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CO-OPERATION FOR NATURAL  
DISASTER REDUCTION

INTERNATIONAL DECADE FOR NATURAL DISASTER REDUCTION

Report of the Secretary-General

Addendum

Illustrative projects for the International Decade for Natural  
Disaster Reduction

1. Section V of the report of the Secretary-General on the International Decade for Natural Disaster Reduction (A/44/322-E/1989/114) provides an outline of the guidelines for implementation of the Decade and indicates four major groups of activities in order to illustrate the general directions that specific projects might take during the Decade. Further, in paragraph 20, the Secretary-General anticipates that areas of possible projects suggested by organizations of the United Nations system as suitable for implementation under the programme for the Decade will be discussed in an addendum to his report.

2. In the following text, the Secretary-General provides as illustrative examples a number of project ideas that would be appropriate for implementation. The purpose of these projects is two-fold. The first is to illustrate the scope of concrete, substantive actions that might be undertaken during the Decade. The second is to stimulate rapid and efficient planning and/or execution of such actions in the field, at national, regional and international levels, so that the impact of the Decade is felt as soon as possible. It will be recalled that some projects have been proposed in appendix II to the report of the International Ad Hoc Group of Experts (A/44/322/Add.1-E/1989/114/Add.1, annex) and are being considered in the planning and preparation by the institutions that have responsibilities in the areas covered by each project proposal. The additional projects included in the present addendum are proposed by the concerned bodies of

the United Nations system (including the Department of Technical Co-operation for Development of the Secretariat, the United Nations Centre for Human Settlements (Habitat), the United Nations Children's Fund (UNICEF), the World Food Programme (WFP), the Food and Agriculture Organization of the United Nations (FAO), the United Nations Educational, Scientific and Cultural Organization (UNESCO), the World Health Organization (WHO), the World Bank, the International Telecommunications Union (ITU), the World Meteorological Organization (WMO), the International Atomic Energy Agency (IAEA), the Office of the United Nations Disaster Relief Co-ordinator (UNDRO) and the regional commissions) and by the International Council of Scientific Unions (ICSU). (ICSU projects are included in this report as a demonstration of the interest and involvement of organizations independent of the United Nations system in recognition of the importance of a co-operative approach between the scientific community and the United Nations system. Some of these projects will be executed in co-operation with United Nations entities.) These organizations proposed a large number of projects that cover a great variety of subject areas. However, for the illustrative purposes of this addendum, a selection was made to include projects that meet two or more of the following specific criteria corresponding to the strategy of the Decade, proposed in the main body of this report:

- (a) To show a shift of emphasis from post-disaster relief actions to pre-disaster planning and preparedness;
- (b) To include an integrated approach to disaster mitigation at international, regional or national levels;
- (c) To include a public education element and training aspects;
- (d) To establish or improve substantially early warning systems or data bases and vulnerability analysis for natural disasters;
- (e) To promote the transfer of disaster preparedness and mitigation technology through specific channels developed for the programmes of the Decade.

3. Planning of several of these projects has already started in the respective United Nations entities proposing them. A common characteristic of them is that they are based on readily available technology and do not require significant basic research; thus they can yield rapid results, usually in less than three years. They also have a potential for regional application, when conditions allow, and include features for strengthening of national capabilities through training of specialists.

4. While the listing in this addendum is organized by geographic area, most of the projects can be applied to more than one region. Projects are further identified by a letter code relating them to the categories described in paragraph 17 of the Secretary-General's report. These categories are: (a) hazard prediction; (b) risk assessment; (c) disaster preparedness; and (d) disaster management.

5. Obviously, the illustrative projects do not represent an exhaustive list of all projects to be executed during the Decade. They are, however, considered to

have priority at the beginning of the Decade, to allow for its rapid progress at the national level and for fine tuning of its strategy at regional and international levels as work proceeds in line with the evolutionary character intended for the Decade.

6. Finally, most of these projects result from combined efforts of two or more organizations within or outside the United Nations system, and thus extensive co-ordination will be required among all participating parties.

ANNEX

Projects proposed for implementation during the Decade

I. WORLD-WIDE APPLICATION

1. Development of a historical data base on natural disasters (b)

1. Improvements in risk-assessment and disaster-management capabilities represent key elements for the timely implementation of the Decade. A fundamental pre-condition for any such improvement is the availability of reliable historical data on disasters on a country-by-country basis. Such data must comprise precise information on the types and magnitude of disasters, the damage incurred and the amount of relief assistance provided from national resources or international assistance.

2. Fragments of disaster-related data are available around the world but have not been systematically collected and edited until now.

Summary of activities

3. Phase I will concentrate on the analysis of existing historical disaster-related data for a limited number of the most vulnerable countries, the development of the methodology for the intended database and its completion through additional country-related research.

4. Phase II will extend to lesser, but still severe, potential disaster areas based on the methodology developed and the experience gained during phase I.

2. Disaster recovery: a review of experience world wide (b)

5. This project will consist of objective analyses of lessons learned from previous disasters and provide the emerging conclusions and resulting technical guidelines to governments, planners, and professionals in the field of disaster management in order to improve pre-disaster planning, preparation, prevention and mitigation.

Summary of planned activities

6. Analyses of lessons learned in certain projects undertaken in response to natural disasters will be completed. The analyses will also explore relevant activities and efforts geared to reducing vulnerability to disasters. Particular attention will then be given to dissemination of the findings to the appropriate government officials, planners, and professionals working in disaster management.

3. System for technology exchange for natural disasters (c)

7. The aim of the project is to provide information regarding the technology that is available for application to reducing natural disasters and to facilitate the

transfer of this technology between the countries and between the national agencies concerned. Technology relevant to all the types of natural disasters encompassed within the Decade is to be included. This technology will include instrumentation and other equipment, technical manuals and other guidance material and computer software.

#### Summary of planned activities

8. A system will be developed for collecting information on relevant operational technology and advising potential users as to the purpose, nature and conditions for acquisition of the technology concerned. The system will be modelled on the highly successful Hydrological Operational Multipurpose Subprogramme (HOMS) of WMO with which it will be closely co-ordinated to take advantage of areas of common interest and to avoid duplication.

9. The system will rely on inputs provided by national institutions with expertise and experience in the specific topics of technology and on national focal points whose role it will be to channel information into the system and distribute information from the system at the national level. In view of this, the system will operate with a very small international staff and can expect to be very cost-effective.

#### 4. Guidelines for hazard resistant construction techniques (c)

10. This project will result in the issuing of guidelines for hazard resistant construction techniques with potential for broad application. The guidelines will cover various aspects of natural disaster mitigation, including techniques for educational buildings, protection and restoration of immovable cultural heritage, and anti-seismic construction.

#### Summary of planned activities

11. This project will be implemented in four phases:

- (a) Collection of various knowledge bases and data bases;
- (b) Evaluation of conclusions drawn from the analyses of these data and drafting of guidelines;
- (c) Regionalization and localization of guidelines will then be accomplished;
- (d) Evaluation and revision of these guidelines as new information indicates the need.

#### 5. International mobile early-warning system for volcanic eruptions (a)

12. This project will dispatch mobile scientific teams to crisis areas, survey past activities and install bench-marks, improve knowledge of early-warning precursors, promote on-the-job training and experience, and encourage pre-crisis studies and preparations through pooling of existing international resources.

Summary of planned activities

13. Operational work: volcanic crises happen statistically once a year in each of three regions (Africa/Europe, Asia, the Americas) of the world. Therefore, the following activities will be concentrated in these regions:

(a) Setting up of regional mobile teams (first two years);

(b) Installation of satellite-linked monitoring systems (during the first-half of the Decade);

(c) Completion of preparedness for volcanic eruptions in co-operation with professional organizations in countries currently lacking them.

6. Earthquake awareness and safety education in school programmes (c)

14. The objective of this proposal is to investigate what has already been done elsewhere in the field of public education with respect to earthquakes in order to develop a package of educational materials for students at varying intellectual and interest levels, and to test those materials in various school level programmes.

Summary of planned activities

15. The following activities will be undertaken:

(a) Collection of existing information about earthquake education curricula;

(b) Establishment of a package of earthquake preparedness curricula;

(c) Submission of the package for technical and educational review;

(d) Testing of the package of various school level programmes;

(e) Making the package available to school systems.

7. Development of improved warning systems for mudslides and landslides (a)

16. The objectives of this project are to identify and disseminate modern techniques of warning systems, risk zoning and evaluation in slide-prone areas; and to provide training to local staff in these techniques.

Summary of planned activities

17. The following activities will be undertaken:

(a) Evaluation of case studies of mudflow disasters in typical situations;

(b) Establishment of models for monitoring, risk zoning and early warning in a few countries and setting up of pilot schemes;

(c) Preparation of technical guidelines for training staff and strengthening of twinning/network arrangements.

8. Intermediate-term earthquake prediction (a)

18. The objectives of this project are to create a theoretical and computational base for prediction of strong earthquakes with accuracy of the order of years and 10 square kilometres, to establish a sufficiently reliable and discrete procedure for such prediction world wide, and to explore the possibility of transition to short-term prediction.

Summary of planned activities

19. The project will start with the world-wide test of the algorithms of prediction, which have been already tested retrospectively. The expected accuracy of prediction at this stage is two to five years and few hundreds of square kilometres, with probabilities of false alarms and failures to predict within 15 per cent each. In parallel the theoretical background of earthquake prediction will be developed and the database expanded to non-seismological phenomena. The project will make full use of global geophysical observational networks and data banks. Research is necessary due to the absence of adequate physical and mathematical models of earthquake prediction which would allow for the whole set of mechanisms controlling the occurrence of earthquakes in the system of seismically active faults.

9. Training course on natural disasters for geoscientists in developing countries (b)

20. The objectives of this project are to improve the developing countries' capability to execute the required geoscience activities in data base development and risk assessment related to natural disasters.

Summary of planned activities

21. The following activities will be undertaken:

(a) Preparation of training course and workshop materials;

(b) Conducting a four-week training course on tectonic terrain analysis for scientists from the developing world;

(c) Conducting a ten-day Latin American workshop on seismic hazard evaluation.

10. Improvement of telecommunications capabilities for disaster and emergency operations (d)

22. The objectives of the project are to ensure the immediate availability of crucial telecommunications equipment in a disaster area. The project will promote the adoption of measures for ensuring the safety of life through the co-operation of telecommunications services of different kinds and accord priority for emergency communications.

Summary of planned activities

23. The following activities will be undertaken:

(a) Analysis of existing telecommunications equipment, assessment of its operational status and availability for emergency use and determination of its vulnerability to disasters in disaster-prone areas;

(b) Preparation of specifications for emergency telecommunications equipment to assure a degree of standardization and compatibility of different makes of equipment;

(c) Establishment of protocols governing the use of emergency equipment;

(d) Provision and installation of emergency equipment on a pilot basis in selected disaster-prone areas and training of nationals on its operation and maintenance.

11. Development of an integrated international electronic information and communication network for disaster management (c)

24. The aim of the project will be to set up an international electronic information and communication network that enables rapid, reliable and economical world-wide collection and exchange of disaster-related information of common interest among units concerned with disaster management, either in a relief or prevention phase. Improved co-ordination of disaster response and the resulting increased efficiency of disaster management are important aspects of the Decade, with a high degree of priority for implementation.

25. Under the leadership of the United Nations system, the following participants will have to be involved in the project: (a) non-governmental organizations; (b) intergovernmental organizations; (c) governments of disaster-prone countries; (d) Governments of donor countries; (e) scientific research units; (f) public information units; and (g) field units (search teams, disaster co-ordinators, disaster management teams).

Summary of planned activities

26. During phase 1 existing information and communication systems will be evaluated with regard to methodology and practical experience. Based on the results, specific recommendations for the development of an improved system, built upon the present United Nations International Emergency Network (UNIENET), will be expected.

27. During phase 2 the recommendations will be implemented at the United Nations level and with other selected units in regions highly prone to disasters, as well as with potential donor countries.

28. During phase 3 the system will be offered for implementation to all interested participants in disaster management.



12. Training strategy for emergency operations (d)

29. The objectives of this project are to develop, test and implement a strategy for emergency training, designed to meet particular needs of various "tiers" or levels of staff who may become involved in emergency work, to strengthen the capacity to prepare for and promptly and effectively participate in co-ordinated responses to the needs of populations at risk in all kinds of emergency situations.

Summary of planned activities

30. The following activities will be undertaken:

(a) Phase 1 (first year): design activities: development of course design and training package;

(b) Phase 2 (second year): training/activities: implementation/testing and design adjustments;

(c) Phase 3 (third and following years): training activities (regional/country workshops) and dissemination of training package to all field offices and other interested international organizations/agencies in English, French and Spanish;

(d) Other: development and maintenance of rosters of both internal and external resources for designing/conducting emergency operations training. A one-month intensive course for key emergency managers will be held at least once each year.

II. AFRICA

13. Collection, analysis and dissemination of documentation on health emergencies in large populations and consequences on health of disasters for the African region (c)

31. This proposal has the following three purposes: to promote a balanced development of the capabilities of the national health and disasters administrations of as many African countries as possible for prediction, prevention and preparedness for disasters and large population emergencies; to provide an efficient and reliable source of health or health-related data with a view to promoting better knowledge of the adverse health effects of disasters; and to preserve and improve existing knowledge and experience of health emergency response to disasters, and contingency planning and preparedness management.

Summary of planned activities

32. The following activities will be undertaken:

(a) Development of a co-ordinated information and communication network concerned with African health documentation systems;

(b) Collection and categorization of publications (magazines, working papers, reports, training materials and curricula), and audio-visual materials relating to health emergencies;

(c) Preparation of vulnerability profiles, publication of epidemiological data collected through case studies, country surveys and library research. Dissemination of information will be emphasized.

14. Estimation of the extent of impact of drought in the Sahel region of Africa (a)

33. While many effective warning systems for crop monitoring and assessment of food supply/demand situations currently exist, there is a need for consolidating the know-how of early warning systems. This effort will enhance early and effective response to drought-induced food crises.

34. Objectives are to improve pre-disaster planning and prevention through the assessment of the potential impact that possible increases in drought frequency and intensity would have on food production and supply.

Summary of planned activities

35. The following activities will be undertaken:

(a) Previous work will be extended on agro-ecological zones, on population supporting capacity of the land, and on agro-meteorology in the region;

(b) Present estimation techniques will be refined in collaboration with local institutions and installed in the region;

(c) An inventory will be prepared of techniques utilized in early-warning systems at the global, regional and national levels;

(d) Studies will be promoted at national level in the further development of ground and satellite-based monitoring techniques;

(e) Technical consultations and seminars will be organized, leading to the development of a common methodology for the detection and assessment of drought-induced food crises;

(f) The results will then be used to determine suitable response strategies.

15. Establishment in Africa of a co-ordinated seismic monitoring system and an improved system of seismic risk assessment for the continent (a, b)

36. The objective of this proposal is to improve greatly the capability for earthquake-risk assessment through a multifaceted approach that includes the re-establishment of a seismological network in the continent, the analysis of the resulting data, the exchange and dissemination of data, analyses and information, an improved system of seismic risk assessment of the continent, the training of African scientists and the co-ordination of national and international seismologic projects.

37. This complex project, sponsored and implemented by entities within the United Nations and scientific organizations associated with the International Council of Scientific Unions and regional and national professional organizations is to be co-ordinated with on-going regional African seismic programmes.

Summary of planned activities

38. This project will be implemented in four components:

(a) Fact-finding and a feasibility study (six months);

(b) Establishment of umbrella projects and national projects in the African Rift zone and a few projects in North and West Africa (five years) aimed at improved risk assessment;

(c) Establishment of a Pan-African seismic disaster monitoring system in co-operation with professional non-governmental organizations (four years);

(d) The continued training programme for African seismologists and station operators.

16. Tropical cyclone warning system for the south-west Indian Ocean region (a)

39. The objectives of the proposal are to upgrade substantially the existing tropical cyclone warning system in the south-west Indian Ocean region by strengthening the capabilities of national meteorological services in the region to meet their responsibilities within the established internationally co-ordinated framework and through the application of meteorological satellite and micro-computer technology and the transfer of scientific knowledge.

Summary of planned activities

40. The following activities will be undertaken:

(a) Installation of data-collection platforms and data-collection and data-processing systems equipment and systems in the region (using the METEOSAT meteorological satellite) to enhance the meteorological observational network and the communication system for international exchange of meteorological data and processed products;

(b) Installation of a regional computer network, i.e. micro-computer based systems including appropriate application software for data handling, data processing and tropical cyclone monitoring and forecasting;

(c) Training meteorologists in the science of tropical meteorology and in tropical cyclone forecasting.

### III. AFRICA AND THE AMERICAS

17. Increase of public awareness in Spanish- and Portuguese-speaking countries of the health and safety aspects of natural disasters (c)

41. The objectives of this proposal are to support the national efforts of Spanish- or Portuguese-speaking developing countries towards increasing the awareness of their populations exposed to natural disasters. Public education and awareness is a key factor for the Decade's successful implementation at country level. Personal protection measures are unknown by the general public, school children and local health workers resulting in high death toll and avoidable health problems following natural disasters. This project will include an inventory and documentation centre to aid in the improvement of public awareness.

Summary of planned activities

42. Health education and public awareness programmes for minimizing the population risk to natural disasters are expensive, culturally-specific undertakings. Sharing of experiences and material (film, posters, leaflets, etc.) among developing countries sharing the same culture is the most cost effective. The project is supportive of a regional dimension for the Decade. English language material or initiatives are often culturally foreign and consequently ineffective. A mechanism for inventorying (using ISIS system), distributing local or regional technical materials will strengthen the impact of the Decade at the regional level.

### IV. AFRICA AND SOUTH-EAST ASIA

18. Mapping of vulnerability to hazards in areas of sub-Saharan Africa and south-east Asia (b)

43. The objectives of this proposal are to begin the process of identifying and mapping of areas at risk from floods, droughts, cyclones or earthquakes in low-income developing countries of sub-Saharan Africa and south-east Asia.

Summary of planned activities

44. Economic surveys of populations will be undertaken to determine their possible economic strength to withstand disasters. A major indicator in such surveys would be per capita revenue, other indicators would be employment, nutrition levels, access to health facilities, education etc. A completed map for a country would help determine where, for example, security food stocks should be located and allow drawing-up of a programme of rapid intervention to assist, as a priority target, populations at highest nutritional risk.

## V. CENTRAL AND SOUTH AMERICA

### 19. Assessment and training in improved earthquake-resistant building techniques in South America (c)

45. The objectives of this proposal are to assess the types of damage that certain types of rural constructions experience, to assist in reconstruction and repair of damaged housing and to transfer knowledge on improved building techniques. The construction will be carried out through mutual aid community participation.

#### Summary of planned activities

46. Activities planned include field investigation of earthquake damage, preparation of brochures on construction, repair and maintenance of particular types of rural housing, training of community groups and supervision of construction (including some community buildings).

### 20. Hurricane rehabilitation and disaster prevention programme for selected Caribbean islands (c)

47. The objectives of the proposal are to develop a building control system supported by appropriate legislation, and to create an advisory service within the Government to provide guidance and training in hurricane-resistant construction, rehabilitation and upgrading of existing buildings. Recent lessons learned from the occurrence of hurricanes Gilbert and Hugo will be included.

#### Summary of planned activities

48. The project will establish a baseline for sound technical criteria for construction and for the formulation of building codes and guidelines for designs, site inspections and certification procedures. It will elaborate building standard plans and will include a public information programme.

## VI. ASIA AND PACIFIC REGIONS

### 21. Improved risk assessment capability for storm surges for coastal areas of Asia and the Pacific (b)

49. The objectives of the proposal of this multi-component project include the design of a model for prediction of floods caused by storm surges associated with cyclones, the preparation of maps of storm surge heights for different probability levels for coastal areas of Asia and the Pacific, the transfer of the technology of surge height prediction through a seminar or workshop, an assessment of the impact on coastal structures, and the undertaking of preventive measures against loss of lives and property in as many areas as possible.

Summary of planned activities

50. The following activities will be undertaken:

(a) Preparation by 1991 of an atlas of maps of storm surge heights;

(b) Seminar/workshop to be held in 1992 on transfer of technology on storm surge prediction, risk assessment and preventive measures against loss of lives and property.

22. Development of alternative roofing methods in typhoon-prone countries (c)

51. This project is designed to transfer knowledge on typhoon-resistant building methods to local builders and technicians, including the revival of traditional building techniques that have proven effective in withstanding typhoons better than newly acquired technology.

Summary of planned activities

52. The objective is to provide designs for construction systems, to raise government awareness on disaster preparedness and to establish a capacity at the provincial level for a reduction of housing vulnerability.

23. Transfer of information concerning flood loss prevention and management in the Asia and Pacific regions (c)

53. The object of this project is to improve the status of flood protection by the dissemination of guidelines for comprehensive flood loss prevention and management to decision makers, planners and civil protection officials of the countries of the Asia and Pacific regions. A manual and guidelines concerning this subject are being prepared for this purpose and should be published in the near future.

Summary of planned activities

54. The following activities are planned:

(a) Completion and publication of the manual and guidelines in 1989;

(b) Preparation and conduct of seminars and workshops in 1990 and 1991 for the purpose of successfully transferring to the users the technology of comprehensive flood-loss prevention and management.

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