

CEARC

Canadian
Environmental
Research Council

CCREI

Conseil canadien de la
Recherche et de l'évaluation
environnementales

6P1-90

Canadian Environmental Assessment Research Council

ANNUAL REPORT

1988-1989 and 1989-1990

INFORMATION

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INTRODUCTION

The Canadian Environmental Assessment Research Council (**CEARC**) was established by the federal Minister of the Environment in January 1984 as an independent national body with a mandate to investigate the scientific, technical and procedural aspects of environmental assessment (**EA**) and to identify ways of improving its effectiveness. To meet its mandate, **CEARC seeks** and encourages new ideas and facilitates research on the concept and practice of **EA**, including the broader environmental planning and resource management processes in which **EA** activities are undertaken.

More specifically, **CEARC** promotes and supports **EA** research in order to:

1. develop new approaches to the integration of **EA** with strategic (or regional) planning and the enhancement, control or management of economic and social activities;
2. improve scientific rigour in the application of ecological and social sciences in the analysis, synthesis and interpretation of environmental impacts;
3. improve the effectiveness of procedures for clarifying and incorporating social values and future consequences in environmental impact evaluation; and
4. identify alternatives for strengthening policy and institutional frameworks for linking the above elements.

Based on its research and deliberations, Council provides advice to governments, industry and others on the scope and effectiveness of the concept and practice of **EA**.

Since it was first established, Council has supported research in improving performance in various areas:

- cumulative effects assessment (**CEA**)
- environmental health and **EA**
- mitigation and compensation
- monitoring and prediction
- risk analysis
- sustainable development
- environment – economy
- social impact assessment
- policy and **EA**

In addition, Council encourages and funds graduate student research on topics relevant to **EA**.

CEARC publishes the results of its activities and deliberations through the following:

1. *Research prospectuses* — Recommendations and discussions prepared by Council on research needs on a specific topic or issue.
2. *Background papers* — Papers prepared for or by CEARC outlining the results of research studies, conferences and workshops on the priority areas of Council. Background papers are subject to scientific peer review prior to publication.
3. *Manuscript reports* — Reports prepared for or by CEARC generally on a limited subject or of an interim nature. This series includes mostly reports by graduate students as well as some prepared by contractors. In general, manuscript reports do not undergo peer review.
4. *General publications* — Publications of a general nature, such as brochures, publications lists, and procedures and policy manuals.

CEARC reports to the Executive Chairman of the Federal Environmental Assessment Review Office (FEARO). FEARO provides the Secretariat and the support required to administer and operate Council. (See Appendix 1 for a financial report.)

COUNCIL MEMBERSHIP

Council comprises 12 members, who serve in their private capacity and are drawn from across Canada and from various levels of government, universities, non-government organizations (NGOs) and the private sector. Members are appointed by the Executive Chairman of FEAR0 for a three-year term. (See Appendix 2 for a list of members who served during the periods 1988-1989 and 1989-1990.)

HIGHLIGHTS OF COUNCIL MEETINGS

Whenever possible, the opportunity is taken at Council meetings to meet with private and public groups. During 1988, Council met in Seebe, Alberta; Fredericton, New Brunswick; and Ottawa, Ontario. In 1989, it met twice in Ottawa, Ontario, and once in La Malbaie, Quebec.

During the meeting in Seebe, Council members and representatives from several groups from Alberta had a round-table discussion on the various developments in EA in their province and their relation to CEARC research interests. Discussion ranged over a wide variety of topics:

- industrial initiatives in Alberta
- the changing role of public involvement
- mediation, negotiation and arbitration processes
- the wide variety of E&related research in the province

The meeting in Fredericton provided an opportunity to discuss EA problems with environmental impact assessment (EIA) administrators from federal and provincial EA agencies. Council also met with representatives from industry, governments, consulting firms and NGOs to consider EA issues and new themes requiring research.

Many CEARC projects were successfully completed or significantly advanced by the Research Committees. The research projects respond, where possible, to the priorities of CEARC's clients, taking into account the expertise of Council members and an assessment of other ongoing national or international research in the subjects concerned.

RESEARCH ACTIVITIES

In 1987, CEARC revised its research framework in response to changing environmental concerns and on the basis of the conclusions from its research program to date. A new climate of thinking created by the report of the World Commission on Environment and Development (the Brundtland Commission) and the National Task Force on Environment and Economy prompted Council to initiate a new series of research projects aimed at promoting sustainable development. Current work is focused on the EA of government policies, the relationship between EA and economics, and the role of EA in support of sustainable development. As well, Council's work is moving toward demonstration and extension projects intended to test and implement the ideas and findings of CEARC's research.

The theme of harmonizing economic development with environmental protection and conservation became a focal point for establishing the following research activities on environmental assessment.

Environmental assessment and policy

Council launched a major project to address the need for, feasibility of, and possible methodologies applicable to the systematic evaluation of the environmental, economic and social implications of policy options. On behalf of CEARC, the Rawson Academy of Aquatic Science undertook two research projects between September 1987 and March 1989.

The first project reviewed the extent to which environmental factors have historically been incorporated into government policy. Five case studies were selected for review. The policies concerned ranged from conservation-oriented ones to development-oriented ones.

The second project analyzed the institutional and jurisdictional constraints on the EA of policy and identified approaches to overcome them. A background paper and research prospectus on EA and policy are in preparation.

These activities by Council have proven very appropriate and timely in light of the attention being given by the federal government to the assessment of environmental aspects of all new government policies and the international development, through the United Nations and the Economic Council of Europe, of comparative studies of the EA of government policies.

Environmental assessment and sustainable development

In keeping with the theme of harmonizing economic development with environmental protection and conservation, Council began examining the relationship between sustainable development and EA. A background discussion paper was prepared by Julia Gardner of the Westwater Research Centre at The University of British Columbia. Her paper was used at two regional workshops held to discuss how EA might be directed in the context of emerging ideas on sustainable development. This

report included an analysis of the concept and principles for sustainable development and their relationship to current approaches in environmental assessment and management and was published in early 1989.

Council then commissioned commentary papers in response to the Gardner report. Peter Boothroyd, Brian Clark, Susan Holtz, Ron Jakimchuk, Jeffrey MacNealy, William Rees and Henry Regier prepared papers that amplified and explored further the perspectives contained in the background paper. In addition, an historical review of sustainable development was commissioned from Christian de Laet to support these analyses. All these papers were then presented, criticized and discussed at workshops.

The proceedings of these workshops and other background material are the basis for a comprehensive publication that will address how EA concepts and methodologies can contribute to and be shaped by emerging ideas on sustainable development.

The next step identified by the Council for bringing the concept of sustainable development into the planning and decision-making process is to set up demonstration projects and to document case examples of sustainable development.

Environmental assessment and economics

In order to gain a better understanding of environment and economic interdependencies, Council undertook a review of the treatment of environmental problems in the economics literature and began a study of the opportunities for more integration between environmental and economic assessments. The starting point for this investigation was the identification of the economic “causes” of environmental and resource deterioration, addressing particularly the widely held view that conservation expenditures represent costs to society rather than productive investments. Peter Stokoe of the School for Resource and Environmental Studies of Dalhousie University prepared a report on the complementary aspects of environmental and economic assessments and the opportunities for integrating them.

Stokoe’s review of the treatment of environmental problems in the economics literature was followed by an international workshop held in November 1988 in Vancouver to bring together experts to explore the role of EA in developing ways and means of achieving sustainable development. The workshop reviewed the background report and related work, focusing on the relationship of analytical and arbitral approaches to assessment of economic development, and measuring “natural capital” and incorporating the results into environmental and economic assessment and decision making. Participants identified the concept of natural capital as a potentially important focus for integrating environmental and economic considerations.

Based on these recommended approaches, Council undertook a case study of natural capital dealing with the Canadian Prairies, wetlands and forestry. These were reviewed at a workshop held in March 1990.

Environmental assessment and computer applications

In February 1990, a workshop was held in the Northwest Territories. The workshop brought together various government and hunter and trapper association representatives from Inuvik, Aklavik and the surrounding regions to review different computer technologies that could be applied to environmental assessments in the Inuvialuit Settlement Region (ISR). Within the ISR, computer technology is playing a growing role. Geographic Information Systems are now used, harvest data and information are being stored on computers, traditional knowledge is being captured, satellite data are being analyzed and communication links to large computers in other parts of the country are being established. However, computer technology in the ISR is still limited to a few locations and organizations. As its role increases within the context of EA, and a higher demand for traditional knowledge from the native elders is stressed, it is appropriate to look at the degree to which computer systems might be used to assist community-based EA.

Environmental assessment and health

A survey to determine the extent and ways in which potential human health effects are considered in EA processes has been completed. Four regional workshops in a series of five were held in Toronto, Edmonton, Halifax, and Montreal. The workshop attracted participants with a wide range of interest in health effects. The fifth is scheduled for September 1990 and is to focus on issues related to the North. A research prospectus and background paper summarizing research and providing suggestions for establishing or improving the assessment of health effects in EA will be completed in late 1990.

Environmental effects monitoring

CEARC has been co-operating with the Department of Environment and FEARO in investigating environmental effects monitoring for pulp mills in marine and freshwater environments. The preliminary results were reviewed at a workshop. CEARC was urged to do some further thinking about the application of the role of effects monitoring in EA.

Cumulative effects assessment

Since it was first established CEARC has supported research on CEA, beginning with a binational Canada-United States workshop in 1985. This was followed by a series of background papers and a research prospectus on CEA. In 1987, Council commissioned the preparation of a reference guide on CEA by I? Lane & Associates Limited.

A demonstration project that explores the cumulative loss of prairie wetlands is being developed. CEARC and a number of Canadian and American agencies interested in wetland conservation are preparing a joint proposal for support under the North American Waterfowl Management Plan. The program is to include a pilot project to demonstrate new methodologies for resolving the policy and institutional problems associated with the cumulative loss of wetlands.

Traditional ecological knowledge

A review of the literature and of experiences in collecting and applying traditional ecological knowledge (TEK) to EA was undertaken by the Dene Cultural Institute, and a report was completed in early 1989.

Human settlements and sustainable development

A major theme for the Council's research is the application of integrative concepts, methods and procedures to the environmental problems that are characteristic of human settlements. Council's research will focus on selected issues and concerns related to sustainable development of urban, small town and native communities.

The first objective of the urban component of CEARC's human settlements and sustainable development is to build a framework of planning-oriented perspectives on sustainable urban development, including the relationship of the city to surrounding resources. The second objective is to identify and experiment with new approaches to the assessment and management of urban environmental problems.

In June 1989, 20 people from the Maritimes gathered in Fredericton for two days to discuss the concept of sustainable development and how that concept could be achieved in small communities. This workshop was a direct outgrowth of a three-day conference that drew about 200 people to the Memramcook Institute near Moncton, New Brunswick, in early March 1989. At Memramcook, participants from a wide range of community groups spoke of "developing sustainability" or of "developing sustainable communities" rather than "sustainable development." With the focus on the community, the emphasis was that ultimately the communities must be sustainable, not development. Participants returned to their communities energized to continue the work they were already doing and to seek new ways of involving others in the struggle for sustainability.

The Fredericton workshop built on this foundation, becoming a round-table discussion for key researchers, academics, activists and practitioners, who were invited on the basis of their experience and expertise in the fields of environment and development in the Maritimes.

CEARC is beginning to realize that sustainable development is at the centre of a dynamic tension between traditional environmental concepts (the maintenance of the integrity of the biosphere) and economic growth. These particular workshops were, in a sense, CEARC's first venture into this tension at the small community level.

As part of its research on EA for sustainable development, CEARC has undertaken two studies with native communities — Old Crow in the Yukon and Nuuchah-Nulth in British Columbia — to consider the question of community assessment with particular emphasis on the role of traditional knowledge. In the case of Old Crow, the objective was to define a community-based approach to environmental and socioeconomic impact assessment that reflected both the traditional and evolving present-day values of the community. The study involving the Nuuchah-Nulth Tribal Council concentrated on documenting community knowledge of traditional fisheries

and systems of management. The reports prepared and the state-of-the-art review of TEK will be integrated into one document.

A project at Clyde River in the Northwest Territories provided CEARC with an opportunity to test the feasibility of integrating principles of EA and sustainable development with the development of a community-level resource management plan for the bowhead whale in Isabella Bay, Baffin Island. In co-operation with the native community, the Department of Fisheries and Oceans (DFO), and the World Wildlife Fund, CEARC investigated ways to draw upon the local TEK of the bowhead whale's behaviour and habitat. The information was used to develop management options that conserve this resource and still promote economic development opportunities in the community of Clyde River. The community is now putting its selected management plan into practice.

Integrated resource planning

CEARC, in co-operation with the DFO, funded a workshop in February 1988 to evaluate the process of integrated resource planning (IRP) as recommended in the DFO Policy for the Management of Fish Habitat. A final report, presented in September 1988, cites the results of a workshop that was held in Comerbrook, Newfoundland. Participants were DFO and senior executives of the government agencies in Newfoundland responsible for environment, forestry, parks and recreation, electrical production, industrial development, and transportation. This initiative developed and tested a mock negotiation process to resolve conflicts over resource use.

A follow-up study was initiated in co-operation with DFO and Newfoundland Department of Environment and Lands. The objective of the second phase of the IRP study was to develop a framework for its implementation in Newfoundland. A workshop was held in St. Johns to review the various institutional arrangements for applying an IRP process in the province. The workshop resulted in a cabinet document. A report on this phase of IRP is expected in late 1989-1990.

Council has completed its work with this IRP activity but is open to exploring further linkages with EA and with various other processes (coastal zone planning, land use planning), initiatives and concepts such as conservation strategies, sustainable development and round tables.

GRADUATE STUDENT RESEARCH CONTRACT PROGRAM

The Graduate Student Research Contract Program was initiated in 1985 to promote interest in **EA** at the graduate research level. Each year, **CEARC** invites **EA** research proposals from graduate students at Canadian universities. Each university can submit up to three pre-approved proposals. All the proposals received are reviewed by an independent Selection Committee appointed by Council.

In 1988-1989, **CEARC** received 33 proposals from 17 universities. The research proposals covered such themes as **EA** and policy, monitoring, biophysical and socioeconomic assessment, social impact assessment, and regional planning and cumulative effects assessment.

For the period 1989-1990, the Selection Committee received 27 proposals submitted by 17 universities. Among the topics suggested for research projects were risk management, cumulative effects assessment, mitigation, public participation, monitoring and social impact assessment.

For those two years, 20 research contracts were awarded to graduate students on the basis of the Selection Committee's recommendations. (See Appendix 3 for the list of graduate student research contracts for 1988-1989 and 1989-1990.)

Each year, the Selection Committee evaluates reports received from graduate students on studies undertaken during the previous fiscal year. Recommendations are made by the Selection Committee to publish the best report in the background paper series and the others in the manuscript report series. (See Appendix 4 for a list of reports submitted by graduate students since the beginning of the program.) For administrative reasons, no reports were published in the background paper series in 1988-1989.

For the period 1989-1990, the Selection Committee recommended the report prepared by Nancy Knight, a graduate student from the School of Community and Regional Planning at The University of British Columbia, for publication as a background paper. Knight's report, entitled "Projecting the Regional Demo-Economic Impacts of Natural Resource Mega-Projects: a Comparison of Two Techniques," is to be published in the 1991-1992 fiscal year.

Nancy Knight's research compared the accuracy of two techniques commonly employed in regional economic impact analysis to project the demo-economic impacts of a natural resource mega-project. The two techniques examined were economic base analysis (EBA) and income expenditure analysis (IEA).

CEARC also arranged to send five graduate students (see Appendix 5) to the International Association for Impact Assessment (IAIA) 1989 conference to present the results of their research.

During 1988, Professor W. A. Ross, who had served as Chairman of the Graduate Student Research Program's Selection Committee since the beginning of the Program, completed his term of service and was replaced by Professor René Parenteau. Dr. Parenteau left Canada on sabbatical leave in 1989 and was replaced by Dr. James Bater, University of Waterloo. A new member, Dr. Jean-Louis Sasseville of the Institut

national de la recherche scientifique (**INRS**), was also appointed to the Selection Committee in December 1989. The program has resulted in new knowledge, a new group of graduate professionals with research experience in environmental assessment, and a new and sustained interest at several universities in environmental assessment as an area of study in its own right.

APPENDIX 1.
FINANCIAL REPORT

Table A1. **Summary of CEARC budget for 1988–1989**

Activity	C\$
Councilmeetings4814 1
Secretariat meetings490 44
Publicationcosts..9685 3
Student research contracts	63 680
Unsolicitedproposals2000 0
EA and health2385 7
EA and economics	45 03 0
EA and policy49 17 4
EA and sustainable development	11 000
Social impact assessment (SIA)	13 602
Wetlands Cumulative Effects Assessment	7 870
Integrated Resource Planning	22 001
Clyde River — TEK	28 38 7
Contingencies..2242 0
Total	501 059

Table A2. Summary of CEARC budget for **1989-1990**

Activity	C\$
Council meetings	4525 0
Secretariat meetings	4 910
Secretariat administration	25 663
Editing – Technical support	49 218
Student research contracts	95 019
Communications	858 1
Sustainable development	7 645
Cumulative effects assessment	33 654
EA and economics	25 62 1
EA and health	50 99 8
EA and policy	1648 9
Integrated resource planning	23 098
Urban communities	31 55 5
Small communities	17 99 9
Native communities	46 777
Environmental effects monitoring	20 000
Total	502 479

APPENDIX 2.

CEARC MEMBERS

Fred Roots, Council Chairman
Environment Canada
Hull (Quebec)
January 1987 – January 1991

Gordon **Baskerville**
University of New Brunswick
Fredericton, New Brunswick
February 1987 – February 1990

Robert K. Bell
Norplan Consultants
La Ronge, Saskatchewan
February 1987 – February 1990

Peter Boothroyd
School of Community and Regional
Planning
Vancouver, British Columbia
June 1988 – January 1991

Katherine Davies
Ecosystem Consulting Inc.
Ottawa, Ontario
February 1987 – January 1990

Nancy Doubleday
Inuit Circumpolar Conference
Ottawa, Ontario
February 1990 – September 1992

Charles Ferguson
Director Environmental Affairs
Inco Ltd.
February 1988 – January 1991

Michel Gariépy
Institut d'urbanisme
Université de Montréal
Montréal (Québec)
February 1990 – September 1992

Susan Holtz
Consultant
Armdale, Nova Scotia
February 1988 – January 1991

Richard Hoos
TransCanada Pipeline
Calgary, Alberta
January 1987 – February 1990

Esther Jacko
Whitefish River First Nation
Birch Island, Ontario
February 1990 – September 1992

Peter Jacobs
Université de Montréal
Montréal (Québec)
June 1986 – February 1990

David Kiell
Newfoundland and Labrador Hydro
St. John's, Newfoundland
February 1990 – September 1992

Luc Ouimet
Bureau de consultation de
la ville de Montréal
Montréal (Québec)
February 1990 – September 1992

Louise Roy
Consultant, Centre St-Laurent
Montréal, Québec
June 1988 - January 1991

Robert Walker
Saskatchewan Power Corporation
Regina, Saskatchewan
June 1988 – January 1991

APPENDIX 3

Table A3. Graduate Student Research Contracts 1988-1989

STUDENT	DEPARTMENT	UNIVERSITY	TITLE OF REPORT
1. Rafal Sérafín	School of Urban and Regional Planning	Waterloo	'Monitoring Institutional Arrangements for Environmental Protection in EIA : the Case of the Nanticoke Complex, Ontario'
2. Richard Legault	Institut d'urbanisme Faculté de l'aménagement	Montreal	« Recherche en évaluation des incidences environnementales analyse des méthodes utilisées pour corrélér les divers types d'impacts des études sectorielles »
3. Pamela Hubbard	School of Urban and Regional Planning	Waterloo	'Regional Planning and Cumulative Effects Assessment'
4. Grete Bridgewater	Environmental Design	Calgary	"Assessing the Environmental Impacts of Policy: a Framework and its Application to Irrigation in Western Canada"
5. Don B. Gamble	Natural Resources Management Program	Simon Fraser	· " Administrative Procedures for EIA : Coastal Zone Management in B.C."
6. Heidi E. Missler	Geography	British Columbia	" EIA in British Columbia Post Development Study' .
7. Barbara Hogan & Charles McRobert	Environmental Studies	York	"Environmental Planning and Management/the Synthesist Approach to Environmental Planning"
8. Robert Turland	Environmental Design	Calgary	" EIAs at the Municipal Level "
9. Harold Pickering	Political Studies	Queen's	"Goose Bay Case Study"
10. Timothy Smith	School for Resource and Environmental Studies	Dalhousie	'The Use of Monitoring Programs in Assessing the Impacts of Mineral Developments in Northeastern New Brunswick'

Table A4. CEARC **Graduate Student Research Contracts** 19894990

STUDENT	DEPARTMENT	UNIVERSITY	TITLE OF REPORT
1. John Saremba	Natural Resources Management Program	Simon Fraser	" EIA Management of Tourism Developments Adjacent to Park and Wilderness Areas"
2. Peter R. Mulvihill	School of Urban and Regional Planning	Waterloo	"Adaptive Environmental Impact Assessment in Northern Canada"
3. Nancy Knight	School of Community and Regional Planning	British Columbia	"Demographic Economic Impacts of Natural Resource Mega Projects: an Evaluation and Comparison of Two Methods"
4. Dianna L. Colnett	School of Community and Regional Planning	British Columbia	"Institutional Arrangements for Cumulative Effects Assessment"
5. Liliane Cotnoir	Sociologie	Montreal	« Le BAPE et l'influence de la participation du public; le cas de la route 116 »
6. Jason Copas	Urban and Regional Planning	Queen's	"Risk and Decision Making in EIA : the Public Agenda"
7. Sophie Collin	Urbanisme	Montreal	"Analyse critique des procedures de suivi"
8. Lucien Cattrysse	Geography, Environmental Studies	Waterloo	"Towards an Improved Method of Issue Scoping for Government Environmental Assessment Reviews"
9. Francine Rousseau	Resource and Environmental Studies	Dalhousie	"Environmental Impact Assessments and Non-Government Organizations "
10. Keri Barringer	Natural Resources Institute	Manitoba	"Tourism Management in the Mackenzie Delta"

APPENDIX 4.

GRADUATE STUDENT REPORTS

Anestis, Ioannis. "Avoidance-Preference Reactions of Rainbow Trout after Prolonged Exposure to Chromium (VI)." McGill University, 1986.

Bridgewater, Grete. "Assessing the Environmental Impacts of Policy: a Framework and its Application to Irrigation Policies in Western Canada." University of Calgary, 1989.

Brown, Gordon L. "The Effects of Air Pollution on Forests." The University of British Columbia, 1986.

———. "Assessment of the Impact of Ozone Air Pollution on Agricultural Resources of the Fraser Valley, B.C.: Sources of Uncertainty and Risk Assessment Methodology." The University of British Columbia, 1987.

Bush, Maureen. "Public Participation in Resource Development after Project Approval." University of Calgary, 1987.

Cooper, Judith. "Public Participation in the Environmental Assessment and Review Process: the Role of Intervenor Funding." The University of British Columbia, 1988.

Gamble, Don B. "Administrative Procedures for **EIA**: Coastal Zone Management in British Columbia." Simon Fraser University, 1989.

Gignac, Dennis L. "Ecological Tolerances and Niche Structure of Sphagnum along Climate and Pollution Gradients." The University of Alberta, 1986.

Hagen, Michael E. "Water-Log Handling Impacts on Estuarine Environments: an analysis of the Campbell River Estuary, British Columbia." Simon Fraser University, 1987.

Hubbard, Pamela. "Regional Planning and Cumulative Effects Assessment." University of Waterloo, 1989.

Hundert, Eric. "Social Impact Analysis of a Forest Management Program." Dalhousie University, 1987.

Leduc, Catherine. « L'impact du drainage souterrain sur la morphologie **des cours d'eau** : approche methodologique dun **problème d'érosion** du sol en milieu agricole. » Université de Montreal, 1986.

Legault, Richard. « Recherche en evaluation des **incidences** environnementales; analyse des **méthodes utilisées** pour **corrélér** les divers types d'impacts **des études** sectorielles. » Université de Montreal, 1989.

Lucas, Bradley. "Shifting the Traditional Framework: **Socio-economic** Impact Analysis and Toronto's New Stadium." Queen's University at Kingston, 1987.

McRobert, Charles. "Environmental Planning and Management /the Synthesist Approach to Environmental Planning." York University, 1989.

Missler, Heidi. "EIA in British Columbia Post Development Study." The University of British Columbia, 1989.

Nakashima, Douglas. "Native Ecological Knowledge and Environmental Assessment." McGill University, 1988.

Norton, Mervyn. "Assessing the Impact Assessment Process of the Ontario Waste Management Corporation." York University, 1986.

O'Fallon, Carolyn E. "Biophysical Regulation of the British Columbia Coal Industry: the Kaiser Experience." Simon Fraser University, 1987.

Ouzilleau, François. Prototype de système expert d'aide à la réalisation d'évaluation des impacts environnementaux. Université Laval, 1988.

Palidwor, Richard. "From Air Pollution to Acid Rain: Dilution and the Myth of 'Away,.'" York University, 1987.

Phaneuf, Yves. « Processus d'EIE et prise de décision. » Université de Montréal, 1986.

Pickering, Harold. "Goose Bay Case Study." Queen's University at Kingston, 1989.

Pope, Elizabeth. "Using Environmental Impact Assessment to Evaluate Forest Land Use Alternatives in British Columbia." Simon Fraser University, 1986.

Petticrew, Ellen. "The Prediction of Sedimentation Patterns in the Littoral Zones of Lakes Supporting Macrophyte Growth." McGill University, 1986.

Reed, Maureen G. "Environmental Assessment and Aboriginal Claims: Implementation of the Inuvialuit Final Agreement." University of Toronto, 1987.

——— "Native Involvement in Environmental Impact Assessment: a Comparison of Institutional Approaches." University of Toronto, 1988.

Riek, Christine. "Understanding Uncertainty in Cost-Benefit Analysis and Impact Assessment." The University of British Columbia, 1987.

Rochon, Yves. « Adaptation de la méthode des graphes cognitifs pour l'évaluation de l'utilité de l'information : le cas des études des incidences environnementales. » Université du Québec, 1987.

Séraphin, Rafal. "Monitoring Institutional Arrangements for Environmental Protection in EIA: the Case of the Nanticoke Complex, Ontario." University of Waterloo.

Shaffer, François. « Processus de surveillance de l'environnement aquatique de la ville de Sherbrooke. » Université de Sherbrooke, 1988.

Shapcott, Catherine. "Environmental Impact Assessment and Resource Management: Learning from the Process and Practice of Native People." York University, 1987.

Skinner, Walter, R. "Vegetational Responses to Natural and Anthropogenic Change in the St. Clair River Delta." University of Windsor, 1986.

Smith, Timothy. "The Use of Monitoring Programs in Assessing the Impacts of Mineral Developments in Northeastern New Brunswick." University of Dalhousie, 1989.

Swerdfager, Trevor M. 'The Effects of Native Land Claims on Public Participation in Environmental Impact Assessment in the Canadian North.' University of Ottawa, 1988.

Turland, Robert. "EIA's at the Municipal Level." University of Calgary, 1989.

Weston, Sandra. 'The Canadian Federal Environmental Assessment and Review Process: an Analysis of the Initial Assessment Phase.' York University, 1988.

Yap, Nonita T. 'Risk Reduction and Integrated Risk Management: Learning from the Process and Practice of Native People.' Dalhousie University, 1987.

APPENDIX 5.
GRADUATE STUDENTS
SELECTED TO ATTEND THE 1989
INTERNATIONAL ASSOCIATION FOR IMPACT ASSESSMENT
CONFERENCE

1. **Maureen Reed**
Waterloo, Ontario
2. **Judith Cooper**
Vancouver, British Columbia.
3. Yves **Phaneuf**
Montreal (Québec)
4. Sandra **Weston**
North York, Ontario
5. **Maureen Bush**
Calgary, Alberta