TOWARDS AN ENVIRONMENTAL ASSESSMENT NETWORK

International Study

of the Effectiveness

of Environmental

Assessment

by
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The Study was initiated as a joint venture of the Canadian Environmental Assessment Agency (CEAA) and the International Association for Impact Assessment (IAIA).

It is now taken forward under the direction of an international Steering Committee on which partner countries and organizations are represented. These include: Australia (Environment Protection Agency), France (Ministry of Environment), Hong Kong (Environmental Protection Department) the Netherlands (Ministry of Housing, Spatial Planning and Environment and the Commission for Environmental Impact Assessment), Nordic Council EIA Ad Hoc Group (representing Denmark, Finland, Iceland, Norway and Sweden), United States of America (Council on Environmental Quality and Environmental Protection Agency), United Kingdom (Department of the Environment) and the United Nations Environment Programme (UNEP).

Preface

Information technologies – and networks of environmental assessment (EA) managers, practitioners, researchers and educators using these technologies – are expected to play an ever-increasing role in improving the management and practice of EA, supporting capacity building and strengthening EA as a tool to support decision making.

At the First International Summit on Environmental Assessment, held in June 1994, Canada agreed to prepare a discussion paper on the development of an international EA network for review by participants. This report, based on a draft paper prepared by the Canadian Environmental Assessment Agency (CEAA) and reviewed by Summit participants, presents the results of the CEAA-sponsored study. The paper offers a framework on how such a network could be organized and operated, and explains how the CEAA has used the framework to develop its site on the Internet.
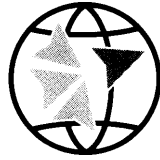
The report is also a contribution to the International Study of the Effectiveness of Environmental Assessment. The Study, launched in June 1993 as a collaborative initiative of the CEAA and the International Association for Impact Assessment (IAIA) and in partnership with national EA agencies and international organizations, is reviewing current and emerging trends in EA around the world. In its report to be released in June 1996, the Study is expected to make recommendations on measures to improve the management and practice of EA, including capacity building.

One finding is already clear: timely and convenient access to the right information and the right people is a critical ingredient in efforts to strengthen the capacity of countries and organizations to develop and manage effective EA systems and processes and to improve the effectiveness of EA practice.

The CEAA expresses its appreciation to reviewers who provided comments on an earlier draft of this paper.

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THE CHALLENGE

Environmental Assessment (EA) is widely recognized as a systematic process for integrating environmental factors in planning and decision-making. Over the past 25 years, EA processes have been adopted by many countries and international organizations. As a result of major developments in legislation, policies, procedures, methods and techniques, a considerable amount of information, experience and knowledge has been built up by EA administrators, practitioners, researchers and educators around the world.

EA has continued to evolve over this period. Now, in an era of rapid political and economic changes and global environmental changes, EA is under pressure to be more effective and responsive to the needs of decision makers. The Rio Declaration and Agenda 21, for example, called for environment and sustainable development considerations to be better integrated into planning and decision-making at all levels, and recognized EA as an important tool to meet this challenge.

Efforts are underway worldwide to find ways of strengthening EA so that it can respond successfully to these new demands. For example, the International Study of the Effectiveness of EA is reviewing the status of EA practices in countries around the world to identify elements of EA systems that work well and to recommend cost-effective measures for improving the management and application of EA.

Within these efforts, there is a growing recognition of the importance of timely access to accurate information and knowledge to strengthen the capacity of countries to develop and manage effective EA systems and to enhance the effectiveness of EA practices. EA capacity building can be defined[2] as

"the development of appropriate organizational structure, with adequate and trained interdisciplinary staff and adequate resources to design and manage an EA system. Capacity building also includes the development of:

- *informed decision-makers;*
- *a cadre of technical experts able to assess the environmental and social effects of proposals; and*
- *a public that is aware of environmental issues and the use of the EA tool us a means of supporting the goals of environmental sustainability."*

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2.   Based on a definition proposed at the First International EA Summit, Quebec City, June 1994.

The management and practice of EA is information-intensive at every step. Managers require information and knowledge about the management, application and evaluation of EA processes – legislation, regulations, guidelines, accountability and other management elements. Similarly, practitioners require considerable current and reliable data relevant to the project setting, as well as the requirements of a particular jurisdiction. Their analysis must be based on the best available environmental data and methods of analysis, and on the knowledge gained from experience and other experts.

Traditionally, such information and knowledge have been obtained in an ad hoc manner through direct access to databases, reports and documents, through the transfer of information and knowledge among experts (managers, practitioners, researchers, educators), and through contacts made in training courses, workshops, and conferences. But concerns have been expressed that this information, and more importantly, the resulting knowledge, typically have not been widely shared, are out-of-date, or are not well matched to the needs of a particular setting or country. In other cases, the information or knowledge is too costly or impractical to obtain.

Nor should the distinction between information and knowledge be overlooked. For many EA managers and practitioners, the real concern may not be a lack of information, but too much of it – "information overload" – and a related inability or lack of time to sort out the useful from the irrelevant. In this light, knowledge – ideas, advice and perspective gained from experience – is perhaps the more valued commodity."

The challenge, then, is to meet the need of EA managers and practitioners for convenient, cost-effective access to current and emerging information and knowledge so that they may administer and apply EA more effectively and efficiently. In this way, EA will become a more responsive decision-making tool in support of sustainable development – whether in developed, developing or transitional economies.

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3. Thus the importance of traditional ecological knowledge acquired over hundreds of years by indigenous peoples through direct experience and contact with their environment. See also, for example, recent research on the ability of firms to create new knowledge, in Nonaka and Takeuchi, 1995.

THE OPPORTUNITY:
INFORMATION TECHNOLOGIES

Like EA itself, information technologies have been evolving rapidly in recent years. The opportunity now exists to establish a global EA network, based on easily available information technologies, to organize information and facilitate the access to expertise and knowledge about the management and practice of EA in a cost-effective, convenient and timely manner.

Origins of the EA Network Concept

The concept of creating an EA network to promote the exchange of information and knowledge was raised at the first International Summit on EA, held in Quebec City, Canada, in June 1994. The Summit, sponsored by the CEAA in collaboration with the IAIA, brought to gether senior officials from 25 countries and six international organizations to review progress on the International Study of the Effectiveness of EA. Summit participants also exchanged information, experiences and views on current issues and emerging trends in the management and application of EA, and considered practical approaches for strengthening EA systems and practices.

The EA managers attending the Summit agreed that if they are to benefit from one another's experiences and knowledge, they need a mechanism that provides convenient and ongoing access to key information and allows them to communicate easily with each other.

The concept of an EA network was one of the three interrelated and mutually re nforcing action items in the Summit's Agenda for Action*:
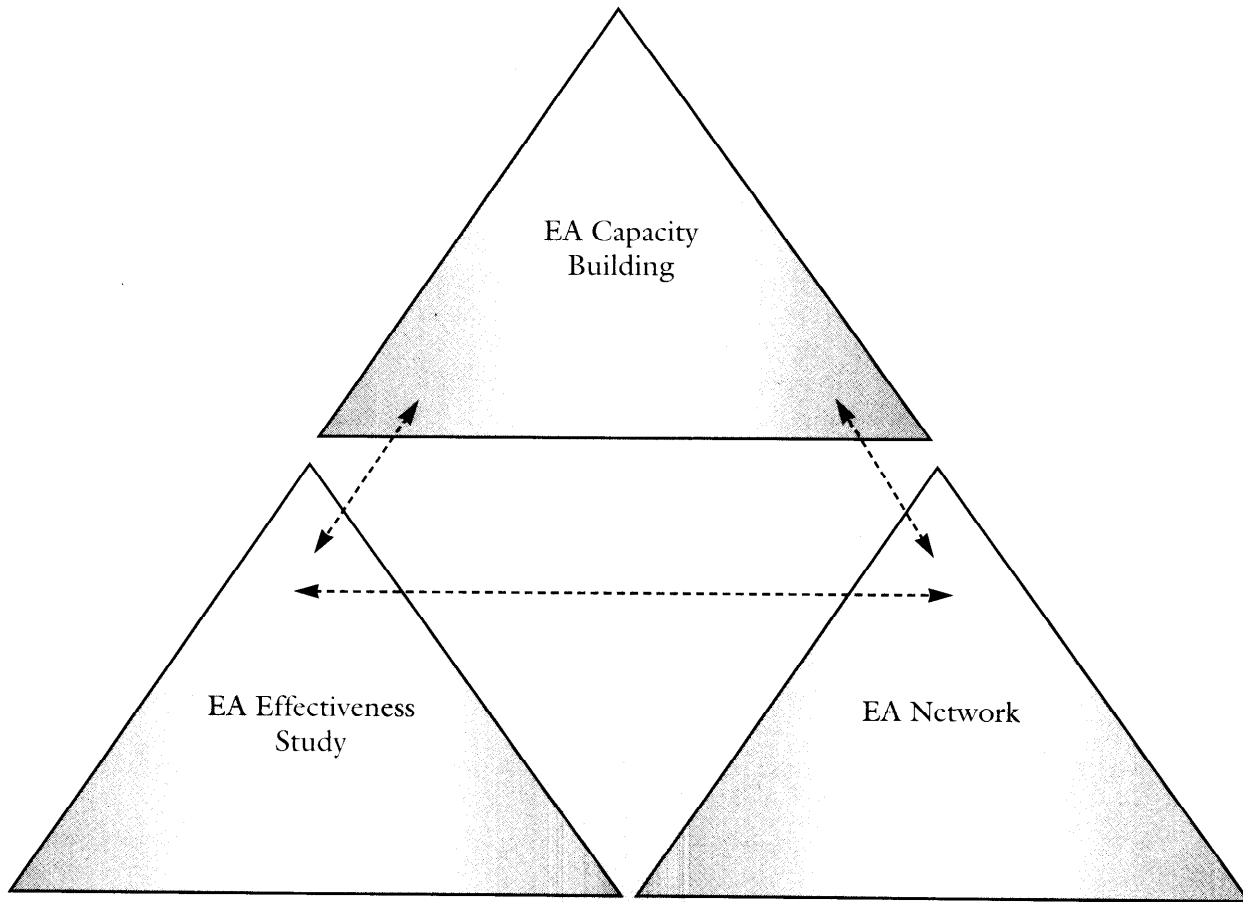
- endorsing and expanding support for the International EA Effectiveness study;
- designing and establishing an international network for EA managers;
- clarifying the concept of EA capacity building and actively supporting and coordinating capacity building initiatives.

At the Summit, Canada made a commitment to prepare a discussion paper on the concept of an EA network. Draft discussion papers were developed in late 1994 and distributed widely for review to national and international agencies and organizations. This report incorporates comments received from reviewers. Figure 1 illustrates the relationships among the three items.

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4. For more information on the International EA Summit, consult Final Report, December 1994,
    ISRN O-662-21705-5.

FIGURE 1

FIGURE 1
EA Summit's Agenda for Action

The Internet

An estimated 30 to 40 million individuals and organizations in more than 60 countries are now able to access the world-wide network of computers known as the Internet. The Internet allows any connected user to contact any other connected user, and to access information resources on any host computer, within the limits set by the host.

With low-cost, readily available software, users may access information in textual, graphics, and video format, and, through electronic mail services (e-mail) and discussion groups called newsgroups, communicate directly with other users.

Several countries (including Australia, Canada, and the United States) already have established sites on the Internet to provide greater public access to government information, including general information on the environment and, to some extent, on EA (see Appendix 1). Canada has recently established a prototype site providing information on EA legislation, policies, and activities, as well as a registry on active EAs involving the federal government (see Appendix 2).

Emerging developments in information technologies suggest that there is a vast potential for the Internet to provide cost-effective means of supporting EA capacity building efforts world-wide. For example,

- the use of computers and access to the Internet is expected to grow tremendously in developing countries and in countries in transition, making possible low-cost, convenient and timely access to reliable EA information and knowledge by those who otherwise may not be able to afford it;

- powerful new search tools will make it much easier for users to locate information on specific items and events;

- new software applications will make video-conferencing and remote-training easier and cheaper;

- decision-support tools, such as Geographic Information Systems and Expert Systems, are expected to become more powerful and widely available.

Benefits

An EA network operated through the Internet offers tremendous potential for countries and international organizations to promote the dissemination of EA information and knowledge as a means of contributing to EA capacity building, improving the management of EA systems and enhancing the effectiveness of EA practices.

Well-designed and well-maintained Internet sites and newsgroups will allow EA managers, practitioners, and others interested in EA to access data, publications, and other information, and to access people to exchange experiences, knowledge, views, ideas, and advice. Use of the Internet could also complement EA training services and programs, allowing for greater use of distance-learning approaches.

An EA network could, for example:

- allow EA managers and practitioners to directly exchange information, knowledge, experiences, and ideas in a highly convenient and cost-effective manner;
- provide EA managers and practitioners convenient and ready access to current publications and documents from domestic and international sources, such as legislation, regulations and guidelines;
- provide convenient access to databases and information holdings of various organizations, including the International EA Effectiveness Study;
- promote the dissemination and application of EA training materials;
- promote the greater sharing of results of research projects;
- build awareness of available information and knowledge among EA managers and practitioners, as well as among the general public;
- promote greater coordination among EA managers and practitioners on initiatives and projects of common interest;
- enhance the value of in-person meetings of EA managers and practitioners by facilitating the preparation and exchange of background information and materials prior to the meetings.

A PROPOSED FRAMEWORK
FOR AN EA NETWORK

This section proposes a simple framework for an EA network based on the Internet. It may be of interest to agencies and organizations interested in establishing their own Internet sites and participating in a global EA network.

An EA nehvork must allow for access to both information and people. It must offer convenient identification of and access to data, reports, documentation and other types of information. It also must provide an opportunity for people to communicate with one another to exchange advice, ideas and perspectives.

The proposed framework for an EA network based on the Internet, as indicated in Figure 2, can accommodate both needs.

Information Component

EA information holdings of various organizations could be made available through one or more sites on the Internet (more precisely, on that part of the Internet known as the World Wide Web), maintained, for example, by national EA agencies and international organizations with an interest in EA. Through these sites, users could directly access available databases and information holdings, and make on-line requests for specific items. On-line directories can point users to other relevant information holdings and to appropriate organizations and experts.
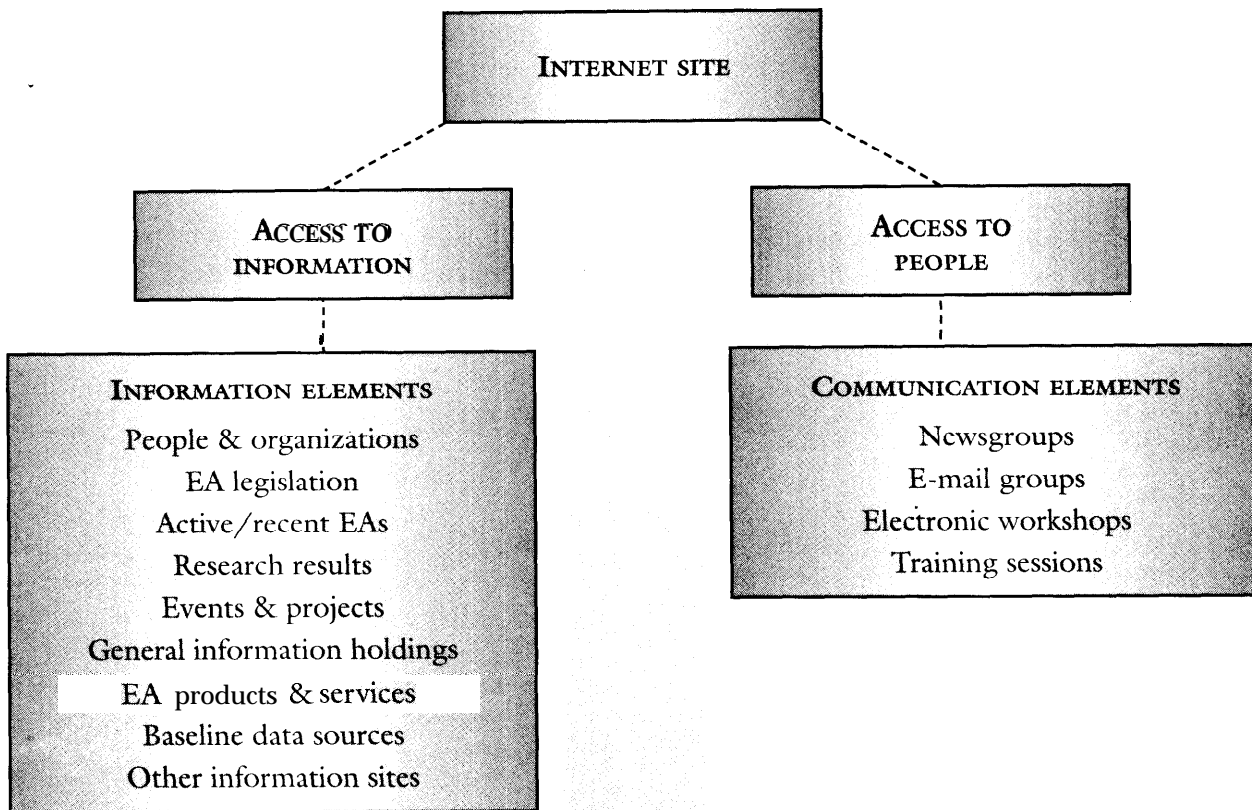
Following are proposed elements of the EA information component that could be made available on an Internet site:

- lists of key individuals and organizations involved in EA management, research, training and consulting;
- copies of EA legislation, policies and guidelines;
- information on active and recent EAs;
- progress reports of relevant research studies, projects and initiatives;
- listings of major events of interest to EA managers and practitioners, such as workshops, courses, seminars and conferences;
- information holdings, such as available EA publications, bibliographies, and training modules;
- summaries of EA services and organizations;
- listings of sources of available baseline data, experts and EA reports for use in conducting EAs; and
- listings of other relevant sources and sites of EA information.

FIGURE 2
Proposed Framework: 'Using the Internet to Access EA Information & Knowledge

INTERNET SITE

ACCESS TO INFORMATION

ACCESS TO PEOPLE

INFORMATION ELEMENTS
People & organizations
EA legislation
Active/recent EAs
Research results
Events & projects
General information holdings
EA products & services
Baseline data sources
Other information sites

COMMUNICATION ELEMENTS
Newsgroups
E-mail groups
Electronic workshops
Training sessions

Communication Component

Communication elements of an EA network could allow managers, practitioners and others interested in EA to communicate directly with one another in two ways:

- by e-mail, either on an individual basis, or within a restricted-access group, known as a "moderated list server group"; and
- through open-forum discussion groups (newsgroups) on specific topics, open to all interested persons.

E-mail services allows EA managers and practitioners to communicate with one another in a timely, convenient and relatively secure manner. E-mail messages can be sent to colleagues on an individual, as-needed basis. A more powerful communications tool is an e-mail membership group, moderated by one of the members, called a "moderated list server group." Messages can be sent at once to all or some members on the group's mailing list, depending on the user's selection (for example, the EA Summit participants, and the EA Effectiveness Study partners). In this way, EA managers and practitioners can obtain advice or feedback from colleagues from across the country or around the world on an urgent basis. They also can engage in a "virtual workshop" over a period of days or weeks on a topic of common interest, with members posting comments through the moderator.

Through Internet newsgroups, users can communicate directly with others interested in EA to exchange information, knowledge, ideas, and views on topics of common interest. Users can post a question, react to another comment, or contribute to an ongoing debate on a specific issue. Each newsgroups is moderated by an individual, who is responsible for entering new subscribers, posting messages received from subscribers, and generally managing the newsgroup in a professional manner. Individuals join, or "subscribe to" a newsgroup by sending an e-mail message to the appropriate moderator asking to be put on the newsgroup's mailing list. To contribute to a discussion, a subscriber e-mails a message to the moderator, who posts it for all subscribers.

As Internet software packages become more powerful, more interpersonal communication functions can be introduced, such as on-line, real-time electronic workshops and training sessions.

Implementation

1. Organization and Coordination

A global EA network could be established through informal, flexible agreements among national EA agencies and international organizations. The network could be designed as a series of "member modes" that are linked, in turn, to appropriate domestic sites. (See Figure 3).

Each participating agency and organization could develop its own Internet site, based on its own circumstances. Other relevant EA sites on the Internet could be added as "links" on these various sites, so that users could easily transfer from one country or organization to another. This capacity to move quickly and seamlessly from one site to another is one of the primary strengths of the Internet itself.
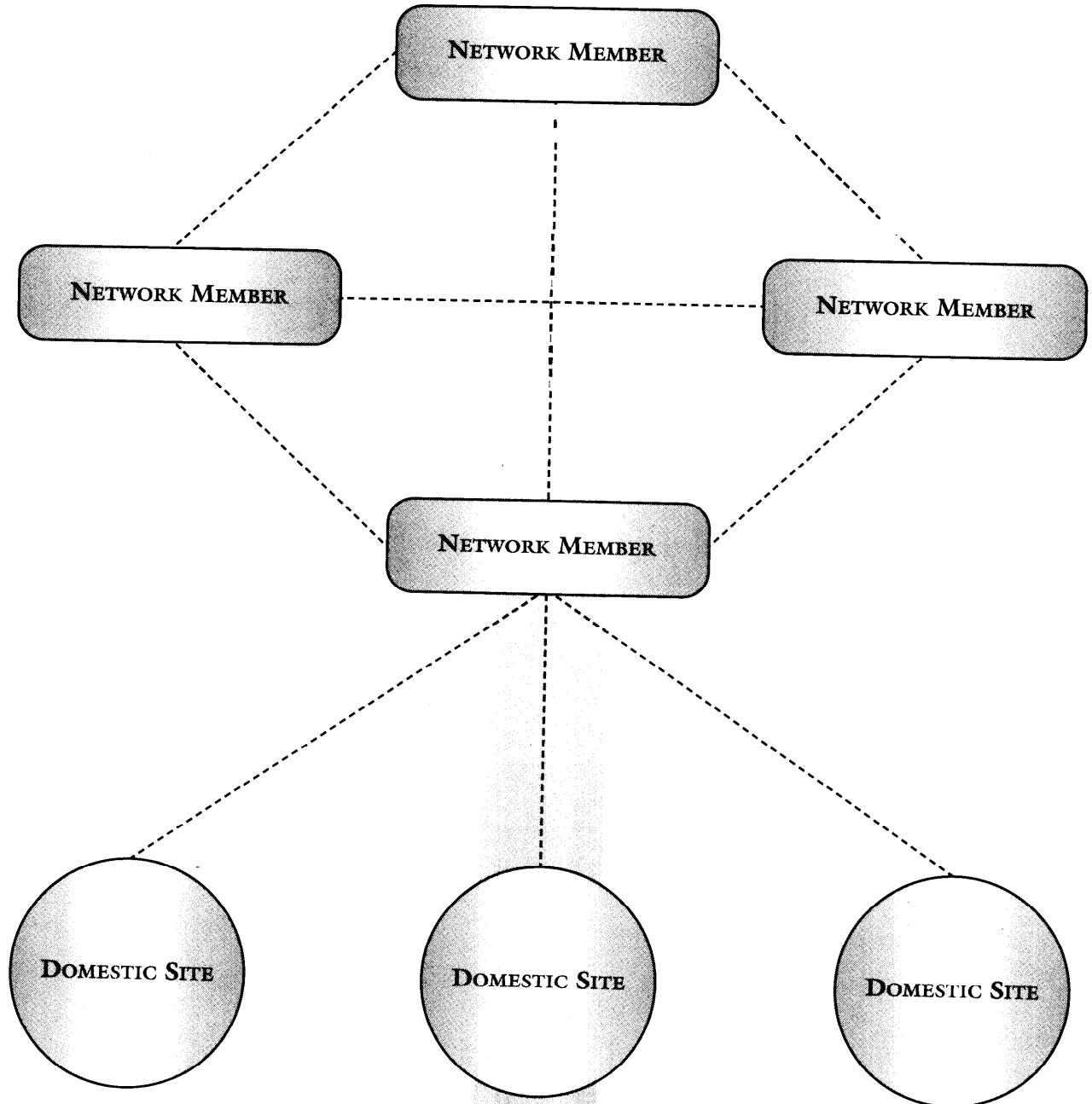
At the same time, there may be value in coordinating the work of various participating agencies and organizations to help save time and money, and help realize the potential for an EA network to contribute to EA capacity building efforts. A flexible yet coordinated approach, with common (or at least generally consistent) standards, could help reduce start-up costs for agencies interested in joining the EA network and help EA managers and practitioners locate the information or knowledge they need more quickly. In this regard, the simple framework proposed in this paper and the experience of Canada's CEAA may be of assistance (see following section).

For example, one agency or organization participating in the EA network could take on a coordinating role to help:

- establish the initial links among participating agencies and organizations;
- monitor the operations of the network to ensure that it is meeting the needs of EA managers, practitioners, researchers and educators;
- promote awareness of the network and help build membership to include other EA agencies and appropriate international organizations;
- develop some overall standards of consistency in the types of information provided and in the kinds of interpersonal communication elements offered;
- maintain a common directory service (or clearinghouse) for network members;
- coordinate specialized network activities, such as moderated list server groups; and
- monitor new software applications that could be introduced to the network.

FIGURE 3
Proposed Organizational Structure
for an International EA Network

NETWORK MEMBER

NETWORK MEMBER

NETWORK MEMBER

NETWORK MEMBER

DOMESTIC SITE

DOMESTIC SITE

DOMESTIC SITE

2.   Costs

The costs associated with establishing and operating an EA network are generally modest. One-time cost items will include computer hardware and software (for example, a dedicated computer, access to the Internet, and the related software), designing and producing the home pages for the site, "populating" the information elements, and establishing any special security measures.
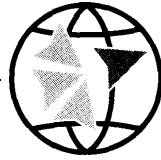
There will be on-going costs for maintaining the organization's Internet site – for example, keeping information holdings current, updating data on projects and events, moderating newsgroups or e-mail groups and ensuring accurate links to other EA sites. These costs will depend primarily on the scope of the organization's interests and responsibilities. A national EA agency, for example, may want to provide an extensive site, with considerable material on information holdings and legislation, with links to international, provincial/state and private sector sites and a number of newsgroups and list server e-mail groups. On the other hand, an international organization or a university-based EA center may want to establish a much more modest presence.

Costs associated with the overall management and coordination of the EA network will need to be either borne by one of the participating members on a volunteer basis or shared among all members.

3.   *security*

The use of the Internet implies a level of security comparable to that of many existing information exchanges such as facsimiles and telephones. Additional security measures are possible, such as passwords, membership-only mailing groups, and coding and de-coding software.

In general, however, the higher the level of desired security, the higher the costs to participants. National agencies and international organizations establishing Internet sites and newsgroups need to define their security needs at an early stage.

TOWARDS AN EA NETWORK:
THE EXPERIENCE OF THE CANADIAN
ENVIRONMENTAL ASSESSMENT AGENCY

This section outlines how the Canadian Environmental Assessment Agency (Agency) is developing its Internet site. Canada's experience may be of interest and value to other countries and international organizations interested in becoming part of an EA network.

Phase 1: Prototype Site

The Agency decided in early 1994 to establish an Internet site with information on EAs involving the federal government. Behind the decision was the new *Canadian Environmental Assessment Act,* which came into effect in January 1995. One of the primary objectives of the Act is to ensure that there be opportunities for public participation in the federal EA process. The Act requires that a public registry be established to facilitate public access to information related to EAs conducted under the new Act.[5]

The Agency decided to establish a public registry system to meet this obligation in a consistent and efficient way across government by means of a nation-wide, on-line electronic database. The database, called the Federal Environmental Assessment Index (FEAI) and managed by the Agency, would provide two levels of information: basic "tombstone" information about each EA, and information about the documents associated with those EAs.[6]

The Agency concluded that the FEAI should be made accessible in several ways, including an Internet site to take advantage of emerging information technologies. By establishing an Internet site for the public registry, the Agency would at the same time be able to provide information on the new legislation and on the Agency itself (established under the Act to replace the former Federal Environmental Assessment Review Office).

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5. Government of Canada, Statutes of Canada 1992, Chapter 37, An Act to establish a federal environmental assessment process, Bill C-l 3. See Preamble and section 55.

6. Government of Canada, Canadian Environmental Assessment Agency, December 1994, *The* **Responsible Authority's Filing System** *of the Federal* **Environmental** *Assessment Index:* **A User's Manual**

The Agency developed a prototype version of the on-line public registry and Agency home pages in cooperation with the Graduate Studies Research Office of Carleton University. The site went on-line during the spring of 1995'.

The Agency's prototype site was designed in line with the proposed framework outlined in this paper (see Appendix 2). Information is provided about:

- federal EA policies, legislation, regulations;
- the mission, organization and personnel of the Agency; and
- active EAs carried out by the federal government, through the public registry.

The prototype site did not include several of the information elements included in the framework (e.g. EA publications and reports, events, activities, links to other EA sites, products and services). Nor did the site include the communication elements of the proposed framework.

Phase 2: Towards an EA Network

The Agency initiated Phase 2 of its Internet project in 1995. The objective of this phase, to be carried out over several years, is to fully apply the framework outlined in this paper. The Agency believes that once completed, the expansion will make its Internet site the single most useful source in Canada for information and knowledge on EA. Essentially, its site will become the hub of an EA network that reaches across Canada and (to the extent that international sites are linked) around the world.

In Phase 2, the CEAA is exploring the feasibility of strengthening its Internet site in several ways. For example, it is investigating:

- the introduction of additional information elements to its Internet site, in line with the framework outlined in this report;
- the addition of appropriate domestic and international links to other sites on the Internet with relevant EA information, so as to create the beginnings of a true EA network for managers and practitioners;

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7.   The Internet address for the CEAA site is: http://www.ceaa.gc.ca

- the introduction of communication elements such as moderated list server groups of EA managers and EA newsgroups; and

- the application of new Internet software, such as video-conferencing and decision-support tools to further advance and promote the application of EA and capacity building efforts within the Agency, across Canada and internationally.

By enhancing its Internet site, the Agency also should be able to carry out its mandate more effectively. For example, the enhanced site should:

- allow the Agency staff to quickly contact other EA managers and practitioners for information and knowledge on practices, issues and emerging trends;

- increase the quality of the review of EA reports by public review panels and mediators by providing more ready access to domestic and international experiences, information, knowledge and case studies;

- allow the Agency to better meet Canada's transboundary EA obligations, such as notification and public involvement, under the United Nations ECE Convention on Environmental Impact Assessment in a Transboundary Context and under Article 10(7) of the North American Agreement on Environmental Cooperation;

- improve the Agency's response to queries and requests for information, including transferring large documents to any part of the world at little or no cost (e.g., environmental impact statements, research reports); and

- promote professional development among Agency managers and staff, through on-line training opportunities.

Over time, the Agency's site also could help strengthen the application of the federal EA process in Canada by facilitating a greater exchange of information and knowledge among EA managers, practitioners, proponents, the public and other involved in the process.

APPENDIX

Following is a list of Internet sites (as of Fall 1995) organized by national agencies and international organizations with a responsibility for or interest in environmental assessment:

National Agencies:

Australia: http://www.erin.gov.au/

Canada: http://www.ceaa.gc.ca/

Mexico: http://200.12.166.44/ (in Spanish)

Norway: http://www.statkart.no/md

USA: http://www.epa.gov/

International Organizations:

Earth Council: http://terra.ecouncil.ac.cr/

International Association for Impact Assessment (IAIA):
http://IAIA.ext.NoDak.edu/IAIA/

World Conservation Union (IUCN):
http://infoserver.ciesin.org/IC/iucn/IUCN.html/

United Nations Environment Program (UNEP):
http://www.unep.ch/

World Bank: http://www.worldbank.org/

APPENDIX 2
Home Page of the CEAA
site on the Internet

Federal Environmental Assessment in Canada

Federal Environmental Assessment in Canada is a prototype project, managed by the Canadian Environmental Assessment Agency. Its purpose is to assist the public in locating information about environmental assessment at the federal government level. Please send any comments, suggestions for improvement, or questions to aray@gsro.carleton.ca.
NOTE: Please notify if you intend to use this page as a link.

Français

Canadian Environmental Assessment Act and Regulations

Cabinet Directive on Policy and Program Assessment

Canadian Environmental Assessment Agency

The Public Registry System

NOTE : *This WWW* server *is Located at Carleton University, Ottawa, Canada.*

Canadian Environmental Assessment Act and **Regulations**

Please send any comments, suggestions for improvement, or questions to aray@gsro.carleton.ca.

Français

Main menu

Canadian Environmental Assessment Agency
Assessment Agency

Agence canadienne
d'évaluation environnementale

Canadian Environmental Assessment Agency

Welcome

The Canadian Environmental Assessment Agency is a national organization dedicated solely to administering and promoting environmental assessment policies and practices of the federal government. It reports directly to the Minister of the Environment and operates independently of any other federal department or agency. It replaces the Federal Environmental Assessment Review Office (FEARO)

Please send any comments, suggestions for improvement, or questions to aray@gsro.carleton.ca.

Français

Main Menu

The Canadian Environmental Assessment Agency – Description
The Canadian Environmental Assessment Agency – Mission Statement
Canadian Environmental Assessment Agency – Staff Directory
Legislation
Participant Funding Program
Public Registry System

Document for Public Consultation :
Canada-British Columbia Agreement for
Environmental Assessment Cooperation

Information Holdings
Agreement Between the National Energy Board and the Minister of the Environment
Concerning Joint Establishment of a Review Panel for the Express Pipeline Project
The Citizen's Guide
1. Environmental Assessment
2. Your Participation in the Process
3. Four Types of Environmental Assessment
4. Public Registry
5. The Participant Funding Program
Glossary
Responsible Authorities Guide
Return to "Federal Environmental Assessment in Canada" Home Page

Public Registry System

Canadian Environmental Assessment Act

This is a prototype World Wide Web Server, managed by the Canadian Environmental Assessment Agency. It is a system to provide the public with convenient access to information related to environmental assessments carried out by the federal government under the ***Canadian Environmental Assessment Act.***

Francais

Main Menu

What is the Public Registry System?

Federal Environmental Assessment Index (FEAI)

For Agency support contact aray@gsro.carleton.ca.

Return to "Federal Environmental Assessment in Canada" Home Page

NOTE *: This WWW server* **is located at _Carleton University_, Ottawa, Canada.**

Federal Environmental Assessment Index

Francais

The Federal Environmental Assessment Index (FEAI) is a master list of all the environmental assessments carried out under the Canadian Environmental Assessment Act that have been registered by responsible federal authorities. The index also provides contacts with each assessment in order to provide the public with an opportunity to obtain further information.

Main Index

What is the Federal Environmental Assessment Index?

Locate Environmental Assessments by Province or Territory

Locate Environmental Assessments by Responsible Authority

Locate Environmental Assessments by Drainage Region

Locate Environmental Assessments by Ecozone

Return to the "Public Registry System" Home Page

FOR MORE INFORMATION

The literature on the application of the Internet to the needs of businesses and governments is growing as rapidly as the use of the Internet itself. Following is a sampling of recent publications that might be of interest to those involved in an EA network:

Akhtar, Shahid, *"Who will be Driving on the Global Information Highway?"*, Natural Sciences (Canadian Commission for UNESCO), July 1995, pp. 10- 12

Fabian, Robert, *"'Business Information and the Internet", CMA* Magazine, November 1994, pp. 9-13

Government of Canada, Canadian Environmental Assessment Agency, December 1994. *The Responsible Authority's Filing System of the Federal Environmental Assessment Index: A User's Manual*

Government of Canada, Canadian Environmental Assessment Agency, April 1995. *Update: The International Study of the Effectiveness of Environmental Assessment.*

Government of Canada, Federal Environmental Assessment Review Office, December 1994. *International Summit on Environmental Assessment: Final Report*

Government of Canada, *Statutes of Canada 1992, Chapter 37, An Act to establish a federal environmental assessment process* (bill C- 13)

Nelson, Scott, 1994, "*Computer Networks in Public Consultation Programs*", in Constructive Citizen Participation, June, v.22, No. 1

Nonaka, I. and TAKEUCHI, H., 1995, *The Knowledge-Creating Company: How Jupunese Companies Create the Dynamics of Innovation* (Oxford University Press)

Thomas, Grant, 1992, *"Knowledge as an asset - a view from industry"*, Journal of Computer Assisted Learning, v.8, No. 3, 131-35

Young, John E., 1993, *Global Network: Computers in a Sustainable Society,* Worldwatch Institute