

Environmental Emergencies NEWS



Issue 1 January 2003

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Dear Readers,

I am pleased to offer you the first issue of UNEP's Environmental Emergencies News produced by the Disaster Management Branch within the Division of Environmental Policy Implementation. It is intended that this newsletter becomes a tool for spreading information and sensitizing the disaster community to the environmental dimension of the management cycle of disasters. Each issue will have a specific thematic focus and will contain a technical and scientific feature article dedicated to the theme. We are also hoping that organizations working in the area of environmental emergencies contribute to the newsletter by sending us announcements of upcoming events, information campaigns and any relevant news items. We are counting on your support.

The first issue is being used as a background paper to illustrate UNEP's contribution in the field of environmental emergencies. In addition, the different categories of hazards that can lead to environmental emergencies of disasters with impacts on the environment and the concepts of hazard, risk and environmental emergencies are introduced. We showcase a selection of events that UNEP has worked on. In future issues, we will keep you informed of the recent events that have occurred with the potential to impact on the environment.

Finally, we would like to take this opportunity to encourage you to send us your comments, contributions for future issues and wish you pleasant and informative reading.

Donald Kaniaru, Director, Division of Environmental Policy Implementation (DEPI)

January 2003



Categories of hazards

The following categories reflect the types of hazards that can have severe impacts on the environment:

- a) **Hydrological** e.g. floods and drought;
- b) **Geological** e.g. earthquakes and volcanoes;
- c) **Atmospheric** e.g. extreme temperatures, tropical cyclones, windstorms;
- d) **Biological** e.g. insect infestation;
- e) **Technological** e.g. nuclear and chemical releases or spills, structural or infrastructural failures;
- f) **Domino or compound:** where one event triggers another as in the case of an earthquake triggering off a tidal wave (natural) or structural failure (technological).

Hazards, risks and emergencies

The distinction between hazard and risk are best illustrated by Okrent's example of two people crossing an ocean, one in a ship liner and the other in a rowing boat (Comment on societal risk: *Science*, 1980, *vol.* 208, *pp.* 372-5). The main hazard (deep water and large waves) is the same in both cases but the risk (probability of capsizing and drowning) is greater for the person rowing the boat. If we apply this to other hazards such as earthquakes, an earthquake hazard can exist in an uninhabited region but an earthquake risk can occur only in an area where people and their possessions exist. A hazard may also exist without causing an emergency. For example drought may or may not result in widespread crop failure; the effects of the crop failure may or may not be serious enough to give rise to an emergency due to a food shortage.

What is an environmental emergency?

An environmental emergency can be described as the occurrence of an event, series of events or process, usually unforeseen and sudden, causing the degradation or threatening the degradation of the environment which calls for immediate counter measures beyond the normal capability of the affected communities to cope unaided. From a time perspective, environmental emergencies can be divided into two categories: rapid onset (e.g. earthquakes) versus slow onset (e.g. drought). Furthermore, some of the long-term environmental threats increase the catastrophic potential of the hazard. For example, the damage potential of a storm surge for low-lying coastal communities will increase with rising sea levels associated with global warming. Equally, the impact of drought is exacerbated by desertification and unwise land use.

Environmental emergencies at a glance

Disasters with severe impacts on the environment continue to strike with increase magnitude, complexity and frequency. Technological accidents such as chemical releases and oil spills have not been checked despite the

efforts made. Natural and human induced disasters including floods, droughts, cyclones, earthquakes, landslides, forest fires are widespread with increasing frequency and severity. Conflicts too have caused environmental degradation triggering environmental emergencies. Together, these various elements have collectively impacted those affected in terms of health, safety and economical losses as well as causing negative environmental impacts, especially in least developing countries where the poorest of the poor suffer without being part of a social and economic security network. The recent storms in North America and Europe are however a stark reminder that such events are not limited to developing countries.

Environmental emergencies will continue to occur into the foreseeable future. With degradation of ecosystems, rapid industrial growth and increasing use of chemicals, there is ever-growing attention to and an expectation of timely and effective emergency response. Many environmental emergencies also occur in tandem with national or cross-border conflicts, placing the environmental agenda among competing global concerns for peace-building, relief and recovery, poverty alleviation and sustainable development.

The impacts of environmental emergencies reflect a complex interplay of economic, social, political and environmental conditions. High rates of population growth and urbanization place growing numbers of individuals at risk during disasters. Inadequate capacity to cope with emergencies – whether through weak governance mechanisms or imbalances in the concentration and use of economic resources - can be both a cause and a consequence of vulnerability. The increasing frequency and severity of man-made and natural disasters and technological accidents may well be changing the global environment in ways that will further encumber the international economy. Perhaps the best seismograph for this are the figures of disaster costs provided by the insurance industry. In 2002, the costs from natural disasters has been estimated to be over US\$ 70 billion.

Institutional arrangements within UNEP dealing with environmental emergencies

UNEP contributes its environmental expertise to the efforts of the international community in the field of environmental emergencies. A number of institutional structures exist within UNEP for this endeavour.

UNEP activities on prevention, preparedness for and response to environmental emergencies are coordinated by the Division of Environmental Policy Implementation (DEPI) specifically through the **Disaster Management Branch (DMB)**. The Branch is composed of three units: the Emergency Co-ordination Unit (ECU); the Post Conflict Assessment Unit (PCAU) and the Joint UNEP/OCHA Environment Unit. The main tasks of the **Environment Co-ordination Unit (ECU)** are to:

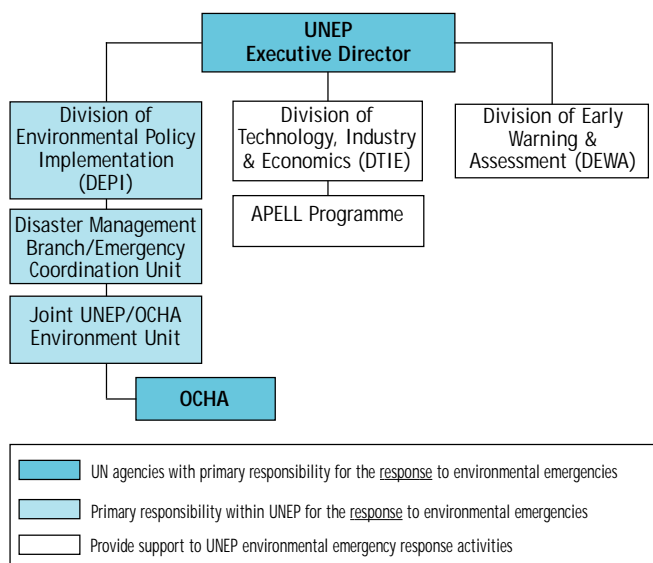
- co-ordinate UNEP's Strategic Framework on Emergency Prevention, Preparedness, Assessment, Mitigation and Response;
- act as a focal point for other UN agencies, international organizations and NGOs in disaster reduction, preparedness and mitigation;
- backstop the work of the Post Conflict Assessment Unit (PCAU) and the Joint UNEP/OCHA Environment Unit.

The **Post-Conflict Assessment Unit (PCAU)** was created in 2001 following the experiences gained by UNEP in its assessment of the environmental impacts of the Kosovo conflict. The Unit investigates the environmental consequences of conflicts, determines the environmental impacts of refugee movement and proposes solutions for clean-up and environmental activities post conflict. Apart from continuing its work in the Balkans, it has extended its activities to Afghanistan, the Occupied Palestinian Territories and the Persian Gulf region.

The activities in the field of response to environmental emergencies are carried out for the most part in cooperation with the Office for coordination of Humanitarian Affairs (OCHA) through the **Joint UNEP/OCHA Environment Unit**. The mandate of the Joint Unit is to facilitate international response to environmental emergencies by:

- undertaking missions for an initial independent assessment and post event analysis to assist countries in the immediate response phase;
- acting as broker between affected and donor countries;
- providing a clearinghouse for information and maintaining a 24-hour notification and alert system.

UNEP entities with responsibilities for the response to environmental emergencies



The **Division of Early Warning and Assessment (DEWA)** plays a role in environmental emergencies since through its assessments it generates data and information which can be used to support the contingency planning processes and in the development of preparedness strategies.

The *Awareness and Preparedness for Emergencies at Local Level programme (APELL)* within the **Division of Technology, Industry and Environment (DTIE)** is a tool for raising awareness and improving the preparedness of communities exposed to environmental emergencies. The programme addresses all environmental emergencies related to industrial activities with potential for fire, explosion or toxic release but is also relevant to natural disaster preparedness. Such environmental emergencies can result from human activity or as consequences of natural disasters such as earthquakes and flooding. APELL consists of two parts: providing information to the community to allow it to understand local risks; and putting together an overall co-ordinated response plan to protect people, property, and the environment. It has been successfully used to improve coordination of emergency response services locally, and in cross-border hazard situations. APELL has already been introduced in more than 30 countries and its successful implementation through country seminars/workshops and national APELL centres results in a better level of preparedness by local emergency services and an understanding by local people of how to react to an emergency in their neighbourhood.

Within the context of the **Regional Seas Programme**, Regional Activity Centres (RACs) are also responsible for backstopping administratively and technically, the Protocols dealing with co-operation in cases of emergency from maritime-related activities when these Protocols exist.

The **Division of Regional Co-operation (DRC)** and more specifically its six regional offices play a role in environmental emergencies through the implementation at regional/sub-regional levels of UNEP's global programme and in so doing support the work on environmental emergencies.

The **Task Force on Environmental Emergencies (TFEE)** has also been established to enhance UNEP's internal co-ordinative mechanism. It played a useful role in co-ordinating UNEP's response to some disasters such as the floods in Mozambique (2000) and drought in Kenya (2000).

List of Governing Council decisions dealing with environmental emergencies

- UNEP GC Decision 21/17 of 9 February 2001 - **Further Improvement of Environmental Emergency Prevention, Preparedness, Assessment, Response and Mitigation**
- UNEP GC Decision 20/8 of 5 February 1999 - **Further improvement of the International Response to Environmental Emergencies**
- UNEP GC Decision 19/9 of 7 February 1997 - **Improvement of the International Response to Environmental Emergencies**
- UNEP GC Decision 18/19 of February 1995 - **Improvement of the International Response to Environmental Emergencies**
- UNEP GC Decision 16/37 of May 1991 - **Early Warning and Forecasting of Environmental Emergencies**
- UNEP GC Decision 17/5 of May 1993 - **Application of Environmental Norms by Military Establishments**
- UNEP GC Decision 15/39 of May 1989 - **Industrial Accidents**

Significant emergencies that UNEP has worked on

Month/Year	Event	Location	Environmental Impacts
2002			
January	Volcano eruption	Democratic Republic of Congo	Immediate damage to flora and fauna from lava. Water pollution due to contamination from lava, debris and ash. Soil erosion. Loss of biodiversity caused by burning of ecosystems. Damage due to mass population displacement.
January / February	Munitions dump explosion	Nigeria	Immediate release of toxic gas following explosion. Thermal and chemical pollution from components of bombs and other ammunition. Land degradation and water pollution resulting from explosions and decaying bodies (of those who tried to flee the explosion through the river and drowned). Threats from unexploded ordinance.
February / March	Chemical spill in the Port	Djibouti	Varying levels of soil contamination to six sites within the port areas situated in close proximity (within 1km) of a densely inhabited area. Concerns regarding possible marine contamination from run-off if rains should come. Immediate concerns regarding health of those who were exposed and concerns about chronic health effects to population from airborne contaminated dust particles.
April	Peat/wildland fire	Vietnam	Massive loss (nearly 30%) of one of the few remaining, and one of the most important peat forests in the world resulting in loss of habitat for wildlife, and protected bird species. Salt contamination of freshwater canals from the fire suppression efforts with impacts to drinking water, as well as the aquatic environment.
2001			
September	Dumpsite collapse	Philippines	Poorly managed dumpsite collapsed, which had been rebuilt immediately adjacent to original. Impacts include leaching of toxic substances to groundwater with direct impacts to drinking water. Soil contamination. Airborne pollution from incomplete combustion due to burning practices. Pollution from improper dump site management.
October	Floods	Islamic Republic of Iran	Soil erosion. Loss of biodiversity. Impacts to drinking water supply.
2000			
February / March	Cyanide spill (Baia Mare)	Romania, Hungary, Federal Republic of Yugoslavia	Serious contamination of Tiza river from cyanide and heavy metals from mine tailings resulting in transboundary impacts. Fish kill from cyanide. Impacts to drinking water. Long term impacts to aquatic environment from heavy metal contamination. Concerns regarding loss of or impact to biodiversity.
March	Waste spill (Baia Borsa)	Hungary and Romania	Pollution to and contamination of Viseu and Vaser Rivers, involving mostly minerals, but with some heavy metals.
September	Acid spill	Kosovo	Soil and water contamination from acid leak from large storage installation that flowed into Sitnica river resulting in a major fish kill and impacts to aquatic environment. Loss of vegetation and soil contamination. Potential impacts to groundwater.

Other emergencies that UNEP has worked on from 1994 to 1999:

Year	Month	Event	Location
1999	March	Aviation fuel spill	Kenya
	August	Earthquake resulting in petroleum spill & fire	Turkey
	December	Floods & mudslide resulting in chemical spill in port	Venezuela
1998	March	Forest fires	Brazil
	March	Forest fires	Indonesia
	June	Cyanide spill	Kyrgyzstan
	September	Forest fires	Russian Federation
	October	Drought	Kenya
1997	May	Dumping of hazardous substances	Somalia
	May	River pollution	Chile
	October	Forest fires	Indonesia
1996	April	Mine tailings spill	Philippines
1994	December	Pipeline oil spill	Russian Federation (Komi Republic)



Goma-Volcano Eruption-2002

Selected internet websites of the UN system related to disasters:

- UNEP/Division of Early Warning and Assessment (DEWA) - (<http://www.unep.org/dewa>)
- UNEP Awareness and Preparedness for Emergencies at Local Level (APELL) - (<http://www.unep.org/pc/apell/disasters.html>)
- Office for the Coordination of Humanitarian Affairs (OCHA) - (<http://www.reliefweb.int>)
- United Nations Development Programme (UNDP) - (<http://www.undp.org/erd/disred/index.htm>)
- The International Strategy for Disaster Reduction (ISDR) - (<http://www.unisdr.org>)

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