Disaster Management

Disasters and the environment are strongly interrelated: natural and man-made hazards can create environmental impacts, and environmental degradation can heighten disaster impacts. For example, hazards like deforestation, poor agricultural methods and inappropriate development can exacerbate the amount of environmental destruction created by hurricanes, earthquakes and storms. And this heightened environmental destruction can in turn lead to further hazards such as landslides, flooding, silting and contamination of drinking water.

This interrelationship can also have devastating effects on vulnerable communities, including loss of homes and livelihoods, destruction of agriculture and infrastructure, and loss of life.

WWF's Humanitarian Partnerships Program has partnered with concerned agencies like the American Red Cross and others to help anticipate such hazardous impacts before substantial destruction occurs. Combining risk reduction with environmental management, we are using on-the-ground training, disaster risk mapping and conservation strategies to better prepare vulnerable communities and ecosystems for future hazards.

The Changing Face of Disaster Management

Communities living in high-risk areas often already utilize traditional disaster preparedness and recovery methods such as stockpiling emergency supplies and preparing contingency plans. However, due to the rapidly changing global environment, communities will no longer be able to rely on past experience to prepare for future events. Environmental change is increasing the need for communities and humanitarian agencies to rethink, retool and reconfigure the ways in which they prepare for and recover from disasters. One way in which agencies can accomplish this is to increase preparatory measures during the periods between disasters.

The Key to Environmental Sustainability

In the face of natural disasters and climate change, the environment can provide the key to sustainability.

A healthy environment includes robust natural systems – such as forests, lakes and coral reefs – that have a high diversity of plant and animal life. Such systems support and safeguard lives and livelihoods, provide protection against hazards and can lessen disaster impacts. For example, mangroves can act as a buffer from storm surges in coastal areas and uphill forests prevent soil erosion.

The health of these environmental systems can be harmed by things like unexpected disasters, inappropriate development and ill-planned reconstruction. Development and reconstruction may provide some short-term benefits, but over the long term they may result in the degradation of ecosystems and natural resources, leading to hazardous conditions that undermine humanitarian assistance and long-term community development and threaten the health, safety and livelihoods of many people.

Photo Credits. Top to bottom, left to right: Sabang, or Pulo Wei, north of Banda Aceh, Indonesia – © WWF-US / Aaron McNevin; Children of workers at a shrimp hatchery greatly affected by the 2004 tsunami, Pidie, Indonesia – © WWF-US / Aaron McNevin; House built in the middle of a floodplain, Aceh, Indonesia – © Jonathan Randall / WWF; Rain forest cleared to make room for palm oil trees, Sumatra, Indonesia – © Mark Edwards / WWF-Canon.

Tools and Approaches for Disaster Management and Environmental Sustainability

In order to effectively reduce the risks and vulnerabilities associated with degraded and changing environments, humanitarian agencies can adapt and apply tools and approaches used in environmental management.

Reduce Disaster Risks

Establish baselines, determine levels of sustainable use and monitor changes
Agencies can combine local knowledge with environmental expertise to determine a particular natural resource's level of sustainable use; identify distress signals; and access, interpret and apply scientific information regarding disaster risks (such as local climate change impacts). Communities and agencies should conduct baseline assessments and regular follow-up checks to monitor changes in disaster risk.

Incorporate environmental factors into disaster risk mapping and land-use planning
Using disaster risk mapping and historical profiling, communities can identify known high-risk hazard areas such as floodplains and unstable slopes. Planners and managers should also consider environmental factors when mapping and delineating ecologically valuable and vulnerable "no-go'" or "use with caution" areas. Prevention is the key to avoiding inadvertent unsustainable use or ill management of such areas.

Use maps and plans in response, recovery, reconstruction and development
Communities that are equipped with accurate and updated comprehensive disaster risk maps are better able to make quick decisions about things such as where to source construction materials or how to dispose of waste in ways that minimize negative impacts on the environment and human well-being. Community-based disaster risk reduction (CBDRR) programs are already using participatory Geographic Information Systems (GIS) mapping to systematically accumulate, analyze and store community input data. These maps can be easily shared with local government agencies for land-use planning and other development purposes, as well as with humanitarian agencies for more informed action.

Lessen environmental impacts
Communities can avoid or minimize the degradation of important habitats or ecosystems by relocating potentially damaging activities, altering project designs and carrying out plans in a low-impact manner. Agencies and communities can also plan measures to compensate for losses and damages incurred.

Build Capacity to Identify Disaster Risks and Mitigation Options

Update relevant data and information

Communities should establish a small, committed and informed group tasked with monitoring valuable and vulnerable sites and known hazard areas. The group should use tools to help identify and document significant changes, such as pictures of healthy and degraded habitats or of species indicative of healthy ecosystems.

Facilitate networking

Communities and their supporting humanitarian agencies need to tap into both traditional and nontraditional pools of knowledge and networks, as well as explore new ways to operate in order to adapt effectively. To gain such knowledge, they can encourage input on their disaster risk reduction plans from natural resource managers, local civil society networks and environmental experts familiar with local areas.

Enhance early warning systems

Agencies and communities can use nature-based signs to identify compromised ecosystems and services, as well as detect increased disaster risks and impending disasters. Some communities have long used certain plants and animals to indicate an increase in disaster risk, while other signs may be gleaned from more recent experience and knowledge.

Increase awareness by connecting environmental issues with risk reduction

Agency trainers may preempt or reduce environmental degradation by educating community members about how environmental health is related to personal and community health and by encouraging environmental stewardship that directly promotes risk reduction.

Address Underlying Community Vulnerabilities

Support programs that address poverty, conservation and global impacts

Vulnerable communities are often already impoverished and disenfranchised, which is why proper community-based disaster risk reduction in these areas is so critical. As a contribution to long-term community development, humanitarian disaster risk reduction programs can support national plans and policies to alleviate poverty, conserve valuable and vulnerable natural resources, and address global issues such as climate change.

Questions to Raise Awareness and Aid Preparation

When performing education and outreach, humanitarian and conservation organizations should provide community members with information that will allow them to answer critical questions such as

- What are the signs of a thriving wetland or of a productive mangrove in and around a community?
- What are nature-based danger signs?
- Is there a safe haven to use for refuge in my community?
- Does my community have disaster risk maps? If so, how can I gain access to them?

The WWF Humanitarian Partnerships Program

WWF works directly with humanitarian organizations and governments to advise them on better practices for rebuilding communities affected by disaster. The goal of our Humanitarian Partnerships Program is to ensure that disaster recovery and reconstruction efforts include environmentally sustainable considerations. To reduce risk and vulnerability and achieve long-lasting results for affected communities, we work with our partners to create a comprehensive recovery and reconstruction process, which includes a “design through implementation” approach to ensure the restoration of livelihoods, protection of natural resources, and strengthening of communities against future disasters.

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