Disaster Mitigation in Central America

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President, CEPREDENAC

The Coordination Centre for the Prevention of Natural Disasters in Central America (CEPREDENAC) is a regional organization composed of technical, scientific and civil defence institutions from all over Central America. It was established in 1987, with the assistance of the Swedish International Development Agency (SIDA)

CEPREDENAC was established in a decade characterized by the resurgence of armed action in the region. Poverty, which often lies at the source of these conflicts, is magnified and accentuated. Development, as a consequence, often becomes one of the principle victims of armed conflict. Within this framework, there has been interaction between the problems of environmental impact, natural and man-made disasters, and an increase in poverty levels, all which have led to a disproportionate increase in social vulnerability.

During the current decade the region has acquired the vision to achieve and consolidate peace, in an effort which has forced many to relinquish their political and ideological convictions and in which the various sectors in conflict have accepted a process of negotiation. This decade is therefore a time of change and contradiction with sustained efforts to take the first steps towards the solution of the region's problems

Within this structural framework, CEPREDENAC was born. At a time when pressure was increasing, governments were obliged to change their priorities and the consolidation of peace became the primary objective. CEPREDENAC was influenced by this ongoing process in the region and, outstriping the developments resulting from the move towards peace, managed to incorporate at the national and regional levels, institutions and persons that would previously never have imagined that they would be involved in such activity As a result, CEPREDENAC developed objectives in an area, which until then, had no priority and in which very little was known

Initially, the Centre's priority was analysis and definition of natural threats together with activities aimed at dealing with these situations Thus, there are nine thematic areas in which projects are under way at the regional level: seismology, vulcanology; landslides; floods; building codes and standards emergency plans, mutual assistance; atlas of threats and information systems; and radio communications.

In these areas, priority has been given to the strengthening of institutions, which is essential for the effective analysis and interpretation of natural phenomena and to ensure an adequate response capacity on the part of governments. Priority has also been given to the exchange of information and experience among the countries of the region, through horizontal cooperation and the establishment of regional databanks. More recently, detailed national and local emergency plans have been formulated In the development of these projects, we have received, in addition to Sweden's contribution, the support of Norway and Denmark.

Reduction: A Problem of Application

After six years of hard work on the study of threats and vulnerability and on preparations, CEPREDENAC finds itself engaged in a process of analysis, within its principle objective of natural disaster reduction.

The fundamental consideration is that we now have a large stock of physical knowledge, but this knowledge must be translated into practical solutions that can benefit the community. The objective, therefore, is to develop a regional reduction strategy and to enable projects to achieve a greater social impact

The problem of mitigation is thus tackled through institutions and through communities. To this end, two major activities have been planned

- A workshop on the formulation of the Regional Plan for Disaster Reduction in Central America, in conjunction with USAID's Office for Foreign Disasters Assistance and with the collaboration of the Pan-American Health Organization and the regional office of the International Decade for Natural Disaster Reduction, and with the support of the Central American Integration System (13 - 17 September, 1993),
- A seminar/workshop entitled "Methods of Work and Experience with Communities in the Auto-Diagnosis of Threats, Risks and Vulnerability and in the Communication of Technical Information", in conjunction with the Latin American Network of Social Studies for the Prevention of Natural Disasters.

Regional Plan for Disaster Reduction

The principal objective of this workshop is to design a plan which invites the participation of communities, competent

national authorities, regional institutions in related sectors, and international organizations and cooperative agencies. As part of the methodology, a diagnosis should be made of the state of progress in disaster reduction in the region, with the aim of making a prognosis, establishing objectives and defining the strategic framework, at the regional and national levels The workshop will be attended by national representatives of civil defence offices, universities, scientific institutes, and ministries of planning, health and foreign affairs.

Unquestionably, CEPREDENAC realizes that Central America needs practical solutions to reduce the impact of disasters and has conscientiously undertaken the task of devising them.

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National Committees Making Progress

Australia

Australian International Decade for Natural Disaster Reduction Involvement

The Prime Minister, in announcing on 21 April 1989, Australia's participation in the International Decade for Natural Disaster Reduction, declared the formation of an Australian Coordination Committee chaired by the Director- General of Emergency Management in Australia. This committee includes government and non-government representatives, along with representatives of academic, scientific and community organizations. In line with the United Nations initiative, it focuses on the South-West Pacific region, Papua New Guinea, as well as Australia.

The Australian Coordination Committee liaises with the various groups and individuals within Australia, the United Nations Department of Humanitarian Affairs and with other international and national committees, exchanging information as well as developing and publicizing activities and achievements to enhance the objectives of the Decade.

In the four years of the Decade, Australia has set many goals and has now reached many targets. Some of these have already been put to practical use in emergency management fields for the future benefit of the Australian community. Others are now seen to have beneficial applications in the international arena, specifically relating to tropical cyclones, earthquakes, public awareness and disaster management training. In addition, a major contribution to the IDNDR is the Pacific Disaster Preparedness Programme which provides packages of assistance for countries according to their needs for the development of their national disaster preparedness.

As Australia has only modest financial and population resources, it is essential that we be selective in our contributions both nationally and internationally To date, funding has been provided for twenty projects. Examples of these projects are as follows:

- Australian Tropical Cyclone Workstation; Natural Hazard Maps; Earthquake Zonation, Hazard Topics for School Curricula; S W.Pacific Disaster Managers Workshop;
- Economic Benefits of Disaster Mitigation; Tropical Storm Surge, Damage Assessment and Emergency Planning; IDNDR Regional Conference, Regional Hazard Map Booklet;
- IDNDR World Conference, Saeklon Akson Gaed (Solomon Islands); Vanuatu Training and Education Programme-A check-list approach, STOP Disasters, the IDNDR Newsletter.

Contact: Commodore C.J. Littleton, Chairman, Australian IDNDR Coordination Committee, P.O.Box 1020, Dickson ACT 2602 Australia.

China

Progress and Expectations for China's Disaster Mitigation Activities

China is one of the few countries in the world frequently hit by different types of serious natural disasters which cause great loss of property and life.

Since the founding of new China, the Chinese people, under the leadership of the Chinese Government, have made unremitting efforts in the fight against natural disasters and achieved the following successes.

1. Strengthening the construction of disaster prevention projects to increase the ability to withstand disasters.

a) So far, 226,000 kilometres of embankment and 83,400 reservoirs have been built along the rivers with a fixed asset of more than 100 billion yuan, forming a comprehensive anti-flood and drought network, combining reservoirs, embankments, flood diversion areas, soil and water conservation.
b) China now has a total afforestation area of 5.33 million hectares and has closed hillsides of 4.666 million hectares to facilitate afforestation, with a total forest coverage of 13.68 per cent.
c) A total area of 230 million square metres of buildings have been reinforced.
d) Two thousand, nine hundred kilometres of embankments have been built along the coast and a systematic project combining agriculture, salt industry and animal husbandry has been set up for the comprehensive utilization of the salinized soil.
e) Since the 1980s, a biological control system has been developed with an annual biological control area of 150 million hectares, retrieving 22 billion kilograms of grain and 560 million kilograms of cotton.
f) To prevent landslide and mud-rock flow, tens of thousands of projects have been launched along vital communication lines and construction sites.

2. Establishing disaster monitoring and forecasting systems to raise the forecast level:
a) a monitoring system for natural disasters such as floods, drought, typhoons, earthquakes, tidal waves, landslides, mud-rock flow, plant disease and insect pests, and fire;
b) 8,500 rainfall and regimen forecast and monitoring stations;
c) 2,600 meteorological observatories;
d) 280 tidal wave monitoring stations;
e) over 2,000 plant disease and insect pest monitoring stations; and
f) a monitoring system for earthquakes.
3. Consolidating the disaster prevention and reduction work to alleviate loss of property and life and to guarantee the return to normal life for victims of calamities.
4. Carrying out widespread research on the disaster reduction technologies and theories, the nationwide popularization of disaster knowledge, the work in drawing up laws and regulations concerning disaster reduction activities in earnest, and international cooperation and exchange on mitigation experience.

Activities for the IDNDR started a few years ago in China and some progress has been made. In the future, under the guidance of the government, the following tasks will be carried out:
a) develop step by step, a comprehensive system for disaster mitigation and establish a nationwide information network;
b) stick to the principle of prevention first and the combination of prevention, control and relief work; construct and strengthen disaster prevention projects and set up a batch of model projects in a planned way.
c) continue to improve a disaster monitoring and forecasting system;
d) strengthen mitigation work in a scientific way, spread and apply existing scientific results to closely link research and disaster reduction; and
e) define and perfect the public prevention and mitigation system, which is joined by people from all walks of life under the unified leadership of the government.

Contact: Mr. Fan BaoJun, Secretary-General, IDNDR National Committee, Ministry of Civil Affairs, No.9 Xi Huang Gen Nan Jie, Beijing 100032, China. Fax IDNDR: (41 22) 733 86 95

China

The Objectives and Expectations of India for the IDNDR

Almost the entire Indian sub-continent is vulnerable to some type of natural hazard. Based on experiences gained in managing and mitigating the impact of natural disasters, the country has developed strategies to counter the impact of natural hazards.

The objectives for the Decade include:
a) Identifying hazard zones and conducting hazard assessments;
b) Monitoring, prediction and provision of timely warning;
c) Institution of short-term protective and preparedness measures;
d) Institution of long-term preventive measures;
e) Promotion of proper land use practices; and
f) Promotion of public education and dissemination of information.

The major natural disasters experienced in India are drought, floods, cyclones and earthquakes. In the context of IDNDR, the Government of India intends to reorient disaster management strategy by initiating the following action during the Decade:

India

India

DROUGHT

a) To work out a strategy for the development of chronically drought-affected areas, keeping in view their resources endowment and sustainability of development programmes;
b) An integrated approach to pool all resources of various development programmes to develop a common approach for mitigating the impact of drought; and
c) Refinement of damage assessment methods and vulnerability identification to facilitate logistics planning for effective drought management.

FLOODS

a) Developing scientific methods of flood damage assessment;
b) Undertaking hazards analysis and vulnerability analysis in flood-prone areas;
c) Development of contingency crop planning for minimizing the crop losses;
d) Design and promotion of flood-resistant construction;
e) Identification of development options to minimize the vulnerability of the life-support systems such as drinking water, power supply, roads, communications systems etc., and
f) Implementation of long-term measures such as basin area development and afforestation programmes, and effective drainage system construction in command areas to moderate flood discharge in river systems.

CYCLONES

a) Strengthening of the disaster warning system evolved by Indian Meteorological Department (IMD) and expanding it to all the vulnerable areas;
b) A contour mapping of the coastal areas to determine the vulnerability of varying intensities of cyclones to facilitate evacuation and relief,
c) Formulation and implementation of coastal area development programmes, which would ensure cyclone resistant houses, appropriate cropping systems, regulation of industrial activities; and
d) Afforestation programme to create cyclone shelter belts.

EARTHQUAKES

a) Survey existing stock of traditional building material and formulate appropriate building technology;
b) Demarcate microzonation as a precautionary measure against earthquakes;
c) Enforce safety parameters in the construction of buildings and in the location of infrastructure facilities; and
d) Develop training programmes the construction engineers and promote public awareness.

Efforts are being made at all levels to realize the objectives of the IDNDR during the remaining years of the Decade by ensuring integration of disaster mitigation into development planning The Government of India has established institutional mechanisms at the national, state and district levels to give priority for disaster management for development planning.

Contact Mr. Ashok Saika, Joint Secretary (NDM) & Additional Relief Commissioner, Dept. of Agriculture & Cooperation Krishi Bhavan, New Delhi, India. Fax IDNDR: (41 22) 733 8695

INTERNATIONAL MEETING FOR YOUNG RESEARCHERS IN APPLIED GEOLOGY - IMYRAG

Swiss Federal Institute of Technology - Lausanne, Switzerland

The Meeting was held under the patronage of the International Association of Engineering Geology (IAEG) on 21 April, 1994. The meting was convened as an opportunity for information exchange among young researchers and practitionners in applied geology. The event brought together parties who are working to solve engineering and environmental problems resulting from geological and human activities. The meeting focused its programme activity in the areas of landfill, contaminations, hydrogeology, geochemistry, rock mechanics, stability and engineering geology.

For information on the outcome of the meeting contact: IMYRAG Organiser Committee, GEOLEP/DGC, Ecole Polytechnique Fédérale (EPFL), CH-1015 Lausanne, Switzerland Tel.: 41-21-693.2355; Fax. 41-21-693.4153

Joint Fellowship Programme - NATURAL RISK REDUCTION

Within the framework of IDNDR, the UN Department of Humanitarian Affairs (DHA) Geneva and MAPFRE, Compañía de reaseguros, Madrid, have initiated a joint fellowship programme. The programme offers fellowships to persons already entrusted with, or about to assume, responsibility for their country's natural risk reduction programmes (policy elaboration, as well as implementation). The overall aim is to strengthen the national capabilities in the area of disaster management by offering fellowships to well-qualified post-graduate candidates from developing countries.

Contact: Dusan Zupka, UN DHA, Palais des Nations, 1211 Geneva 10; Tel: (41 22) 917 24 68; Fax: (41 22) 917 00 23.

Partners in action

NATURAL RISK AND CIVIL PROTECTION
A Conference Organised by the European Commission

A major international conference on "Natural Risk and Civil Protection", organised by the European Commission, took place between 26-29 October in Belgirate, Italy last year. The event brought together researchers and practioners in natural hazard mitigation and in civil protection throughout Europe, together with participants from the United States, Canada and Russia.
To mention a few, conference participants and presenters included:

- Hon. Vito Riggio, Former Italian State Secretary for Civil Protection;
- Dr. Robert Witty of the EC's Joint Research Centre, Ispra, Italy;
- Professor Franco Barberi, University of Pisa, Italy;
- Dr. Jose Nicholau, Portugese Civil Protection Service;
- Professor Joanne Nigg, Director, Disaster Research Centre, University of Delaware, USA;
- Dr. Bruna De Marchi, International Sociological Institute, Gorizia, Italy; and
- Professor Bernadette de Vanssay of CREDA, Paris, France.

The conference was organised as a contribution to the development of cohesive civil protection policies within the European community, however, it was recognised that the event and its findings would form an important contribution to the aims and objectives of the International Decade for Natural Disaster Reduction (IDNDR).

Three main areas explored at the conference included:

1. The most relevant needs and priorities in hazards research in the light of the needs of emergency response organizations;
2. The extent to which a common, risk management based, framework can be developed for dealing with both natural and technological hazards; and
3. How a range of ideas from management science and from the social and behavioral sciences can be applied in the development of more effective forms of civil protection.

The conference's opening session included a presentation on the importance of local response to disasters with a discussion on civil protection as an area of work for the European Commission. The following two days featured sessions organized by hazard agent specialists on earthquakes, volcanoes, storms, floods and landslides. On the third day, conference participants addressed themes on civil protection while exploring risk communication, planning problems and crisis management. Workshops on the final day addressed topics concerning information sources and research priorities. The outcome of both of these workshops reiterated a major theme of the conference - the need for a significant growth in the exchange of ideas and data.

Overall, the conference was highly successful in creating an interactive learning process for participants through the use of case studies, round-table discussions and interventions. Stimulating dialogue among participants from different specializations also helped to bridge the gap between theory and practice. It is hoped that a book will be produced as an outcome of the conference papers and that its use will generate even more exploration in the field of "Natural Risk and Civil Protection".
Contact: Tom Horlick-Jones, Department of Geography, London School of Economics and Political Science. Houghton Street, London WC2A 2AE. Tel.: 071-405 7686; Fax 071-955 7412.

PUBLICATIONS: GEOLOGICAL DISASTERS IN THE PHILIPPINES. By G. Rantucci

Geological Disasters in the Philippines describes the sequence of disasters which occurred in Luzon including the July 1990 earthquake and the June 1991 eruption of Mount Pinatubo. The book explores, and documents through pictures, the impact that these disasters have had upon the economy and the environment. The work is of valuable interest to researchers, geoscientists, planners, administrators and organizations operating in the fields of disaster prevention and mitigation.

Copies of the book will be made available through the Italian Delegation at the World Conference on Natural Disaster Reduction (Yokohama, May 23-27, 1994). Universities, as well as national and international organizations will receive free copies.
Requests can also be addressed to: G. Rantucci, UTC (Ministero Affari Esteri), via Contarini n. 25, Rome, Italy.

Private Sector Digest

In an effort to facilitate the flow of information and co-ordination of activities between the public, private and governmental sectors involved in natural disaster reduction, **STOP *Disasters*** is presenting a special **PRIVATE SECTOR DIGEST**.

This initiative is an attempt to encourage governments, companies and other entities in the public and private sectors to work together towards meeting the goals of the Decade. In future issues, **STOP *Disasters*** will present a more comprehensive register of companies.

Companies that are interested in being included in future publications are encouraged to contact **STOP *Disasters***.

Alenia

Name: ALENIA - Company of Finmeccanica, SpA
Contact: Ing. H. Leemhuis (Communications Dept.)
Company Profile: ALENIA is a leading firm in aerospace and electronic engineering. Activities in the fields of natural hazard mitigation and environmental monitoring range from remote sensing and pollution control, to the development of new techniques for global risk assessment, data acquisition and processing and emergency management through integrated system technology. ALENIA is developing an IDNDR project for risk control in the Mediterranean basin.
Address: ALENIA
Via Faustiniana, 00131 Rome,
Italy
Tel.: 39-6-522.93.067
Fax: 39-6-522.92.909

DIMENSIONS
Weather hazard prevention

Name: DIMENSIONS
Contact: M. Pilippe Richard
Company Profile: DIMENSIONS is a leader in thunderstorm early warning and forecasting systems to aid in the prevention of thunderstorm hazards such as intense precipitation, hail, lightning, wind gusts, tornadoes and microbursts. State of the art, in terms of accuracy and efficiency of warning, the Dimensions systems are designed to serve as operational decision-aid systems in hazardous weather situations.
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Fax: 33-42-29.09.33

INSURANCE INSTITUTE — *for* — PROPERTY LOSS REDUCTION

Name: INSURANCE INSTITUTE FOR PROPERTY LOSS REDUCTION
Contact: Mr. Eugene L. Lecomte
Company Profile: The Insurance Institute for Property Loss Reduction aims to reduce deaths, injuries and property damage caused by natural disasters. Its objectives will be attained through education, research and technology transfer.
Address: Insurance Institute for Property Loss Reduction
73, Tremont St., Suite 510, Boston, MA 02108
United States of America
Tel.: 1-617-722-0200
Fax: 1-617-722-0202

KINEMETRICS — INSTRUMENTS SYSTEMS SERVICES

Name: KINEMETRICS Inc
Contact: Mr. Mel Lund
Company Profile: KINEMETRICS has been manufacturing instrumentation for earthquake studies for 25 years It is our priority to actively participate in the community and to make the world a safer place. Our community involvement is directly linked to providing reliable instrumentation for recording and retrieving data needed for natural disaster studies.
Address: KINEMETRICS Inc.
222 Vista Avenue: Pasadena. California 91107
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Tel.: 1-818-795.2220
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Name: METSTAR Consultants
Contact: Prof. C.G. Collier, Managing Director
Company Profile: Research and Development Consulting Services for Hydrometeorology, the Environment, Nowcasting, Remote Sensing and Meteorological Systems. METSTAR Consultants have a valuable contribution to make at every stage of project development - particularly at the conceptual and research level. Acknowledged as one of the world's leading meteorological services the Met. Office has been gathering and interpreting weather data since 1855.
Address: Met. Office, Sutton House
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Berks, RG12 2SY,
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Name: TECNOPOLIS CSATA N. O. / EMERTEC
Contact: Dr. Vito Di Gennaro
Company Profile: In the Tecnopolis Novus Ortus science park, EMERTEC develops and applies prototypes of software systems, methodologies and services, through integration-based approaches to mulitisectoral data, to fill in the gap between scientific information and decision-making needs in disaster mitigation. Special emphasis is devoted to Mediterranean region, with reference to well-established capabilities for technology transfer and education.
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TUBOSIDER

Name: TUBOSIDER ITALIANA, SpA
Contact: Mr. Francesco Sassudelli
Company Profile: TUBOSIDER ITALIANA, SpA specializes in civil works in the areas of environmental protection and mitigation against fires, avalanches and rockfalls. The company also has sound experience in stormwater storage tanks and shelters.
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Tel.: 39-141-418.411
Fax: 39-141-211.373

Name: VCS NACHRICHTENTECHNIK GmbH
Contact: Dr. Peter Scheidgen
Company Profile: VCS has been working in the field of operational meteorological satellite systems since 1981. The business concept of VCS Nachrichtentechnik includes design, construction, operation and maintenance of satellite systems and related products. Its main expertise consists of satellite, ground segment engineering, turnkey systems for satellite meteorology, software engineering, specialised hardware development, requirement engineering and consultancy.
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Fax: 49-234-23.907.57

Name: WEATHERHAVEN RESOURCES Ltd.
Contact: Mr. J.M. (Jack) Gin
Company Profile: Weatherhaven specializes in the design and installation of remote camp facilities serving industries and governments worldwide. Transportable camps for extreme weather conditions are operating in all of the world's polar, desert, tropical and temperate locations. Lightweight, yet tough, these portable shelters include life support systems to house refugees, disaster victims or relief workers. Weatherhaven's Disaster Relief Operations Center (DROC) is a fully self-contained camp system that is warehoused and ready for worldwide disaster response.
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5700 Marine Way; Burnaby, BC
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