

On the Sequence of Disaster-Focused Environmental Impact Assessments¹

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Introduction

The past decade has seen a significant increase in awareness of the links between disaster impact and environmental conditions. The current, leading edge, understanding of disaster-environment linkages:

- Recognizes the complexity of these linkages,
- Sees the comprehensive understanding of disaster-environment issues as a critical requirement for effective disaster management, and,
- Anticipates that possible environmental damage associated with a disaster can be reduced through the use of assessment results.

In parallel, there has been an increase in the number and scope of tools and procedures available to environmentalists and disaster managers to identify, scope and define the impact of disaster-environment linkages before, during and following a disaster. Yet the use of these tools, their further development and the development of additional tools remains an ad hoc and uncoordinated process. This paper seeks to contribute to a better coordinated development and use of existing and new tools by:

- Laying out what tools are currently available and in development, and,
- Identifying key issues which affect the use of existing and new tools.

Disaster-Focused Environmental Impact Tools

Before the 1990s, there were no formal disaster-focused environmental impact assessment tools available. Disaster-related environmental impact assessments which were done were generally based on normal (non-disaster) environmental impact assessment (EIA) procedures, or addressed multiyear disasters, such as the locust crisis in Africa in the late 1980s and early 1990s. However, the procedures on which a normal EIA operates do not provide useful and reliable results in disasters, particularly quick-onset events.

Refugee crises in the mid-90s, and particularly Rwanda/Tanzania/Congo and Liberia/Sierra Leone/Guinea situations, raised concern about the impact of refugees on the environment. These concerns led to the development of a set of procedures and tools to identify and address these impacts. This effort was led by UNHCR and continues today.

In parallel, the Rapid Environmental Impact Assessment in Disasters (REA) Project² began to develop and test disaster-focused environmental impact assessment procedures. The REA process was designed to be applicable to any type of disaster and focus on winnowing down a wide variety of possible environment-disaster linkages to those most salient and critical for emergency relief operations. The REA continues to evolve based on field use.

¹ This paper is based on **Getting Better With Age? Rethinking Rapid Environmental Impact Assessment in Disasters**, June 1 2005, IAIA Meeting, Boston, and **Concept Note: Sequencing Post-Disaster Environmental Impact Assessment**, June, 2005, both by the author.

² The REA project is a collaboration of CARE International and Benfield Hazard Research Centre, Univ. College London. See http://www.benfieldhrc.org/rea_index.htm.

A third track in the development of disaster-specific assessment tools was led by the UN Economic Community for Latin American and the Caribbean (ECLAC). From an initial focus on quantifying the economic damage of disasters, ECLAC's efforts led to the **Handbook for Estimating the Socio-economic and Environmental Effects of Disasters**³, updated in 2003 from a 1991 version to include consideration of the environment. The use of the ECLAC handbook is expanding outside the original Western Hemisphere focus.

The last few years, and particularly following the 2004 Asia tsunami, have seen an increase in the number and application of disaster-focused environmental impact assessment tools. The table below sets out the "state of the art" with respect to the tools currently available or in development. The table includes summary information on when each tool can come to play after (or before) a disaster, the assessment process, and the expected results and outputs. Notes on the development or use of each tool are also provided.

The table focuses on formalized assessment procedures and does not include ad hoc environmental impact assessments which have been made following some disasters. The table is not a comprehensive description of the tools available and does not include documents which specifically deal with how to address environmental issues following a disaster.

The table substantiates a view that:

- There are a good number of assessment tools available,
- There may be some overlap between tools, but,
- There is a clear sequence from one tool to another, and
- The range of tools available or in development means there should be more than enough disaster-focused assessment results available to shape emergency relief and recovery efforts.

It is worth noting that ad hoc disaster-focused environmental impact assessments have also become more common over the past decade. These efforts are commendable, not the least because of the attention they may call to environmental issues during recover operations.

However, ad hoc assessments are often issue-driven (e.g., focusing specifically on coral reefs) and not based on a standardized and replicable assessment protocol. As a result, ad hoc assessments often are limited in scope and cannot be replicated to assess changes over time in post-disaster environmental conditions. Replicability is important in monitoring and evaluating the accomplishments of disaster response activities with explicit or implicit impacts on the environment.

The Challenges

There are a number of challenges which are need to be address in using the disaster-focused environmental impact assessment tools to avoid or mitigate negative environmental disaster and post-disaster assistance impacts. The first challenge revolves around deciding **which tools should be used in a specific disaster**. It is unlikely that all the listed tools should or need to be used in every disaster.

The process of selecting which tool to use, or how to use individual tools should be based on the following considerations:

³ United Nations, Economic Commission for Latin America and the Caribbean (ECLAC) and International Bank for Reconstruction and Development (The World Bank), 2003.

- **Scale:** The larger the disaster the more likely a full set environmental assessment tools would be needed.
- **Nature and scope of a disaster:** In “technological” disasters, assessments would likely focus on specific aspects of the event (e.g., chemical contamination), while a large earthquake would receive attention for a full range of tools.
- **Capacity of the affected country:** A country with highly competent disaster response and environmental assessment capacities would need to apply fewer tools and the assessment process would be less autonomous of national institutions than a country without these attributes.
- **Policy focus of assisting organization:** There is a contrast in assessment approaches pursued by a NGO focused on a participatory approach of working with disaster survivors and the highly technological approach of a specialized international organization.

The second challenge is the question of ***whether more tools, or more variations of existing tools, are needed***. The range of variations on the basic (non-disaster) environmental impact assessment process has been increasing, and now include social impact assessment and health impact assessments. Each of these variations could, conceptually, be addressed through a comprehensive EIA. But the variations have developed because EIAs are not (usually) conducted to consider these more specific concerns.

Do disaster-focused environmental impact assessments need to develop more variations to address specific situations? Do the existing tools suffice for the broad purpose of providing essential input into disaster relief and recovery activities? In other words, is the sequence of tools set out in the table below adequate or are there gaps to be filled?

These questions need to be considered in the context where disasters provide limited time to conduct assessment and little data on which to base assessments. Additional tools may simply not be used because there is no time, personnel or data for the additional work required. Forcing the use of unnecessary tools will waste limited resources and produce unused results.

This leads to the third challenge, ***the integration of disaster-focused environmental impact assessment tools into other assessments***. A critical task following a disaster is to collect information on the impacts to guide relief and recovery efforts. At times, it can appear that all that is being done after a disaster is assessments, with no real relief being provided to the disaster survivors.

The realities are that accurate and broad assessments are needed for accurate and appropriate assistance. But the plethora of assessments usually conducted after a disaster result in competition for scarce resources and limited attention for the results of individual assessments.

Overall, a more comprehensive and prioritized approach is needed to post-disaster assessments. For disaster-focused environmental impact assessments, the challenge becomes:

1. How to integrate these assessments into other non-environment focused assessments,
or
2. How to subsume other assessments into the environmental impact assessment process.

This latter approach is not as crazy as it may seem. Environmental impact assessments are broad, cross-sector efforts which look at and generate results covering a variety of sectors. Such an assessment can cover more than one sector with one assessment process. For

instance, data collection needs of a water and sanitation can be incorporated into a rapid environmental impact assessment, effectively serving two masters with one tool.

Finally, the disaster-focused environmental impact assessment process faces the challenge of ***ensuring the results of the assessments are used, and used properly***. Rarely in post-disaster recovery is there a stand-alone environment assistance component. Environmental issues tend to be integrated into other relief and recovery efforts, but often in an incomplete or not-well-designed manner.

The last four years have seen a considerable increase in post-disaster environmental impact assessments and reports. Yet the impact these reports have had on actual relief and recovery operations is unclear. Circumstantial evidence suggests the assessments and reports have had at least localized positive impacts. But it is also clear that some recommendations have not been acted on, or actively ignored.

Thus, the link between assessment and action needs to be strengthened. This may mean fewer assessments, with more specific recommendations linked to sectoral (e.g., water, shelter, livelihoods) requirements, will be more effective than more assessments with more recommendations. Also, existing assessment methods may need to be better fine tuned to a particular disaster or assistance organization.

Finally, it may be necessary to lower the profile of the environment in the assessment and response process. This does not mean ignoring environmental issues but integrating ways to address these issues into other relief operations. For instance, this may mean addressing a debris problem as a livelihood support program through environmentally sound collection and disposal procedures, as was done in Sri Lanka after the tsunami, rather than trying to create a separate debris clearance program.

This indirect approach fits well with the idea of the environment as an integral part of each sectoral response. The approach also recognizes that in most disasters, maximum results need to be extracted with limited resources.

Given the challenges summarized above, the next steps to improve the impact of disaster-focused environmental impact assessment tools are to:

- Better integrate (“sequence”) the existing and in development tools, and,
- Develop a better Integration of assessment results into relief and recovery operations.

Disaster-focused Environmental Impact Assessment Tools

Approach or Document	Initiation following notice of disaster	Process	Results Available	Output	Notes
Natural Hazard Environmental Impact Assessment	Conducted before a disaster.	Normal Natural Hazard EIA process drawing from other assessment results.	90 days	Identification of disaster-related environmental issues with impact on recovery and longer term development	<ul style="list-style-type: none"> • Focused on impacts of the environment in the recovery efforts. • At present, only conducted in the Caribbean by the Caribbean Development Bank.
Fast Environmental Assessment Tool	Hours	<ol style="list-style-type: none"> 1. Rapid geographical comparison of know hazardous sites with disaster area. 2. Dispatch of skilled personnel and materials to disaster for rapid interventions 	Hours to 3 days.	Identification of likely or known major environmental incidents, e.g., chemical plant fires.	<ul style="list-style-type: none"> • In development by the Joint UNEP/OCHA Environment Unit, Geneva.
Guidelines for Rapid Environmental Impact Assessment in Disasters (REA)⁴	Days	<ol style="list-style-type: none"> 1. Assessment of relief staff perceptions of impact. 2. Assessment of survivor perceptions of impact. 3. Consolidated analysis 4. Review of procurement. 	2-10 days	Identification of perceived salient environmental issues related to immediate relief and recovery operations.	<ul style="list-style-type: none"> • Initial results available in 1-2 days. • Completing all REA steps is not necessary to initiate action. • Input from survivors a critical of the assessment. • Generates initial scoping of environmental issues related to disaster and recovery process. • Can be done by non-experts. • Linked to relief and short term recovery activities.
Framework for Assessing, Monitoring and Evaluating the Environment in Refugee-related Operations (FRAME)⁵	Days to months	<ol style="list-style-type: none"> 1. Environmental impact assessment. 2. Rapid Environmental Assessment (focused on early stages of camp establishment). 3. Community Action Planning. 	Days to weeks.	Identification, monitoring and management of environmental impacts associated with refugee camps.	<ul style="list-style-type: none"> • Developed and being tested by UNHCR • Comprehensive package of tools focusing on refugee camps and resettlement. • Covers assessment and addressing issues identified. • Applicable to any displaced population living in camps or informal settlements.

⁴ Developed by under the Rapid Environmental Impact Assessment Project. See http://www.benfieldhrc.org/disaster_studies/rea/rea_index.htm.

⁵ The FRAME tool set includes a procedure entitled Rapid Environmental Impact Assessment, but which is different from the REA Project Rapid Environmental Impact Assessment process.

		<ol style="list-style-type: none"> 4. Environmental Indicators 5. Geographical Information System. 6. Evaluation 			<ul style="list-style-type: none"> • Requires experts for some components. • Other UNHCR tools on similar topics also available (see http://www.unhcr.ch/cgi-bin/texis/vtx/home?page=PROTECT&id=3b94c47b4). • Beta version available at http://www.benfieldhrc.org/disaster_studies/rea/rea_index.htm
Guide to Identifying Critical Environmental Considerations in Emergency Shelter ⁶	Days to week.	A checklist-based approach to identify possible environmental impacts of the siting, construction, management and decommissioning of emergency shelter sites.	Hours	Identification of environmental issues which need to be addressed in constructing emergency shelter.	<ul style="list-style-type: none"> • Off-shoot of REA work in Sri Lanka and earlier housing impact guide developed for Latin America. • Includes consideration of future impact of shelter efforts, include decommissioning. • Designed for non-expert use. • Intended to both review plans and identify ways to improve existing shelter sites (i.e., “upgrading”).
Handbook for Estimating the Socio-economic and Environmental Effects of Disasters ⁷	Weeks	Identification and quantification of the physical and economic impact of the disaster.	14 to 21 days for initial results.	Quantification of level of damage to society, economy and environment.	<ul style="list-style-type: none"> • Data intensive. • Can be “front loaded” by collecting baseline data before the disaster. • Output oriented toward damage assessment and planning for recovery policies and funding. • Requires experts (some likely to be available locally). • Linked to longer term recovery and rebuilding activities. • A similar procedure used by the Organization of Eastern Caribbean States.
The Common Guidelines and Methodology for Rapid Field Assessment ⁸	Weeks	Collection of data on physical and livelihoods impact of the disaster.	14 to 30 days	Quantification of level of damage to environment and linked livelihoods in specific locations	<ul style="list-style-type: none"> • Piloted in Sri Lanka by IUCN. • The most formal of a number of ecology impact assessment efforts in Sri Lanka.
Brown/Green Assessment	Months	Quantification of physical impacts of disaster on	30-60 days depending	Quantification of negative environmental damage linked to	<ul style="list-style-type: none"> • Focuses on documenting environmental conditions following disaster.

⁶ See http://www.benfieldhrc.org/disaster_studies/rea/rea_index.htm

⁷ ECLAC, op. cit.

⁸ The World Conservation Union/IUCN, 2004.

(environmental impact on the natural [green] and built [brown] environments		“biological” and “human-made” environments based on rigorous sampling process and testing.	scale of data collection and depth of analysis	the disaster.	<ul style="list-style-type: none"> • Piloted in Sri Lanka. • Developed with UNEP support. • Requires experts. • For site-specific or technological disasters, Brown/Green would be replaced by operational assessment and monitoring.
Post Disaster Environmental Impact Assessments	Months	Normal EIA process but drawing from other assessment results.	90 days ⁹	Identification projected of positive and negative outcomes of recovery programs	<ul style="list-style-type: none"> • Not uniformly conducted for post-disaster recovery efforts. • Tends to focus on the impact of the recovery effort on the environment.

⁹ This period can be shortened if pre-disaster environmental impact assessments can be used as a baseline to assess new impacts.