

**The Importance of Research  
in the Environmental Assessment  
and Review Process:  
A Report to FEAR0  
on the Proposed Reform of EARP**

**Canadian Environmental Assessment Research Council**

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## **SUMMARY OF RECOMMENDATIONS**

**The following is a summary of the recommendations contained in this report. Taken together, they provide strategic direction in the development of a comprehensive applied research program as part of the Environmental Assessment and Review Process (EARP). It is important to note that, while some of the following recommendations are currently being implemented by CEARC, this report argues for an overall research strategy to be recognized formally and supported under EARP.**

- (1) EARP should recognize formally the need for an applied research program focused on improving the effectiveness, efficiency and fairness of environmental assessment.**
- (2) EARP should specifically include administrative and funding arrangements to promote applied research through direct financial support of innovative ideas and approaches, as well as through cooperative funding arrangements with other established research agencies.**
- (3) A research program under EARP should provide mechanisms for consultation between researchers and other participants in the assessment process.**
- (4) Any EARP research program should include an evaluation function under which current practices and procedures will be periodically reviewed and the results of monitoring programs assessed.**
- (5) There should be provisions under EARP whereby projects could be formally made available as test cases for new ideas and approaches to environmental assessment, providing that all parties are in agreement.**
- (6) A research program under EARP should give high priority to the wide distribution of research results relevant to environmental assessment.**
- (7) An EARP research program should include the development of standards, guidelines, protocols, etc. to ensure quality control of all aspects of environmental studies, including follow-up monitoring.**
- (8) Research under EARP should include an extension program whereby training courses and workshops could be run on international, national and regional levels for those involved with both the scientific and administrative aspect of environmental assessment.**
- (9) Research in EARP should pay specific attention to the integration of bio-physical and socio-economic data, and scientific facts and social values, in decision documents related to environmental assessment.**

These recommendations, and the rationale behind them, are explained in detail in this report. Also included as an annex to the report is the Council's endorsement of a number of suggested changes to the procedural side of EARP which emerged during a joint meeting with the Canadian Environmental Advisory Council, although such issues are the primary concern of the latter organization.

## INTRODUCTION

The Canadian Environmental Assessment Research Council (CEARC) was established on January 30, 1984, by the federal Minister of the Environment to provide impartial and independent advice on ways of improving the effectiveness of environmental impact assessment and related activities. The impetus for the formation of the Council came from the previous review of the federal Environmental Assessment and Review Process (EARP) which resulted in the Order-in-Council of 1984. At that time an annual budget was set aside for CEARC under the administration of the Executive Chairman of the Federal Environmental Assessment Review Office (FEARO).

From the beginning, CEARC was envisioned and organized as a national and not a federal advisory body. As such, it interacts with practitioners and administrators from all sectors of the impact assessment community including industry, all levels of government, consulting firms and universities. The federal process represents an important, but not exclusive, focus of attention in CEARC's program of activities.

The purpose of this report is to present a research-oriented perspective on the proposed changes to EARP. In preparing this document CEARC reviewed the results of the first four years of its research activities. It also held a joint meeting with the Canadian Environmental Advisory Council (CEAC) to discuss the reform of EARP. Based on that meeting both Councils agreed to develop separate, but complementary, reports that reflect their particular interests and mandates.

This document develops two main themes - the importance of having a coherent research program to support the application of EARP, and the ways in which research initiated by CEARC can improve the effectiveness of both the technical and administrative components of the process.

## BACKGROUND

The mandate of CEARC is developed fully in its 1986 prospectus entitled Philosophy and Themes for Research. In this section the main thrust of that document is first restated and related to the outputs of the Council's research. Second, an update is given on recent thinking concerning a more comprehensive and integrated framework for research in, and on, environmental assessment.

The basic objective of CEARC is to encourage new ideas and approaches toward improving the concept, practice and effectiveness of environmental impact assessment. To that end, environmental assessment is broadly conceived, with particular emphasis given to the interrelationship among technical, administrative and institutional components, as well as the relationship between the overall process and the broader schemes of environmental management and development decision making.

The potential spectrum of applied research in this context is thus very broad. It encompasses, for example, technical analysis and the substantive integration of bio-physical and socio-economic data and information, as well as evaluation of the process, procedure and practice. CEARC's defined role is to foster interdisciplinary research that leads to results that are useful in the real world of decision making as it relates to environmental impact assessment. Within this overall framework, the Council has pursued the following set of research themes:

- (a) developing new approaches to integrating impact assessment with strategic (or regional) planning and development control;
- (b) improving scientific rigour in the application of ecological and social sciences to impact analysis and interpretation;
- (c) improving the effectiveness of procedures for clarifying and incorporating social values in impact evaluation; and
- (d) identifying alternative means for strengthening policy and institutional frameworks for linking the above elements.

Within these broad research themes, specific research programs have focused on social impact assessment, cumulative effects assessment, mitigation and compensation, audit and evaluation, mathematical modelling, risk analysis, and environmental health. In addition, the Council has funded graduate student research contracts on topics relevant to environmental assessment.

The products of this research have primarily been research prospecti and background reports published by the Council. These have been given national and international distribution and have been received positively by the practitioners in the field.

CEARC recently revised its research framework in response to changing environmental concerns and on the basis of results achieved from the first four years of its research program. A new climate of thinking has been created by the report of the World Commission on Environment and Development (the Brundtland Commission) and the Canadian response of the National Task Force on Environment and Economy. Both bodies have emphasized the importance of integrating environmental and economic decision making and have underlined the necessity of developing integrative tools and techniques for analysts and managers, and of forging new cooperative links between industry, government and interest groups.

Last year the Council initiated a new series of research projects aimed at advancing these objectives. Work is currently underway on environmental assessments of government policies, the relationship between environmental assessment and economics, and the role of assessment in support of sustainable development. In addition, Council's work is also moving toward research and extension projects. These are intended to test and implement the ideas and findings of the Council.

#### THE IMPORTANCE OF RESEARCH IN EARP

Environmental impact assessment in general, and EARP in particular, poses both challenges and opportunities for research. The dimensions of environmental assessment, ranging from quantitative science through to social values, require an interdisciplinary approach to problem-solving which cuts across the more conventional sector-oriented research programs. This requires broad definitions of both environment and research - definitions that pose serious problems for most research funding agencies.

The challenges include not only the difficulties of securing adequate research funds, but also the lack of incentive among researchers to address the complex interrelationships between science, social concerns and institutions for decision making. These present unique challenges to the research community. Experience has shown that they are unlikely to be overcome without a concentrated and consistent effort by those directly involved in the environmental assessment process.

Conversely, environmental assessment offers significant opportunities for research and development. The various aspects of assessment, including predictive studies, public review and monitoring, can be considered as opportunities both to practice and to evaluate applied research. The implementation of environmental assessment involves large commitments of funds and resources and offers practical case studies. If research is recognized and formally supported as part of

**EARP it is possible to capitalize on these opportunities and, thereby, improve efficiency and effectiveness of the process. There are two general areas within EARP which would benefit from a focused research effort.**

**First, there is a need to promote and support longer term research directly related to improving the scientific basis of environmental assessment. This includes such things as improving the quality and relevancy of data, developing more rigorous analytical techniques, increasing our predictive capability, and developing audit and monitoring systems which encourage the management of risk and uncertainty. These are long-term goals which must be promoted through the more conventional discipline-oriented research programs.**

**Second, there is a requirement to undertake innovative research into improving the environmental assessment decision-making process and supporting practices and procedures. This includes research directed toward improving the public consultation aspects in terms of accessibility, fairness and consistency of approach, as well as research directed toward evaluating the appropriateness of the institutional frameworks within which the overall assessment process is conducted. Such process-oriented research must also consider ways of ensuring that scientific information is brought to bear on the decision-making process in a timely and effective manner. Otherwise, the effort devoted to improving the scientific basis of EARP will be wasted.**

**Perhaps the most cogent argument in favour of linking research to environmental assessment is the nature of the subject itself. Scientific knowledge, data bases and analytical procedures are constantly expanding and changing. Without some focused attempt to keep up with such developments, environmental assessment will quickly become outdated and ineffective. New ideas and approaches must be constantly evaluated with respect to their relevancy and utility to EARP - a form of "technology transfer".**

**Equally as important is the dynamic nature of today's society; perceptions and values not only change from community to community but can also change remarkably with time. There is an ongoing need to evaluate these changes to ensure that EARP remains relevant to the shifting goals and aspirations of Canadian society.**

**Examples of recent changes in the perceptions of environment can be found in the interest accorded to the reports of the World Conservation Strategy, the Brundtland Commission, and the National Task Force on Environment and Economy. All of these call for a more comprehensive view of man's role in the natural world, a role in which development is integrated with ecology, economics, and culture in a self-supporting way - a sustainable way. Such broad sweeping changes in public perception can have major implications for the way in which environmental assessment is approached. CEARC has recognized these**

implications and has mounted a number of research programs delving into the nature of the evolving relationship between environmental assessment and policy formulation, economics and sustainable development.

It should be evident that the results of a well defined and adequately supported research program recognized in, and linked to, EARP would go a long way to ensuring that the federal process is conducted in an efficient and effective manner and that it will continue to reflect the changing environmental perceptions and aspirations of Canadians.

#### **RESEARCH RECOMMENDATIONS**

CEARC has been promoting and supporting research on environmental assessment for over four years. The following recommendations reflect a comprehensive approach to the development of a research program only some elements of which are currently being implemented.

- (1) EARP should formally recognize the need for an applied research program focused on improving the effectiveness, efficiency and fairness of environmental assessment. Research should be defined to cover all aspects of the practice and procedure of environmental assessment including scientific, technical, administrative and institutional components, and their relationship to decision making.**
- (2) EARP should specifically include administrative and funding arrangements to promote applied research on environmental assessment through direct financial support of innovative ideas and approaches, as well as through cooperative funding arrangements with other established research agencies. Such support and cooperation should encompass all sectors of the assessment community including governments, the private sector, universities and public interest groups.**
- (3) A research program under EARP should provide mechanisms for improving consultation between researchers and other participants in the assessment process. The objective would be to raise the level of awareness among all parties, to establish research priorities and to develop means whereby the results of research can be implemented.**
- (4) Any EARP research program should include an evaluation function under which current practices and procedures are periodically reviewed and the results of monitoring programs are assessed. These efforts should be conducted in cooperation with appropriate government agencies and private sector proponents. The results from such an ongoing evaluation program would form the basis for recommendations on changes to assessment procedures and requirements.**

- (5) There should be provision under EARP whereby projects could be formally made available as test cases for new ideas and approaches to environmental assessment, providing that all parties are in agreement and that all parties are given the opportunity to participate in the review of the results from such case studies.
- (6) A research program under EARP should give high priority to the distribution of research results relevant to environmental assessment, both in terms of circulating written documents and supporting technology transfer from the research community to the assessment practitioners.
- (7) One of the objectives of an EARP research program should be the development of standards, guidelines, protocols, etc. to ensure quality control of all aspects of environmental assessment studies, including impact prediction, effects monitoring and audit evaluations. Such quality control guidelines should be developed through consultation between researchers and practitioners, and the guidelines should be periodically updated.
- (8) Research under EARP should be defined broadly enough to include an extension program whereby training courses and workshops can be run on international, national and regional levels for those involved with both the scientific and administrative aspect of environmental assessment.
- (9) Research in EARP should pay specific attention to the integration statements and other decision documents, as well as to the tools and techniques for incorporating scientific facts and social values into the process.

CEARC could be a major factor in the implementation of these recommendations, requiring that the Council act in a variety of capacities including those of advisor, promoter, stimulator, catalyst and "honest broker". One of the more crucial roles will be to provide a link between research and practice. A well-developed professional extension program formally established under EARP could bridge the gap between research and practice. A well-developed professional extension program established formally under EARP could bridge the gap between what researchers say is required in environmental assessment and what is done in practice.

In the longer term, CEARC could also play an important role in evaluating the lessons learned from EARP, feeding those lessons back into the assessment process and, thereby, encouraging the evolution toward a comprehensive and sustainable system of environmental management.



ANNEX

GENERAL RECOMMENDATIONS ON THE EARP PROCESS

In September 1987, CEARC met with members of CEAC to discuss topics of mutual interest and areas of potential collaboration. It was decided that the current review of EARP was a priority interest of both Councils and that a joint meeting should be held to permit the development of coordinated responses.

The joint meeting was held in Ottawa in late December 1987 at which time consensus was reached on a number of topics. Most of these were related to the process and procedures of implementation, rather than the role of research.

Notwithstanding the difference in focus, CEARC would like to formally acknowledge its support for the general consensus which arose from the joint meeting of the Councils. Many of the specific suggestions raised at the meeting were subsequently changed, modified, or expanded by CEAC and are covered in detail in CEAC's report on EARP reform. Nevertheless, CEARC feels that the general thrust of reform captured in the meeting is still valid and would like FEARO to seriously consider the following points as changes to EARP are contemplated.

- (1) All federally sponsored or supported policies, programs and projects should be subjected to an environmental review in an open, transparent process in which all parties are held accountable for their actions.
- (2) EARP should be applied to all areas of federal jurisdiction and responsibility, including regulatory agencies, crown corporations and foreign aid.
- (3) EARP should be designed and implemented in a manner which will support the goals of sustainable development as called for in the Brundtland Commission report. As such, the definition of "environment" should be broadened to include social, health, economic and cultural factors.
- (4) To ensure consistency and accountability, EARP should be based on legislation applicable to all federal government departments and agencies.
- (5) The public should be given greater access to information and more opportunity for input into decision-making, especially in the initial assessment stages of EARP. The initiating agencies should be required to follow pre-defined notification and consultation procedures, and screening and initial assessment documents should be freely available to the public.

- (6) The level of effort and extent of public consultation should be consistent with the scale of anticipated impacts. The screening process should be based on inclusion/exclusion lists and on guidelines for deciding whether to hold hearings on questionable cases.
- (7) The principle of self-assessment should continue to apply in EARP, but with provisions for audit. There should be regular auditing of EARP to ensure compliance with legislation and the results of environmental assessments should be monitored to provide a basis for improving the practice. Responsibilities for auditing and monitoring should be clearly assigned.
- (8) In order to minimize duplication between EARP and provincial assessment processes, while maintaining adequate environmental protection, the concept of "equivalent process" as defined in the Canada Environmental Protection Act (CEPA) should be applied. In cases where there is redundancy or overlap between EARP and other federal processes involving environmental review, the two processes should be combined or one should supplant the other, with one agency being assigned a lead role.
- (9) The main financial burden for meeting environmental assessment requirements should be borne by the proponent and/or those who stand to benefit from the proposed action. Intervenor funding should be made available under strict criteria and should be paid for by the initiating agency and/or the proponent.
- (10) A "watch dog" agency should be established to oversee all aspects of EARP, including consistency of application, adherence to procedures, implementation of recommendations, audit and monitoring, and overall quality control.