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# The International Decade for Natural Disaster Reduction: Background and Objectives

M.F. LECHAT

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In December 1989, at its Forty-Fourth Session, the General Assembly of the United Nations proclaimed the International Decade for Natural Disaster Reduction (IDNDR), starting 1 January 1990. The objective of the Decade is to reduce, through concerted international action, especially in developing countries, the loss of life, property damage, and social and economic disruption caused by natural disasters, such as earthquakes, wildfires, grasshopper and locust infestations, drought and desertification and other calamities of natural origin.

The goals of the Decade are:

- to improve the capacity of each country to mitigate the effects of natural disasters expeditiously and effectively, paying special attention to assisting developing countries in the assessment of disaster damage potential and in the establishment of early warning systems and disaster-resistant structures when and where needed;
- to devise appropriate guidelines and strategies for applying existing scientific and technical knowledge, taking into account the cultural and economic diversity among nations;
- to foster scientific and engineering endeavours aimed at closing critical

gaps in knowledge in order to reduce loss of life and property;

- to disseminate existing and new technical information related to measures for the assessment, prediction and mitigation of natural disasters;
- to develop measures for the assessment, prediction, prevention and mitigation of natural disasters through programmes of technical assistance and technology transfer, demonstration projects, and education and training, tailored to specific disasters and locations, and to evaluate the effectiveness of those programmes.

## THE ORIGINS OF THE DECADE

Each year, natural hazards take a heavy toll of humankind, in terms of deaths, suffering, and economic losses. Developing countries are particularly affected. Most of the deaths, casualties and damage occur in the poor countries of the world, jeopardizing development efforts. But recent breakthroughs in knowledge and advances in technology now make it possible to envisage a large mobilization of resources in order to reduce the tragedy of natural disasters.

An international decade on natural disasters was first proposed at the Eighth

International Congress of Earthquake Engineering. This initiative of the world scientific community met with a favourable response from the nations. In 1987, at its forty second session, the UN General Assembly unanimously adopted a resolution (42/169) designating the 1990s as a Decade in which the international community, under the auspices of the United Nations, would pay special attention to fostering international cooperation in the field of natural disasters reduction. To assist in preparing for IDNDR, the Secretary General appointed an international ad hoc Group of Experts. This group, consisting of 25 members (including the author) from 24 countries drawn from various disciplines (e.g. earthquakes, meteorology, sociology, health, engineering, civil protection, and biology) met four times between July 1988 and April 1989, under the chairmanship of Dr Frank Press, President of the US National Academy of Sciences. The group was actively assisted by staff of the United Nations and its various UN agencies, national representatives, and observers from non-governmental organisations, the Secretariat being assumed by the Geneva-based Office of the Disaster Relief Coordinator (UNDRO). The final report of the Group of Experts was submitted to the Secretary General in June 1989.

#### WHY A UN DECADE?

Science and technology in a vacuum are of no use in confronting disasters. In order to bear results, implementations need to be viewed in the context of what could be termed 'the ecology of disaster management'. This includes the moral authority to enroll the trust of the nations, access to decision-makers, capacity for mobilizing the participation of people, experience in networking and bringing together a diversity of skills and resources, as well as expertise in international cooperation and dealing with different cultural and economic en-

vironments. The United Nations, with its whole array of specialized agencies, is therefore a logical focal point to obtain a full commitment from the world community to address the issues of disasters.

#### WHY NATURAL DISASTERS?

The Group of Experts endorsed the widely accepted definition of disasters as 'any disruption of the human ecology that exceeds the capacity of the community to function normally'. This definition gives a human dimension to disasters, far from objective physical measurements, such as a magnitude scale for earthquakes. What makes a disaster is not so much the size of the physical event but the inability of the stricken community to absorb it within its proper set of constraints and values. A disaster is a disaster because of what it does to people.

Disasters of all kinds occur throughout the world, and yet the emphasis of the Decade, as indicated in its title and stated in the resolutions of the General Assembly, is definitely on natural disasters. There are good reasons for this somewhat restrictive approach. It would be unwise and futile to embark on an all-embracing, open-ended programme, directed to all kinds of disasters. In view of its background, the thrust of the Decade is in the development of knowledge and the exploitation of technologies for reducing the effects of natural hazards. Man-made industrial disasters present special problems. While they are eminently amenable to prevention, their reduction and mitigation require diverse and, at times, very specific measures. A precise assessment of risks can be made, which includes a game component. In addition, as safety procedures become more redundant, the human factor plays an increasingly important role. Since major industrial calamities may result when vulnerable critical installations (such as dams, pipelines, depots, chemical plants,

and nuclear reactors) are not adequately protected by engineering techniques, they are included in the Decade to the extent that they can be triggered by, or are secondary to, natural hazards.

Long-term ecological hazards, be they natural or man-induced, or most often both, are not within the scope of the Decade. One reason is that environmental problems have by now attracted world attention. The degradation of the interface between man and planet Earth, associated with the rapid man-induced alteration of the biosphere, is the most critical issue facing us for the next century. In addition, a large number of programmes are already dealing with the problem. Another reason for focusing on natural disasters is that the Decade should provide the opportunity to develop a programme leading to concrete and visible results within a 10-year period, with specific targets and provisions for evaluation. It should therefore restrict itself to issues which can be tackled effectively in this period.

It remains true, however, that long term environmental alteration and natural disasters are closely intertwined. Floods can be exacerbated by deforestation, poor land management may cause landslides, and overgrazing contributes to desertification. The vulnerability of populations to natural hazards is clearly dependent on long term phenomena. The programmes envisaged for the Decade will therefore need to be closely articulated with long term environmental activities.

#### AN INTEGRATED APPROACH TO NATURAL DISASTERS

Traditionally, a hazard-specific approach was taken to disaster mitigation. It looked as though each type of disaster had nothing in common with the others, and each disaster was a new experience. People would say that there was no similarity between a tsunami, drought, and wildfire;

between earthquakes in Anatolia or in San Francisco. Thus, no lesson could be drawn from one disaster, to be applied to the next one. This led to a fatalistic attitude and to the usual stereotype of providing relief in the aftermath of disasters.

The central paradigm of the integrated approach is that all disasters can be viewed in a common time framework, cutting across natural hazards, as a sequence of phases each being amenable to a specific type of intervention. Five phases can be arbitrarily distinguished: (1) the anticipative phase, which is the time for planning, preparedness, and prevention; (2) the alarm phase, where appropriate warning is the predominant issue; (3) the rescue phase, in which the local affected population plays an essential role, if adequately prepared; (4) the relief phase which includes provision of emergency post-disaster assistance; (5) the rehabilitation phase, which should be closely related to general development. The cycle is then completed.

One advantage of an integrated approach is that disasters may occur as complex, multiple, interrelated processes, either concurrently or as chain reactions, rather than as isolated and distinct phenomena. An earthquake triggers a submarine landslide, which also causes a tsunami, which generates floods, which kill people. Volcanic eruptions may be accompanied by avalanches of melted snow and mudflows and produce floods or wildfires.

#### WHY PREVENTION AND PREPAREDNESS?

The emphasis in disaster management has by now definitely shifted from post-disaster improvisation to pre-disaster planning and preparedness. This is not to say that relief is either useless or superfluous. Relief is, and will remain, necessary since whatever the degree of planning and preparedness, there will always be natural disasters. The focus however is on pre-disaster measures,

to make this relief less necessary and, when required, more effective through adequate preparedness.

Prevention includes:

- developing scenarios of potential disasters;
- improving understanding of the risk by assessing the physical potential of natural phenomena that may affect communities (hazard mapping) combined with assessing population exposure and other indicators of vulnerability (vulnerability mapping);
- the formulation of government policies and regulations;
- the installation of detection and warning systems;
- the education of the public and the training of emergency teams;
- active prevention, including land use restrictions, environmental management such as revegetation and reforestation, and application of structural engineering measures.

Preparedness includes:

- the operation of detection and warning infrastructure;
- the dissemination of warnings and instructions for action to reduce impacts on individuals;
- the communication of information to and from communities at risk before, during, and after the disaster

We should not, however, be dogmatic. All phases of disaster management are interrelated. Preparedness aims at the better management of rescue, relief, and rehabilitation. Information systems cover the whole range from hazard mapping, vulnerability analysis and risk assessments to the monitoring of relief and evaluation. The Decade should and will therefore be used for improving post-disaster activities, including the supply of goods, emergency services, and reconstruction. With respect

to relief, the report specifically stresses two activities which should benefit from the Decade:

- the improved provision of emergency post-disaster relief, including search and rescue, health services, and lifeline reconstruction;
- the planning for, and implementation of, longer-term rehabilitation programmes

#### PARTICIPANTS IN THE IDNDR

The Decade will require strong community-based national, regional and international support. It offers a great opportunity for the United Nations system to work in a unique collaborative arrangement with experts and organisations at national and international levels. The Group of Experts has identified a number of participants whose contribution is needed to make the Decade successful. These include:

- national governments;
- experts from various fields;
- all the relevant entities of the United Nations system;
- non-governmental organisations, including voluntary groups and scientific and engineering societies;
- multilateral and regional intergovernmental organisations, both within and outside the UN system;
- economic sectors impacted by disasters (insurance, banking, construction, agriculture, tourism, and communication);
- regional funding organisations.

Special importance is given to national committees, whatever their organisational structures. Their role should be:

- to develop a national plan for Decade activities;
- to coordinate policy analysis, development and legislation regarding natural disaster reduction, monitoring, early

- warning and forecasting, evacuation planning, relief, and rehabilitation;
- to create and/or improve the awareness of the public and governmental officials of the great loss of life, property, and quality of life through natural disasters;
- to develop logistic support and a legislative framework for effective disaster reduction measures;
- to evaluate national programmes in terms of Decade goals;
- to bring donors and benefactors together for concerted action to support the Decade and permanent activities thereafter;
- to encourage preparedness through the development of localised quick-response self-help strategies,
- to promote research, development, and technology transfer to fill the gaps in knowledge <sup>about</sup> natural disasters.

As for international scientific and technological organisations, in addition to their traditional role of advancing our fundamental understanding of the natural phenomena that cause disasters, they would also:

- create awareness of, and interest in, the Decade through their international meetings and forums;
- encourage their memberships to promote and participate in the formation of national entities;
- suggest criteria for the selection of projects and other Decade activities,
- support the development and/or enhancement and standardisation of scientific and technological data bases that will ensure a common foundation for future activities;
- participate in planning pilot projects that could provide visibility to the Decade while providing a measure for accomplishment;
- undertake pilot projects that, if successful, would be broadly replicable;
- develop international and regional

cooperative research projects and training courses to close the knowledge gaps directly related to Decade objectives.

Last but not least, the League of Red Cross and Red Crescent Societies and voluntary agencies, civil protection agencies, and local volunteer groups can make a considerable contribution, through their expertise, to Decade activities

#### PROJECTS

It was not in the terms of reference of the Group of Experts to establish, at this stage, a detailed programme of activities. It nevertheless proposed a number of illustrative projects, most of them interdisciplinary, to serve as examples of cooperative activities during the Decade. These projects deal with, for example:

- the development of integrated disaster management, including effective early warning systems;
- protocols of mutual assistance;
- landslide hazard mitigation, including mapping, ground deformation monitoring, and risk assessment for improved land use planning;
- the mapping of disaster-prone areas inhabited by large and vulnerable populations, including microzonation (i.e. the mapping of subsoil characteristics on a localised basis),
- the development of new/integrated locust and grasshopper management strategies, including biological control by pheromones and kairomones, the use of chemical attractants and simulation modelling of population dynamics;
- the vulnerability of mega-cities to earthquakes;
- research on the relationship between earthquake casualties and structural damage in earthquakes and meteor-

- protocols and methods for the rapid assessment of damage and needs, including the health sector;
- the inventory, translation and dissemination of educational material.

These projects were not presented as firm proposals, but rather as examples of what could be achieved taking into account the present state of knowledge and the perceived needs of the Decade. To a certain extent, they reflect the composition of the Group of Experts. In the final programme for the Decade a more balanced approach would give greater importance to health and the social sciences, where considerable progress has been made over recent years.

#### THE ROLE OF THE HEALTH SECTOR

Natural disasters constitute a major health problem. They may kill thousands, or hundreds of thousands of people in a matter of minutes or hours, such as the typhoon in the Gulf of Bengal in 1970 or the Tangshan, China, earthquake in 1976. Large numbers of casualties result, with many victims handicapped for life. Health facilities can be destroyed. Costly and laborious efforts for developing appropriate health care may be set back for years.

It is clear that, for many, health is still synonymous with medical care — syringes, medicaments, white gowns. In spite of the World Health Organisation's definition of health and the Alma-Ata declaration on primary health care, the concept of health promotion as "an interdisciplinary endeavour has not permeated all levels of society. At the moment, in many countries, health managers do not play the role they should in health planning.

Over the last few years, WHO, together with its Regional Office for the Americas, the Pan American Health Organization, has assumed a leading role in promoting

disaster prevention and preparedness. These agencies are pursuing untiring activities to train health managers and personnel in disaster preparedness. Through its Regional Offices and its Collaborating Centres throughout the world, WHO is supporting research and implementing projects aiming at ~~the~~ better management of disasters. A complete programme of activities has already been prepared to be carried out during the Decade.

Thus, IDNDR should serve as an incentive to launch initiatives at all levels of the health services. It will provide an opportunity for closer participation in disaster planning and management. These activities should not have to be restricted to prevention and preparedness, which are the major foci of the Decade, but could also lead to some rethinking about relief and the overall role of the health sector in post-disaster rehabilitation.

#### CONCLUSIONS

Some are quick to say that the Decade will exhaust itself in a lot of talking or, still worse, serve as an alibi for achieving little or nothing. It will go this way if we look upon it as an external established institution, rather than as our own concern and our own responsibility.

The Decade is both an opportunity to apply scientific and technological breakthroughs for the good of people and a mechanism to link ongoing activities. It will be what everybody makes of it.

**Michel F. Lechat**  
 Ecole de Santé Publique  
 Université Catholique de Louvain  
 30 Clos Chapelle-aux-Champs  
 B-1200 Bruxelles  
 Belgium