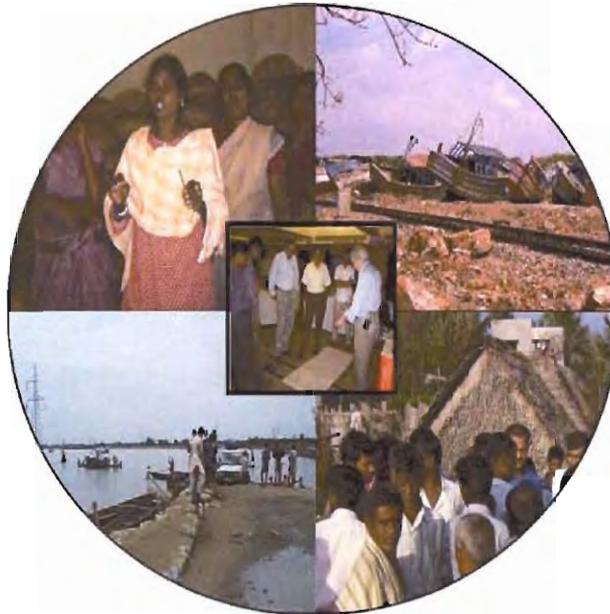




Rapid Environmental Impact Assessment in Disasters



Participant Workbook

updated April 15, 2005

accompanies REA Workshop & Simulation
designed by

InterWorks LLC

For CARE International with USAID funding



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REA Chennai workshop presentation photos, January 2005.

see p. 13

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Disaster management Expert - since late 1980s

Haiti, Tanzania
Indonesia
~60 countries

Workshop Agenda

Day 1

Time	Trainer	Sessions
12:30		1.1 Welcome and Introduction. Participant experience and overview of the workshop and agenda.
13:30		1.2 REA Conceptual Framework. Overview of the REA process, REA objectives, outcomes, users and the eleven-step assessment process. Introduction to the four REA modules and their objectives. .
14:30		Coffee Break
14:45		1.3 Overview of Disaster Management: Overview of disaster management concepts, terminology and activities.
15:30		1.4 REA and Disaster Assessments An overview of rapid disaster assessments and where REA fits into the broader types of disaster assessments.
16:00		1.5 Module Four: Green Review of Relief Procurement. The definition and concept of green procurement, and introduction of the checklist
16:45		End of Day 1

Day 2

Time	Trainer	Sessions
8:45		Review of Day 1. Plan for Day 2.
9:00		2.1 Module One: Context statement. The purpose, process and outcome for this element. Introduce each of the seven questions and describe how each one is addressed and answered. View a sample context statement (Exercise will be integrated into the Simulation Launch)
9:30		2.2 Form 1: Factors influencing environmental impacts: Introduce the objective, the form and process for this element. Also brief explanation of rating scales. (Exercise will be integrated into the Simulation Launch)
10:00		2.3 Simulation Launch: Form groups, present and review disaster scenarios & background notes, launch the first two simulation exercises (SimEx 1 and SimEx 2)
12:00		Lunch
13:00		2.4 Presentations / Discussions Groups present their results from SimEx 1 and Sim Ex 2 and facilitator responds to questions or comments related to the Context Statement and Form 1.
13:30		2.5 Form 2: Environmental Threats of Disasters: Introduce the objective, the form and process for this element. Explain shortcut to filling out form. Exercise: fill out Form 2 based on original situation report and situation update #1.
14:30		Coffee Break
14:45		2.6 Form 3: Unmet Basic Needs: Introduce the objective, the form and process for this element. Exercise: fill out Form 3 based on original situation report and situation update #2
16:15		2.7 Participant Experience Sharing. Participants present short prepared case studies.
17:30		End of Day 2

Day 3

Time	Trainer	Sessions
8:45		Review of Day 2. Plan for Day 3.
9:00		3.1 Form 4: Negative environmental consequences of relief activities. Introduce the objective, the form and process for this element. Exercise: fill out Form 4 based on original situation report and situation update #3.
10:15		Coffee Break
10:45		3.2 Presentation / Discussion. Participants present results of their work on Rating Forms 2, 3 and 4.
11:30		3.3 Module Two: Community Level Assessment. Why and how the REA is implemented at the community level, including information collection options as well as “questionnaire versus focused discussion.” Exercise A: Discuss and create a list of guidelines for conducting a rapid community assessment based on REA issues. Exercise B: Tabulate prepared Community Level Assessment Forms.
12:00		Lunch – Including Exercise A (Working Lunch)
13:30		Exercise B: Tabulate Community Level Assessment Forms.
13:55		Review of Exercise A and B
14:05		3.4 Module Three: Consolidation and Analysis: Introduction & Procedures. The purpose, process and outcome for this module, followed by application exercise
14:25		Consolidation and Analysis: Team Exercise (including coffee)
15:25		Presentation and Discussion
16:05		3.5 REA implementation issues. Discussion of resource and time requirements, possible modifications to the rating forms and other logistical / management concerns..
16:15		3.6 Evaluation and Review of three days
16:30		End of Day 3

Workshop Facilitator

Charles John Kelly (or “Kelly”), is with the Benfield Hazard Research Center, University College London. He has served as the lead researcher for the Rapid Environmental Impact Assessment in Disasters project, and has been involved in the development and testing of the REA over the past four years. Mr. Kelly has over 23 years of field experience in humanitarian assistance programs dealing with droughts, famines, insect infestation, hurricanes, epidemics, floods, wars and other emergencies in developing countries. Over this career Kelly has performed senior and field management tasks in over 15 disaster response operations. Recent professional work has included assessing the environmental impacts during disaster operations, disaster management capacity building, and the assessment and design of post-conflict relief and recovery programs. Mr. Kelly has worked in over 60 countries and has published over 45 articles on a variety of disaster management topics, including disaster management systems.

Workshop Overview

Workshop Objectives

After attending this workshop, you should be able to:

- Describe the purpose and rationale of the REA
- Describe how disasters and the environment are interconnected
- Be able to implement all four modules of an REA in an emergency situation
- Be able to make recommendations on disaster response programming that take into consideration REA results

Training and Learning Methodology

This workshop seeks to simulate some of the challenges an actual REA team would encounter in the field during an actual disaster: teamwork, time-constraints, information overload, gaps in information, need for rapid analysis and decision making, and limited resources. This is a highly interactive and intense “hands-on” workshop based on the procedures and content found in the “Guidelines for Rapid Environmental Impact Assessment in Disasters” developed by Charles Kelly. The methodologies used during the workshop include: presentation, application exercises, discussion and question and answer periods. The application exercises form part of a larger disaster simulation that will be built into each session throughout the workshop.

Rating and Analysis Forms

This participant workbook contains all of the rating and analysis forms that you will need to complete the simulation exercises. These forms are attached at the back of your participant workbook. As you complete each of the simulation exercises, you may find it easier to tear out the corresponding form from your workbook, so you can look at it while you read the simulation instructions and disaster situation updates. These forms are duplicates of those found in your Guidelines for Rapid Environmental Impact Assessment in Disasters (the REA Guidelines), see below.

Guidelines for Rapid Environmental Impact Assessment in Disasters

The Guidelines for Rapid Environmental Impact Assessment in Disaster (REA) is a tool to identify, define, and prioritize potential environmental impacts in disaster situations. A simple, consensus-based qualitative assessment process, involving narratives and rating tables, is used to identify and rank environmental issues and follow-up actions during a disaster. The REA is built around conducting simple analysis of information in the following areas:

- The general context of the disaster
- Disaster related factors which may have an immediate impact on the environment
- Possible immediate environmental impacts of disaster agents
- Unmet basic needs of disaster survivors that could lead to adverse impact on the environment
- Potential negative environmental consequences of relief operations

The REA is designed for natural, technological or political disasters, and as a best-practice tool for effective disaster assessment and management.

Workshop Evaluation Form

Rapid Environmental Impact Assessment in Disasters

Surname (optional): _____ First Name: _____

Please circle to what extent you agree or disagree with the following statements:

	Strongly Agree	Agree	Neither Agree nor Disagree	Disagree	Strongly Disagree
1. Subject matter was adequately covered	5	4	3	2	1
2. Content was suitable for my background and experience	5	4	3	2	1
3. Program was well-paced	5	4	3	2	1
4. Training materials were relevant	5	4	3	2	1
5. Participants were encouraged to take an active part	5	4	3	2	1
6. The program met my individual objectives	5	4	3	2	1
7. Program was relevant to my job	5	4	3	2	1
8. I would recommend this program to my colleagues	5	4	3	2	1
9. I feel prepared to conduct an REA	5	4	3	2	1

Please rate the following, as applicable (5=excellent to 1=poor).

10. Lecture method	5	4	3	2	1
11. Facilitation team	5	4	3	2	1
12. Small group sessions	5	4	3	2	1
13. Simulation Exercises	5	4	3	2	1
14. Meeting space	5	4	3	2	1
15. Meals/refreshments	5	4	3	2	1
16. Overall organization	5	4	3	2	1
17. Other participants	5	4	3	2	1

18. Was the seminar length: correct? too short? too long?

Were there: just enough participants? too few? too many?

19. What are the 3 most important things you learned during the workshop?

1. _____

2. _____

3. _____

20. Additional suggestions or comments for improving this course? (continue on back if necessary)

21. What is your overall rating of this course?

Excellent Very good Good Fair Poor

Please rate the individual workshop sessions

5 = Excellent 4 = Good 3 = Average 2 = Poor 1 = Unacceptable 0 = Does not apply

Session No. & Title	Quality	Value to my Work
1.1 Welcome / Introductions	5 4 3 2 1 0	5 4 3 2 1 0
1.2 REA Conceptual Framework	5 4 3 2 1 0	5 4 3 2 1 0
1.3 Overview of Disaster Management	5 4 3 2 1 0	5 4 3 2 1 0
1.4 REA and Disasters Assessments	5 4 3 2 1 0	5 4 3 2 1 0
1.5 Module Four: Green Review of Relief Procurement	5 4 3 2 1 0	5 4 3 2 1 0
2.15 Module 1: REA Context Statement	5 4 3 2 1 0	5 4 3 2 1 0
2.2 Factors Influencing Environmental Impacts	5 4 3 2 1 0	5 4 3 2 1 0
2.3 Simulation Launch – SimEx 1 and SimEx2	5 4 3 2 1 0	5 4 3 2 1 0
2.4 Presentation / Discussion of Results	5 4 3 2 1 0	5 4 3 2 1 0
2.5 Environmental Threats of Disasters	5 4 3 2 1 0	5 4 3 2 1 0
2.6 Unmet Basic Needs	5 4 3 2 1 0	5 4 3 2 1 0
2.7 Participant Experience Sharing	5 4 3 2 1 0	5 4 3 2 1 0
3.1 Negative Environmental Consequences of Relief Activities	5 4 3 2 1 0	5 4 3 2 1 0
3.2 Presentation / Discussion	5 4 3 2 1 0	5 4 3 2 1 0
3.3 Module Two: Community Level Assessment	5 4 3 2 1 0	5 4 3 2 1 0
3.4.2 Module Three: Consolidation and Analysis	5 4 3 2 1 0	5 4 3 2 1 0
3.5 REA Implementation Issues	5 4 3 2 1 0	5 4 3 2 1 0

Please turn this form into the workshop facilitator. Thank you.

Key Terms Used in the REA

<i>Advocacy</i>	Act of pleading for, supporting or recommending, in the sense of Advocate: one who pleads for or on behalf of another.
<i>Disaster</i>	An event beyond the immediate means of the affected populations to cope and which threatens lives or immediate well being. Disasters are caused by the interaction of people and a hazard. In the REA, "emergency" has the same basic meaning as "disaster".
<i>Environment</i>	The physical, chemical and biological surroundings in which disaster-affected and local communities live and develop their livelihoods. It provides the natural resources that sustain individuals, and determines the quality of the surroundings in which they live. It needs protection if these essential functions are to be maintained. ¹
<i>Hazard</i>	An event or condition which could result in a disaster, as in the hazard of flooding.
<i>Livelihood</i>	The capabilities, assets (including both material and social resources) and activities required for a means of living. A livelihood is sustainable when it can cope with and recover from stresses and shocks and maintain or enhance its capabilities and assets both now and in the future, while not undermining the natural resource base. ²
<i>Mitigation</i>	Steps taken before a disaster to reduce the impact of the disaster or steps taken during a slow onset disaster to mitigate negative impacts and reduce the need for relief assistance.
<i>Prevention</i>	Actions taken before a disaster to ensure a hazard has no impact.
<i>Recovery</i>	Process of supporting emergency-affected communities in reconstruction of the physical infrastructure and restoration of emotional, social, economic and physical well being.
<i>Rehabilitation</i>	Short-term recovery of basic services and initiation of repair of physical, social, and economic damages.
<i>Relief</i>	Immediate assistance to save lives and meet basic needs of disaster affected populations.
<i>Remediation</i>	Action to rectify a deficiency to an adequate standard of safety. Most often used with respect to technological disasters.
<i>Response</i>	Actions in the face of an adverse event aimed at saving lives, alleviating suffering, and reducing economic losses.
<i>Risk</i>	The expected losses due to a particular hazard. Risk is the product of hazard and vulnerability.
<i>Sustainable</i>	The use of a resource at a rate which is equal to or less than the rate of replacement.
<i>Threat</i>	The specific impending danger or harm that may result from the occurrence of a hazard.

Based on: Field Operations Guide (USAID) and Australian Emergency Management Glossary (www.ema.gov.au).

¹ This definition is proposed for the 2003 edition of the Sphere Handbook. http://www.sphereproject.org/handbook/rev_index.htm.

² (Adapted from http://www.livelihoods.org/info/guidance_sheets_pdfs/section1.pdf and Chambers, R. and G. Conway (1992) Sustainable rural livelihoods: Practical concepts for the 21st Century. IDS Discussion Paper 296, Brighton.)

Session 1.1 Welcome and Introduction

Main Objectives

During this session, we will:

- “Get to know each other”
- Review the overall objectives and the agenda for the workshop
- Identify participant expectations
- Introduce the REA

Key Messages

- In this course you will learn how to assess the environmental impacts of disasters and disaster response using the “Guidelines for Rapid Environmental Impact Assessment in Disasters (REA)”
- The REA is an assessment tool that assists a disaster assessor or assessment team to quickly identify, define and prioritize potential environmental impacts in time-constrained disaster situations
- This is a highly interactive and intense “hands-on” workshop based on the procedures and content found in the “Guidelines for Rapid Environmental Impact Assessment in Disasters” developed by Charles Kelly of Benfield Hazard Center. The purpose is to gain a better understanding about the issues and to learn how to use this REA tool. While some time will be set aside to critique and discuss modifications to the tool, this is neither a primary objective nor expected outcome for this workshop.

Your Notes:

Session 1.2 REA Conceptual Framework

Main Objectives

After completing this session, participants will be able to:

- Appreciate the links between disasters and the environment and the need to include environmental assessment within the framework of disaster response
- Describe the concepts and outcomes of the REA
- Describe the REA process and the four modules that define it
- Describe the links between REA and a formal environmental impact assessment (EIA)

Key Messages

- There are important links between disasters and the environment
- “Secondary” disaster effects on the environment are often significant and are important to consider in a disaster response
- There are potentially high costs to pay if one ignores environmental aspects of disaster
- The REA is a tool that reflects “good practice” norms in rapid environmental impact assessment in disasters and designing environmentally sound disaster responses

The REA is an assessment tool that can:

- Identify, define, prioritize potential environmental impacts in disaster situations
- Analyze this information to identify recommended actions
- Review procurement decisions to minimize negative environmental impacts (green procurement)

The REA is:

- A simple and useful way to organize and make sense of environmental information available in disasters
- A consensus-based qualitative assessment process
- Used to identify and rank environmental issues
- Used to identify follow-up actions during a disaster

A completed REA does provide sufficient information to allow those involved in responding to a disaster to formulate common sense solutions using information otherwise available to address, mitigate or avoid the issues raised in the assessment. However, The REA does not provide answers as to how to resolve the critical issues identified in the assessment.

The eleven-step REA process is comprised of the following four REA modules:

1. Organization level assessment
2. Community level assessment

3. Consolidation and analysis (of Modules 1 + 2)
4. Green review of relief procurement

The REA is designed for natural, technological or political disasters, and as a best practice tool for effective disaster assessment and management. The REA does not replace an EIA, but fills a gap until an EIA is appropriate. AN REA can be use from shortly before a disaster up to 120 days after a disaster begins, or for any major stage-change in an extended crisis.

The REA does not require expert knowledge. Primary REA users are people directly involved in disaster response operations, with a basic knowledge of the disaster management process but no background in environmental issues.

The REA is based on the concept that identifying and incorporating environmental issues into the early stages of a disaster response will make relief activities more effective and lay a foundation for a more comprehensive and speedy rehabilitation and recovery. The process and structure of the REA recognize that those who respond to disasters have little time for in depth research and are not likely to be environmental specialists.

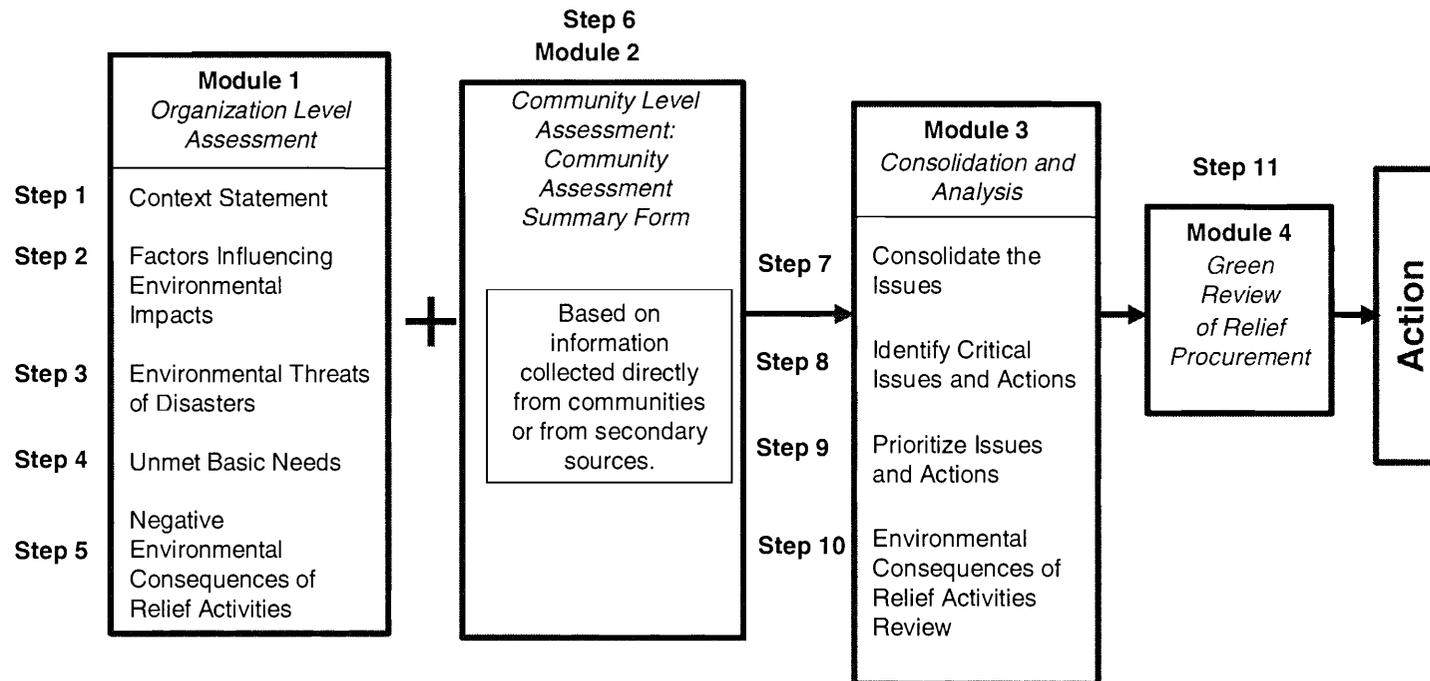
Under these conditions, the first step in effective response is to identify and define the nature and importance of the challenges faced in dealing with the impact of a disaster. This is what the REA does: identify, frame and prioritize environmental issues in such ways as to allow the negative impacts to be minimized or avoided during the immediate response to a disaster.

While many disaster assessment tools exist, prior to the REA, none specifically assessed environment-disaster linkages. The REA provides broad coverage of disaster related issues and directly or indirectly touches on topics covered by other sectoral assessments.

Your Notes

Eleven Step REA Process

The REA process



4 hr min.

11-Step REA Process Explained

Note: the description in parentheses after each step identifies the REA tool for completing that step.

MODULE 1: ORGANIZATION LEVEL ASSESSMENT

The Organizational Level Assessment consists of five distinct steps and results in the identification of critical environmental issues related to the disaster from the perspective of organizations providing relief and recovery assistance.

- Step 1 **Context Statement** (Seven Questions)
Outcome: Disaster summarized. Perceived environmental issues, information sources, need for further assessment/information and environmentally unique disaster-related assistance requirements identified.
- Step 2 **Factors Influencing Environmental Impacts** (REA Form 1)
Outcome: Factors requiring attention to mitigate or avoid negative environmental impacts identified.
- Step 3 **Environmental Threats of Disasters** (REA Form 2)
Outcome: Significant immediate threats to lives and well being identified (and prioritized).
- Step 4 **Unmet Basic Needs** (REA Form 3)
Outcome: Unmet needs with likely environmental impact identified (and prioritized).
- Step 5 **Environmental Consequences of Relief Activities** (REA Form 4)
Outcome: Negative impacts of, and possible changes to, ongoing or planned activities identified.

MODULE 2: COMMUNITY LEVEL ASSESSMENT (CLA)

The Community Level Assessment (CLA) is done to incorporate into the REA the perspective of the affected community on the disaster, resulting needs and its impact on the environment.

- Step 6 **Community Level Assessment**

MODULE 3: CONSOLIDATION AND ANALYSIS

Consolidation and Analysis is a four step process resulting in a prioritized list of actions to respond to critical issues identified in the REA.

- Step 7 **Consolidate critical issues** from both the OLA and the CLA (Issues Consolidation Table)
- Step 8 **Suggest potential actions** to address each issue identified in step 7 (Issues and Actions Table)
- Step 9 **Prioritize the actions** in Step 8 based on the nature of the corresponding issues (Issues and Action Table)
- Step 10 **Review of possible environmental consequences** of priorities identified in Steps 9

MODULE 4: GREEN REVIEW OF RELIEF PROCUREMENT

Green Review of Relief Procurement results in the screening of the procurement of relief commodities and services to minimize negative environmental impacts in disaster emergency response conditions.

- Step 11 **Green Procurement Screening** (Green Procurement Screening Checklist)

Session 1.3 Overview of Disaster Management

Main Objectives

After completing this session, participants will be able to:

- Describe the scope of disaster management activities (early warning/preparedness, mitigation/prevention, relief/response and recovery/reconstruction)
- Define disaster management
- Discuss the roles and responsibilities of the disaster management actors
- Explain when in the disaster management process an REA can be conducted

Key Messages

- A disaster is defined as an event beyond the immediate means of the affected populations to cope and which threatens lives or immediate well being
- Disasters are caused by the interaction of people and hazards
- Vulnerability is the degree to which a population may be affected by a hazard
- Disaster management activities encompass four main areas of activity:
 - *preparedness/early warning*
 - *emergency response*
 - *rehabilitation/reconstruction*
 - *mitigation/prevention*
- Disaster management is the body of policy and administrative decisions and operational activities which pertain to the various stages of a disaster at all levels

Your Notes:

Exercise



Your facilitator will provide you with instructions to complete an exercise.

Session 1.4 REA and Disaster Assessments

Main Objectives

After completing this session, participants will be able to:

- Describe different types of disaster assessments and how the REA can build on existing assessment information.
- Identify techniques and methodologies for assessment implementation.
- Identify options for incorporating gender considerations into the REA process.

Key Messages

- Those who conduct assessments in normal conditions need to understand the different types of disasters so that they can formulate their assessments in ways which can be used to support disaster assessments. Understanding the process and outcomes of disaster assessments also facilitates the incorporation of this information into assessments of post disaster reconstruction programs.
- The most significant differences between normal and disaster assessments are the time frame for completing the assessment and the level of information needed. Disaster assessments need to be done immediately and be based on immediately available (and often incomplete) data. This contrasts with the less time constrained and more detailed work of a normal assessment.
- While disaster and normal impact assessments operate in different environments and under different conditions, the gap between the two efforts can be narrowed through four actions. First, normal assessments can consider potential disaster impact as part and parcel of the assessment process. This allows for better disaster planning which permits better disaster assessment and response.
- The REA is a flexible tool that can complement and/or build on other disaster assessment tools and approaches.
- Gender considerations can be incorporated in at least three ways. First, the REA team itself should be diverse and reflect different gender perspectives. Second, the REA team can add columns in each REA form to further disaggregate data according to data needs. Finally, the REA team may decide to add “gender” related assessment questions to the REA forms as appropriate.
- The REA assessment tool uses a simple rapid assessment approach to provide a broad overview of the disaster, emergency needs and resulting environmental concerns. The results of the REA may indicate areas where more specialized assessments are required.
- Where common sense solutions are not evident or issues are complicated or unclear, an REA provides sufficient information to request appropriate technical assistance or advocate appropriate action by a third party. Technical assistance can be secured by posing specific questions to specialists, or developing simple terms of reference for on-site specialized technical or material assistance. Technical assistance is often available locally and this source should not be overlooked.

Your Notes:

Exercise

Your facilitator will provide you with further instructions.



Session 1.5 Module Four: Green Review of Relief Procurement

Main Objectives

After completing this session, participants should be able to:

- Describe the concepts and outcomes of the Green Review
- Describe the process of using the Green Review forms and the time and resources needed
- Identify the benefits of using the Green Review to organizations and the communities and the constraints to its use
- Identify steps which will be taken to facilitate incorporation of the Green Review into organizational assessments and procurement

Key Messages

- Green procurement is the selection of products and services that minimize negative environmental impacts.
- Green procurement may be as simple as buying recycled paper or as complex as considering the environmental impact of a product at each stage of its life, from when it is manufactured to when it is disposed of as waste.
- Green procurement involves applying the 4 R's methodology at each phase of the material life-cycle:
 - *Reduce*
 - *Reuse*
 - *Recycle and*
 - *Recover*

In disaster conditions, the objective is to procure the greenest or most sustainable item without compromising the assistance effort. The best way to do this is to use a simple yes/no screening process based on the focus areas summarized above. For the REA, this approach has been formalized into the "*Greenness Procurement Screening Checklist*".

- There are at least four areas for green procurement in emergencies.
 - *Purchasing energy efficient equipment*
 - *Reducing amount of waste produced*
 - *Recycling products*
 - *Reducing energy requirements*

Your Notes:

Exercise



SimEx 8 Using the Greenness Procurement Screening Checklist

The purpose of this exercise is to give you experience reviewing a project procurement plan from a “green” perspective. In small groups you will do a green review of a list of supplies being proposed for a housing reconstruction project by the NGO “Shelter for All”.

Read the project description and review the proposed procurement list of supplies. If you need further guidance on completing this step in the REA, please see the “Green Procurement” procedures found in the REA Guidelines.

If you were asked to apply the green procurement checklist to this list of supplies, what “green” concerns might you have?

What different project approaches or supplies can you substitute to have less of a negative impact on the environment?

There are three procurement screening checklists in the Annex of this workbook.

Note: All participants will undertake the same exercise. Although it is based on the Hurricane Inez scenario, the exercise is equally applicable to both disaster cases that are used in the exercises for this workshop.

Project Description: After consideration of several important environmental issues associated with their response to the disaster in Paroma, Shelter for All has redesigned their housing reconstruction program to better incorporate environmental considerations. The following points outline the new proposal which is now being considered for immediate funding:

- 500 of the most vulnerable affected families will be served
- The project will focus on rebuilding homes at their original (dispersed) sites
- Mitigation features will be built into the new houses
- A building material recovery and reuse approach will be used wherever feasible
- A small sawmill project for use of dead and downed trees will complement the program, and will provide materials for reconstruction

The new project has been initially greeted with some acclaim from donors who are very supportive of this more environmentally sensitive approach.

SFA's grant proposal includes the following list of supplies (and staff) as required inputs for the project:

#	ITEM	QUANTITY	JUSTIFICATION
1	Sawmill (One 62" Super-Duty, Air Strain Quad Bandmill, 9-1/4"-wide wheels for 10" x 32'6" bandsaws. Motorized wheel lifts, tiltback wheel guards, 125 HP saw drive motors) – diesel engine	1 unit, delivered, with concrete base, shed, & fuel storage area	Heavy-duty , fixed place sawmill is required for handling volume of lumber as well as providing basis for ongoing income generation.
2	Diesel Tractor 82 hp minimum, 4WD, w/hydraulic loader and Power take off	3 units	One tractor required for each village for moving fallen trees/logs to the sawmill site for processing.
3	Diesel Fuel (delivered on-site in 200 liter metal drums)	5,000 liters	For use in Tractors and sawmill engine over project duration.
4	Chainsaw 4.32-cu. in. (70.8cc) 5.2 hp- petrol (gasoline) engine	9 units	Heavy-duty chainsaws required for felling and trimming damaged trees, and preparing trees for transport to sawmill. 3 units per village.
5	Cement (50K Portland Cement in paper cement bag 3layers/ply Size:53cm x 40cm x 11cm)	250 mt	Cement required for durable and storm resistant footings and base for houses to withstand high winds (50kg/house)
6	Steel Reinforcing bars (15mm round deformed reinforcing steel bars)	25 mt	Reinforcing required to provide anchorage from footing to walls and floor. (50k /house)
7	Corrugated Roofing Sheets (galvanized, low carbon steel, commercial prime quality, zinc coated both sides 275 G/m ² - 11corrugations - 16X76mm , thickness 0.26mm, width 900mm, length 2,000mm)	16,000 pieces	Lightweight roofing sheets are rust and water resistant. Wind resistant when used with proper roofing nails and washers. 20 pieces/house
8	Wood for siding, wall and roofing will be supplied from fallen trees (40%), from harvesting trees on the project land itself as part of the site clearance to prepare for the new construction (30%) and from lumberyard stock (30%)	Enough for 500 homes	Families for whom homes are being built will assist in recovering and transporting fallen trees and harvesting trees from the project land.
9	Stainless Steel metal tie-downs (storm clips) (factory- made from 316 [coastal grade] 18 gauge stainless steel. Individually packaged in pairs, shipped with stainless steel screws, shrink-wrapped with hardware)	10,000 pieces	Required for attaching roof structure to walls securely to resist high wind uplift forces. (20 pieces required per roof)

10	Nails (Wire diam.: BWG6-BWG19, Shank: smooth, Coating: bright zinc or vinyl coating - Package: 50lbs or 25Kgs per box, 48 boxes on one pallet. Elastic film wrapped protection around whole pallet)	1mt	For general construction. Estimated at 20k / house.
11	Windows (steel frame & sash – with 30mm glazing - casement type - 0.4 X0.6m – locally procured)	2,000 pieces	4 windows per house, metal windows will not rot and are termite –proof. Local artisans are currently fabricating these units for the local market
12	Doors (steel door & welded frame 0.8X1.9m – locally procured)	1,000 pieces	2 doors per house, metal doors will not rot and are termite –proof. Local artisans are currently fabricating these units for the local market
13	Assorted hardware (individually packaged sets, incorporating hinges, screws, miscellaneous door & window hardware)	500 sets	Full detail provided in procurement documents, to be purchased locally.
14	Toyota Landcruiser (gasoline) (4.7-liter DOHC 32-valve EFI V8 235 hp @ 4,800 rpm; Full-time 4-wheel-drive system with locking center differential)	2 units	Required for daily site visitations, and routine travel to the capital city for coordination and other critical functions.
15	Computers (desk-top model, Processor: Pentium 3, 800MHz, Memory: 128MB RAM, Hard Drive: 20GMedia: CD-ROM, Operating System: Windows XP)	6 units	Required for daily reporting, accounting and project management.
16	Office tables (76 cm tall, 105 X 150cm surface) plastic laminate, over dense particle board substrate	6 pieces	N/A
17	Chairs (Frame is chrome plated 11mm steel rod, seat and back is injection molded textured polypropylene.)	6 pieces	N/A
18	Office Supplies (each set has 1 ream A4 paper, clips, garbage bin, ink-jet printer & cable,, miscellaneous articles –each individually wrapped, in original cartons for individual use)	6 sets	N/A
19	Project Manager (5 years previous experience, local and international experience, Masters Degree from accredited university)	1 staff member	Senior project officer/project manager must be familiar with both international aid projects and accounting as well as local issues and norms. May be either national or international hire as long as qualifications are met.
20	Project Staff (2 personal references, college degree, computer, construction, and reporting skills)	5 staff members	Support staff will be responsible for day to day oversight of projects, monitoring and weekly progress reporting.

was there pre-existing environmental challenges before the disaster

Session 2.1 The Context Statement

Main Objectives

Sit Rep. = situation report

After completing this session, participants will be able to:

- Identify the purpose and content of the context statement
- Identify the sources of information for completing a context statement
- Complete a context statement

Key Messages

The Context Statement:

- Places the disaster in the context of the disaster's overall impact
- Provide a summary of the emergency situation and response requirements highlight pre-existing important factors which frame or impact an environmentally aware response
- Help the REA team "sing from the same sheet of music"

The Context Statement results in a narrative summary and answers to the following seven questions:

1. What happened? Summarize the (1) cause/s and most evident impacts of the disaster, (2) whether the weather or other conditions at the disaster site will change and if these changes will affect environmental conditions and relief needs, and (3) priority disaster relief efforts and specific programmatic areas of interest to the party completing the REA.
2. What sources are likely to be able to provide information on the environment in the area affected by the disaster? Provide contact information and a description of the information available if possible.
3. Have there been, or are there currently, concerns about the release of potentially toxic substances affecting humans or the environment?
4. Are there environmentally unique sites in the disaster area and have any been (or may be) affected directly or indirectly by the disaster?
5. Were there concerns about environmental conditions before the disaster? Briefly describe the nature and cause of the concern, and whether these concerns are linked to the current disaster.
6. Are there any concerns about the environmental impact of the disaster on the part of the survivors or neighboring communities?
7. Are there any local or national laws, or donor or organizational policies and procedures which impact how environmental issues will be assessed or managed?

Your Notes:

Exercise 

You will be asked to prepare a context statement in Session 2.3 “Simulation Launch”

Session 2.2 Factors Influencing Environmental Impacts

Main Objectives

After completing this session, participants will be able to:

- Explain why, how and what types of pre-existing factors can influence the environmental impacts of disasters
- Describe how to complete Rating Form 1 “Factors Influencing Environmental Impacts”

Key Messages

There are a number of factors which may positively or negatively influence the severity of environmental impacts during and following a disaster. These factors are related to the spatial, social and economic conditions under which the disaster survivors live and indicate environmental impact issues which may need to be addressed as part of the disaster response.

The comparative subjective rating of Factors Influencing Environmental Impacts is accomplished using **Rating Form 1**. The rating process involves two steps.

Step One

A rating of each factor is completed based on the respective scale to indicate importance as a possible negative impact on the environment. Possible negative environmental implications for each factor are noted as guidance in the rating process. The rating scales are organized so that ratings of higher priority for action are to the right of the page.

The rating scales can be changed to suit user preferences. Specifically, the words used in the rating process can be changed to reflect local use and understanding. However, the same graduation of priority from left to right should be maintained on the form.

Step Two

Once each factor is rated, the factors are then ranked from lowest to highest priority. There is no problem if several factors have the same priority as the priority factors will be reviewed further in the **Consolidation and Analysis** module.

Note, however, that not all priority issues identified in the rating process will become targets for immediate action. Some issues may not be easily susceptible to relief interventions or should be deferred to the recovery phase.

Alternately, the environmental impact of other factors may resolve themselves. This would be the case where the population density in a temporary shelter decreases as people return to their normal homes. Changes in the importance of the factors should be reviewed with each REA update.

Your Notes:



Simulation exercise (integrated into the next session)

You will be asked to complete Form 1 “Factors Influencing Environmental Impacts” in Session 2.3 “Simulation Launch”.

Session 2.3 Simulation Launch

Main Objectives

During this session, participants will:

- Form REA teams tasked with using the four modules to conduct an REA assessment
- Complete an REA Context Statement and respond to the seven context statement questions
- Complete Rating Form 1 “Factors Influencing Environmental Impact”

Key Messages

- Learning by doing. One learns how to do an REA by actually engaging with the content and the forms found in the four modules. This simulation gives you this practical experience.
- During the exercise portion of each session, the participants should play their roles on the REA Team and focus on understanding and completing the REA, not on critiquing the forms. There is time built into the sessions and the workshop for discussing and critiquing the forms.

Your Notes:

Exercises



Simulation background

This simulation consists of several exercises (SimEx) integrated into the remaining sessions. After completing all of the simulation exercises the participant will be able to complete an REA based on all four REA modules.

During this simulation, you will role-play participating on an REA Team tasked with assessing one of two disaster scenarios. Throughout the workshop, you will complete an abbreviated REA process, using the REA forms and tools found in the REA Guidelines.

The simulation will run during the “exercise” portion of each workshop session, after your facilitator has presented each REA tool in plenary.

You will be assigned one of the following two disaster scenarios.

- Hurricane Inez in Paroma
- SurGas (oil refinery) explosion in Surestan

The disaster/country information you will need to read and the forms you will need for SimEx-1 and SimEx-2 are outlined below.

Simulation Exercise #1 (SimEX 1) The Context Statement

For SimEx1, your objective is to respond to the seven context statement questions and to complete Rating Form 1 “Factors Influencing Environmental Impacts”. The facilitator will provide additional instructions.

Information: Country Map, Country Background Notes and Situation Update 1

Forms: Form 1 “Factors Influencing Environmental Impacts” and “Issues Consolidation” table

Instructions

A. Read the country background information and situation update 1. Respond to the seven “Context Statement” questions below referring to information contained in the disaster scenario situation update and country background information. Use your best judgment in responding, listing any assumptions you are making to answer the question.

1. In one paragraph, summarize: (a) the cause and overall impact of the disaster, (b) any other major concerns you may have about this disaster.

2. What sources may be able to provide information on the environment in the area affected by the disaster?

3. Have there been, or are there currently, concerns about the release of potentially toxic substances affecting humans or the environment?

4. Are there environmentally unique sites in the disaster area and have any been (or may be) affected directly or indirectly by the disaster?

5. Were there concerns about environmental conditions before the disaster? Briefly describe the nature and cause of the concern, and whether these concerns are linked to the current disaster.

6. Are there any concerns about the environmental impact of the disaster on the part of the survivors or neighboring communities?

7. Are there any local or national laws, or donor or organizational policies and procedures which impact how environmental issues will be assessed or managed?

B. Based on your responses to these questions, identify your top three critical issues of concern. (Refer to procedures for completing the "Context Statement" in your REA Guidelines). For your own record, list these three priority issues below. For your team's record, also list these in the appropriate section of your team's "Issues Consolidation Table".

Issue #1.

Issue # 2.

Issue #3.

SimEx 2 “Factors Influencing Environmental Impacts”.

A. Complete Rating Form 1, based on the disaster scenario you were assigned and the information contained in the country map, country background notes and situation update. Use your best judgment to complete the form, making any assumptions that you must (list your assumptions).

If you need further guidance on completing this step, refer to the procedures for completing this step found in your REA Guidelines.

B. In your teams, rate each factor in column 1.

C. With your team discuss and identify the top three priority factors based on the results of your rating. For your own record, list these three priority issues below. For your team’s record, also list these in the appropriate section of your team’s “Issues Consolidation Table”.

1.

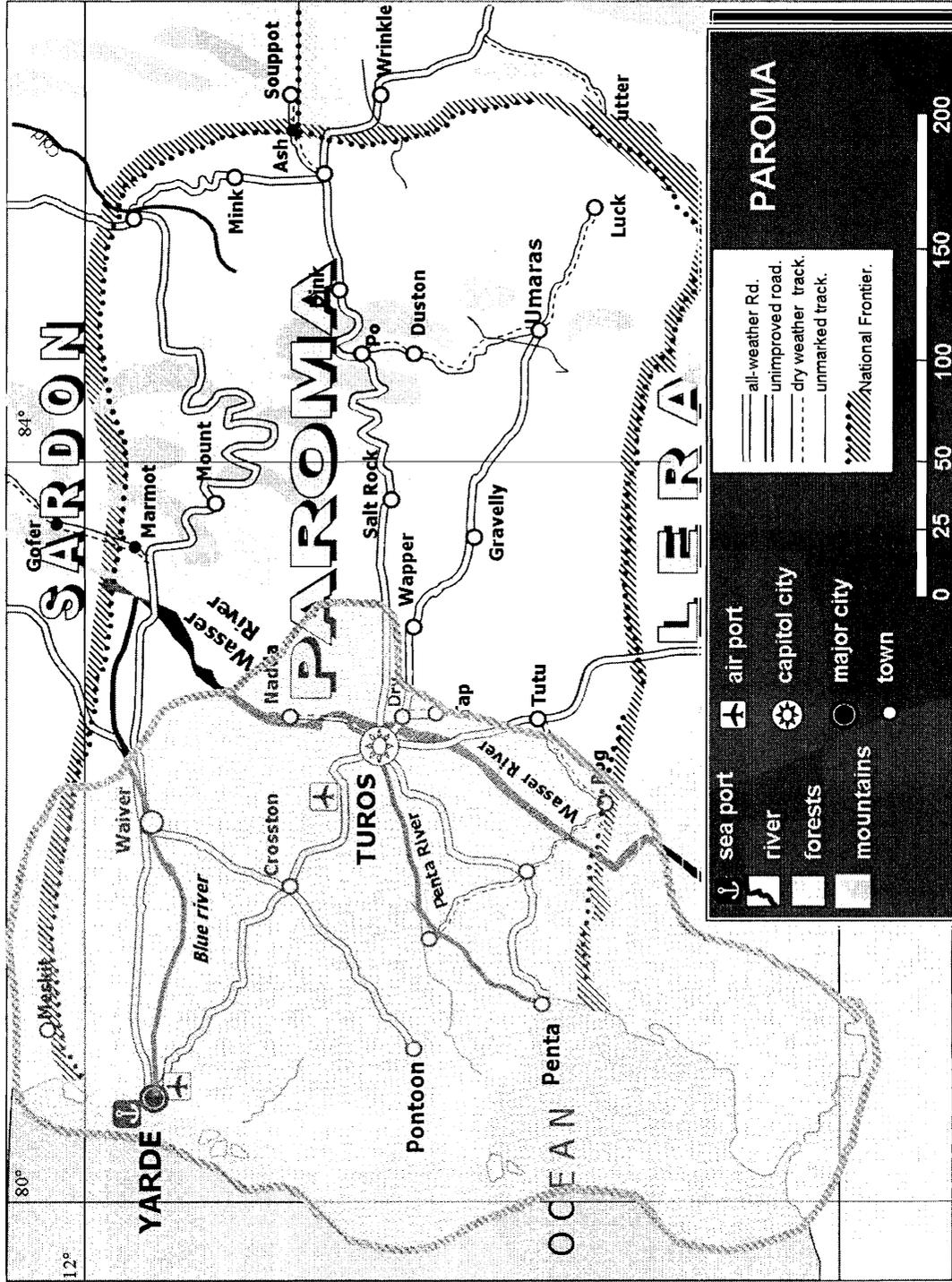
2.

3.



PAROMA

Country Map





Geography, people & population density

Area: 128,200 sq. km; about the size of Nicaragua.

Climate: Tropical in lowlands; cooler in highlands.

Population (2004 est.): 3.2 million. Annual growth rate (est.): 1.97%.

Population Density—40/sq. km. (Compare to Nicaragua - 39 /sq. km and Rwanda -281/sq. km)

Ethnic groups: Mixed 70%, white 10%, black (African origin) 15%, indigenous 5%.

Religion: 80% Catholic, 15 % Evangelical / Protestant, 5% other.

Urban population: 2.1 million

Rural population: 1.1 million

Household average size: 6.2 people per household

Poverty, development & health

Gini Index*: **51.2** (Compare to: Kenya-44.9, Nicaragua-60.3, and Switzerland-33.1)

Human Poverty Index (HPI)³: **43** (compare to: Kenya-63, Nicaragua-44 and Switzerland-10)

Access to Water and Sanitation: 66% of urban population and 35% in rural areas have access to safe water and adequate sanitation.

Major illnesses: Malaria, Typhoid, Pneumonia

Infant Mortality: Total: 42 deaths/1,000 live births (Compare to Kenya-63.6/1000, Nicaragua-31.39/1000 and Switzerland-4.36/1000)

Life expectancy: Men 65 yrs, Women 72 years

Economy

Per capita GDP (2003 est.): \$2,200.

Work force (1999): 1.7 million. *unemployed*--22%; *underemployed*--36%.

Natural resources: arable land, livestock, fisheries, gold, timber.

Agriculture (35% of GDP): *products*--corn, coffee, sugar, meat, rice, beans, bananas.

Industry (30% of GDP): food process, beverages, textiles, petroleum/chemical and metal products.

Services (35% of GDP): commerce, construction, government, banking, energy and tourism.

One of the key engines of economic growth has been production for export. Although traditional products such as coffee, meat, and sugar continued to lead the list of Paroma exports, the fastest growth is now in nontraditional exports: clothing apparel and petroleum derived products.

* The Gini Index is a calculation of income distribution within a country. 0.00 equals perfectly equitable income distribution in the population, while 100.00 equals perfectly inequitable income distribution.

³ The HPI – human poverty index measures human deprivations in the three aspects of human development (longevity, knowledge and a decent standard of living). The higher the rank the greater the level of poverty relative to other countries.

Environmental issues / concerns

Houses are built in flood plains, along and in natural channels, and along river banks. In many communities natural and man-made drainage ditches are used for disposal of household garbage.

Extensive logging throughout the country is leading to significant deforestation. The removal of trees in water catchment areas has reduced the absorptive capacity of the land and caused erosion.

University researchers have cited concerns over the noxious odors and wastewater emitted into the rivers by the countries pesticide factories.

Environmental legislation / international conventions

The Ministry of the Environment (MoE), created in November 1998, has developed the Paroma Environmental Action Plan (SEAP) guidelines to assist policy makers, the private sector and the public sector to integrate environmental considerations into national and local development policies, economic decision-making and investment planning.

Paroma is signatory to the following international conventions:

- The Biodiversity Convention of 1996
- The Convention on Marine Pollution 1996
- Regional Convention on protection of Mangroves and Corral Reefs, 1999

National Law 52, indicates that all activities and projects, public or private, that in any way may generate environmental risk require the elaboration of an Environmental Impact Study ("EIS") prior to their execution. This law also stipulates that any person involved in the development of an activity that damages the environment or human health must repair the damages, must undertake mitigation measures and pay for costs of such repair and damages.

Institutions / organizations (non-exhaustive list)

- Paroma Red Cross
- Paroma Civil Defense Office (National and Regional Offices)
- Ministry of Environment
- Major INGOs and local NGOs working throughout the country
- UNDP
- WFP
- UNICEF
- WHO



November 1, 2004

Background

On October 28, year 2004, Hurricane Inez, began its sweep through Paroma, tearing off roofs, triggering mudslides, and damaging crops after killing at least 400 people and displacing an estimated 20,000 others. Massive rains turned several normally placid creeks and streams into raging rivers dragging away everything in their path. In the worst affected areas, streets are filled with up to 1.5 meters of mud. This disaster has affected 40% of the country's area, including the capital of Turos. Paroma's Minister of Civil Defense, Alfonso Delgado, estimates that over 50% of the country's population is affected.

Infrastructure, economy and agriculture



An estimated 25% of the water distribution systems are down in most affected areas. Both Yarde and Turos reported damages to their hydroelectric power plant. Flooding of the Wasser River cut new channels and scoured the land surface. This resulted in large deposits of sediment on the coastal plain and on agricultural fields, particularly those adjacent to the river. At least 15 percent of crops are destroyed. Some assessments place the immediate loss of productive land at 20% of the total productive land in the country. The loss of crop has threatened the livelihood options of farmers affected by the floods, whose coping capacity has already been stretched, leaving them badly dependent on relief. Farmers have no source of income till harvesting of next crop. There were also reports of irrigation systems damaged beyond repair. Most small farmers raised a few milk cows and a few sheep.

Displacement and health



About 20,000 people have been displaced by the Hurricane and now live in even more crowded and unsanitary conditions than before. About half of the displaced have moved into temporary public facilities. The other half are living with relatives or in make-shift homes on marginal land.

Environment



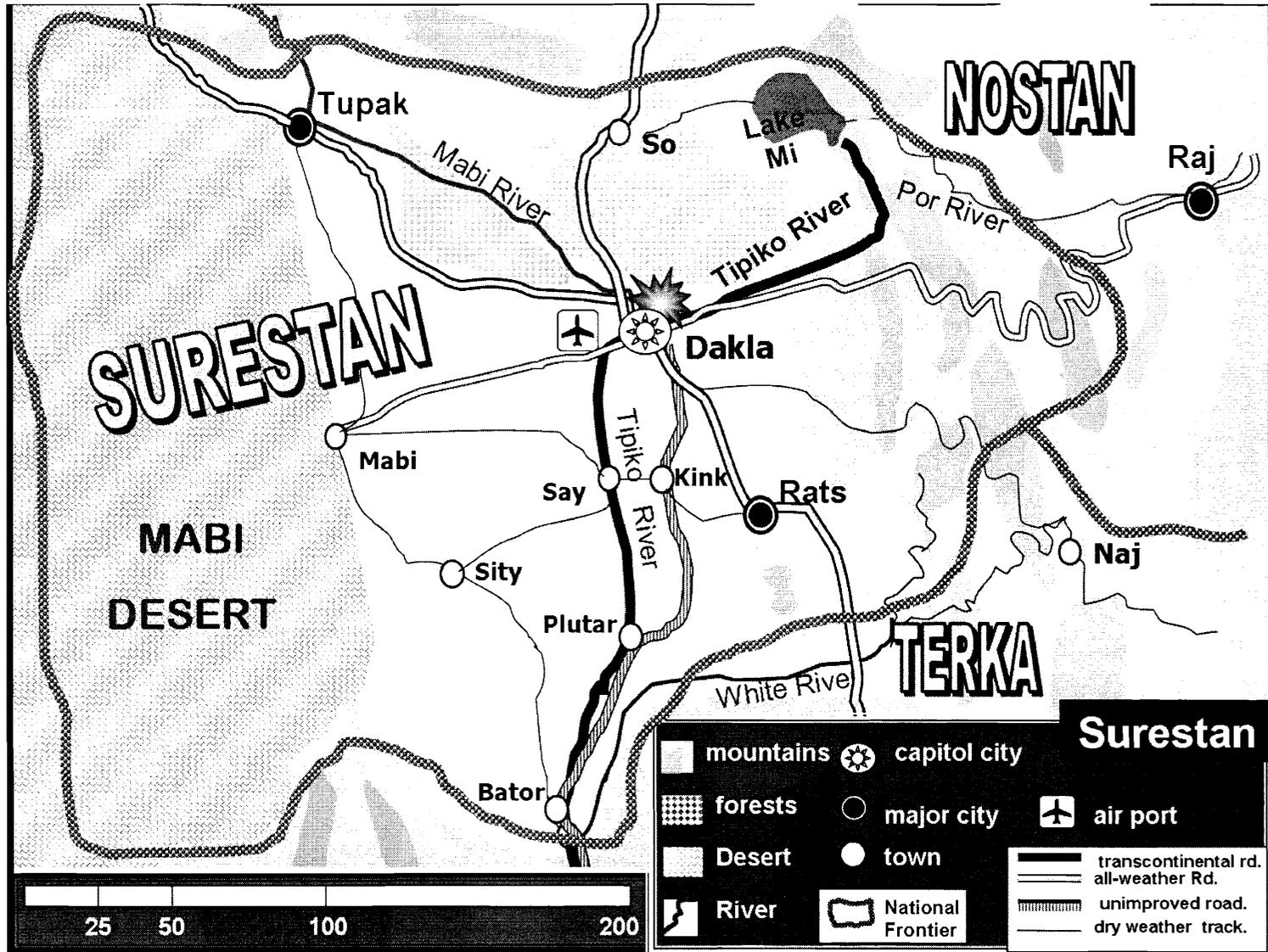
Hurricane Inez stripped vegetation from the westernmost areas of Paroma, and resulted in over 5,000 hectares of mangrove loss and coastal erosion. Large areas of forest were decimated due to debris flows. In the affected West Coast, the Hurricane damaged several coconut and palm tree plantations.

The Gulf of Guevara received indirect impacts related to extreme precipitation that fell within the large watersheds draining into the Gulf. The Hurricane seems to have caused land erosion to the small islands and breakage of corral reefs off Paroma's north coast. Mainland river discharges also carried garbage, sediment and fallen trees out to these islands and corral reefs.



SURESTAN

Country Map



***Geography, people & population density***

Area: 132,100 sq. km., about the size of Greece

Climate: dry hot summers, mild but rainy cold winter, forests, alpine tundra in the mountains

Population (2004 est.): 6.8 million. Annual growth rate (est.): 0.67%.

Population Density— 51.48 per sq. km. (Compare to: 281/sq. km-Rwanda, 39 sq./km-Nicaragua)

Ethnic groups: Surestanis 70%, Nostanis 15%, Terkas 5%, others 10%

Religion: 90% Muslim, 10% Orthodox Christians

Urban population: 3.8 million

Rural population: 3.0 million

Household average size: 3.9 people per household

Poverty, development & health

Gini Index*: **40.1** (Compare to: 44.9-Kenya, 60.3-Nicaragua and 33.1-Switzerland)

Human Poverty Index (HPI) ⁴: **43** (compare to: 63-Kenya, 44-Nicaragua and 10-Switzerland)

Access to Water and Sanitation: 80% of urban population and 68% in rural areas have access to safe water and adequate sanitation.

Major diseases: cardiovascular diseases, Respiratory diseases, Tuberculosis

Infant Mortality Total: 20 deaths/1,000 live births (compare to 4.36 Switzerland, 31.39 Nicaragua and 63.6 Kenya)

Life expectancy: Men 63 yrs., Women 73.1 years

Economy

Per capita GDP (2003 est.): \$2,520.

Work force: unemployed--20%; underemployed--16%.

Natural resources: petroleum, natural gas, iron ore, alumina, gold, timber.

Agriculture (35% of GDP): *products*—cotton, tobacco, rice, vegetables, tea, cattle, sheep, goats.

Industry (50% of GDP): petroleum and natural gas, petroleum products, oilfield equipment, steel, cement, chemicals, iron ore, petrochemicals.

Services (15% of GDP): commerce, construction, government, banking & energy.

* The Gini Index is a calculation of income distribution within a country. 0.00 equals perfectly equitable income distribution in the population, while 100.00 equals perfectly inequitable income distribution.

⁴ The HPI-1 – human poverty index for developing countries – measures human deprivations in the three aspects of human development (longevity, knowledge and a decent standard of living). The higher the rank the greater the level of poverty relative to other countries.

Environmental Issues / Concerns

- Many refineries are concentrated in heavily populated urban areas. Studies have shown that the country's two major oil refineries are annually releasing tons of toxic volatile organic compounds, like cancer-causing benzene, and chemicals which cause asthma and childhood development problems. While emissions standards and regulations exist, they are rarely enforced.
- The country's main environmental challenges result from oil spills, gas flaring and deforestation. Accidents at the country's oil refineries have been a regular occurrence, and the resulting degradation of the surrounding environment has caused significant tension between the people living in the region and the multinational oil companies operating there. It is only in the the past decade that environmental groups, the Surestan federal government, and the foreign oil companies that extract oil from the country have begun to take steps to mitigate and prevent the damage.
- The country also faces environmental challenges from deforestation and desertification, with the encroachment of the Mabi Desert in the west and severe air pollution in overcrowded cities such as Dakla and Tupak.

Environmental legislation / international conventions

The Ministry of the Environment (MoE), created in November 1998, has developed the Surestan Environmental Action Plan (SEAP) guidelines to assist policy makers, the private sector and the public sector to integrate environmental considerations into national and local development policies, economic decision-making and investment planning.

Surestan is signatory to the following international conventions:

- The Biodiversity Convention of 1996
- The Convention on Marine Pollution 1996
- Regional Convention on protection of Mangroves and Corral Reefs, 1999

National Law 52, indicates that all activities and projects, public or private, that in any way may generate environmental risk require the elaboration of an Environmental Impact Study ("EIS") prior to their execution. This law also stipulates that any person involved in the development of an activity that produces damages to the environment or human health must repair the damages, must undertake mitigation measures and pay for costs of such repair and damages.

Institutions / organizations (non-exhaustive list)

- Surestan Red Cross
- Surestan Civil Protection Office (National and Regional Offices)
- Ministry of Environment
- University of Dakla, Environmental Studies Programme
- NGO "Clean Hands"
- Major INGOs and local NGOs working throughout the country
- UNDP
- WFP
- UNICEF
- WHO



Wednesday, November 1, 2004 (Rainy Season)

On Tuesday a series of catastrophic explosions and a major fire ripped through the SurGas oil refinery plant located just on the outskirts of the densely populated city of **Dakla, Surestan**. Two-hundred and fifty people are reported killed from extensive burns and smoke inhalation and another 1040 were injured. Thousands of people have been displaced or evacuated. Today, a large irate crowd formed in front of the Mayor's office in Dakla, Surestan, to demand an immediate response and compensation for the damages, loss of life and injuries that occurred.

A policeman stationed near the plant reported, "First, I heard an explosion and everything started to shake. The windows of my office were blown out. Then several larger blasts followed. When I looked out, I saw the entire SurGas complex engulfed in smoke and flames." The cause of the explosion is not yet known. SurGas President, Mr. Abdu Zabu, is claiming that the blast was the work of terrorists intent on undermining economic and political stability in the country. Others, including the SurGas Employees Union Spokesperson, believe that the blast was caused by use of antiquated equipment and insufficient staff and budget dedicated to maintenance duties.

The Dakla Fire Chief reported that 30 buildings in close proximity to the plant were severely damaged due primarily to fire and smoke. These buildings housed approximately 3000 residents in apartments and 40 small businesses. He also reported that another 100 buildings experienced partial damage. A nearby electrical plant was also reported out of service. A local official said 76 people were still under observation in Surestan National Hospital, while another 310 had been discharged after receiving treatment. It is estimated that about 8,000 people have left the affected area. About 1/3 of these have moved in with relatives, 1/3 have built make-shift shelter in parks on the river upstream from the oil refinery and another 1/3 are sheltered in a public shelter (schoolhouse).

The SurGas Complex employed 14,000 people and produced a large percentage of the gasoline, heating oil and cooking gas supplies for Dakla and other western cities in Surestan. The Surestan Energy Minister reports that gas production is likely to be disrupted for the near future. Many of those living near the plant are also SurGas company employees or have family members who work there.

Session 2.4 Presentations / Discussion

Main Objectives

During this session participants will:

- Present the results of SimEx 1 and 2
- Discuss any difficulties or questions related to the REA “Context Statement”, Form 1 “Factors Influencing Environmental Impact” or the REA process in general

Key Messages

- Good planning and preparation are important to a rapid execution of the REA

Your Notes:

Session 2.5 Environmental Threats of Disasters

Main Objectives

After completing this session, participants will be able to:

- Identify the purpose and outcome of this section of the REA Organization Level Module
- Complete Rating Form 2 “Environmental Threats of Disasters”
- Identify which hazards/threats require immediate attention and action in a disaster

Key Messages

- The purpose of this step is for the REA team to quickly identify and prioritize immediate environmental threats to lives and well being resulting from a disaster.
- Hazards associated with a disaster can lead to direct or indirect negative impacts on the environment. An example is a hurricane that creates floods that wash through a fertilizer factory, or livestock farms, contaminating nearby ponds, rivers and wetlands.
- Relief interventions to address impacts on the environment may be critical to eliminating threats to the lives or well being of the disaster survivors. These options range from recommending a more technical assessment to planning a specific response.
- Once environmental threats are identified the REA Team will need to consider response options. The REA Guidelines, on Rating Form 2, indicate different response options for various types of environmental threats in disasters.
- Organizations doing an REA will need to determine how deeply they can be involved in responding to environmental threats in disasters. The organizations or groups conducting the REA are not necessarily (and often may not be) the appropriate ones to respond to the threat.
- Advocacy, particularly after clearly defining an environmental threat, with government or specialized organizations, may be more effective over the long-term than taking on a new and complex role in dealing with complex environmental problems during a disaster.

Your Notes:

Exercise



SimEx 3 “Environmental Threats of Disasters”

The disaster/country information you will need to read and the forms you will need for SimEx-3 are outlined below.

Information: Situation Update 2 for all the teams and the “Dakla Affected Area Map” for the SurGas Team(s)

Forms: Form 2 “Environmental Threats of Disasters”

Instructions

A. Read situation update 2. In your teams, complete rating Form 2, based on your assigned disaster scenario and the information in situation updates 1 and 2. Use your best judgment to complete the form based on this scenario, making any necessary assumptions.

Reminder: To facilitate this step, go through Form 2, and eliminate (draw a line through) any threats that don’t correspond to your disaster scenario.

B. As a team, arrive at consensus on the top three priority threats based on the results of your analysis. List these below and in the appropriate section of your team’s “Issues Consolidation Table”. (Refer to procedures for completing this form in your REA Guidelines).

List the top three priority environmental threats of disaster below as well as in the appropriate section of your team’s “Issues Consolidation Table”.

1.

2.

3.

C. What immediate response options might you recommend (hint: see final column of Rating Form 2 “Initial Response Options”)? Discuss this question with your team and list your response below.



November 5, 2004

Critical facilities in affected areas (e.g. water distribution systems and the hydroelectric plant) are experiencing increased vulnerability to continuing flood hazards due to landslides into the drainage networks, roads and rivers.

The pressure of population and economic disparity has forced the marginalized and most members of the community to settle in the areas adjacent to river banks. These human settlements use embankments on the river for meeting their space requirements. The embankments have become weak and breach easily during rainy season leading to flood of farm lands, villages and townships. There are reports that riverbeds are rising dramatically along the Blue, Penta and Wasser Rivers due to blockage at the mouth of the Blue and Penta rivers at Yarde and Penta, respectively.

The status of the three pesticide factories, two located near Waver, (not far from the Blue River) and one located near Nadda, (near the Wasser River), is not yet known. However, one television station showed barrels of unknown chemicals being carried away by a raging river current.



Aerial view of Dakla, Surestan and the area immediately affected by the SurGas Disaster.

Legend

-  → SurGas Oil Refinery
-  → Explosion
-  → Area including damaged buildings
-  → Area initially affected by smoke and fumes
-  → Market
-  → River



Thursday, November 2, 2004

Weather Forecast: Strong winds blowing North, North-West. 70% chance of rain over the next two days.

While most of the larger fires were under control by Wednesday morning, several smaller fires continued to burn and residents within a couple of kilometers of the plant complain about noxious odors in the air. It is not clear if run-off from fire fighting activities has posed a significant pollution problem for rivers used as water sources.

The Surestan Red Crescent Society reported that many employees who survived the blast, as well as residents located near the plant, continue to experience difficulty breathing, nausea and headaches. There have also been reports of oil and petroleum products leaking out of burst pipes and running freely into the streets.

Professor Duma, Chair of the Environmental Studies Program at the University of Dakla, interviewed in the Dakla Times, claims that airborne contamination will eventually settle into the surrounding soil and fresh water reservoirs. In the article, he also noted that soil pollution may further lead to contamination of agricultural products (including green vegetables), thus presenting a risk to human health. He went on to suggest that the city commission fund a study to determine any effects of the releases of pollutants. To do this, he recommends that soil samples be taken from nearby the oil refinery, garden plots and from surrounding agricultural areas for subsequent determination of the contamination levels by chemical analysis. He also believes that samples of water from the river should also be taken to determine if and to what extent it has been polluted.

Mrs. Fati Swami, director of the NGO Green Land and Pure Air (GLPA), is gravely concerned about the environment and the public health effects of the disaster. She states, "The fires and smoke have polluted the atmosphere, releasing toxic fumes and carcinogens into the air. The oil leaks from bursting pipes are contaminating the nearby river and ground water supplies. Something must be done NOW!"

Session 2.6 Unmet Basic Needs

Main Objectives

After completing this session, participants will be able to:

- Identify the purpose and outcome of this section of the REA Organization Level Module
- Complete Rating Form 3
- Identify which needs may require outside assistance
- Identify which response practices are sustainable or not

Key Messages

- In a disaster, the survivors' own resources and external assistance may be inadequate to meet the survivors' basic needs. Needs which are not being met often result in survivors turning to their surrounding environment to use it and extract from it what they need. This practice may result in rapid depletion of natural resources and untold environmental damage
- This step in the REA helps identify survivor efforts to meet their basic needs that may have a real or potential negative impact on the environment
- It is important to determine whether meeting a basic need is taking place in a way which could seriously deplete essential resources during relief and recovery periods. Excessive use will affect future supplies, and likely quality, of the resource
- A resource (such as timber) may meet minimum needs at one point during the relief operation, but fail to meet this need later as the resource is depleted
- This will, of course, lead to problems with relief operations and result in avoidable environmental damage. As a result, defining resource availability throughout the first 120 days of a relief and recovery period is an important part of minimizing the environmental impacts of disasters
- Form 3 is used to assess "Unmet Basic Needs." Indicators for this form were derived largely from the standards and indicators contained in the Sphere Project Humanitarian Charter and Minimum Standards in Disaster Response

Your Notes:

Exercise



SimEx 4 “Unmet Basic Needs.”

The disaster/country information you will need to read and the forms you will need for SimEx-4 are outlined below.

Information: Situation Update #3

Form: Form 3 “Unmet Basic Needs”

Instructions

A. Read Situation Update 3. In your teams, complete rating Form 3, based on your assigned disaster scenario, and information found in Situation Updates 1, 2 and 3 (especially #3). Use your best judgment to complete the form based on this scenario, making any assumptions that you must.

B. As a team, arrive at consensus on the top three priority issues /Unmet Basic Needs which require action to limit potential environmental damage created by these needs based on the results of your calculation. If you need further guidance on completing this step, refer to the procedures for completing this form found in your REA Guidelines.

List these issues below as well as in the appropriate section of your team’s “Issues Consolidation Table”.

- 1.
- 2.
- 3.



November 6, 2004

Current reports indicate that the water supplies in many affected urban areas, which depend on electrical pumps, have been cut-off because of damage to the electrical generating plant. In most areas, power is not expected to be fully restored for 15-30 days.

James Montero of the Paroma Red Cross noted, "Chronic dysentery doesn't grab the headlines, but it is responsible for far more loss of life [than other illnesses in the region after the storm]." When visiting the displaced, he has witnessed that people in the make-shift camps are relying on rivers and ponds for their drinking water, cooking and washing needs. Meanwhile, he reports that displaced persons living in the public facilities are receiving water delivered by tankers. While enough water is available for basic needs, this water is not being treated and residents are asked to purify the water themselves and are given chlorine to do this.

Most stores are open and selling goods. However, due to downed bridges, blocked roads due to debris, mud, washaway, etc., people are delayed or impeded from conducting normal activities. Some factories have temporarily shut down, due to the malfunction of the electric plant.

Some fresh food is available in make-shift markets, but suppliers from other parts of the country are complaining that the damaged roads are preventing them from getting their food to market. The purchasing power of poorer segments of the population is limited, their food consumption is dropping. The drop in food intake is not being met with adequate relief supplies, as the immediately available supplies were in warehouses have suffered water and flooding damage.

November and December is the rainy season in Paroma. Currently, in the affected area, temperatures range between 20 degrees Celsius during the day and 12 degrees Celsius at night. Of the total evacuated, two thirds lack proper shelter and one third lack even basic protection from the weather. All those living in public shelters (buildings or open areas) lack domestic resources and many have only the clothing on their backs.

Despite the lack of electricity the level of reported crime and violence in the main affected areas is below normal following the dispatch of a 10,000 soldiers to provide security.

There are complaints about crowded living and unsanitary conditions in the schools and stadiums. A Ministry of Health spokesperson, Ana Taylor, has reported that "clean water has been scarce in some of the affected areas and people lack fuel to boil dirty water." She is concerned about epidemics of cholera, dengue, diarrhea and upper respiratory infections. Newspapers are voicing the concerns of residents and displaced alike. They are worried about contamination of their drinking water sources.

Officials in the affected areas are reporting stagnate water due to flooding. These conditions favor the spread of epidemic-diarrhea and respiratory disease. Public health advocates have pointed out a lack of psychological care for the disaster survivors and advocates for the elderly are complaining about a reduction in care for chronically ill patients.

The main sewage treatment plant has stopped working (due to a lack of electricity) and is discharging raw sewage. Municipal waste collection has stopped as crews have been reassigned search and rescue tasks.

Shortages in cooking fuel and vehicle fuel are being reported due to inability to get fuel to market and stations (roads are damaged, bridges are down, making it difficult to get existing supplies to market). The international community has committed food relief for affected population for at least 30-60 days. There are reports that displaced populations in make-shift shelters are using downed trees, cardboard, washed away wood planks, corrugated roofing, plastic to create make-shift shelters in local parks.



Friday, November 3, 2004

Current reports indicate that the water supply to most parts of the city, which depends on electrical pumps, has been cut-off because of damage to the electrical generating plant. Power will not be fully restored for up to 7 days.

Many of the displaced who are camped out in the parks are using river water for cooking and bathing needs. Those in the public shelter (the school) are receiving water from tankers. While enough water is available for the basic needs of those housed in the school, this water is not being treated and the displaced are asked to purify the water themselves.

Most stores are open and selling goods. However, cold storage facilities and larger stores are no longer operating because of the lack of electricity. Bank disbursement of funds is limited for the same reason. The lack of electricity has meant that most businesses have temporarily closed down and stopped paying low income employees. Many of them lived near the site of the explosion.

Supplies of fresh food remain at near normal levels in the city. However, the purchasing power of poorer segments of the population is limited, their food consumption is dropping and the drop in food intake is not being met with adequate relief supplies.

Weather reports forecast rain in the next day or two. Day temperatures are close to 20 degrees Celcius but night temperatures approach 5 degrees Celcius. Of the total evacuated, two thirds lack proper shelter and one third lack even basic protection from the weather. All those living in public shelters (buildings or open areas) lack domestic resources and many have only the clothing on their backs.

Following the dispatch of a 500 soldiers to provide security in and around the oil refinery neighborhoods, despite the lack of electricity, the level of reported crime and violence in the city is below normal.

The influx of injured in the explosion has led the main hospitals in the city to suspend normal health care activities, discharge non-critical patients and defer all non-emergency surgery. Public health advocates have pointed out a lack of psychological care for the disaster survivors and advocates for the elderly are complaining that their special needs are being ignored.

The main sewage treatment plant has stopped working (due to a lack of electricity) and is discharging raw sewage. Municipal waste collection has stopped as crews have been reassigned to clearing debris.

Smoke from the fire continues to blanket parts of the city. Authorities have recommended that the elderly and small children remain inside, and caution all occupants of smoke-affected areas to limit outside activities.

Fuel shortages are being reported due to an inability to pump fuel and due to the refinery being knocked out of operation. Officials do not expect food shortages.

Session 2.7 Participant Experience Sharing

Main Objectives

During this session:

- Participants will be asked to share and discuss their disaster management and/or environmental management experience (volunteer participants who have prepared short case studies will each be given about 10 minutes to present their experience)

General Guidance

A critical element of the workshop will be the application of theory to practice. The selection of participants to make presentations should be determined before the beginning of the workshop, or during the introduction to the workshop on Day 1. Those who agree to do a presentation should be sent the instructions and guidelines for these presentations see those listed in these session notes.

Participant Experience Sharing Guidelines

Case studies can be on any disaster management/environment topic as long as a link can be made to themes found in the REA. For example these themes include:

- Environmental Impact Assessment
- Disaster assessment
- Green procurement
- Disaster response and the environment
- Refugee crisis and the environment
- Disasters and the environment

If you are giving a presentation, please use the following questions to guide what you present:

- *What happened? What was the context or impact?*
- *What did you do? How did you do it (e.g. tools, methods, approach)?*
- *What were the results?*
- *What lessons learned or best practices from this experience can inform the REA?*

Please bring maps and photos to support your presentation, if they are available.

Session 3.2 Negative Environmental Consequences of Relief

Main Objectives

After completing this session, participants will be able to:

- Identify the purpose and outcome of this section of the REA Organization Level Module
- Use Rating Form 4 to identify which relief interventions may create negative environmental consequences
- Propose general mitigation / prevention options to respond to the environmental threats.

Key Messages

- Disaster organizations are involved in a great variety of disaster relief and rehabilitation activities. Some of these activities may inadvertently have negative environmental consequences
- Disaster relief workers necessarily focus on saving lives and stabilizing well being and living conditions in humanitarian emergencies
- As experience has shown, however, it is also important that they assess the environmental consequences of their disaster relief interventions
- Form 4 helps identify potential "Negative Environmental Consequences of Relief Activities." This form lists the most common types of relief interventions, which are then reviewed to determine (yes or no) whether the intervention is planned or underway as part of the disaster relief effort. It also asks whether or not negative environmental consequences of proposed interventions have been considered and addressed. If follow-up is required then general "Avoidance or Mitigation" Options are also listed on this form. These options can require further assessment and planning, possibly involving specialists and requiring community involvement, to be used effectively in countering the negative impacts noted.

Your Notes:

Exercise



SimEx 5 Negative Environmental Consequences on Relief Activities”.

The disaster/country information you will need to read and the forms you will need for SimEx-4 are outlined below.

Information: Situation Update #4.

Form: Form 4 “Negative Environmental Consequences of Relief Activities”

Instructions

A. Read situation update 4. In your teams, complete rating Form 4, based on your assigned disaster scenario and situation updates 1, 2, 3 and 4. Find the type of interventions on the form that corresponds to those interventions mentioned in the update. If you need further guidance on completing this step, refer to the procedures for completing this step found in your REA Guidelines. Use your best judgment to complete the form based on this scenario, making any assumptions that you must.

B. In your teams, arrive at consensus on the top three interventions that could potentially have negative environmental impacts.

C. Discuss and recommended options for avoiding or mitigating the negative impacts. List these priority interventions with potential negative impact below and in the appropriate section of your team’s “Issues Consolidation Table”.

Interventions with potential negative environmental impact requiring urgent action	Recommended avoidance or mitigation options
1	
2	
3	



November 9, 2004

Paroma's government has appealed to donors and NGOs to provide seed, tools, fertilizers and pesticides to help affected farmers stay on track for the upcoming growing season.

A large percentage of the affected population still does not have a stable or sufficient source of potable drinking water due to damages to water lines and water treatment plants in several areas. Many are relying on surface or groundwater sources for their entire water needs and/or to supplement shortages. Several NGOs are delivering chlorinated river water by tanker to those sheltered in the public facilities and in the make-shift camps. However, due to the difficult road conditions, and limited amount of tanker trucks, only about 12 liters/person per day is being delivered. The government has begun distributing chlorine jugs to displaced and non-displaced in the affected areas and is encouraging people to chlorinate their water.

Damage and Debris Clean-Up: As was reported earlier, many roads and bridges were destroyed or badly damaged due to landslides, soil erosion, force of the raging river, etc. The Government has reported that the Civil Defense Forces, and the military are doing their best to clear debris and mud from the roads. The government is calling on donors to support the reconstruction effort to rebuild roads and other infrastructure and in a way that will mitigate against similar damages occurring in the future.

An earlier needs assessment indicated a large need for reconstruction of housing. One large international NGO, Shelter for All (SFA) is proposing to reconstruct 2000 houses for the poorest of the disaster survivors on municipally owned land adjacent to the Wasser River.

The SFA core house will replicate the local stand-alone homes of wood frame with wood siding, 6 m x 6 m and corrugated steel roofing sheets. The project will utilize locally available lumber, harvesting as much as possible from trees felled by the disaster. Some timber will also be harvested from the project land itself as part of the site clearance to prepare for the new construction. The disaster affected population will also derive economic benefits as the project will hire unemployed local youth to build the houses, under the direction of an expatriate NGO project manager.

Local coping strategies: Low income residents have begun collecting scrap wood, metal and other debris from the flood to sell to recyclers. This has become a major source of income for those who lost their jobs due to the hurricane and related floods. Others have been using these flood dispersed materials to rebuild their homes.

Sanitation: The NGO, Clean Hands, is implementing a program of communal latrines for displaced and some neighborhoods where the lack of water and pumping capacity is posing problems for the public sewer system. These simple latrines are being made of wood poles, plastic sheeting for walls and doors (no roofs) and are being placed on 1 meter deep holes as ground water is encountered at 2 meters or less in many parts of the affected areas. The latrines are being used to the extent that many are close to being full and Clean Hands has asked for help in building more latrines to replace those no longer usable (which Clean Hands plans to decommission and backfill).

Relief Assistance: Assistance has been pouring into Paroma, but is not being distributed quickly due to a lack of fuel, vehicles and damaged roads. The neighboring state of Sardon has sent 5,000 MT of fresh meat but there is insufficient number of cold storage facilities to store the meat.

In a unique cooperative effort, OFDA and ECHO have flown in over 20,000 MT medical supplies and other health care items, plastic sheeting, water containers and purification kits and precooked, packaged meals for the disaster survivors. As the airport at Tuross is operating at only limited capacity, most of these items were delivered to the western port city of Yarde and are slowly making their way to other affected areas – although some of the more remote affected areas are still inaccessible by truck. Where the materials have been delivered, one witnesses numerous plastic shrink wrap, plastic sheets and cardboard containers strewn around the site



Saturday, November 4, 2004

As of Friday morning this is a summary of some emergency activities:

Water: The city will provide 15 liters of water per person per day where public water supplies are cut off. The water will come from the Mabi River. Residents will be expected to boil their water and small wooden stoves will be provided for this purpose.

Damage Clean-up: The Mayor has promised that all debris and severely damaged buildings will be cleared out of the explosion area in one week. The rubble is being used to reinforce the banks of the Tipiko and Mabi River.

Concurrently, the Mayor has ordered that squatters be prevented from returning to their former residences. They are being forcibly relocated to a site east of the city. Unfortunately, shelter suppliers and utilities are lacking at the new site being constructed ten miles east of the capital, Dakla (this area is normally flooded late in the fall if rains have been good in the mountains of Pardon and North Central Surestan).

Pollution of water sources: After protests, the Mayor announced that river and ground water quality will be monitored.

Search and Rescue: Fire officials are planning to breach a temporary coffer dam around part of the plant to continue search and clean-up operations. The dam forms an embankment along the Tipiko River and has 2 meters of waste water trapped behind it.

Local coping strategies: Low income residents have begun collecting scrap metal and other debris from the explosion site to sell to recyclers. This has become a major source of income for those who lost their jobs due to the explosion and related electrical problems.

Sanitation: The NGO, Clean Hands, is implementing a program of communal latrines for displaced and some neighborhoods where the lack of water and pumping capacity is posing problems for the public sewer system. These simple latrines are being made of wood poles, plastic sheeting for walls and doors (no roofs) and are being placed on 1 meter deep holes as ground water is encountered at 2 meters or less in some parts of the city. The latrines are being used to the extent that many are close to being full and Clean Hands has asked for help in building more latrines to replace those no longer usable (which Clean Hands plans to decommission and backfill).

Relief Assistance: Assistance has been pouring into Dakla but is not being distributed quickly due to a lack of fuel for vehicles and electricity. The neighboring state of Terka has sent 5,000 MT of fresh meat but there is a lack of cold storage facilities in Dakla.

Nostan has also sent assistance by road, and close to 10,000 MT of instant foods, baking flour and clothing are being stored at an impromptu depot on the road to Tutu. Due to the lack of local transport, authorities has distributed ration cards to Dakla residents and told them to come

to the depot to get assistance. One consequence is that beneficiaries are opening large boxes and packages to reduce the size of what needs to be carried back to their homes and a considerable amount of discarded packaging is accumulating at the depot.

In a unique cooperative effort, OFDA and ECHO have flown in over 20,000 MT medical supplies and other health care items, plastic sheeting, water containers and purification kits and precooked, packaged meals for the disaster survivors. As the airport at Dakla is operating at only limited capacity, most of these items were delivered by air drops to the new site, where supplies are urgently needed. The drop zone is now well marked by the numerous plastic shrink wrap plastic sheets and cardboard containers strewn around the site. Some of the new residents at the site have begun scavenging for items usable for shelter at the drop zone, posing concerns that drops will take place while people are in the site.



Session 3.2 Presentations / Discussion

Main Objectives

During this session participants will:

- Present the results of SimEx 3, 4 and 5
- Discuss any difficulties or questions related to any of these steps in the REA Organizational Level Assessment

Your Notes:

Session 3.3 Module Two: Community Level Assessment

Main Objectives

After completing this session, participants should be able to

- Describe the concepts and outcomes of the Community REA
- Describe possible methods for data collection and the time and resources needed
- Identify the benefits and constraints of conducting the Community REA
- Consolidate results of a completed REA community form
- Develop a plan to troubleshoot and facilitate the Community REA

Key Messages

- Local populations are the most affected by the disaster and are also the main actors in post-disaster relief efforts. Thus, it is critical that an environmental assessment both incorporate community knowledge and views and assess local self-help relief efforts
- The REA Community Level Assessment (CLA) makes the REA results more representative of the local views of the disaster and its impacts
- Information for this module can be obtained either directly or indirectly. Information can be collected directly from affected communities using either a questionnaire and/or other rapid appraisal techniques. Information for the CLA can also be extracted from other existing community post-disaster assessments
- Information generated through the community assessment needs to be condensed and prioritized into a format similar to that used in the Organization Level Assessment. This is done on the Community Assessment Summary Form.

Your Notes:

EX Indonesia - post tsunami desire to tap rubber for livelihoods but communities say they need training in rubber tapping / killing trees
Sri Lanka - the REA felt inadequate - no action - no follow up

Exercise



SimEx 6-A Planning the Community Level Assessment

The purpose of this exercise is to become familiar with planning considerations to complete a community level assessment process. Imagine that you have been asked to organize a rapid community level assessment of four affected communities relying on questions found in the REA Information Collection Guide, Annex D in your Guidelines. In this exercise, you will identify the main organizational elements for this Community Level Assessment, which take into account the following resources and constraints:

- Six staff persons, mix of men and women, international and national staff
- Five days to complete the CLA in all four communities. Report of results by the 7th day.
- For Hurricane Inez scenario: at least one community takes six hours to get to, and another takes sixteen hours to get to.
- In the SurGas explosion scenario, two of the communities are 30 minutes away, the other two are both one hour away.

Discuss and prepare your plan based on the following questions:

1. How will you utilize and organize your six staff (together, apart, mix)?
2. What four communities will you visit? All urban? All rural? Mix?
3. What is your assessment methodology? Walk throughs? interviews? Questionnaires? Why this way and not another way?
4. How will you make your CLA gender sensitive?
5. How will you reach different community groups, especially those not represented by “official” leaders? What groups?
6. Timing? Propose your schedule, including time required to travel, time in community, time to complete the report.

SimEx 6-B Tabulating and Recording the Community Level Results

Background: The purpose of this exercise is to become familiar with the content of the Community Level Assessment form. Imagine that your community level assessment plan (from SimEx 6-A) has been implemented and the results have been tabulated on the Community Assessment Results (see following pages).

Review the community assessment results for your team's assigned disaster scenario, taking note that the form is separated into similar categories as the Organizational Level Assessment (e.g. Context Questions, Factors Influencing Environmental Impact, etc...) For each category, identify the top two or three priorities from the community results (in general, higher importance ranking = higher priority) and list these on your "Issues and Consolidation Table", under the column heading "Community Level Issues." If you need further guidance on completing this step, refer to the procedures found in your REA Guidelines, pp. 31-32.

Note that Questions 1-4 corresponds to Section One of the Organizational Level Assessment (OLA), the Context Statement.

Questions 5-16 of the Community Assessment Form correspond to Section Two of the OLA, Factors Influencing Environmental Impacts.

Questions 17-22 of the Community Assessment Form correspond to Section Three of the OLA, Environmental Threats of Disaster.

Questions 23-32 of the Community Assessment Form correspond to Section Four of the OLA, Unmet Basic Needs.



Part A - Summary of Findings						
#	Item/Question	Community (C) Assessed				Importance Ranking
		C 1	C 2	C 3	C 4	
<p align="center">Context Issues: Score Yes = 1 ("bad") or No = 0. Corresponds to Sections One and Two of the Organization Level Assessment.</p>						
1	Did the community report environmental concerns?	1	1	1	0	3
2	Did the community report environmental problems?	1	1	1	1	4
3	Are there unique areas near the community?	1	1	0	0	2
4	Are a large number of persons affected by the disaster?	1	1	1	0	3
<p align="center">Factors Influencing Environmental Impacts: Score Yes = 1 ("bad") or No = 0. Corresponds to Sections Two of the Organization Level Assessment.</p>						
5	Has the disaster been going on for a long time?	1	1	0	0	2
6	Are the disaster survivors concentrated?	1	1	0	0	2
7	Have the survivors moved a great distance?	1	0	1	0	2
8	Is level of self-sufficiency low?	1	1	1	0	3
9	Is social solidarity low?	1	0	1	0	2
10	Is culturally homogeneity low?	1	0	1	0	2
11	Are most assets concentrated with a few individuals?	1	0	1	0	2
12	Is livelihood base limited (not diversified)?	1	0	0	1	2
13	Are expectations high?	1	0	0	0	1
14	Will current resource use reduce adequate availability in the future?	1	1	1	0	3
15	Is capacity to absorb waste limited?	1	0	1	0	2

16	Does the environment have limited resilience?	1	0	1	0	2
Environmental Threats of Hazards, Yes = 1 ("bad") or No = 0. Corresponds to Section Three of Organization Level Assessment.						
17	Is drought a reported problem?	0	0	1	0	1
18	Is wildfire a reported problem?	0	0		1	1
19	Is conflict a reported problem?	0	0	0	0	0
20	Is animal disease a reported problem?	1	0	0	0	1
21	Is human disease a reported problem?	1	1	1	1	4
22	Are other hazards reported problems (note response for each hazard separately). <i>Floods, Mudslides</i>	1	1	1	0	3
Unmet Needs No = 1 ("bad") or Yes = 0. Corresponds to Section Four of the Organization Level Assessment.						
23	Are adequate supplies of potable water available for humans?	1	1	1	0	3
24	Are adequate supplies of potable water available for animals?	1	0	1	0	2
25	Is shelter adequate for local expectations?	1	1	1	0	4
26	Is food adequate?	1	1	1	0	3
27	Is fuel adequate?	1	0	1	0	2
28	Are household resources adequate?	1	1	1	1	4
29	Is personal safety adequate?	1	0	0	0	1
30	Are human health conditions adequate?	1	1	1	1	4
31	Is waste management appropriate?	1	1	1	0	3
32	Are agro-chemicals used safely?	1	0	1	0	2
33	Are agro-chemicals used safely?	0	0	0	0	0
	Number of problems with potential environmental consequences in each of the four communities	29	17	23	6	

Part B – Community Relief/Coping Strategies

Community Coping Strategy/Action	Indicate Positive (+) or Negative (-) Impact on Local Environment	Comments including whether the action is common for all or only a select number of communities or groups within the communities.
Cutting wood for fuel	+ or -?	Community 1 and 3
Burning fields for arable land	+ or -?	Community 1, 2, 3
Defecation fields	+ or -?	Community 1 –make-shift camps
Living with relatives	+ or -?	Community 2 and 4



Part A - Summary of Findings						
#	Item/Question	Community (C) Assessed				Importance Ranking
		C1	C2	C3	C4	
Context Issues: Score Yes = 1 ("bad") or No = 0. Corresponds to Sections One and Two of the Organization Level Assessment.						
1	Did the community report environmental concerns?	1	0	1	1	3
2	Did the community report environmental problems?	1	0	0	1	4
3	Are there unique areas near the community?	1	0	1	1	3
4	Are a large number of persons affected by the disaster?	0	0	1	1	2
Factors Influencing Environmental Impacts: Score Yes = 1 ("bad") or No = 0. Corresponds to Sections Two of the Organization Level Assessment.						
5	Has the disaster been going on for a long time?	0	0	0	0	0
6	Are the disaster survivors concentrated?	1	0	0	1	2
7	Have the survivors moved a great distance?	0	0	0	0	0
8	Is level of self-sufficiency low?	0	0	0	1	1
9	Is social solidarity low?	0	0	1	1	2
10	Is cultural homogeneity low?	0	0	1	1	2
11	Are assets concentrated?	0	0	1	1	2
12	Is livelihood base limited (not diversified)?	1	0	0	1	2
13	Are expectations high?	1	1	1	1	4

14	Is resource use unsustainable?	1	1	1	1	4
15	Is capacity to absorb waste limited?	1	0	0	1	2
16	Does the environment have limited resilience?	1	1	1	1	4
Disasters/Hazards, Yes = 1 ("bad") or No = 0. Corresponds to Section Three of Organization Level Assessment.						
17	Is drought a reported problem?	0	0	0	0	0
18	Is wildfire a reported problem?	0	0	0	0	0
19	Is conflict a reported problem?	0	1	1	0	2
20	Is animal disease a reported problem?	0	0	0	0	0
21	Is human disease a reported problem?	1	1	1	0	3
22	Are other hazards reported problems (note response for each hazard separately). Fire/explosion	1	1	1	1	4
Unmet Needs No = 1 ("bad") or Yes = 0. Corresponds to Section Four of the Organization Level Assessment.						
23	Are adequate supplies of potable water available for humans?	1	0	1	1	3
24	Are adequate supplies of potable water available for animals?	1	0	0	1	2
25	Is shelter adequate for local expectations?	1	0	1	1	3
26	Is food adequate?	0	0	0	1	1
27	Is fuel adequate?	0	0	1	1	2
28	Are household resources adequate?	1	0	0	1	2
29	Is personal safety adequate?	0	0	1	1	2

30	Are human health conditions adequate?	1	0	1	0	2
31	Is waste management appropriate?	1	0	1	1	3
32	Is the control of insects and breeding sites adequate?	1	1	0	0	2
33	Are agro-chemicals used safely?	0	1	1	0	2
	Number of problems with potential environmental consequences in each of the four communities	18	8	19	23	

Part B – Community Relief/Coping Strategies

Strategy/Action	Indicate Positive (+) or Negative (-) Impact on Local Environment	Comments including whether the strategy is common for all or only a select number of communities or groups within the communities.
People getting drinking water from the river	+ or -?	Common for most families. Work burden significant on women. Community 1, 2 and 3
People are collection scrap metal	+ or -?	Mostly done by women and children in Community 1 and 2.
Sharing of food and shelter between affected and non-affected	+ or -?	In all four communities
People cutting trees for firewood	+ or -?	In Communities 1, 2 and 3
Living with relatives	+ or -?	In communities 2 and 3
Selling fuel on the blackmarket	+ or -?	In all four communities

Session 3.4 Module Three: Consolidation and Analysis

Main Objectives

After completing this session, participants will be able to

- Describe the concepts and outcomes of the consolidation and analysis process
- Develop a plan to facilitate the consolidation and analysis process
- Lead the consolidation and analysis process

Key Messages

- This module facilitates the process of consolidating, analyzing and prioritizing the issues that have surfaced from all previous REA steps
- Completing the Consolidation and Analysis module results in a simple tabular presentation of critical issues identified in the OLA and CLA and an indication of further action to address these issues
- Four types of actions are anticipated
 - *Redesign or re-orient* existing relief or recovery effort
 - *Design* a new project
 - *Acquire* additional information
 - *Advocate* on behalf of disaster survivors.
- The Consolidation and Analysis Module is comprised of two forms. The first form, the "Issues Consolidation Table", is used to select the most critical issues identified in both the Organization Level Assessment and in the Community Level Assessment
- The second form, the "Issues and Actions Table" is used first to further consolidate and prioritize the issues identified in the OLA and the CLA, and to identify appropriate actions and responsibilities
- **The focus of the REA is not to completely resolve issues which have been identified**, but to identify how best to start addressing an issue. Avoid making this step more complicated than necessary
- The items listed under the **Recovery Issues** section should be covered in a separate short report, to be passed to those involved in recovery planning and operations (as only a written document or also through a public information meeting). Documentation and referral is important to ensure that information collected during the assessment is not lost and has a positive impact on recovery, reconstruction and development efforts following a disaster
- Once issues and actions have been prioritized, a second review of possible negative environmental impacts needs to be completed using the procedure set in **Module One, Section Five: Negative Environmental Consequences of Relief Activities**
- Planned actions should be changed, when possible, to reduce negative environmental impacts. If negative impacts cannot be avoided, then mitigation measures should be incorporated into relief or recovery activities

Your Notes:

Exercise



The REA guidelines that correspond with SimEX 7-A, 7-B and 7-C are found on pp. pp. 31-35 of your REA Guidelines.

SimEx 7-A, 7-B, 7-C

The forms you will need for this exercise are outlined below.

Forms: 1. Issues Consolidation Table (the same one your team has been updating throughout the simulation) and 2. Issues and Action Table

SimEx 7-A Completing the Issues Consolidation Form

The purpose of this exercise is to give you experience in completing the Issues Consolidation Form. This is accomplished through the following actions.

1. Refer to your results for Simulation exercise 1 through 6. By now, you should have transferred the results of each exercise to your team's "Issues Consolidation Table."
2. Review all of the issues and develop a single list of issues by consolidating all duplicate and substantially similar issues listed in the two columns. Duplication can be
 - *Within each assessment, e.g., water being mentioned several time in the community assessment, or*
 - *Between assessments, e.g., water being mentioned in the organizational and community level assessments*
3. Duplicate items should be marked (e.g., with a star) as they indicate issues which have a higher frequency, and are likely more important in terms of disaster-environment linkages.

SimEx 7-B Consolidate Issues and Identify Actions

The purpose of this exercise is to prioritize issues and actions. This is accomplished through the following actions.

1. Transfer the results of the consolidation process to the first column of the "**Issues and Actions Table.**"

2. Identify simple and specific actions to address each issue using a rapid brainstorming approach. Actions fall into four groups:
 - *Redesign or re-orient an existing project or activity*
 - *Design a new project*
 - *Collect more information, or*
 - *Advocacy*

SimEx 7-C Prioritizing Actions

If a multitude of issues have been identified, you will need to further prioritize which ones will require immediate attention. The prioritization is based on answers to three questions:

1. Does the issue pose an immediate threat to life?
2. Does the issue pose an immediate threat to welfare? or
3. Does the issue pose an immediate threat to the environment?

Issues for which the answer is yes to the first question are given top priority. Among these issues, the ones involving the greatest threat to life are given the highest priority.

Issues with yes answers to the other questions have correspondingly lower priority for action, and can be ranked according to the level of threat to welfare or the environment, as appropriate.

The prioritization process should give attention to issues which were mentioned more than once at the consolidation stage (e.g. marked with a star). These issues are more likely to be of greater importance to communities and assistance providers and should be given priority within each priority category (i.e., threat to life, welfare or the environment).

Session 3.5 REA Implementation Issues

Main Objectives

After completing this lesson, you will be able to describe:

- the level of expertise required to use the REA
- the personnel requirements for conducting an REA
- the length of time required to conduct an REA
- how to use and modify the rating scales

Key Messages

- The REA is intended to be used by persons with no specific background in environmental issues and relatively little background in disaster management.
- The primary REA users are expected to be government, NGO or international organization staff conducting field assessments or directly managing relief operations.
- Participants in the REA (especially in the CLA) should reflect the gender, social and cultural diversity of the population within the area for which the assessment is being conducted.
- The REA is preferably used by a group of persons directly involved in the disaster response. While the REA can be completed by an individual, this approach will take more time and often suffers from the individual assessor's own bias and limited perspective.
- The group process should be managed by one person charged with leading the assessment process, collecting background information, and recording and keeping a file of the assessment results.
- The REA is designed primarily for use during the critical disaster response period. Ideally, the REA can be conducted as soon as practicable after a warning or start of a disaster until conditions have stabilized, normally within 120 days after a trigger event. This 120-day period provides time to begin an Environmental Impact Assessment as part of the recovery and rehabilitation process.
- An REA can be completed by using only either the Organization Level Assessment (OLA) module, or the Community Level Assessment (CLA) module. Using only the OLA module is conceivable when there is no opportunity to collect information from communities, as is likely in rapid onset disasters.
- When using the REA rating forms, remember:
 - *Everyone has a vote*
 - *Votes can be averaged*
 - *Voting is productive*
 - *Sometimes it is necessary to push ahead and keep things moving rapidly*
 - *Clear rating and ranking criteria make voting and rating and ranking easier.*
 - *Main criteria: impact on Life, Welfare, the Environment*



Your Notes:

Session 3.6 Evaluation and Closing

Main Objectives

During this session, participants will

- Test your learning at this workshop
- Complete a course evaluation
- Learn about additional electronic REA resources

Key Messages

- You can order a self-study REA eLearning CD course from InterWorks LLC by calling the U.S. at 1-608-251-9440 or emailing Paul Thompson at thompson@interworksmadison.com
- All of the REA training material and field test reports can be seen and downloaded at the Benfield Hazard Research Centre website at http://www.benfieldhrc.org/SiteRoot/disaster_studies/rea/rea_index.htm

SIMULATION

REA Rating and Analysis Forms

Rating Form 1: Factors Influencing Environmental Impacts

Factor	Rating			Implication
	Low Priority	Medium Priority	High Priority	
Number of persons affected (relative to total population in disaster area).	Few	Some	Many	The greater number affected the greater potential impact on the environment.
Duration: Time since onset of disaster.	Days to weeks	Weeks to months	Months to years	The longer the disaster the greater the potential impact on the environment.
Concentration of the affected population.	Low	Moderate	High	The more concentrated (or dense) the living conditions of the survivors, the greater potential impact.
Distance disaster survivors have moved since the beginning of the disaster.	Close to point of origin	Not close or far	Far from point of origin	The further survivors have to move, the greater the potential impact on the environment.
Self-Sufficiency: After the start of the disaster, the ability of survivors to meet needs without recourse to additional direct extraction from the environment or external assistance.	High	Not high or low.	Low	Low self-sufficiency after the disaster implies greater risk of damage to the environment.
Social solidarity: Solidarity between disaster survivors and non-affected populations.	Strong	Not strong or weak.	Weak	Weak solidarity may indicate the likelihood of conflict over resources and limits to the ability of survivors to meet needs.
Cultural homogeneity: The similarity of cultural beliefs and practices between disaster survivors and non-affected populations.	High	Not high or low.	Low	A lack of common cultural structure may result in disagreement over resource use.

	Rating			
Asset distribution: The distribution of economic and other assets within disaster affected population after the start of the disaster.	Equitable	Partially equitable	Not Equitable	Concentration of assets with one part of a population can lead to tensions with less-well endowed groups over use of environmental assets.
Livelihood options: The number of options that disaster survivors have to assure their livelihoods after the start of the disaster.	Many	Some	Few	The fewer the number of livelihood options indicates the disaster survivors may pose higher pressure upon fewer resources of the environment.
Expectations: The level of assistance (local and external) which the disaster survivors expect to need to survive.	Low	Moderate	High	In the absence of adequate assistance, high expectations can lead to high demand on local resources.
Availability of natural resources, or whether the available natural resources meet the needs of the disaster survivors in a way which can continue without degradation to the environment or future availability of the resources.	High	Moderate	Low	Excessive use of natural resources leads to environment damage. Relief can be used to reduce excessive resource demand or repair damage done to the environment. The resources in question are water (for human consumption and for other uses), forest resources (timber, firewood), agriculture land (soil and water quality), et cetera.
Capacity to absorb waste: The environmental, social and physical structures available to handle waste produced by the survivors.	High	Moderate	Low	Low waste absorptive capacity will lead to environmental damage.
Environmental Resilience: Ability of eco-system to rebound from the disaster itself and from relief and recovery activities which cause environmental damage.	High	Moderate	Low	Low resilience likely means high fragility and greater possibility of long-term environmental damage.

Rating Form 2: Environmental Threats of Disasters⁵

Hazard	Guidance as to whether the hazard presents a significant threat.	Is the physical area affected: Large (1 st priority) Medium (2 nd priority) Small (3 rd priority)?	Initial Response Options
Flooding: Transport of contaminated sediment. Sediment contains hazardous organic or inorganic chemicals (including high levels of salt). Secondary risk from sediment when dried after a flood.	Chemicals (including salt) present at levels exceeding acceptable standards.		<ol style="list-style-type: none"> 1. Identify and assess level of chemicals present. 2. Limit use of water sources with contaminated sediment and plants and animals collected from these sites. 3. Specialized technical assistance likely needed for assessment and planning.
Flooding: Polluted Water. Water contains hazardous pathogens, or chemicals.	Pathogens or chemicals present at levels which exceed acceptable standards.		<ol style="list-style-type: none"> 1. Identify and assess level of pathogens or chemicals present. 2. Limit use of contaminated water and plants and animals collected from contaminated water. 3. Consider water purification to meet immediate needs. 4. Specialized technical assistance likely needed for assessment and planning.
Flooding: Transport of contaminated solids other than sediment. Flood waters contain physical items which pose a threat, including but not limited to, animal carcasses and hazardous materials containers	<ol style="list-style-type: none"> 1. Presence of dead animals. 2. Presence of hazardous chemical containers. 		<ol style="list-style-type: none"> 1. Quantify number and volume of solids by three threat types (animals, hazardous chemical containers, other debris). 2. Develop and publicize ways to deal with solids. Consider special collection and safety

⁵ Note that Hurricane/Cyclone/Typhoon should be treated under each impact agent: flooding, sea surge, and wind.

Hazard	Guidance as to whether the hazard presents a significant threat.	Is the physical area affected: Large (1 st priority) Medium (2 nd priority) Small (3 rd priority)?	Initial Response Options
hazardous materials containers.	3. Presence of significant level of floating debris in flood waters.		activities, and ensure safe disposal procedures and locations. 3. Specialized technical assistance likely needed for assessment and planning and in handling disposal.
Flooding: Erosion (water). Flood waters remove usable soil and cover usable land with sediment.	1. Loss of critical infrastructure, e.g., dikes, irrigation system. 2. Loss of immediately productive land, e.g., land for cultivation or harvesting natural resources.		1. Remove or protect infrastructure under threat. 2. Remove plants and other productive assets from flooded land before loss or coverage with sediment. 3. Remove sediment after flooding. 4. Specialized assistance likely needed.
Flooding: Damage to Infrastructure (from erosion or force of flood waters). Flood waters damage or destroy built environment, limiting operation of critical functions (e.g., safe water delivery), or increasing risk of pollution (e.g., damage to sewage treatment plant).	Damage which (1) seriously limits or stops use of critical infrastructure, including roads, water treatment, power, emergency services, or (2) creates potential sources of pollution, e.g., industrial or mining sites, oil and gas transmission systems, garbage dumps, and chemical waste sites.		1. Replace or remove infrastructure under threat. 2. Flood-proof and decommission sites at risk. 3. Identify nature of potential or actual pollution due to flooding/flood damage and develop response plans (see above). 4. Specialized assistance likely needed for any significant response.
Wind , including tornados.	Reduced food supply,		1. Short-term food and economic assistance to

Hazard	Guidance as to whether the hazard presents a significant threat.	Is the physical area affected: Large (1 st priority) Medium (2 nd priority) Small (3 rd priority)?	Initial Response Options
Damage/loss of crops, land cover and infrastructure.	economic (exploitable) natural resources and infrastructure, specifically shelter and public and commercial facilities.		<p>assist survivors until vegetation/crops recover or are replanted.</p> <ol style="list-style-type: none"> 2. Assistance to replace/repair damaged infrastructure. 3. Dispose of debris in manner that does not increase air, land or water pollution.
Wild Fire: Damage to Infrastructure. Wild fire can damage or destroy infrastructure, limiting operation of critical functions or increasing risk of pollution.	Damage which (1) significantly limits or stops use of critical infrastructure, including roads, water treatment, power, emergency services, or (2) affects control systems for industrial sites, e.g., power supply to a chemical factory.		<ol style="list-style-type: none"> 1. Remove or decommission infrastructure under threat. 2. Identify potential or actual pollution due to wildfire damage and develop response plans (see above). 3. Specialized assistance likely needed for any significant response.
Wild Fire: Air Pollution. Air contains hazardous chemicals and high concentrations of particulate matter.	Chemicals and/or particulate matter present at levels which exceed acceptable standards.		<ol style="list-style-type: none"> 1. Identify and assess level of chemicals or particulate matter present. 2. Develop methods to purify air for individual and indoor use, with focus on persons with air-related health problem. 3. Technical assistance probably needed for assessment and response.
Wild Fire: Erosion (following fire). Wildfire removes land cover leading to increased erosion.	Immediate threat to (1) critical infrastructure, or (2) habitats providing		<ol style="list-style-type: none"> 1. Institute erosion control measures. 2. Identify and reinforce/remove critical infrastructure under threat.

Hazard	Guidance as to whether the hazard presents a significant threat.	Is the physical area affected: Large (1 st priority) Medium (2 nd priority) Small (3 rd priority)?	Initial Response Options
	food and income to disaster survivors.		infrastructure under threat.
Wild Fire: Loss of Habitat. Wildfire damages or destroys habitat resulting in negative impact on species using habitat before fire.	Lack of alternative habitats for species under threat.		<ol style="list-style-type: none"> 1. Institute activities to restore or modify damaged habitat. 2. Make alternate habitats available to species under threat.
Drought: Wind. Unusually dry land more susceptible to aeolian (wind) erosion.	Significant dust clouds and evidence of wind movement of soils (e.g., soil forming dunes)		<ol style="list-style-type: none"> 1. Wind erosion control measures. 2. Shift to drought-tolerant crops/ground cover.
Drought: Wind. Chemical composition of dust.	Chemicals present at levels which exceed acceptable standards.		<ol style="list-style-type: none"> 1. Identify and assess level of chemicals present. 2. Limit movement of dust and institute measures to limit dust inhalation (see above and under wildfire). 3. Specialized assistance likely needed for assessment.
Drought: Wind. Drying effect of wind on vegetation (failure to mature, increased likelihood of fire).	Vegetation drying faster than normal.		<ol style="list-style-type: none"> 1. Institute modified cultivation or harvesting procedures, e.g., early harvesting, irrigation. 2. Develop fire management plan, including fire breaks, training and bio-mass reduction.
Drought: Drying of Crops. Lack of water (from rainfall or irrigations) for normal crop development.	Insufficient water for normal crop grown. Note that impact can due to a lack in total amount of water available, or periods of a lack or		<ol style="list-style-type: none"> 1. As above. 2. Implement water conservation methods, e.g., mulching. 3. Consider temporary reallocation of available water supplies to ensure proper crop

Hazard	Guidance as to whether the hazard presents a significant threat.	Is the physical area affected: Large (1 st priority) Medium (2 nd priority) Small (3 rd priority)?	Initial Response Options
	periods of a lack or insufficient of water at critical crop development stages.		development (for irrigation-dependent crops). 4. Identify alternate used for crops which do not mature properly, e.g., as livestock feed.
<p>Drought: Drying of water courses and lakes/ponds.</p> <ol style="list-style-type: none"> 1. Lack of water supply for personal and commercial uses. 2. Increase health problems. 3. Decrease in water quality. 4. Loss of income/food supply sources. 	<ol style="list-style-type: none"> 1. Water less than 15 liters per person per day. 2. Increase in skin and other sanitation-related diseases above pre-drought levels. 3. Water does not meet international/local standards. 4. Significant reduction of food supply or income. 		<ol style="list-style-type: none"> 1. Improve supply and quality of water. 2. Monitor and respond to health problems. 3. Develop alternative sources of food and income.
<p>Hail. Damage to crops and land cover.</p>	Loss of food supply and economic (exploitable) natural resources.		<ol style="list-style-type: none"> 1. Short-term food and economic assistance to assist survivors until vegetation/crops recover or are replanted. 2. Dispose of damaged vegetation in manner that does not increase air, land or water pollution.
<p>Snow, including associated high winds, and ice storms (unusually heavy or persistent).</p> <ol style="list-style-type: none"> 1. Damage to infrastructure and natural resources. 	Snow or ice presence, in time or quantity, above average.		<ol style="list-style-type: none"> 1. Implement snow safety activities to protect infrastructure from damage. 2. Shift crops and planting methods to take into account late planting and soil moisture conditions.

Hazard	Guidance as to whether the hazard presents a significant threat.	Is the physical area affected: Large (1 st priority) Medium (2 nd priority) Small (3 rd priority)?	Initial Response Options
<p>2. Limiting access to fields and other natural resources.</p> <p>3. Heavy runoff.</p>			<p>3. Develop water management plan for runoff, including erosion prevention and flood management.</p> <p>4. Develop management plan for damaged vegetation and snow removal.</p>
<p>Phytosanitary (Pest) Outbreak. Damage to economic crops from pests or disease.</p>	<p>Damage significantly above normal⁶.</p>		<p>1. Integrated pest management methods, with agro-chemical application as appropriate. Procedures for safer use of agro-chemicals should be followed (including user education) and containers disposed of according to international standards.</p> <p>2. For medium to large scale pest disaster it is likely that special technical assistance and program management will be required.</p>
<p>Disease. Human Mortality and morbidity reducing social and economic activity and increasing personal hardship.</p>	<p>Disease incidence significantly above normal. Note that specific criteria and methods exist to determine if an epidemic is occurring or a threat, and should be used to assess threat significance.</p>		<p>Disease control-related measures focusing on environmental factors such as water supply and quality, sanitation, pollution reduction and living condition (e. g., other hazards like flooding or crowded conditions). Many responses are likely to be common sense and relate to other threats to disaster survivors.</p>

⁶ “Normal” is usually defined as average recorded losses over specific period. Can also be assessed based on qualitative assessment of agriculture community as to whether losses are significantly above normal.

Hazard	Guidance as to whether the hazard presents a significant threat.	Is the physical area affected: Large (1 st priority) Medium (2 nd priority) Small (3 rd priority)?	Initial Response Options
<p>Disease. Epizootia (animal, not human) Mortality and morbidity of non-human animals affecting food intake, assets and increasing personal hardship.</p>	<p>Disease incidence significantly above normal. Note that specific criteria and methods exist to determine if an epidemic is occurring or a threat, and should be used to assess threat significance.</p>		<ol style="list-style-type: none"> 1. Improving water supply and quality, sanitation, pollution reduction and living condition, e. g., crowded conditions. 2. Safe and environmentally sound disposal of dead animals. 3. The general lack of experience with animal health emergencies indicates specialized technical assistance will be needed throughout the response.
<p>Land Mass Movement, including land slides, slumps, and other down slope movement.</p> <ol style="list-style-type: none"> 1. Direct damage to infrastructure and natural resources. 2. Direct or indirect pollution of water sources. 	<ol style="list-style-type: none"> 1. Damage to infrastructure or other resources. 2. Significant increase in water sediment load. 		<ol style="list-style-type: none"> 1. Remove infrastructure at risk. 2. Install containment structures and filtration systems for contaminated water. 3. Specialist assistance is likely to be required to plan response.
<p>Earthquake</p> <ol style="list-style-type: none"> 1. Damage to critical infrastructure, leading to (i) threat to or loss of life and injuries, or (ii) hazardous materials incidents. 2. Changes in land forms (e.g., mass movement) 	<ol style="list-style-type: none"> 1. Human death or injury 2. Any hazardous materials release. 3. Any damage that stops or significantly slows the delivery of critical services (water, health care, power, gas, heating, food) 4. Any land form change 		<ol style="list-style-type: none"> 1. Develop rescue plans (best done before the disaster). 2. Develop and implement hazardous materials response plans (best done before the disaster). 3. Respond to damage to infrastructure as per other disasters. 4. Respond to land form changes as per "Mass Movements". 5. Develop solid waste disposal plan, including

Hazard	Guidance as to whether the hazard presents a significant threat.	Is the physical area affected: Large (1 st priority) Medium (2 nd priority) Small (3 rd priority)?	Initial Response Options
	due to the earthquake.		<p>procedures for recycling as much waste as possible and minimizing air and water pollution and ensuring sanitary landfill standards are met.</p> <p>6. Specialized technical assistance is likely to be required in design of waste disposal plan.</p>
<p>Volcano: Superheated ash, gas flows and large scale explosions. Rapid destruction of environment.</p>	<p>Volcano producing ash/gas clouds or evidence of large scale explosions in the past.</p>		<ol style="list-style-type: none"> 1. Establish safety zones around volcano and attempt to limit human and other access to high risk areas. 2. Likely require specialized assistance to assess nature of volcano, high risk areas and effective safety precaution.
<p>Volcano: Ash falls (including materials deposited following a massive explosion) and lava flows. Covering and/or destruction of productive (natural) resources, damage or destruction of built environment, pollution of water resources, health impacts from air pollution.</p>	<ol style="list-style-type: none"> 1. Significant loss of productive assets or infrastructure. 2. Air or water quality below standards. 3. Threat of sedimentation, flooding or erosion due to presence of ash or lava. 		<ol style="list-style-type: none"> 1. Identify area at risk from ash falls and lava flows before eruption and implement evacuation and resource management plans. 2. Remove ash fall and lava. 3. Remove or maintain productive resources or infrastructure under threat. 4. Develop alternate uses for land covered with ash or lava, e.g., use for construction material. 5. Develop water and air quality monitoring program and remedial measures as appropriate. 6. Implement erosion and surface water management plan to manage sedimentation process and changes to water quality.

Hazard	Guidance as to whether the hazard presents a significant threat.	Is the physical area affected: Large (1 st priority) Medium (2 nd priority) Small (3 rd priority)?	Initial Response Options
			7. Specialized technical assistance likely needed to deal with water/air quality issues.
<p>Armed Conflict (between and within countries): Active fighting by military units (“conventional warfare”). Intentional damage to infrastructure, including power, water, sewage and industrial capacity due to active fighting. Limitations on ability to deliver basic supplies to non-combatant populations.</p>	<ol style="list-style-type: none"> 1. Active military efforts to cause damage. 2. Inability or reduced ability to deliver minimum supplies of water, food, sanitation services and basic care due to fighting or infrastructure damage 		<ol style="list-style-type: none"> 1. Development of protected systems for delivery of minimum supplies of critical items (water, food, sanitation services, health care). 2. Use of neutral parties to deliver supplies and manage efforts to address damage caused by fighting. 3. Debris should be recycled or disposed in a way to minimize air, water and land pollution.
<p>Armed Conflict: Unconventional warfare (including terrorism and ethnic cleansing). Disruption of normal social and economic support systems (i.e., threat to ability of populations to meet basic needs). Damage to and disruption of infrastructure systems.</p>			Development of protected systems for delivery of minimum supplies of critical items (water, food, sanitation services, health care).
<p>Armed Conflict: Use of chemical, biological, nuclear, radiation or high yield conventional explosives (in conventional and unconventional warfare). Immediate or delayed death to non combatants and other living entities (e.g., cattle).</p>	Releases of hazardous substances via air, water or land, with intention to due harm.		<ol style="list-style-type: none"> 1. Rapid response teams to limit releases of hazardous materials. 2. Decontamination of affected populations and areas. Note that decontamination efforts will require significant steps to properly dispose of contaminated materials.

Hazard	Guidance as to whether the hazard presents a significant threat.	Is the physical area affected: Large (1 st priority) Medium (2 nd priority) Small (3 rd priority)?	Initial Response Options
<p>Technological: Hazardous Material Release (fixed site and during transport, including road, water, rail or air accidents). Release of chemicals or compounds that pose immediate threat to life and well being.</p>	<ol style="list-style-type: none"> 1. Level of release above established norm (local or international, as appropriate). 2. Rate of release (e.g., explosion) poses significant threat to life or well being. 		<ol style="list-style-type: none"> 1. Limit additional damage by removing populations from affected areas and providing response teams with protective clothing and support. 2. Treat exposure symptoms as per standard medical response, taking care not to pass on contamination during treatment. 3. Dispose of contaminated items in way to limit additional land, water or air pollution. 4. Likely specialized assistance will be needed for all phases of the response.
<p>Technological: Explosion, from fixed or mobile source (e.g., tank truck). Destruction of lives, productive assets and infrastructure.</p>	<ol style="list-style-type: none"> 1. Humans at risk. 2. Potential or actual damage to productive assets (natural resources, commercial facilities or infrastructure). 		<ol style="list-style-type: none"> 1. Before disaster, develop risk zoning and change land use to reduce risk from explosion. 2. Design facilities/vehicles to reduce risk of explosion. 3. Establish warning and evacuation plans and shelters. 4. After explosion, consider items in previous section.

Rating Form 3: Unmet Basic Needs

Basic Needs	At what level were needs being met before the disaster?	Are needs being met at present?	Will the quality or quantity of the resources used to meet this need deteriorate significantly in the next 120 days? (Yes/no)	Indicators (Based on Sphere indicators. The closer the indicators are met in full, the higher the score. These indicators are guides. Use depends on available data and familiarity of users with Sphere Standards.)
	Answer the questions above with one of the following responses: * <i>Not met at all.</i> * <i>Lesser part of needs met than not met.</i> * <i>Greater part of needs met than not met.</i> * <i>Largely met.</i> * <i>Totally met.</i>			
Water				1. 15 liters of water per person per day. 2. Waiting time at point of delivery not more than 15 minutes. 3. Distance from shelter to water point no more than 500 meters. 4. Water is palatable and of sufficient quality to be used without significant risk to health due to water-borne diseases, or chemical or radiological contamination during short-term use. (Note: contaminants includes human and industrial waste and agro-chemicals.)
Food				1. Minimum food needs met : On average, 2,100 kilo-calories per person per day, 10-12% of total energy from protein, 17% of total energy from fat, and adequate micro-nutrient intake. 2. Food supplies are accessible at affordable prices and supply and costs are stable over time. 3. Food distribution is equitable, transparent, safe and covers basic needs (together with other food items available).
Shelter				1. At least 3.5 square meters of covered space per person providing protection from weather and fresh air, security and privacy. 2. <u>In hot climates</u> , shelter materials, construction and ventilation adequate to keep in-shelter temperature 10 degrees centigrade below outside temperature. 3. <u>In cold climates</u> , shelter material, construction, and heating ensure internal temperature no less than 15 degrees centigrade 4. Camps, temporary shelter sites or resettlement sites are safe and have adequate access to basic services. 5. 45 square meters space is available per person in temporary camps or shelters, with provision made for living, social and commercial activities.

Basic Needs	At what level were needs being met before the disaster?	Are needs being met at present?	Will the quality or quantity of the resources used to meet this need deteriorate significantly in the next 120 days? (Yes/no)	Indicators (Based on Sphere indicators. The closer the indicators are met in full, the higher the score. These indicators are guides. Use depends on available data and familiarity of users with Sphere Standards.)
	Answer the questions above with one of the following responses: * <i>Not met at all.</i> * <i>Lesser part of needs met than not met.</i> * <i>Greater part of needs met than not met.</i> * <i>Largely met.</i> * <i>Totally met.</i>			
Personal Safety				1. Disaster survivors have sufficient personal liberty and security at all times. 2. Opportunities for violence are minimized to the extent possible. Opportunities for violence should be noted and linked to specific environmental issues when appropriate.
Health Care				1. Disaster survivors have adequate, timely and affordable access to care for injuries and health (including psychosocial) problems arising from the disaster. 2. Health management interventions are appropriate for chronic and acute health risks faced by disaster survivors and take into account age and gender. (See Sphere Standards for specifics.)
Waste management (liquid and solid)				1. Toilets are clean and safe, with a maximum of 20 people per toilet and are no more than 50 meters from dwellings 2. Use of toilets is arranged by household(s) and/or segregated by sex. 3. Environment is acceptably free of solid waste contamination, including medical wastes. 4. Refuse containers are easily available and refuse is disposed of in a way to avoid creating health and environmental problems 5. No contaminated or dangerous medical wastes in living or public space.
Environmental Conditions				1. Location of disaster survivors is not subject to immediate hazards, including flooding, pollution, landslides, fire, or volcanic eruptions, or effective mitigation measures have been taken. 2. Environment is free from risk of water erosion, from standing water and a slope of no more than 6%. 3. Smoke and fumes are below nuisance levels and pose no threat to human health. 4. Animal management minimizes opportunities for disease transmission, solid and

Basic Needs	At what level were needs being met before the disaster?	Are needs being met at present?	Will the quality or quantity of the resources used to meet this need deteriorate significantly in the next 120 days? (Yes/no)	Indicators (Based on Sphere indicators. The closer the indicators are met in full, the higher the score. These indicators are guides. Use depends on available data and familiarity of users with Sphere Standards.)
	Answer the questions above with one of the following responses: * <i>Not met at all.</i> * <i>Lesser part of needs met than not met.</i> * <i>Greater part of needs met than not met.</i> * <i>Largely met.</i> * <i>Totally met.</i>			
				liquid waste problems and environmental degradation. 5. Uncontrolled extraction of natural resources by disaster survivors is not taking place. 6. Graveyard (s) is appropriately located and sized.
Fuel				1. Fuel availability meets immediate needs. 2. Low smoke and fuel-efficient wood stoves, gas or kerosene stoves and cooking pots with well-fitting lids are available.
Lighting				Sufficient to meet security requirements and for normal economic and social activities.
Domestic Resources				Each household unit has access to adequate utensils, soap for personal hygiene and necessary tools. (Specific minimum needs identified in Sphere Handbook Chapter 4, Section 2).
Clothing				Clothing is appropriate for climatic conditions, gender, age, safety, dignity, and well-being.
Transport				1. Adequate to deliver goods and services to displaced at reasonable cost and convenience. 2. Adequate to permit disaster survivors to reach goods and services at reasonable cost and convenience.

Rating Form 4: Negative Environmental Consequences of Relief Activities

Activity	Is the activity underway or planned? (Yes/No)	Questions on whether potential negative environmental consequences of activity have been addressed.	Yes/No answer to the question immediately to the left.	Selected Avoidance or Mitigation Options
Local Coping Strategies		To be added based on specific disaster conditions. Negative environmental consequences often involve a loss of natural resources, bio-diversity or conflict over scarce resources.		Avoidance/mitigation options should be developed specifically for each possible negative consequence. This process should involve input from survivors and can be facilitated with information collected through the Community Level Assessment module..
Agro-chemicals		1. Is the danger to applicators and humans from exposure in the application, handling or storage of agro-chemicals addressed?		<ol style="list-style-type: none"> 1. Avoid or minimize use or use products with low toxicity. 2. Establish training and education programs on agro-chemical safety. 3. Establish system for safer handling, cleaning and disposal of containers and equipment. 4. Provide education and extension advice on use of agro-chemicals. Limit quantities available to actual agricultural needs. 5. Use Integrated Pest Management approaches.
		2. Are negative impacts on non-target organisms in soil, water and air avoided or minimized?		
Seeds ⁷ , tools and fertilizer		1. Is the loss of agro-bio-diversity prevented?		<ol style="list-style-type: none"> 1. Use local seeds where possible, procured and distributed through existing channels. 2. Limit introduction of non-local seeds to varieties tested locally and known to local users. 3. Avoid introduction of genetically modified
		2. Is the introduction of species and varieties which are invasive or cannot be used without locally unavailable inputs avoided?		

⁷ Note that food aid, if provided as whole grain, may be used as seed, and should be screened according to this section.

⁸ This option applies to food aid grain provided as whole grain.

Activity	Is the activity underway or planned? (Yes/No)	Questions on whether potential negative environmental consequences of activity have been addressed.	Yes/No answer to the question immediately to the left.	Selected Avoidance or Mitigation Options
		3. Is damage to traditional seed management systems avoided?		seed varieties not already in use in the country ⁸ .
		4. Is the potential for increased resource extraction due to availability of more effective means of farming addressed?		4. Provide environmental education on use of tools and develop resource extraction plan which avoids negative environmental impacts where appropriate.
		5. Is the potential for damage to soil and water from overuse of fertilizers addressed?		5. Provide education and extension advice on use of fertilizers. Limit quantities available to actual agricultural needs.
Harvesting wild plants/fruits		Are steps taken to avoid harvesting rates which exceed production capacity or reduces future production capacity?		Establish harvest system based on a balance between rates of extraction and regeneration.
Expansion of Area or Type of Cultivation.		1. Is the potential for the loss of habitats and reduced bio-diversity addressed? 2. Is the possibility of deforestation addressed? 3. Is the potential for soil erosion addressed?		1. Establish and use land use plans which take into account habitat diversity and sustainability of land use systems. 2. Re- and a- forestation programs. 3. Soil conservation activities.
Expansion of Livestock Use		1. Is the potential for the loss of habitats and reduced bio-diversity addressed?		1. Develop and implement a land use plan which takes into account habitat diversity and sustainability of land use systems.
		2. Is the potential for the introduction of new animal diseases or expansion of existing diseases addressed?		2. Establish/expand animal disease monitoring and control system.
New farming or livestock raising activities.		1. Is the potential for loss of habitats and reduced bio-diversity addressed?		1. Develop and implement a land use plan which takes into account habitat diversity and sustainability of land use systems.
		2. Is the potential for the introduction of new animal diseases or expansion of existing diseases addressed?		2. Establish/expand animal disease monitoring and control system.
		3. Is the potential for land degradation and erosion from land clearing or grazing addressed?		3. Institute land conservation activities.

Activity	Is the activity underway or planned? (Yes/No)	Questions on whether potential negative environmental consequences of activity have been addressed.	Yes/No answer to the question immediately to the left.	Selected Avoidance or Mitigation Options
Irrigation (expanded)		1. Is the risk of Increased disease transmission addressed?		1. Increase preventive and curative health care. 2. Increase disease surveillance. 3. Establish management plan for water use which assures adequate water for current and future needs. 4. Change types of crops/cropping systems and water use. 5. Establish filtering system for weed propagules.
		2. Is potential for soil degradation and water logging addressed?		
		3. Is the potential for aquifer depletion addressed?		
		4. Is the potential for weed dispersal through irrigation water addressed?		
Fishing		1. Is harvesting which exceeds production capacity or reduces future production capacity prevented?		1. Develop and follow a resource harvesting plan which assures adequate supplies for current and future needs. 2. Monitor aquatic resource use and undertake education program for resource users. 3. Limit or avoid introduction of new fish varieties and fish production methods.
		2. Is the potential for damage or destruction of habitats from fishing methods addressed?		
		3. Is the introduction of exotic species of fish, parasites and diseases prevented?		
Construction, including shelter, public buildings and infrastructure excluding roads.		1. Are plans and procedures established to prevent scarce natural resources from being over exploited for construction activities?		1. Develop and follow resource management and land use management plans. 2. Assess hazards in area where construction will take place and change sitting or methods accordingly. 3. Ensure construction methods reflect known hazards and risks and are used to reduce vulnerability.
		2. Are plans and procedures established to ensure that the construction site is not in an area of increased hazard compared to location or conditions before disaster?		
		3. Are plans and procedures in place to avoid increases risk of flooding, erosion or other hazards due to the construction?		

Activity	Is the activity underway or planned? (Yes/No)	Questions on whether potential negative environmental consequences of activity have been addressed.	Yes/No answer to the question immediately to the left.	Selected Avoidance or Mitigation Options
		4. Do construction methods and procedures take into account the risk of disaster?		
Roads, paved or other, new and existing.		1. Are there plans and procedures designed to avoid the exploitation of new lands or increased exploitation of existing lands due to the road?		1. Develop and follow land use plans. 2. Limit access to roads. 3. Verify road design against flooding/drainage risk assessment. 4. Incorporate erosion mitigation measures in road construction activities.
		2. Are procedures and plans developed to prevent flooding and drainage problems due to the road work?		
		3. Are there plans and procedures to avoid landslides and soil erosion due to the road work?		
Water Supply		1. Are increased opportunities for disease transmission avoided?		1. Establish and maintain water treatment system. 2. Design and maintain water supply structure to minimize standing water and vector breeding sites. 3. Plan water provision based on anticipated need and use plan for delivery area which allows current and future needs to be met. 4. Establish water resource use plan and monitor use and supply. 5. Consider economic incentives to conserve water. 6. Use hazardous chemicals as recommended and limit inappropriate use through education.
		2. Are there plans and procedures to avoid an increase in population density having a negative environmental impact?		
		3. Is the overuse of ground or surface water supplies avoided?		
		4. Are chemicals used to clean or purify water managed in such a way to avoid human health dangers or contamination of the environment?		
Sanitation, including latrines, waste treatment and transport infrastructure, and solid waste management.		1. Is the creation of hazardous waste sites avoided?		1. Establish and maintain sites for sanitary and safe waste disposal operating at international standards. 2. Limit waste movement through appropriate collection systems meeting accepted best practices.
		2. Is additional pollution of land, water and air avoided?		

Activity	Is the activity underway or planned? (Yes/No)	Questions on whether potential negative environmental consequences of activity have been addressed.	Yes/No answer to the question immediately to the left.	Selected Avoidance or Mitigation Options
		3. Is an increase in disease transmission and presence of disease vectors avoided?		3. Minimize opportunities for disease transmission and vectors. 4. Establish and maintain environmental monitoring program covering air, land and water pollution.
Health Care		1. Is pollution from disposal of medical and other waste avoided?		1. Establish system for safe disposal of all wastes (solid and liquid). 2. Develop a resource management plan for harvesting of local medicinal herbs and plants.
		2. Is an increased demand for traditional medical herbs and plants which exceeds sustainable yield avoided?		
Industry (new or re-starting)		1. Are plans and procedures in place to avoid and increase in air, soil and water pollution?		1. Develop pollution mitigation and abatement plans, incorporating financial incentives where appropriate. 2. Develop site use plans incorporating transport and population support needs based on level of industrial operation. 3. Develop plans for the supply of services (e.g., water, education) for expected population in industrial area. 4. Develop and implement a sustainable resource use plan for target industry.
		2. Is the unplanned and unmitigated disposal of solid and liquid waste avoided?		
		3. Is an increase in road and other traffic avoided or mitigated?		
		4. Are there plans and procedures in place to address the environmental impact of increased population and demand for services?		
		5. Is an increased and unsustainable resource extraction avoided?		
Change in cooking or food processing procedures.		1. Is increased fuel harvesting avoided or mitigated?		1. Use fuel efficient stoves and cooking methods. 2. Develop and implement a resource management plan for resources needed to
		2. Is increased air pollution avoided?		

Activity	Is the activity underway or planned? (Yes/No)	Questions on whether potential negative environmental consequences of activity have been addressed.	Yes/No answer to the question immediately to the left.	Selected Avoidance or Mitigation Options
		3. Is an increase resource harvesting to cover food preparation costs avoided?		cook or support costs of food preparation. 3. Consider organizing cooking process to reduce air pollution and fuel demand (e.g., communal kitchens, dining halls).
Creation of Small or Medium Enterprises (SME)		1. Is unsustainable resource extraction avoided?		1. Environmental impact review performed for each enterprise supported. A simple checklist may be sufficient if a number of similar types of SME are to be supported. 2. Waste disposal plans meeting appropriate standards incorporated into enterprise business plan and monitored. 3. Hazards and risks of location of enterprises assessed and appropriate mitigation measures identified before support provided.
		2. Is the waste produced disposed of properly?		
		3. Are steps taken to avoid siting enterprises in hazardous locations?		
Relief Supplies		1. Are steps taken to ensure that relief packaging does not create a solid waste disposal problem?		1. Use biodegradable, multi-use or recyclable packaging where possible. 2. Collect packaging as part of distribution program. 3. Develop program of education and facilities for safe disposal of personal hygiene materials. 4. Base assistance on needs assessment including survivor input. 5. Don't provide inappropriate materials. 6. Select assistance based on local social and economic conditions and sustainability of supply.
		2. Are steps taken to ensure that personal hygiene materials are disposed of properly and pose no health and sanitation problem?		
		3. Are steps taken to ensure that relief assistance is appropriate or acceptable to survivors and not discarded?		
		4. Are there procedures to ensure that relief does not create new and unsustainable consumption habits on part of survivors?		
Rubble removal		1. Is the handling and disposal of rubble done in a way to avoid the creation of disease vector breeding sites, leading to increased disease levels?		Develop and follow plans to recycle rubble and dispose of unusable materials in way which minimizes negative environmental impact.

Activity	Is the activity underway or planned? (Yes/No)	Questions on whether potential negative environmental consequences of activity have been addressed.	Yes/No answer to the question immediately to the left.	Selected Avoidance or Mitigation Options
		2. Are rubble removal efforts also clearing obstructions to existing drainage/water flow systems so that flooding and sanitation problems can be avoided?		
		3. Is rubble being recycled to that greater natural resource extraction is not necessary?		
(Re)Settlement		1. Do resettlement plans address possible negative environmental impacts due to changes in land use and bio-diversity?		1. Develop and follow land use plan in reconstruction and siting of settlements. 2. Conduct hazard and risk assessment of existing and new settlements sites and incorporate results into site selection, planning and construction methods.
		2. Are assessments and mitigation procedures been used to ensure that new settlements are not subject to new or greater hazards than before disaster?		
Training		Are steps taken to ensure that new skills learned do not lead to greater extraction of resources or production of waste?		Include environmental education and waste management options in training programs.
Demining and Unexploded Ordinances		Do demining/ordinance removal plans include procedures to avoid environmental damage to lands and resources which had not been previously exploited due to mines and unexploded ordinance?		Establish and follow land use plans for areas open to use following demining/clearance of unexploded ordnance.

Issues Consolidation Table

Organization Level Issues	Community Level Issues
Context Statement	
Factors Influencing Environmental Impact	
Environmental Impacts of Disaster Agents	
Unmet Basic Needs	
Negative Environmental Consequences of Assistance	
Other Critical Issues	
Recovery Issues	

Greenness Procurement Screening Checklist

Item #: Description: _____

Question	Yes	No	Not Applicable
Is the piece of equipment selected rated as the most energy efficient of the type of items needed and available?			
Is the least possible packaging used?			
Have field personnel or beneficiaries identified this item or service as critical with a high likelihood of being used in during the disaster?			
Does the item or service to be procured include recycled parts or materials and are these parts and materials more costly than alternate items or services?			
Can the item (and packaging) selected for procurement be reused or recycled after it is no longer needed for the emergency?			
Will the supplier take back, or can another business be sold the item and recycle it, when it is no longer needed for the emergency?			
Have alternate, environmentally friendly, energy sources been chosen when they are economically justified and can be supported by local capacities?			
Do the items or services being procured require the lowest possible energy for proper and safe use by disaster survivors?			

Commentary, conclusions and recommendations:

Based on your response to the checklist, (and assumptions about the procurement item), list what you consider to be the environmental impact advantages and disadvantages of this item over other solutions. If possible, identify an alternative option that may be more environmentally friendly.

Greenness Procurement Screening Checklist

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