

**disaster
management**
in southeast asia

an overview

adpc

disaster management insoutheastasia an overview

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contents

Introduction **1**

Southeast Asia at a glance **3**

Disaster management in Southeast Asia: where are we? **6**

Towards safer communities **22**

Country profiles

Cambodia **25**

Indonesia **27**

Lao PDR **29**

Philippines **31**

Vietnam **34**

introduction

The European Commission Humanitarian Aid Office (ECHO) promotes disaster preparedness as part of an overall Commission Disaster Prevention and Preparedness approach to reduce vulnerability and exposure of people to risks and disasters as well as the economic costs of such disasters. The DIPECHO (Disaster Preparedness ECHO) program initiated in 1996 provides a framework for this approach. Interventions are short-term in nature, and projects focus on reducing the vulnerability of the most exposed groups in high-risk natural disaster-prone areas. The interventions should be as such that encourage coordination and have a multiplier effect in the region.

The DIPECHO Second Action Plan (2000-2001) for Southeast Asia targeted intervention at the regional, national and local levels and the strengthening of links between these levels. The intervention at the regional level aimed to encourage cooperation and coordination of disaster preparedness activities throughout the region through the exchange and dissemination of knowledge and experience. The Asian Disaster Preparedness Center (ADPC) implemented this regional project, namely the Partnerships for Disaster Reduction – South East Asia (PDR-SEA). During its implementation (February 2001 – April 2002), the project created avenues for the sharing of knowledge and experiences among non-government organizations (NGOs) and national disaster management offices (NDMOs). It also created awareness amongst NGO and NDMO partners for the need to network at the national level to improve coordination and facilitate the sharing of information. It provided key support to the Association of Southeast Asian Nation's (ASEAN) Expert Group on Disaster Management (AEGDM) in the development of the ASEAN Regional Program on Disaster Management. It helped to build the capacities of NGO partners in community-based disaster management (CBDM) through the regional training of trainers and the adaptation of the CBDM curriculum.

Part of the PDR-SEA project's information exchange strategy is the dissemination of information through publications. This booklet on the Overview of Disaster Management in Selected Southeast Asian Countries shares with key stakeholders the current state of disaster management in the DIPECHO target countries of Cambodia, Indonesia, Lao PDR, Philippines and Vietnam. Examples of good practice from these countries are cited. Selected innovative community-based initiatives are also presented to demonstrate the benefits of mitigation and preparedness to development. The country section presents a broad overview of the hazards that threaten these countries, their vulnerabilities, and their capacities to reduce these vulnerabilities.

This publication is based on review and summary of information from documents produced/collected by the PDR-SEA project, literature from the varied collection of books, reports and monographs in the ADPC library, internet resources, presentations made and discussions held at the 1st and 2nd meetings of the ADPC Consultative Committee on Regional Cooperation in Disaster Management

(November 2000 and 2001), the Working Group Meeting on Regional Cooperation in Disaster Management (October 2001), Regional Workshop for the Development of the ASEAN Regional Program on Disaster Management (March 2002), and the Asian Regional Workshop on Policy, Legal and Institutional Arrangements and Planning for Disaster Management (April 2002). This information was analysed in the regional context to draw recommendations for action at the regional level.

It is hoped that this booklet will be a tool for advocacy in promoting disaster preparedness as a necessary component of development policy.

southeast asia at a glance

Southeast Asia is a region diverse in area, population, geography, natural resources, cultural legacy, colonial experience, stage of development and system of government. It houses one of the most populous countries in the world, Indonesia, with a population of 217 million, as well as one of the smallest countries on earth, Brunei, with a population of only 354,000 (UN ESCAP 2002). Population growth rate in the region is high at 1.4% compared to 1.2% for the ESCAP region, with Cambodia having the highest growth rate at 2.5% (UN ESCAP 2002). A remarkable increase in population poses threat to an already limited land resource, contributing to hazard vulnerability. Cropped land per capita in the region decreased by 16% in the last decade (ADB 2001) indicating the pressure that increased population had on arable land as well as changes in land use.

The urban population of Malaysia, Indonesia, Philippines and Thailand increased from 25.2% in 1980 to 42% in 2000 (ADB 2001). Rapid urbanization puts pressure on urban infrastructure, as the concentration of the poor increase in the cities. Vulnerability to hazards increases as the urban poor settle in fragile environments, and disaster loss levels increase with the growing concentration of people, economic activity and assets, and critical facilities.

Economies in the region range from agricultural, as in the case of Cambodia and Lao PDR, to the developed modern economy of Singapore. Though Southeast Asia recorded remarkable and sustained economic growth for most of the last decade, and demonstrated resilience with its fairly rapid recovery from the 1997 crisis, great disparities exist in income levels. Cambodia and Lao PDR have GNP per capita of US\$ 260 and US\$ 280 respectively; Thailand and Malaysia have US\$ 1,960 and US\$ 3,400 respectively; while Singapore has US\$ 29,610 (UN ESCAP 2002). Disasters most affect countries with weak economic well being, the poor having less capacity to cope with disasters.

Country	Income Classification**	Human Development Index (Rank)	Human Poverty Index Rank	Official Development Assistance received (%GDP)
Brunei	High income	High (32)	n.a.	n.a.
Cambodia	Low income	Medium (121) LDC*	78	8.9
Indonesia	Low income	Medium (102)	38	1.5
Lao PDR	Low income	Low (131) LDC*	66	20.5
Malaysia	Middle income	Medium (56)	13	0.2
Myanmar	Low income	Medium (118)	43	-
Philippines	Middle income	Medium (70)	23	0.9
Singapore	High income	High (26)	n.a.	n.a.
Thailand	Middle income	Medium (66)	21	0.8
Vietnam	Low income	Medium (101)	45	5.0

Source: UNDP, 2001

Note: *Least developed country

**based on World Bank classifications: high income- GNP per capita of US\$ 9,266 or more in 1999, middle income- US\$ 756-9,265, low income- US\$ 755 or less

Most countries in the region have achieved medium human development, in terms of longevity, knowledge and a decent standard of living. Though Cambodia has achieved higher human development than Lao PDR, the distribution of progress lags behind (higher human poverty index). During the last decade, development assistance to the Philippines and Malaysia reduced significantly, while that for Cambodia and Vietnam doubled. Lao PDR received the highest external assistance in 1999. Countries that rely heavily on development assistance are vulnerable to a global economic downturn.

People's vulnerability to disasters depends on the social, cultural, economic and political environment. The economic factor is most apparent as many poor people are forced to live on marginal lands, such as floodplains, coastal towns and unstable hillsides. A study by CRED, 2001 concluded that in the past decade, on an average, every disaster low human development countries claimed about 1,062 lives, and each disaster in the middle human development countries claimed 145 lives. These figures stand in stark contrast to the average of 22.5 people killed per disaster in high human development countries (WR, 2001).

A risky region

Southeast Asia is exposed to all types of hazards and has been coping with their effects for hundreds of years. Dyking on the Red River in Vietnam began in the 11th century. Floods from the Mekong River and its tributaries are the predominant hazard in Cambodia, Lao PDR and Vietnam during the monsoon season. The floods of 2000 cost about US\$ 400 million in damages in these countries, including Thailand. Risk is increased by siltation, deterioration of drainage and irrigation systems, and deforestation. Typhoons severely affect the Philippines and, to a lesser extent, Vietnam as they move westward. La Niña increases the frequency of typhoons and the floods associated with it. The El Niño 1997-98 induced the drought cycle in Indonesia, causing widespread forest fires and, coupled with a protracted economic crisis, adversely affected food security. Indonesia and the Philippines, located in the Pacific Ring of Fire, suffer from earthquakes and volcanic eruptions.

Relative intensity of natural hazards faced by countries in the region

Country	Typhoon	Flood	Drought	Landslide	Tsunami	Earthquake	Volcano	Fire
Cambodia	L	S	L					L
Indonesia	L	M	M	L	L	S	M	M
Lao PDR	L	S	M					M
Malaysia	M	S*	S	L	M			L
Myanmar	M	M	M	M		S		S
Philippines	S	S	L	S	S	S	M	S
Thailand	L	S*	S	L		L		L
Vietnam	M	M	L	S	S	L		L

Source: Whitehouse and Burton, 1999, ADB 1991, country reports

Legend: S- severe; M- moderate; L- low

Note: *coastal flooding

Hazards are not disasters. A disaster occurs when a hazard impacts on a vulnerable population, whose inherent capacity is not enough to withstand or cope with its adverse effects, causing damage, casualties and disruption.

The impacts of these hazards in selected countries of the region for the period 1990-1999 are shown in Table 1. For countries like Indonesia and Vietnam, economic loss due to disasters can set back a decade of economic development. For Cambodia and Lao PDR, the effect is even worse, as scarce resources that could have been used for social and economic development are lost or spent on recovery efforts.

Table1: disaster events in selected Southeast Asian countries in the last decade (1990-1999)

Country/disaster type (hazard exposure)	Frequency of occurrence (no. in 10 yrs.)	No. of deaths	Total affected	Cost of damage (thousand US\$)
Cambodia				
Flood	5	672	2,899,379	3,542
Indonesia				
Flood	20	670	1,306,720	208,146
Earthquake	18	3,040	576,047	286,404
Volcanic eruption	10	193	69,768	9,000
Wild fire	6	87	3,034,008	30,421,800
Landslide	4	189	15,006	5,400
Drought	2	672	1,155,00	88,000
Wind storm	2	88	30,433	23,000
Lao PDR				
Flood	4	40	811,550	21,828
Drought	4	0	20,000	1,000
Wind storm	3	30	38,537	305,951
Philippines				
Wind storm	53	9,969	66,377,333	3,195,778
Flood	23	1,309	7,275,029	382,358
Landslide	7	112	5,156	-
Volcanic eruption	6	719	995,615	211,928
Earthquake	6	1,752	1,967,248	371,700
Drought	3	8	3,981,385	64,000
Vietnam				
Wind storm	27	6,585	4,341,442	1,053,100
Flood	18	2,531	12,207,721	1,313,500
Drought	2	0	2,700,000	9,770
Landslide	2	221	38,034	2,300

Source: ADRC, 2000

disaster management in southeast asia: where are we?

Though the last decade saw an increase in the frequency and severity of disasters, particularly those of hydro-meteorological origin, great strides have been made in the management of disasters in the region. Of note is the effort to shift from the culture of relief to that of preparedness and mitigation, a recognition that disaster risk and vulnerability reduction are essential to development planning, the development of self-reliance and self-help in communities, and the forging of partnerships to promote risk reduction and disaster management.

Government accountability and political commitment

Disaster reduction is a long-term process, while political processes and positions are short-term in nature. Disaster reduction efforts need to be recognized in policies, not just as activities, to achieve a continuation of efforts, irrespective of changes in the political scene.

At the end of the last decade, most countries in the region have moved towards having national policies for disaster management. These policies recognized that disaster management is a government responsibility.

Select national disaster management policies, action plans and focal points			
Country	DM Policy	National Action Plan	Focal point
Cambodia	Drafted in 1997, still for approval by the Council of Ministers	2002-2003 Action Plan	National Committee for Disaster Management (NCDM)
Indonesia	Pres. Decree No. 28 (1979); latest amendment: Pres. Decree No. 3 (2001)	Integrated into the Five Year Development Plan (Propenas 2000-2004)	National Coordinating Body for Disaster and IDP* Management (BAKORNAS PBP)
Lao PDR	Formulated based on Prime Minister's Decree No. 158 (1999)	National Disaster Management Action Plan 2020	National Disaster Management Office (NDMO)
Philippines	Pres. Decree No. 1566 (1978)	National Calamities and Disaster Preparedness Plan	National Disaster Coordinating Council (NDCC)
Vietnam	Decree No. 168-HDBT (1990) of the Council of Ministers	Second Strategy and Action Plan for Disaster Management and Mitigation (2001-2020)	Central committee for Storm and Flood Control (CCSFC)

Source: Country reports presented in the Workshop on policy, legal and institutional arrangements, and planning for disaster management, Bangkok, Thailand, 25-27 April 2002.

Note: IDP: Internally Displaced People

Methods of implementation of disaster reduction efforts vary in the region due to different forms of local governance and the level of accountability to the civil society. Decentralized governance holds opportunities for increased accountability at a local level, while commitment to disaster reduction may largely depend on local politics.

Most countries in the region have enacted legislation giving the necessary controls and responsibilities to cope with disaster situations. These laws permit the relevant authorities to govern the long-term requirements of disaster prevention and the short-term needs of disaster preparedness. In the Philippines, the 1978 Presidential Decree 1566 provided legal authority to the National Disaster Coordinating Council and established the national program on community disaster preparedness. Currently, a bill is being deliberated in Congress to replace PD 1566 and streamline and strengthen Philippine disaster preparedness, mitigation and prevention capability. This substitute bill provides for, among others, the integration of disaster mitigation and preparedness in the development plan of all provinces, cities and municipalities; the institutionalisation of public safety and emergency management offices in all provinces and cities; and the use of local calamity fund for pre-disaster activities.

Institutionalisation: building sustainable mechanisms

An affected community has a variety of urgent needs that can be responded to in a timely and appropriate manner only through the effective coordination of actions from different organizations. Action plans should involve all necessary branches of government as well as the private sector and civil society.

Coordinating bodies have recognized that their roles are not limited only to disaster response, but importantly the prevention-preparedness-mitigation aspects of disaster management, which are proven to be effective in reducing loss of lives and properties and are less costly than post disaster response and rehabilitation. They also find their roles expanding associated in part with the changing environment and multi-hazard setting. However, there is still a general need to establish or strengthen institutional frameworks for disaster preparedness and mitigation at national, regional, district and community levels. Action plans of various sectors at different levels are yet to be developed, with clear roles and responsibilities for each.

For example, Indonesia's BAKORNAS PBP now covers internally displaced persons as a result of the social unrest in 1999. Thailand is restructuring its civil defence system with the establishment of a new department in the Ministry of Interior to undertake disaster prevention and mitigation.

Both government and civil society must exercise leadership in disaster risk management by incorporating consideration of risk management into routine decision-making, building coalitions and partnerships, and tapping the initiative of local community groups. What is needed includes:

- An informed community
- An integrating agency
- Responsive hazard information providers
- Partner programs
- A culture of safety and prevention to guide the avoidance of hazards becoming disasters.

Resource mobilisation: investing in a safer future

One of the biggest challenges in undertaking disaster prevention, preparedness and mitigation activities is funding. In the absence of disaster, governments tend to cut budgets for disaster reduction. Countries frequently exposed to natural hazards should seriously consider investing an appropriate portion of their GDP in disaster reduction activities for sustainable development. In the Philippines, 5% of the local government revenue is appropriated for relief, rehabilitation and reconstruction, and NDCC has proposed a bill that will authorize local government units to use this local calamity fund for pre-disaster activities.

Forging partnerships with donor agencies, bilateral and multilateral agencies, NGOs and regional networks provide additional funding for disaster mitigation initiatives. The collective effort of all sectors at all levels contributes to the huge task of risk reduction.

Community: key actor in disaster reduction

The role of communities in disaster reduction is increasingly being recognized. Communities are knowledgeable about their own environment and possess rich coping experiences. Involving communities in the whole process of hazard identification, vulnerability and capacity assessments, and risk reduction program development and implementation ensures that problems are addressed by appropriate interventions. The community is the main actor as well as the beneficiary in the risk reduction and development process.

The use of local resources is a key component of community-based disaster management. The Philippines for example, during the Mindanao earthquake in March 2002, utilized local expertise in the assessment of structural damage. The NDCC now plans to incorporate local structural engineers and professionals to local disaster coordinating councils.

The UN International Strategy for Disaster Reduction

The Geneva Mandate on Disaster Reduction adopted at the IDNDR Program Forum (July 1999) reaffirms the necessity for disaster reduction and risk management to become essential elements of government policies. In this respect, the IDNDR experience, the Yokohama Strategy (1994) and the Strategy "A Safer World in the 21st Century: Disaster and Risk Reduction" (1999) provide the basis for future endeavours with regard to disaster reduction. Building on these precedents, the ISDR will strive towards enabling all societies to become resilient to the effects of natural hazards and related technological and environmental disasters, in order to reduce human, economic and social losses. This vision will be realized through:

- Public awareness
- Commitment by public authorities
- Interdisciplinary and inter-sectoral partnership and networking
- Scientific knowledge on disaster causes and effects.

Preventive measures are most effective when they involve participation at all levels, from the local community through the national government, to the regional and international levels.

IDNDR Yokohama Strategy
and Plan of Action for a Safer World

Community involvement: key to successful disaster reduction

- Designing strategies that will ensure community involvement
- Incorporating risk assessment into development planning
- S**ustaining the natural environment as a resource base of a community
- A**ddressing the root cause of vulnerability
- S**trengthening the community's structure and coping strategies
- E**mpowering communities to participate in making decisions on issues that affect their lives
- R**educing vulnerabilities of the communities by increasing people's capacities

- R**eaching a broad consensus on priorities
- E**nriching the disasters and development discourse
- D**ocumenting best practices on community-based disaster management to draw lessons from experience
- U**niting on a fundamental shift from science to practical application and from sectoral to interdisciplinary action
- C**omplementing community skills and resources
- T**ranslating theory into practice, commitment into policies, policies into plans, and plans into implementation
- I**mproving the socio-economic status of the people
- O**rganizing local activities to highlight community achievements in disaster reduction
- N**etworking among us and with various groups outside of the disaster management circles

Zenaida Delica-Willison

Findings and recommendations of the technical teams will be major inputs to local development planning.

Regional Cooperation: partnerships for disaster reduction

Despite diversity among countries in the region, common features, problems and challenges dictate the need for regional cooperation. In Southeast Asia, cooperation in disaster management is institutionalised through the ASEAN Experts Group on Disaster Management (AEGDM), which meets every two years to discuss issues and share experiences on disaster prevention, mitigation, preparedness, response and recovery, and recommend actions that Member Countries may undertake. Decisions carry the commitment of member states, and its network of dialogue partners can offer assistance to its projects. Its 11th Meeting in August 2000 adopted a program-oriented approach, and in March 2001 Member Countries developed the ASEAN Regional Program on Disaster Management, for presentation at the 12th AEGDM Meeting in September 2002.

Why focus on regional cooperation?

- Hazards do not obey political boundaries
- Countries face similar hazards and can share lessons learned
- Sharing of real-time information can reduce the impacts and provide early warning
- Sharing of resources and technical knowledge can reduce costs to individual countries.

A community prepares for floods

Community-based disaster management is empowering communities to assess disaster risks, and to plan, implement, monitor and evaluate counter-disaster measures. They take responsibility for their action and are accountable for resources they utilize. NGOs facilitate this empowerment.



Action Against Hunger (UK), with support from DIPECHO and in partnership with the Cambodian Red Cross, implemented a one-year flood preparedness project in Cambodia's most populous province, Kampong Cham in 2000. The province is bisected by the Mekong River. Its seasonal flooding is a resource for its 1.6 million people, supporting a productive and diverse freshwater ecosystem. However, floods that come too early, too high, or stays too long often brings disaster to 650 villages, affecting 600,000 people.



VHF radio for early warning

Community participation in flood vulnerability mapping. AAH assisted communities in the province to identify vulnerable villages, using a set of indicators that include the capacity to cope with the flood and the population displaced by the flood. A localized flood disaster GIS developed with CRC-Kampong Cham, using information collected from a province-wide village flood damage and target

safe area surveys, was used in the analysis. A flood vulnerability map was prepared, with safe areas identified.

Capacity building of community volunteers. Community volunteers were trained as Red Cross Volunteers (RCVs) on disaster preparedness, hygiene and sanitation, management of safe areas, early warning system, village flood level recording, assessing physical vulnerability of housing to flooding and possible remedial measures, and community organising. These RCVs form the village disaster management committee along with other village leaders and members.



Rainwater harvesting and water filter system



Raised household latrine

Community-based flood mitigation micro-projects. Various flood mitigation projects were undertaken by the community, with technical support from AAH, funding support from DIPECHO, and in collaboration with CRC and IFRC.

The ASEAN Experts Group on Disaster Management (AEGDM)

Institutionalised in 1971, AEGDM aims to enhance cooperation in disaster management in order to minimize the adverse consequences of disasters on the economic and social development of ASEAN Member Countries. It meets biennially to discuss and share prevention, mitigation, preparedness, response and recovery experiences. Its functions are:

- Enhancing the sharing of resources and information on disaster management
- Facilitating the coordination and distribution of medical supplies, services and relief assistance when needed
- Intensifying human resource development in disaster management
- Promoting the active involvement and participation of NGOs
- Promoting effective integration of programs and activities with other relevant ASEAN bodies
- Promoting public education and awareness programs
- Promoting collaborative disaster research activities.

In its 11th biennial meeting in August 2000, AEGDM adopted:

- The Guidelines on a Mechanism to Facilitate Disaster Relief Assistance Among the ASEAN Countries, a non-binding document that would serve as a basic framework for cooperation in disaster relief
- A more focused and program-oriented approach for AEGDM
- The urgent development of an ASEAN Regional Program on Disaster Management that would outline regional strategies, priority areas and activities and

- To consider the elevation of the AEGDM to an ASEAN Committee or Senior Officials Meeting on Disaster Management, which would meet annually and report to the ASEAN Standing Committee (ASC) or to the Ministerial Meeting on Disaster Management.

In March 2002, Member Countries developed the ASEAN Regional Program on Disaster Management to provide a framework for regional cooperation. Objectives identified are:

- Promote cooperation and collaboration among Member Countries in all areas of disaster management including joint projects, collaborative research and networking
- Strengthen capacity building in priority concerns of Member Countries and promote human resources development in disaster management
- Promote information sharing of expertise and best practices, and enhance sharing of resources and information management
- Promote partnerships among various stakeholders (GOs, NGOs, community and international organizations)
- Promote advocacy, public education and awareness.

An action plan was drafted detailing activities and time frame under each program component. Member Countries keen on spearheading specific activities will draft project proposals for integration in the regional program, which will be presented at the 12th AEGDM Meeting, scheduled from 16-18 September 2002 in Hanoi.

Other mechanisms for regional cooperation are shown in Table 2. Where a need is not addressed by any of these mechanisms, countries may agree to a bilateral or multilateral cooperation. For example, collaboration between the Philippines and Vietnam in the area of typhoon prediction is currently being explored.

Table 2: Mechanisms for Regional Cooperation in disaster management in Southeast Asia

ASEAN Experts Group on Disaster Management

Started in 1971. The 11th Meeting in August 2000 adopted the guidelines for disaster relief assistance and the development of the ASEAN Region Program on Disaster Management. ADMIN Newsletter promotes awareness and information exchange.

ASEAN Regional Forum Inter-Sessional Meeting on Disaster Relief (ARF-ISMDR)

Established in 1933. The 4th Meeting in May 2000 agreed on information sharing on disaster data and early warning, mutual assistance for disaster preparedness and relief, training in disaster management, and promotion of greater awareness in disaster preparedness and relief.

ASEAN Regional Cooperation on Trans-boundary Haze Pollution

Started in 1995. Regional Haze Action Plan sets out cooperative measures among member countries. Inter-governmental negotiation meetings in September 2001 agreed on monitoring, assessment and prevention, and the immediate deployment of people and goods across borders in case of environmental disaster. Set up an ASEAN Fire Danger Rating System for quantitative measurements of level of risk of fire and haze.

Mekong River Commission (MRC)

Established in 1995, replacing the Mekong Committee which was set up in 1957. Flood Management and Mitigation Strategy provides technical products and services on flood preparedness measures, addresses differences and facilitation involving structural measures, and capacity building and technology transfer in emergency response measures.

Asian Disaster Preparedness Center Regional Consultative Committee on Regional Cooperation in Disaster Management (ADPC-RCC)

Established in 2000. November 2001 meeting identified priorities for capacity building for national disaster management systems, regional initiatives for disaster management and new action areas for ADPC and RCC members.

UN ESCAP Typhoon Committee

Established in 1967. The July 2001 meeting reviewed the Regional Cooperation Program Implementation Plan and identified five priority activities: forecasting technology, public information and education, institutional development, network development and communication network.

Asian Disaster Reduction Center (ADRC)

Established in 1998. Areas of concern include exchange of disaster reduction experts from each country, gathering and provision of disaster reduction information, and research for multinational disaster reduction cooperation.

European Commission Humanitarian Aid Office and its Disaster Preparedness Program (DIPECHO)

ECHO's role in the field of disaster preparedness and prevention is humanitarian and is therefore limited to the promotion, demonstration and initiation of actions that will lead to a reduction in disaster-related risks of vulnerable populations in developing countries. Projects that are implemented at local, national and regional levels are replicable and sustainable, target the most vulnerable, disseminate information, and strengthen local capabilities.

The DIPECHO First Action Plan, 1998

Covered Cambodia, Indonesia, Lao PDR, Philippines and Vietnam. Projects included:

- regional information exchange
- preparedness planning (Cambodia)
- training and risk assessment methodologies (Cambodia, Lao PDR)
- public awareness on forest fires (Lao PDR)
- raising capacities of local NGOs on development planning (Indonesia)
- creation of local civil society network (Philippines)
- disaster preparedness training program (Indonesia, Philippines, Vietnam)
- re-forestation, mangrove rejuvenation (Vietnam)
- curriculum development for schools (Vietnam)

The DIPECHO Second Action Plan, 2000

Covered Cambodia, Indonesia, Lao PDR, Philippines and Vietnam. Projects included:

- information exchange among disaster management practitioners
- capacity building on community-based disaster management
- development of medium term action plan for disaster preparedness (Cambodia)
- flood mitigation micro projects (Cambodia)
- identification, assessment and preparation of safe areas (Cambodia, Vietnam)
- building local NGO capacity in complex emergency response (Indonesia)
- integration of disaster preparedness into NGO project cycles (Indonesia)
- establishment of an Information Center (Indonesia)
- building institutional/ organizational capacity (Lao PDR/ Cambodia, Vietnam)
- forest fires risk mapping (Lao PDR)
- disaster management training program (Philippines)
- building capacities of organizations in disaster response (Philippines)
- reforestation (Vietnam)
- health education (Vietnam)

The DIPECHO Third Action Plan, 2002

Covers Cambodia, Indonesia, Lao PDR, Philippines, Thailand and Vietnam. Project proposals were submitted May 2002 and are currently being evaluated. Projects should address any of the following intervention objectives:

- raise public awareness
- strengthen community mobilisation
- strengthen local actors' capabilities in disaster response
- local disaster management planning
- setting up of community rapid reaction teams
- low-cost community-based early warning systems
- small-scale mitigation projects
- strengthen institutional capacities for disaster management
- risk mapping
- damage assessment and needs analysis
- regional information exchange and cooperation among regional organizations, national structures, NGOs, international organizations
- research, demonstration projects in disaster mitigation

Asian Urban Disaster Mitigation Program

Started in 1995 and funded by USAID's Office of Foreign Disaster Assistance, AUDMP covers Cambodia (community-based flood mitigation preparedness), Indonesia (earthquake vulnerability reduction), Lao PDR (urban fire and emergency management), Philippines (flood and typhoon mitigation), Thailand (risk assessment and mitigation planning) and Vietnam (disaster resistant housing best practice).

the application of climate information in disaster management in Indonesia, Philippines and Vietnam through demonstration projects, and capacity building and training activities.

Disaster Reduction Program for Cambodia, Lao PDR and Vietnam

Started in 2001, with funding from DANIDA, DRP-CLV focuses on development of short- and medium-term strategies for community public awareness programs (Cambodia and Vietnam) and the development of disaster awareness teaching materials for primary school (Lao PDR).

Partnerships for Disaster Reduction - South East Asia

PDR-SEA, implemented from 2001-2002 with funding from ECHO, developed an information sharing mechanism for disaster management practitioners in Cambodia, Indonesia, Lao PDR, Philippines, and Vietnam, and built partners' capacities in community-based disaster management.

Extreme Climate Events Program

Started in 1999, funded by USAID's Office of Foreign Disaster Assistance, ECE demonstrates

Program for Enhancement of Emergency Response

Started in 1999, supported by USAID's Office of Foreign Disaster Assistance, PEER builds capacities in Indonesia and the Philippines for medical first response, urban search and rescue, and hospital preparedness for emergency.

NGOs' increasing role in disaster management

The role of NGOs in disaster management has evolved from relief and emergency response to disaster mitigation and preparedness. Increasingly, disaster preparedness programs have been added to the agenda of NGOs.

NGOs have adopted community-based approaches that assist communities in mitigation and preparedness through organising, capacity building, training, small-scale structural measures, and preparation of counter-disaster plan. Socio-economic projects like provision of soft loans for agricultural production, setting up of cooperatives, and community mortgage programs were also undertaken to increase people's capacities.

Development NGOs traditionally engaged in relief and rehabilitation have also incorporated capacity building of local governments in disaster preparedness, and

NGOs are effective actors in disaster mitigation because:

- they have direct links with the grass roots, where they work among the most vulnerable
- they can easily identify potential threats and vulnerabilities
- they can support local coping strategies and mobilise people's capacities
- they are well placed to test, develop and disseminate innovations
- their often broad-based approach to community development opens the way towards a more holistic approach to disasters than that of many other influential actors who address the subject from a single, scientific or technical, angle such as geology or engineering.

Twigg, Benson, Myers, November 2000

advocacy to mainstream alternative development strategies in government practice (e.g. participatory planning process, women and gender issues, etc.). Other NGOs engaged in environmental conservation have re-oriented their environmental programs to integrate disaster prevention in their advocacy, environmental education and mobilisation activities.

Government - NGO cooperation

Government - NGO cooperation has increased in recent years, providing opportunities for coordination of efforts, replication of NGO work, and for NGOs to influence policy decisions. The establishment of the Natural Disaster Mitigation Partnership for Central Vietnam in June 2001 provided a framework for the government, donors and NGOs to cooperate and coordinate disaster relief, rehabilitation and recovery efforts for the central provinces of Vietnam. In the Philippines, the proposed bill replacing PD 1566 would include two NGO representatives in the National Disaster Coordinating Council. Philippine NGOs in disaster management have been supporting the government in the strengthening and coordination of local disaster coordinating councils.

Information exchange

The information revolution has provided the technical capacity for increased transfer of cutting edge ideas, lessons learned and general knowledge about disaster reduction. Despite the differences in language, culture and thinking among the countries in the region, lessons are transferable and information technology makes the transfer all the more easy. However, this requires investment in learning new information skills and developing exchange mechanisms.

There is a need to exchange information across groups (horizontal) and within levels (vertical) of government/ organizational structure. Countries in the region have identified early warning, national inventory of experts, information on use of technology, and the linkage of websites as areas for and method of sharing information between national disaster management offices. Other disaster management practitioners identified inventory of country projects, thematic disaster management resources, training resources, and community-level disaster reduction best practices for information sharing.

The ASEAN Newsletter on Natural Disaster Information Network (ADMIN Newsletter) promotes awareness on disaster management and shares information on available expertise, training activities, symposiums and seminars in ASEAN Member Countries. It is a regular publication of AEGDM, self-funded by system of rotation among Member Countries.

Fire is life!

Government-NGO cooperation on forest fire prevention

For upland farmers in Lao PDR, fire is an agricultural tool. However, when burning becomes uncontrolled, disaster ensues, wiping out large tracts of forest which is the primary source of food and material for upland communities.

Slash and burn cultivation has been practiced for years in Lao PDR. Recent concerns about its effects on the environment, new state policies on ending the practice in 2005 in favour of paddy cultivation, and livelihood pressure of an increasing population, have raised doubts on its sustainability and its long-term effects on the socio-economic and environmental conditions of upland communities. The unusually dry forest conditions in 1998 attributed to the El Niño phenomenon increased the incidence and areal extent of uncontrolled fires in Lao PDR.

With DIPECHO funding, CESVI initiated a project in Sayaboury Province in 1998 in response to the provincial government's request to collaborate on forest fire prevention. The project aimed at increasing local community awareness on uncontrolled forest fires and building the response capacity of farmers and local government officials.

Public awareness campaign. Posters, leaflets and booklets on the causes and long-term effects of destructive fires, detailing appropriate behaviours in reducing uncontrolled fires, were produced and distributed. Radio, television and local theatre were also used as awareness media.



Training. Fifteen government officials were trained in the Forest Fire Control Training Centre in Chiang Mai, Thailand, which was chosen based on commonality of language. On their return, they trained other government officials at the provincial, district and village levels, which increased the pool of trainers for farmers training. These farmers then consisted the Village Fire Committees and Fire Volunteer Groups, which formed a network that is linked to district and provincial government-appointed coordinators, facilitating the discussion of issues and providing opportunities for collaboration between villages and between the villages and the local government. Fire-fighting tools were also provided to complement the training that the farmers received.



Livelihood options. CESVI also piloted alternative agricultural practices to provide livelihood options to upland rice farming.

A number of factors underlie the difficulties in exchanging information from other projects and organizations in disaster management. Among these are the reluctance to share information that is considered proprietary, sensitive or strategic in nature, the weak flow of information between administrative levels (village, district, province, national), lack of networking among practitioners (both virtual and face to face), copyright issues, language barriers, cost of buying and maintaining information technology equipment, and the setting up and maintaining of web sites.

Networking

Networking helps disaster management practitioners learn from each other's experience and build synergies between projects/ programs, provides a platform to share information on best practices, and helps build and strengthen a community with common interests, which can play an advocacy role in mainstreaming disaster management issues for more effective influence on national policy.

Networking provides an excellent opportunity for organizations to complement each other's capacities toward improving understanding of disaster mitigation issues and challenges in the region, and in ways in which these can be addressed in pursuing social, economic and environmental development goals.

A meeting of DIPECHO (Disaster Preparedness program of the European Commission Humanitarian Aid Office) partners in October 1999 proposed the establishment of a Southeast Asian Disaster Management NGO Network. The follow-up meeting in November 2001, which included non-DIPECHO partner NGOs, strongly recommended the establishment of national networks as a priority over the regional network.

Building capacities: training

Training for disaster reduction at the regional and national levels has proven successful in building institutional capacity. Various training programs funded by international organizations and delivered by regional and national organizations contributed to the enhancement of disaster management capabilities in the region. These programs have targeted the needs of disaster management practitioners from the national level to the local and community levels on different areas, from basic management skills and information management to community-based disaster management, search and rescue, and application of climate information in disaster management. Exchange visits provided opportunities for practical learning.

The regional training of trainers conducted made sure that concepts, principles and skills are transferred and, with curriculum adaptation, developed and disseminated in the local language, covering local hazard issues.

Community-based approaches to disaster management have contributed to the empowerment of communities. It has also enhanced coordination and strengthened working relationships between GOs and NGOs as it advocates partnership between government organizations, non-government organizations and the community.

Hazard mapping and risk assessment

There is a need for comprehensive vulnerability analysis of disaster-prone areas incorporating: past disasters, socio-economic conditions of the population living in the area and inventories of major structures of public concern. Risk assessment and hazard mapping would delineate areas vulnerable to natural hazards and the frequency, intensity, impact and return period of each hazard. Assessments are as good as the plans and policies they inspire, which can be significant if risk assessors share the results with decision makers to incorporate risk reduction into development planning.

Through this (community-based disaster management) training, we have been able to improve the self-confidence of the communities (we work with) - they feel that they are able to manage more by themselves and not have to be so reliant on government service.

Oxfam, Indonesia, April 2002

We work with highland people who are mostly illiterate and so, after the training, we developed IEC (information, education, communication) materials that used symbols, and devised ways of planning and getting information across that were more suited to their needs.

APS, Vietnam, April 2002

Early warning

Early warning provides communities with timely information, enabling them to prepare for an anticipated hazardous event to minimize its impacts. Most countries in the region have been able to establish well-developed systems of data collection and sharing for short-range weather forecasting, with the support from the World Meteorological Organization and other regional and international organizations. There is still a need to enhance the technical infrastructure and capacity to produce, interpret and communicate seasonal and long-range forecasts in Cambodia, Lao PDR and Vietnam. In most countries, the dissemination systems exist but are not maintained, in part because the sporadic incidence of hazards can lull decision makers into a false sense of security. Though in most countries the dissemination structure goes down to the local level, the communication infrastructure is not used effectively. As warning for hydro-meteorological hazards is limited to the capacity of existing infrastructure to forecast potential disasters, mutual exchange and cooperation between countries would greatly contribute to a cost-effective and efficient early warning. With the improved capacity of most countries in establishing early warning systems, there is need to move towards a proactive approach and development of effective national and regional frameworks to facilitate prompt action. This can be realized through improved communications, mobilizing government support, raising awareness (impacts, safety measures, mitigation options and EWS) and build on existing knowledge and institutional structures/programs. There is also an urgency to promote community-based early warning systems that map the vulnerable areas of villages, provinces and districts.

Development of a community-based early warning system

Involving communities in the planning and implementation of disaster risk reduction measures ensures ownership of and commitment to the project.

The flood of 2000 that adversely affected Mirit in Kebumen, Central Java, Indonesia impelled the Banorawan Farmers Association (PPB) to set up a community-based early warning system. Mirit lies in the southern coast, with some villages located in the mountainous range. Twelve villages are prone to riverine flooding, with some villages having elevations below sea level resulting in longer inundation period. Conversion of multiculture natural forest into monoculture plantation and clear cutting, poor design and quality of infrastructures, unintegrated land use spatial planning and management from the upstream to downstream areas, and lack of awareness on sustainable water and land management contributed to its vulnerability to floods. The severe floods of 1992 and 1999 caused extensive damage to Mirit's irrigation network, roads, houses, a school and health center.

The early warning system set up by PPB comprises hazard detection and dissemination. Upstream communities provide information on rainfall level and duration to downstream communities by two-way radios, operated under license from the Amateur Radio Communication Service of Kebumen. Oxfam GB Indonesia provided two of the four radio units, with the community matching the contribution. The warning system was put to test during the monsoon period at the end of 2001. Water level from torrential rains, which came at night at the upstream area, was immediately reported. PPB went quickly into action, carrying out preparedness activities and coordinating with government officials at sub-district and village levels for the evacuation of villagers before the river waters inundated the downstream villages. This early warning system that required minimum investment gave valuable returns in terms of lives saved and reduced losses.

PPB has now explored developing the system into a community radio for public awareness campaigns and local entertainment purposes.

Disaster management information system

The ability of leaders and administrators to make sound disaster management decisions - to analyse risks and decide on appropriate counter-measures - can be greatly enhanced by the cross-sectoral integration of information. This information comes from many different sources and, at present, in most countries of the region it is difficult to bring it all together. A disaster management information system should include a database of hazard assessment maps; vulnerability assessment; demographic distribution; infrastructure, lifelines and critical facilities; logistics and transportation routes; human and material response resources; and communication facilities. All of these data are of critical use in preparedness planning and in actual response operations. The data is also very useful for routine development planning and public administration purposes. The hazard and vulnerability assessments and mapping are the cornerstone of preparedness planning, as well as planning and implementation of a mitigation program.

The Philippines' National Disaster Coordinating Council has initiated in 2000 an Emergency Management Information System that links up all their regional centers

electronically and makes available vital information to the public through the Internet. It has four components: emergency reporting and monitoring, emergency logistics management, emergency fund management, and geographic information system. In Vietnam, the Standing Office of the Central Committee for Storm and Flood Control (SOCCSFC) started a disaster communications system in 1995. It is an emergency electronic mail network that links provincial dike department offices with the SOCCSFC. The system operates 24 hours per day, 365 days per year, used to transmit disaster damage and needs data to SOCCSFC, issue disaster prevention and mitigation directives to field staff, and in coordinating disaster relief activities between the SOCCSFC and disaster affected provinces.

Health and education facilities

When community members have been trained in simple first aid, they can reduce the numbers of serious casualties and deaths before outside help arrives. It is essential that health facilities and services continue to function after a disaster strikes. It is important that health facilities are constructed to withstand disasters, and are equipped to provide basic assistance. Schools and other community facilities can serve as shelters during relief efforts if they are accessible to the community. Integrating the construction and improvement of such facilities into long-term plans at the local level continues to be a key issue of work in the region.

Public awareness

Only when people are aware of the severity of hazards that may affect them, the associated risks, probable damage and precautions to be taken, can a community be effectively mobilized to reduce risks to disasters. Public awareness programs exist at varying levels in the region, but are still insufficient to create a significant impact at the community level.

Public awareness programs should take into consideration the most effective means to reach the public. In addition to the common channels of communication (broadcast and print media), songs, poetry and theatre that involve local talent are found to be effective in getting the message of disaster prevention and preparedness across to communities. Disaster awareness can also be institutionalised through integration into school programs. The Indonesia Urban Disaster Mitigation Project under ADPC's Asian Urban Disaster Mitigation Program has implemented an earthquake education program for schoolchildren in several elementary schools in Bandung, and has re-oriented this initiative towards earthquake safety education training program for teachers, which enhances understanding of earthquakes and their impacts and includes the development of school action plans for earthquakes. The training program is conducted in collaboration with the Institute of Technology Bandung and the Directorate General of Primary and Secondary Education of the Ministry of National Education. This public awareness approach is now being replicated in other Indonesian earthquake-prone areas, and has served as a template for similar programs in other Asian cities.

Research and development

Research is the bedrock on which policy and the legal framework are built. Policy gaps can be identified that will provide a basis for the development of a policy that

is comprehensive, equal, sustainable, efficient, flexible, and able to address emerging needs and concerns.

Research also provides a platform for sharing as well as supporting examples of good practices in various countries. Research products should be original, applicable, practical (grounded in practical experience) and workable. Ways of attracting funding for disaster management, and how to shift the paradigm from relief to a culture of prevention are welcome topics.

Mainstreaming disaster reduction into development frameworks

Governments have put increased emphasis on disaster management in long-term country development strategies and institutional frameworks. Action plans are integrated into national development programs and budgets as: an integral part of the national development process; as a social component; and as a major requirement for sustainable development. In the Philippines, the integration of disaster mitigation and preparedness in the development plan of all provinces, cities and municipalities is an area of concern for legislation.

Development is the process through which people increase their capacities for producing things they need and for managing their political and social lives as they desire and, at the same time (especially in disaster-prone areas), reduce their immediate and long-term vulnerabilities to events which threaten their economic and socio-political existence.

Anderson & Woodrow

Raging Winds and Waters

Steering Hagonghong towards a safe environment and sustainable development

Barangay Hagonghong in Buenavista, Quezon Province, Philippines is bounded by Ragay Gulf on the east, the Guinhalinan River on the southwest, and barangay Bukal on the north. The village is vulnerable to typhoons and floods. Majority of its population of 1,083 has farming and fishing as the main source of livelihood. Access to the village is by land during the dry season, and by motorized boat during the rainy and typhoon seasons when the road is lent impassable.

In 1987, typhoon Sisang struck, and Quezon was one of the hardest hit. Hagonghong was caught unprepared. The typhoon left five persons dead, wiped out all but two houses, and destroyed their means of livelihood (fishing boats, livestock, coconut trees and rice fields). Many can still vividly remember their experience. A father told that he let go of his older daughter when they decided to leave the house amidst the raging winds and rain, and flood and sea waters in the middle of the night so that he could keep his younger son and three year old daughter from drowning. They clung to a branch the whole night, cold and scared until the typhoon's fury subsided the next day. Just as the village was recovering from this disaster, another strong typhoon directly hit Quezon in November 1995. People received the warning two days before

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(continued)

its impact, but refused to leave as they found typhoons as normal occurrence and part of their lives. Again, houses were destroyed, roads were impassable, the sea was too rough to deliver help from neighbouring towns, and rice fields were idle for months because of saltwater intrusion. Economic recovery again took a long time.

People blamed the government for not responding to their immediate needs, while the government said that their hands were tied as they have limited capacity. Government resources can be used only for emergency response, and not for developing a culture of preparedness and self-reliance among the people. Upon the request of the municipal government, the Organizing for Rural Development (ORD) conducted a diagnostic study in 1998, and in collaboration with AUI and with DIPECHO funding, developed and implemented the disaster management program. The local government and the village provided the venue and meals for community trainings, while the Department of Health mobilized resources to address the health and sanitation component of the program.

Awareness raising. Participatory hazard and risk mapping were utilized to raise awareness and to encourage the village to engage in risk reduction planning and implementation. Community trainings were conducted that involved barangay officials, representatives of the youth council, barangay health workers, women, fishermen and farmers. Volunteers were trained as trainers, who then co-facilitated the community trainings. The Barangay Disaster Coordinating Council was resurrected and expanded to include women and the youth group as members. It defined its direction with the integration of disaster preparedness activities such as continuous public education, mangrove rehabilitation, and development of a community-based early warning system, among others, and defined the roles and responsibilities of the different committees formed.

Mainstreaming disaster preparedness into the Barangay Development Plan. Community trainings produced a disaster preparedness and mitigation plan, which was then integrated in the comprehensive Barangay Development Plan, as Hagonghong became an Agrarian Reform Community, a local and national government priority for development fund allocation. As of April 2002, the following have been achieved:

- Sanitary toilets increased from 5 to 56. Thirty nine more are to be constructed by the Department of Health, 158 more will be funded by the village and the local government
- A spring was rehabilitated to provide additional potable water
- Construction of a safe evacuation center, which will also serves as a storage facility for farm harvest
- Construction of an irrigation system that increased cropping from 1 to 3
- A farmers' cooperative was set up. Training is still needed to equip farmers with management skills
- Retrofitting assistance was provided by the Municipal Social Welfare and Development Office
- Hazard map and early warning guideline are displayed in strategic location for people to see.

People say that the ultimate measure of the programme's success is when a hazard strikes again for us to see whether all the physical and social infrastructures that have been put in place could withstand the hazard's rage. We hope that this doesn't happen if only to find out how far the programme had gone...

towards safer communities

Disasters are no longer viewed as extreme events created entirely by natural forces, but as unresolved problems of development. This view is changing the approach to disaster management from the relief or emergency management paradigm to the risk reduction paradigm, which considers hazards, and vulnerabilities and capacities of people and societies in understanding the complexity of risks to disasters. To manage and reduce risks, vulnerabilities should be reduced and capacities increased. The central role of communities in managing disasters is recognized. Disaster management activities shift in focus from emergency response, rehabilitation and reconstruction to preparedness, mitigation and prevention.

A holistic approach to disaster reduction

Historically, when government was much simpler, most countries practiced a holistic approach to the management of disasters. However more recently, as national administrative systems became much more complicated and international organizations proliferated, this holistic approach became lost in the maze of departmental responsibilities and inter-departmental rivalries. The need to reverse this trend, and revert to a more holistic arrangement, was crystallized in the Total Disaster Risk Management approach developed at the Consultative Meeting on Regional Cooperation in Disasters convened by the Asian Disaster Reduction Center and UN-OCHA in Kathmandu in July 2001. This approach endeavours to reduce disasters, mitigate their impacts and identify development opportunities. It allows the community to define and understand the disaster risks to which it is susceptible and examine ways to manage them and reduce their own vulnerability, enhancing local capacity and capability in the process. It also facilitates coordination among communities and their national governments, enabling communities to participate in the decision-making process.

In pursuing TDRM, accurate and reliable hazard, vulnerability and disaster risk information is vital. It also entails the promotion of public awareness on disaster risks and community vulnerability, and the commitment of community and public authorities. It promotes multilevel, multidimensional and multidisciplinary coordination and collaboration among stakeholders as it ensures community participation and integration of stakeholders' action.

The approach has generated very positive response from experts, donors, government officials, UN staff members and NGOs. ADPC, in its Second Regional Consultative Committee Meeting in November 2001, has endorsed the approach to its member countries.

Partnerships: shared responsibility

Risk reduction can only be achieved with strong partnership efforts at all levels, from the global to the community levels, as it involves many sectors in society.

Community, local, national governmental and non-governmental institutions need to work in team, sharing objectives and resources, putting together capacities to identify and address deeply rooted vulnerabilities exacerbated by poverty, unplanned urban growth and environmental degradation.

The challenges to disaster risk reduction are so huge that all institutions need to work together. No institution should be more important than others. Collaboration and teaming up are more productive and effective in building capacities and obtaining resources than working in isolation or in competition with others.

The development of the ASEAN Regional Program on Disaster Management is a very welcome initiative as it provides a framework for cooperation in disaster management among countries in the region.

Partnerships go beyond the simple exchange of information and the signing of MoUs. It requires sharing of resources and expertise, caring for the other's needs, sharing achievements and failures and, above all, devising common objectives, programs and projects with a shared long-term vision of ensuring that communities in disaster-prone areas can have access to the knowledge and the resources that they need in order to develop their own potential to be resilient to natural hazards.

ISDR, at the Second Consultative Meeting
on Total Disaster Risk Management in Asia,
June 2002

Future requirements

Disaster mitigation in national planning

To integrate a disaster preparedness and mitigation focus into regular national development processes, it is necessary to constitute expert groups on disaster management who, by making recommendations, will influence decisions of planning bodies at the national and sub-national levels.

Housing is an important sector for enforcing mitigation measures. Housing in coastal or seismically active areas should be built to higher risk resistant standards. Incentives for mitigation can also be offered. Housing finance institutions, for example, can help in better land use planning and insist upon the enforcement of building codes while advancing loans for housing.

Capacity building for integrated risk management

A training gap still exists for government officers, professionals and voluntary workers in risk assessment, risk reduction measures, disaster management planning, community mobilisation, and related subjects. Disaster management training has to cascade from the national level to the district level, down to the community level.

Innovative practices in disaster risk reduction, and disaster preparedness and mitigation efforts are often not documented or not shared locally or nationally. Programs to increase documentation of experiences and to increase exchanges between professional disaster management institutions and practitioners may assist in addressing this issue.

Standard methodologies for loss estimation and reporting

Information on economic losses is difficult to compile and analyse because of a

lack of common formats for reporting and techniques for rapid assessment: what data are needed? What level of detail is required for loss estimation? Tools and techniques of loss estimation, damage assessment, disaster record maintenance, and provision and distribution of relief need to be standardised. An integrated and more holistic application for post disaster damage assessment and needs analysis (DANA) would take into account not only response, but also recovery, reduction/mitigation and preparedness needs.

Risk assessment of development programs

Development projects may inadvertently increase the vulnerability of beneficiary communities. This can be addressed if disaster risk assessment is included as an integral component of major development initiatives. The incorporation of environmental impact assessments into the review of projects and programs offers a clear model for this process.

Public awareness and media

Disaster management institutions are increasingly using social marketing and public awareness programs to create awareness for disaster preparedness and mitigation. The involvement of print and audio-visual media would be required for a maximum impact. Disaster management training for media personnel would improve their understanding and, consequently, their interest in the subject.

Advocacy to build political support

Relief activities have always received political attention. It is necessary to create awareness on disaster risks and the importance of pro-active disaster management among policy makers. The high level Asian ministerial meeting on disaster management proposed in ADPC's RCC-2 is one way to secure political support for disaster management. Other avenues are seminars, workshops and study tours, and involving politicians and senior administrators in all the important disaster management activities so as to orient them to the subject and garner their support.

Cambodia

Cambodia is one of the poorest countries in the world. The country has been ravaged by armed conflict for three decades. Since the Paris peace agreement of 1991, rehabilitation and reconstruction forms the main focus of the country's development policies. Development assistance to the country continues to be largely focused on rehabilitation and humanitarian assistance. Recently, the country attained certain achievement in the nation's reconstruction and development process with its move from a low human development index rank of 153 (in 1997) to a medium rank of 121 (in 1999) out of 174 countries.

Country profile: Cambodia	
Mid-2002 population (thousands):	13,204
Annual population growth rate:	2.5%
Urban population:	17%
Annual urban population growth rate:	4.2%
Population below poverty line (1999):	36.1%
GDP per capita (PPP US\$):	1,300 (2000 est.)
GDP by sector (1998):	43% agriculture, 20% industry, 47% services
Climate:	Tropical rainy monsoon season: May to Nov; dry season: Dec to Apr
Land use (1993):	13% arable land, of which 4% is irrigated
Government:	Constitutional monarchy

Sources: UN ESCAP (2002), UNDP (2001), The World Factbook 2001

Hazards

The main natural hazard to which Cambodia is exposed is floods. Other natural hazards include occasional typhoons, drought and epidemics. The country is naturally susceptible to annual flooding during the main monsoon season along the two major watersheds along the Tonle Sap and Mekong Rivers. The flood risk has seemed to increase over the years. The Tonle Sap has served for centuries as an effective flood surge reservoir for the Mekong River. Silt deposits are now threatening its storage capacity. The frequency of flooding in recent years seems to confirm the increasing risks. With the deterioration of drainage and irrigation systems during the Khmer Rouge era, local flooding has exacerbated. Typhoons occasionally strike the country directly, but most of the typhoon-related damage has been caused by localized floods associated with heavy rain.

Vulnerability

The main risk posed by the impact of hazards in Cambodia is to render its people and administration vulnerable. The population has very limited means to cope with the external disturbances of a disaster and the national and local government systems are at the moment still weak to deal with the impacts of a disaster. Rural to urban migration, changes in land use, environmental degradation and the increasing

floods · drought

Floods in 2000: The 2000 floods reportedly were the worst in over 70 years, with 347 deaths, 80% of which were children. Of the 750,618 families affected by flooding, about 85,000 families were temporarily evacuated. Total economic loss was estimated at US\$ 150 million. Among the four countries affected by the 2000 flooding (Cambodia, Lao PDR, Vietnam and Thailand), Cambodia accounted for 43% of total deaths, and 40% of total damages.

Flood and drought in 2001: In the midst of recovering from the floods of the preceding year, the country was again affected by floods in 2001, signalling a worsening and increased frequency of flooding. The country was also affected by drought particularly in the provinces of Battambang, Pursat, Prey Veng, Kompong Speu, Kampong Cham and Svay Rieng, which experienced insufficient rainfall throughout the year. The lack of drinking water affected not only the human population but livestock as well. In most of these areas farmers could not plant rice because of the unavailability of seeds that were damaged during the previous year. Total economic damage from natural disasters in the year 2001 was estimated at US\$ 36 millions. Nearly one million people were affected by flood-related food shortages, while over half a million were affected by food shortages caused by drought.

Source: NCDM, 2002

frequency of extreme climate events (La Niña) will worsen and increase the frequency of damaging floods in Cambodia.

Disaster management policy, planning and practice

The National Committee for Disaster Management was established in 1994 through Sub-decree No. 35ANKR-BK. The amendment in 1999 (No. 54ANKR-BK) outlined the structure of the NCDM and the institutional arrangement from the provincial to the district levels. In 2001, a joint assessment of NCDM capacity and capability initiated by NCDM, with assistance from the Cambodian Red Cross and the International Federation of Red Cross and Red Crescent Societies, resulted to the development of an institutional strategy and a two-year action plan.

Action areas under each phase of the disaster management cycle were identified. Operational plans for the NCDM, provincial CDM and district CDM are yet to be drawn.

The government recognizes that disaster management is an integral part of its development goals of effective governance, poverty reduction, environmental protection and improved access to basic social services.

Opportunities and lessons learned

- Inadequate awareness and support of various government ministries in disaster preparedness. Their interests are still focused on post-disaster actions related to emergency response.
- Every organization, including government, non-government organizations and international organizations have their own program priorities. Many still do not see the importance and benefits of coordination.
- A general lack of capacity (technical, human and infrastructure) in information gathering, analysis and dissemination that hinders cooperation in implementing policies.
- Emergency response resources such as transportation and communication are oftentimes stretched to the limit during disasters so organizations cannot perform their tasks in accordance with policies.
- Assistance of external consultants is necessary, but they must actively engage all-important organizations in the process.
- Rescue groups (2,700 personnel) have been formed, but equipment is very limited and training is inadequate.
- International organizations such as IFRC, WFP, UNDP, ADB, WB and other members of the UN-DMT and a number of NGOs are important stakeholders and their involvement must be formally institutionalised.
- While in 2002, the Royal Government of Cambodia has increased its budget allocation to NCDM, most of these funds go to stockpiling and emergency response, and none for policy development and dissemination, preparedness and capacity building.

NCDM presentation, Workshop on Policy, Legal and Institutional Arrangements and Planning for Disaster Management, April 2002, Bangkok

Indonesia

Indonesia is the world's largest archipelago. The country experienced an economic growth of 4.8% in 2000. This growth rate may not be sustained attributed to favourable short-term factors, including high world oil prices, a surge in non-oil exports, and increased domestic demand for consumer durables.

Hazards

The particular geographical and geological characteristics of the Indonesian archipelago place the country among the most vulnerable to natural hazards. It has more than 500 volcanoes, of which 128 are active, occupying the zones of Sunda, Banda,

Country profile: Indonesia

Mid-2002 population (thousands): 217,660

Annual population growth rate: 1.2%

Urban population: 43%

Annual urban population growth rate: 3.6%

Population below poverty line (1999): 27.1%

GDP per capita (PPP US\$): 2,900 (2000 est.)

GDP by sector (1998): 21% agriculture,
35% industry,
44% services

Climate: Tropical, hot and humid
dry season: Jun to Sep;
wet season: Dec to Mar

Land use (1993): 10% arable land,
of which 25% is irrigated

Government: Republic

Sources: UN ESCAP (2002), UNDP (2001), The World Factbook 2001

Halmahera and Minahasa. The country is subject to a high level of seismic activities due to its location at the intersection of three crustal plates namely, Eurasia Plate, Ancient Australia-Indian continent, and Pacific Ocean Floor in the northeast. Much of the activities occur at sea, bringing in added risks of tsunamis or tidal waves.

Many parts of the country are susceptible to drought most recently caused by the El Niño phenomenon, which resulted in crop failure and uncontrolled forest fires from large-scale forest conversion and land-clearing activities. Indonesia also has over 5,000 small and big rivers, of which 30% cross high population density area, posing flood hazards.

Vulnerability

Exposure to the above hazards is determined by the topography. Sumatra, Java, Bali, East Nusa Tenggara, Maluku, Sulawesi and Irian Jaya are subject to seismic activity. Because of high soil fertility, people choose to settle along the slopes of its active volcanoes. Overflows of shallow rivers during monsoon rains flood South Sumatra, Jambi, Riau, West Sumatra, North Sumatra and Aceh. The floods of year 2000 caused by continuous rain drenched the southern part of Belu District, West Timor. The affected area is flat and low-lying and forms the major rice growing area.

Household capacity to cope with the consequences of disasters is weak especially in rural areas, where most live on or below the poverty line. The fast expansion of urban areas has resulted in haphazard development, with an increasing number of people living in vulnerable settlements. Forest management practices characterized by clear-cut logging with very little effective restoration put pressure on the natural environment.

Disaster management policy, planning and practice

Presidential Decree No. 28 (1979) established the BAKORNAS PBA (National Coordinating Body for Natural Disaster Management) and outlined its structure and institutional arrangements at the provincial and district levels (SATKORLAKs). In 1990, PD No. 43 expanded the scope of BAKORNAS to include man-made disasters, and replaced the coordinating unit at the district level with an implementing unit (SATLAK). Decree No. 2 (1992) issued by the Chairman of BAKORNAS PB defined its composition and function. Due to the social unrest of 1999, PD No. 106 (1999) and its amendment, PD No. 3 (2001), further expanded the scope of the national coordinating body to include complex emergencies, re-naming it BAKORNAS PBP (the added P to its acronym stands for Pengungsi, which means internally displaced persons). PD No.3 also allowed governors and district heads/mayors to arrange their SATKORLAK PBP and SATLAK PBP structures, which decentralised the management of disasters.

Disaster management at the national and regional levels is incorporated in the overall development plan. Sectoral plans are yet to be drawn.

Opportunities and lessons learned

- Sectoral and regional planning should incorporate disaster management, as it is not a priority in the current national planning instrument.
- Appropriate legislation should be drafted that provides financial resources for disaster preparedness and mitigation. Presently, parliamentarians endorse the development budget
- Need for clear roles and responsibilities between SATKORLAK and SATLAK (coordination vs. implementation)
- Disaster management is still government driven. More community-based initiatives are needed.
- Committed and capable personnel, supported with well-equipped facility for coordination at every phase of the disaster management cycle.

Workshop on Policy, Legal and Institutional Arrangements and Planning for Disaster Management, April 2002, Bangkok

Lao PDR

The Lao Peoples Democratic Republic is a land-locked country, sharing borders with China, Myanmar, Thailand, Vietnam and Cambodia. It is the least developed country in the region, with majority of its population living in lowland areas along the Mekong River. The percentage of arable land is low, not all of which can be used due to the lethal anti-personnel cluster bombs that continue to plague the eastern part of the southern provinces. The country still relies largely on agriculture: around 76% of its workforce is in agriculture, contributing 51% to its economic revenue. The national economy heavily relies on overseas development aid, which accounts for 20.5% of its total GDP.

Country profile: Lao PDR

Mid-2002 population (thousands): 5,536

Annual population growth rate: 2.3%

Urban population: 25%

Annual urban population growth rate: 4.9%

Population below poverty line (1999): 46.1%

GDP per capita (PPP US\$): 1,700 (2000 est.)

GDP by sector (1998): 51% agriculture,
22% industry,
27% services

Climate: Tropical monsoon:
rainy season: May to Nov;
dry season: Dec to Apr

Land use (1993): 3% arable land,
of which 18% is irrigated

Government: Communist state

Sources: UN ESCAP (2002), UNDP (2001), The World Factbook 2001

Hazards

Floods and drought are considered the main natural hazards to which the country is exposed. Floods mostly occur in the alluvial plains of the Mekong and its tributaries during the May-September monsoon season. Thirteen major floods have occurred over the past 35 years. The area most affected (central and southern regions) accounts for the zone of greatest economic activity in the country, where 63% of the country's population live. Typhoons that enter the country from Vietnam can compound the rainfall pattern and cause additional flooding. An issue of concern for the future is the siltation in the lower Mekong River basin.

The areas most prone to drought are the western provinces and some of the higher elevations of the southern provinces. Drought affects about 20% of the country's population, adversely affecting agricultural production. Other potentially disastrous events include fire (both urban and forest fire), agricultural pests and epidemics. During 1997-2000 more than 500 cases of fires were reported.

Vulnerability

Majority of the country's population does not have the capacity to cope with disasters due to poverty. Most inhabit the floodplains, making them vulnerable to the annual flooding. Its high population growth rate puts additional strain on environmental conditions. Difficulties in access and communication are a major constraint in the country's development and in the response to disasters particularly. Only a limited part of the country can be reached by "all weather" roads, and large parts become inaccessible in times of disaster.

Disaster management policy, planning and practice

Prime Minister's Decree No. 158 (1999) created the National Disaster Management Committee and the provincial and district DMCs, and provided basis for the development of a disaster management policy. NDMC Decree No. 097 (2000) assigned the roles and responsibilities of sectors within the NDMC.

The National Policy on Disaster Management formulated adopts an all-hazards and people-centered approach to disaster management, and recognizes that disaster risk and vulnerability reduction are essential to sustainable development planning. The National Disaster Management Plan for the period 2001-2020 has been formulated, while provincial disaster management plans, which mirror the national plans but are made specific to the risks, hazards and vulnerabilities of the particular province, are under development.

Priorities for action are capacity building of disaster management personnel from national to community levels, early warning systems for floods and drought, public awareness, among other preparedness, prevention and mitigation, and response and recovery activities identified.

Opportunities and lessons learned

- Representatives of several sectors in the NDMC are still not clear about their roles and responsibilities
- Weak cooperation and collaboration between sectors
- Need to improve early warning information and its dissemination to the grass roots level
- Public awareness and education especially on the consequences of floods and drought
- Appropriate solutions (e.g. relocation of villages, disaster risk reduction strategies, new or adapted cultivation techniques) are needed.

NDMO presentation, Workshop on Policy, Legal and Institutional Arrangements and Planning for Disaster Management, April 2002, Bangkok

Philippines

The Philippines is an archipelago of about 7,100 islands, and has the world's longest territorial coastline at 36,289 km. Eleven large islands take up around 95% of the total land area of 298,170 sq km. Population in mid-2002 is over 78 million, 60% of which live in urban areas.

In 1998, the Philippine economy deteriorated as a result of the spillover from the Asian financial crisis and poor weather conditions (in particular, the effects of the El Niño 1997-98). Growth fell to about -0.5% in 1998 from 5% in 1997, but recovered to about 3% in 1999 and 3.6% in 2000 (The World Factbook 2001).

Hazards

Because of its geographical location, the Philippines is considered one of the most disaster-prone countries in the world. It lies along the western segment of the Pacific Ring of Fire, a most active part of the Earth characterized by an ocean-encircling belt of active volcanoes and earthquake generators. It has 220 volcanoes, of which 22 are known to be currently active. The Philippines also lies at the junction of two large converging tectonic plates - the Pacific plate and the Eurasian plate. The latest, most destructive earthquake was in July 1990 with a death toll of 1,666 and 12.2 billion pesos in damages (OCD).

The Philippines lies in the path of turbulent typhoons, with about 20 crossing the Philippine area of responsibility, of which an average of 9 make a landfall. The archipelagic nature of the Philippine coastal areas increases susceptibility to storm surges, tsunamis and sea level changes. Floods are common due to rains brought by typhoons and the monsoon. Located in the western part of the Pacific Ocean, the Philippines is also vulnerable to the El Niño Southern Oscillation (ENSO). The El Niño of 1997-98 induced drought and delayed the onset of monsoon, which resulted to a scarcity in drinking water in urban areas and shortfalls in hydro-electricity generation because of reduced water levels in major dams.

In the year 2001 alone, 317 disasters occurred costing 9.223 billion pesos (about US\$ 190 million) in total damages (OCD, 2002).

Vulnerability

The above case clearly demonstrates how people are pushed to living in marginalized lands because of poverty. People would accept the disaster risk so long as they can make a living.

Country profile: Philippines

Mid-2002 population (thousands): 5,536

Annual population growth rate: 2.3%

Urban population: 25%

Annual urban population growth rate: 4.9%

Population below poverty line (1999): 46.1%

GDP per capita (PPP US\$): 1,700 (2000 est.)

GDP by sector (1998): 51% agriculture,
22% industry,
27% services

Climate: Tropical monsoon:
rainy season: May to Nov;
dry season: Dec to Apr

Land use (1993): 3% arable land,
of which 18% is irrigated

Government: Communist state

Sources: UN ESCAP (2002), UNDP (2001), The World Factbook 2001

The Payatas tragedy in 2000

Trash slide - an avalanche of mud and garbage, a Philippine contribution to the enrichment of the disaster lexicon.

Payatas, in Quezon City, is Metro Manila's dumpsite. It is located in one of Metro Manila's largest urban poor enclaves of more than 311,500 residents. The 12-hectare dumpsite is also 'home' to hundreds of impoverished people who earn a living from scavenging for scraps to sell to junk shops. An estimated 700 tons of garbage from Quezon City alone (one of thirteen cities and municipalities that comprise Metro Manila) are dumped in Payatas every day (Carlos, 2001).

Early morning on July 10, 2000, the 50-ft high mountain of trash collapsed, burying an estimated 300 shanties. The week-long heavy rains brought by two typhoons (locally named Typhoon Ditang and Typhoon Edeng) loosened the pile of garbage. Fire broke out at the scene, possibly caused by stoves or toppled power lines. The disaster toll was 224 dead and 38 missing (OCD).

Lessons Learned. The tragedy sparked debates on the implementation of zoning and other environmental safety regulations. Open dumpsites are not acceptable living spaces even for the poor as they pose health hazards and, in this case, a trash slide hazard especially during the rainy season. The government repeatedly offered dumpsite residents an alternative residential site, but they were unheeded because the relocation site is far from places where they could make a living. Authorities could have taken a firmer stand against squatting in a vulnerable location like the Payatas dump site.

The dumpsite was allowed to operate beyond its scheduled closure on December 31, 1999 because of absence of a similarly economic method of waste disposal. Urban planning has to consider future demands for basic services like waste disposal brought by an ever increasing urban population.

Rapid expansion of urban areas in the Philippines has resulted in haphazard development without good planning that takes the safety of settlements into account. Many houses are built poorly and in fragile environments (e.g. along waterways, at dumpsites, etc.).

Because of its location, the Philippines is vulnerable to various hazards. The areas most vulnerable to flood and typhoon damage are the lowlands, which are also major agricultural areas.

Disaster management policy, planning and practice

As one of the most disaster-prone countries in the world, the Philippines has a long history of and a rich experience in disaster management. It has developed an extensive institutional structure for preparing for and responding to disasters. The cornerstone in institutional development for disaster preparedness and response in the country dates back to 1978 when Presidential Decree No. 1566 "*Strengthening the Philippine Disaster Control, Capability and Establishing the National Program on Community Disaster Preparedness*" was issued. Through this Decree, the formal National Disaster Coordinating Council (NDCC) was founded and disaster coordination was established from the region to the lowest government unit

(barangay). NDCC was given authority as the highest policy-making body on matters of disasters. It advises the President on the status of national disaster preparedness and management plans, and recommends to the President the declaration of state of calamity and the release of the national calamity fund. The Office of Civil Defense was given a vital role in executing and monitoring the implementation of policies and programs, and in providing a secretariat support to NDCC.

Currently a bill has been proposed to Congress to replace PD 1566 to streamline and strengthen Philippine disaster preparedness, mitigation and prevention capability, and appropriate funds there for and for other purposes. It will expand the membership of the NDCC to include, among other government agencies, two

Disaster mitigation initiatives in the Philippines

IDNDR. NDCC created four committees in support of the UN objectives of disaster reduction, and assigned the following key areas in developing measures and strategies: structural measures, non-structural measures, disaster research, and disaster legislation. As a result, disaster mitigation has been incorporated in the National Building Code, Structural Code, the Occupational Safety and Health Standards, and the Fire Code of the Philippines (Carlos, 2001). In 1991, realizing the significance of disaster mitigation in achieving sustainable development, the government started to integrate disaster mitigation into the Medium-term Philippine Development under the Development Sector Administration. At the local government level, provinces, cities, municipalities and barangays are required to integrate their disaster management plans into their respective local development plans.

Local government code. The Local Government Code of 1991 outlined the basic services and facilities devolved to local government units, and highlighted the powers, duties and functions of the Punong Barangay, municipal/city mayor and the provincial governor who play vital roles in local disaster councils. It also increased the budgetary provision for the local calamity fund from 2% to 5%.

National Disaster Consciousness Month. To raise consciousness of Filipinos on disaster management, the first week of July of every year was declared Natural Disaster Consciousness Week in 1998. Recognizing the need for more time for agencies to implement their campaign programs, this was replaced by the National Disaster Consciousness Month, to run for the whole month of July each year.

Vulnerability Reduction and Risk Management. In 1998, NDCC developed and pursued new program thrusts, which included enhancement of facilities and early warning system, emergency management information system, calamity fund management, networking for disaster response, reactivation of the emergency broadcast system. Current program priorities are:

- Emergency preparedness and response program - includes the mobilisation of disaster control groups in public and private establishments
- Disaster risk reduction program - includes hazard mapping in communities and development of public safety and disaster risk management standards and policies
- Advocacy on civil protection program - awareness raising through forums, symposiums, dialogues, drills and exercises
- Human resource development program - enhancement of training modules on emergency management.

NGO Representatives. It will also grant authority to local government units to use their local calamity funds not only for disaster operations, but also for pre-disaster activities.

The first disaster and calamities plan was formulated in 1970 in the aftermath of a strong typhoon that ravaged the Bicol region in October. With the issuance of PD 1566, a new Calamities and Preparedness Plan was prepared by the NDCC in 1988, which detailed the composition and respective functions of all key member agencies and the different disaster coordinating councils at all levels (national, regional, provincial, city/municipality, and barangay). Government agencies are supported by a wide network of NGOs and private sector corporations in disaster preparedness and response.

Vietnam

Vietnam is a long, narrow country, with major urban centers in the North (Hanoi) and in the South (Ho Chi Minh City). The central region is relatively less developed. Since the establishment of a policy of economic openness in 1988, the country has been going through a rapid and profound economic transition. There are indications that the rapid economic development tends to increase disparities between urban and rural communities, and the government has established policies to reduce this effect. Official development assistance has strongly increased since the early 1990s, accounting for 5% of the total GDP in 1999. This is a relatively high rate, ranked third after Laos and Cambodia. Assistance was provided in a range of sectors, and included integration of refugees, environmental cooperation, assistance to NGOs and EU investment partner programs.

Hazards

Because of its geographic location, Vietnam is most prone to typhoons, floods, storms and salinity intrusion. Typhoons, with a landfall average of four to six per year, raise sea levels by many meters and send storm surges up estuaries to inundate valuable croplands. These typhoon rains, when added to rising river levels (already high because of the monsoon rains), create floods that threaten devastation to millions of households.

Country profile: Vietnam

Mid-2002 population (thousands): 80,639

Annual population growth rate: 1.3%

Urban population: 20%

Annual urban population growth rate: 2.2%

Population below poverty line (1999): 50.9%

GDP per capita (PPP US\$): 1,950 (2000 est.)

GDP by sector (1998): 25% agriculture,
35% industry,
40% services

Climate: Tropical in south;
monsoonal in north with
hot rainy season:
mid-May to mid-Sep;
and warm dry season:
mid-Oct to mid-Mar

Land use (1993): 17% arable land,
of which 34% is irrigated

Government: Communist state

Sources: UN ESCAP (2002), UNDP (2001), The World Factbook 2001

Two of Asia's major river systems have their delta in Vietnam: the Red River in the North and the Mekong River in the South. Both deltas are densely populated and account for the majority of annual agricultural production of the country. For these and other river systems in Vietnam, the peak discharge almost invariably leads to flooding. Floods are an annual event; river floods, sea incursions and flash floods all occur regularly.

Other natural hazards that pose a threat to the country are landslides (mostly as a secondary impact of heavy rain) and occasional drought. Industrialization and urbanization may pose additional threats in terms of urban disasters and technological hazards.

Vulnerability

Household vulnerability is largely related to poverty. In a low-income country like Vietnam, vulnerability is closely related to the level of income, which determines how well communities are able to respond to and recover from a disaster.

Further contributing to vulnerability are factors like the level of adaptation to the occurrence of floods, and the availability of alternative income sources. Poor housing quality is a major vulnerability in urban households: over 50% of the structures in urban areas have a non-permanent character.

Disaster management policy, planning and practice

Decree No. 168- HDBT of May 19, 1990 of the Council of Ministers established and outlined the tasks of the Central Committee of Storm and Flood Control, and committees and sectors at all levels (provincial, district and village). The national committee is an inter-ministerial institution including representatives of all key ministries. Its secretariat is provided by the Department of Dike Management and Flood Control (DDMFC) of the Ministry of Agriculture and Rural Development (MARD). The CCSFC formulates all regulations and mitigation measures related to typhoons and floods. Emphasis is traditionally on dike protection, surveillance and maintenance. Local emergency work is coordinated by the provincial CSFC.

Having faced the problem of population pressure causing unauthorized settlement in annually inundated floodways and in hazardous coastal areas, the government recently has promulgated the Statutes on Dike Management, and Flood and Typhoon Mitigation. These regulations set out the responsibilities and powers of various departments, and regulate the authorities for controlling developments in flood-prone land. In 1993, a Flood and Storm Preparedness Fund was established with all government levels contributing to it.

The First National Strategy and Action Plan for Mitigating Water Disasters in Vietnam was prepared in 1994 with assistance of various UN agencies on the basis of a wide national consultation. It identified the need for an approach to disaster management that provides a mixture of engineering, institutional and social measures to reduce the vulnerability of the country and improve its capacity to cope. The Government of Vietnam has recognized the importance of the plan and it is used as the orientation for direct implementation of annual state plans.

After six years of implementing the First National Strategy and Action Plan, disaster awareness has been raised, particularly that of decision-makers at the central and local government levels. The plan has also strengthened institutions for disaster mitigation and management at both the central and provincial government levels. It has also established a raised consciousness and sense of responsibility in the general population for disaster mitigation and management. The tasks of disaster preparedness and mitigation have been gradually institutionalized by issuing law documents such as the Ordinance on Flood and Storm Control, the Ordinance on Water Resources Structures Protection, the Water Law, and the Environment Protection Law.

The Second Strategic and Action Plan (2001-2020) set up several strategies in disaster mitigation and management that aim to reduce disasters and their impacts on people, property, agriculture, economic well-being, environment, and equitable and sustainable development. It also detailed the responsibilities of implementing agencies.



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The Asian Disaster Preparedness Center is a regional resource center dedicated to disaster reduction for safer communities and sustainable development in Asia and the Pacific. Established in 1986 in Bangkok, Thailand, ADPC is recognized as an important focal point for promoting disaster awareness and developing capabilities to foster institutionalized disaster management and mitigation policies. For more information, please get in touch with us at the following address:

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The European Commission Humanitarian Aid Office oversees and coordinates the European Union's humanitarian operations in non-member countries, in partnership with non-governmental organizations, specialized agencies of the United Nations, and other international bodies. DIPECHO is the Disaster Preparedness program set up by ECHO in 1996 to prevent and prepare for natural disasters. For more information, please contact



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Safer Communities
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through Disaster *Reduction*