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SUMMARY

The levels of damage caused by earthquakes, hurricanes, floods, landslides, volcanic eruptions and other natural phenomena, as well as damage related to technological development such as hazard material leaks and spills, explosions, industrial accidents, etc. are seemingly on the rise.

In the last ten years catastrophic earthquakes, unprecedented flooding and other phenomena throughout the world have demonstrated how important it is for all countries to have national plans that are oriented toward preventing and mitigating the effects of these phenomena on the people, their environment and their economies. These plans must also be oriented toward preparing populations as well as possible to cope with emergency situations.

In addition to the apparent increase of catastrophic events, societies are increasingly vulnerable to these phenomena. There is an increase in the density of population in places exposed to hazards, and linked with this population growth are worsening conditions of basic services, greater levels of poverty, and fewer numbers of people with access to education, health care, proper nutrition, and safe housing. It can be assumed that the effects of these phenomena in the near future will be still worse if the international community does not take measures to reduce them.

This document develops three complementary aspects regarding these issues:

1. There is an overview of the organization that is coming about at the global level through the International Decade for Natural Disaster Reduction (declared by UN General Assembly, Resolution 236, 1989), the reasons for establishing the Decade, and how it conducts its work. There is also an analysis of statistics on damages caused by disasters in recent years.
2. Within the context of the work being done at the global level, the work of the Pan American Health Organization and its focus on disaster prevention, mitigation and preparedness in the health sector is discussed.
3. The conclusion proposes ideas that will influence the reduction of disaster-induced health problems, with an emphasis on reducing the vulnerability of communities and reinforcing the health sector infrastructure, especially in the developing countries.

1. A DECADE DEDICATED TO DISASTER PREVENTION AND PREPAREDNESS

To combat the fatalistic attitude that people are helpless in the face of disasters, the UN launched the International Decade for Natural Disaster Reduction (IDNDR, 1990-2000). The objective of IDNDR 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. ("UN General Assembly Resolution 236, 1989). IDNDR focuses on natural disasters such as earthquakes, tsunamis, volcanic eruptions, landslides, avalanches, cyclones, floods, drought and locust infestations.

WHY HAS THE UN DEDICATED TEN YEARS TO REDUCING THE IMPACT OF DISASTERS?

- **Natural hazards kill more than one million people each decade and leave countless others homeless.** More than 90% of these victims are in developing countries.
- **Economic losses from natural disasters are on the rise.** In developed and developing countries alike, the cost of disasters are a setback to economic growth. The global economic cost of disasters rose from \$44 billion in 1991 to \$60 billion in 1992. Early estimates of the 1994 earthquake in Los Angeles range from \$15-\$30 billion.
- **Prevention and preparedness measures make a difference.** A 1977 cyclone in Andhra Pradesh, India killed 10,000 people. In 1990 the death toll from a similar cyclone in the same area was 910. Emergency preparedness and early warning measures save lives and money.
- **Scientific knowledge, technology and management tools exist to avert catastrophes;** they need to be applied and implemented.
- **Closer cooperation is needed between sectors in all parts of society** -national governments, local communities, business, NGOs and international organizations- to reduce the suffering and damage caused by natural disasters.

DISASTER REDUCTION ACTIVITIES

IDNDR has adopted a "Framework Programme" of activities which are designed to minimize the chances that natural hazards become disasters. Recommended by the Scientific and Technical Committee, the activities include:

- Identifying hazard zones and conducting hazard assessments;
- Conducting vulnerability assessments, risk assessment and cost/benefit analyses;
- Building awareness among policy-makers and decision-makers;
- Monitoring, predicting and warning about impending natural hazards;
- Implementing long-term preventive measures;
- Establishing short-term protective measures and preparedness plans;
- Carrying out early intervention measures.

TARGETS FOR THE YEAR 2000

All countries, as part of their plan to achieve sustainable development, should have in place:

- Comprehensive national assessments of risks from natural hazards, with assessments taken into account in development plans.
- Mitigation plans at national and/or local levels, with long-term prevention, preparedness and community awareness measures.
- Ready access to global, regional, national and local warning systems and broad dissemination of warnings.

FUNDING

Funding for disaster reduction programs comes directly from the countries themselves, or through bilateral and multilateral arrangements. The coordination and promoting activities of the Secretariat, the Special High Level Council and the Scientific and Technical Committee are funded through extrabudgetary contributions to the IDNDR Trust Fund, as recommended by the General Assembly.

ORGANIZATION ARRANGEMENTS

The Special **High-Level Council** is a group of internationally renowned persons who act as "ambassadors" for natural disaster reduction. They advise the Secretary General on IDNDR, promote public awareness, and mobilize public and private sector support for disaster reduction.

Members of the **Scientific and Technical Committee** are experts drawn from a wide variety of disciplines related to disaster management, including health care, meteorology, journalism, geology, public administration and others. The committee develops overall programs and guidelines for bilateral and multilateral cooperation, and assesses activities being carried out by various organizations under the IDNDR umbrella.

An **Inter-Agency Working Group** of relevant UN agencies and related organizations meet regularly to discuss policies and coordinate measures for disaster reduction.

Over 125 **IDNDR National Committees** and focal points exist around the world. Made up of national leaders from government, business, academia and voluntary organizations, the committees concentrate on mobilizing political commitment and promoting public awareness of disaster reduction measures and policies within their countries. National committees in industrialized countries address their own vulnerability to disasters as well as review their policies on development and humanitarian assistance, in light of IDNDR's goals.

The **IDNDR Secretariat**, based in Geneva, is part of the UN Department of Humanitarian Affairs. It is led by Dr. K. Olavi Elo; the Secretariat is responsible for coordination of activities undertaken around the world on behalf of the International Decade for Natural Disaster Reduction, and provides secretariat support to the Special High Level Council, the Scientific and Technical Committee and the Inter-Agency Working Group. The Secretariat also provides guidance and technical support for a number of national and regional conferences related to disaster mitigation. Over the past year, it has concentrated on coordinating the preparations by governments, UN agencies, associations and other groups for the World Conference on Natural Disaster Reduction. The World Conference took place from 23-27 May 1994 in Yokohama, Japan, and was the first UN conference ever to be dedicated to prevention and preparedness of disasters.

DISASTERS: THREAT TO SOCIAL DEVELOPMENT

SITUATION

- Damage inflicted by disasters kill one million people each decade and leave millions more homeless.
- Economic damages from natural disasters has tripled in the last thirty years. In the 1960's, disasters cost the world an estimated \$40 billion; in the 1970s, the cost was \$70 billion; by the 1980s, it had risen to \$120 billion.
- Before 1987, there was only one disaster the cost of which exceeded \$1 billion in insured losses. Since 1987, however, thirteen additional such disasters have occurred.

TABLE 1

BILLION-DOLLAR LOSSES FROM NATURAL DISASTERS 1983-1994	
Event/place/year	Economic losses in US\$bn
Hurricane "Alicia" (USA, 1983)	1.65
Winter Storm "Herta" (Europe, 1990)	1.90
Forest fire (USA, 1991)	2.00
Winter storm "Wiebke" (Europe, 1990)	2.25
Hurricane "Iniki" (Hawaii, 1992)	3.00
Winter storm "Vivian" (Europe, 1990)	3.25
Winter gale (Western Europe, 1987)	3.70
Blizzard (USA, 1993)	5.00
Typhoon "Mireille" (Japan, 1991)	6.00
Winter storm "Daria" (Europe, 1990)	6.80
Hurricane "Hugo" (Caribbean, USA, 1989)	9.00
Floods (USA, 1993)	12.00
Earthquake (USA, 1994)	30.00
Hurricane "Andrew" (USA, 1991)	30.00
<i>Source: From Disaster Management to Sustainable Development: How the Public Sector, Private Sector and Voluntary Organizations Can Work Together, WHO, 1994.</i>	

- In January 1995, Japan was hit by the latest in a series of 13 major earthquakes since 1923 which have measured between 6.8 and 8.1 on the Richter Scale. The city of Kobe suffered a death toll in the thousands and initial estimates of damages and long-term repairs ranged up to \$50 billion, according to The New York Times.

- Excluded from the above figures are the social and health costs of disasters in terms of lost homes, jobs and hopes - the basics of human life.

That is why there is a clear link between the 1994 United Nations-sponsored World Conference on Natural Disaster Reduction cited above and the World Summit for Social Development that took place from 6 to 12 March 1995 in Copenhagen, Denmark. The link is to be found in the negative contribution that disasters make to society's worst ills: migration, poverty, disease and environmental degradation.

People everywhere are vulnerable to natural disasters. While industrialized countries suffer greater economic damage in absolute terms, poor countries are impacted more severely in relative terms: GNP lost due to natural disasters is estimated to be 20 times greater in developing countries than in developed countries. Also, deaths from natural disasters are more frequent in poor countries. Japan, for example, averages 63 deaths per year from natural disasters. Peru, with similar natural hazards and only one sixth the population of Japan, averages 2,900 deaths per year.

The International Decade for Natural Disaster Reduction (IDNDR), 1990-2000, is essentially a UN-led campaign to reduce the impact of natural disasters. As the 1994 World Conference on Natural Disaster Reduction (a mid-term review of national and international progress toward reducing the impact of disasters) demonstrated, the issues are complex, and the prognosis mixed.

THE YOKOHAMA CONFERENCE: FUTURE PRIORITIES

Prevention: One of the most important results of the World Conference on Natural Disaster Reduction was a willingness among a broad range of participants to build a global culture of prevention. As Peter Hansen, UN Under-Secretary-General for Humanitarian Affairs, said, "Resources are shrinking. Disaster threats are growing. The time is right to preventive thinking."

How should we move forward? The Yokohama Conference gave us several signals.

- **Regional:** Regional approaches are important. Even though responsibility for implementing the Yokohama Strategy and Plan of Action lies ultimately with local communities supported by their national Governments, the next level should lie with groups of nations sharing common vulnerabilities.

- **Local:** Because local communities bear the brunt of the disaster impact, and hence have the greatest incentive to prevent disasters, more attention must be focused on them.

- **Mainstreaming:** Policy makers must consistently strive to integrate prevention and preparedness into their overall development planning strategies.

The Yokohama Strategy and Plan of Action provides guidelines for natural disaster prevention, preparedness and mitigation. In short, the declaration calls for more local training, better information flows and stronger linkages between relief and development programs.

The World Conference on Natural Disaster Reduction drew the attention of policy makers and professionals to the thorny issues blocking implementation of disaster reduction measures. The Yokohama Strategy and Plan of Action then charted the way forward. But it is up to countries to take the major initiative to make these realizations into reality.

The World Summit for Social Development should reinforce the political commitment to safeguard the achievements of social development through disaster reduction measures.

2. PAHO/WHO: ITS ROLE IN DISASTERS

The Region's record for natural disasters since 1970 is a stark reminder of just how vulnerable the Latin American and Caribbean countries are. Massive earthquakes in El Salvador, Guatemala, Mexico, Nicaragua, and Peru, killed more than 100,000 persons. Hurricanes have wrought havoc in the Caribbean each year -David, Allen, and Gilbert will be remembered for some time to come, and Hugo and Andrew were so devastating that the names have been retired.

Many communities live with the imminent threat of volcanic eruptions, like that of the Nevado del Ruiz volcano, which buried the city of Armero, Colombia, killing 23,000. And, while floods may not claim the same attention from the international press, their impact each year on public health in the countries is every bit as great.

Until the 1970s, the role of the Pan American Health Organization was essentially to respond to specific emergencies. In 1977, however, the Member Countries requested the Director to set up a disaster unit with instructions to define the policy of the Organization, formulate a plan of action for the various types of disasters, make an inventory of the human and other resources available, and train the necessary personnel. With the creation of the emergency preparedness program, the countries began to tackle the difficult question: How can emergency health services cope more effectively with disasters?

Disaster preparedness became the key to managing the health consequences of disasters. The level of disaster preparedness in a country's health sector was seen as a reflection of the overall quality of its health services and its ability to provide effective care and coverage in normal times. Conversely, a country's level of preparedness could only be as good as the health sector's organization and resources. In effect, the quality of emergency health care delivery under disaster conditions often reflected the quality of routine public health care in normal times.

In working with the countries, PAHO devised a health sector disaster preparedness strategy that comprised two main components: **strengthening health sector institutions and developing human resources**. The countries were encouraged to consider disaster preparedness as a permanent function of their health sector institutions, as permanent an aspect of their organizational structure as, say, a maternal and child health or an epidemiologic surveillance program. The countries responded by establishing or strengthening technical emergency preparedness programs in the health sector, through adoption of the requisite administrative and legal measures and provision of the necessary human and budgetary resources. Without this national commitment, workshops, seminars, and other ad hoc activities would not have achieved the expected results. Whereas prior

to 1977 disasters were considered to be almost exclusively the responsibility of civil defense or similar agencies, today every country in the Americas also has a disaster coordinator for the health sector within the ministry of health.

The other key component of disaster preparedness -developing human resources in the health sector- is especially important, because an effective response to disaster depends, first and foremost, on the readiness and qualifications of the first responders- local leaders and primary health care workers in the affected communities- and then on the ability of those at the central level to coordinate the external response. The better prepared the local health services and communities are, the better the overall national response will be. In support of human resource development, PAHO organizes some 200 workshops, courses, and other training initiatives each year. Even more importantly, to ensure continuity among future generations of health sector professionals, PAHO has targeted the systematic inclusion of disaster preparedness in the undergraduate and postgraduate curricula of medical, public health, nursing and engineering faculties in the Region.

While the disaster preparedness of first responders is critical, the Organization has also recognized the importance of coordinating the inter-institutional response to disaster. Efforts have focused on preparing key decision makers in the health sector, whose motivation and support is essential, deans and faculties of medical and health-related schools, who can progressively include disaster preparedness in student's formal education; and officials from the foreign affairs and planning sectors as well as the mass media, who -if they acquire a basic understanding of health-related disaster problems- can effectively support the health sector.

By the close of the 1980s, disaster preparedness was well accepted by the countries of Latin America and the Caribbean. Their conviction that emergency planning and preparedness must be an ongoing process has prompted them, during non-emergency times, to initiate many activities at the national level. They recognized that seemingly unrelated events, such as changes in the national infrastructure or reductions in personnel, can alter the logistics of a national disaster plan. And, they understand that planning is perhaps even more critical in the aftermath of a disaster, when strategies can be evaluated, lessons can be learned about the implications of emergency decisions, and disaster plans can be revised.

In response to the International Decade, PAHO has shifted the emphasis of some of its activities toward other disaster reduction measures: prevention and mitigation. While preparedness accepts the inevitability of disasters and focusses on how communities and health institutions can respond quickly and in an organized manner when disasters occurs, disaster prevention aims at keeping natural hazards from becoming disasters. Preventive measures can range from building a dam to retain waters during major floods, to enacting urban planning and public works legislation that decrees where not to construct or locate key facilities such as hospitals. Disaster mitigation, on the other hand, will not prevent a

disaster, but can lessen the impact of a disaster on the population and physical structures. Mitigation measures such as retrofitting or strengthening hospitals, or designing them to withstand earthquakes or hurricane-strength winds, assure that these structures will remain in operation after disasters, rather than contributing to the death toll.

The relationship between disaster and development is complex. If there is no development -no human settlements or health care facilities, for instance- then a natural hazard cannot become a disaster that causes human or material losses. At the same time, however, underdevelopment -which prevails wherever poverty abounds and education is lacking- can make a country's population more vulnerable to a disaster. Too often, unsafe housing is constructed in disaster-prone areas. Ironically, as countries develop and their populations change the way they build their homes and farm their lands, their vulnerability to disaster does not necessarily decrease; on the contrary, it may increase. Nowhere is that increased risk more evident than in the link between industrial development and the risk of technological disasters.

Disaster reduction represents a long-term investment in a country's development. As the nations of Latin America and the Caribbean focus their efforts on disaster reduction activities during the 1990s, they may be able to take advantage of the opportunities for genuine reform and improvement that disasters offer.

3. TRENDS IN DISASTER REDUCTION

The following recommendations might be taken in mind:

Expand the "culture" of disaster prevention: The traditional tendency to equate disaster management with post-disaster response is being replaced by an approach to disaster reduction based on the realization that the effects of disasters may be, in part or in whole, prevented. Increasing public awareness of the benefits of disaster reduction is essential; this will be achieved through:

- Educational campaigns, using celebrations such as International Natural Disaster Reduction Day and other public events;
- Participation of the mass media at joint meetings, briefing workshops, and above all, through open and joint dialogue;
- Emphasis on including disaster prevention and preparedness in school curricula... a slow but powerful process.

Increase political support and commitment: The IDNDR should not only stimulate more scientific and technical activities, but raise the level of political commitment for prevention and mitigation measures despite the lack of immediate or obvious returns.

To consolidate the progress achieved at the World Conference on Natural Disaster Reduction in Yokohama, the following actions can be taken:

- Brief elected officials and, in particular, the legislative bodies at national, subregional, and regional levels; stressing the link between socio-economic development and disaster reduction.
- Discuss natural disaster reduction policies and priorities periodically with subregional and regional political bodies;
- Organize regional conferences to maintain a high level of political visibility of the topic. **In particular, PAHO/WHO, with other interested regional meeting on mitigating damage to hospitals and other critical health facilities.**

Disseminate technical knowledge: Much scientific knowledge and knowhow is not sufficiently shared with those responsible for formulating and implementing disaster reduction policies and strategies. Although Latin America and the Caribbean are placing

more emphasis on the development of human resources, regional preparatory meetings should:

- Compile and disseminate successful pilot projects and other achievements at local or national levels;
- Expand the existing regional or national disaster documentation centers using a multisectoral and multiagency approach, to facilitate free access to existing documentation;
- Strengthen existing networks of scientists by increasing the participation of practitioners;
- Include disaster reduction in the curricula of academic institutions, schools of engineering and architecture, faculties of medicine, etc.;
- Reduce duplication, and fill existing gaps of training activities undertaken by bilateral, regional, or global agencies.

Emphasize the social dimension through local participation: Political commitment and scientific knowledge do not guarantee the reduction of community vulnerability to natural disasters. Those attending the Cartagena Inter-American Conference were committed to the social dimension of disaster reduction by:

- Involving local communities in practices that reduce their vulnerability;
- Promoting scientific findings that translate into effective policies;
- Improving understanding of natural hazards, and the relationship between behavior, development, and disaster reduction.

Strengthen institutions through multisectoral participation: The trend from centralized relief-oriented institutions toward multisectoral natural disaster reduction efforts will be encouraged and will require:

- Promoting the participation of government development institutions;
- Decentralizing governmental agencies to involve communities and their leaders in decision making;
- Providing a legal framework for disaster prevention, mitigation, and preparedness;
- Creating disaster committees in national parliaments and discussing disaster mitigation in subregional or regional parliamentary consultative bodies

Recognize interdependence between countries: Solidarity and cooperation traditionally are strong in Latin America and the Caribbean in times of catastrophe. Now a common purpose is emerging: to prevent the occurrence of a disaster. To achieve this, countries will need the following during the remainder of the IDNDR:

- Frequent contacts between officials and neighboring countries at periodic meetings; informal technical consultation and exchange of information on a routine basis; and use of modern communications, such as electronic mail;
- Support from the Ministries of Foreign Affairs to incorporate disaster reduction into existing or upcoming intercountry agreements;
- Increased collaborative efforts in border areas exposed to natural disasters such as volcanic eruptions or earthquakes;
- Support and leadership from regional or subregional institutions.

Emphasize the link between urbanization, development of human settlements, and increased vulnerability: Regional urban regulatory plans and land-use laws do not always require the analysis of natural disaster risk when creating development plans. To correct this, countries should:

- Include risk analysis and natural hazard data in land regulation plans supported by UNHCS (HABITAT), the OAS, and others;
- Include the topic at national and international governmental meetings, commissions on housing and human settlements, and place it on the agenda of the World Conference, Habitat 2, in 1996.

Pay greater attention to the causes and effects of flooding and landslides, which place a heavy burden on the countries and have not received a proportionate share of attention, by:

- Making systematic studies of the causes and effects of floods and landslides on agriculture and human settlements at the national and regional levels;
- Creating integrated flood control programs, including Ministries of Agriculture, hydrometeorological institutes, municipalities, the housing sector, and others.

In the same way that current achievements of Latin America and the Caribbean have been the result of a process started long before the proclamation of the IDNDR, the drive toward reducing the effects of natural disasters as an explicit objective and requirement of the development process will not end with the Decade.

In Latin America and the Caribbean, the notion that the factors involved in natural disaster reduction are the same as those that influence socioeconomic development is gaining widespread acceptance. This is to the credit of the IDNDR. And, it is not surprising that the two go hand in hand, since it is impossible for one to advance without the other. To achieve disaster prevention and mitigation without socioeconomic development and political maturity in a society is not possible. Nor can sustainable development be achieved without reducing the vulnerability of people and nations to disaster.

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