(c) Ready access to global, regional, national and local warning systems and broad dissemination of warnings;

(i) For each type of disaster threat, countries should establish or have access to a warning system to predict or monitor threatening phenomena and disseminate the warning and appropriate information to the population and local authorities. As the objective of the system is to stimulate action to avert or reduce the impact, education of the recipients of this information should be given special attention;

(ii) All children in vulnerable risk areas should receive classes on safety and preparedness measures locally applicable.

Storm Surge, Cyclone Aivu. Wunjuga, QLD, Australia. 1989. Courtesy: Australian IDNDR Co-ordination Committee.

If substantial progress is achieved towards reaching these ideal targets, the short-term reduction and loss of lives and damages should be significant. In addition, there should potentially be considerable long-term economic benefits that can be directed to more productive activities. Sustainable development, therefore, requires investment in disaster-proofing. However, precise quantified measurement of the short- and long-term benefits resulting from this investment would require additional studies using a standardized methodology yet to be developed.

Framework for technical activities

The following seven functions or strategies were adopted by the Committee as the basic framework for the overall programme plan.

(a) Identification of hazard zones and hazard assessment

This will entail scientific studies of the potentially destructive natural phenomena to which the country is exposed and will usually be undertaken by academic or governmental scientific institutions. To this end, the collection of important data will be enhanced, as generally the main hazards facing a given country or region are already known.

(b) Vulnerability and risk assessment, cost/benefit analysis

This will depend on the level of preparedness of the country against natural disasters, the hazard resistance of the man-made structures and systems, the experience of the communities with previous occurrence and additional risks. Vulnerability of various elements exposed to hazards should be assessed first. The combination of hazard and vulnerability information provides estimates of expected losses, i.e., risk, which will be used for cost/benefit studies of risk-reduction measures.

(c) Awareness at level of decision and policy makers

This is a key factor in the launching of disaster-reduction measures at local, national and regional levels and will not only depend on the threats of natural hazards and the vulnerability of the communities at risk, but also on the cost/benefit rates of the pre-disaster interventions as compared with the post-disaster relief measures. In fact, the perceptions of the actual risk caused by natural hazards needs to be proportional to the scientific assessment of the vulnerability level of exposed communities. To this end, the national committees will play a special role.

(d) Monitoring, predicting and warning

Monitoring and prediction involve the installation or augmentation of observational networks and will in most cases be undertaken by the same institutions as those concerned with hazard zoning and assessment, such as meteorological, hydrological and seismological agencies. However, the conception and issuance of warnings should necessarily involve the official agencies concerned with the response to warnings (e.g., civil defence agencies). The interface between these groups involves translating scientific terminology into language that can be readily understood by the authorities that have the responsibility for making complex decisions such as evacuation orders and the public. This linkage has been identified as one that requires increased attention.

(e) Long-term preventive measures

This category includes all the long-term or permanent measures that may be taken to reduce the vulnerability of the population and of structures (housing, industrial plants, urban lifelines, etc.). These may be divided between:

(i) Non-structural measures - Local and national legislation and planning, including land-use planning, is required to provide a sound basis for all other preventive measures.

(ii) Structural measures - These measures include major civil works constructed in most instances by local or national governmental authorities and the application of appropriate building codes and techniques (e.g., earthquake and wind-resistant construction) to be applied in the corresponding hazard zones.

Landslide induced by coastal erosion. Courtesy: Australian IDNDR Co-ordination Committee.

f) Short-term protective measures and preparedness

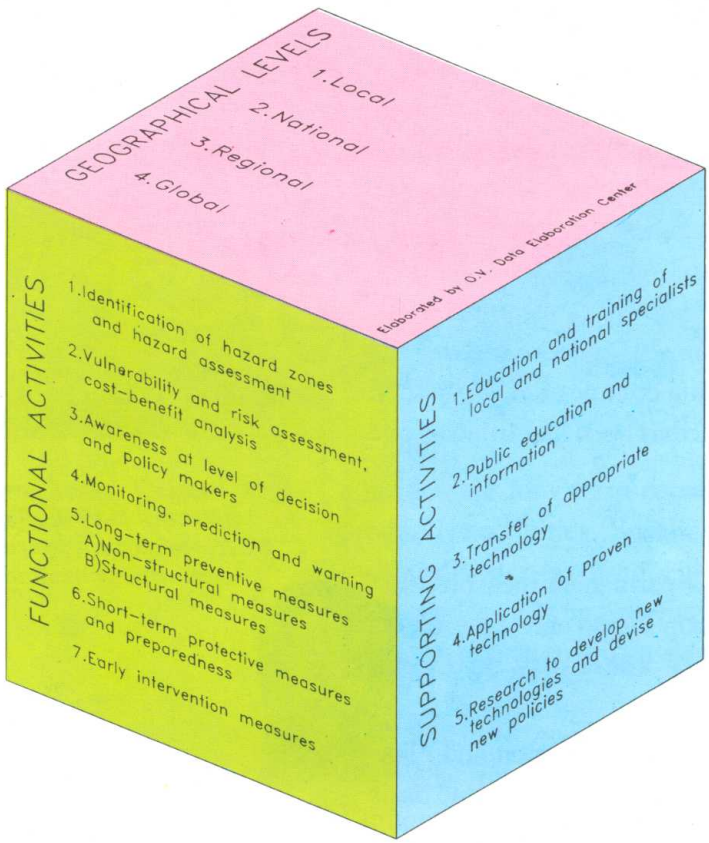
In response to the existence of a known hazard and especially in response to predictions or warnings of impending events, much can be done by short-term

or temporary protective actions to reduce the vulnerability of people and property.

(g) Early intervention measures

Early intervention in a coordinated, interorganizational effort to modify, alter, suppress or mitigate the damaging effects of natural hazards.

Many, perhaps all, of the foregoing seven functions require the support of the following associated activities if they are to be truly effective in reducing the loss of life and damage caused by natural disasters: education and training of local and national specialists; public education and information; transfer of appropriate technology; application of proven technology; and research to develop new technologies and devise new policies.



The IDNDR Mitigation Matrix
Source: STOP DISASTERS n.1, May - June 1991.

It is also clear that the seven basic functions, with their supporting activities, will be applied, as appropriate, at the local, national, regional and global levels.

Thus, in a sense, the framework programme for the Decade involves a three-dimensional matrix, where each functional activity also includes various supporting activities, and where these combined activities may be applied at local to global levels.

The functional categories described above provide a framework for organizing projects and activities of the Decade participants. The current and proposed Decade-related activities of the United Nations agencies and non-governmental organizations will be presented in such a structure, and agency responsibilities will be identified. The framework could also be used at the national level, by national committees, focal points or other entities as a basis for organizing their activities. Use of the programme framework by all Decade participants will greatly facilitate presentation and evaluation of programme activities.

Guidelines for National Committees

The Scientific and Technical Committee emphasizes the importance of national committees for the Decade, to bring about the cooperation of all parts of a national socio-economic system, including the relevant scientific and technological organizations and planning and economic development sectors, that can contribute to the national disaster-mitigation strategy.

The national committees not only have the central role in stimulating national and local disaster-reduction activities, but also can contribute to regional and international undertakings.

The key factor is to ensure that disaster reduction is incorporated as a permament element in the development planning process. If this is achieved by the year 2000, it will constitute a great success. An assembly of national committee representatives should be an integral element of the mid-term review of the Decade to take place in 1994, which is called for in General Assembly resolution 44/236; the Committee recommends a World Conference on Natural Disaster Reduction for this purpose.

The idea that disaster prevention is too costly for developing countries is without foundation. The Committee found of particular value the results of the Decade national committee survey conducted by WHO/PAHO in preparation for the meeting of Latin American countries that preceded the second session of the Committee.

The survey underlined the following points:

(a) In disaster-vulnerable countries, a national system for disaster prevention and preparedness must be created While most countries have already established committees, an effort is required to provide them with the needed capabilities to perform their functions in a systematic way, leading in the course of the Decade to the development of an autonomous national capacity for disaster mitigation.

(b) Ministries of planning must be included in National Committees, as well as ministries concerned with education and the media, in order to integrate disaster mitigation in the national planning process, achieve an interdisciplinary approach and inform the exposed population of the potential for disaster reduction.

(c) A budget for national committees is certainly needed, but the key to progress in disaster mitigation is to be found in evaluating and taking into account the disaster vulnerability of investments and other expenditures within the development process, which otherwise may lead to an increase of the potential damage of disasters.

In view of the above, the Committee recommends that:

(a) *National plans and priorities*: Nations should take the potential occurrence of natural disasters into consideration in development policies and planning. Reducing disaster impacts should be included in development policies and plans taking into consideration the cost/benefit aspects of various mitigation measures;

(b) *Composition of national committees*: An inter-disciplinary and inter-agency involvement is essential, involving those responsible for disaster-reduction activities and socio-economic activities both in the public and private sectors,

(c) *Role and functions of national committees*: National committees should provide guidance to identify national priorities, formulate and implement disaster-mitigation and prevention plans, develop and monitor projects, initiate appropiate legal and regulatory measures through various legislative bodies, as well as provide information and advice to concerned Governments, public services and related organizations and to the general public and private sector as a whole. In addition, the national committee should assist in developing regional and global disaster-reduction plans, projects and training activities.

The Committee considered that the following would assist the national committees in their establishment:

(a) Information, including guidelines and case studies, for the setting up of national committees should be made available to countries considering their establishment;

(b) Designated focal points should be encouraged to promote the establishment of a national committee and should be supported through the provision of appropriate information and guidelines;

(c) Assistance should be provided, as needed, in the preparation of national (and regional) disaster prevention or mitigation plans, and legislation;

(d) United Nations Resident Coordinators and disaster-management teams should be used in establishing national committees. To this end, appropriate detailed advice and information should be provided;

(e) Communications with national committees should be strengthened This could include dissemination of the IDNDR Newsletter, regional and interregional meetings, seminars, etc.;

(f) Maximum advantage should be taken of existing regional organizations and centres;

(g) Lists of persons and organizations interested in Decade activities should be drawn up and made available. An initial list could be drawn up based on information provided by members of the Committee;

(h) Every effort should be made to convene sessions of the Committee in developing regions. Such sessions would offer the possibility of

convening regional meetings of representatives of national committees, as was done in Latin America;

(i) Members of the Committee should, as appropriate, represent Decade interests at conferences, occasions and events in their regions;

(j) The support of the press and the broadcast media should be encouraged and stimulated, and their role in early-warning systems should be emphasized;

(k) The international amateur radio community should be encouraged to take an interest in the activities of the Decade;

(l) National reports being drawn up for submission to the United Nations Conference on Environment and Development should reflect the relevance of disaster-reduction activities to both environmental management and economic development;

(m) Scientific and economic analyses of natural disasters should be encouraged and carried out.

Tornado. Northam, WA, Australia. December 1977. Courtesy: Australian IDNDR Coordination Committee