies. Someone is inevitably available to receive these funds, conduct the studies regardless of how quickly results are demanded, write large, diffuse reports containing reams of uninterpreted and incomplete descriptive data and, in some cases, construct “predictive” models, irrespective of the quality of the database. These reports have formed a “gray literature” so diffuse, so voluminous, and so limited in distribution that its conclusions and recommendations are never scrutinized by the scientific community at large. Often the author’s only scientific credentials are an impressive title in a government agency, university, or consulting firm. This title, the mass of the report, the author’s salary and his dress and bearing often carry more weight with the commission or study board to whom the statement is presented than either his scientific competence or the validity of his scientific investigation. Indeed, many agencies have found it in their best interests to employ a “traveling circus” of “scientists” with credentials matching these requirements. As a result, impact statements seldom receive the hard scrutiny that follows the publication of scientific findings in a reputable scientific journal.

The advancement of the scientific method is also in jeopardy. First-rate natural scientists are finally learning to set and test hypotheses and to study mechanisms and processes that are important in natural systems, rather than simply to survey and catalog the systems. They are, however, usually not attracted to the undefined scientific problems, complex committee hierarchy, and unrealistic time constraints that are usually attached to impact studies. Instead, such studies are often done by scientists who cannot successfully compete for funding from traditional scientific sources. In general, their methods are ancient, descriptive “textbook” techniques, which do not reflect either the many scientific advances of the past decade or the problems unique to the study undertaken. The same tired old bag of tricks is applied to studies of every type, regardless of the type of impact anticipated. The type of data generated cannot usually be extrapolated from one ecosystem to another, because studies were not planned with that as a major objective. As a result, each new study begins with little or no logical background, and no master plan for studying environmental processes is emerging. How well a particular study is funded is a direct function of the value of the resource to be affected, with no consideration given to the amenability of the system to study or to the quality of science which might result. Enormous sums are therefore spent with little or no scientific return.

The continued application of such studies can have several effects, including increased prices for natural resources; a declining credibility for environmental science and scientists; a reduction in the overall quality of scientific personnel; and the degradation of our natural resources, not as the result of the direct activities of industry and government, but because of the ineffectual groping of environmental scientists.

If we are to protect both our resources and scientific integrity, environmental scientists must seek to put their studies on a scientifically credible basis – to see that problems, terms of reference, funding, time constraints, reports, and conclusions are all within a bona fide scientific framework. – D.W. SCHINDLER, *Leader, Experimental Limnology Project, Freshwater Institute, 501 University Crescent, Winnipeg, Manitoba, Canada*

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