

**Table 1. World Bank Lending Operations
FY1989 Reconstruction and Rehabilitation Projects and Reallocations**

Country	Project Title	Disaster
<u>ELRS*</u>		
Bangladesh	Third Flood Rehabilitation	Flood
Jamaica	Emergency Reconstruction Import Project	Hurricane
Nepal	Municipal Development and Earthquake Emergency Housing Reconstruction Project	Earthquake
Nepal	Earthquake Emergency Schools Rehabilitation Project	Earthquake
Pakistan	Flood Damage Restoration Project	Flood
Sudan	Emergency Flood Reconstruction Project	Flood
<u>Other**</u>		
Mozambique	Urban Rehabilitation Project	Civil War
<u>Reallocations</u>		
Costa Rica	Atlantico Agricultural Development Project	Hurricane
India	Water Supply and Sewerage Project	Drought
India	Gujarat Urban Development Project	Drought
Jamaica	Water Supply and Sewerage Technical Assistance	Hurricane
Jamaica	Fourth Power Project	Hurricane
Mexico	Urban Transport Project	Hurricane
Sudan	New Halfa Irrigation Rehabilitation Project	Flood
Sudan	Blue Nile Pump Schemes Rehabilitation	Flood
Sudan	Agricultural Services Project	Flood
Sudan	Gezira Rehabilitation Project	Flood
Sudan	Third Highway Project	Flood

* Emergency Recovery Loans

** Other = Civil War Rehabilitation

operations; (ii) project components designed to address disaster prevention and mitigation as a whole were not very successful; and (iii) only rarely did the Bank make natural hazard reduction a major theme in its dialogue with borrowers or an important element in its lending program, even in countries that seemed particularly prone to natural disasters.

New Directions

Recent operational practices have been evolving in several areas. First, the focus has shifted to broad emergency assistance, not just lending, and to economic recovery, rather than physical reconstruction alone. Second, special procedures for processing emergency assistance have been put in place. Third, we now endorse quick-disbursing features, such as import financing, for emergency loans. And fourth, greater prominence has been given to prevention and mitigation. I will discuss these elements in greater detail.

The Bank has broadened the scope of its assistance by (i) reassessing the existing portfolio and allowing greater flexibility in restructuring ongoing loans (six ongoing loans were restructured in Mexico and five in Sudan); (ii) supporting a sequence of loans and mitigation efforts in countries which are particularly disaster prone (such as Bangladesh); (iii) including mitigation components in non-emergency projects (such as the La Paz Municipal Development Project in Bolivia); (iv) galvanizing multi-donor support, particularly for events affecting many sectors (such as Sri Lanka and Sudan); and (v) preparing freestanding prevention and mitigation projects in disaster-prone countries (the first operation has been identified in Mexico), in addition to loans after specific emergencies.

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Second, we have streamlined procedures and documentation for emergency assistance by (i) involving senior managers early in the decision-making process; (ii) processing loans with abbreviated documentation; and (iii) providing the option to create a Bank-wide advisory group convened by the country director.

Third, though quick-disbursing assistance was previously allowed only under adjustment lending situations and was therefore linked to macroeconomic conditionality, the World Bank can now support quick-disbursing assistance in selected cases, particularly for financing imports, if it is clearly linked to a well-defined recovery program. This was done most recently in Jamaica.

And fourth, our operational policy gives greater prominence to mitigation and prevention. In order to meet World Bank criteria for emergency lending, an operation should demonstrate that there are prospects for mitigating the impact of future emergencies. There is little point in restoring the preexisting situation if a similar hazard is likely to recur in the future, even if the hazard is years away. Steps should be taken to prevent a recurrence of the emergency or to mitigate its impact. An emergency lending operation itself may not be the only or the

best vehicle for undertaking mitigation activities, but it is usually a very good place to start because of the heightened political support for risk reduction which occurs after a disaster.

Mitigation Issues and Possible Approaches

Why have the World Bank's past projects been less than successful in mitigation and prevention? I would like to point to four reasons and suggest possible approaches which are linked to (i) our small stock of mitigation projects and our limited expertise in the area; (ii) the increasingly complex macro-context of country interventions; (iii) the changing nature of mitigation technology; and (iv) the complexity of fostering institutional capability.

With the exception of a reconstruction loan after a specific disaster, the World Bank has not yet developed broad project experience on the various forms of disaster mitigation. This means that the World Bank will need to do more operational research on mitigation and evaluate past efforts more thoroughly, particularly for recent efforts such as the Chinese Da Xing An Ling Forest Fire Project and the Colombian Popayan Earthquake Reconstruction Project. It also means that the World Bank will need to rely on outside expertise and on closer collaboration with NGOs and other international and bilateral agencies, such as the United Nations Disaster Relief Co-ordinator (UNDRO) and Office of U.S. Foreign Disaster Assistance (OFDA). The International Decade should assist in focusing more activity on preparedness and mitigation.

The second point concerns the context of our overall country assistance program. With the exception of very small countries where we may only have one lending operation every second or third

year, the macro-environment for lending has become very complex. Mitigation components have to compete for priority and scarce resources with a wide range of other development issues. In a given country, we may encounter issues of economic adjustment, poverty alleviation, human resource development, food security, environmental degradation, rapid urbanization, etc., which need to be weighed against the concern for disaster mitigation. This is particularly true in non-emergency situations. In the World Bank's new country department structure, it is at the country strategy level that the priorities have to be set and support for mitigation assistance established. Bangladesh is an instance where this is happening, but it could also occur in numerous Pacific Rim countries prone to earthquakes or in the Caribbean and Asian countries which are prone to hurricanes.

The third point concerns technology. Approaches and technologies for reducing hazard are becoming increasingly available and are continuing to develop rapidly. In order to assist governments in gaining access to new developments in hazard technology, the donor community needs to keep abreast of such developments. Special attention is needed to make available cost-effective early warning systems, such as satellite tracking for hurricanes, floods, and droughts, and improved technologies for detecting and disseminating information on earthquakes. The World Bank's research complex is well-placed to disseminate hazard prevention technology as part of its agenda and as a contributor to the International Decade.

The fourth issue addresses the complex institutional dimension of making prevention and mitigation work. Institutional capability issues have traditionally been, and continue to be, difficult and pervasive. The World Bank's

annual reviews on project implementation and supervision often single out institutional issues which cut across sectoral and country lines. In the aftermath of a disaster, such weaknesses are magnified because emergencies involve politically sensitive issues, complex logistical problems, and highly visible actions. Institutional weaknesses are typically manifested as breakdowns in public administration mechanisms, poor inter-agency coordination, political interference, inadequate wages and working conditions, and a dearth of trained and motivated managers and technical staff. Donors, therefore, need to assess the likely levels of managerial performance required for mitigation efforts by adapting the objectives and scope of assistance to existing capabilities and by enhancing managerial capabilities of civil protection agencies.

This is no small task. Meetings like this one can help set the stage for improving mitigation assistance.

Comments by the Panel Moderator

N. Erik A. Arrhenius

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Before we begin the question and answer period, I would like to provide a framework for the ensuing discussion by referring back to Mr. Piddington's introduction this morning. He mentioned that it is difficult to discern between natural and manmade disasters, which is indeed a great problem. From that, I would like to jump to Mr. Sagasti, who discussed the milieu in which extreme events occur.

One could ask, is there always a stable environment? I would say no. One has to expect the environment to be unstable because extreme events are integral to the ecological, biochemical, and geological systems. Nature is by no means as good as some people say. I would ask, good to whom? Why should nature be better to man than to other species?

In the history of man's exploitation of nature, there have been two phases: The trend to stabilize the inherently unstable nature -- to see that fluctuations

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in the ecosystem are overruled so that we have as stable a system as possible to work in. During that phase, we usually did not have the capacity nor the economy to produce this stabilization. With the advent of a stronger economies, we can stabilize nature; however, with more vigorous economies, we have also caused the destabilization of the nature. The influence of the present growth of population is just one example.

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Today we are confronted with a situation where we can definitely expect an increased frequency of extreme events. This trend will be a result of our past management of nature and will be partially due to climate change caused by the emissions of carbon dioxide and other greenhouse gases. The higher incidence of natural hazards can by no means be averted, even with the most successful innovations. We will have to live with more extreme events while the population increases to well over ten billion.

This brings me to the issue which Mr. Harth discussed, namely, the need to anticipate future disasters. We have seen that the Bank's natural disaster reduction program in the past has not been strong. When we look toward the future, I think what we must address is how we can integrate disaster reduction with general development.

Panel 3.
Regional Efforts for Disaster Reduction

Dr. Jose Luis Zeballos, *Pan American Health Organization*

Stephen O. Bender, *Organization of American States*

Glenn S. Morgan, *The World Bank*

Stephen F. Lintner, *moderator, The World Bank*



Summary of Panel Proceedings

Securing adequate resources and expertise for disaster reduction in the 1990s will be a daunting task, especially for many developing countries. One of the options for these countries will be to regionalize disaster reduction strategies and resources, and take advantage of the collaboration of efforts and economies of scale. Regional strategies also will be the most practical way to manage transboundary natural hazards.

The third panel of the Colloquium examined how regional organizations are facilitating the exchange information and resources, and how they can foster cooperation for regional disaster preparedness plans in the future. The session also reviewed applications for satellite remote sensing for specific types of hazards.

Dr. Jose Luis Zeballos of the Pan-American Health Organization (PAHO) opened the panel with a discussion on disaster reduction priorities in the health sector in Latin America and the Caribbean.

Dr. Zeballos argued that the Americas are highly vulnerable to extreme events, with 150,000 deaths and 500,000 injuries caused by disasters over the last two decades. This makes disaster preparedness programs in the health sector imperative. Recognizing that the health sector is an important component of disaster management, PAHO has been actively involved in disaster response efforts, as a liaison for mobilizing and coordinating health relief assistance and as a source of expertise for formulating disaster preparedness activities in the health sector.

In planning for health preparedness,

Dr. Zeballos said that a multisectoral approach must be taken and the overall health care and emergency response systems must be integrated. PAHO's disaster preparedness program has embraced this approach in its objective to strengthen the response capacity within member countries. One of the program's most important features is to foster self-sufficiency during the most critical times of an emergency, the immediate aftermath of a calamity when the majority of injured begin to seek medical assistance and when foreign aid has yet to be mobilized.

Dr. Zeballos also summarized issues that need to be considered when preparing a comprehensive health emergency plan. Hospitals, the focal point of health response, must be able to react quickly and effectively. This does not only mean that hospitals must be prepared to respond to a mass casualty situation, but also, contingency plans must be drawn for hospitals to respond to a wide range of scenarios, including natural and technological disasters. In addition, many hospital buildings in Latin America and the Caribbean are old, vulnerable to hazards, and in need of structural reinforcement.

Concluded his speech, Dr. Zeballos recommended several projects to launch the International Decade in the Americas. These projects included setting up pilot programs for disaster preparedness in hospitals and establishing a center for regional disaster mitigation, which, as part of its activities, could conduct research on health issues and public education.

Stephen Bender of the Organization of American States (OAS) followed Dr. Zeballos and broadened the discussion from health preparedness to planning and

general disaster reduction activities in Latin America and the Caribbean.

Mr. Bender described the OAS's Natural Hazard Project, which has initiated activities to reduce disaster vulnerability through integrated development planning. Through technical cooperation, training, and technology transfer, the project has introduced cost-effective risk assessment and mitigation measures and trained mid-level professionals.

In addition, Mr. Bender identified key directions disaster reduction programs must take in the 1990s:

- Members of the donor and financial communities must learn to address risk management on an anticipatory, non-crisis basis rather than on a reactive basis. If the Decade objectives are to be met, this group also must interact more intimately with the scientific and technical community and with disaster-related organizations.
- The integral relationship between disasters, the environment, and development must be recognized by policy makers and assimilated into their directives and projects. To be truly sustainable, development must take into account environmental considerations, including natural disturbances.
- If calamities are not curtailed by effective disaster reduction policies and practices in the near future, development activities will be increasingly shaped by natural and manmade catastrophes. Financial assistance for disaster relief and reconstruction will grow substantially and consume larger and larger portions of foreign assistance budgets.

The International Decade provides the mandate and opportunity to pursue hazard management in a concerted, international effort and to integrate disaster reduction and sustainability into development policy.

Mr. Bender said progress is being made in moving toward these directions. He cited the shifting of once single-focussed development mandates to embrace a more multidisciplinary and ecological approach. Also, mid-level professionals who understand the importance of disaster reduction are climbing the hierarchical ranks of government and beginning to assume leadership roles.

Mr. Bender concluded by stressing that disaster mitigation efforts must be intensified in the next 10 years. Information and technology needs to be disseminated, more professionals need to be trained in risk reduction techniques, and equipment for lowering vulnerability needs to be procured by national, regional, and international organizations. Furthermore, institutions with expertise in natural disasters must be bolstered. In regard to the development community, hazard assessment and mitigation needs to be integrated into development policy and practice, especially in the early stages of project preparation when disaster mitigation can be the least disruptively and most effectively introduced.

In the final presentation of the panel, **Glenn Morgan** of the World Bank, focussed on one area of technology with widespread potential to reduce the impact of natural hazards, remote sensing.

Mr. Morgan explained that remote sensing can play a critical role in all facets of disaster management, from pre-disaster planning to disaster monitoring to post-disaster assessment. The technology can be indispensable for securing accurate and

timely information about the nature of a hazard, or for gathering rapid, low-cost reconnaissance information over large, often isolated areas where data collection may otherwise be very cumbersome.

However, Mr. Morgan remarked, remote sensing applications differ considerably depending on the time frame of the hazard (sudden-onset versus slow-onset disasters) and the size and degree of surface features altered. For example, remote sensing can effectively gauge disasters which markedly change the landscape, such as floods or wildfires. Sudden-onset disasters caused by geological disturbances, such as earthquakes and landslides, cannot usually be monitored during the actual disaster event, but the geological features and indicators of the hazard can be detected before the calamity occurs. Meteorological applications of remote sensing are routinely used to predict and track major storms.

Despite the numerous applications of remote sensing, Mr. Morgan said the technology is limited by certain factors inherent to the hazard. Obtaining early warning data for slow-onset disasters, such as drought or famine, is still in the experimental stage. Acquiring timely information for some sudden-onset disasters may be virtually impossible, such as in the case of earthquakes and landslides, or for floods and hurricanes where cloud cover may obstruct the satellite's view of the hazard. Because of these limitations, ground verification often is critical to support remote sensing data. Nonetheless, Mr. Morgan hailed remote sensing technology for its potential to contribute significantly to disaster reduction efforts, especially in the areas of risk assessment, disaster preparedness, and general development planning.

Following the three presentations, Stephen Lintner, the moderator,

summarized the central themes that emerged from the panel discussion and provided several prescriptions for approaching disaster management the 1990s.

Mr. Lintner said the traditional emergency response approach to dealing with natural disasters must shift to more proactive strategies focussed on disaster prevention and preparedness. The panel's discussion on regional initiatives in health and planning for Latin America and the Caribbean and advancements in remote sensing demonstrates how approaches to disaster management are changing. To advance disaster reduction efforts, Mr. Lintner recommended several areas to pursue. Tools for evaluating and incorporating risk into the planning process need to be developed. Decision makers and planners need to be sensitized, through public outreach, about the cost of ignoring natural hazards; the range of professions working in disaster management needs to be expanded; and those specialists currently working in the disaster management field, such as health experts and engineers, need to review their roles and improve their efficiency. Mr. Lintner concluded on an optimistic note, claiming that significant opportunities are emerging to manage disasters in new and innovative ways.

Response Efforts in Health Emergency Preparedness

Jose Luis Zeballos, M.D.

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The countries of the Americas are highly vulnerable to natural disasters. History records a series of events which have not only occasioned the loss of lives and a multitude of injured, but they have also caused serious damage to the infrastructure and economies of the countries, significantly delaying efforts for socioeconomic development.

Earthquakes, volcanic eruptions, hurricanes, floods, avalanches and droughts have caused approximately 150,000 deaths and 500,000 injuries in the last two decades in the Latin American and Caribbean region (see Annex 1).

Vulnerability to technological disasters, such as chemical accidents, release of toxic and radioactive substances, fires, and explosions, are associated with inorganic industrial development and urban growth. Gas explosions and accidents involving radioactive material, as experienced in Mexico and Brazil, expose the vulnerability of populations if inadequate preventive and safety measures are taken.

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Social violence, which affects various countries in Central America, has forced hundreds of thousands of people to take refuge in neighboring countries or to live in temporary dwellings in their own countries as displaced persons. In both cases, the already precarious situation of the least favored populations, who are generally located in the rural areas, is made worse not only by family dismemberment but by exposure to the risk of disease, aggravated by crowded conditions and insufficient accessibility to

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basic services.

Fortunately, large-scale disasters are not frequent occurrences; nevertheless, it should not pass unnoticed that their long-term effects are usually much more significant in the context of socioeconomic development. This aspect has particular significance in natural disasters which, in addition to the human suffering and damage to the physical infrastructure, can cause huge losses in agriculture and livestock, sectors which constitute the economic base in many countries of the Americas. As an example, we can mention the effects caused by the phenomenon called El Niño, which caused floods and drought, and provoked large livestock and agro-industrial losses from 1982 to 1983.

In recent times, we have had the effects of Hurricane Gilbert, which severely affected Jamaica and Mexico, and Hurricane Joan, which caused enormous damage to Nicaragua, parts of Costa Rica, Panama, and Colombia.

Disaster management from the health point of view requires a multidisciplinary and multisectoral approach. Preparation for emergency situations should be part of normal activities for both the public and private health sectors, with the active participation of other relevant sectors. Intersectoral coordination in the preparatory phase has obvious advantages, not only for an effective inter-institutional response during the emergency stage, but also for mutual cooperation in developmental activities and in the period after a disaster.

The Pan American Health Organization and its Role in Emergency Preparedness and Response to Disasters

In October 1976, the Directing Council of the Pan American Health

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Organization (PAHO) requested that the Director establish a technical unit for disasters. The unit was charged with defining policy for the organization; formulating plans of action for the various types of catastrophes; carrying out an inventory of human resources; training personnel where needed; distributing guides and technical manuals; promoting operational research to meet the needs of countries in emergency situations; and monitoring the establishment of effective coordination with the specialized agencies or the United Nations, the International Red Cross, and other national and international organizations that lend assistance in cases of disaster.

Later, PAHO'S field of action was broadened through other resolutions of the directing bodies in which the importance of incorporating technological disasters and provocations by man as a consequence of social violence was pointed out. Other, more specialized technical divisions of the organization are occupied with emergencies arising out of epidemics and zoonoses.

The objectives of PAHO's Emergency Preparedness and Disaster Relief Coordination Program are as follows:

- (i) To promote and support the establishment of a technical program in the health sector which will be responsible for planning and continuing training prior to disasters and effective response during emergencies;
- (ii) To promote the development of human resources in the health sector, using a multidisciplinary approach to manage disasters;
- (iii) To stimulate cooperation and coordination among the Ministry of Health, sanitary institutions, and nongovernmental organizations in cases of disaster; and
- (iv) To improve the management of health problems after disasters, responding in a technically verified and rational way to the emergency needs determined through objective evaluation in conformity with long-term development goals.

One of the main goals of the program consists of rapid, effective response in the face of health problems caused by disaster. This will be achieved by guaranteeing the existence and vitality of national programs in the health sector of every member country.

Thus, preparatory activities involve various areas of technical cooperation, among which are preparations by hospitals for disaster planning and the care of victims; sanitary engineering and environmental sanitation; surveillance; administration of temporary shelters; and logistic coordination and support.

The activities of the program during the emergency are especially oriented toward support in the evaluation of priority health needs for mobilization of aid, coordination of international assistance, support with equipment for communication via satellite, support of experts, and mobilization of personnel.

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Priorities During Emergency Situations

During emergency situations caused by disasters, the immediate priorities are to save lives and to provide relief to the affected population. In this sense, the nucleus of the systematized medical response is the immediate delivery of medical care in which hospitals play a critical role.

Dealing with mass casualties constitutes a serious problem in countries, especially where medical services are deficient. A well-organized hospital does not necessarily mean that it is prepared to respond to a mass casualty situation in a major emergency. If a hospital is not prepared to adequately respond to situations that require complex decision making, or if it does not take into account that hospital staff or their families may have been affected by the disaster, then its response capacity will be less effective.

Moreover, recent natural disasters have demonstrated that the infrastructure

of hospitals is not invulnerable. Many hospitals and health institutions were destroyed or severely damaged during the earthquakes in Mexico and El Salvador, and by Hurricane Gilbert in Jamaica (see Annex 2).

The vulnerability of hospitals acquires a major dimension when risk factors are overlooked during construction, or when appropriate materials are not used and quality control is not applied. These situations are aggravated by the absence of safety measures or contingency plans to confront events that occur inside the hospitals. A good number of hospitals in Latin America, built during the colonial period, need to reinforce their old infrastructure and maintenance systems. In new facilities, design does not always fulfill safety requirements.

Other priorities during early response include water supply, shelter, food, and disease control. There is extensive experience in sudden-impact disasters in which the provision of water supply constitutes a priority; however, little effort has been made to provide contingency measures for alternative sources of drinking water, or to adapt technology for prompt water purification. Highly vulnerable countries should consider performing a vulnerability analysis of their water supply plants as a priority.

The logistics of food supply does not constitute a major problem in earthquakes and volcanic eruptions, but floods due to hurricanes, tropical storms, or changing rain patterns such as those caused by the El Nino phenomena extensively affect agricultural areas and can cause food scarcity.

Fortunately, the American region is not often affected by extensive drought such as those affecting some parts of Africa. However, the systematic

destruction of the ecology and unreasonable land exploitation constitutes a potential threat.

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Disease surveillance and control of communicable diseases are important components in the provision of the medical care to large populations who are settled in crowded temporary shelters, or to immigrants who are either carrying diseases or who are exposed to new diseases for which they are not immunized or prepared. Mental health support and counseling are also important activities to carry out in temporary settlements.

The International Decade for Natural Disaster Reduction (IDNDR)

The United Nations Resolution A/42/169 approved by the General Assembly in December 1987, "calls upon all Governments to participate during the Decade in the concerted international action for the reduction of natural disasters and, as appropriate, to establish national committees, in cooperation with relevant scientific and technological communities, with a view to surveying available mechanisms and facilities for the reduction of natural hazards, in order to add to, improve or update existing mechanisms and facilities and develop a strategy to attain the desired goals."

Indeed, this initiative will be an excellent opportunity to support the development or strengthening of national disaster preparedness and response programs. In PAHO's perspective, the Decade should be a substantive contribution to the social sector for the alleviation the human suffering in addition to the development of high technology and scientific activities.

The Decade will also be a unique occasion to carry out joint activities. In this line of thinking, PAHO is seeking to develop interagency cooperation and implement joint projects in many key health areas in which the World Bank, Inter-American Development Bank, and other developing and bilateral agencies could play an important role in the context of the American region.

The following projects which need multisectoral and multidisciplinary approach have been submitted by PAHO to the IDNDR Steering Committee for their consideration:

- (i) Pilot project for disaster mitigation in hospitals facilities in developing countries.
- (ii) Regional project for a center on water supply systems and disaster mitigation for Spanish/Portuguese speaking countries.
- (iii) Public awareness: an inventory and documentation center for Spanish/Portuguese speaking countries.
- (iv) Latin American center for social and health research on disasters.

Many other ideas in the health sector could contribute to the enrichment of the interagency efforts in the preparedness, prevention, and reduction

of natural disasters.

With the goals clearly defined, the task remains to identify the actual activities and programmatic priorities. These will be the yardstick used to measure the Decade's potential benefit to vulnerable groups in developing countries.

Only a truly concerted effort with the commitment and involvement of the population, scientific community, and specialized agencies will result in success and positive impact. Otherwise, the philosophy of the IDNDR could lay in an isolated effort confined maybe to laboratory research.