

Cyclone devastation, a recurrent event in Bangladesh

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NETWORK MECHANISM AND INTERNATIONAL COOPERATION

It is very essential to establish a network mechanism among disaster-related institutes in different countries for exchange of information/data and experiences. The UN and other international agencies could play a vital role in coordinating these efforts. Within the framework of IDNDR (International Decade for Natural Disaster Reduction - 1990-2000), these efforts could be strengthened. The salient features of the network are as follows:

All the national disaster-related institutes /centers should be networked and a focal institute/center be selected. This focal institute/center will act as the interface and coordinating body between the International Institute/Center and the national institutes/centers. All will be tied up by the network mechanism.

International agencies/institutes/centers will have two-way traffic with the proposed International Institute for exchange of information/data/expertise, etc.

Information/data on disasters and conventional data will be archived, analyzed, interpreted and disseminated to concerned agencies/people/community. Initially, selected disasters will be studied in depth and exchangeable structure format will be generated. Various services and products will be provided by the Institute.

Disaster-related training workshops, seminars, conferences, etc. will be organized by the International Institute.

ACTIONS PROPOSED

The regional strategy for achieving environmentally sound and sustainable development should be undertaken within a broad framework of priorities and action plans in selected areas ⁽²¹⁾ as follows:

- Population and human settlements: Population issues should be integrated with national development policies and planning for meeting the basic human needs, and improving the quality of living conditions. National goals and regional strategy should be pursued for population stabilization. Family planning and welfare services need to be strengthened. Investments in rural housing and urban infrastructure such as water supply, sewerage, pollution control facilities and urban clean-up should be increased to provide healthy living conditions for the teeming millions.
- Poverty, rural development and agriculture: Development policies need to be oriented towards employment generation for the poor and meeting their basic needs with the ultimate aim of poverty alleviation. Basic requirements such as safe drinking water, health, nutrition, education, housing, drainage and sanitation facilities should be emphasized to provide a life of dignity in a healthy environment for all. Measures must be taken to land tenure systems and land reforms as a step towards achieving equitable access to natural resources and security of tenure and also to tackle soil degradation, desertification and forest destruction. Land-use planning and regulations based on land suitability, land capabilities and carrying capacities for community needs and other purposes must be made. In rural areas, village institutions, traditional sustainable agricultural practices and resources management, as appropriate, should be encouraged. Adoption of integrated pest management and training in the safe use of pesticides need to be phased out as far as possible.
- Natural resources and energy: Natural resources accounting should be introduced so that valuations are compatible with the concept of ESSD. Pricing of natural resources and energy should include environmental and social costs, in addition to extraction and processing costs. Promotion of community-based programs and community values for management of natural resources and protection of bio-diversity and ecosystem should be encouraged.

- Trade, investment and tourism: Trade and investment policies to encourage local processing of raw materials and export of value-added products including proper pricing of commodities must be formulated. International cooperation and exchange of information to discourage trade in environmentally unsound technology must be promoted. Tourism that does not cause adverse effects on the local culture and traditions should be promoted. Appropriate steps should be taken to ensure compatibility between tourism and conservation of the natural environment and heritage sites.
- Industry: Efforts should be made to promote industries and products that contribute towards ESSD and to discourage industries and products that do not. The use of low and non-waste technologies (clean technologies) including resource recovery, recycling and reuse (3 R's) needs to be promoted. Appropriate pollution control facilities including safety measures for prevention of industrial accidents should be built in all industries which create pollution and involve accidents risks. The "polluter pays" principle is to be applied as widely as possible.

The supporting measures needed for implementation of the strategy include:

- Institutional and administrative measures, including economic instruments: Local authorities of all concerned countries should try to attain ESSD by applying appropriate measures through positive responses and initiatives. Environmental parameters are to be integrated into national economic policies, planning, budgetary and development processes through creation of adequate institutional infrastructure and adoption of appropriate mechanisms. All relevant sectoral institutions should be made accountable for evaluating environmental effects of their policies and programs.
- Legislation, conventions and treaties: Appropriate legislation, conventions and treaties should be adopted nationally to attain ESSD in all sectors. Promotion of regional and international cooperation through signing and ratifying existing relevant environmental conventions and protocols should be ensured and necessary amendments and new conventions be made so that the interests of both developed and developing countries are assured.
- Environmental education, communication and public awareness: Environmental education is to be introduced in the school curricula at all levels. Awareness and understanding of environmental issues should be increased among the general public through the mass media so that everybody works for ESSD. The interactions of government agencies, non-governmental organizations, peoples' organizations and private sectors particularly industries should be more interactive and all must work for the implementation of environmental standards.
- Development and transfer of environmentally sound technology: Countries must support each other in efforts to create and develop indigenous technological capacities and environment-friendly technology. The trans-

fer of recyclable and environmentally sound technology from the North to South on concessional and preferential terms is encouraged.

It has been explained earlier that disasters have profound impacts on environment and development. As such, it is necessary that in synchronization with IDNDR objectives and strategies⁽²²⁾, local, national, regional and global levels of actions are made.

The following functional activities are to be performed:

- Identification of hazard zones and hazard assessments: This will entail scientific studies of potentially destructive disasters of a country or region by collecting necessary information/data about the potential hazards and taking appropriate steps for disaster mitigation by relevant authorities.
- Vulnerability and risk assessment, cost/benefit analysis: This will depend on the level of preparedness of the country against natural disasters. Vulnerability of various elements exposed to hazards should be assessed first. The combination of hazard and vulnerability information will provide estimates of expected losses i.e., risk, which will be used for cost/benefit studies of risk-reduction measures.
- Awareness level of decision- and policymakers: This is a key factor in the disaster-reduction measures at local, national and regional levels. Information about the hazards and vulnerability of the communities at risk may be sent to the decision-makers in time so that appropriate actions could be taken for disaster reduction. The interactions of scientific communities, decision-makers, local people and others concerned through national committee could play a special role.
- Monitoring, predicting and warning: Warning of impending disasters is very important in disaster mitigation. Hazard zoning and assessments of all types of disasters must be carried out by national agencies and scientific communities. Early warning, which specifies the areas and intensity of the disasters in simple language and format, must be issued by the authorities that are responsible for the general public and for making complex decisions such as evacuation orders.
- Long-term preventive measures: These include both structural engineering practices (major civil works, disaster-resistant buildings, dams/embankments, etc.) and nonstructural policy interventions (local and national legislation and planning including land-use planning, etc.). Attempts should be made to undertake these without causing environmental degradation and ecological imbalances.
- Short-term protective measures and preparedness: In response to warnings of impending disasters, short-term protective measures or temporary protective action could be taken to reduce the vulnerability of the people

and property.

- Early intervention measures: Early intervention is a coordinated and inter-organizational effort to modify, alter, suppress or to mitigate the damaging effects of natural hazards depending on their nature and locations.

To implement the above seven functional activities, the following supporting activities are also needed for effective reduction in 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
- Research to develop new technologies and devise new policies.

The implementation of the above functional and supporting activities targeted by 2000 will help to achieve the goals of IDNDR. For this purpose, well-coordinated and concerted efforts are essential both at national and international levels.

The diversity, complexity and the dynamics of the natural disasters and environmental hazards call for an elaborate system of warning well ahead of time. This warning system should be developed by all countries so that the above activities could be undertaken more efficiently. In addition, the following efforts should be made by all countries:

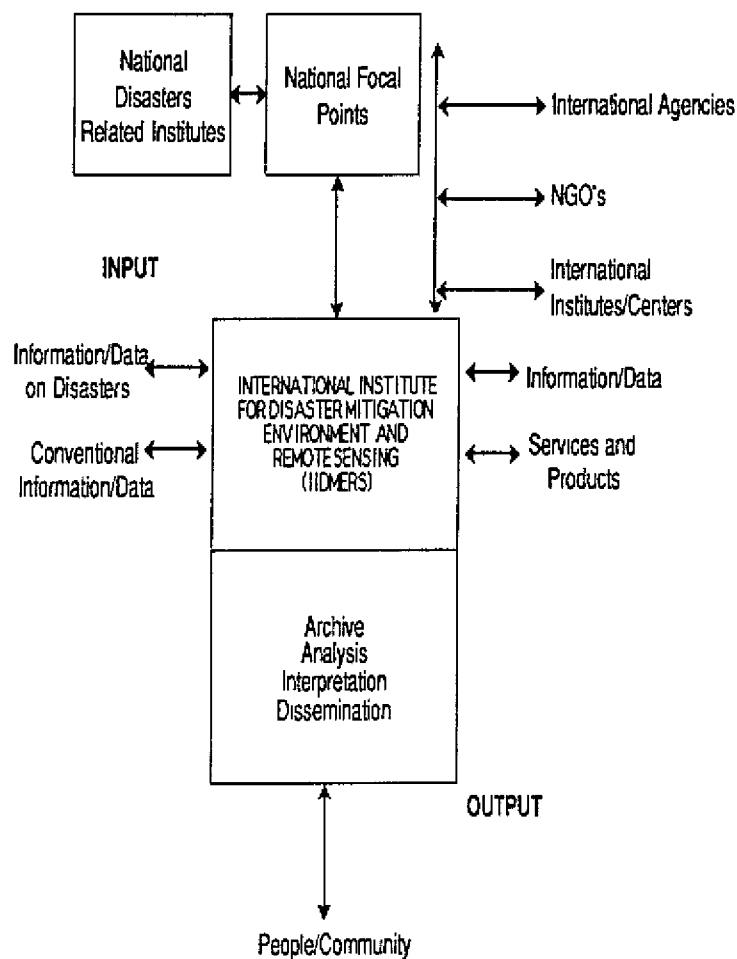
- Conception, participation and involvement of local people should be ensured at all stages of planning and implementation of disaster-mitigation activities.
- Formation of international network for exchange of information/data/ expertise on disaster warning and management should be carried out.
- Mass awareness, public information methodology and mass media activities should be strengthened particularly for disaster management, survival techniques and time-space-based-action-oriented approaches.

Based on the above observations, the following actions are proposed:

- Identification and preparation of list of specific environmental problems of each country and appropriate solutions; development of common strategy for solving these problems - locally, nationally, regionally and internationally.
- Development of infrastructural facilities and manpower capabilities in each country in phases; strengthening existing mechanism of information exchange by organizing more conferences/workshops/seminars and also

publication of newsletter/other documents; establishment of networking mechanisms; creation of public awareness.

- Transfer of pollution-free, environment-friendly and recycle-oriented technology from the North to South on concessional and preferential terms; provision of carbon dioxide and other greenhouse gases emission on per capita basis and taxation on exceeding the limit.
- Exchange of education and training facilities and expertise through workshops, study tours, on-the-job-training, short-term and long-term courses, etc.
- Undertaking of joint research projects and field application projects of mutual interest to promote appropriate interdisciplinary studies on a regional basis.
- More collaborative participation of Asian countries in IDNDR; follow-up of ISY (International Space Year- 1992), IGBP (International Geosphere Biosphere Program) and other international and regional activities.
- Interactions with GRID (Global Resource Information Database) located in Bangkok (Asia) and Nairobi (Africa) and other global data sources; exchange of data/information on more collaborative regional and global basis.
- Strengthening of international cooperation among developed and developing countries and international agencies.
- Coherent interrelationships among poverty, affluence and environmental degradation. All-out efforts should be made to avoid profit maximization, to spend more in socioeconomic development sectors and to improve the condition of the teeming millions around the world by narrowing down the gap between the rich and poor. There should be a targeted and integrated approach of economic development, environment protection, poverty reduction and improvement in the quality of life of the people at all levels - local, national, regional and global.
- Management of large data streams and data sets for real-time and near real-time basis and for various resource mapping purposes, elaborate infrastructural facilities which need huge investment. All Asian countries may not be able to invest such a huge amount. As such, it is proposed that an International Institute for Disaster-Mitigation, Environment and Remote Sensing (IIDMERS) be set up in one of the Asian countries with the functions of research, education, training, consultancy, mapping, remote sensing, GIS, computer processing, etc. IIDMERS will act as the nodal point in the region having close linkages and interfaces with the national centers (selecting one as a focal point). This will have more collaborating linkages with existing institutes without affecting their functions/funds.



INPUT-OUTPUT INTERACTIONS FOR NETWORK MECHANISM
AND INTERNATIONAL COOPERATION

CONCLUSIONS

The present report dealt with various aspects of disasters and their impacts on environment and development in global perspectives citing examples from Asian countries, particularly Bangladesh. The twenty-year period from the 1972 Stockholm Conference to the 1992 Rio Conference had passed through a number of obstacles and hurdles. The targeted objective is a balanced and equitable society where developed and developing countries could coexist together in harmony. All countries would care for and share the only earth within the framework of global partnership for the improvement of the quality of life of the peoples and sustainable living. All efforts for disaster mitigation, environmental protection and sustainable development should be taken to avoid environmental degradation and ecological imbalance. An all-out effort should be made at every stage of design, implementation and monitoring of all development projects to take care of the above aspects. Space sciences and RS-GIS technology could provide immense information/data for the purpose. A network approach and cooperation at regional and global levels are very essential. Also, in synchronization with IDNDR activities and other regional and global initiatives, national efforts should be taken for disaster mitigation and for environmentally sound and sustainable development approach in a global basis in general and the Asian countries in particular.

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