

FORUM: Environment Commission  
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STUDENT OFFICER: Vivien Valentiner  
POSITION: Deputy chair

## Introduction

At regular but unpredictable intervals, people around the world are affected by natural hazards. These may be caused by climate (e.g. drought, flood, cyclone) geology (e.g. earthquake, volcano, tidal wave, landslide) the environment (e.g. pollution, deforestation, desertification) or combinations of these. Hazards become disasters when people's homes and livelihoods are destroyed. Poverty, population pressures and environmental degradation mean that increasing numbers of people are vulnerable to natural hazards. Increasing population and urbanisation is increasing the world's exposure to natural hazards, especially in coastal areas (with greater exposure to floods, cyclones and tidal waves). Although worldwide disaster occurrence seems to follow an upward trend, some of their impacts on societies (victims and economic damages) have not increased as preparedness has improved.

Disasters affect the world's poorest the hardest – 65% from 1991-2005 occurred in developing countries. Although climatologic disasters were less numerous in 2008 compared to the annual average of 2000-2007, the number of victims increased by 30%, mainly due to extreme winter conditions in China (77 million victims), and droughts in Africa (14 million victims) and Asia (12 million victims).

On the example of the earthquake in Haiti in January 2010 the whole world could see how a country can be destroyed by a natural disaster. Three million people were affected by the earthquake, the Haitian Government reported that between 217,000 and 230,000 people had been identified as dead, an estimated 300,000 injured, and an estimated 1,000,000 homeless. Haiti is the poorest country in the Western Hemisphere, and is ranked 149th of 182 countries on the Human Development Index. The Australian government's travel advisory site had previously expressed concerns that Haitian emergency services would be unable to cope in the event of a major disaster, and the country is considered "economically vulnerable" by the Food and Agriculture Organization. It is no stranger to natural disasters; in addition to earthquakes, it has been struck frequently by cyclones, which have caused flooding and widespread damage. The most recent cyclones to hit the island prior to the earthquake were Tropical Storm Fay and Hurricanes Gustav, Hanna and Ike, all in the summer of 2008, causing nearly 800 deaths.

Recognizing the inability of many governments, especially of less developed countries, to cope with natural disasters there is an urgent need of improving the catastrophe-management in areas affected by natural disasters.

# Definition of Key Terms

## **Natural disaster**

The effect of a natural hazard (for example a flood, tornado or an earthquake) that affects the environment, and leads to financial, environmental and/or human losses. The resulting loss depends on the capacity of the population to support or resist the disaster.

## **Disaster management**

Disaster management is a complex series of activities that include risk assessment, prevention measures, preparedness to cope with future disasters, emergency response to a disaster, recovery and reconstruction. It is also called catastrophe- management or emergency management.

## **Disaster reduction**

Disaster Reduction is a term used for techniques which focus on preventing or minimising the effects of disasters.

# General Overview

The second Wednesday in October is International Day for Natural Disaster Reduction which focuses on the urgent need for prevention activities to reduce loss of life, damage to property, infrastructure and environment, and the social and economic disruption caused by natural disasters.

In 2008 there were 354 natural disasters in which 236,000 people died and 211,628,186 were affected. This compares to the average for 2000-2007 of 397 natural disasters, with 66,812 deaths and a total of 231,588,104 people affected.

Asia was the region worst affected in 2008 with 141 events including, Cyclone Nargis in Burma which left nearly 140,000 people dead (or missing, presumed dead) and an earthquake in Sichuan, China killing 87,476 which made up 93% of the global disaster toll.

2008 was the deadliest year since 2004, the year of the Indian Ocean tsunami.

More than one third of the populations in Djibouti, Somalia and Eritrea were affected by drought. Tajikistan also experienced droughts that affected over 2 million people.

China was the most affected economically. The economies of Myanmar and Tajikistan were largely affected during 2008, with damage costs representing nearly 30% and 22% of GDP.

# Emergency management

Good development and community preparedness can reduce the impact of a disaster especially for the most vulnerable people, such as those living in hazard-prone areas with few financial resources to help them recover if they lose their means of livelihood. Therefore the cycle of emergency management must include long-term work on infrastructure, public awareness, and even human justice issues. This is not important in developing nations. The process of emergency management involves four phases: mitigation, preparedness, response, and recovery.

## Mitigation

Steps taken to prevent a disaster from occurring or minimizing the risk of a natural hazard becoming a natural disaster. Mitigation involves long-term measures, in contrast to the preparedness stage, which is focused on the short-term. Mitigative measures can be structural or non-structural. Structural measures use technological solutions, like flood levees. Non-structural measures include legislation, land-use planning (e.g. the designation of nonessential land like parks to be used as flood zones), and insurance.

## Preparedness

This stage in emergency and natural disaster management involves developing proper plans of action when a disaster strikes or is imminent. This involves preparing inventory and supplies, developing means of adequate communication between emergency response teams and the general public, and preparing emergency relief plans for the area, usually by volunteer organizations such as the Red Cross.

Common preparedness measures include:

- communication plans with easily understandable terminology and methods
- proper maintenance and training of emergency services, including mass human resources such as community emergency response teams.
- development and exercise of emergency population warning methods combined with emergency shelters and evacuation plans
- stockpiling, inventory, and maintain disaster supplies and equipment
- develop organizations of trained volunteers among civilian populations

(Professional emergency workers are rapidly overwhelmed in mass emergencies so trained, organized, responsible volunteers are extremely valuable. Organizations like Community Emergency Response Teams and the Red Cross are ready sources of trained volunteers. Its emergency management system has gotten high ratings from both California, and the Federal Emergency Management Agency (FEMA).)

## Response

Response includes firefighters, policemen, and medical teams. Response efforts are greatly improved when proper mitigation and preparedness is established first before a disaster occurs. When disaster strikes the first response is to save lives (humanitarian action). While each disaster creates unique circumstances and the response needs to be tailored to meet the specifics of the situation the following general areas will usually form part of the response:

- Search and rescue - finding those who may be trapped under debris;
- Assessment of needs - working out what is required, in what quantities, and for whom;
- Health – providing medical care and preventing the spread of disease through immunisation, the provision of safe water and food, waste disposal and burial of the dead;
- Basic needs - procuring and distributing food, shelter and clothing;
- Gender - understanding the roles of men and women in families and communities to identify needs and ensure the fair distribution of resources;
- Livelihood and economy - assisting people earn a living to speed their recovery;
- Emotional support - counselling and reuniting separated families;
- Logistics - transporting people and equipment;
- Finance - obtaining, allocating and accounting for money;
- Communication - providing affected people with information;
- fundraising;
- Infrastructure - rebuilding roads, electricity and telephone networks, water pipelines, and waste disposal systems.

Money is the best way to help.

The most useful form of assistance during a humanitarian crisis is the donation of money to non-government overseas aid organizations. This is because such organizations:

- may have qualified people already working in the affected country who understand what is needed in the emergency situation, understand the peoples' cultures, and know the local languages,
  - have strong local networks so they know where to buy emergency relief goods at the best prices with the least long-term negative impact on the affected country and can manage timely and cost-effective transportation
- have controls in place to check that as much money as possible is spent on goods or services for the people in need.

What **not** to give:

Items such as food, clothing, blankets, medicines and toys can cause problems for relief authorities. The costs of sorting, storing, packing, labelling (in English and in the recipient country's language) and then transporting these items may be higher than the cost of buying them in the country of need or from a country nearby. Sometimes such donations may also be culturally inappropriate.

## **Recovery**

Once the immediate danger is over, people may need assistance to rebuild their lives and their livelihoods. Communities may need to rebuild their social and physical infrastructure and revitalise the economy. It takes time and money to plan and ensure that long-term redevelopment and future disaster preparedness are appropriate for everyone. Damaged structures and services may not necessarily be restored in their previous locations or forms as the disruptions can be an opportunity to make improvements. Seasonal factors must be considered; for example, seeds need to be distributed during the planting season and the type of temporary shelter used will depend on the climate and season.

Reconstruction after a disaster provides significant opportunities for improved development including:

- planning the response and recovery to prepare for future hazards;
- upgrading infrastructure, including roads, communication networks and water and sanitation systems to withstand disasters and assist in emergency response;
- building hazard resistant public buildings and housing to reduce the impact of hazards;
- developing the skills of local personnel to increase their capacity to respond to an emergency;
- poverty alleviation to reduce the vulnerability of those with limited resources;
- expansion and modernisation of the economic base.

Care must be taken to ensure that changes do not increase an area's susceptibility to disasters. For example environmental factors need to be considered when creating job opportunities so that the people do not move to hazard-prone areas such as floodplains or unstable hillsides; introduction of new agricultural practices needs to avoid leading to land degradation.

## **Natural Disaster Reduction**

### **Road to the WCDR**

Through its resolution A/RES/58/214, the United Nations General Assembly convened a World Conference on Disaster Reduction, to be held in Kobe, Hyogo, Japan, from 18 to 22 January 2005. The Conference was to take stock of progress in disaster risk reduction accomplished since the Yokohama Conference of 1994 and to make plans for the next ten years. The GA requested the ISDR secretariat to serve as the secretariat of the Conference; a special unit for WCDR was established, coordinating the process of the World Conference. An open-ended Preparatory Committee was established, led by a Bureau consisting of five Member States representing the regional groups, plus the host country, Japan, as an ex-officio member. The Bureau led the discussions in reviewing organizational and substantive preparations for the Conference.

### **The use of space technology**

The use of such technologies has been proven useful in the risk assessment, mitigation and preparedness phases of disaster management. As the global community learnt from the tsunami event of December 2004, space technologies have a central role to play in providing early warning to communities that are at risk. But in order for developing countries to be able to incorporate the use of space technology-based solutions there is a need to increase awareness, build national capacity and also develop solutions that are customised and appropriate to the needs of the developing world.

### **Disaster early warning systems**

Floods, fires, tsunamis, tornadoes, hurricanes, earthquakes, and all other disasters occur frequently but are soon forgotten. What is always present is a need for effective early warnings of these disasters to mitigate human and property losses. Governmental bodies and the UN are acknowledging the need for and benefits from disaster early warnings.

# **Relevant treaties, UN resolutions and actions taken**

## **United Nations**

Within the United Nations system responsibility for emergency response rests with the Resident Coordinator within the affected country. However, in practice international response will be coordinated, if requested by the affected country's government, by the UN Office for the Coordination of Humanitarian Affairs (UN-OCHA), by deploying a UN Disaster Assessment and Coordination (UNDAC) team.

## **The UN Disaster Management Team (UNDMT)**

(Source: UNDMTP, The Role and Responsibilities of the United Nations Disaster Management Team, version 20 August, 2002, pp.16-19)

Beginning in 1989, all UNDP offices in disaster and emergency prone countries were requested to set up UN Disaster Management Teams (UNDMTs). The composition and leadership structures of these teams have evolved since that time. UNDMTs have often been formed only after a disaster has struck, while others have become active in the preparedness stage.

### **Structure**

In consultation with the host Government and the UN country Team, the UN Resident Coordinator is expected to form a UN Disaster Management Team (UNDMT), which will prepare a disaster management plan. The UN Resident Co-ordinator acts also as the focal point for disaster reduction and mitigation, as well as ensures the effective dovetailing of relief assistance into rehabilitation and reconstruction programmes.

## **International Strategy for Disaster Reduction (ISDR)**

The ISDR aims at building disaster resilient communities by promoting increased awareness of the importance of disaster reduction as an integral component of sustainable development, with the goal of reducing human, social, economic and environmental losses due to natural hazards and related technological and environmental disasters.

## **UN-HABITAT Disaster Management programme**

UN-HABITAT Disaster Management programme helps governments and local authorities rebuild in countries recovering from war or natural disasters. In the first half of the year 2003, for example, the cost accrued by natural disasters was 24 billion dollars with an estimated 60 million civilians affected in some 30 conflicts. The agency is working, or has worked in Afghanistan, Angola, Bangladesh, Burundi, the Caribbean, Central Asia, China, Guatemala, India, Indonesia, Iran, Iraq, Kenya, Kosovo, Malawi, Mozambique, Nepal, Rwanda, Serbia

and Montenegro, Sierra Leone, Somalia, Sri Lanka, Sudan, Timor Leste and Vietnam, and Indian Ocean rim countries hit a giant tsunami wave.

### **Resolutions:**

- United Nations General Assembly *Resolution* 236 session 44 on 22 December 1989 (retrieved 2008-09-18)
- “General Assembly Resolution 46/182 which led to the creation of the Department of Humanitarian Affairs (DHA)”

## **Positions of major countries involved**

### **International organizations**

#### **International Association of Emergency Managers (IAEM)**

IAEM is a non-profit organization that provides educational tools for saving lives and safeguarding property in the event of an emergency or natural disaster. They provide information, networking opportunities for professionals, and aim towards improving emergency response and relief efforts in general.

#### **Red Cross/Red Crescent**

The National Red Cross have an important role in emergency response and relief. The International Federation of Red Cross and Red Crescent Societies focus generally on the recovery efforts of emergency management.

#### **World Bank**

Since 1980, the World Bank has approved more than 500 operations related to disaster management, amounting to more than US\$40 billion. These include post-disaster reconstruction projects, as well as projects with components aimed at preventing and mitigating disaster impacts, in countries such as Argentina, Bangladesh, Colombia, Haiti, India, Mexico, Turkey and Vietnam to name only a few.

Common areas of focus for prevention and mitigation projects include forest fire prevention measures, such as early warning measures and education campaigns to discourage farmers from slash and burn agriculture that ignites forest fires; early-warning systems for hurricanes; flood prevention mechanisms, ranging from shore protection and terracing in rural areas to adaptation of production; and earthquake-prone construction.

In a joint venture with Columbia University under the umbrella of the ProVention Consortium the World Bank has established a Global Risk Analysis of Natural Disaster Hotspots.

In June 2006, the World Bank established the Global Facility for Disaster Reduction and Recovery (GFDRR), a longer term partnership with other aid donors to reduce disaster losses by mainstreaming disaster risk reduction in development. The facility helps developing

countries fund development projects and programs that enhance local capacities for disaster prevention and emergency preparedness.

## **National organizations**

### **Australia**

The key federal coordinating and advisory body for emergency management in Australia is Emergency Management Australia (EMA). Each state has its own State Emergency Service. The Emergency Call Service provides a national 000 emergency telephone number to contact state Police, Fire and Ambulance services. Arrangements are in place for state and federal cooperation.

### **Canada**

Public Safety Canada (PS) is Canada's national emergency management agency. Each province is required to set up their Emergency Management Organizations. PS coordinates and supports the efforts of federal organizations ensuring national security and the safety of Canadians. They also work with other levels of government, first responders, community groups, the private sector and other nations. Other acts are specific to fields such as corrections, emergency management, law enforcement, and national security.

### **Germany**

In Germany the Federal Government controls the German *Katastrophenschutz* (disaster relief) and *Zivilschutz* (civil protection) programs. The local units of German fire department and the Technisches Hilfswerk (*Federal Agency for Technical Relief*, THW) are part of these programs. The German Armed Forces, the German Federal Police and the 16 state police forces all have been deployed for disaster relief operations. Besides the German Red Cross, humanitarian help is dispensed by the Johanniter-Unfallhilfe, the German equivalent of the St. John's Ambulance, the Malteser-Hilfsdienst, the Arbeiter-Samariter-Bund, and other private organizations.

### **India**

In India, the role of emergency management falls to National Disaster Management Authority of India, a government agency subordinate to the Ministry of Home Affairs. In recent years there has been a shift in emphasis, from response and recovery to strategic risk management and reduction, and from a government-centred approach to decentralized community participation. Survey of India, an agency within the Ministry of Science and Technology, is also playing a role in this field, through bringing the academic knowledge and research expertise of earth scientists to the emergency management process.

Recently the Government has formed the Emergency Management and Research Institute (EMRI). This group represents a public/private partnership, funded primarily by a large India-based computer company "Satyam Computer Services", and aimed at improving the general response of communities to emergencies, in addition to those incidents which might be

described as disasters. Some of the groups' early efforts involve the provision of emergency management training for first responders (a first in India), the creation of a single emergency telephone number, and the establishment of standards for EMS staff, equipment and training. It is hoped that this effort will provide a model for emulation by all of India, however, at the moment, it operates in the Indian states of Andhra Pradesh, Uttarakhand, Goa, Tamil Nadu, Rajasthan, Karnataka, Assam, Meghalaya and Madhya Pradesh using a single 3-digit toll-free number 1-0-8.

## **The Netherlands**

In the Netherlands the Ministry of the Interior and Kingdom Relations is responsible for emergency preparedness and emergency management on national level and operates a national crisis centre (NCC). The country is divided in 25 safety regions. Each safety region is covered by three services: police, fire and ambulance. All regions operate according to the Coordinated Regional Incident Management system. Other services such as the Ministry of Defence, waterboard(s), Rijkswaterstaat etc. can have an active role in the emergency management process.

## **New Zealand**

In New Zealand, responsibility for emergency management moves from local to national depending on the nature of the emergency or risk reduction programme. A severe storm may be manageable within a particular area, whereas a national public education campaign will be directed by central government. Within each region, local governments are unified into 16 Civil Defence Emergency Management Groups (CDEMGs). Every CDEMg is responsible for ensuring that local emergency management is as robust as possible. As local arrangements are overwhelmed by an emergency, pre-existing mutual-support arrangements are activated. As warranted, central government has the authority to coordinate the response through the National Crisis Management Centre (NCMC), operated by the Ministry of Civil Defence & Emergency Management (MCDEM). These structures are defined by regulation, and best explained in *The Guide to the National Civil Defence Emergency Management Plan 2006*, roughly equivalent to the U.S. Federal Emergency Management Agency's National Response Framework.

## **Russia**

In Russia the Ministry of Emergency Situations (EMERCOM) is engaged in fire fighting, Civil Defense, Search and Rescue, including rescue services after natural and human-made disasters.

## **United Kingdom**

The United Kingdom adjusted its focus on emergency management following the 2000 UK fuel protests, severe flooding in the same year and the 2001 United Kingdom foot-and-mouth crisis. This resulted in the creation of the Civil Contingencies Act 2004 (CCA) which defined

some organizations as Category 1 and 2 Responders. These responders have responsibilities under the legislation regarding emergency preparedness and response. The CCA is managed by the Civil Contingencies Secretariat through Regional Resilience Forums and at the local authority level.

Disaster Management training is generally conducted at the local level by the organizations involved in any response. This is consolidated through professional courses that can be undertaken at the Emergency Planning College. Furthermore diplomas, undergraduate and postgraduate qualifications can be gained throughout the country - the first course of this type was carried out by Coventry University in 1994. Institute of Emergency Management is a charity organization, established in 1996, to provide consulting services for the government, media and commercial sectors.

The Professional Society for Emergency Planners is the Emergency Planning Society. One of the largest emergency exercises in the UK was carried out on 20 May 2007 near Belfast, Northern Ireland, and involved the scenario of a plane crash landing at Belfast International Airport. Staff from five hospitals and three airports participated in the drill, and almost 150 international observers assessed its effectiveness.

## **United States**

Under the Department of Homeland Security (DHS), the Federal Emergency Management Agency (FEMA) is lead agency for emergency management. The HAZUS software package developed by FEMA is central in the risk assessment process in the country. The United States and its territories are covered by one of ten regions for FEMA's emergency management purposes. Tribal, state, county and local governments develop emergency management programs/departments and operate hierarchially within each region. Emergencies are managed at the most-local level possible, utilizing mutual aid agreements with adjacent jurisdictions. If the emergency is terrorist related or if declared an "Incident of National Significance", the Secretary of Homeland Security will initiate the National Response Framework (NRF). Under this plan the involvement of federal resources will be made possible, integrating in with the local, county, state, or tribal entities. Management will continue to be handled at the lowest possible level utilizing the National Incident Management System (NIMS).

The Citizen Corps is an organization of volunteer service programs, administered locally and coordinated nationally by DHS, which seek to mitigate disaster and prepare the population for emergency response through public education, training, and outreach. Community Emergency Response Teams are a Citizen Corps program focused on disaster preparedness and teaching basic disaster response skills. These volunteer teams are utilized to provide emergency support when disaster overwhelms the conventional emergency services.

The US Congress established the Center for Excellence in Disaster Management and Humanitarian Assistance (COE) as the principal agency to promote disaster preparedness and societal resiliency in the Asia-Pacific region. As part of its mandate, COE facilitates education and training in disaster preparedness, consequence management and health security to develop domestic, foreign and international capability and capacity.

## Useful links

“Source: UNDMTP, The Role and Responsibilities of the United Nations Disaster Management Team, version 20 August, 2002, pp.16-19”

<http://ocha.unog.ch/drptoolkit/PreparednessTools/Coordination/UNDMT%20TORs.pdf>

“Space Technology and Disaster Management”

<http://www.oosa.unvienna.org/oosa/SAP/stdm/index.html>

“General Assembly Resolution 46/182 which led to the creation of the Department of Humanitarian Affairs (DHA)

A/RES/46/182

78th PLENARY MEETING

19 DECEMBER 1991

*Strengthening of the coordination of humanitarian emergency assistance of the United Nations”*

[http://www.reliefweb.int/OCHA\\_ol/about/resol/resol\\_e.html](http://www.reliefweb.int/OCHA_ol/about/resol/resol_e.html)

“International Strategy for Disaster Reduction”

<http://www.unisdr.org/>

“United Nations General Assembly *Resolution* 236 session 44 on 22 December 1989 (retrieved 2008-09-18)”

<http://www.undemocracy.com/A-RES-44-236>

“UN-HABITAT For a better urban future”

<http://www.unchs.org/content.asp?cid=2711&catid=286&typeid=24&subMenuId=0>

“resolution 61/110 of 14 December 2006”

[http://www.unoosa.org/pdf/gares/ARES\\_61\\_110E.pdf](http://www.unoosa.org/pdf/gares/ARES_61_110E.pdf)

“resolution A/RES/58/214”

<http://www.unisdr.org/wcdr/back-docs/docs/a-res-58-214-eng.pdf>