

**9**

**GREEN**  
**GUIDE TO**

# DISASTER RISK REDUCTION

**TRAINER'S GUIDE**

## MODULE 9: GREEN GUIDE TO DISASTER RISK REDUCTION

### TRAINER'S GUIDE

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## INTRODUCTION

This **Trainer's Guide** provides the information, suggested content, activities, and support materials needed for facilitation or a one-day workshop. This workshop was developed as part of the Green Recovery and Reconstruction Toolkit (GRRT) under the Humanitarian Partnership program between the World Wildlife Fund and American Red Cross Tsunami Recovery Program.

The one-day workshop covered in this guide is designed as a standalone event, but can be combined with other GRRT training materials to create a multiday workshop. When this workshop is combined with other GRRT workshops, the opening session should be modified to reflect the subject matter of the combined workshop materials.

## Overall Learning Objectives for a One-day Workshop

After attending in this workshop, participants should be able to:

1. Describe the ways in which disaster risk and environmental conditions are linked.
2. Integrate environmental issues into typical disaster risk reduction assessments.
3. Identify a set of ecosystem-based disaster risk reduction activities that can enhance disaster risk reduction programs.
4. Describe how disaster risk reduction activities can have negative impacts on the environment and how these impacts can be mitigated.

The workshop is designed for disaster risk reduction specialists to increase their knowledge of how to integrate environmental considerations into risk assessment and risk reduction. The participants are expected to have a strong grounding in disaster risk reduction, including knowledge of community-based disaster risk assessment and reduction tools and procedures. Participants are also expected to be familiar with the general concepts presented in the other Green Recovery and Reconstruction training modules.

The module focuses on how environmental issues relate to and are interlinked with disaster risk reduction. A particular emphasis is placed on the identifying environmental aspects contributing to risk and the role of the sustainable use of environmental resources, or ecosystems, reducing disaster risk.

## BEFORE THE WORKSHOP

As part of your workshop preparation, you will need to review each of the points below and decide how each one will be addressed. You may need to coordinate some of these issues with the workshop sponsor, host, lead trainer, and/or the manager at the workshop venue.

## Agenda

Update the agenda to incorporate changes in the workshop. A template for the agenda can be found in the electronic file of the workshop materials. Prepare sufficient copies of the agenda for each participant.

## Workshop Supplies

Ensure that each participant has sufficient pens, paper, and other materials and that there are sufficient flip charts and marking pens for the workshop exercises. See guidelines for other supplies in *Module A, Toolkit Guide*.

## Content Paper and Handouts

It is expected that the content paper for this module will be provided to the participants at the beginning of the workshop. The paper contains a number of references that will be used during the workshop.

The trainer should decide in advance of the workshop whether the participants will receive the following:

- A separate workshop workbook (e.g., ring binder) or a folder for holding handouts.
- Thumbnail copies of the PowerPoint presentations. Note that the answers to many of the questions posed are given on the slides.

## Electronic Copies of Materials

Each of the Green Recovery and Reconstruction Toolkit training modules includes a CD with the files of the content paper, trainer's guide, PowerPoint presentation, and other workshop materials and reference materials.

Electronic copies of all the module materials will also be available for downloading from an Internet site. The trainer needs to confirm the site address and provide it to the participants together with the handouts.

## Participant Experiences

For some of the GRRT workshops, the agenda provides 15–30 minutes for participants to give brief presentations of their experiences in post-disaster recovery and reconstruction related to the workshop's theme. **If at all possible, the selection of individuals to make presentations should take place before the training.** If a training needs assessment or survey is undertaken before the workshop, this would be an ideal time to ask participants if they would like to present their experiences.

These presentations, typically about seven minutes long, should focus on practical challenges that the presenter faced when dealing with environmental issues, either positively or negatively, and should be related to this workshop topic. The presenters should be encouraged to link their presentations to one or more environmental issues. A basic format for the presentation is as follows:

- Describe the context of the project or activity.
- Summarize the problem/issue encountered.
- Indicate how the problem was related to the environment.
- Explain any solutions found or that could be identified in retrospect, especially in terms of how the well-being of the affected population was impacted by the project or activity.

The presentations can focus on positive as well as negative environmental impacts arising from the relevant activities. For practical reasons, each presenter should use no more than four PowerPoint slides. (The use of flip charts or other presentation tools rather than slides should be encouraged.)

While the time allocated for the Participant Experience sessions is relatively long given the overall time for training, this session is an excellent opportunity to identify environment-related lessons and solicit participants' thoughts on how they encountered and addressed environmental issues in their work.

If a Participant Experience session cannot be organized, the following sessions in the agenda should be moved forward and the time allocated to them increased.

The session on **Ecosystems Approach and Risk Assessment Tools** includes two short presentations on capacity/vulnerability assessment and community-based risk assessment tools. One or more of the participants should be very familiar with these approaches and can be asked to make the presentation on one or both of the tools.

The participant can choose to develop his or her own presentation or use the one included with the guide. As the presentations are short (maximum of 10 minutes) and are only intended to remind participants of concepts and approaches, they should already be familiar to participants who have worked on disaster risk reduction.

An alternative approach is to have the two participant experience presentations (to be made just after lunch) focus on one or the other of these assessment tools. In this case, the Ecosystems Approach and Risk Assessment Tools could be shortened, with only a short summary of the ecosystem-tool links and an extended session on use of the tools.

As with the Participant Experience session, the participant presentations in the Ecosystems Approach and Risk Assessment Tools session should be planned before the one-day session begins.

## Local Expertise

Perhaps as important as providing an opportunity for participants to share their experience is the value of inviting topic experts from the region to attend the workshop as resource persons. One or two individuals who have knowledge of the workshop topic, experience with the issues discussed in the workshop, and, most important, understand how these issues apply to the local context, can offer invaluable contributors to the workshop. "Local context" includes an understanding of how to apply this knowledge and experience to post-disaster/conflict situations. In the case of this workshop, experts in disaster risk reduction projects would provide helpful local expertise.

## Adapting Materials to the Audience

The trainer's guide and materials are designed to have as universal an application as is practical. However, some trainers may feel that the workshop will be more effective if some of the examples, case studies, or other details are adapted to match the specific training needs and interests of the local audience. If so, trainers are encouraged to make those adaptations. (Adaptations that might be a priority with this module would relate to disaster risk reduction activities practiced in the region where the workshop is held.)

## Slide Animation

Slide animation (i.e., the need to “click” to make materials appear) is engaged for many slides. The trainer should feel free to change the animation as is his or her preference.

## Day Before the Workshop

Make sure the data projector, computer, screen, extension cords, flip charts, markers, and all the participants' supplies are in place. Do a test run of all your PowerPoint files to make sure all animation is working properly and that changes to the files have been made as needed to tailor the content to your audience. Confirm that all printed materials have been copied and are ready to be handed out. For additional workshop planning tips, see *Module A, Toolkit Guide*.

## Small-Group Formation

A significant part of the workshop is devoted to group activities. The formation of these groups is an important consideration. You will need to balance the number of participants in the workshop with the mechanics and learning objectives for each group activity.

It is generally recommended that participants sit at large tables in groups of four to six. Whenever practical you may simply form the workgroup based on those table groupings. However, note that some activities specify either an exact number of groups or an exact number of participants in each group. You will need to anticipate this range of circumstances and be prepared to assign participants to groups in order to achieve the activities' objectives.

An additional consideration may be the desire for groups to reflect the diversity of the participants, i.e., each group would incorporate gender balance and a proportionate representation of humanitarian workers with conservation/environmental workers, government and/or private-sector workers, and expatriate and national staff where appropriate. Similarly, you might want to balance people who have a lot of relevant experience with those who are newcomers to the field. The main concern is that each group has the combined skills necessary to complete the assigned activity.

It is up to you to decide whether to change group membership during the workshop. However, keeping workgroups together might be most productive for such a short workshop, since this would allow for the progressive development of intragroup relations and mutual capacities. For multiday workshops, we recommend placing different individuals in the groups each day. One way to do this is to place each participant's name card (or table tent) in the location of your choosing at the start of each workshop.

## WORKSHOP MATERIALS

The following materials need to be assembled and adequate copies made before the workshop begins. All the materials for this workshop are on the CD for this module. The trainer's materials, PowerPoint files, handouts, and additional instructions for photocopying are in the file that includes the phrase “workshop materials.”

## Handouts

<b>Session 1</b>	Module 9 Green Guide to Disaster Risk Reduction content paper Workshop Agenda 9.1.1 Green Recovery and Reconstruction Toolkit 9.1.2 Environmental Impact of Disasters
<b>Session 2</b>	9.2.1 DRR and Environmental Impact Case Studies 9.2.2 Integrating the Environment into DRR Assessments
<b>Session 3</b>	9.3.1 Ecosystem-Based Disaster Risk Reduction Exercise
<b>Session 4</b>	9.4.1 Learning Evaluation 9.4.2 Learning Evaluation Answer Key 9.4.3 Workshop Evaluation Certificates for completion of the workshop CD with resource materials related to this workshop

## Resource Materials on CD

In addition to the above materials, some documents have been included on the CD that were identified as particularly useful to both workshop trainers and participants. For this workshop they include:

- Shepherd, G. Ed. 2008. *The Ecosystem Approach: Learning from Experience*. IUCN.
- Sudmeier-Rieux, K. and N. Ash. 2009. *Environmental Guidance Note for Disaster Risk Reduction: Healthy Ecosystems for Human Security*. Revised Ed. Gland: IUCN.
- IUCN. 2008. *Integrating Environmental Safeguards into Disaster Management*. Vol. 1, *Reference Material*.
- IUCN. 2008. *Integrating Environmental Safeguards into Disaster Management*. Vol. 2, *The Disaster Management Cycle*.
- IUCN. 2008. *Integrating Environmental Safeguards into Disaster Management*. Vol. 3, *Tools, Techniques, and Relevant Resources*.
- IFRC. 2007. *How to do a VCA: A practical step-by-step guide for Red Cross Red Crescent staff and volunteers*.
- ADPC. 2004. *Community-Based Disaster Risk Management: Field Practitioner's Handbook*.

Note: There is an electronic file on the Reference CD of the template for Exercise 9.3.1. This file needs to be distributed to small groups to implement this exercise if there are enough laptop computers available. (Otherwise, a paper-based approach will work.)



WORKSHOP PLAN OVERVIEW				
TIMES	ACTIVITY	METHODOLOGY	RESPONSIBLE	TIMING
SESSION 1: INTRODUCTION, DISASTER RISK REDUCTION, AND THE ENVIRONMENT				
8:30 – 10:40	Registration and Greetings	Registration and Collect Materials		30'
	1.1 Welcome and Introductions	Round Robin		35'
	1.2 Overview of GRRT	Round Robin and Presentation		5'
	1.3 Workshop Objectives and Activities	Presentation		10'
	1.4 DRR and the Environment: Key Concepts and Definitions	Presentation, Round Robin, and Group Work/Group Presentations/Discussions		50'
10:40 – 11:00	Break			20'
SESSION 2: ENVIRONMENT-BASED DRR ACTIVITIES AND ASSESSMENTS				
11:00 – 12:40	2.1 Environmental Impact of DRR	Presentation, Group Work, and Discussions		35'
	2.2 Ecosystem-Based Activities for DRR	Presentations and Discussions		30'
	2.3 Integrating the Environment into DRR Assessments	Presentation and Exercise		35'
12:40 – 1:40	Lunch			60'
SESSION 3: CLIMATE, RISK, AND APPLYING DRR TO ECOSYSTEMS				
1:40 – 3:10	3.1 Introduction to Session and Participant Experience	Presentation and Exercise		30'
	3.2 Ecosystems for Vulnerability Impact Reduction	Presentation and Discussion		10'
	3.3 Climate and Risk	Presentation		10'
	3.4 Ecosystem-Based Disaster Risk Reduction Exercise	Small-Group Exercise		40'
3:10 – 3:30	Break			20'

WORKSHOP PLAN OVERVIEW				
TIMES	ACTIVITY	METHODOLOGY	RESPONSIBLE	TIMING
SESSION 4: EXERCISE REPORT, SUMMARY, EVALUATION, AND CLOSING				
3:30 – 5:00	4.1 Ecosystem-Based DRR Activities Exercise Debriefing	Small-Group Presentations		40'
	4.2 Review of Workshop Objectives and Accomplishments	Group Discussion		10'
	4.3 Closing	Learning and Training Evaluation Forms, Closing Comments		40'

<b>PLAN FOR SESSION 1: INTRODUCTION, DISASTER RISK REDUCTION, AND THE ENVIRONMENT</b>	
<b>SESSION TIME</b>	100'
<b>OBJECTIVES</b>	<ul style="list-style-type: none"> <li>• Introduce workshop to participants</li> <li>• Introduce GRRT to participants</li> <li>• Develop a broad understanding of the concepts and approaches to DRR</li> </ul>
<b>ESSENTIAL CONTENT</b>	<ul style="list-style-type: none"> <li>• Workshop objective and activities</li> <li>• Definitions of DRR, environment, risk, hazards, vulnerability, sustainability</li> <li>• Hazard-environment links</li> </ul>
<b>OUTPUTS</b>	<ul style="list-style-type: none"> <li>• Participant familiarity with each other</li> <li>• General understanding of GRRT</li> <li>• Understanding of workshop objectives and activities</li> <li>• Participant understanding of key terms and concepts and where to focus DRR-environment linkages</li> </ul>
<b>PREPARATION</b>	<ul style="list-style-type: none"> <li>• Review GRRT materials and workshop plan</li> <li>• Review the content paper on the risk/hazard/vulnerability model and refer to ISDR materials on the Web (<a href="http://www.unisdr.org">www.unisdr.org</a>) for background in risk assessment</li> <li>• Review the hazard pictures to be used in Activity 1.4 under Hazards and the Environment exercise</li> </ul>
<b>RESOURCES</b>	<ul style="list-style-type: none"> <li>• Data projector and screen</li> <li>• Flip charts and markers</li> <li>• Name badges and table tent cards</li> </ul>
<b>HANDOUTS</b>	<ul style="list-style-type: none"> <li>• Workshop agenda</li> <li>• Module 9 Green Guide to Disaster Risk Reduction content paper</li> <li>• 9.1.1 Green Recovery and Reconstruction Toolkit</li> <li>• 9.1.2 Environmental impact of disasters</li> </ul>
<b>FACILITATOR NOTE</b>	<ul style="list-style-type: none"> <li>• The method used to get participants to know each other can be changed.</li> <li>• Decide whether the working groups created in this session will remain the same throughout the workshop. You should aim for a balanced mix of gender, experience, and job types.</li> </ul>

## Registration and Greetings

(30 minutes)

It is important to show the workshop agenda starting at least 30 minutes before the actual beginning of the formal welcome and opening remarks. Otherwise, too many participants will show up a few minutes late, then register, collect their materials, and greet old friends before they take their seats and prepare to start the workshop.

## Activity 1.1 Welcome and Introductions

(35 minutes)

A person representing the host should call the workshop to order, welcome the participants, introduce the workshop organizers (including any person offering administrative or technical support), and say a few words about why the host organization is sponsoring this workshop. He or she can then turn the workshop over to the lead trainer.

**Slide # 1, Disaster Risk Reduction, Session 1.** The lead trainer for this session now takes over. Briefly introduce yourself and explain your role in the workshop. Introduce this first session as an opportunity to get to know each other and to establish the basic information that forms the foundation for the topic of “greening” disaster risk reduction.

**Slide # 2, Getting to Know You.** Ask participants to write the name they want to be called on their nametags and on the table tent cards, using large felt-tip pens. Ask them also to review the participants’ list and notify the administrative assistant of any corrections needed.

Ask the participants to pair up as part of the process of learning something about each other. Ask the participants to briefly introduce themselves to their partners, closely following the questions on the slide. After two minutes, tell the participants to switch roles and have the second partner answer the questions for the first. After two more minutes, ask each participant to introduce his or her partner. It is critical to keep on time at this point. You may set a rule that each introduction can last no more than 30 or 40 seconds.

When all introductions have been made, comment on the diverse backgrounds and experience in the room and how this diversity will enrich the overall learning experience.

## Activity 1.2 Overview of GRRT

(5 minutes)

**Slide # 3, Green Recovery and Reconstruction Toolkit.** It should be helpful to place this workshop within the context of the overall GRRT training project. Discuss the bullet points on this slide: The Green Recovery and Reconstruction training toolkit was developed by WWF and the American Red Cross. It is based on an innovative five-year partnership between WWF and the American Red Cross that was formed after the 2004 Indian Ocean tsunami, and was designed to integrate environmental sustainability into American Red Cross’s recovery and reconstruction processes in Indonesia, Sri Lanka, Thailand, and Maldives.

**Slide # 4, 10 Program Modules.** Name the other modules from the second slide. Point out that most participants who attend the module 9 workshop would also benefit from attending the modules 1–3 workshops.

**Hand out the 9.1.1 Green Recovery and Reconstruction Toolkit document at the end of the presentation,** and indicate that it contains additional information. (If all of the participants have previously taken another GRRT module and if they received this handout at that workshop, it will not be necessary to hand it out again during this workshop.)

**Slide # 5, GRRT Principles.** These six principles have guided the development of the GRRT modules and are foundational to the successful implementation of green recovery and reconstruction.

## Activity 1.3 Workshop Objectives and Activities

(10 minutes)

**Slide # 6, Workshop Ground Rules.** Propose the workshop ground rules listed on this slide as those to be followed during the workshop. Explain that they will help to maintain a positive and collaborative learning environment. Ask participants if they have any questions about the ground rules or if they would like to add any others.

If anyone disagrees with the ground rules they should explain their objection. Assuming no one raises their hand, suggest then that this implies agreement. If someone raises their hand and objects, listen to them and make any modifications necessary.

**Slide # 7, The Main Point of This Workshop Is To...** Review the global objective of the workshop. Ask if there are any questions about it: *Enable participants to incorporate an environmental perspective into DRR assessments and interventions.*

**Slide # 8, By the End of This Workshop, You Should Be Able To...** Explain that the group will try to achieve the overall objective by pursuing these additional workshop outcomes. Review point by point the expected outcomes of the workshop, as follows:

- Describe the ways in which disaster risk and environmental conditions are linked.
- Identify a set of ecosystem-based disaster risk reduction activities that can enhance disaster risk reduction programs.
- Describe how disaster risk reduction activities can have negative impacts on the environment and how these impacts can be mitigated.
- Integrate environmental issues into typical DRR assessments.

If participants identify specific outcomes that are not covered by the objective statement, these outcomes should be recorded on a flip chart. Anticipate how you might address them during the workshop, if it is appropriate to address them. Review these outcomes at the end of the workshop to see which might have been met. Suggest resources or other means for how participants might meet those objectives.

**Slide # 9, Workshop Agenda.** Ask participants to review the workshop agenda (provided at the beginning of the workshop) and briefly discuss each session. Note that the morning of the workshop will be a combination of presentations, discussions, and group work and that much of the afternoon will be devoted to a group exercise and presentations of the resulting work.

**Slide # 10, Your Experience.** Note that the agenda has a place for presentations by participants of their personal experience and case studies. You may have made arrangements before the workshop started for such presentations. If not, ask if any participants would be willing to share their experiences in a brief presentation. Make final arrangements during the first break.

## Activity 1.4 DRR and the Environment: Key Concepts and Definitions

(50 minutes)

**Slide # 11, Quick Review of Definitions.** Note that this discussion should be fairly simple, as DRR professionals should be able to easily explain the risk = hazard x vulnerability model. Ensure that the participants provide the correct definitions of risk, hazard, and vulnerability by reviewing the definitions in the box below.

Click through the slide as follows:

1. At first click (the risk = hazard x vulnerability line), ask the individual participants to explain the risk = hazard x vulnerability concept.
2. At the second click, ask for a definition of a hazard.
3. At the third click, ask for a definition of vulnerability.
4. At the fourth click, ask the participants to quickly brainstorm ways that the environment relates to hazards and vulnerability. The environment-hazard/vulnerability links will be discussed in more detail in the following slides, so this question is just to start the thinking process.

**Risk:** The potential for a natural hazard to cause damage.

**Hazard:** A potentially damaging physical event, phenomenon, or human activity that may cause the loss of life or injury, property damage, social and economic disruption, or environmental degradation. Hazards can include latent conditions that may represent future threats and can have different origins: natural (geological, hydrometeorological, and biological) or induced by human processes (environmental degradation and technological hazards).

Source: UN International Strategy for Disaster Reduction. Terminology of disaster risk reduction. [www.unisdr.org/eng/library/lib-terminology-eng%20home.htm](http://www.unisdr.org/eng/library/lib-terminology-eng%20home.htm) (Accessed on April 25, 2010)

**Vulnerability:** *Human* vulnerability is the relative lack of capacity of a person or community to anticipate, cope with, resist, and recover from the impact of a hazard. *Structural or physical* vulnerability is the extent to which a structure or service is likely to be damaged or disrupted by a hazard event. *Community* vulnerability exists when the elements at risk are in the path or area of the hazard and are susceptible to damage by it. The losses caused by a hazard such as a storm or earthquake will be proportionally much greater for more vulnerable populations, i.e., those living in poverty, with weak structures, and without adequate coping strategies.

Source: UNDHA. 1997. *Building Capacities for Risk Reduction*. 1st Ed.

**Slide # 12, Disaster Risk Reduction.** Show the definition of disaster risk reduction that is on the slide:

*The practice of reducing disaster risks through systematic efforts to analyze and manage the causal factors of disasters.*

Then ask: What are the main strategies to do this? Since there are many potential answers to this question, just take two or three suggestions and then show the following points, noting that they are also part of the ISDR definition.

- Reduced exposure to hazards

- Lessened vulnerability of people and property
- Wise management of land and the environment
- Improved preparedness for adverse events

**Slide # 13, Definition of Ecosystem.** Show this definition:

*Dynamic complexes of plants, animals, other living communities, and the nonliving environment, interacting as functional units. Humans are an integral part of ecosystems.*

You might emphasize the following in a discussion of ecosystems and the environment:

1. The environment is human-centric, i.e., directly related to how humans live and are affected by the other elements of the environment.
2. Humans change their environment, for better or worse, in their efforts to survive and meet their needs for shelter, food, water, and other requirements.

**Slide # 14, How Is Vulnerability Linked to the Environment?** Ask the participants to “call out” ways in which vulnerability is linked to the environment. Stop when you have about four points.

Note that most, if not all, of the participants have a disaster risk reduction background and so should be fully familiar with the concept of vulnerability.

Click again on the slide to bring the full slide text into view. Review the first point listed:

1. Where people live – it may be a location threatened by one or more hazards.

**Slide # 15, How Is Vulnerability Linked to the Environment?** This slide shows an additional answer to the following question:

1. Access to natural resources:
  - For economic use
  - To meet basic needs, for instance, water, fuel, and shelter

Ask participants: What are examples?

**Slide # 16, What Is Environmental Sustainability?** Ask the question: What is environmental sustainability? Take a few suggestions from participants, then show the definition on the slide.

Then ask: What is the relationship between disaster risk reduction and environmental sustainability? Discuss one or two participant contributions and then show the next slide.

**Slide # 17, To Be Sustainable...** Click on this slide and conclude with the statement that by doing sustainable disaster risk reduction we are focusing on risk reduction actions that succeed in the following ways:

- Continue in the future, i.e., they are not short term
- Do not compromise the capacity to meet needs in the future, i.e., we should not try to solve problems only to have them reoccur in the future

Note that in some languages, the English word “sustainability” may not have a specific matching word or phrase and the concept of sustainability (current development that does not compromise future ability to meet needs) may not be clear. In discussing the concept of sustainability, some participants may posit that it is not physically possible. A good response to this argument is that sustainability is an outcome that requires a change in how society uses resources, and this workshop focuses on how to make these changes in post-disaster reconstruction processes.

Note that the same issue of the term “sustainability” not translating well to other languages may also be true of “DRR,” “development,” and “participation.” You may need to test participant’s understanding of these terms to be sure that the messages of this workshop are being communicated.

**Slide # 18, Hazards and the Environment.** Divide into six groups if you have at least 12 participants, with a minimum of two participants per group. (If there are less than 12 participants, then reduce the number of groups and only use as many pictures as there are groups.) Review the instructions on the slide. Note the time limit for group work (10 minutes). The pictures to be used are included as **Handout 9.1.2**.

**Note that the discussion should focus on the hazard-environment link and not on disaster response issues.**

Six photos are provided, covering the following:

1. Flooding river in Tajikistan
2. High-wind damage to a forest in the US
3. Flood damage in Haiti
4. Earthquake damage in Pakistan
5. Tsunami damage in Indonesia
6. Dust storm approaching a refugee camp in Sudan

The trainer should use alternate pictures based on local conditions if appropriate.

**Slides # 19 – 24.** Once the participants have finished with their analysis in small groups, show the picture of each disaster as the small-group presenter discusses the group’s analysis.

Ask for any additional feedback from the other participants.

Allow no more than five minutes per group, including time for comments and questions. Provide feedback on each group’s presentation, especially in terms of considerations they may have missed.

**Slide # 25, Summary So Far.** This slide is a quick review of the main topics of this session and is in the graphic of a puzzle to emphasize that these topics are all necessary pieces for a complete picture. Another metaphor would be building blocks toward the objective of developing environmentally sustainable disaster risk reduction practices.

**Slide # 26, Time to Take a 15-minute Break.** At this point, a break of 15 minutes is planned.



PLAN FOR SESSION 2: ENVIRONMENT-BASED DRR ACTIVITIES AND ASSESSMENTS	
SESSION TIME	100'
OBJECTIVES	<ul style="list-style-type: none"> <li>• Develop a broad understanding of how the environment is integral to DRR assessment and management.</li> <li>• Provide participants with a basic understanding of the ecosystem approach to DRR, including opportunities and challenges.</li> <li>• Describe the links between ecosystems and risk assessment and risk management.</li> </ul>
ESSENTIAL CONTENT	<ul style="list-style-type: none"> <li>• Definition of ecosystem and ecosystem approach</li> <li>• Link between ecosystems and disaster risk reduction</li> <li>• Environmental impact assessments</li> </ul>
OUTPUTS	<ul style="list-style-type: none"> <li>• Participant ability to consider DRR from an ecosystem approach</li> </ul>
PREPARATION	<ul style="list-style-type: none"> <li>• For Activity 2.1, review the six case studies in <b>Handout 9.2.1</b> in the workshop materials and select three or four of the cases that are of greatest relevance to your participants.</li> <li>• Review The Ecosystem Approach and Environmental Guidelines for Disaster Risk Reduction, if you are unfamiliar with this approach.</li> <li>• Select some examples of how ecosystems are linked to DRR activities at the location where the training is taking place for use in the discussions following the slide titled "Discussion Questions."</li> <li>• Review <i>Integrating Environmental Safeguards into Disaster Management, Vol 1. Reference material</i>, IUCN, 2008, for the discussion of ecosystem services.</li> <li>• Be prepared to briefly explain Vulnerability and Capacity Assessment and Participatory Disaster Risk Assessment tools.</li> </ul>
RESOURCES	<ul style="list-style-type: none"> <li>• Data projector and screen</li> <li>• Flip charts and markers</li> </ul>
HANDOUTS	<ul style="list-style-type: none"> <li>• 9.2.1 DRR and Environmental Impact Case Studies</li> <li>• 9.2.2 Risk Assessment and Ecosystems</li> </ul>

## Activity 2.1 Environmental Impact of DRR

(35 minutes)

**Slide # 1, DRR Session 2.** In bringing the group back together after the break, note that the following sessions will continue to focus on different aspects of disaster risk reduction and the environment.

**Slide # 2, Last Session We Discussed...** This is the same "puzzle" slide as used in the last session, and shows the key point of the workshop discussed in the first session and that will be discussed in this session.

**Slide # 3, Exercise: What Can Go Wrong?** Review the instructions for the next exercise.

Divide participants into four groups (or three groups if you have less than 16 participants). Assign one of the six case studies in **Handout 9.2.1** to each group and ask them to identify the environmental issues that might arise. (Select the three or four case studies beforehand that you judge to be the most relevant to your participants.)

Give one set of all the case studies that you have selected to each participant so that they can read them before the group presentations. (Note that you can modify or replace the case studies with case studies more relevant to the location of the training or training audience.)

Encourage the participants to go beyond the information in the case study to think more broadly about which sorts of environmental impacts might occur and possible compounding risk.

Once the analysis work is completed (provide about 10 minutes), ask each group to present their findings.

The presentations of results should take another **10–15 minutes**.

Key issues for each case study are summarized in the following table. Each group will likely identify additional issues, and discussion of the case studies (all based on real experiences except the last) should be encouraged. The key to this session is to get the participants to think about the environmental aspects and impacts of DRR efforts.

CASE STUDY	KEY ISSUES
<b>PLANTING TREES</b>	<p>Trees to be used are not indigenous. It is usually better to plant local species. (An alternative consideration is the use of Vetiver grasses, which are not known to be invasive and are widely accepted as excellent soil stabilizers.)</p> <p>Tree planting can be a highly effective means of shallow landslide stabilization and erosion control. However, specific geological conditions, such as shallow soils or soils disturbed by road construction, may warrant planting of shrubs and grasses rather than trees.</p> <p>Depending on how degraded a forest is, forest restoration may be a long-term process. If acute firewood shortage or imminent landsliding are problems, then intermediary solutions may be needed before the forest can be completely restored.</p> <p>It is unclear how the sites will be selected for planting. The issue is who will take care of the trees after they are planted, i.e., how many trees survive, not how many are planted.</p> <p>A related issue is the tenure of the land: who controls it and is responsible for it.</p>
<b>FLOOD PREVENTION EMBANKMENT</b>	<p>The embankment is not high enough relative to the stated flood level and could be overtopped, making flood prevention efforts useless.</p> <p>The embankment is too close to the river and not well protected from erosion, leading to water breaking through to flood the areas behind the embankment.</p> <p>A similar effort has failed in the past.</p> <p>The borrow pit can become a swampy breeding site for disease vectors.</p> <p>The embankment system is not complete. It is possible that floodwaters will enter above (upstream from) the new embankment and damage or destroy it.</p> <p>Flood embankment can be strengthened by restoring riparian vegetation. This strategy needs to include mechanisms for ongoing management.</p> <p>Can the river be allowed to follow a more natural course, and, if so, would households be affected in the short term?</p>
<b>REBUILDING HOUSES</b>	<p>The new houses will likely be constructed in a flood zone, as they will be built on the valley bottom in an area subject to spring flooding.</p>

CASE STUDY	KEY ISSUES
<b>RELOCATING A SCHOOL</b>	While the idea to move the school to a safer location is good, as is the plan to make it an emergency shelter, the failure to build the retention wall behind the school makes it likely that there will be a slope failure (localized landslide) of the three-meter cut into the hillside behind the school, placing occupants at risk.
<b>BUILDING A BRIDGE</b>	A bridge that narrows the channel of the river will increase the height of the water flowing down the river, likely leading to both increased flooding on either side of the river and damage to the bridge structure. A reduction of the width of the river by half (from six to three meters) will allow the bridge to increase the depth of the river by a factor of two (to six meters), meaning that the bridge is two meters too short for maximum flow.
<b>BUILDING A ROAD</b>	St. Andre is taking steps to reduce the environmental impacts of the road during construction and once it is finished. This is an example of “green” DRR.

The next three slides should take **about 15 minutes**, including discussion.

**Slide # 4, How to Avoid Environmental Surprises in DRR Projects.** Present the materials on the slide with the following extended comments:

- The best way to avoid environmental surprises (unexpected consequences) is to consider the environment in the project design process, both locally and with consideration for downstream, remote impacts.
- You should also conduct an environmental review of the proposed project.
- Reviews can be fairly simple, fast, and, most important, identify ways to improve the impact (including disaster reduction impact of the planned activities).

Ask if any of the participants have done environmental impact assessments (EIAs), and solicit their experiences.

**Slide # 5, EIA Process.** Present the materials on the slide. Again, ask for comments from the participants. Emphasize that EIAs for many smaller projects do not take that much time or effort because a range of assessment tools and experience with impacts already exists.

Also note that many of the environmental issues identified in an EIA are linked to the hazards and risks that DRR activities are attempting to address.

From this perspective, an EIA is a good tool for identifying possible DRR activities, and for ensuring that DRR efforts address the salient environmental hazards in a location.

**Scoping** involves the identification and narrowing down of potential environmental impacts to ensure that the assessment focuses on the key issues for decision making. It also offers a crucial opportunity to involve local people in determining the scope and focus of the impact assessment.

**Slide # 6, Key EIA Information Sources.** Note that there are more than just three possible sources of information on EIAs, but these are three key sources. The GRRT Module 3, *Environmental Impact Assessment, Tools, and Techniques*, covers environmental impact assessments in detail and should be used as a source of further information on EIAs.

Suggest that participants check out the different impact assessment tools available and again note that use of the EIA process leads to a better project.

## Activity 2.2 Ecosystem-Based Activities for DRR

(30 minutes)

**Slides # 7, Ecosystem-Based Activities for DRR.** Review the purpose of the session.

**Allow about 15 minutes** for the following four slides in this activity. However, more time should be allocated to the last slide to ensure that there is an adequate discussion of DRR and ecosystems.

**Slide # 8, What Is "Ecosystem"?** Read the definition of "ecosystem." As the language is formal, ask a participant to restate it in his or her own words, using conversational English. This should help participants get a clearer notion of the concept.

Ask the participants to suggest links between disasters and ecosystems as a warm-up for the next slide.

**Slide # 9, Ecosystem-Disaster Links.** After a short discussion on the previous slide, show this slide and comment on how the points listed reflect the previous discussion:

- Hazards occur in ecosystems and may affect them in the short or long term.
- Human actions that damage ecosystems can increase the impact of disasters.
- Restoration of ecosystems (e.g., wetlands that can absorb flood waters) can reduce disaster impact.

Ask participants to add any additional points to those listed on the slide.

Based on the previous sessions, the participants should be able to quickly identify linkages and cite examples. If not, make sure that the results of the first session are reviewed.

**Slide # 10, Ecosystems and Vulnerability Reduction.** Present the materials on the slide. Remind the participants of the difference between hazards and vulnerability in the risk = hazard x vulnerability model.

In the presentation, note that vulnerability is often linked to access to natural resources and that healthy and sustainable ecosystems are often a key component to reducing vulnerability. Also note that "natural resources" is not an abstraction: it usually means the substance of what is needed to meet basic needs for water, food, shelter, security, etc., particularly for the poor.

**Slide # 11, Ecosystems and Vulnerability Reduction.** Present the materials on the left-hand side on the slide. Go on to the box on the right-hand of the slide and ask the participants to provide suggestions as to how they could use ecosystems to address the three points noted.

Close by emphasizing the point on healthy sustainable ecosystems.

**Slide # 12, What Are Ecosystem Services?** Ask if anybody would like to propose a definition of ecosystem services, then click to bring up the definition, and discuss. The next slide goes into more detail.

**Slide # 13, Ecosystem Services.** The last point of the previous slide is: *"manages ecosystems based on the multiple services ecosystems perform and the multiple uses made of these services."* This slide defines ecosystem services, which is based on IUCN. 2008. *Integrating Environmental Safeguards into Disaster Management*. Vol. 1, *Reference Material*.

Inform participants that:

The natural environment (ecosystem) provides us with many services. These include:

- Provisioning services
- Regulating services
- Supporting services
- Cultural services

Briefly explain the services, referring to the descriptions in the box below. The expectation is that when a population understands the scope of services that an ecosystem provides or supports, they will better understand the need to protect that ecosystem.

**Provisioning services:** These services cover the natural resources and products – goods – obtained from ecosystems. Such goods include food, wood, medicines, fuel and fuelwood, fiber, and nontimber forest products. Ecosystems, therefore, provide the basis for many industries: agriculture, livestock, fisheries, lumber, and pharmaceuticals. They also provide the basis for a multitude of livelihoods.

**Regulating services:** These are the benefits obtained from the regulation of ecosystem processes, such as climate and flooding.

**Supporting services:** These are ecosystem services that are necessary for the production of all other ecosystem services. For example, the production of biomass, balancing of gases in the atmosphere, formation of soil, degradation of waste, nutrient and water cycling, and pollination.

**Cultural services:** These are nonmaterial benefits people obtain from ecosystems through spiritual enrichment, development of learning, recreation, tourism, and aesthetic experience.

**Slides # 14 – 17, Examples of Protective Ecosystems.** These four slides illustrate specific examples of ecosystem services that serve as protection against disaster, i.e., DRR. Go through them quickly and delay discussion until the following exercise, which should build on these examples, is complete.

**Slide # 18, Discussion Question.** Ask participants to work in two or three groups to discuss the question shown on the slide (and below). Ask one of the participants in each group to note responses on the flip chart.

- How can DRR be part of the "integrated management of land, water, and living resources"? Provide examples.

The participants should be able to respond to the question and cite examples, although some may be challenged by having to think from an ecosystem perspective. **Allow about five minutes for small-group discussion and five minutes for discussion in plenary.**

## Activity 2.3 Integrating the Environment into DRR Assessments

(35 minutes)

**Slide # 19, Integrate Environmental Issues into Typical DRR Assessments.** Discuss the definition: **DRR assessment** determines the nature and extent of the risk by analyzing potential hazards and evaluating existing conditions of vulnerability that could pose a potential threat or harm to people, property, and livelihoods, and the environment on which these depend.

Ask participants who have done DRR assessments if this definition meets their experience.

**Slide # 20, DRR Assessments Consist Of...** Read each of the components of a DRR assessment, and then ask the question on the slide. Sample answers are taken from the content paper and copied here.

A DRR assessment typically consists of three assessment components:

- 1) **A hazard assessment** to determine the *characteristics, frequency, forewarning, duration, causes, and effects of hazards facing a community (e.g., drought, flood, wildfire)*. This component would also include mapping where these hazards may occur in relation to vulnerable populations.
- 2) **A vulnerability assessment** to determine who and what is vulnerable, their level of vulnerability (e.g., high, moderate, low), and the underlying reasons for the vulnerability (e.g., *15 families are highly vulnerable to flood damages because they live alongside a stream channel*).
- 3) **A capacity assessment** to determine a community's existing capacities to cope with a hazard and any gaps in the capacities.

In addition to these three standard components, most disaster risk reduction assessments include **an action plan** to determine what types of activities need to be undertaken to increase a community's capacity to respond to threats and to reduce its vulnerability. The disaster risk facing a community is typically defined as the potential disaster losses, in lives, health status, livelihoods, assets, and services, that could occur to a particular community or a society over some specified future time period. Risk can be expressed as a simple mathematical formula:  $\text{Risk} = \text{Hazard} \times \text{Vulnerability}$ .

**Slide # 21, Exercise: Integrating the Environment into DRR Assessments.** Show this slide and note that there are a number of other DRR assessment approaches but all have elements in common. For this exercise, discuss three of the components from the last slide as well as the step of hazard mapping.

1. Describe hazards in a community.
2. Conduct hazard mapping.
3. Describe vulnerabilities and capacities.
4. Determine disaster risks.

**Handout 9.2.2 Integrating the Environment into DRR Assessments.** Point out that the left-hand column contains the same four components of DRR assessment (including hazard mapping, which wasn't emphasized above). Then point out that the handout suggests a range of *environmental linkages* to each of the component (the middle column).

There are 11 suggested environmental linkages. If you have 11 or fewer participants, assign one of the discussion questions to each individual. If there are more than 11 participants, assign one discussion question to two or three persons so that all questions have been assigned to approximately same-sized groups.

Now, ask each small group to answer the discussion topic or question. The small-group discussion should not take more than **five minutes**.

Stop the small-group discussion and ask for each individual or group to report their answers. Encourage others to contribute to the discussion. Be careful to pace the discussion so that you do not run over time, i.e., about one to two **minutes per question maximum**.

The emphasis of this activity should be on encouraging the participants to think about the DRR assessment process they know from an environmental perspective. Since this is asking the participants to think about something they know (DRR assessment) from a new perspective, it may be necessary to refer back to the definition of ecosystems and environment to help clarify what is being discussed. Ask participants to recall their own assessment experiences to identify possible environmental linkages.

If you are running significantly over time, it would probably be better to break for lunch before you have discussed all the points.

**Slide # 22, Lunch.** Inform participants where lunch is served and what time to return to the conference room.

## PLAN FOR SESSION 3: CLIMATE, RISK, AND APPLYING DRR TO ECOSYSTEMS

<b>SESSION TIME</b>	90'
<b>OBJECTIVES</b>	<ul style="list-style-type: none"> <li>• Identify ecosystem approaches to vulnerability reduction.</li> <li>• Discuss links between climate and risk, with reference to climate change and climate variability.</li> </ul>
<b>ESSENTIAL CONTENT</b>	<ul style="list-style-type: none"> <li>• Discussion of ecosystem-vulnerability links.</li> <li>• Understanding of difference between climate change and climate variability</li> <li>• Entry points for ecosystems into DRR</li> </ul>
<b>OUTPUTS</b>	<ul style="list-style-type: none"> <li>• Increased awareness of ecosystem-based ways to reduce risks</li> <li>• Increased awareness of difference between climate variability and climate change, and how DRR should address these challenges</li> <li>• Development of tables of possible ecosystem approaches to reducing the impact of specific hazards</li> </ul>
<b>PREPARATION</b>	Review the Climate and Disaster Risk Reduction section of the DRR content paper.
<b>RESOURCES</b>	<ul style="list-style-type: none"> <li>• Data projector and screen</li> <li>• Flip charts and markers</li> </ul>
<b>HANDOUTS</b>	9.3.1 Ecosystem-Based Disaster Risk Reduction exercise
<b>FACILITATOR NOTE</b>	<ul style="list-style-type: none"> <li>• Identify participant presenters before training starts.             <ul style="list-style-type: none"> <li>• The presentations can focus on risk assessment tools and lead into the following session (Ecosystems Approach and Risk Assessment Tools – see notes at beginning of Guide).</li> <li>• If there is no, or only one, presentation, consider increasing the time allocated to the exercise later in this session.</li> </ul> </li> <li>• This session can be adjusted to consider locally appropriate risks and hazards.</li> <li>• The session focuses on the reduction of hazards but discusses vulnerability reduction.</li> <li>• If more time is available, participants can be encouraged to debate whether DRR efforts should address long-term climate impact.</li> <li>• The main activity in this session is derived from materials in this publication: <i>Integrating Environmental Safeguards into Disaster Management</i>, Vol 1. Reference material, IUCN, 2008. It is essential for the trainer to review this document and be familiar with the context from which the activity/exercise was taken.</li> <li>• Select only four or five of the ecosystems out of the 13 included in the 9.3.1 handout, enough for small groups of three or four participants. Select those ecosystems that would have the most interest and value for the participants.</li> </ul>



## Activity 3.1 Introduction to Session and Participant Experience

(30 minutes)

**Slide # 1, Session 3.** Welcome participants back from lunch.

**Slide # 2, In This Session We Will Discuss...** This session will continue building the puzzle by showing the two new pieces: climate change and ecosystem-based disaster risk reduction strategies and activities.

**Slide # 3, Participant Experience.** Use this slide as a placeholder for any slides used in this session. The trainer should introduce the session as an opportunity to share experiences, and briefly introduce the presenters.

Each of two presenters should take up to seven minutes to make a presentation following by up to seven minutes to answer questions and take comments. Encourage questions and link to the points made in the presentations and discussions that took place during the morning sessions.

## Activity 3.2 Climate and Risk

(10 minutes)

**Slide # 4, Climate and Risk.** This slide introduces the topic and explains that there will be a short discussion about it.

**Slide # 5, Climate Change and Variability.** Present the materials on the slide.

Note in your presentation that there is no question that humans have changed the climate, for instance, through urbanization or farming. Acknowledge that human activity has increased the amount of CO<sub>2</sub> and other climate-impact gases and particulate matter in the atmosphere and that these substances will continue to have an impact for decades, if not longer.

**Slide # 6, Climate Adaptation Actions.** Review the box in the module content paper “Guidance for Integrating Climate Adaptation into Construction.” Tell the participants that they can be proactive by incorporating climate considerations into DRR planning and action. The information in the box applies these ideas to construction projects, and suggests a climate adaptation checklist, shown on the slide and below.

Consider these actions when planning new projects:

- Contact local government officials or experts to determine the predicted impacts of climate change within the project area.
- Include specific measures to address predicted changes in climate extremes in the next 5–10 years (e.g., worsening drought, greater frequency of flooding, more intense cyclones).
- Incorporate the consequences of longer-term, regional climate change effects (e.g., heat stress from rising temperature, reduced stream flow due to loss of snow pack, sea level rise).
- Consider alternative activities in terms of their ability to account for future climate risks.

**Slide # 7, What Should DRR Do?** The previous slide demonstrated some general actions that can be taken in consideration of climate-related issues. Now ask participants to consider the question of what DRR should do about climate change and climate variability. Allow the participants to discuss the question and call attention to the two points relative to climate change and variability on the slide.

Allow the discussion to continue for a few minutes and close by noting that many DRR actions improve capacities to face current as well as future risks.

## Activity 3.3 Ecosystem-Based Disaster Risk Reduction Exercise

(40 minutes)

**Slide # 8, Recall Ecosystem Services.** There are so many closely related terms used in this workshop that it may be helpful to prepare the participants for the next exercise by reminding them of the discussion of the four ecosystem services. Ask if there are any questions about what they are. It is critical that they understand this concept to implement the next exercise.

**Slide # 9, The Logic of Ecosystem-Based DRR.** Based on the concept of ecosystem services from the previous slide, this slide sets up the exercise that is the focus of this session.

- Healthy ecosystems are important for healthy human environments, livelihoods, and well-being.
- Ecosystems provide essential services.
- Ecosystem-based disaster risk reduction activities protect these ecosystem services and help them remain sustainable.

**Slide # 10, Ecosystem-Based DRR Exercise.** This slide describes the instructions for the exercise, which are slightly more detailed below and are in **Handout 9.3.1**, which should be given to each participant.

1. Divide into teams of three or four participants (the trainer will determine the exact groupings, preferably four or five groups).
2. Review the exercise scenario and the list of natural hazards provided in the handout.
3. Read the description of the ecosystem that your trainer has assigned to your group.
4. Review the table attached to your assigned ecosystem that does the following:
  - a. Identifies specific services provided by that ecosystem
  - b. Describes the nature of that service, and
  - c. Identifies the potential threats to those services.

The last column on the right of this table is for participants to list their ideas for disaster risk reduction strategies/activities that address each of the hazards that are relevant to the location of the ecosystem.

5. Review *Select Ecosystem-Based Hazard Mitigation Activities*, which are the third and fourth pages of **Handout 9.3.1**. This table lists examples of the kinds of activities participants are asked to generate for this exercise.
6. Generate your suggestions for ecosystem-based disaster risk reduction strategies or activities.
7. If each of the groups has access to a laptop computer, then you will need to give an electronic template of the table to each group to record their ideas. The electronic files should be combined into one file, printed out, and copied to each participant by the end of the workshop.
8. Participants will have about 35 minutes to develop their ideas and record them on the table, and to prepare to present them to the full plenary.

As part of the preparation for this session, you need to select only the four or five ecosystems (out of the 13 in the workshop materials file) that are of priority interest and value to the participants in the workshop.

The primary activity is for the small groups to generate DRR strategies or activities for the priority hazards for their selected ecosystem. This activity should be presented as a collective effort to build a menu of ideas that will, in fact, be collected, combined into a single file, and distributed back to the participants. (This will be greatly facilitated if each small group has a laptop and a template for the exercise on which to write their ideas. The files can be combined, printed, and copied before the end of the workshop.)

Allow about 35 minutes for the small-group work. When the groups are finished, it will be time for a break.

Note: It is recommended that the facilitator enable each group to record their recommendations/ideas for this exercise in the electronic file of the template for this exercise (see Reference CD). For this to work, you will need to make a copy of the file on a flash drive and then load it on laptop computers for each of the groups. Show each group where their ecosystem file is located within the file.

During the afternoon break, you should make a copy of the small-group files and consolidate them into one file, which will be used for the debriefing exercise after break. You will be able to upload the file to the computer that is hooked up to the data projector and then project each group's report as they present their ideas and recommendations.

Print this file and distribute photocopies of it to participants at the workshop closing.

**Slide # 11, Break.** Announce how much time they have for break, and ask them to be ready to report their small-group discussion after break.

## PLAN FOR SESSION 4: EXERCISE REPORT, SUMMARY, EVALUATION, AND CLOSING

<b>SESSION TIME</b>	90'
<b>OBJECTIVES</b>	<ul style="list-style-type: none"> <li>• Debrief small groups on their ecosystem-based DRR activities.</li> <li>• Review outcomes of the workshop.</li> <li>• Assess how well the participants understood the materials covered in the workshop.</li> <li>• Assess participant satisfaction with the training methods and materials used in the workshop.</li> </ul>
<b>ESSENTIAL CONTENT</b>	<ul style="list-style-type: none"> <li>• Ideas contained in the small-group reports</li> <li>• Key points from the workshop</li> <li>• Evaluation data collection</li> </ul>
<b>OUTPUTS</b>	<ul style="list-style-type: none"> <li>• Small-group reports</li> <li>• Confirm participant understanding of the key elements of the workshop</li> <li>• Evaluation of participant learning and satisfaction with training materials</li> </ul>
<b>PREPARATION</b>	<ul style="list-style-type: none"> <li>• Review workshop activities.</li> <li>• Make arrangements to print the file of small-group reports of the last activity from session 3 and to photocopy it for distribution at the close of the workshop.</li> <li>• Note specific events that took place during the training.</li> <li>• Determine whether you will use the "Learning Evaluation" quiz. If you do, include it in your handouts for this session, along with the answer key.</li> <li>• Review the learning evaluation and workshop evaluation forms, if you use them, to ensure that they reflect the actual materials covered in the workshop.</li> <li>• Plan the closing "ceremony" by asking the workshop host and perhaps a representative of the participants to make closing remarks.</li> <li>• If certificates are to be given out, make sure that they have been prepared before this session. Verify spelling of all the names.</li> </ul>
<b>RESOURCES</b>	<ul style="list-style-type: none"> <li>• Data projector and screen</li> <li>• Flip charts and markers</li> </ul>
<b>HANDOUTS</b>	<ul style="list-style-type: none"> <li>• 9.4.1 Learning Evaluation</li> <li>• 9.4.2 Learning Evaluation Answer Key</li> <li>• 9.4.3 Workshop Evaluation</li> <li>• Certificates for completion of the workshop</li> <li>• CD with resource materials related to this workshop</li> </ul>

## Activity 4.1 Ecosystem-Based DRR Exercise Debriefing

(40 minutes)

As noted in the last session, you may have collected the electronic files of the small-group reports, consolidated them into one file, and loaded that file in the computer linked to the data projector to allow each group to use that as the source for their report.

**Slide # 1, Session 4.** Inform participants that this session will start with the debriefing of all the small groups for the ecosystem-based DRR exercise. There will then be a review of the materials covered in the workshop, a workshop evaluation, and a closing.

**Slide # 2, Group Report.** Invite the groups to make their reports, allowing about five minutes for each group. Encourage discussion with the other groups about the ideas.

Provide feedback to each group about their ideas, perhaps amplifying some of their ideas or commenting on potential risks or problems that may be associated with the ideas.

Congratulate the groups on their contributions to the field of DRR and note that their work has been collected into a menu of ideas that they can all use.

## Activity 4.2 Review of Workshop Objectives and Accomplishments

(10 minutes)

**Slide # 3, In This Workshop, We Discussed...** Use this slide to remind participants of the key points of the workshop.

**Slide # 4, To Complete the Picture...** Point out that the label of “your work” in these pieces is required to complete the picture. Ask participants to suggest their thoughts or ideas on how they can integrate an environmentally based approach into their future work in DRR.

## Activity 4.3 Evaluation and Closing

(40 minutes)

**Slide # 5, Learning Evaluation.** Asking participants to take the Learning Evaluation (quiz) is optional. If you decide to do it, explain that the chief value is in helping the workshop planners and trainers see how well the information was presented and communicated. We are trying to evaluate not the participants, but ourselves. Pass out **9.4.1 Learning Evaluation** and **allow about 10 minutes** for completion. Collect the quizzes and hand out **9.4.2 Learning Evaluation Answer Key**, and move on to the workshop evaluation.

**Slide # 6, Workshop Evaluation.** Ask the participants to fill out **9.4.3 Workshop Evaluation** and to hand it in when complete.

**Slide # 7, Closing.** Conclude the session by presenting and thanking the hosting team, thanking the participants for their efforts, and encouraging all of them to be greener in their current and next reconstruction projects. Ask if any of the participants or host organization have comments they would like to share. If certificates are required, these can be handed out at this time along with the resource CD of workshop-related materials.