

ENVIRONMENTAL DAMAGE ASSESSMENT - CANADIAN STYLE

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ABSTRACT: *Damage Assessment involves evaluating and monetizing damages for compensation purposes. This process is meant to compliment enforcement activities by providing a framework for securing funds for restorative and prevention measures. In recognition of the growing need to address the issue of restoration of and compensation for environmental damages incurred as a result of pollution incidents Environment Canada has undertaken an initiative to develop and implement a national approach to environmental damage assessment and restoration. This paper will describe the steps taken by Canada to establish a practical framework for an environmental damage assessment/restoration process. It will highlight steps taken to reach consensus and to educate stakeholders, identify available legal instruments, describe development of guidelines/protocols for scientific assessment as well as the mechanism for decision making.*

Introduction

Damage assessment involves evaluating and monetizing environmental damage for compensation or restoration purposes. Having the responsible party compensate for such damage reinforces the “polluter pays principle”, a cornerstone of Canada’s approach to spill response. It ensures that the polluter takes responsibility for their actions, promotes stewardship of our environment and enhances preparedness and compliance promotion. Compensation for environmental damages has been recognized as a legitimate cost of doing business; international conventions have been modified to be more receptive to such payments.

In recent years the Government of Canada has undertaken initiatives to improve emergency prevention, preparedness, response and restoration capabilities. In keeping with these initiatives the Environmental Damages Fund (EDF), a special holding or trust account, was established to manage funds received as compensation for environmental damage. These funds may come in the form of court orders, out-of-court settlements, voluntary payments and other awards provided by various international liability funds. The purpose of any contributions to the Fund, whether ordered or voluntary, is to remediate damages to the environment in a cost effective way, in accordance with conditions specified by the courts or other compensation regimes. This may include the assessment or research and development work required to support such restorative efforts.

When an incident occurs that results in damages to the environment, the courts can use a number of pieces of federal environmental legislation, such as, the Canadian Environmental Protection Act, the Fisheries Act, the Migratory Birds Convention Act, the Canada Wildlife Act, and the Canada Shipping Act to direct awards to the EDF from responsible parties. Provincial environmental legislation may also be used to contribute to the Fund.

Financial administration of the Fund establishes criteria for both applicants and decision-makers. Fund recipients are held to these standards to ensure restoration projects are carried out in a cost-effective, technically feasible and scientifically sound manner. The Fund allows monetary carry-over of government fiscal years and is audited to ensure compliance with the terms under which the fund was established.

Each of the awards directed into the EDF are accounted for separately so that monies will only be used to fund projects in the region/community where the offense has occurred. As a custodian of the fund, Environment Canada is committed to consulting and building on partnerships with other stakeholders in achieving common goals and objectives regarding the remediation and restoration of environmental damages.

Eligible recipients include non-government organizations (e.g. community-based environmental groups), aboriginal groups, universities, provinces, territories and municipalities.

Community organizations and environmental groups often play a key role in designing, and undertaking restoration projects. Such groups are normally comprised of members with excellent knowledge of local conditions, environmental issues and resources and are experienced in planning and implementing restoration and environmental quality improvement projects. They also have access to a wide range of scientific and technical expertise. In addition, they generally have a vested interest in maintaining the quality of the environment in their area.

Canadian framework for assessing and restoring environmental damages

The overall EDF framework is depicted in Figure 1 below.

Assessing damage. The initial trigger for implementing assessment activities occurs when an incident is first reported or observed. At this time, it is important to obtain as much relevant information as possible:

- when and where the event occurred (characterize the environmental setting);

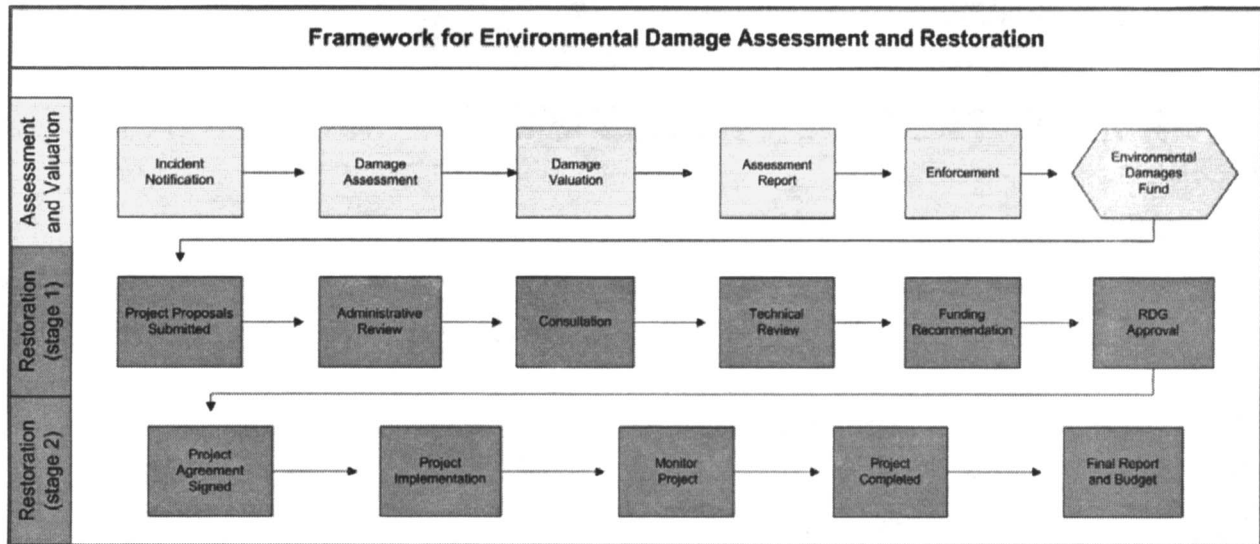


Figure 1. Environment Canada's environmental damage assessment and restoration framework.

- identify the product(s) involved; its physical, chemical and toxicological properties;
- identify the volume released to the environment; and
- determine the potentially impacted components of the ecosystem (i.e. species at risk).

Based on this preliminary information, more detailed field and laboratory investigations and monitoring may be warranted, specifically aimed at the following:

- ensuring appropriate short-term remedial actions are being implemented;
- supporting enforcement and evidence gathering activities;
- determining the long-term fate and effects of contaminants released into the environment;
- documenting the damage which has been caused; and
- ensuring data is gathered in a manner that is accurate, comprehensive, and
- scientifically defensible.

Valuing damage. Once damage has been measured, there is a need to place a value on the losses or environmental impacts. While a wealth of literature on economic valuation of environmental resources and ecosystem services is available, very little information exists on the use of valuation in environmental damage assessment. To fill this void, Environment Canada is developing models and protocols for conducting this type of economic valuation. These activities serve as a first step in determining economic value, and will rely heavily on case studies, peer review, and input from fellow practitioners.

Restoring damage. Restoring the damage caused by a spill or release is an integral component of the EDA process. The intent is to replace or restore the damaged ecosystem components, or enhance natural recovery. As noted earlier community organizations and interest groups can play a key role in designing and undertaking restoration projects.

Environmental Damages Fund. Following the original establishment of the EDF Environment Canada hosted a workshop with key stakeholders from relevant provincial and federal departments as well as industry to reach consensus on a practical design and implementation strategy (Duerden and Keane, 1997). As a component of this strategy a review of environmental damage assessment and restoration procedures in

other jurisdictions was undertaken to determine their application to the Canadian situation (Campbell, E., 1999). In addition sampling protocols were developed (Keenan, R., 2001) and case studies assessed (MacDonald, K., 2000). A simplified approach for valuing injuries from small petroleum spills was also prepared (Clement, P., 2000).

Project proposals' selection criteria and review procedures.

To access money from the Fund, community groups and others apply by submitting project proposals which include the following information:

- *project title*;
- *problem statement*: background/description/scope;
- *project objectives*: what are the goals of the project? What will be achieved?
- *work tasks*: itemize and describe project work tasks;
- *output and deliverables*: milestones and completion dates;
- *project organization*: identify the project coordinator (financial responsibility),
- *personnel* (roles, experience, qualifications), partnerships;
- *proposed budget*: personnel costs, equipment, supplies, travel, other contributions (in kind and matching funds)

General fund criteria. Project proposals submitted to Environment Canada should satisfy the following general requirements:

- satisfy all conditions stipulated by the court;
- build on partnerships with other stakeholders in achieving common goals/objectives regarding remediation and restoration of damages to the natural environment;
- satisfy evaluation/technical review criteria;
- be cost effective in achieving goals, objectives, and deliverables;
- recipients must possess the necessary knowledge and skills required to undertake the project;
- have broad community support;
- be approved by the Regional Director General, Environment Canada, Atlantic Region.

Exclusions. Generally, the following types of projects or activities are not eligible for funding from the Environmental Damages Fund:

- containment and clean-up of spills
- infrastructure, especially related to municipal, provincial, and federal program areas;
- expenses relating to ongoing operational and administrative activities of an organization;
- projects already underway, or maintenance of previously funded projects;
- activities required under Acts or Regulations, or that are the mandated responsibility of any level of government;
- formal curriculum materials for schools;
- recreation and tourist projects;
- beautification activities;
- restoration of pre-existing contaminated sites; and
- expenses to attend workshops.

Damages fund restoration project objectives and selection. Projects will be prioritized according to the degree to which they restore the services lost in the natural environment. Four categories of projects have been identified as follows, starting with the highest priority:

1. Restoration:
 - Priority 1: restore same type of natural resources lost, same quality, and value in the locale in which the incident occurred;
 - Priority 2: restore same type of natural resources lost, same quality and value in another locale.
 - Priority 3: restore same type of natural resources

lost, but of different quality in the locale where the incident occurred.

2. Environmental quality improvement projects:
 - Priority 4: restore different natural resources in the locale;
 - Priority 5: restore environments which have previously been degraded by pollutant discharges, or other human induced alterations (eg. tidal barriers, dike land), but not completely restored.
3. Research and development relating to environmental damage assessment and restoration:
 - Priority 6: develop environmental damage assessment and natural resource restoration techniques;
 - Priority 7: investigate methods for improving and refining techniques for containment, abatement, and removal of pollutants from the environment;
 - Priority 8: develop environmental risk assessment methods and pollution prevention technology.
 - Priority 9: investigate the long-term effects and cumulative impacts of pollution discharges on natural environments.
4. Education related to pollution prevention and environmental quality improvement:
 - Priority 10: promote environmental damage awareness;
 - Priority 11: promote natural resource restoration and environmental quality improvement (eg. workshops, environmental management plans).

Table 1. Factors considered in a technical review.

Criteria	Factors to Consider
*Priority 1	<i>Restoration</i>
*Priority 2	<i>Environmental Quality Improvement</i>
*Priority 3 or 4	<i>Research and Development or Education</i>
Project Purpose	<ul style="list-style-type: none"> • Has the environmental problem(s) been clearly identified and discussed? • Has sufficient background information been provided? • Will the project demonstrably restore or improve the environment? • Are the short and long term benefits of the project to the environment described? • Are possible adverse impacts of the project identified and are ways to mitigate impacts proposed?
Methodology	<ul style="list-style-type: none"> • Are the methods to be used appropriate and technically feasible? • Has a sufficient level of technical detail been provided? • Is a monitoring component included to help assess project success? • Have all necessary regulatory permits been acquired? • Has the proponent sought and obtained input/expertise and approval from appropriate municipal, provincial or federal stakeholders? • Has the proponent considered if a provincial or federal Environmental Assessment is required?
Deliverables	<ul style="list-style-type: none"> • Are project work tasks clearly itemized and described? • Are project milestones (timelines) clearly stated? • Has the proponent indicated if a final report will be provided? • Will project outputs be communicated to the public (brochures, posters, news releases etc.)? • Is EDF support acknowledged in project communication products?
Partnerships	<ul style="list-style-type: none"> • Does the project build on stakeholder partnerships? • Does the proponent demonstrate that the project has broad-based community support? • Are letters of support provided?
Applicant's Background	<ul style="list-style-type: none"> • Is the project team identified? • Does the project team have or have access to the knowledge, expertise and experience needed to undertake all facets of the project?
Budget	<ul style="list-style-type: none"> • Is there sufficient budgetary detail? • Is the project cost-effective? • Are all cost items reasonable?

Technical review. Proposals are then circulated to a multidisciplinary review team, who undertake a technical review.

The technical review will include consideration of the following factors:

Project approval. Once the review requirements have been satisfied, an overview is prepared which summarizes the details of the project, including any special conditions relating to the approval. Once approved by the Regional Director General of Environment Canada, the overview authorizes the preparation of a contract and the expenditure of money from the Fund.

Project implementation. The contract is signed by the proponent and the Departmental Signing Authority; project implementation can then begin. Environment Canada and its partners monitors the project to ensure that the restoration objectives are satisfied.

Conclusions

This paper has described the steps taken by Canada in recent years to establish a practical approach to the assessment and restoration of environmental damages.

Bibliography

Roger Percy is currently the Environment Canada Regional Environmental Emergency Coordinator for the four Atlantic provinces. He has over 25 years of experience in managing oil and chemical spill responses. He led the Canadian team of environmental experts deployed to assist during the Persian Gulf oil spill. He chairs the Atlantic Region Environmental Emergency

Team which played an important role in the response to many incidents, including the recovery of Swissair 111 and the sunken barge Irving Whale. He has been the national lead for establishing an Environmental Damages Process for Canada.

References

1. Duerden and Keane, Assessment and Restoration of Environmental Damages in the Atlantic Region, Duerden and Keane Consultants, Dartmouth, NS, 88p., 1997.
2. Campbell, E., "Damage Assessment and Restoration Framework" in Applying Environmental Damage Assessment and Restoration Tools in the Atlantic Region. Corporate Affairs Branch, Environment Canada, Dartmouth, NS, 1999,
3. Keenan, R. Field Sampling Protocol for Water, Sediment, Macroinvertebrates and Fish. Southeast Environmental Association, for Environment Canada, Dartmouth, NS, 42p., 2001.
4. MacDonald, K., Dewis S, Hennigar P., Percy R., Boyce D., and Sawyer D., "Application of Environmental Damage Assessment and Resource Valuation Processes in the Atlantic Region" in Proceedings of the 43rd Annual International Conference of the Association for Great Lakes for Great Lakes Research., Cornwall Ontario, May 2000.
5. Clement P. A Simplified Approach for Valuing Environmental Injuries from Small Petroleum Spills in Coastal Environments .,in conference ,proceedings of the Arctic and Marine Oil Spill Program June, 2000.