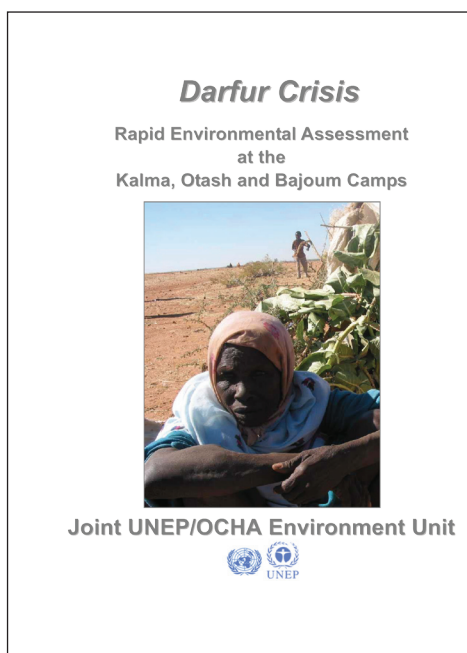


## A YEAR OF DISASTERS

For too many people, 2005 will be remembered for its disasters. Around the Indian Ocean, communities and governments struggled to rebuild after the 26 December 2004 earthquake, which measured more than 9.1 on the Richter scale, and the subsequent tsunami, which claimed more than 250,000 lives in 12 countries. In August, hurricanes swept through the Gulf Coast of the United States, taking more than 1,000 lives and inflicting billions of dollars worth of damage. In October, a magnitude 7.6 earthquake shook South Asia, at a cost of more than 70,000 lives, mostly in Pakistan, with millions more exposed to harsh winter conditions. Other disasters included floods in Switzerland, a chemical spill in China and swarms of locusts in Africa. All had severe consequences for lives and livelihoods.



Throughout 2005, UNEP responded to environmental emergencies around the world, including an assessment of environmental issues in camps for Internally Displaced Persons in the Darfur region of Sudan.

The year's disasters dramatically illustrated the role of the environment, and of environmental management, in responding to, recovering from and reducing the risk of disasters, particularly in developing countries where affected communities often rely heavily on natural resources for their survival. Throughout 2005, UNEP helped countries to address the environmental dimensions of disasters through a variety of assessment activities, technical assistance, advisory services, capacity building, networking and pilot projects.

In January, national governments, UN agencies and civil society representatives met at the World Conference on Disaster Reduction, in Kobe, Japan, where they agreed on the Hyogo Framework for Action, a global strategy for reducing disaster risk by 2015. At the Kobe conference, UNEP highlighted the link between environmental management and the importance of ecosystems for risk reduction. UNEP also agreed to develop a global programme on environmental management and natural disasters with the UN International Strategy for Disaster Reduction (ISDR). In addition, the two organizations, in collaboration with UNDP and the African Union, convened a meeting of African ministers in charge of disaster management, in Addis Ababa, 5–7 December 2005, to improve cooperation among African countries in the area of disaster risk reduction.

The international community also moved to develop more systematic approaches to disaster recovery in 2005. New mechanisms to which UNEP contributed include the International Recovery Platform, and early recovery planning of the Interagency Standing Committee, the primary mechanism for coordination among agencies for humanitarian response to complex and major emergencies. In Pakistan, UNEP worked closely with other UN agencies and national and international organizations to develop the environmental components of the Early Recovery Framework. This framework, the first of its kind, is expected to support recovery efforts around the world by addressing issues that are critical in the first 18 months after a disaster.



An earthquake survivor looks down from her destroyed village in the Neelum Valley in Pakistani administered Kashmir on 12 November 2005. The villages, at 8,000 feet above sea level on the western side of the valley, are home to some 7,000 people, roughly half of whom lost their homes in the 8 October earthquake. UNEP is working with the Government of Pakistan and other partners to promote environmentally sustainable recovery. © Wojtek Lembryk/epa/Corbis

## RESPONDING TO EMERGENCIES

When disasters struck, UNEP responded. Immediately after the Indian Ocean tsunami, UNEP mobilized and deployed a task force of experts to Indonesia, Sri Lanka, Maldives and Thailand, closely followed by teams sent to Seychelles and Yemen. Rapid environmental assessments identified significant environmental concerns that could affect communities during the relief and later recovery periods: water and soil were contaminated; hazardous debris threatened public health and safety; environmental infrastructure, buildings and industrial sites were damaged; and, in many cases, excessive demands were placed on environmental capacity. People's livelihoods were heavily impacted; a disproportionate number of the victims were poor people who depended heavily on ecosystem services.

Within 24 hours of the October 2005 earthquake in South Asia, UNEP and the UN Office for the Coordination of Humanitarian Affairs (OCHA)

deployed environmental experts to Pakistan as part of the UN Disaster Assessment and Coordination team to conduct rapid assessments. Additional experts on waste and natural resource management issues were sent soon after to facilitate coherent links between urgent relief operations and subsequent recovery activities.

Throughout 2005, UNEP responded to environmental emergencies around the world as part of its continuing collaboration with OCHA through the Joint Unit for Environmental Emergencies. These included reports of alleged hazardous waste dumping in Somalia, a dam failure in Guyana, forest fires in Peru and an assessment of environmental issues in camps for Internally Displaced Persons in the Darfur region of Sudan. In December, a four-member team went to northeast China at the invitation of the Chinese authorities to see first-hand the problems caused by the release of organic pollutants, including the highly toxic chemical benzene, into the Songhua River after a chemical plant explosion.

In June, OCHA, in association with UNEP's Awareness and Preparedness for Emergencies and the Local Level (APELL) Programme, organized the sixth meeting of the Advisory Group on Environmental Emergencies, in Geneva, Switzerland. The meeting brought together 100 participants from governments, international organizations and non-governmental organizations to share information, expertise and lessons learned for improved prevention, preparedness and response to environmental emergencies.

### **BUILDING BACK BETTER**

Early assessments during the emergency phase directly support recommendations for immediate mitigation measures. They also lay the foundation for sustainable recovery. The Environmental Recovery Programme in UNEP's newly strengthened Disaster Management Branch has been at the vanguard of efforts to promote environmentally sound recovery in the tsunami-affected countries.

To guide the massive coastal reconstruction effort, UNEP convened a meeting in February in Cairo, Egypt, to discuss coastal zone rehabilitation and management in the tsunami-affected region. Participants from the affected countries and supporting international institutions endorsed twelve key principles for promoting more sustainable forms of coastal development and the United Nations Millennium Development Goals.

In response to the overwhelming waste management problems generated by the tsunami, UNEP developed the UN Post-Asian Tsunami Waste Management Plan, launched in the Maldives in May and in Banda Aceh, Indonesia, in June. UNEP has supported the removal of disaster debris from 89 of the islands in the Maldives. The clean-up continues.

UNEP co-sponsored the Green Aceh Conference to promote the mainstreaming of a diverse range of good environmental practices in tsunami reconstruction efforts, including the cross-cutting issues of participation, transparency, accountability and gender equity. UNEP has prepared a plan for restoring coastal vegetation in Aceh Besar, Simelue and Sabang islands in Indonesia. Similar efforts are being initiated in Sri Lanka and Maldives. UNEP has also recruited an environmental policy expert to advise the UN Recovery Coordinator for Aceh and Nias.

Subsequent to the South Asian earthquake, Pakistan's Ministry of Environment requested UNEP to prepare a preliminary environmental assessment with national experts. UNEP drew attention to the unprecedented amounts of waste and debris generated by the earthquake—in the form of the landslides, damaged buildings and other infrastructure, solid and human waste, medical waste and other hazardous materials—that could have severe impacts on human health and livelihoods, not just in mountain communities and communities in the lower slopes and valley bottoms in the directly affected area, but also on the millions of people living in the lower catchment areas of the Indus.

Natural resources are also subject to a variety of pressures. Woodland and other vegetation is being exploited for reconstruction, heating, cooking and other energy needs; landslides are occurring on slopes destabilized by seismic activity and by erosion due to grazing, deforestation and other vegetation removal; water contamination and lake outbursts remain a threat; and the earthquake has had an impact on critical habitats and protected areas. UNEP has now been asked by the Government of Pakistan to develop an environmental recovery plan.

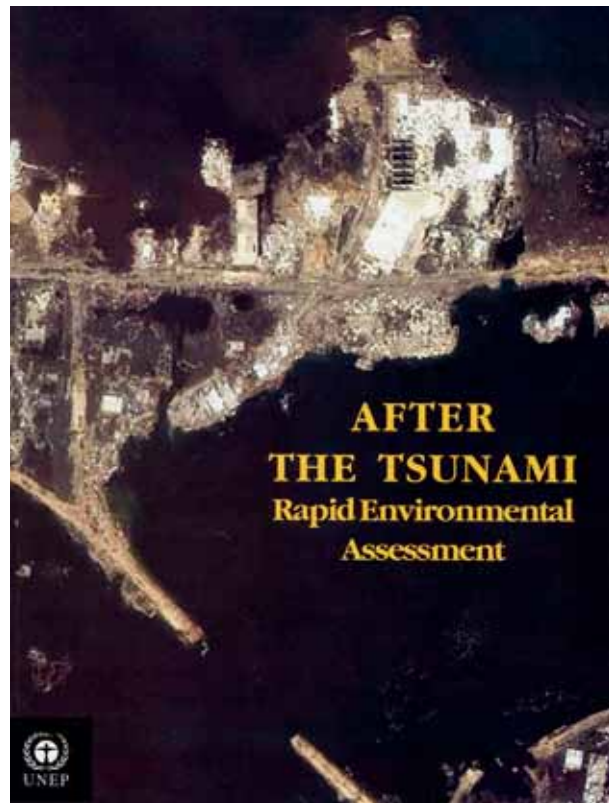
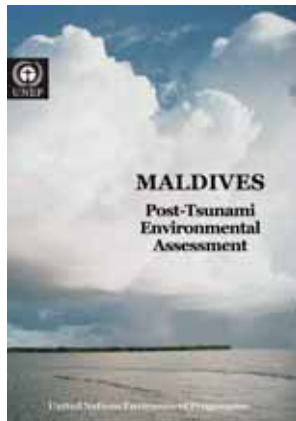
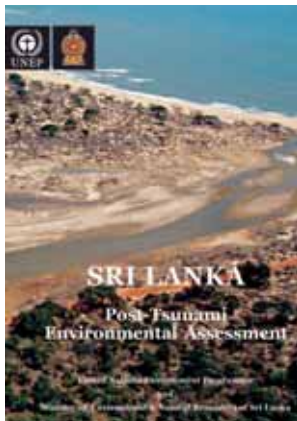
### **DISASTER RISK REDUCTION**

As part of its commitment to achieving the disaster risk reduction goals of the Hyogo Framework, UNEP, with the support of the ISDR Secretariat, convened the first meeting of the Inter-Agency Task Force for Disaster Reduction Working Group on Environment and Disaster Risk Reduction, in October. The group of technical experts identified issues that need to be addressed to effectively integrate environmental concerns into disaster risk reduction and integrate risk reduction into environmental management programmes. The group recommended better understanding of the links between environment and disaster risk reduction, from both scientific and policy perspectives.

Throughout 2005, UNEP worked to advance technical knowledge of the environmental aspects of disaster risk reduction. UNEP's World Conservation Monitoring Centre published *In the Front Line*, a report examining the role of coastal mangroves and coral reefs in buffering the impacts of natural hazards. An innovative



Immediately after the Indian Ocean tsunami, UNEP mobilized and deployed a task force of experts to Indonesia, Sri Lanka, Maldives and Thailand, closely followed by teams sent to Seychelles and Yemen. UNEP published the findings of its Rapid Environment Assessment of the aftermath of the Indian Ocean tsunami in February 2005. The publication was followed by a number of detailed country-level reports. UNEP also worked with the tsunami-affected countries throughout the year to provide environmental expertise to recovery programmes and to assist in disaster risk reduction.



project on the use of Environmentally Sound Technologies in Forestry Waste Management for Disaster Prevention was initiated by UNEP's International Environmental Technology Centre on the island of Java, Indonesia. Also, keenly aware of the importance of indigenous knowledge in environmental conservation and natural disaster management, UNEP launched a project to promote the application of indigenous knowledge in environmental conservation and coping mechanisms for flood and drought disasters. Initial workshops on this subject were organized in Swaziland, in August, and in Kenya, in September.

UNEP has also collaborated closely with other UN agencies on the development of an early warning system for tsunamis and other natural disasters in the Indian Ocean region. The emerging systems promise to adopt a more holistic approach to risk reduction that recognizes multiple hazards and acknowledges the link between warning systems and preparedness plans.

UNEP is also working to strengthen early warning systems in tsunami-affected countries through the effective use of environmental information and environmental management; in particular it is drawing attention to the role of risk assessments in promoting safer and more sustainable communities.

In 2005, UNEP's work on Awareness and Preparedness for Emergencies at the Local Level (APELL) continued to expand, with Sri Lanka among the latest countries to further develop capacity to assess and understand local risks associated with industrial accidents and to strengthen preparedness for effective response. The APELL process was also introduced through multi-stakeholder capacity building missions to Iran and Yemen, where lessons learned in technological disasters were shared.

Subsequent to the Indian Ocean tsunami, UNEP prepared a brochure on how APELL can help coastal communities to be better prepared to respond to tsunamis. UNEP's Regional Offices also continued to promote APELL in several countries, especially in West Asia and Latin America. In May 2005, an Experts Meeting, in Cairo, Egypt, discussed the implementation of APELL in the region, and a Symposium on Natural Disasters was organised in Bahrain. In Latin America and the Caribbean, *APELL for Ports* was introduced and disseminated, especially in the Mercosur region, while in Peru, three mining companies initiated APELL activities. *APELL for Mining*, a joint UNEP/International Council on Mining and Metals publication on good practices in emergency preparedness and response, was launched in November.