MEDIA KIT

COMMUNITY-BASED DISASTER RISK MANAGEMENT AND THE MEDIA

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adpc 20 years of reducing disaster risks in Asia and the Pacific

Asian Disaster Preparedness Center

The Partnerships for Disaster Reduction - South East Asia Phase 3 (PDRSEA3) program is jointly implemented by (ADPC) and the UNESCAP with funding support from the European Commission Humanitarian Aid Department (ECHO) under its 'Fourth DIPECHO Action Plan for Southeast Asia'. The one-year project, which commenced in February 2005, aims to establish an improved, enabling environment for CBDRM through promoting ownership in national programs and local entities, enhancing the capabilities of CBDRM practitioners and the expansion of new and strengthening of existing partnerships in Southeast Asia particularly in the target countries Cambodia, Indonesia, Lao PDR, Timor Léste and Vietnam.

The Asian Disaster Preparedness Center (ADPC), established in 1986 is a regional, inter-governmental, non-profit organization and resource center based in Bangkok, Thailand. ADPC is mandated to promote safer communities and sustainable development through the reduction of the impact of disasters in response to the needs of countries and communities in Asia and the Pacific by raising awareness, helping to establish and strengthen sustainable institutional mechanisms, enhancing knowledge and skills, and facilitating the exchange of information, experience and expertise.

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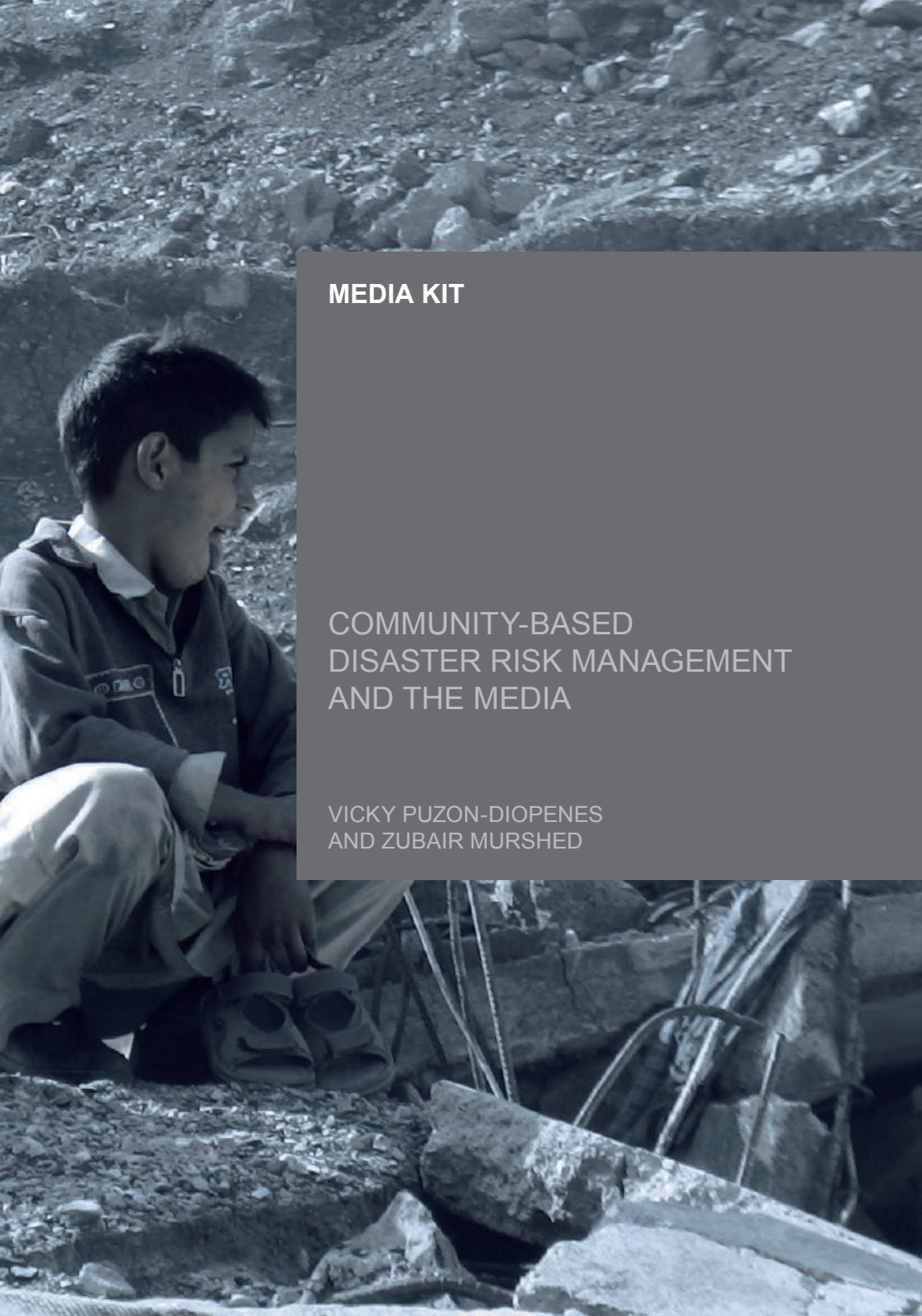

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VICKY PUZON-DIOPENES
AND ZUBAIR MURSHED

Media kit
Community-based Disaster Risk Management and the Media

Published by the Asian Disaster Preparedness Center through its Partnerships for Disaster Reduction - Southeast Asia Phase 3 (PDRSEA3) Project jointly implemented by ADPC and UNESCAP with funding support from DIPECHO

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preface

20 years of commitment to safer communities and sustainable development through disaster reduction

The Asian Disaster Preparedness Center celebrates its 20 year anniversary in 2006. I would like to take this opportunity to express my sincere appreciation to all its partner institutions, national governments, numerous UN organizations and other international organizations for their collaboration and support to ADPC during the past two decades. The work of all stakeholders in disaster management, including ADPC staff and alumni have contributed to making communities and countries better prepared, safer, and more resilient in face of disasters. ADPC is proud to have been a pioneer in some of the significant changes-in paradigm, concepts, and practices paving the way to reduction of the impacts of natural disasters.

ADPC was established in 1986 under late Colonel Brian Ward's illustrious leadership to address the disaster management needs of countries in Asia. In its twenty years ADPC responded dynamically to the paradigm shift in disaster management, readily and actively adjusting its operational strengths to address the evolving developments in disaster risk management by structuring its technical focus on climate risk management, disaster management systems, urban disaster risk management and public health in emergencies. This vigorous and comprehensive approach is further reinforced by ensuring that ADPC's projects and programs enhance institutional capacities, apply community-based disaster risk management practices,

and promote and support mainstreaming of disaster management into the development processes. These activities complement ADPC's involvement in building national and provincial disaster management systems, identifying disaster risk management needs, and developing strategic solutions. ADPC's standing and twenty years of experience in the region is confirmed by the substantive encouragement and support from various multi-lateral and bi-lateral development and donor agencies; as manifested in the implementation of our extensive array of projects and programs.

As it moves forward beyond its twenty years of operations, ADPC will continue to build upon its operational and technical strengths and to evolve in its role as a regional resource center, and to act as a regional early warning center. ADPC will further pursue operational partnerships and collaborations with all stakeholders in disaster risk management into sustainable development policies and practices throughout the Asia and Pacific regions.

In closing, permit me to express my gratitude to our staff and consultants who have shared commitment, dedication and loyalty to ADPC's goals and mission.

As its Executive Director, it is my honor to be part of this fine organization. I am confident that ADPC will continue to be responsive to the priorities of our key stakeholders in governments and the international community overcoming challenges to serve the region and beyond.

Message from Dr. Suvit Yodmani
Executive Director, Asian Disaster Preparedness Center

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of the Hyogo Framework for Action 2005-2015, produced in the WCDR, the ADPC, UNESCAP and DIPECHO have decided to work with the media in five Southeast Asian countries, i.e. Cambodia, Timor Léste, Indonesia, Lao PDR and Vietnam. The purpose of this initiative is to orient the media about its role in disaster risk management and particularly on how media can enable the at-risk communities to reduce disaster risks, cope with disasters and recover from their impact. Under this initiative, National Orientation Workshops for the Media were organized in the five countries during 2005. The National Orientation Workshop for the Media had the following objectives:

- To orient media people on community-based disaster risk management practices; and
- To develop strategies for the involvement of media in supporting community action for disaster risk management.

This Media Kit has been developed as a guide for media professionals in the five countries: i) as a Handout for the National Orientation Workshop for Media; ii) to raise the awareness of media about its role in disaster risk reduction; and iii) to enable them to perform that role in an effective manner. The Handbook is comprised of two parts. Part one explains the key concepts of disaster and media, CBDRM, the role of media in disaster risk management, and useful information for the media on disaster preparedness. Part two includes country-based resources such as hazard profiles, case studies on CBDRM, and contact information of national and regional organizations engaged in disaster risk management.

We hope that you will find this information useful and that it will contribute towards disaster risk reduction in your country.

introduction

Every now and then disasters cause huge loss of life and property and they damage the environment in the countries of South East Asia, e.g. Cambodia, Timor Léste, Indonesia, Lao PDR and Vietnam. Disasters affect negatively the sustainable development in the affected societies and countries. Disasters are caused by hazards which impact upon vulnerable people, infrastructure, assets and environment. Some of the common hazards experienced in the region include typhoons, floods, drought, forest fires, landslide, earthquakes and tsunami. We can avoid and reduce losses from disasters, by either mitigating the hazards or reducing the vulnerabilities of the people living in hazard prone areas. The process of disaster risk reduction involves identification of hazards/ vulnerabilities, analyzing their potential impact, identifying priorities for risk reduction and identification and implementation of solutions.

In order to reduce risks to disasters everybody needs to get involved. This includes government departments, scientific organizations, research institutions, NGOs, United Nations agencies, donor agencies, the media, and the private sector. The role of at-risk communities and groups is most important in reducing the risks of disasters. All of the above stakeholders have different perceptions about the nature of risks, priorities for risk reduction and the appropriate solutions. Therefore,

extensive communication amongst the multiple stakeholders is required in order to understand each other's opinions and identify solutions that are acceptable to each other.

The role of at-risk communities is highly important in this whole process because ultimately a large number of solutions will be implemented at the family and community level by the local people. Therefore, any solutions implemented without the participation and involvement of the at-risk communities either may not be relevant or not sufficient to reduce disaster risks effectively. The experiences in the Asian region show that the at-risk communities have many capacities to reduce risks and cope with disasters when they occur. However, it is important to enhance their capacities further to enable them to effectively cope with the disaster problem.

Historically, the media has been playing an active role in disaster situations. Whenever a disaster occurs, the media has to cover it to provide information about what happened, what authorities and international aid organizations are doing to respond and how effective the response is. The media also has been playing an important part in communicating early warning to at-risk communities. Recently the role of the media is being recognized in other phases of the disaster cycle as well, e.g. the Pre-Disaster Phase and the Rehabilitation and Reconstruction Phase, aside from the During-Disaster Phase, in which the media is already an active player.

Now the governments, United Nations, donor agencies, and development NGOs have recognized that the media can assist in reducing disaster risks. The media plays an important role in providing analysis on disaster risks and vulnerabilities, in facilitating communication amongst multiple stakeholders, in highlighting the need for longer term actions to reduce risks, and particularly in increasing awareness of the at-risk communities on disaster preparedness. Thus Media can perform a very important function of facilitating communication amongst the different stakeholders in general, as well as raising awareness of the at-risk communities.

This role of the media was acknowledged in the World Conference on Disaster Reduction (WCDR) that was held in Kobe, Japan at the initiative of the United Nations in January 2005. In line with the recommendations

of the Hyogo Framework for Action 2005-2015, produced in the WCDR, the ADPC, UNESCAP and DIPECHO have decided to work with the media in five Southeast Asian countries, i.e. Cambodia, Timor Léste, Indonesia, Lao PDR and Vietnam. The purpose of this initiative is to orient the media about its role in disaster risk management and particularly on how media can enable the at-risk communities to reduce disaster risks, cope with disasters and recover from their impact. Under this initiative, National Orientation Workshops for the Media were organized in the five countries during 2005. The National Orientation Workshop for the Media had the following objectives:

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This Media Kit has been developed as a guide for media professionals in the five countries: i) as a Handout for the National Orientation Workshop for Media; ii) to raise the awareness of media about its role in disaster risk reduction; and iii) to enable them to perform that role in an effective manner. The Handbook is comprised of two parts. Part one explains the key concepts of disaster and media, CBDRM, the role of media in disaster risk management, and useful information for the media on disaster preparedness. Part two includes country-based resources such as hazard profiles, case studies on CBDRM, and contact information of national and regional organizations engaged in disaster risk management.

We hope that you will find this information useful and that it will contribute towards disaster risk reduction in your country.

part one

KEY CONCEPTS ON DISASTER AND MEDIA

chapter 1

introduction to disaster risk management

Disasters

Disasters threaten life and livelihood. According to a United Nations report (*Reducing Disaster Risk: A Challenge for Development, UNDP, 2004*), one-million five hundred thousand people died between 1980 and 2000 due to disasters caused by earthquakes, volcanoes, storms and severe drought. Thousands of people in more than 100 countries are periodically exposed to at least one event of earthquake, tropical cyclone, flood or drought. As a result of disasters triggered by these natural hazards, more than 184 deaths per day are recorded in different parts of the world.

In general terms, typical impacts or effects of disasters tend to be:

- Loss of life
- Injury
- Damage to and destruction of property
- Damage to and destruction of subsistence and cash crops
- Disruption of production
- Disruption of lifestyle
- Loss of livelihoods
- Disruption of essential services

- Damage to national infrastructure and disruption to governmental systems
- National economic loss
- Sociological and psychological after-effects

Impact to Environment

Disasters impact the environment in a number of ways: e.g. destruction to infrastructure (homes, buildings); decreased quantity and quality of water supply; destruction of agricultural crops and food stocks; increased mortality of livestock, wildlife and marine species and damage to their habitats; and the presence of unburied human bodies or animal carcasses. These impacts vary from disaster to disaster.

Impact to Public Health

The sudden onsets of disasters cause not only widespread death but also injuries, outbreaks of epidemic disease and famine. Different types of disaster have different effects on health. Post-disaster potential health risks do not occur at the same time. Instead, they tend to arise at different times. Casualties occur mainly at the time and place of impact and require immediate medical care. Earthquakes regularly cause many injuries requiring medical care, while floods, storm surges and tsunamis cause relatively fewer injuries but may cause secondary effects such as an epidemic due to population movement and environmental changes. However, the risks of increased disease transmission take longer to develop and are greatest where there is crowding and reduced standards of sanitation.

Economic, Social and Political Impacts

Disasters disrupt economies. After a disaster, normal economic activities are severely curtailed; people must leave their jobs and devote their time to disaster-related activities, such as evacuation, search and rescue, or to the care of survivors and victims. Most often, in poor communities, whole livelihoods and houses are destroyed, and the basic necessities like food and shelter will be lacking. Oftentimes, for poor households, disasters bring about more poverty. On a larger scale, whether or not an economy can recover quickly depends on the losses sustained.

Disaster Risk Management

Sustainable development rests on the successful integration of disaster risk management into community and development planning to reduce risk and the impact of disasters.

Disaster risk management aims to reduce or avoid the potential losses and damages brought about by hazards, assure prompt and appropriate assistance to victims of disaster, and achieve rapid and effective recovery. This includes an ongoing process by which governments, businesses, communities, and civil society plan for and reduce the impact of disasters, react during and immediately following a disaster, and take steps to recover after a disaster has occurred.

Appropriate actions at all points are needed to enhance greater preparedness, better warnings, reduce vulnerability and the prevention of disasters. The process should also include the shaping of public policies and plans that mitigate the effects of disasters on people, property, and infrastructure. The mitigation and preparedness phases occur as disaster management improvements are made in anticipation of a disaster event. Developmental considerations play a key role in contributing to the mitigation and preparation of a community to effectively confront a disaster. As a disaster occurs, disaster risk management actors, in particular humanitarian organizations, become involved in the immediate response and long-term recovery.

Disaster Risk Management Process

The disaster risk management process is comprised of five steps: risk identification, risk analysis, prioritization of risks, treatment of risks, and monitoring and evaluation.

Risk Identification

This step seeks to identify the hazards and the potential threats they may pose. Comprehensive identification using a well-structured systematic process is critical, because a risk that is not identified at this stage may be excluded from further analysis. The aim of risk identification is to develop a comprehensive list of sources of risks and events that might have an impact on the community. The list should be comprehensive as unidentified risks can pose a major threat to the community. Having

identified the possible risks, it is necessary to consider possible causes and scenarios, as there are many ways an event can occur. Approaches used to identify risks include checklists, judgments based on experience and records, flow charts, brainstorming, systems analysis, scenario analysis and system engineering techniques.

Risk Analysis

Risk analysis aims to establish an understanding of the level of risk and its nature. It involves consideration of the sources of risk, their positive and negative consequences and the likelihood that those consequences may occur. Factors that affect consequences and likelihood may be identified. Risk is analyzed by combining consequences and their likelihood. Identify the existing processes, devices or practices that act to minimize negative risks or enhance positive risks and assess their strength and weaknesses. The magnitude of consequences of an event, should it occur, and the likelihood of the event and its associated consequences, are assessed. These will be considered in the context of the existing strategies and controls. Consequences and likelihood are combined to produce a level of risk.

Risk Prioritization

The purpose of risk prioritization is to analyze and identify priority areas for action. Decisions may include whether a risk needs treatment, whether an activity should be undertaken, and what should be the priorities for treatment. Decisions would be based on the level of risk, specified consequences, the likelihood of specified events or outcomes, and the overall effect of multiple events. In some circumstances, the risk prioritization may lead to a decision to undertake further analysis.

Risk Treatment

Risk prioritization provides a list of risks requiring treatment. Risk treatment involves identifying strategies for treating these risks, evaluating those options, preparing treatment plans and implementing them. Before appropriate treatment actions can be determined, the analysis of each risk may need to be revisited and extended to draw out the information needed to identify and explore different treatment options. It is particularly important to identify the causes of the risks so these are treated and not just the symptoms. Risk treatment may itself introduce new risks that need to be identified, assessed, treated and monitored.

Monitoring and Evaluation

Monitoring is conducted to supervise the progress on implementation of the disaster risk management process. Evaluation is organized to periodically investigate the progress and analyze its impact and achievements. Monitoring and evaluation is an essential and integral part of managing risk, and is one of the most important steps of the risk management process. It is necessary to monitor risks, the effectiveness and appropriateness of the strategies and management systems set up to implement risk treatments and the risk management plans as a whole. This process should be continuous and dynamic.

Phases of Disaster Risk Management

Disaster risk management includes the following phases:

- Prevention - Preventing or avoiding the adverse impact of hazards.
  Examples: prevention programs (dyke construction, controlled burning)
- Mitigation - Minimizing or reducing the impacts of disaster.
  Examples: building codes and zoning, vulnerability analyses, public education
- Preparedness - Planning how to respond.
  Examples: preparedness plans, emergency exercises/training, warning systems
- Response - Efforts to minimize the hazards created by a disaster.
  Examples: search and rescue, emergency relief
- Recovery - Returning the community to an acceptable level of living.
  Examples: temporary housing, grants, medical care

Prevention

Prevention activities aim to reduce the probability of disaster occurrence through measures meant to avoid its adverse effects. In many disaster-prone countries, the severity of disasters vary from year to year, but the disasters are seasonal and to that extent predictable. In those instances, technologies may be present or must be sought to address the issue of disaster prevention. These technologies exist for seasonal and predictable disasters such as typhoons, hurricane, and floods. Examples of such technologies are wind-resistant housing technologies to prevent typhoon damage; and dyke, dam and embankment construction to prevent and control flood. Disasters covering large areas that involve heavy environmental degradation are quite challenging to prevent.

Mitigation

Mitigation activities aim to reduce the impacts or effects of unavoidable disasters. Mitigation measures include building codes, vulnerability analyses updates, zoning and land use management, building use regulations and safety codes, preventive health care, and public awareness and education.

Some specific examples of mitigation activities:

- Strengthening buildings or incorporation of hazard resistance in structures to render them more resistant against typhoons, floods, and earthquakes
- Changing agricultural crop cycles so that it matures and are harvested before flood or typhoon season
- Restriction of activities in high-risk areas
- Economic diversification to allow losses in one sector to be offset by increased output in other areas

Both Mitigation and Prevention depend on the incorporation of appropriate measures in national, regional, and community development planning. Its effectiveness also depends on the availability of information on hazards, emerging risks, and the counter measures to be taken. It also includes the shaping of public policies and plans that either modify the causes of disasters or mitigate their effects on people, property, and infrastructure.

Preparedness

The goal of disaster preparedness is to achieve a satisfactory level of readiness to respond to any disaster in order to save lives, minimize disaster damage, and enhance disaster response operations. Preparedness includes planning exercises that strengthen the capacity of governments, organizations, and communities. These measures can be described as a readiness to deal with disasters and can be strengthened by having response mechanisms and procedures, rehearsals, public education and building early warning systems. Preparedness can also ensure that strategic reserves of food, equipment, water, medicines and other essentials are maintained in case of national or local catastrophes.

Preparedness measures include: preparedness plans; emergency exercises/ drills; warning systems; emergency communications systems;

evacuations plans and training; resource inventories; emergency personnel/contact lists; mutual aid agreements; and public information/ education. Preparedness actions depend on the incorporation of appropriate measures in national and regional development plans. In addition, their effectiveness depends on the availability of information on hazards, emerging risks and the countermeasures to be taken, and on the degree to which government agencies, non-governmental organizations and the general public are able to make use of the information.

Response

The aim of disaster response is to provide immediate assistance to maintain life, improve health and support the morale of the affected population. Such assistance may range from providing specific but limited aid, such as assisting refugees with transport, temporary shelter, and food, to establishing semi-permanent settlement in camps and other locations. It may also involve initial repairs to damaged infrastructure. The focus in the response phase is on meeting the basic needs of the people until more permanent and sustainable solutions can be found. Humanitarian organizations are often strongly present in this activity.

Recovery

As the disaster is brought under control, the affected population or community will gain their capability of undertaking a growing number of activities aimed at restoring their lives and the infrastructure that supports them. There is no distinct point at which immediate response changes into recovery and then into long-term sustainable development. There will be many opportunities during the recovery period to enhance prevention and increase preparedness, thus reducing vulnerability. Ideally, there should be a smooth transition from recovery to on-going development.

The Hyogo Framework for Action from 2005-2015

The United Nations General Assembly convened a World Conference on Disaster Reduction, held in Kobe, Hyogo, Japan, from 18 to 22 January 2005. The Conference aimed to take stock of progress in disaster risk reduction since the Yokohama Conference in 1994 and to establish directions for the next ten years. With the participation of all UN member countries, agencies and other international organizations,

the conference adopted the present "Hyogo Framework for Action 2005-2015: Building the Resilience of Nations and Communities to Disasters" which provides the latest framework and strategy for disaster risk management.

The following is the summary framework of the strategic goals and priorities for "The Hyogo Framework for Action 2005-2015".

Strategic Goals:

- The integration of disaster risk reduction into sustainable development policies and planning.
- Development and strengthening of institutions, mechanisms and capacities to build resilience to hazards.
- The systematic incorporation of risk reduction approaches into the implementation of emergency preparedness, response and recovery programs.

Priorities for Action:

1. Ensure that disaster risk reduction (DRR) is a national and a local priority with a strong institutional basis for implementation.

   Key activities:
   - DRR institutional mechanisms (national platforms); designated responsibilities
   - DRR part of development policies and planning, sector wise and multi-sector
   - Legislation to support DRR
   - Decentralization of responsibilities and resources
   - Assessment of human resources and capacities
   - Foster political commitment
   - Community participation

2. Identify, assess and monitor disaster risks and enhance early warning.

   Key activities:
   - Risk assessments and maps, multi-risk: elaboration and dissemination
   - Indicators on DRR and vulnerability
   - Data and statistical loss information

- Early warning; people centered; information systems; public policy
- Scientific and technological development; data sharing, space-based earth observation, climate modeling and forecasting; early warning
- Regional and emerging risks

3. Use knowledge, innovation and education to build a culture of safety and resilience at all levels.

   Key activities:
   - Information sharing and cooperation
   - Networks across disciplines and regions; dialogues
   - Use of standard DRR terminology
   - Inclusion of DRR into school curricula, formal and informal education
   - Training and learning on DRR: community level, local authorities, targeted sectors, equal access
   - Research capacity; multi-risk; socio-economic; application
   - Public awareness and media

4. Reduce the underlying risk factors.

   Key activities:
   - Sustainable ecosystems and environmental management
   - DRR strategies integrated with climate change adaptation
   - Food security for resilience
   - DRR integrated into health sector and safe hospitals
   - Protection of critical public facilities
   - Recovery schemes and social safety nets
   - Vulnerability reduction with diversified income options
   - Financial risk-sharing mechanisms
   - Public-private partnership
   - Land-use planning and building codes
   - Rural development plans and DRR

5. Strengthen disaster preparedness for effective response at all levels.

   Key activities:
   - Disaster management capacities: policy, technical and institutional capacities
   - Dialogue, coordination & information exchange between disaster managers and development sectors
   - Regional approaches to disaster response, with risk reduction focus
   - Review and exercise preparedness and contingency plans
   - Emergency funds
   - Voluntarism and participation

Cross Cutting Issues:
- Multi-hazard approach
- Gender perspective and cultural diversity
- Community and volunteer's participation
- Capacity building and technological transfer

Community-based Disaster Risk Management (CBDRM)

Community-based Disaster Risk Management (CBDRM) is a process in which at-risk communities are actively engaged in the identification, analysis, treatment, monitoring and evaluation of disaster risks in order to reduce their vulnerabilities and enhance their capacities. This means that people are at the heart of decision-making and implementation of disaster risk management activities. The involvement of the most vulnerable social groups is considered as paramount in this process, while the support of the least vulnerable groups to them is necessary for successful implementation. The government and non-government organizations play a supportive role through providing information, organizing and strengthening community groups, giving financial and technical assistance and physical inputs and through building linkages.

Philosophy

- Address the root causes of vulnerabilities and transform the structures that generate inequality and underdevelopment.
- Achieve sustainable development through the continued well-being of people by avoiding shocks and crises. This can be achieved through recognizing the need for community action for disaster risk reduction in all development practice.
- Any efforts to reduce disaster risks should build upon a community's knowledge and experience about hazards, vulnerabilities and disaster risk reduction. Recognize the importance of local customs, culture and materials while developing and implementing risk reduction programs.

Actors

The role of vulnerable groups and persons is central in disaster risk management, since ultimately it is about their life. Therefore people are given the opportunity to identify disaster risks, find solutions and make choices to build their own safer future. Thus a "bottom-up" approach is considered an essential strategy.

Disaster risk reduction efforts must involve multiple social groups in a community. Different groups may have different vulnerabilities and capacities and different perceptions of risks and how they should be managed.

Outside agencies and individuals have significant roles in community-based disaster risk management. Community-based initiatives will require resources from outside the community. Government departments, NGOs and civil society groups (e.g. faith-based groups, business, academe, and other professionals) can provide such resources. They can provide resources in various forms, e.g. funds, material inputs, technical assistance and sharing of information. They can also support community work through group formation, strengthening of existing groups and providing training.

The media can play an important role in generating support for community action for disaster risk management, through influencing government departments, NGOs and business entities.

Aim of the CBDRM Approach

The aim of CBDRM is to reduce vulnerabilities and to strengthen peoples' capacity to cope with the disaster risks they face. The direct involvement of the community in undertaking local level risk reduction measures is a must.

Features of the CBDRM Approach

Experiences in the implementation of CBDRM point to the following essential features:

Disaster risk reduction is the aim. The main strategy is to enhance capacities and resources of most vulnerable groups and to reduce their vulnerability in order to avoid the occurrence of disasters in future.

Recognition of the link between disaster risk management and the development process. Disaster risk management should lead to general improvement in people's quality of life and the natural environment. Addressing the root causes of disasters, such as poverty, discrimination and marginalization, poor governance and bad political and economic management, would contribute towards the overall improvement in the quality of life and environment.

Community is the key resource in disaster risk management. The community is the key actor as well as the primary beneficiary of the disaster risk management process.

Application of multi-sectoral and multi-disciplinary approaches. CBDRM brings together the many local community and even national stakeholders for disaster risk management to expand its resource base.

An evolving and dynamic framework. The sharing of experiences, methodologies and tools by communities and CBDRM practitioners continues to enrich practice.

Different people have different perceptions of risk. Specifically, men and women who may have different understanding and experience in coping with risk may also have a different perception of risk and

therefore may have different views on how to reduce the risks. It is important to recognize these differences.

Various community members and groups in the community have different vulnerabilities and capacities. Different individuals, families and groups in the community have different vulnerabilities and capacities. These are determined by age, gender, class, occupation (sources of livelihoods), ethnicity, language, religion and physical location.

Definitions

Capacities. The resources and skills people possess, can develop and access, to reduce disaster risks and prepare for hazards.

Climate change. The climate of a place or region is changed if over an extended period (typically decades or longer) there is a statistically significant change in the mean temperature or variability of the climate for that place or region.

Community. In the context of disaster risk management, a community can be defined as people living in one geographical area, who are exposed to common hazards due to their location. They may have common experience in responding to hazards and disasters. However, they may have different perceptions of and exposure to risk. Groups within the locality will have a stake in risk reduction measures (either in favor or against).

Community-based Disaster Risk Management (CBDRM). A process of disaster risk management in which at-risk communities are actively engaged in the identification, analysis, treatment, monitoring and evaluation of disaster risks in order to reduce their vulnerabilities and enhance their capacities. This means that the people are at the heart of decision-making and implementation of disaster risk management activities. The involvement of the most vulnerable is paramount and the support of the least vulnerable is necessary. In CBDRM, local and national governments are involved and supportive.

Disaster. The serious disruption of the functioning of society, causing widespread human, material or environmental losses, which exceed the

ability of the affected communities to cope using their own resources. Disasters occur when the negative effects of the hazards are not well managed.

Disaster Risk Management. A systematic application of management policies, procedures and practices to identify, analyze, assess, treat, monitor and evaluate risks. This involves decision-making based on the examination of those risks, which includes hazard, vulnerability, and capacity of people and institutions.

Early warning. The provision of timely and effective information, through identified institutions, that allows those exposed to a hazard to act to avoid or reduce their risk and prepare for effective response. Early warning systems include: understanding and mapping the hazard; monitoring and forecasting impending events; processing and disseminating understandable warnings to political authorities and the population; and undertaking appropriate and timely actions in response to the warnings.

Emergency management. The organization and management of resources and responsibilities for dealing with all aspects of emergencies, particularly in preparedness, response and rehabilitation. Emergency management involves plans, structures and arrangements established to engage the normal endeavors of government, voluntary and private agencies in a comprehensive and coordinated way to respond to the whole spectrum of emergency needs.

Hazard. Any phenomenon, substance or situation, which has the potential to cause disruption or damage to infrastructure and services, people, their property and their environment. There are many kinds of hazards. Some are mentioned below:

Biological hazard. Processes of organic origin or those conveyed by biological vectors, including exposure to micro-organisms, toxins and bioactive substances.

Geological hazard. Natural earth processes or phenomena caused by earth movements. Geological hazards include earthquakes, tsunami, landslides, and volcanic erosion.

Hydro-meteorological hazards. Natural processes or phenomena of atmospheric, hydrological or oceanographic nature. Hydro-meteorological hazards include: floods, debris and mud floods; tropical cyclones, storm surges, thunder/hailstorms, rain and wind storms, blizzards and other severe storms; drought; cyclone, tornado and hurricane; desertification; wild land fires; temperature extremes; sand or dust storms; permafrost and snow or ice avalanches.

Man-made or Technological hazards. Danger originating from technological or industrial accidents, dangerous procedures, infrastructure failures or certain human activities. Technological hazards include: industrial pollution, nuclear activities and radioactivity, toxic wastes, dam failures, transport, industrial or technological accidents (explosions, fires, spills).

Mitigation. Structural and non-structural measures undertaken to limit the adverse impact of natural hazards, environmental degradation and technological hazards.

Preparedness. Activities and measures taken in advance to ensure effective response to the impact of hazards, including the issuance of timely and effective early warnings and the temporary evacuation of people and property from threatened locations.

Prevention. Actions taken to avoid the adverse impact of hazards and minimize related environmental, technological and biological disasters. Depending on social and technical feasibility and cost/benefit considerations, investing in preventive measures is justified in areas frequently affected by disasters. In the context of public awareness and education related to disaster risk reduction, changing attitudes and behavior contribute to promoting a “culture of prevention”.

Public awareness. The processes of informing the general population to increase consciousness about risks and how people can act to reduce their exposure to hazards. Public awareness activities foster changes in behavior leading towards a culture of risk reduction. This involves public information, dissemination, education, radio or television broadcasts, use of printed media, as well as the establishment of information centers and networks and community and participation actions.

Risk. The probability that negative consequences may arise when hazards interact with vulnerable areas, people, property and environment

Risk assessment/analysis. A methodology to determine the nature and extent of risk by analyzing potential hazards and evaluating existing conditions of vulnerability that could pose as potential threat or harm to people, property, livelihoods and the environment on which they depend.

Risk communication. Any purposeful exchange of information between interested parties regarding levels of hazards or environmental risks; or decisions, actions or policies aimed at managing or controlling such risks.

Risk reduction measures. These are various activities, projects and programs that the communities may identify after assessing and analyzing the risks that they face. These measures are specifically intended to reduce the current risks and prevent future risks in the community.

Recovery. Actions taken after a disaster to restore or improve the pre-disaster living conditions of the stricken community, while encouraging and facilitating necessary adjustments to reduce disaster risk. Recovery (rehabilitation and reconstruction) provides an opportunity to apply disaster risk reduction measures.

Relief/response. The provision of assistance or intervention during or immediately after a disaster to meet the life saving and basic subsistence needs of the people affected. It can be of an immediate, short-term, or protracted duration.

Vulnerability. Conditions of economic, social, physical or geographic nature, which reduce the ability of a community to prepare for and cope with the impact of hazards, and reduce risks of disasters.

chapter 2

media and disaster risk management

The Role of Media in Disaster Risk Management

Mass Media or simply "media" are channels of communication through which messages flow, produced for popular consumption and relayed through the print (e.g. newspapers, magazines) or electronic (e.g. radio, television, internet) media. It also refers to the organized means of dissemination of facts, opinions, and analysis, through a wider variety of other media, which, aside from the general forms mentioned above, also include: cinema films, billboards, books, compact discs, DVDs, videocassettes, and other forms of publishing and broadcasting. Today, the media functions not only to disseminate facts and relay or transfer information; it also serves as society's watchdog highlighting injustice (surveillance), a warning medium in disasters, and a source of entertainment. Also, the media's great potential and capacity to influence has taken on roles that hold society together and serve as a forum for public and community interaction. As societies grow more and more complicated, its dependence on the media for information has increased. The media has also evolved and developed more unique

functions. One of these functions relate to disaster risk management, where the media plays a pivotal role in saving lives.

Disaster Risk Communication and the Media

The media's convergence with disaster risk management derives from the need to inform, educate and empower communities with relevant knowledge for influencing public action and policy towards disaster preparedness and mitigation. Through disaster risk communication, the media has been given an important role which contributes to reducing the loss to life and property arising from disasters.

First of all, disaster risk communication is at the heart of the disaster risk management process. Disaster risk communication refers to the dialogue process through which multiple stakeholders (government officials, NGOs, UN, private sector, and communities) identify and analyze risks, and identify and implement solutions to reduce those risks. All disaster risk management actions including risk identification, risk analysis, risk prioritization, risk treatment and monitoring and evaluation, involves communication among multiple stakeholders. Various stakeholders have different opinions about the nature of risks, the proposed solutions and their implementation. This means discussing about risks, the sources, vulnerabilities, measures for vulnerability reduction, and costs and implementation arrangements. Through this process these stakeholders are able to share their concerns and opinions, understand each others' perspective and identify commonly agreed solutions, which are acceptable to everybody. This communication is referred to as "disaster risk communication."

The communication amongst various stakeholders happens through different means. They include formally organized face to face meetings, workshops, conferences, seminars, etc. Communication among stakeholders often occurs informally through news items, analysis published in the media, coverage of disaster events and coverage of forums on disaster risk management. The media therefore, has a very important role in facilitating communication among stakeholders and influencing the opinions of different stakeholders for disaster risk management.

One important strategy in disaster risk communication is informing at-risk populations or communities about risks to increase their awareness and mobilize them to take actions to reduce their exposure and vulnerability to hazards. Such communication is popularly known as "public awareness." Public awareness activities aim to foster changes in behavior leading towards a culture of safety. This involves public information, dissemination, education, broadcasts through television and radio, use of printed media, as well as, the establishment of information centers and networks, and forums for community participation.

Within the above mentioned context, the role of the media can be further divided into three phases in relation to the disaster risk management approach. These three phases include Pre-, During (Crisis) and Post-disaster phases.

The Role of the Media BEFORE a Disaster (Pre-Disaster Phase)

In Pre-disaster phase the primary role of media is to emphasize the importance of disaster risk reduction and preparedness. It should encourage the decision makers and the at-risk communities to undertake appropriate actions to avoid future disasters. The media can do this by highlighting potential sources of risks and vulnerabilities, analyzing risk patterns and educating the communities about the measures they can undertake at family, community and organizational levels to mitigate the hazards and reduce their vulnerabilities. Provision of early warning is also an essential function which media can perform in a pre-disaster phase to alert the at-risk communities to take precautionary measures to avoid an impending disaster. It has been proven in many cases that where information was adequately transmitted to at-risk communities through the media, communities were able to take timely actions to avert considerable damage to life and livelihoods.

The media can perform the following functions to promote disaster mitigation and preparedness:

1. **Analysis of risk sources and patterns:** The processes of urbanization, population growth, industrialization, and environmental degradation are contributing towards generating risks and disasters in today's world. The four aforementioned elements can lead to hazards which could increase vulnerabilities of people. The media can publish articles, reviews, and expert opinions on how these four

factors are increasing vulnerabilities of certain groups of people or certain geographical regions in the countries.

2. **Public Information:** The media can play a significant role in providing information on the potential dangers and risks in the country. They can inform about the seasonality of different hazards, e.g. the flood season, drought seasons, typhoon season, etc. The media can highlight which groups of people are most at-risk and provide information on preparedness and mitigation measures.

3. **Early Warning:** The issuing of early warning information is a well accepted media function. Scientific forecasts about potential hazards are commonly broadcasted through radio, television, and newspapers. However, care should be taken so that there is proper interpretation and relay of this early warning information to avoid unnecessary panic and minimize false reports.

4. **Preparedness Information:** An essential component of the messages related to early warning is to provide information to communities about the precautionary measures that they can take to avoid the loss of life and property from hazards. This would include information on evacuation, crop safety (early harvesting), safety of family assets, food storage, documents, livestock safety, and other mitigation measures.

5. **Advocate for risk reduction:** Influencing opinions of major decision-makers and mobilizing them to take appropriate actions to reduce risks is an important function that the media must perform. The decisions of politicians and bureaucrats are many times influenced by political priorities and they may not be very keen to undertake actions to reduce risks. The media should influence their decisions and encourage them to prioritize risk reduction.

6. **Encourage people's participation:** It is imperative that the role of at-risk communities is recognized in national policy, planning and programming for disaster risk management. However, this is mostly ignored by decision-makers. The media must highlight the need for the involvement of communities and the recognition of their role. The media can also publish the opinions of people from at-risk communities on what they think should be done to reduce their

vulnerabilities and risks and how they would like to get involved in government and NGO programs.

The Role of the Media DURING a Disaster (Crisis Phase)

During the occurrence of any disaster, the focus is to save as many lives as possible and avoid the risks from any secondary hazards. Damage and loss assessment, and provision of emergency assistance (food, water, clothing, shelter, first aid, search and rescue and evacuation of trapped populations) are the immediate priorities of disaster managers. During a disaster crisis, the government (through the NDMO) will normally provide information to the media on the basic facts about the disaster and the actions being taken by the authorities. However, in frequent cases, the information relayed might be incomplete. Considering the range of players involved in an emergency response and the fast changing situation, it may be difficult for the authorities to keep track of everything and share that information with the media. It is therefore important that the media communicate with all the local, national, and international partners to get appropriate information and keep the general public accurately informed. The key players involved in an emergency response may include the government, police, military, civil defense, Red Cross, NGOs, UN (OCHA, WFP, FAO, UNHCR, UNDP, and UNICEF) and others depending upon the nature of the disaster.

The media can perform the following functions during an emergency situation:

1. **Inform the public with timely and factual information:** this includes provision of information about what happened or the extent of the disaster, the losses caused and the current situation of the hazard.

2. **Advice the public about actions to be taken:** The public can undertake a range of actions during the emergency period in order to avoid further losses. The media can provide relevant information for emergency and precautionary measures, e.g. evacuation, areas they should not go to, water purification techniques for safe drinking water.

3. **Inform on actions being taken by authorities and aid groups:** These include information on what the government has done to save the lives and property in the affected areas; what actions other agencies are undertaking; and what other plans, actions and measures authorities have to save lives and provide essential assistance to the victims.

4. **Relay messages concerning the welfare of isolated or trapped groups:** Groups of people or families might be isolated and trapped in certain areas (over the roofs, trees, or isolated islands, etc). Since the families and relatives of such people would possibly be in distress, the media can gather and provide information about the condition of such groups and relay them to the public.

5. **Facilitate communication among affected people and their relatives, friends, families in other parts of the country or worldwide:** In large scale disasters, communication lines between the disaster-affected area and the other parts of the country are likely to break down. The media can facilitate communication among survivors and their families.

6. **Highlight the needs of survivors:** Authorities and aid groups might be overwhelmed by the scale of the emergency operations and might overlook certain groups of survivors. It is the role of the media to make sure that all groups of people affected by the disaster are able to receive appropriate aid. The media can also help in mobilizing assistance from the local or international communities.

7. **Highlight the need for application of minimum standards:** International standards on disaster relief have been developed by the UNHCR as well as by the international aid community. The standards developed by the international aid community are known as SPHERE, the Humanitarian Charter and Minimum Standards in Disaster Response. These standards provide the guidelines on the minimum needs of disaster survivors in terms of water sanitation, shelter, food, environmental health and other aspects. The media must monitor and report whether the agencies are following these standards in their implementation of relief and response so that better services are provided to the survivors.

The **SPHERE standards** can be accessed online at: *http://www.sphereproject.org*

8. **Communicate potential secondary risks to minimize further disaster or damage:** In the aftermath of a disaster there are a range of secondary hazards that are likely to occur: fires, landslides or tsunamis after the earthquake; flash floods and landslides after the typhoons; or electrocution or epidemics after the flooding. It is important to understand the risk of secondary hazards and inform the people to undertake appropriate actions to avoid further losses or damage. The media should be able to acquire information on secondary hazards from scientific experts (doctors, engineers, meteorological department) and advice from authorities from government or other international aid agencies.

The Role of the Media AFTER a Disaster (Post-Disaster Phase)

In the post-disaster phase, the focus is normally geared towards rehabilitation and reconstruction of damaged infrastructure, livelihoods, environment and economic and social systems. During this phase it is equally important to integrate disaster risk reduction into the rehabilitation and reconstruction process, so that future risks can be reduced. If this factor is neglected, communities will again be vulnerable to future disasters.

The media can:

1. **Appeal for assistance from all parties:** Mobilization of financial, technical and material resources is an important requirement in the post-disaster phase. The local, provincial and national authorities may not have enough resources to respond to the needs of rehabilitation and reconstruction. It will be important to assess the needs and inform relevant local and international aid agencies to mobilize resources for assistance.

2. **Communicate about rehabilitation and reconstruction plans:** This involves informing the public in the affected areas as well as other stakeholders about the rehabilitation and reconstruction plans developed by the government, UN and I/NGOs. The media can facilitate debates regarding the plans in order to ensure that the concerns of survivors are truly addressed and that such plans

are developed and implemented with the active participation of all stakeholders, particularly the beneficiaries/ communities.

3. **Encourage survivor participation in recovery:** It is imperative that the opinions of survivors are considered in the development and implementation of recovery strategies. However, under the high pressure imposed to rebuild infrastructure as soon as possible, the authorities and other aid organizations may overlook this aspect. The media can encourage the participation of survivors. The media can also conduct opinion polls among disaster survivors, and solicit the people's opinion on how recovery plans can be made more relevant to the needs of the community.

4. **Influence for integrating risk reduction and prevention:** The process of rehabilitation and reconstruction provides a golden opportunity to integrate risk reduction considerations in rebuilding infrastructure to ensure that it is safer from future disasters. The media can contribute to sustainable social development by providing relevant information which will highlight, promote and advocate the need for the integration of risk reduction considerations into rehabilitation and reconstruction.

Media Strategies

In order to perform the above-mentioned tasks, the media can follow different approaches. Some of them include the following.

- **Organizing expert dialogues:** Dialogue among experts on the causes of disasters, risks, and vulnerabilities and on the identification of appropriate solutions would play an important role in facilitating communication among stakeholders on disaster problems and also in raising people's awareness. Therefore the media must consider holding forums among representatives of scientific organizations, e.g. meteorological department, National Disaster Management Office (NDMO), Mekong River Commission committee, UNDP, WFP, FAO, Red Cross, etc.

- **Public auditing:** The media can conduct surveys and opinion polls to rate the relevance, quality and quantity of the relief and rehabilitation assistance.

- Re**search broadcast and articles:** Media professionals can conduct research on specific issues such as the risk generating factors in the community and publish them in newspapers or broadcast through radio and TV.

- **Interviews:** The media can organize interviews with disaster management officials, e.g. the director of the National Disaster Management Office, the secretary general of the Red Cross, experts of the Mekong River Commission, etc. to highlight certain issues in disaster risk management.

- **Field visits:** The media professionals can cover the plight of the vulnerable or disaster affected people in order to advocate for disaster risk reduction or provision of appropriate relief and rehabilitation.

- **Public forums:** The media can hold a conference or forum to bring together all stakeholders, e.g. authorities, NGOs, donors, UN and community members to facilitate dialogue around certain issues.

- **Broadcast and publish warning and preparedness actions:** When the hazard season is approaching, the media can publish and broadcast warning and preparedness messages to inform the general public about the risks and possible disasters they may face and the actions they can take to avoid or minimize loss of life and property.

Most Frequently Asked Questions During Disasters

In a post-disaster situation, the general public, the authorities, aid groups and other stakeholders would be interested to know everything there is about the disaster. The following may be considered as guide questions in obtaining relevant information to be disseminated through various media channels:

- Description of the event
- How and when it happened?
- How many people were killed or affected?
- How many survivors and what are their conditions and needs?
- Why such a heavy toll in mortality and morbidity?
- Extent of damage
- What safety measures are being taken?

- Who or what is to blame? (cause of disaster)
- Has this ever happened before? And has the preparedness and emergency response improved?
- What about psychosocial assistance to those who have been injured?
- How does this problem affect operations?
- What are the next steps to be taken to ensure survival?
- Measures being planned to ensure care of survivors

Guidelines for the Media on the Development of Messages for Public Awareness

In order to ensure that the messages that are prepared and transmitted by your newspapers and radio or TV channels are understandable and meet the information needs, you should follow the guidelines given below.

A good message must:

- Address public concern
- Contain what people want to know
- Give guidance on how to respond
- Provide accurate and timely information
- Use examples, stories and analogies to take your point
- Not assume that there is a common understanding between expert and target group

You (Media Professionals) must consider the following aspects while developing a risk message:

- Information is clear and comprehensive
- Information is credible
- Message does not arouse unnecessary fear
- Length of the message is appropriate to convey the meaning and not too long
- Think how the message will be received

- Written communication leaves a record
- Choice of words and the tone of language demonstrate a relationship of trust and partnership with the target group.

What can make a message ineffective?

- The application of probabilistic information may increase confusion.
- "Rational appeal" often comprised of numerical or statistical information may not be understood by target groups who use different criteria to assess risks, which is not "rational."
- A rational argument is based on the induction of empirical evidence presented in a logical and consistent way.
- An argument is assumed to be emotional (pathos) when it addresses the feelings, values, or emotions of the receiver. Arguments mainly focusing on the consequences of hazardous activities could be conceptualized as emotional arguments because they usually appeal to the values, emotions, or feelings of the receiver.
- An emotional appeal from an attractive source may have more effect than a rational appeal from an unattractive.

Ethical Guidelines for the Media in Disaster Reporting

Ethics deals with personal, institutional, and societal issues of right and wrong. Good media practice must be ethical - to know the difference between right and wrong behavior and to do what is right to the greatest extent possible. Applying ethical behavior in media practice is a powerful

tool for public service, providing information to people in a responsible, truthful, independent and fair way.

Ethical media practice can be realized by keeping in mind few key principles:

Truthfulness. A media professional is expected to be well informed about the happenings around him, so as to inform and educate the public in a clear and effective way. Distorted, misrepresented, biased and opinionated information violates the ethics of journalism. Exaggeration must be avoided as it can lead to racial, religious or political conflicts leading to violence.

Serving Public Interest. Good media practice should be free of obligation to any interest other than the public's right to know. They remain free of associations and activities that may compromise their integrity or damage their credibility, providing news and information that people need to function as effective citizens, seeking solutions as well as exposing problems and wrongdoing, providing a public forum for diverse people and views, and promoting the understanding of complex issues.

Humanitarian approach. It is important to maintain a decent and sympathetic attitude while reporting crimes, accidents and disasters. Use of bad language, obscene or shocking pictures should be avoided.

Respect for privacy. People's right to privacy needs to be respected by media professionals. However, this should not be an obstacle to hold public servants like politicians or other individuals/entities accountable for their actions.

Integrity. Refuse gifts, favors, fees, free travel and special treatment, and shun secondary employment, political involvement, public office and service in community organizations if they compromise journalistic integrity.

Honoring the Sources. Media professionals owe a responsibility not only to the public but also to the sources of information. If required they need to maintain confidentiality of sensitive information and avoid any action that would compromise the safety and security of the sources.

Accountability. Mistakes must be admitted and corrected promptly. Test the accuracy of information from all sources and exercise care to avoid inadvertent error. Deliberate distortion of news stories is not permissible. Media professionals must clarify and explain the news or reports and invite dialogue with the public, as well as encourage them to voice grievances or submit their opinion.

Application of Ethical Practices to Disaster/Crisis Reporting

Reporting a disaster raises a number of unusual dilemmas for the media professional. These issues include whether to become a participant, to provide help for those afflicted, or to remain in the usual role of an observer. Other issues that require ethical considerations are on reporting death, intrusion with victim's and survivor's grief, interviews on survivors particularly on children, the extent of coverage of an emotionally-fraught situation especially in photo opportunities when the subjects are not fully aware of its purpose or their rights. Another issue is the conflict between the priorities of emergency and response, medical, relief, or government agencies and those of the media during a disaster.

Another emerging issue is the effect of reporting disasters to media professionals. "Compassion fatigue" is a secondary traumatic stress experienced by media professionals and journalists who report on disasters, emergencies and crisis. Media organizations have an ethical responsibility to support their members in such cases. The BBC is one news organization that requires its media staff to undergo a "Hostile Environment and First Aid Training" course before covering wars or natural disasters. This provides training in, among other things, post-traumatic stress disorder.

It is important that media professionals acknowledge and respect the privacy of those affected by disaster. This includes protection against additional distress caused by intrusion or the use of graphic or explicit images and language. Caution must be exercised against intrusion into personal grief and distress. Interviews or inquiries must be carried out with sympathy and discretion and publication must be handled sensitively at all times. Report reality as objectively as possible but disaster reporting should also be as balanced as possible to avoid

causing distress and anxiety. The use of appropriate language is essential.

Coverage of disasters should be done with compassion and empathy, not adding to the distress of survivors, relatives and victims. People already in distress must not be put under pressure. Ethical practices must be adhered to, no matter what the circumstances may be.

Following are some practical guidelines in ethical disaster reporting:

- Show compassion for those who may be affected adversely by news coverage. Use special sensitivity when dealing with children and those grieving. The Dart Center for Journalism and Trauma in the US has guidelines on this point: “Children are more vulnerable to trauma because of their size, age and dependence. Prior trauma, past mental health problems or a family history of such problems may increase a child’s risk. Traumatized children may want to tell their story, but it may not be in their best interests to be interviewed, and in some circumstances it can exacerbate their exposure to trauma.”

- Be sensitive when seeking or using interviews or photographs of those affected by tragedy or grief, as it may elicit traumatic memories and anxiety.

- Recognize that gathering and reporting information may cause harm or discomfort. Pursuit of the news is not a license for arrogance.

- Respect the work of emergency workers, relief and rescue squads, public safety agencies or other authorities especially during the immediate onset of disaster. Do not press for information that may not be cleared for official release yet.

- Avoid reporting that may instill fear and panic. Ensure that stories presented will not offend public taste.

- Be open and allow survivors to access the media to find lost relatives or to make public service announcements.

- Do not expose media crew or the public to danger (in cases of disaster) just to get a story.

- Crisis reporting lead to a tendency to focus on “numbers” such as death toll and damage counts. Focus should also be given to make appeals for displaced survivors and future reconstruction.

- Understand trauma, post-traumatic stress disorder, secondary traumatic stress, and victims’ rights.

- Remember that “compassionate reporting need not preclude getting the story.”

- Support other media professionals who become deeply affected by tragedy and needing emotional support.

chapter 3

useful information for the media

Introduction

Early Warning and Preparedness

Early warning and preparedness are two very important functions in saving lives and property, particularly in the developing countries, where authorities may not have huge amounts of resources to undertake structural mitigation measures.

The media has a very important role in promoting disaster preparedness and communicating about warning. Therefore, you must interact with the scientific experts and authorities before the approaching of a hazard and communicate to people about what actions they can take to reduce loss of life and property.

In order to assist you, in this part, information has been provided about various actions that people can undertake at the family or community level to avoid losses from different hazards that may occur in your country, e.g. typhoons, floods, landslides, forest fires, drought, tsunami or earthquake. Most of these hazards are seasonal in nature and they occur during certain months of the year on an annual basis.

In consultation with the officials of the National Disaster Management Office (NDMO) in your country you can use this information to raise awareness of people before the flood, typhoon or drought season.

We hope that this information will be helpful to you in performing your duties to save the lives of people in your country.

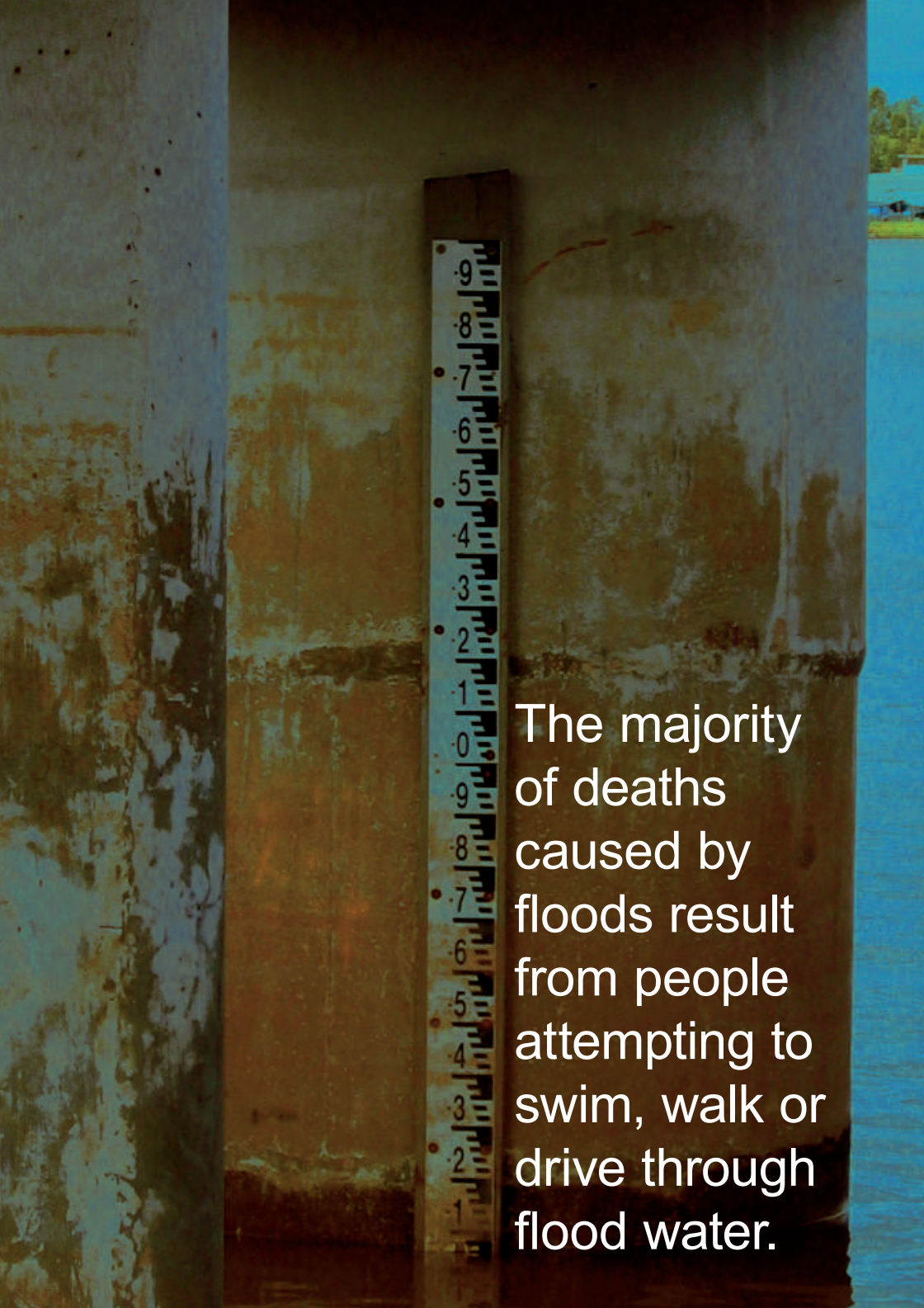
> Community-based **FLOOD** Preparedness

A **FLOOD** is a high flow or overflow of water from a river or similar source of water occurring over a period of time. Periods of heavy rain can result in an extra volume of water coming into the waterways, leading to increase in the water level of streams and rivers. A flood happens when the carrying capacity of the waterways fail to hold the total volume of increased water at any given time.

A **SUPERFLOOD** is a 'flood of danger' to people and settlement on a regional or sub-national basis. It can create widespread inundation and lead to disaster conditions. Such a flood may be expected every twenty years in some river basins and every one hundred years in others. Coastal floods may result from overhead rain or overbank flooding but can also result from storm-driven seas overflowing the land.

People who live near rivers or in low-lying coastal areas, live with the threat of floods. They are vulnerable to floods as they live in an area which can experience different levels of flooding. The closer the waterway is to the living area on a flood plain, the higher the vulnerability to flood will be.

Most countries in Asia experience frequent and devastating floods. Because of the vast differences in topography, climate and causes of flooding throughout Asia, it is only natural that wide variations in the physical aspects and effects of floods will be experienced.



The majority of deaths caused by floods result from people attempting to swim, walk or drive through flood water.

Types of Floods

Flash Floods.
These are characterized by a sharp rise followed by a relatively rapid recession soon after rainfall causing high flow velocities that damage crops and properties.

Rain flood due to high intensity rainfalls.
The very high rainfall intensities and durations in the monsoon season will often generate water volumes in excess of the local drainage capacity, causing local floods.

Monsoon floods from major rivers
The major rivers generally rise slowly and the period of rise and fall may extend over 10-20 days or more. Water spilling through distributaries and over the banks of major rivers cause the most extensive flood damage, particularly when several major rivers rises simultaneously.

Floods due to storm surges in coastal areas
Normally coastal areas in Asia consist of large estuaries, extensive tidal flats and low-lying lands. Storm surges generated by tropical cyclones and tidal waves cause flooding and extensive damage to life and property.

Flood Impacts

- Result in injury or death to people and animals
- Damage to houses, property and infrastructure. These include damage to facilities like hospitals, clinics, schools, roads, railways, telephone and electricity supplies
- Affect livelihood of people because floods destroy crops, farmlands and livestock
- Can cause food shortage
- Long-lasting floods can disturb routine cultivation pattern
- Can cause soil erosion. After floods, lands are usually covered with debris, sand or boulders which reduce farming areas and fertility of soil
- Disrupt clean water supplies and/or contaminate sources of water which can subsequently cause diseases
- Trigger epidemics, water borne diseases, help mosquitoes to breed resulting in the spread of malaria

Flood Dangers

Water depths and currents
The majority of deaths caused by floods result from people attempting to swim, walk or drive through flood water. Flood water depths and currents are easily misjudged and therefore capable of sweeping away and submerging even large vehicles.

Flash floods
Flash floods can not be easily predicted by weather forecasting departments. Living or camping in flood plains during rainy season is dangerous. Flash floods are fatal and kill many people because of the sudden release of water from water sources such as rivers or dams. During monsoon period, bathing or swimming in irrigation channels, storm water drains or inland rivers in mountain regions should be avoided.

Hidden dangers
Many of those who drown in floods may have been killed by a violent current of moving water or being hit by objects in the water or river bed. Simply being a good swimmer is not enough to survive. It is advisable not to enter or dive into flood waters when an obvious current exists. Just 6 inches of rapidly moving flood can knock a person down. A mere 2 feet of water can float a large vehicle such as a bus.

Other potential injuries
Possibility of hypothermia, a serious medical condition in which the body temperature falls to a very low level after being soaked for a long time. Risk of illness after drinking/ingestion of flood water or water contaminated with sewage or other hazardous waste. Electrocution by overhead or fallen power lines.

Flood Warnings

Before a flood strikes, there is usually a good warning period, except when flash flooding occurs because it happens too quickly and unexpectedly for warnings to be issued. Warnings are usually issued by local authorities such as the meteorological department. The following are the most common terms used in flood warnings:

Minor flooding
This causes inconveniences such as closure of minor roads or low land bridges.

Moderate flooding
Low-lying areas are affected, requiring removal of livestock, equipment, and evacuation of isolated homes. Main traffic bridges may be covered.

Local flooding
Intense rainfall could cause a high runoff in some areas, but would not usually lead to significant rises in the main streams.

Significant river rises
This warning is issued to indicate the uncertainty of the water level and the possibility of existing flood level to increase which may be exceeded in the main streams. It lets people know that possible rises are expected within a short period of time.

Once a flood warning is issued, it means that a flood is anticipated. The key factors that contribute to flooding and flash flooding and signs to watch are:

- Unusually heavy rain over several hours or steady substantial rain over several days
- When a typhoon or other tropical system is affecting the area
- When water is rising rapidly in streams and rivers

During this time, it is important to stay tuned to local weather announcements on the television, radio or community broadcast system to get accurate and timely storm updates. Be alert for signs of flash flooding and be ready to evacuate at urgent notice. Once a flash flood warning is issued in your area, or the moment you realize that a flash flood is imminent, act quickly to save yourself.

Flood Survival Tips

If you are living in an area prone to floods, following this advice can save your life and property.

Before the Flood

Flood preparedness

- Ensure that all communities and family members living in flood prone areas understand the dangers properly.
- Know the flood history of your area.
- Make a mental note of where the high ground is.
- Understand the flood warning messages, what will be the impacts of major, moderate and minor flooding to your area, and what are the areas vulnerable to different degrees of flooding.
- In times of adverse weather conditions, always listen to the official warnings issued by local authorities and news reports on the local radio or television.
- Prepare a flood emergency kit.
- Prepare and discuss the details of local flood hazard map with the involvement of other community members.
- Indicate the flood path and possible sequences of flooding in the area in advance.
- Evacuation plans should be made in advance. Each member of the family must be given specific instructions and responsibilities in case of evacuation.
- If your community has boats, make sure that they are well maintained and properly tied up to a tree or other permanent object.
- Protect community water supply sources.
- Inspect escape routes, houses, etc. before floods for weaknesses. If you find any, help to protect them by building up a wall of sand bags to block the flood waters.
- If communities are subject to flash floods, organize groups and plan for flood level monitoring and have a discussion on how the information can be disseminated.
- Organize a search and rescue (S&R) team and identify the areas which will be isolated in case of flooding. Prepare a plan for the S&R team.
- Organize a first aid team and ensure it has proper first aid equipment and emergency medicine kit.

Preparing an Emergency Kit

To survive during and after a flood, it is wise to prepare a flood emergency kit for each family member. The kit should contain:

- A portable radio and torch with fresh batteries
- Several fresh batteries
- Candles and water-proof matches
- Reasonable stocks of drinking water, canned food and food items such as instant noodles
- A medical first aid kit (with topical antibiotic, bandages, etc.)
- A supply of essential medicine for cold, cough, diarrhea, headache, fever and other common illnesses, etc.
- Strong shoes and if possible, a pair of rubber gloves
- A waterproof bag for clothing, documents and valuables
- A plastic bucket to collect fresh water until you get water supplies
- Your emergency contact numbers and addresses (who should be informed in case of emergency)

Surviving during a flood

- Keep your emergency kit safe and dry.
- Do not eat food which has been in contact with flood water. Do not eat spoiled food supplied by outsiders, which can contain bacteria to make you ill. Do not eat dead animals, which may have died due to diseases.
- Collect rainwater until you get fresh water supplies. Boil all water before drinking it. This is a better and safe way to obtain water until other water supplies have been declared safe.
- Do not use water from dug wells during such times until it has been declared safe by authorities.
- Do not use gas, electricity or other electrical appliances which has been flood affected, until they have been safely checked.
- Watch for your children; do not allow them to play or swim in flood water.

- Beware of poisonous animals such as snakes and spiders which may move to drier areas in your premises.
- Avoid wading even in shallow water as it may be contaminated. If you must enter shallow flood water, wear appropriate shoes. The contaminated water and soil can be harmful and can cause skin diseases.
- Check with the police or local authorities safe routes before driving anywhere and do not enter flood water without checking depth, current, etc.
- If on foot, do not attempt to walk through flood waters, turn around and go safely to higher ground.
- Keep away from river banks in the flooded area as these may be undermined and may collapse.
- If your vehicle stalls in flood water, immediately abandon it and climb to higher ground.
- Listen to local radio and TV stations and follow all advice and warnings.
- Discuss the situation with community members, village leaders and authorities during such time until the flood threat is completely over.

Emergency Flood Proofing

Emergency flood proofing has to be put in effect at short notice. Methods commonly used involve building temporary embankments, levees, or barriers using whatever material easily accessible during the floods. Although inexpensive, it is hard work and requires good planning to ensure materials, labor and equipment are available with short notice.

The most readily available material is sand. Sandbags stacked to form a barrier against rising water levels are the most common emergency flood proofing technique. The bags must be strong enough to hold sand or other filling material and withstand the contact with water indefinitely because the water exerts pressure on the sandbags. If possible, a trench may be dug (along the center of the levee or embankment) to prevent the levee from moving.

The bags should not be too full with sand. This allows one to overlap another, which locks bags together. Bags should be placed in a way such that each layer is at a right angle to the layers above and below, to add stability. To prevent seepage, a durable plastic sheet can be placed to cover the side exposed to flood water. An alternative way could be to construct a stack of small wooden planks, empty oil barrels, etc. and then place sandbags in front of them to add stability. A plastic sheet can be placed to cover the side exposed to flood water in order to prevent passage of water through sandbags.

If evacuation is advised…

When you are advised to evacuate by community leaders or other local authorities, please follow the earlier plan agreed upon by the community. If you decide to leave the area on your own, please inform the responsible people, neighbors and give all the details of the place you are going to.

Before leaving take the following actions:

- Collect all your valuables, documents, certificates, etc.
- Stack your furniture and possessions above likely flood level
- Turn off electricity, gas supply and water and close windows and doors of the house
- Take care of all electrical appliances
- Empty freezers and refrigerators; leave the doors open; unplug them
- Do not forget your emergency kit
- Lock the windows and doors of your house before leaving
- Be sure to follow the recommended evacuation routes

After the flood

If your home has been flooded, the flood waters may recede in some areas, but many dangers may still exist. The following are things to remember after floods:

- Inform community leaders or your neighbors that you are returning home and obtain advice before making a decision.
- Roads may still be closed because they have been damaged or are still covered by water. If you happen to come across such roads with stop signs please avoid that road and find another way.
- Keep listening to radio for news. Additional flooding or flash floods may occur.
- Emergency workers may be assisting people in flooded areas, and you may be able to help.
- Try to avoid walking through flooded areas. Flooding may have caused familiar places to change since flood waters often erode roads and walkways. Flood debris may hide animals, broken bottles and sharp steel ends.
- If you must walk through flooded area, stay on firm ground. Standing water may be electrically charged from underground or fallen power lines.
- Use mosquito/insect repellant and use mosquito nets as you sleep.
- Do not go near river banks or where there are signs of landslides or to areas where people have been evacuated.
- Do not allow children to enter houses/buildings that have been flooded until it has been checked by an adult.
- Do not touch any damp electrical sockets or turn on the electricity if the house was previously flooded until it has been checked and dried out for some time.

Returning to normal life

Floods can cause emotional and physical stress. You need to look after yourselves and your family during the transition period. The following are ways to help you and your family return to normal life:

- Before entering the house, get advice from a skilled person about the supply of electricity, water, gas, etc. Get their advice on necessary repairs and do not enter the house if you cannot get any advice.
- Rest and eat well before starting cleanup operations. Make sure that there is no more threat of occurrence of floods in the near future.

- Get the assistance of skilled persons to repair leaks.
- Clean up, drain and start drying out the house when flood water recedes.
- Take out everything that is wet and can be moved out.
- On dry days, keep all doors and windows open. On wet days, keep windows slightly open.
- Drain away water in the house and try to increase the airflow into the house to assist drying process.
- Repair latrines and disinfect the water supply sources of the household.
- Check for trapped water and mud in all cavities. Check the condition of walls and fittings. If there are any signs of leaking walls, foundation damage, buckled flows, new cracks on walls, out of shape doors, etc., consult a qualified skilled person. Get a skilled person to inspect the condition of the house and take on further action, if the house is not safe for living.

How to lessen flooding and its impacts

- Have a meeting with the village community and leaders to review the proceedings during and after flooding. Draw lessons that can be learned and discuss where it went wrong, difficulties encountered, setbacks, as well as successes. Try to accommodate all recommendations in the list of preparedness actions for the next floods.
- Encourage community members to participate in cleaning up the environment and common areas.
- Plant bamboo or appropriate trees around the houses and in the common areas to prevent erosion.
- Stop cutting trees. Instead, plant trees. They provide a strong natural protection against floods.
- Do not throw trash in rivers or canals.
- Do not throw anything like cigarette butts, wrappers especially those made of plastic or non-biodegradable objects, anywhere which may clog or block the drainage system thereby impeding the flow of water.
- Support community activities intended to lessen effects of floods.

Community-based **FIRE** Preparedness

Fire is a chemical reaction between three elements: oxygen, heat and fuel. If any of the three elements disappear, the fire will disappear too.

1. FUEL - Fuel or combustible materials, e.g. newspapers, clothing, curtains, carpet, furniture, etc.
2. OXYGEN - Present in the air
3. HEAT- Flames, electricity, hot metal, or even a tiny spark of fire

If conditions are right, a fire can start almost anywhere at any time. Most fire hazards occur when the weather is dry and hot.

The heat source for starting a fire in nature can be natural (e.g. a lightning strike) or man-made (e.g. careless use of fire or even cigarettes, etc.). Fuels include anything from dry grass and leaves to branches, wood or houses. Different types of fuel burn at different temperatures because each substance has a so-called “ignition temperature.” The oil in the leaves of a eucalyptus tree is one of the most explosive fuels that exist in nature.

What are wildfires/forest fires/bush fires?

Fires can get out of control and spread over large areas very easily. For instance, an unattended small campfire may easily get out of control and cause a very large, uncontrolled fire. These escaped fires are often referred to as “wildfires.” Depending on what type of vegetation or material is burning they can be referred to as “forest fires,” “bush fires,” “grass fires” or “peat fires.”

Causes of Forest Fires

The most common natural cause of wildfires is lightning. However, most wildfires are caused directly or indirectly by people, for example fires can escape when farmers burn the land to make it more fertile (these are referred to as uncontrolled or escaped land-use fires) or by children playing with matches. Fires can also start when people are careless in using cigarettes, when cooking in the woods or in using campfires. Sometimes, people even start fires intentionally (arson).


Negligence and ignorance in
using home appliances have
caused many fires

Fire can be a useful tool for human beings as long as it is under control, but if it gets out of control it can become dangerous both for people and nature. Here are some examples of both positive and negative effects of fire for people and nature.

People:
- Positive effects: useful tool in agriculture, pastoralism and forestry
- Negative effects: harmful for human health and safety, destroys property (houses, stores, public buildings, schools, important equipment, etc.)

Nature:
- Positive effects: Fire can be useful in maintaining the ecosystems. It can stimulate the growth of grasses and help some plants to reproduce as some seeds can germinate only after a fire.
- Negative effects: Large and destructive fires can destroy and reduce the number of different types of plants and animals in an area, and can thereby permanently spoil the richness of the landscape.

What can be done to prevent forest fires from happening?
As most wildfires are caused by people, many of them can also be prevented. Here are some ideas on how you can prevent fires in your own neighborhood:
- Never play with matches. One stick can burn the whole forest!
- If you see someone playing with fire or throwing a cigarette butt in the woods, tell an adult about it immediately.
- Children should not be allowed to make a campfire without the help of their parents or other adults.
- If the weather is windy and dry, do not make a campfire.
- If the conditions are good and you decide to make a campfire, select an open place, far from trees, dry leaves and branches. Clean the earth of rubbish for 3 meters around the place where you plan to build a campfire.
- Never leave a fire alone!
- Before leaving the area, put out the fire carefully with water and earth.
- Keep the forest environment clean. Do not leave bottles or glass litter in the forest. They might act as a magnifying glass and start a fire.

- Plan landscaping with fire prevention in mind; create fire breaks (such as a green lawn, rock garden, or well-spaced trees) 10-30 feet around your home.
- Clear debris, prune dead and thin trees near any building.

Fires at Home

Your home together with your loved possessions can be destroyed by fire mainly due to carelessness. It can also injure, maim or kill members of your family.

Be aware of the **major causes** of fire in homes:
- Matches and smoking hazards
- Overheating and cooking hazards
- Electrical hazards
- Children playing with matches and other lighting apparatus

Matches and smoking hazards

A common act of carelessness is to throw away lighted matches and cigarette butts. Even pipe embers can produce a fire if they are in contact with combustible materials like newspapers and cloth.

Make sure that you extinguish all matches, cigarette butts and pipe contents before you dispose them off.

Do
- Provide ash-trays for matches and cigarettes.
- Extinguish all matches and cigarette butts completely.

Don't
- Throw lighted matches and cigarette butts into rubbish chutes or out of the window.
- Smoke in bed.
- Leave lighted cigarettes unattended.

Overheating and cooking hazards

Negligence and ignorance in using home appliances have caused many fires. Observe fire safety measures strictly to prevent any tragedy.

Do

- Unplug heat-producing appliances, e.g. irons and toasters, when you are not using them.
- Have sufficient ventilation for appliances such as your TV, video, refrigerator, etc.

Don't

- Leave your cooking unattended.
- Forgetfully leave your hot iron on clothes or the ironing pad.
- Leave combustible materials, e.g. curtains, clothes, etc., close to light bulbs.

Electrical hazards

Electricity makes your home appliances, e.g. TV, fan, kettle, etc. function. However, we must not forget about the potential fire hazards while using them. Always take care to use them properly and safely.

Do

- Switch off electrical appliances if not in use, especially irons, lights, fans, bath heaters, and TV.
- Always consult a qualified electrician for any electrical fitting.
- Inspect and replace worn-out insulation.
- Tighten any loose wire connection.
- Only use plugs that fit outlet (a three prong plug should only go into a three prong outlet).
- Check that wire insulation is in good condition.
- Keep motors and tools properly lubricated.
- Use extension cords only when necessary and only if they are rated high enough for the job.
- Use waterproof cords outdoors.
- Follow manufacturer's instructions for all electrical equipment.
- Leave electrical repairs to skilled maintenance personnel and licensed electricians.

Don't

- Overload a single electrical outlet.
- Use an over-rated fuse for an appliance.
- Trail wiring on the floor, under the carpet or through doors and windows. The wiring can become damaged & damp.
- Allow electric cords to contact hot surfaces (e.g. hot irons) and corrosive chemicals (e.g. acids).
- Don't overload outlets or motors.
- Don't let grease, dust, or dirt build up on machinery.
- Don't place cords near heat or water.
- Don't run electrical cords along the floor, under rugs and carpets or through doors where they can be damaged.
- Don't touch anything electric with wet hands.
- Don't put anything but an electrical plug into an electrical outlet.
- Don't use temporary wiring in place of permanent wiring.

Children playing with matches and other lighting apparatus

Children are naturally curious and will play with matches and lighting apparatus such as lighters, if these are left within their reach.

You have a responsibility to ensure the following:

- Don't leave matches and other lighting apparatus within children's reach.
- Forbid any child to play with fire, whether indoors or outdoors.
- Explain and teach them the dangers of playing with fire.

Other Fire Hazards in the Home

Flammable liquids
Flammable liquids such as petrol, paints and thinners vaporize readily and can catch fire easily.

Always observe the following:
- They should be used away from heat or any source of fire.
- They should be stored in small amounts, and in tightly closed metal containers and marked clearly.
- These metal containers should be kept away from heat or any source of ignition.
- They should not be used to start or revive a fire.

Domestic liquefied petroleum gas (LPG)
This is a common and convenient cooking facility. However, basic safety precautions must be noted.

- Ensure that the supply hose from the cylinder to the cooker is in good condition and tightly fitted. Such supply hoses should be of an approved type.
- Shut off the gas when it is not in use.
- Report any leakage from the cylinder and its fittings immediately to the authorized dealer or supplier.
- DO NOT attempt to search for leaks with matches or naked light. Open all doors and windows to ventilate the leaking gas.
- Cylinders should be kept in a well-ventilated area and away from heat. They should also be prevented from hard knocks.

Burning rubbish
It is illegal to dump and burn rubbish indiscriminately. Strong winds can blow burning debris into an unattended house or room and start a fire.

Lighted joss-sticks and candles
These pose a great fire hazard. Always ensure that there is no possibility of them falling onto combustible materials like paper, cloth, furniture, etc.

Curtains
Ensure that curtains or other combustible materials such as table covers or tablecloths are placed well away from cooking areas.

Home Fire Escape Plan

An escape plan is a strategy for a safe exit from your home during a fire.

Hopefully, you'll never have a fire in your home. But if a fire does occur, your safety will depend on calm, rational action. An escape plan can be your key to a safe way out.

Designing a home escape plan
Draw the floor plan of your home on a piece of paper. Post your plan where it can easily be seen (such as on your refrigerator). Be sure to include:

- All doors and windows
- Primary and alternate exits
- Emergency phone numbers
- Outdoor meeting place
- Special assignments (who will call fire department, sound the alarm, check that everyone got out, etc.)
- Location of smoke detectors

Hold fire drills regularly
Your plan may look good on paper, but will it really work? Regular drills allow you to test your plan and adjust it as needed. Practice using alternate escape routes. Children should practice getting out of windows (only while under a parent's/guardian's supervision)

Special plans/arrangements
Certain people face greater risks during a fire. You may need to make special arrangements for:

- Infants/children
- Elderly people
- Hearing-impaired
- Visually impaired
- Mentally retarded
- Physically handicapped

Fire Survival Tips

- Crawl to the door on your hands and knees, not on your stomach. Smoke and gases rise to the ceiling and the air is safer close to the floor.
- Feel the door before opening it. If it is cool, brace yourself against it and open it carefully. If you notice smoke or heat, close it immediately.
- Use an alternate exit (second way out - window if possible) if the door is hot or smoke comes through it.
- Signal for help by waving a sheet or any light-colored clothing if you cannot escape through the window.
- Go to your family meeting place in front and away from your home to check that everyone got out and to meet the fire department.
- Never go back into a burning building. Tell firefighters immediately if someone is left in the building.
- Seek medical help for burns and other injuries.

If You Discover a Fire, Don't Panic

- Get everyone out of the room on fire.
- Close the door of the room to stop the spread of smoke and fire. Then ensure that everyone gets out of the house.
- Call your local Fire Service or authorities. Make sure that members of your family know this number.
- If possible, try to extinguish the fire when everyone is safely out of the house. But only do so without endangering yourself or others.

If You Are Trapped

Be calm and follow these steps:

- Enter a safe room - preferably one which is overlooking a road.

- Shut the door behind you. Cover the bottom of the door with a blanket or rug to prevent smoke from seeping through.
- Shout for help from windows or other openings to alert passers-by. Then WAIT FOR RESCUE.
- Don't jump out of a high-rise flat. Help is on the way very soon.

If Your Clothing Catches Fire

What should you do if your clothes (or someone else's clothes) are on fire?

- Lie down immediately. This will prevent the flames from burning your face as they burn upwards.
- At the same time, roll your body against the floor to help smother the flames.

If You See Another Person's Clothing On Fire

- Force him onto the floor.
- Grab a heavy fabric (blanket, coat, rug, towel, curtain, etc.) and wrap it around him. BEWARE that your own clothes do not catch fire too.
- Call for the medical ambulance immediately.
- Enlist the assistance of a doctor, nurse or first aid person and treat the victim for burns and shock before the arrival of the ambulance.

Reminders For The Family In Case Of Fire

- Make sure all family members know how to “Stop, Drop and Roll.”
- Have an emergency plan established, including where to meet in case of fire.
- Practice emergency exit drills, with two ways out of each room.
- Protect valuables in a fire-proof safe and/or away from the home.
- Make sure children can reach windows and know how to open door and window locks.

What To Do In A Fire Emergency, In Case Of:

- SHOCK - Don’t touch the victim. Turn off power immediately if possible and call the fire department for medical help. Use a stick, rubber, cloth or other non-conducting aid to move the victim away from the shock source. If not breathing, give artificial respiration. If the heart has stopped, give CPR. Try not to move the victim. Keep the person lying down and lightly covered.

- ELECTRICAL FIRE - Don’t use water or touch the burning object. If possible to do it safely, unplug or turn off the current. If the fire is small, put it out with a CO2 or multipurpose ABC extinguisher. Always notify the fire department immediately.

- BURNS - For minor burns, rinse with cool water and cover with clean dry cloth. Cover a major burn with a clean dry cloth and seek immediate medical attention.


Mining...farming activities on slopes...clearing land for cultivation...commercial logging...These activities increase surface run-off of rainwater and expose the soil to erosion.

Community-based **LANDSLIDE** Preparedness

A LANDSLIDE occurs when part of a natural slope is unable to support its own weight. For example, soil material on a slippery surface underneath, can become heavy with rainwater and slide down due to its increased weight. A landslide is a downward or outward movement of soil, rock or vegetation under the influence of gravity. This movement can occur in many ways. It can be a fall, topple, slide, spread or flow.

The speed of the movement may range from very slow to rapid. The mass of moving material can destroy property along its path of movement and cause death to people and livestock. Although landslides usually occur at steep slopes, they may also occur in areas with low relief or slope gradient. Listed below are some examples.

- Cutting failures can occur during highway excavations, building construction, etc.
- River bank failures
- Lateral spreading of soil material
- Collapse of mines, waste piles and garbage fills
- Slope failures associated with quarries and open-pit mines
- Underwater landslides on the floors of lakes of reservoirs and offshore marine settings

Causes of Landslides

The basic causes of slope instability can be:

- Weakness in the composition, material or geological structure of rock or soil formation.
- External factors, which impact the ground water regimes, such as:
  - Heavy rain
  - Snowmelt
  - Changes in ground water level, etc.
- Earthquakes or volcanic activities
- Creation of new site conditions such as changes to natural slope due to construction activities.

Natural and man-made changes to such unstable slopes can trigger landslides.

Man-made Causes

These are human activities on slopes such as:

- Construction done without proper engineering inputs
- Farming practices
- Removal of vegetation cover and deforestation, etc.

These activities may cause increase in slope gradient or significant change in surface and ground water regimes adding to the instability of slopes.

Excavations or cuts increase the slope angle and fill operations carried out without specialist advise. Mining, blasting rock or reclamation of land can also destabilize slopes. Farming activities on slopes involve removal of vegetation cover usually followed by terracing. Sometimes, farmers burn down vegetation as a convenient method of clearing land for cultivation. Commercial logging results in deforestation. These activities increase surface run-off of rainwater and expose the soil to erosion. Changes in water regime result from raising or lowering of ground water table. Alteration of surface drainage can also be a contributory factor. Irrigation alters natural surface drainage. Surface run-off of irrigated water on slopes exposes soil under cultivation to erosion. Part of this water is absorbed by soil increasing its weight, which can put an additional load on the slope. Seepage and accumulation of irrigated water on slopes can raise the ground water table. This can also result from wastewater discharge, water pipe leakage, leakage from permanent and temporary storage facilities such as ponds and subsurface irrigation facilities.

Human activity can also lead to the lowering of the water table. Pumping from unlined water supply wells, rapid lowering of water level in rivers, lakes or reservoirs can bring about lowering of the water table under soil.

Natural Factors

There are several natural factors that can cause slope failure. These are outlined below:

- Intense rainfall or deposition of snow will raise the ground water table, decrease the soil strength and increase weight of associated material.

- Rapid snowmelt in mountains - Rapid melting of snow adds water to soil mass on slopes.
- Fluctuation of water levels due to tidal action
- Lowering of water level in rivers, reservoirs, etc.
- Erosion caused by continuous runoff over a slope. The removal of trees and lateral support of a soil mass by flow of water in streams, rivers, wave action, etc. can bring about instability of the soil mass.
- Deposition of loose sediments in delta areas
- Deposition of rocks
- Ground vibrations created during earthquakes
- Volcanic activity - In areas where there is an existing volcano, volcanic ash deposits (sometimes called as lahar deposits) are prone to erosion and subject to mud flows due to intense rainfall.

Combination of Factors

There is the possibility that several natural factors occur simultaneously. In some cases, one hazard triggers another. For example, an earthquake may trigger a landslide, which in turn may dam a valley causing upstream flooding and subsequent dam burst. This will lead to flooding in lower catchment areas. Another example can be where heavy rainfall is accompanied by cyclonic wind. This can cause wind debris flow and flooding in the same area. Interactive events that occur in sequence may produce cumulative effects that are significantly different from those expected from any single event.

Direct Impacts of Landslides

Physical damage - Anything on top of or in the path of a landslide will suffer damage. Debris may block roads, supply lines (telecommunication, electricity, water, etc.), and waterways.

Casualties - Deaths and injuries to people and animals.

Indirect loses - Loss of productivity of agricultural and forests land, reduced property values, erosion, flooding in downstream area, etc.

Indirect Impacts of Landslides

Influence of landslides in dam safety. The safety of a dam can be severely compromised by land sliding in the upstream area of the dam

or on the slopes bordering the reservoir. Possible impacts include:

- Flood surges caused by movements of large masses of soil into the reservoir. The wave formed by those failures can overtop the dam causing downstream flooding and possibly failures to the dam.
- Increased sedimentation in the reservoir, resulting in loss of water storage and increased likelihood that the dam will be overtopped during periods of excessive runoff.

Landslides and flooding. Landslides and flooding are closely associated because both are related to intense rainfall, runoff and ground saturation. Debris flow can cause flooding by blocking valleys and stream channels, forcing large amount of water to back-up. This causes backwater flooding in the upstream area and if the blockage gives away, quick downstream flooding too. In turn, flooding can cause landslides, due to rapidly moving floodwaters, which often undercut slopes or abutments. Once support is removed from the base of saturated slopes, land sliding often takes place.

Landslides and seismic activity. The occurrence of earthquake in steep landslide-prone areas greatly increases the likelihood of devastating mudflows and reactivation of mass movements on slopes.

Large fills can become unstable due to moderate seismic activity if proper lateral support is not provided. Damaged electrical wires also may start fires.

Indicators of Landslide Phenomenon

Areas prone to landslides and rock fall hazards

- Areas with a history of landslides
- Base of mountainous slopes with small streams or drainage paths
- Areas adjacent to a base or top of a cut or fill slope
- Developed hill slopes (settlements) where leach field septic systems are located
- Area adjacent to the base of rock mass showing joints
- Area at the base of a steep slope with a lot of detached but buried boulders

Areas that are considered to be safe from landslides but have a potential risk.

- Escarpment or faces of hard bedrock that have not moved in the past but have a few joints or narrow cracks developed within the mass
- At the top or along the nose of ridges adjacent to steep high slopes
- Steep slope areas with thick soil mass free of vegetation
- Areas where slope angle changes abruptly and variations occur in the thickness of soil, as a result of construction activities
- Relatively flat areas with thick soil mass and frequent seepage

Features that might be noticed prior to major landslides or rock fall in mountainous areas

- Sudden appearance and rapid expansion of cracks on road pavements or ground surface
- Sudden appearance of springs, seepage traces or patches with ground saturation in areas that have not typically been wet before
- Sudden movement of soil masses away from building foundations
- Movement of pavements, decks, sidewalls of structures, or bulging of retaining walls relative to the main structure
- Tilting or leaning of trees, lampposts, telecommunication poles, fences, retaining walls, etc.
- Sudden breakage of water supply lines and other underground installations
- Subsidence of roads, pavements, ground, etc.
- Rapid increase in water levels in pools creeks, streams, etc. in mountainous areas
- Increased turbidity in stream water flow
- Sudden appearance and disappearance of creeks

- Sudden appearance and rapid enlargement of cracks on walls of houses
- Sticking doors and windows, visible open spaces between windows and their frames

Landslide Preparedness Measures

- Meet the authorities and discuss the problem of landslides if your community experiences them regularly.
- Community members can prepare hazard maps and define the limits of danger zones so as to regulate the activities within those zones.
- Organize Watch Groups and Rescue Teams within the community.

Measures to Reduce the Likelihood of Landslides

- Try to protect the slopes. Prevent people from excavating or removing materials from the soil or cutting trees without proper advice from specialized institutions.
- Replant trees where they have been removed on slopes and slope base to prevent soil erosion.
- Keep records of erosion, landslide masses and falling rocks. Never construct buildings on their debris without proper guidance. Loosened masses can subside when load is added to them.
- Avoid building houses at the base of slopes that are prone to landslides. Before purchasing a piece of land or building on your own land, try to get as much information as possible on its history of landslides. Elders of the area can give you information on past incidents.
- Observe the features on the up slope area before you start any construction. Fill areas constructed above

lacking appropriate slope retaining structures, rock debris or boulders can move into your land. Make sure about the stability of the up slope area before you start to build on your land. If you are in doubt obtain advice from a specialist on the subject.

- Do not obstruct natural streams or drainage paths during construction. Be mindful of the other structures on the down slope. Avoid dropping rock pieces, boulders, loose earth, etc. down the slope during construction. Introduce a retaining structure to prevent movement of fill material, if you need to fill your land located on the slope.
- When constructing on a slope, use a design that suits the natural slope. This will also save on the cost of construction. Do not remove vegetation and large trees while constructing.

General Advice

Preparedness measures for those living in landslide prone areas that should be observed during periods of heavy rain.

General guidelines for those living in a landslide-prone area

- Listen to weather forecast on the radio, TV, etc. about heavy rains. Continuous heavy rainfall during a 24-hour period or a high-density rainfall within a period of a few hours has the potential to trigger landslides. This threshold limit may vary depending on the strength of material and slope gradient.
- Be alert if you are living in an area in which landslides occur regularly. Organize groups to inspect the slopes.
- Remain awake during nights of heavy continuous rain and be ready to move to a safer location.
- Observe the symptoms mentioned above such as appearance of cracks and their rapid expansion over the slope. They may indicate the possibility of a landslide. Inform the authorities when such symptoms are recognized.
- Listen for abnormal sounds of soil and rock movement or breaking of trees. They may be associated with landslide movements.

- Observe abnormal behavior of domestic animals such as dogs and cats. They are very sensitive to natural hazards. They might indicate the danger by making unusual sounds, unruly behavior, etc.
- Never go closer to observe cracks on the slope. If you spot cracks, inform the authorities and move out from the area.
- In case you need to evacuate, do so immediately. Do not try to collect your belongings. Landslides can occur suddenly.
- While evacuating, do not cross possible landslide paths.
- When you see falling rocks, seek cover behind trees and other solid objects.

For those living at the base of mountains in areas with high seismic activity

- There is a strong possibility that an earthquake, even a minor one, may trigger landslide movements especially in areas where landslides occur regularly. Therefore, be alert when an earthquake occurs. Try to organize groups to monitor the situation.
- Organize groups to inspect slopes during and after heavy rains. Remain awake in the night and be ready to evacuate at short notice.
- An earthquake can be a warning for a landslide. If a noticeable change is observed in up slope such as appearance of cracks, the fall of boulders, collapse or smaller mudflows, do not stay at the base of the slope. Move away.
- Ground shaking associated with earthquakes will continue for some time. There can be a series of earthquakes that follow each other. If you were requested to evacuate, do not return until the authorities announce that the area is safe.
- Landslides that occur as a result of ground shaking can create a large volume of mudflow along the slope into the valley. Therefore, do not move in the direction of the valley if you are requested to evacuate, move to elevated areas.

For those living at the base of mountains with high volcanic activity

- Observe the slopes with deposits of ash and rock debris. Organize groups to inspect the slopes during the period of continued rain. Remain awake in the night and be ready to move to safer locations with short notice.
- If a landslide occurs on a slope where deposits of ash are observed, it can create a considerable volume of mud. Therefore, do not move

in the direction of the valley if you are requested to evacuate. Move to the identified safer areas.

For those living adjacent to filled ground or reclaimed land where slope protection measures is not adequate to retain the filled mass

- Observe any land subsidence. If your house is located on the fill or at the edge of such an area, inform the authorities when you notice a change.

For those living adjacent to river banks

- Listen to weather forecasts especially for heavy rains in the upstream areas, which may cause floods in the lower areas.
- Observe any cracks that may appear parallel to the riverbank.
- Observe any cracks on the ground where your house is located.
- Observe any cracks on the walls or foundation of your house.
- If you notice any expansion of those cracks, inform the authorities and immediately move to a safer area.
- Such observations have to be made both during the rise and the decline of water levels. Rapid draw down of water may cause more dangerous slips on riverbanks than while water is rising.
- Do not send children to make such observations. The riverbank may collapse without warning. Keep children away from the slopes on riverbanks.

For people living at the foothills closer to stream beds with large upstream catchments area

- People living in these areas can be surprised by flash floods.
- Weather forecasting institutions cannot predict flash floods. Listen to weather forecasts about heavy rainfalls. Observe cloud movements toward mountain peaks. Heavy rainfalls, which have a potential to trigger landslides, may be caused by cloudbursts. Resulting flash floods can contain a considerable quantity of mud and can be very dangerous.
- Be alert if you are living in an area where flash floods occur regularly. Organize groups to inspect river flow conditions.
- Living or camping out in the rainy seasons on flood plains where there is history of flash flood is very dangerous. Be extremely careful.
- Observe any unusual movement of wild animals into the village during heavy rain. It may be an indication of the development of floods in the upstream area.

For those living on a slope or at the base or in an area closer to a spring or small stream

- Be especially alert. If you observe a sudden drop or increase in water flow with water changing from clear to muddy, alert your neighbors and keep away from that area.

After a Landslide

- Do not enter the area without permission from the authorities.
- Do not enter damaged buildings until the authorities declare them as safe.
- If you are engaged in the removal of debris or the digging up of bodies buried in the mass, do so in an organized way. Consult members of the affected community before using any heavy machinery or equipment. Lives can be saved if services of experienced rescue parties can be obtained.
- Try to remove water from the debris deposit. Divert all water paths away from the affected slope area and the debris.
- Do not allow children to go through the loose and new deposits of debris. The surface may appear to be dry but the wet conditions can prevail within the mass.
- Remember: One slide can follow another. The slide area can be further enlarged with subsequent movement of debris.
- Define the limits of the area as landslide affected area. It is better, if a signboard can be placed to warn others not to disturb the area.
- Consult a specialized agency before carrying out future development work in and around affected area. Advice community members accordingly.
- Make representations to your local authority to divert roads, pipelines and telecommunication lines from the affected are. Help them to find suitable safe areas to relocate them.

Be vigilant! If a landslide occurs near your home, check the foundation and walls of your home for cracks. Search for any new cracks in the surrounding area. Look out for any symptoms of landslide movement. Be vigilant during the monsoon period. Be especially vigilant during and after intense rainfall.

Community-based **TYPHOON** Preparedness

A TYPHOON is an intense tropical disturbance characterized by a low pressure area at the center. In the Northern Hemisphere, as a result of the earth's rotation about its side, the wind blows counterclockwise around the center of a low pressure area, and in the Southern Hemisphere, the wind blows clockwise. The typhoon is the strongest of a class of weather disturbances called tropical cyclones.

Formation of Typhoon

- Warm, moist air above the sea rises quickly to the cooler high altitudes causing a very low pressure area and formation of cumulus nimbus clouds.
- Surrounding air at the sea surface moves in to take the place of the rising air. Rotational forces of the earth result in a circular motion of the winds and cloud formations around the central low-pressure area. The motion is clockwise in the South Pacific.
- Colder air is drawn slowly to the center of the system forming the eye of the storm.
- Winds close to the eye become very strong (hurricane force).
- Entire cyclone systems are moved along by the trade winds at speeds of between 10-25 km per hour.

The Eye of the Typhoon

The "eye" of a typhoon is a small central area of some 10 to 50 kilometers in diameter. It is characterized by relatively calm or light winds, clear to partly cloudy skies, high humidity, warm temperatures, and usually fine weather.

Classifications of Tropical Cyclones

Tropical cyclones are classified according to the strength of the accompanying winds. The three categories into which tropical cyclones fall are:

- **Tropical Depression.** Maximum wind speed near the center is less than 63 kilometers per hour
- **Tropical Storm.** Maximum wind speed near the center ranges from 63 to 118 kilometers per hour

Keep listening to the radio for official messages and weather forecasts...

image source
http://www.pacificworlds.com

- **Typhoon.** Maximum wind speed near the center is 118 kilometers per hour or greater

Impacts of a Typhoon
- Loss of lives and property
- Injuries
- Disruption of public services and utilities, including communications, transportation of all types, electrical power, water supply and sanitation
- Damage to roads, bridges, dams, runways and harbors
- Damage and total destruction to agricultural farms
- Massive floods and flash floods

Typhoon Preparedness

Preparedness is defined as the measures taken to reduce, to the minimum level possible, the loss of human lives and other damage, through the organizing of prompt and efficient actions of response and rehabilitation.

There are four main stages when preparedness activities should be undertaken: preparation for the typhoon season; when typhoon warnings are issued; during the typhoon; and after the typhoon

Preparation for the Typhoon Season

The purpose of actions here are to undertake long-term and annual practical and planning measures to reduce vulnerability in the event of a typhoon:
- Check the house for weak points - loose or damaged wooden frame or wall cladding, loose or missing nails, termite or moisture damage to wooden structure - particularly the house corners and bracing. Make any necessary repairs.
- Check the roof for loose sheeting or loose nails, etc. Use spiral thread nails for repairs.
- Ensure that windows can be protected either by shutters (make some if necessary) or by taping.

- Clear trees and branches that overhang the house and any dead trees from around the house.
- Make sure gutters are not broken and will take water to the tank if you have one.
- Clear gutters, drains, creeks and streams of any debris so that they can carry rainwater away quickly and reduce the risk of flooding.
- If you are planting crops, plant some in places where they are sheltered from the wind (taro under trees, etc.).
- Livestock owners should identify a safe fenced enclosure, above flood level, to which their animals could be moved when a typhoon approaches. If none exists, neighborhood farmers might work together to prepare an appropriate enclosure.
- Prepare a home emergency kit and make someone responsible for maintaining it (a good job for a 10 year old child). It should include:
  - Water containers with covers (large jars, soft drink bottles, etc.)
  - Dry or tinned food and a can opener
  - Plastic sheeting, bags and sacks
  - Battery powered or wind-up radio
  - Lighting (torch, candles or lamp with fuel and spare wick)
  - Spare batteries for the radio and torches, matches
  - First Aid Kit (bandages, clean cloths, antiseptic, antibiotic, pain reliever, etc.)
  - Any medicines that family members must take
  - Change of clothing for everyone
  - Rope/string, hammer and nails to tie things down

NOTE: If some of the above items have to be in daily use, they should be listed as part of the emergency kit and brought together when a typhoon approaches.

- Keep important documents in one place, preferably in a plastic bag, so that they are protected and can be collected quickly if evacuation is necessary.

- Have a family conference and plan for typhoons, making sure everyone knows what is in the emergency kit and where it is kept.
  - The nearest safe shelter if the house is threatened or damaged
  - How to get safely to that shelter
  - The most important items to be looked after, and where they are kept
  - Where to meet if the family cannot get home in time (children may be at school or parents away working or visiting)
  - How and where to get help if needed
- Find out about the typhoon warning system, particularly where warnings can be obtained.
- Find out about the local disaster plan and particularly where official shelters are situated.

When Typhoon Warnings are Issued

The purpose of actions here are to undertake immediate emergency measures before the typhoon strikes.

When the typhoon is **less than 2 days** away

- Check buildings again for any weaknesses and repair them. Particular attention should be paid to roofs.
- Clear the area round the house or buildings of any loose objects that could blow around and cause injury or damage. This may require clearing coconut trees of nuts and old and dead fronds and other trees of dead branches. Remove any branches that hang over buildings.
- Consider storing some dry wood for cooking fuel in an emergency.
- Place any possessions you need to keep under cover or tie them down.

- Reinforce roofs by tying ropes and branches or planks over them and anchoring the ropes at ground level. Don't put rocks or bricks on the roof - they may fall on somebody.
- Locate and prepare shutters or get tape or newspaper to cover windows.
- Collect chickens, ducks and other small animals and place them inside a secure building in cages or boxes above flood level.
- Move livestock to an enclosure above flood level. Do not tether animals unless there is no alternative. If they must be tethered, give them more room to move than usual and, again, make sure they are above flood level.
- Check the emergency kit and emergency food supplies, replenishing as necessary. Check emergency radios, torches and their batteries. Check fuel supplies.
- Make sure you have food for at least 3 days. Place emergency food supplies in a waterproof and hurricane proof container.
- Fill vehicles with fuel. Store light trailers and carts away from trees and lash them down. Remove wheels for added safety.
- Don't go to sea in a small boat. If you are at sea fishing or traveling in a small boat, get ashore as soon as possible.
- If possible, take small boats to higher ground, turn them over and secure with ropes. If this is not possible, consider filling them with sand and sinking them in shallow water for recovery after the storm. Secure larger boats in safe havens with extra lashings or anchors.
- Keep listening to the radio for the latest warnings and advice.

When the typhoon is **less than 24 hours** away
Rain and wind usually had started to increase some hours earlier.

- Complete any of the previously-mentioned measures that were not finished.
- Dismantle well pumps and place them in a safe place. Cover wells.
- Harvest and store any ripe crops. Cut most leaves of cassava and banana trees to reduce wind damage.
- Close and secure windows with shutters and tape. Put extra catches and crossbars on doors and windows.
- If you have no shutters or tape, it is advisable to paste a thick layer of newspaper or other paper over the inside of windows using a paste made from water and rice, cassava or taro starch. This may not stop windows breaking but will reduce the chance of people inside being sprayed with bits of broken glass if the window breaks.
- Fill water containers with safe drinking water and cover them. Try to have at least 5 liters for every person in the family. Fill other containers with water for washing, etc.
- Remove clocks, pictures and wall hangings from walls and other objects from shelves. Secure those items in a safe place, preferably above flood level.
- Place valuables, equipment, tools and appliances in a small room that is considered the strongest in the house. If possible move them above flood level.
- Place papers in plastic bags and store above flood level.
- Cover larger furniture, filing cabinets, computers, etc. with plastic sheeting or large plastic bags. Small office equipment, including telephones, can be placed in drawers.
- Remove all clothing, etc. from lines and drawers and store in plastic bags and sacks.
- Confirm that the emergency food supplies are in a safe place with some protected cooking utensils.

- Remove and store glass objects that might get broken and cause injuries. These include light bulbs, fluorescent tubes and lampshades.
- Turn off and unplug electrical devices. Switch off the electricity's main source at the switch box (but not while standing in water - stand on a chair or wooden box if the floor is wet).
- As the wind increases, make sure everyone is sheltered, particularly children and the elderly. Try to get everyone to shelter in the smallest and strongest room in the house.
- Keep listening to the radio for the latest warnings and advice.

Evacuation before the typhoon

- If you live in area subject to river flooding, or close to the beach at a low level, you should move to a safe shelter above flood level before the typhoon arrives. Don't wait until the last minute in the hope of saving all your possessions. You could disappear with them!
- When you are evacuating, make sure everyone knows where you are going and that there is plenty of time to get there. If time is limited, take only blankets, clothes and food. If there is time to gather supplies, follow priorities. Suggested priorities are:
  - Plastic sheeting
  - Important documents and paper
  - Emergency water
  - Matches and a lamp
  - Torch with spare batteries
  - Extra food
  - The rest of the emergency kit
  - Other valuables
- Wear strong clothing and shoes (not thongs) to protect against glass cuts.
- Put cooking utensils from outside kitchens into the house.
- Switch off electricity and gas and lock the house before you leave.

- While evacuating, be careful of:
  - Washed out bridges
  - Broken power lines
  - Floating debris in streams
  - Falling trees and branches
  - Blowing building debris, particularly glass and corrugated iron
- Do not walk through water more than knee deep. Flood currents can be very strong.
- On arrival at any official shelter, register so that somebody knows where you are.

During the Typhoon

Actions here are focused on preventing human injury and loss of life:

- Stay inside.
- Keep calm until the emergency has ended.
- Shelter in the strongest part of the house where most walls are helping to hold the roof up.
- Stay away from glass windows and doors, particularly glass louver windows.
- Open windows a little on the side of the house opposite to that on which the wind is blowing. This helps to equalize pressure and reduces the risk that the roof will lift off. As the wind swings round, close the original windows and open windows on the new downwind side.
- Beware of the calm 'eye' of the storm. This can last for an hour or so. If the wind drops suddenly, stay inside unless you have to make emergency repairs.
- Close the windows and be ready to open them on the new downwind side as soon as you know where the wind is coming from. If you have to go outside, take shelters again as soon as you hear the sound of wind rising. It will probably rise very quickly, be very strong and come from a new direction.
- If the house starts to break up, protect everyone with mattresses or blankets; hold on to strong fixtures or shelter under beds or strong tables.
- Listen to the radio whenever you can for forecasts and messages.

After the Typhoon

Actions here are focused around starting to deal with the impacts and damages from the typhoon:

- Check that everyone is safe and uninjured. Treat any injuries, keep them clean and covered.
- Check that neighbors are also safe and rescue any that are trapped.
- If you had left your home, don't go back until it is safe to do so. Return by a safe route taking all the precautions you took when evacuating.
- Repair damage as best as you can.
- Collect any fallen fruit or damaged crops that can be used.
- Check refrigerated food for spoilage if power has been cut off during the emergency.
- Clear up debris, particularly any that might cause injuries, and stack it tidily.
- Keep away from fallen or broken electrical or telephone lines.
- Disconnect all appliances before switching power on, then switch on lights and connect appliances gradually, being ready to disconnect quickly if there is a problem.
- Boil any water used for drinking.
- Report to disaster authorities any casualties or damage that you cannot deal with or any help that is needed.
- If you are in a village or isolated place and have a serious casualty who needs outside help, mark out a large cross "X" on the ground, preferably with white or light colored cloth or other materials. This will help aerial survey aircraft to know that you need help.
- When you have time, start to clear roads and airstrip so that help can reach you more easily.
- Keep listening to the radio for official messages and weather forecasts - don't forget that typhoons have been known to come back.

Community-based **DROUGHT** Preparedness

DROUGHT has many definitions. One of the most commonly accepted definition is that drought occurs in circumstances arising due to “temporary reduction in water or moisture availability significantly below the normal or expected level for a specified period.” Often, drought is associated also with other climatic factors such as increased temperature and reduced humidity.

Types of Drought

There are three types of drought namely, meteorological, agricultural and hydrological.

Meteorological drought. Usually defined by a significant decrease from normal precipitation over an area. As per the Indian Meteorological Department (IMD), meteorological drought is defined as occurring when the seasonal rainfall received over an area is less than 75% of its long-term average value. It is further classified as moderate drought if the rainfall deficit is between 26-50% and severe drought when the deficit exceeds 50% of the normal.

Agricultural drought. Occurs when there is not enough soil moisture and rainfall is inadequate to support crops. Agricultural drought happens after meteorological drought

Hydrological drought. Refers to marked depletion of surface water and fall in water tables. Generally, hydrological drought follows agricultural drought


Consider alternative on-farm related businesses... Diversification can be a good long-term approach to revenue shortfalls from drought

What are the Different Periods When Drought can Occur?

Drought can occur due to lack of rainfall in the following three periods:

Early season drought. The early season drought occurs in association with delay in commencement of sowing rains.

Mid-season drought. Occurs in association with breaks in the monsoon. If it occurs during the vegetative phase of crop growth, it results in reduced or slow plant growth.

Late season or terminal drought. Occurs because of early cessation of the rain season.

Causes of Drought

There are several causes for the occurrence of drought. Some of the main causes are:

- Failure or erratic behavior of monsoon
- Overexploitation of surface and ground water
- Inadequate water conservation measures
- Depletion in forest cover
- Slopy and undulating terrains
- Shifting of agricultural practices (low to moderate water demand crops to high crops)
- Meager irrigation facilities
- Poor water management practices at household and farm level

Impacts of Drought

Drought has a multifaceted impact that includes physical, bio-physical, social, and economic consequences.

Physical

- Scarcity of water for drinking, domestic and irrigation purposes
- Depletion in ground water level
- Reduced flow from perennial water sources
- Land degradation

Bio-physical

- Increase in deforestation/forest cover removal
- Scarcity of fodder
- Damage to crop quality
- Livestock death or incapacitation
- Unusual movements of flocks and herds in search of pasture
- Impaired productivity of forest lands
- Direct loss of tree, especially young ones
- Extinction of endangered species and loss of bio-diversity
- Drying up of water sources and deterioration in water quality
- Damage to fish habitat
- Decline in crop production or negative impacts on agriculture economy

Economic

- Loss from dairy/fishery/other livestock production
- Loss of livelihoods/employment opportunities
- Increased prices of food/fodder
- Falling of current agricultural and non-agricultural wages

Social

- Migration of people in search of alternative livelihood
- Loss of human life (heat stress, suicides, starvation, deaths, unhygienic conditions in the working areas)
- Distress sale of assets (movable and non-movable)
- Increased inequity among social groups
- Increased conflicts - water user's conflicts, political conflicts and other social conflicts
- Negative impacts on nutritional status
- Increased mental and physical stress (e.g. anxiety, depression, loss of security, domestic violence, etc.) and morbidity
- Increase in crime rate
- Social cost of migration, e.g. break-up of communities and families
- Inability of certain groups within the population to afford increased food prices results in switch to cheaper and sometimes less preferred foods or reduction in overall food intake, etc.
- Loss of education due to reduction in school attendance by children lacking energy and/or money for fees, and increase in child labor

Drought Preparedness

Before the drought

- Examine your water use efficiency and irrigation needs.
- Keep up-to-date forage inventories. Accurate forage inventories in silos, haymows and other storage areas help you to determine feed supplies during a drought.
- Consider alternative on-farm related businesses (AOFRB). Diversification can be a good long-term approach to revenue shortfalls from drought. Some potential businesses include:
  - Alternative crops such as shiitake mushrooms, ginseng, specialty vegetables, greenhouse plants, dried and/or cut flowers, etc.
  - Alternative livestock
  - Non-production farm-related ventures such as camping, fee hunting/shooting preserves, trout ponds, farm vacations, resort establishments, summer camps on the farm, herd sitting, boat and camper storage, and farm markets
  - Home-based enterprises including sewing projects, crafts, catering services, upholstery, secretarial services/word processing, taxidermy, etc.

During the drought

- Discuss financial and feed assistance in the early phase of a drought.
- Look to your country agricultural agent for up-to-date information on managing during a drought.
- Adjust fertilizer rates. If you have not yet applied fertilizers, adjust your rates based on lower yield expectancy for the drought year.
- Protect livestock from heat.
- Consider alternative crops.
- Consider selling unprofitable livestock.

Managing Livestock During a Drought

Drought usually gets its reputation from its impact on crops. But its impact on livestock can be equally dramatic. Hot, dry weather increases the water needs of livestock, but often decreases water supplies. Crops may not yield as planned, causing a feed shortage. Consequently, farmers may face special challenges, including decisions about whether to buy feed or sell livestock.

Water requirements may increase to double the normal intake for animals during hot weather. Clean, fresh water is important. If animals do not meet their water needs, they may refuse to eat, experience lowered production, become sick or die. Water supplies also may become a problem as the drought wears on. Wells and piping may be inadequate if water demand increases dramatically; shallow wells and streams may dry up. You may need to transport water.

- If animals are kept outside, provide shade during hot weather. Heat from the sun is a major culprit in overstressed animals.
- Swine may sunburn during hot, sunny weather. Try to keep them out of the sun.
- Turn cows outside at night to cool them and cool the barn. Since animals cool themselves primarily through breathing, barns tend to get warm and humid quickly.
- Maintain access to water. Provide automatic drinking cups so animals can meet their requirements during hot weather. Keep water containers clean.

Do's and Don'ts for Drought Preparedness

Do

- Arrangement of reasonable buffer stock of food grain and fodder
- Ensure supply of good drinking water in rural areas for human and livestock in drought affected areas.
- Assess fodder requirements in drought affected areas and locate areas where shortages are likely to occur and arrange supplies from outside.
- Fodder cultivation to be encouraged wherever feasible
- Rejuvenation of traditional rainwater system, viz. rivers, tanks, etc.
- Rainwater harvesting for both drinking and cropping purposes
- Management of human and livestock population to reduce pressure on fragile arid ecosystem

- Timely availability of credit, postponement of revenue collection and repayment of short-term agriculture loans
- Appropriate land-use planning (inter-cropping system); encourage sprinkler and drip irrigation system
- Provision for cattle camp in drought affected areas
- Creation of local task force in village to initiate relief measures immediately after the drought takes place
- Implementation of crop and livestock insurance schemes
- Early warning and drought monitoring should be carried out on long, medium and short-term forecast

Don't

- Misuse water
- Destroy natural vegetation
- Overgraze animals
- Cultivate water loving plants in water scarce areas
- Don't promote monoculture in drought prone areas and encourage mixed cropping.

Community-based **EARTHQUAKE** Preparedness

Earthquakes are sudden, rapid vibrations of the earth caused by sudden rapture and shifting of rock beneath the Earth's surface. The vibrations of the earth can range from barely noticeable to catastrophically destructive. There are three classes of earthquakes that are now recognized: tectonic, volcanic and artificially produced.

Tectonic quakes are, by far, the most common, devastating and most difficult to predict. They are caused by stresses set up by movements of a dozen or so huge plates that form the Earth's crust. Most earthquakes occur at the boundaries of these plates, where two plates slide over, under and collide against each other. Some earthquakes do occur in the middle of plates.

Volcanic quakes are seldom very large or destructive. They often precede or accompany volcanic eruptions.

Artificially produced earthquakes are earthquakes induced by activities such as the filling of new reservoirs or the pumping of fluids deep into the earth through wells. This type of earthquakes can be noticeable but are hardly destructive.

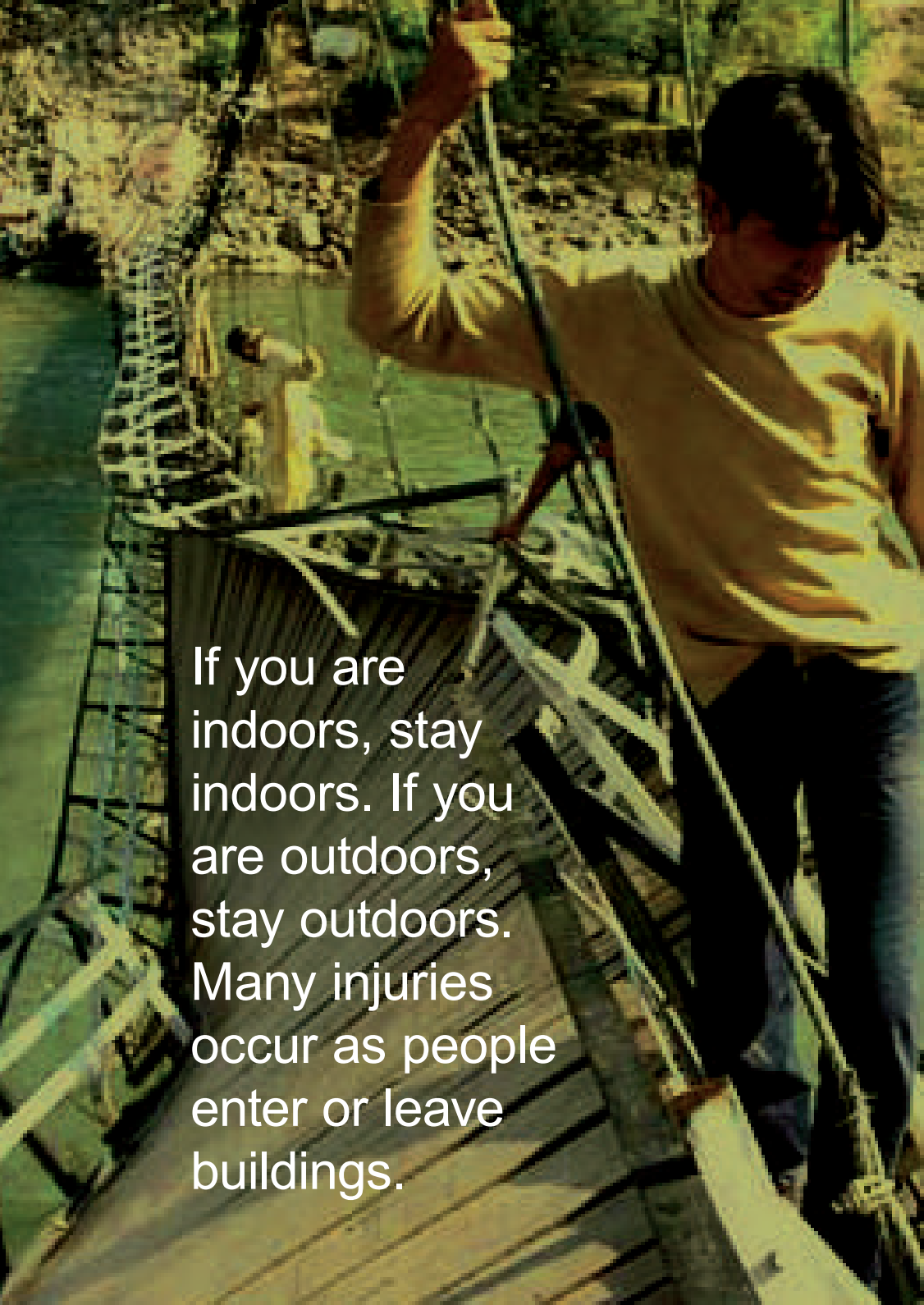
Why is There a Need To Know About Earthquakes?

Earthquakes strike without warning. They may occur at any time of the day or night. Each year, 70 to 75 damaging earthquakes occur throughout the world. In Asia during the past decade, several strong earthquakes have occurred. The following are some of them:

8 October 2005 - A deadly earthquake occurred in Kashmir killing more than 90,000 people.

26 January 2001 - An earthquake occurred in a western state of India, centering in the town of Bhuj in Gujarat, an industrial and agricultural state, which killed over 10,000 people.

21 September 1999 - More than 2,400 people were killed in the strongest Taiwanese earthquake in more than a decade. The earthquake hit Taiwan in the middle of the night.


If you are indoors, stay indoors. If you are outdoors, stay outdoors. Many injuries occur as people enter or leave buildings.

17 January 1995 - 6,430 people died in the earthquake that ripped through Kobe and central Japan. It was the biggest earthquake to hit the country in the last 50 years.

12 December 1992 - An earthquake hit a string of islands in East Nusa Tenggara province of Indonesia. At least 2,200 people were killed.

What are the Common Effects of Earthquakes?

Ground shaking from earthquakes can destroy structures such as buildings and bridges resulting in death or injuries, extensive property damages, and disrupt flow of gas, electric and telephone services. Buildings with foundations resting on unstable foundations are at risk because they can be shaken off their mountings during an earthquake.

Earthquakes can also trigger environmental hazards to both urban and rural areas in several ways including landslides, land faulting, liquefaction, tsunamis and flash floods. Finally, there is the formidable threat of fire.

Faulting - Faulting is the breaking up of land caused by an earthquake. Buildings that straddle an active fault may be damaged.

Landslides - Landslides comprise mass of soil and rocks that crumble down the slopes of mountains, hills or cliffs as a result of any shaking due to earthquake. In severe cases, peoples can be buried alive.

Tsunamis - Tsunamis are large ocean waves that occur when the ocean floor or coastal area is tilted or offset when it is hit by a strong earthquake. It could become a towering wall of water 15 meters high or more by the time it reaches the shore where it is capable of causing much damage, possibly destroying the entire coastal settlement.

Liquefaction - Liquefaction usually occurs in the area where the soil is soft, loose and saturated with water. As a result of shaking due to earthquake, the soil moves and behaves like quicksand affecting any structure on the surface to sink or tilt.

What are the Recommended Protection Against Earthquakes?

Asia is very prone to earthquakes and there is a strong possibility that an earthquake may occur at anytime. Unfortunately, there is still no way to predict an earthquake. Therefore, it is crucial to learn how to prepare, in advance, before an earthquake strikes. With proper mitigation and preparedness, the damages caused by an earthquake can be minimized. Lives and properties could be saved.

Things to do before an earthquake occurs

Majority of damage due to earthquakes can be prevented. Therefore a good preparation would minimize the effects of earthquakes, both injuries and financial losses.

Make sure every family member knows how to respond in case of an earthquake.

- Know the safe spots in each room - under a sturdy table or desks, against the interior wall or a column, under a door frame
- Practice DROP, COVER, AND HOLD in each safe spot - Drop under a sturdy desk or table, hold on to its leg, and protect your eyes by pressing your face against your arms. Practicing will make these actions an automatic response. When there is an emergency, many people hesitate, forgetting what they are supposed to do. Responding quickly and automatically will help to protect you from injury.
- Know the danger spots - near windows, mirrors, hanging objects, tall, unsecured furniture, shelves holding heavy objects.
- Locate safe places outdoors - in the open, away from buildings, bridges, trees, telephone and electric post and lines and overpasses.
- Identify exits and alternative exits - Always know all the possible ways to leave your house and work place in emergency situations. Practice getting out of your home or building; check and see if the planned exits are clear of obstacles.
- Know the location of the shutoff valves for water, gas, and electricity. Learn how to operate those valves.
- Learn first aid.

- Develop an emergency communication plan - in case family members are not together during the earthquake, that is, when adults are at work and children are at school.

How to make the home a safe place

- Secure heavy furnishings such as cupboards and bookcases against walls to prevent them from falling over and injuring persons.
- Keep large, heavy object and breakables on lower shelves to prevent yourself from serious injuries caused by falling objects.
- Store all flammables or hazardous liquids outside the house, in their proper containers, away from structures since earthquakes may trigger fires or explosions within the building.
- Hang heavy items such as pictures and mirrors away from beds, couches, and anywhere people sit.
- Brace overhead light fixtures to prevent them from falling during the earthquake.
- Pull down and close shutters or draw curtains as protection from flying glass, especially for windows that are near the bed in the event of an earthquake occurring at night and people are asleep.

Ensure that a stock of appropriate supply is kept

- Food and drinking water
- First-aid kit and essential medicine
- Flashlight with extra batteries, kept in several locations
- Portable radio with extra batteries. Radio will be the best source of information following the earthquake especially when the electricity power is out.

Don't forget that you also need to store adequate supplies in each vehicle in case you are driving when a tremor occurs.

Things to Do During an Earthquake

STAY CALM. If you are indoors, stay indoors. If you are outdoors, stay outdoors. Many injuries occur as people enter or leave buildings.

If you are indoors
Stay inside. Move away from windows, doors, tall cabinets, breakables or heavy objects that could fall. Take cover under a desk or sturdy table and hold on or stay against an interior wall or column. Remember that most fatal injuries are head wounds, therefore, DROP, COVER AND HOLD.

If you must leave a building, do so in an orderly manner. Rushing to get out can result in injuries. Do not use the elevator. As a precaution against possible fires, use the stairs.

If you are outdoors
Move to a clear area away from trees, signs, buildings, electrical wires and poles. DROP AND COVER your head until the shaking stops.

If you are in a vehicle
Stop and remain inside until the shaking stops. Avoid buildings, overpasses, bridges, power lines, and roads beside ravines and cliffs in which landslides may occur. Be cautious of possible road damages while you proceed.

Things to Do After an Earthquake

- Check yourself for injuries.
- Protect yourself from further hazards by putting on long pants, a long-sleeved shirt, sturdy shoes, and work gloves. These will protect you from further injuries caused by broken objects.
- Check others for injuries. Give first aid, and cover the seriously injured with blankets to prevent shock. Do not attempt to move seriously injured persons unless they are in immediate danger if they are there.
- Check the building for damages. You may have to leave the building if it is seriously damaged or prone to collapse in the aftershock.

- If there is fire, call the fire department and try to extinguish the fire. Eliminate fire hazards. If there is heavy smoke, crawl to get out of the building, fresh air will be closer to the floor.
- Do not use matches, turn off electrical switches and use battery-operated flashlights if there is possible gas leak especially immediately after the earthquake. Light sparks can trigger fire or explosions if there is gas leak.
- Inspect the utilities in the building. Shut off their valves if there is damage. If the water pipes are damaged, avoid using water from the tap, as it may be unsafe.
- Clean up spilled medicine, gasoline or other flammable liquids immediately. Leave the area if you smell gas or fumes from other chemicals.
- Do not use the telephone unless there is an immediate, life-threatening emergency. After an earthquake, telephone lines will be jammed with emergency telephone calls. Please keep the lines available for those with immediate needs.
- Be prepared for aftershocks. Plan on where you will take cover when they occur. Each time you feel one, DROP, COVER AND HOLD!

What are Aftershocks?
Aftershocks are smaller earthquakes that follow the main shock and can cause further damage to weakened buildings. Aftershocks can continue to occur in the first hours, days, weeks, or months after the quake.

Earthquake Intensity

Modified Mercalli Scale (1931)
Seismic intensity refers to the strength of a tremor at a given location during an earthquake. Below is the scale used to classify the intensity of an earthquake.

1 Only felt by seismographs and very few people who are favorably placed to sense tremors.
2 Only felt by a few people at rest on upper floors. Objects that are made to move easily shake.

3 Noticeably felt by persons on the top floors of office buildings. Standing vehicles rock slightly. Most people do not think it is an earthquake.
4 Most people indoors feel the earthquake. Dishes, window panes, and doors shake. Stationary vehicles rock hard.
5 Almost all people feel the earthquake. Sleepers wakened. Poorly placed objects fall. Pendulum clocks stop.
6 Felt by all. Many frightened and run outdoors.
7 Almost all people run outdoors. Poorly placed objects or poorly designed walls and other things suffer some damage.
8 Solidly constructed buildings suffer some damage. Chimneys, monuments, and walls fall, furniture falls over. Sand or mud ejected slightly. Changes in well water.
9 Solidly constructed buildings suffer heavy damage, and some collapse. Conspicuous cracks in ground.
10 Most stone structures destroyed. Major cracks and fissures in ground. Railroad tracks bent.
11 Few buildings survive. Bridges are damaged, large fissures in ground. Much destruction.
12 Ground undulates. Objects are thrown into air.

Earthquake Magnitude

Magnitude (M) is the measurement of an earthquake's energy. If the magnitude increases by 1, then the energy of the earthquake increases about 30 fold. Devised by C.F. Richter in 1935, Magnitude is an index of the seismic energy released by an earthquake, expressed in terms of the motion that would be measured by a specific type of seismograph located 100 km from the epicenter of an earthquake. Nowadays several magnitude scales are in use. They are based on amplitudes of different types of seismic waves, on signal duration or on the seismic movement.

Community-based **TSUNAMI** Preparedness

Tsunamis, also called seismic sea waves or incorrectly tidal waves, are caused generally by earthquakes, less commonly by submarine landslides, infrequently by submarine volcanic eruptions and very rarely by large meteorite impacts in the ocean. Submarine volcanic eruptions have the potential to produce truly awesome tsunami waves. The Great Krakatau Volcanic Eruption of 1883 generated giant waves reaching heights of 40 meters above sea level, killing more than 30,000 people and wiping out numerous coastal villages.

All oceanic regions of the world can experience tsunamis, but in the Pacific Ocean and its marginal seas, there is a much more frequent occurrence of large, destructive tsunamis because of the many large earthquakes along the margins of the Pacific Ocean.

In the deep ocean, destructive tsunamis can be small - often only a few tens of centimeters or less in height – and cannot be seen nor felt on ships at sea. But as the tsunami reaches shallower coastal waters, wave height can increase rapidly. Sometimes, coastal waters are drawn out into the ocean just before the tsunami strikes. When this occurs, more shoreline may be exposed than even at the lowest tide. This major withdrawal of the sea should be taken as a natural warning sign that tsunami waves will follow.

The Great Waves

The phenomenon we call “tsunami” (soo-NAH-mee) is a series of traveling ocean waves of extremely long length generated primarily by earthquakes occurring below or near the ocean floor. Underwater volcanic eruptions and landslides can also generate tsunamis. In the deep ocean, the tsunami waves propagate across the deep ocean with a speed exceeding 800 kilometers per hour (~500 miles per hour), and a wave height of only a few tens of centimeters (1 foot) or less. Tsunami waves are distinguished from ordinary ocean waves by their great length between wave crests, often exceeding 100 km (60 miles) or more in the deep ocean, and by the time between these crests, ranging from 10 minutes to an hour.

As they reach the shallow waters of the coast, the waves slow down and the water can pile up into a wall of destruction tens of meters (30

...but, if you think a tsunami may be coming...


...Move quickly inland and
to higher ground!

ft) or more in height. The effect can be amplified where a bay, harbor or lagoon funnels the wave as it moves inland. Large tsunamis have been known to rise over 30 meters (100 ft). Even a tsunami 3-6 meters high can be very destructive and cause many deaths and injuries.

Tsunamis are a threat to life and property for all coastal residents living near the ocean. During the 1990s, over 4,000 people were killed by 10 tsunamis, including more than 1,000 lives lost in the 1992 Flores region, Indonesia, and 2,200 lives in the 1998 Aitape, Papua New Guinea tsunamis. Property damage was nearly one billion United States dollars. Although 80% of all tsunamis occur in the Pacific, they can also threaten coastlines of countries in other regions, including the Indian Ocean, Mediterranean Sea, Caribbean region, and even the Atlantic Ocean. The most devastating tsunami occurred in December 2004, when a M9.0 earthquake off of northwestern Sumatra, Indonesia produced a destructive tsunami that attacked coasts throughout the Indian Ocean, killing 300,000 people, displacing more than one million people, and causing billions of dollars of property damage.

Earthquakes and Tsunamis

An earthquake can be caused by volcanic activity, but most are generated by movements along fault zones associated with the plate boundaries. Most strong earthquakes, representing 80% of the total energy released worldwide by earthquakes, occur in subduction zones where an oceanic plate slides under a continental plate or another younger oceanic plate.

Not all earthquakes generate tsunamis. To generate a tsunami, the fault where the earthquake occurs must be underneath or near the ocean, and cause vertical movement of the seafloor (up to several meters) over a large area (up to a hundred thousand square kilometers). Shallow focus earthquakes (depth less 70 km or 42 mi) along subduction zones are responsible for most destructive tsunamis. The amount of vertical and horizontal motion of the sea floor, the area over which it occurs, the simultaneous occurrence of slumping of underwater sediments due to the shaking, and the efficiency with which energy is transferred from the earth's crust to the ocean water are all part of the tsunami generation mechanism.

The Facts

- Tsunamis that strike coastal locations are almost always caused by earthquakes. The earthquake might occur far away or near where you live. While earthquakes occur in all ocean basins around the world, most do not generate tsunamis.
- Some tsunamis can be very large. In coastal areas their height can be as high as 10 m or more (30 m in extreme cases), and they cause impacts like flash floods. Later waves are often full of debris.
- All low lying coastal areas can be struck by tsunamis.
- A tsunami consists of a series of waves with crests arriving every 10 to 60 minutes. Often the first wave may not be the largest. The danger from a tsunami can last for several hours after the arrival of the first wave. Tsunami waves typically do not curl and break, so do not try to surf a tsunami!
- Tsunamis can move faster than a person can run.
- Sometimes a tsunami initially causes the water near the shore to recede, exposing the ocean floor.
- The force of some tsunamis is enormous. Large rocks weighing several tons, along with boats and other debris, can be moved inland hundreds of meters by tsunami wave activity, and homes and buildings destroyed. All this material and water move with great force, and can kill or injure people.
- Tsunamis can occur at any time, day or night.
- Tsunamis can travel up rivers and streams, from the ocean.
- Tsunami can easily wrap around islands and be just as dangerous on coasts not facing the source of the tsunami.

What You Should Do

As dangerous as tsunamis are, they do not happen very often. You should not let this natural hazard diminish your enjoyment of the beach and ocean. But, if you think a tsunami may be coming, the ground shakes under your feet, the ocean recedes out to sea exposing the sea bottom, you hear the train-like roar of the tsunami, or you know that there is a warning, tell your relatives and friends, and MOVE QUICKLY INLAND AND TO HIGHER GROUND!

Ten "Musts" Before a Tsunami

1. Find out if your home is in a danger area. Know the height of your house above sea level and its distance from the coast. Evacuation orders may be based on these numbers.
2. Be familiar with tsunami warning signs, especially a noticeable rapid rise or fall in coastal waters.
3. Make sure all family members know how to respond to a tsunami.
4. Make an evacuation plan. Pick an inland location that is elevated and pick more than one evacuation route to play safe.
5. Teach family members how and when to turn off gas, electricity, and water.
6. Teach children how and when to make emergency calls.
7. Have the following disaster supplies on hand.
   - Flashlight and extra batteries
   - Portable, battery-operated radio and extra batteries
   - First aid kit and manual
   - Emergency food and water
   - Can opener
   - Essential medicines
   - Cash and credit cards
   - Sturdy shoes
8. Develop an emergency communication plan for the family, in case family members are separated from one another during a tsunami. Have a plan for getting back together.
9. Ask an out-of-town relative or friend to serve as the "family contact" after a disaster, and make sure everyone knows the name, address, and phone number of the contact person.
10. Always keep and update the record of your local emergency management offices.

Be Aware of Tsunami Facts.

This Knowledge Could Save Your Life!

- If you are in school and you hear there is a tsunami warning, you should follow the advice of teachers and other school personnel.
- If you are at home and hear there is a tsunami warning, make sure your entire family is aware. Prepare a family emergency plan beforehand so that everyone knows what to do. Your family should evacuate your house if you live in a tsunami evacuation zone. Move in an orderly, calm, and safe manner to the evacuation site or to any safe place outside your evacuation zone. Follow the advice of local emergency and law enforcement authorities.
- If you are at the beach or near the ocean and you feel the earth shake, move immediately to higher ground. DO NOT WAIT for a tsunami warning to be announced. Stay away from rivers and streams that lead to the ocean as you would stay away from the beach and ocean if there is a tsunami. A tsunami from a local earthquake could strike some areas before a tsunami warning can be announced.
- Tsunamis generated in distant locations will generally give people enough time to move to higher ground. For locally generated tsunamis, where you might feel the ground shake, you may only have a few minutes to move to higher ground.
- High, multistory, reinforced concrete hotels are located in many low-lying coastal areas. The upper floors can provide a safe place to find refuge should there be a tsunami warning and you cannot move quickly inland to higher ground. Local Civil Defense procedures may, however, not allow this type of evacuation in your area. Homes and small buildings located in low-lying coastal areas are not designed to withstand tsunami impacts. Do not stay in these structures should there be a tsunami warning.

- Offshore reefs and shallow areas may help break the force of tsunami waves, but large and dangerous waves can still be a threat to coastal residents in these areas. Staying away from all low-lying coastal areas is the safest advice when there is a tsunami warning.

What to Do During a Tsunami

- Listen to a radio or television for emergency information and be ready to evacuate if asked to do so.
- Evacuate to high ground at once, with emergency supplies, if you hear an official tsunami warning or detect signs of a tsunami.
- Stay away from the beach. Don't go down the beach to watch tsunami. If you can see the wave, you are too close to escape it.
- Wait until you are sure it is safe to come down.
- Be always calm and don't panic.

If You are on a Ship or Boat

Since tsunami wave activity is imperceptible in the open ocean, do not return to port if you are at sea and a tsunami warning has been issued for your area. Tsunamis can cause rapid changes in water level and unpredictable dangerous currents in harbors and ports.

If there is time to move your boat or ship from port to a location where the water is more than 400 m deep (and after you know a tsunami warning has been issued), you should weigh the following considerations:

- Most large harbors and ports are under the control of a harbor authority and/or a vessel traffic system. These authorities direct operations during periods of increased readiness, including the forced movement of vessels if deemed necessary. Keep in contact with the authorities, should a forced movement of vessels be directed.

- Smaller ports may not be under the control of a harbor authority. If you are aware of a tsunami warning, be sure you have enough time to motor your vessel safely into deep water. Small boat owners may find it safest to leave their boat at the pier and physically move to higher ground, particularly in the event of a locally-generated tsunami. Concurrent severe weather conditions (rough seas outside of the harbor) could present a greater hazardous situation to small boats, so physically moving yourself to higher ground may be the only option.
- Damaging wave activity and unpredictable currents can affect harbors for a period of time following the initial tsunami impact on the coast. Contact the harbor authority before returning to port making sure to verify that conditions in the harbor are safe for navigation and berthing.

After the Tsunami

- Stay tuned to a battery-operated radio for the latest emergency information.
- Help the injured, infants, children, women, the elderly, or trapped persons.
- Stay out of damaged buildings. Return home only when authorities say it is safe.
- Enter your home with caution. Use a flashlight as there may be broken glasses, wreckages, or snakes.
- Open doors and windows to help dry the building quickly.
- Shovel mud while it is still moist to give walls and floors the opportunity to dry.
- Check food supplies and test drinking water.
- Throw out fresh food that has come in contact with flood waters as it might have been contaminated.
- Check for gas or electrical leaks, and damage to sewage and water pipes.
- If you need to build a new house, check building codes and observe wind and wave resistance plan for future protection.

part two

COUNTRY RESOURCES

chapter 4

country hazard and vulnerability profiles

Cambodia

Brief Hazard Profile

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 recons-truction 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. However, in 2004, it ranked 130 out of 177 countries.

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. Heavy rains occur annually in the Upper Mekong countries of China, Lao, Myanmar and Thailand. When this happens, the Mekong river overflows into the Tonle Sap Lake which naturally increases its surface area up to four times its normal size. Surrounding provinces within seven-kilometer radius get flooded. During wet season, the Mekong River also floods its banks up to four meters of water. The Mekong and its tributaries, combined with local rainfall, annually flood 17,100 km2 or 25% of the plain area. Mekong River and Tonle Sap generously provide food and income to 87% of Cambodia's population living in watershed plain (CARE, 2001). Heavy rains during slow moving storms aggravated by large-scale deforestation also results in flashflood. 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.

cambodia

Mid Population (July)	13,607,069	2005
Annual Growth Rate	01.81%	2005 est
Urban Population	15.00%	2005
Pop. below poverty line	40.00%	2004 est
GDP/capita (PPP USD)	2,100	2005
GDP by sector:		
agriculture	32.90%	2004
industry	29.20%	2004
services	37.90%	2004
Land Use:		
arable land	20.96%	2001
permanent crops	00.61%	2001
others	78.43%	2001

Climate
Topical, Rainy monsoon season (May to Nov)
Dry season (Dec to Apr)

Source: UNDP, Global Health Facts Organization, World Fact Book 2005

According to a CSD report, about 76.5% of the total cultivated areas are totally rainwater dependent. As crop production depends on availability of rainfall, food production is seriously threatened not only by floods but by drought as well. Water related hazards - floods and drought - play a major role in aggravating the poverty and vulnerability of communities in Cambodia, especially the poor. It has been observed that water

related hazards have been increasing for the past seven years and has contributed to food insecurity (CSD, 2002).

Cambodia is also one of the world's most heavily mined countries with an estimated 4-6 million landmines scattered across mainly rural land. Australian Aid, together with that of other countries, has helped to reduce mine and unexploded ordnance casualty rates from 3,000 per year to around 800. Landmines and unexploded ordnance continue to constitute some of the most serious obstacles to Cambodia's reconstruction and development.

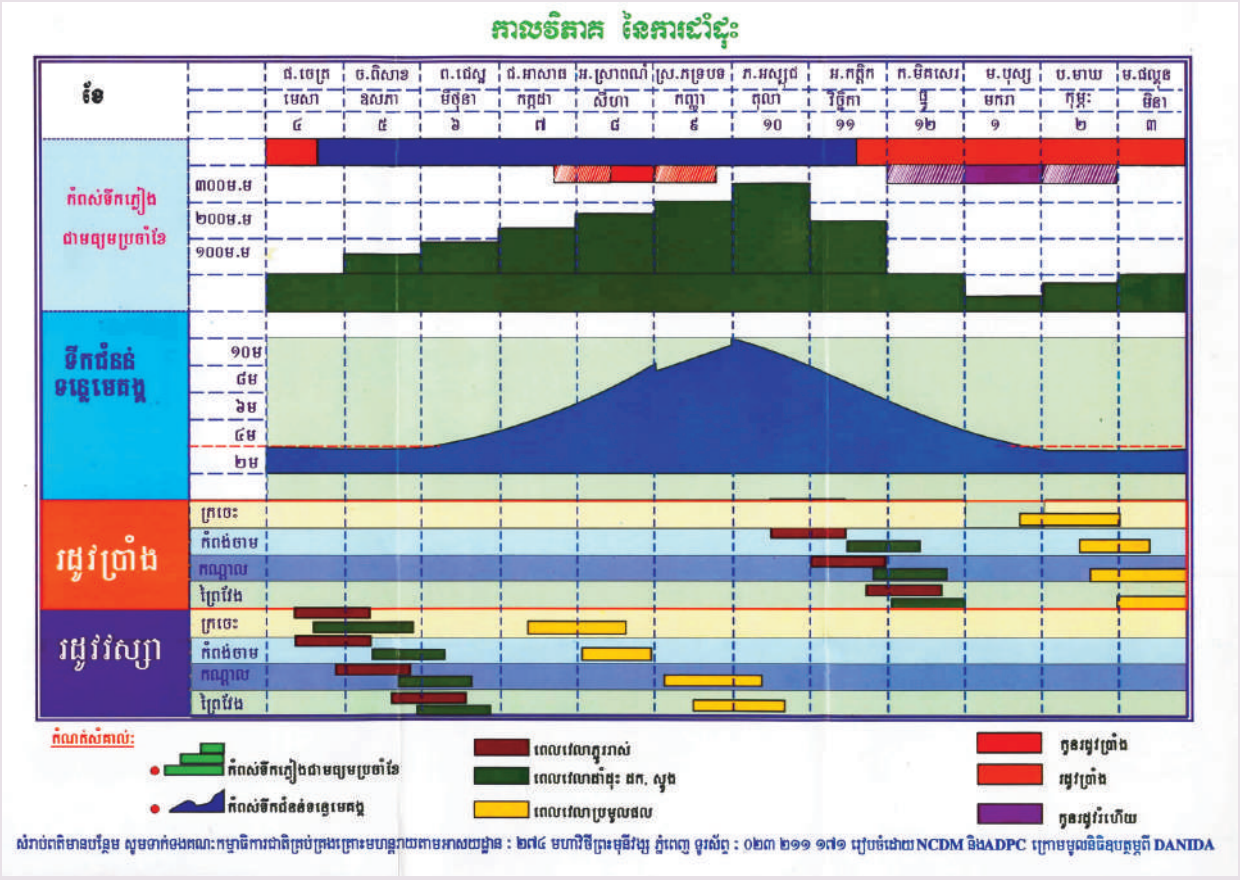
Vulnerability

The main risk posed by the impact of hazards in Cambodia is to render its people and administration vulnerable. The poor of Cambodia are particularly vulnerable. Most live in rural areas where they are dependent on subsistence agriculture. They are often forced onto marginal flood-prone land, areas subject to drought or not yet cleared of landmines and unexploded ordnance. Food insecurity worsens the situation of many people. Social safety-nets remain weak with little government support.

The population has very limited means to cope with the external disturbances of a disaster. 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 frequency of extreme climate events (La Niña) will worsen and increase the frequency of damaging floods in Cambodia.

Recent Impacts

The 2000 floods in Cambodia were exceptional and appeared as the worst disaster in Cambodian history, lasting longer, being more widespread and severe than those in the past years. It resulted in 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. It affected 750,618 households in 21 provinces or municipality, damaged 688,021 hectares of consumption and cash crops, and caused a great deal of loss to properties and infrastructure.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In the midst of recovering from the floods of the preceding year, the country was again affected by floods in 2001, signaling a worsening and increasing 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.

The 2002 drought started as early as January in some places and by the end of July had spread to all 24 provinces, with the provinces of Kampong Speu, Takeo, Kampot, and Kampong Chhnang hardest hit. Some of the worst affected districts were in other provinces, namely Banteay Meanchey, Pursat, Prey Veng and Battambang provinces. As a result of the drought, farmers were not able to plant wet season rice, or transplant seedlings, which were damaged. Crop production was significantly affected, especially in Prey Veng and Kampong Speu provinces. Subsidiary crops were also heavily damaged.

Indonesia

Brief Hazard Profile

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 since it is attributed to favorable 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, 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 Sumatera, Jambi, Riau, West Sumatera, North Sumatera, and Aceh. The floods of the 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.

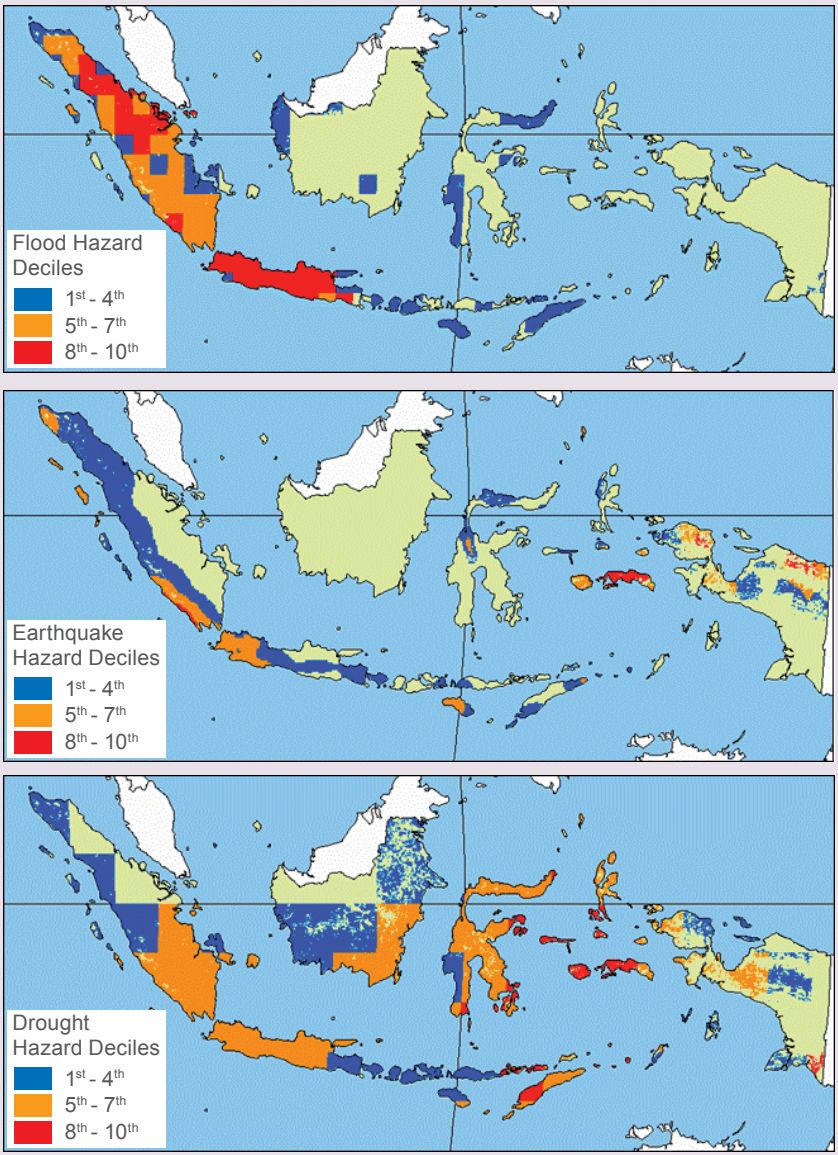
indonesia

Mid Population (July)	241,973,879	2005 est
Annual Growth Rate	01.45%	2005 est
Urban Population	45.50%	2003
Pop. below poverty line	15.20%	2004
GDP/capita (PPP USD)	3,700 USD	2002
GDP by sector:		
agriculture	15.10%	2005
industry	44.50%	2005
services	40.40%	2005
Land Use:		
arable land	11.32%	2001
permanent crops	07.23%	2001
others	81.45%	2001

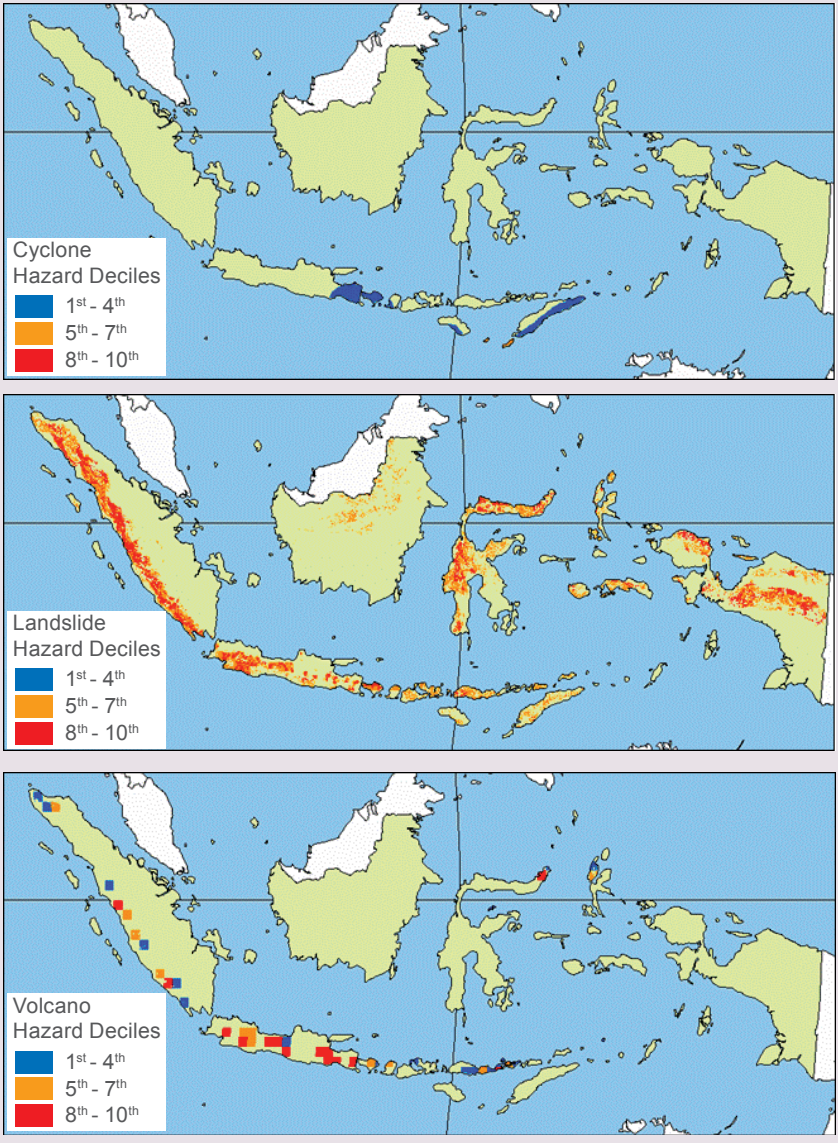
Climate
Topical monsoon, Dry season (May to Oct)
Rainy season (Nov to Apr)

Source: UNDP, Global Health Facts Organization, World Fact Book 2005

Indonesia Hazard Risk Hotspots



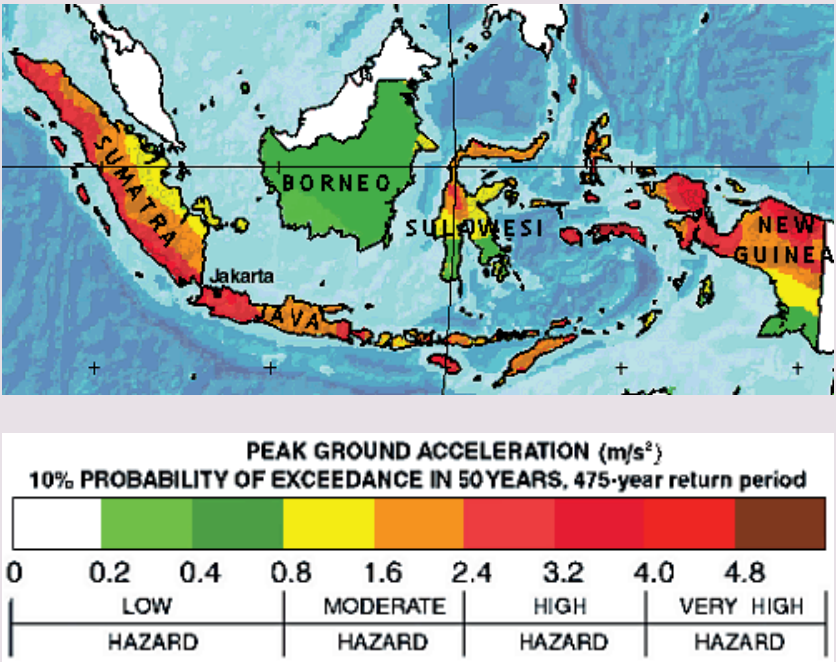
Note: A decile is a portion within a whole that has been divided into ten equal parts, in this case weighted on mortality and proportion of GDP impacted.



Source: Center For Hazards and Risk Research at Columbia University, USA

The southern and western islands (Java, Sumatra, etc.) are exposed to the largest number of hazards and have high risk levels for droughts, earthquakes, floods, landslides, and volcanoes. The geophysical hazards are confined to the mountainous regions of the islands while droughts and floods affect larger areas. On other islands, droughts are the most widespread hazard, though landslides, floods, and earthquakes affect selected regions. Compared to other hazards, floods have the largest risk when weighted by the proportion of GDP and mortality.

Seismic Hazard Map of Indonesia



Source: The map was made as part of GSHAP (Global Seismic Hazard Assessment Project) by some 500 scientists over seven years, through a project of the project, part of the United Nations International Decade of Natural Disaster Reduction

Indonesia consists almost entirely of island arcs raised by tectonic and volcanic activity during the long collision of the Australian and Eurasian plates. Only the great island of Borneo is largely continental. The immense arc of the Greater and Lesser Sunda islands, from Sumatra to Timor at the farthest southern point, is a major source of subduction-

related seismicity. And as the world learned from the M9.0 earthquake of 26 December 2004 off Sumatra's western tip, this arc constitutes a great tsunami hazard to the entire Indian Ocean to its south and west. If a map of volcanic hazard could be made of Indonesia, much of it, too, would be dark red.

Lao PDR

Brief Hazard Profile

Lao PDR 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.

lao PDR		
Mid Population (July)	6,217,161	2005 est
Annual Growth Rate	02.42%	2005 est
Urban Population	19.00%	2003
Pop. below poverty line	40.00%	1975-2003
GDP/capita (PPP USD)	1,900 USD	2002
GDP by sector:		
agriculture	48.60%	2005
industry	25.90%	2005 est
services	25.90%	2003
Land Use:		
arable land	03.80%	2001
permanent crops	00.35%	2001
others	95.85%	2001
Climate		
Topical monsoon, Dry season (Dec to Apr)		
Rainy season (May to Nov)		

Source: UNDP, Global Health Facts Organization, World Fact Book 2005

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. Since the past 35 years, the country has frequently experienced natural disasters and is experiencing major flooding every 1.4 years. Thirteen major

Lao PDR Hazard Calendar

hazard	jan	feb	mar	apr	may	jun
typhoon					Bokeo[1]	
flood						
drought*	Not specified[3]					Not specified[3]
forest fires		Central & South[1]				
epidemic (arbovirus)			Vientiane, surrounding provinces[3]			
epidemic (measles)			Sekong province[3]			
epidemic (diarrhea)	Savannakhet Khammuane[3]					Houaphanh[3]

jul	aug	sep	oct	nov	dec
Whole country[3]					
	Central & South[1]				
Not specified[3]					
	Savannakhet[3]				
	Borikhamsay[3]				
	Luangnamtha[3]				
	Luang Prabang[3]	Champassak[3]			
		Sekong[3]			
		Attapeu[3]			
		Khammuane[3]			
		Saravan[3]			
Whole country[3]					Not specified[3]
				Not specified[3]	

Sources:

1. Natural Disasters and Mitigative Measures in Lao PDR
http://www.adrc.or.jp/countryreport/LAO/LAOeng98/index.html#_Toc451849710

2. Country Report 2003. Lao PDR
http://www.adrc.or.jp/countryreport/LAO/2003/index.html

3. ADRC 20th Century Asian Natural Disasters Data Book
http://www.adrc.or.jp/publications/databook/databook_20th/top_e.htm

* One report identified occurrence in the North2 but did not specify the months

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.

Drought affects about 20% of the country's population, adversely affecting agricultural production. The areas most prone to drought are the western provinces and some of the higher elevations of the southern provinces.

Other potentially disastrous events include landslides, fire (both urban and forest fire), agricultural pests and epidemics. An analysis of disaster impacts on urbanizing areas show that fires cause the greatest loss of life and property. Dense building concentrations, narrow roads, flammable building materials, aging water supply and electrical system, as well as the lack of resources to upgrade preparedness and response skills have resulted in a growing risk of large scale, multiple structure fires.

Vulnerability

Majority of the country's population do 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.

Recent Impacts

Floods in 2000 brought loss to more than 42,000 hectares of agriculture crops and damaged more than 200 irrigation units, and loss of 15 lives. Parallel to these, many regions faced severe drought which caused shortage of drinking water, water for consumption and for agriculture and animal raising.

Flash floods and landslides occurred in Houaphanh, Luang Prabang and Vientiane provinces which were never seen before in the country.

The flashfloods and landslides in Vientiane province in July 2001 destroyed 8 houses, all cultivation area, and in general affected more than 200 families in 4 villages.

Fire also made a big impact. During 1997-2000 more than 500 cases of fires were reported and estimated losses reached 30 billion kips (US$ 2.7 million). Urban fires have devastating impact on the communities of Lao PDR. The capital city of Vientiane is specifically susceptible to the recurring problem of fires. About 352 fire events were recorded between 1990-2002 with an estimated cost of loss at around US$ 5.4 million.

Timor Léste

Brief Hazard Profile

Timor comes from the Malay word for “East”; the island of Timor is part of the Malay Archipelago and is the largest and easternmost of the Lesser Sunda Islands.

The Democratic Republic of Timor Léste is located in the eastern part of the Timor Island with the western part belonging to the Republic of Indonesia as part of the East Nusa Tengara province. It is bordered by the Wetar straits to the north and the Timor Sea in the South. From 1511 till 1975 Timor Léste was a colony of Portugal.

The Portuguese colony of Timor declared itself independent on 28 November 1975 only to be invaded and occupied by Indonesian forces nine days later. It was incorporated into Indonesia in July 1976 as the province of East Timor. A campaign of pacification followed over the next two decades, during which an estimated 100,000 to 250,000 people lost their lives. On 30 August 1999, in an UN-supervised popular referendum, the people of East Timor overwhelmingly voted for independence from Indonesia. During 1999-2001, anti-independence militias - supported by Indonesia - conducted widespread violence. On 20 May 2002, Timor Léste was internationally recognized as an independent state and the world’s newest democracy.

Hazards

East Timor is at risk to a number of natural hazards. Each year, heavy seasonal rain falling on steep slopes causes frequent flash flooding and landslides, which are considered to be the two major natural hazards in the country. Apart from their potential to cause casualties and damage to rural communities, these events cause major disruption to the fragile road network, isolating communities and even whole districts for a long duration. In Lautem, flash floods with highly erosive rains and food insecurity caused by long unpredictable dry seasons are its two main natural hazards.

timor léste

Mid Population (July)	1,040,880	2005 est
Annual Growth Rate	02.09%	2003
Urban Population	07.70%	1975-2003
Pop. below poverty line	62.00%	2004 est
GDP/capita (PPP USD)	400 USD	2001
GDP by sector:		
agriculture	25.40%	2001
industry	17.20%	2001
services	57.40%	2005 est
Land Use:		
arable land	04.71%	2001
permanent crops	00.67%	2001
others	94.62%	2001

Climate
Topical, Hot, Humid with peak (Oct to Dec)
Monsoon rains (Dec to Mar)

Source: UNDP, Global Health Facts Organization, World Fact Book 2005

From November to April, the country is at risk from tropical cyclones and lesser tropical storms, which can cause coastal flooding and wave damage. In the dry season, drought conditions exist in large parts of East Timor. A delay in the onset of seasonal rains can become disastrous as fires can get quickly out of control. This year, the monsoon season started late due to the effects of El Niño which caused severe drought in parts of the country. This had an impact on food production. Food aid had to be provided to selected villages.

Geological hazards also threaten East Timor. Areas to the north of the island have experienced earthquakes of up to 6.9 on the Richter scale within the last 10 years. These can cause local tsunamis. A four meter high tsunami, caused by a major earthquake, struck the north coast of Timor in 1995.

In addition, other hazards exist, including pollution (particularly marine pollution); major transport accidents; epidemics; urban fires; agricultural

hazards, including pest and disease attacks on crops and outbreaks of exotic animal diseases. These risks are likely to increase as the nation develops unless necessary precautions are made and regulations put in place. The following is a list of all the hazards present in Timor-Léste:

Natural

- Landslides
- Flash flooding
- Tropical storms
- Rural fires
- Drought
- Earthquakes
- Marine flooding
- Epidemics

Man Made

- Marine accidents
- Road accidents
- Civil strife

The hazard of human epidemics may be more of a cause of concern. If diseases such as malaria, ARI, or diarrhea are not even controlled during non-disaster situations, we can expect these to rise rapidly during disaster events to levels that are more difficult to control.

Vulnerability

Community based approaches to disaster risk analysis; risk reduction and risk management are much needed in Timor-Léste as a high percentage of the population is at risk. In many locations, hazards are common, community vulnerabilities are high, and local capacities are low.

Timor Léste experiences regular natural disasters and in the past has suffered from violent conflict. Climatic variability has a major influence on the vulnerability of individuals and communities, especially in relation to food security. Timor-Léste is periodically and significantly affected by the El Niño Southern Oscillation weather pattern. Each year, localized flooding, landslides, destructive winds, pests and disease increase hardship and suffering in many rural communities. Over 90% of households are known to experience a “hungry season” annually with food shortages extending from 3 to 5 months in the period from November to March.

Vulnerability has continued to remain high in many areas since the post-ballot violence of late 1999 when so many families were displaced and their assets lost. In addition to natural disasters, there remain threats from civil strife and conflict. Current assessments are that risks relating

to civil unrest in Timor-Léste are low, particularly in areas outside of Dili. Since the riots on 4 December 2002, the government is particularly aware of the risks of social unrest, due to unresolved issues such as poverty, unemployment and unmet expectations and has devised a stability program in response.

Community vulnerability in Timor-Léste is closely related to food security and well being at the household level. Lack of access to sufficient food and of poor nutritional practices have resulted in high levels of chronic malnutrition. Risk management can be usefully focused on the common food security threats such as flood, drought, tropical storms, pests and diseases.

Timor Léste Hazard Impact Matrix

hazard	frequency scale	probability of occurence
landslide	very high for Baucau, Viqueque and Lautem; Medium for Cova Lima	70% or hifher in rainy season; it can be created by high magnitude earthquakes affecting Dili
flooding	high to medium of inundation and overbank types mostly in the south except Los Palos, Gleno / Ermera and Aileu	70% or higher in rainy season
earthquake	south coast of Tmor Léste is 100 km away from fault	10% chance with 8-9 intensity on the Mercalli scale will occur in 50 years; Magnitude 5-9 in 10 years in Alor / Wetar area
tsunami	southern, central, the higlands and the Mekong River Delta	
drought / ENSO / El Niño	Bacaue and Covalima	4-7 year cycles of ENSO
Marine Flooding	northern coast	varies with event, significant marine pollution potential
tropical storm	monsoon periods in all country particularly ainero, covalima	yearly (no major event in 25 years but 3 storms passed close enough to cause strong winds)
forest fire	4 depending on intensity of drought	coinciding with ENSO cycles

Source: National Disaster Risk Management Plan Annexes (Draft), NDMO East Timor, March 2005

Vietnam

Brief Hazard Profile

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, ranking 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.

vietnam

Mid Population (July)	83, 535, 576	2005 est
Annual Growth Rate	01.04%	2005 est
Urban Population	25.80%	2003
Pop. below poverty line	28.90%	2002
GDP/capita (PPP USD)	3,000 USD	2002
GDP by sector:		
agriculture	21.00%	2005
industry	40.90%	2005
services	38.10%	2005
Land Use:		
arable land	19.97%	2001
permanent crops	05.95%	2001
others	74.08%	2001

Climate
Topical humidity, Hot and rainy (May to Oct)
Cold season (Nov to Apr)

Source: UNDP, Global Health Facts Organization, World Fact Book 2005

Hazards

Because of its geographical location, Vietnam is most prone to typhoons, floods, storms and salinity intrusions. 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. Two of Asia's major river systems have their delta in Vietnam: the Red River Basin 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

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 occurrences 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.

Recent Impacts

Vietnam continues to suffer serious losses in terms of human lives and properties from extreme hydro-meteorological events such as the Linda Storm that affected southern Vietnam in 1997, flooding that affected the central provinces in 1999, and the 2000 and 2001 catastrophic floods in the Mekong delta. The total losses of these events amounted to 4,460 deaths and a loss of 17,600 billion VND.

In 2004 and early 2005, unusual conditions of weather, hydrology and meteorology have resulted in heavy damages. Large scale drought has plagued provinces of the Southern, Central, the Highlands and the Mekong Delta since the end of 2004, affecting agricultural production, especially of rice and coffee crops, and resulting in water shortages for daily living. Hot weather at the end of the 2005 dry season has also led to tornadoes and hail storms in many locations. These have occurred in conjunction with flash floods and landslides in the northern mountain provinces.

Vietnam Hazards Calendar

hazard	jan	feb	mar	apr	may	jun	jul	aug	sep	oct	nov	dec
typhoon floods landslide						north coast						
								central coast				
drought	southern, central, the higlands and the Mekong River Delta									southern coast		
forest	southern, central, the higlands and the Mekong River Delta											

Source: Disaster Management Center, Department of Dyke Management and Flood and Storm Control, Ministry of Agriculture and Rural Development

chapter 5

country CBDRM case studies

Cambodia

CASE STUDY 1

A Flood Preparedness Experience in Cambodia
ACF Cambodia

In the lower Mekong basin, floods are viewed as a normal seasonal event, bringing both positive and negative consequences, which has evolved over many years. The benefits of flooding include the renewal of nutrient laden soil and water supply that sustain agriculture and fish production, for irrigation and livestock, and the distribution of fingerlings in lakes and ponds.

However, it has been observed that in recent years, floods have become more irregular. Exceptional floods have

tended to be more frequent, of greater amplitude and/or of longer duration (1996, 1997, 2000 and 2001). The combination of deforestation upstream, changing regional weather patterns and recent infrastructures (e.g. dams, roads, banks for the protection of the Mekong River) have and will continue to increase the irregularities of the seasonal flooding.

This phenomenon, in addition to the physical, socio-economic and institutional vulnerability of the population exposed to floods, has increased the risk of disaster for the said populations. People are then caught in a vicious circle, as the most significant aspect of these floods is a progressive cumulative impact on the vulnerability of the people at risk. The risks faced by the communities during floods which were identified by them during the Hazard, Vulnerability, and Capacity Assessment are:

1. Food scarcity (less rice because crops are lost)
2. Exposure to diseases
3. Loss of shelter (houses destroyed).

However, the vulnerable communities have evolved various coping mechanisms for both normal and exceptional seasonal flooding: to eat less, to borrow money, to seek for job outside the village/country, to build bamboo barriers and to re-locate to safe areas for 1 week to several months. The decision to stay or move is crucial to save properties and lives as any movement of persons and property consumes vital household income.

Action contre la Faim (ACF) is an international NGO, working since 1997 in the province of Kampong Cham. The province is located in central east Cambodia within the lower Mekong Basin. It is the most populated province with 1,690,000 inhabitants living in 16 districts and a high population density along the Mekong River. Since 1997, ACF, in close collaboration with its 2 partners, the Provincial Red Cross (PRC) and the Provincial Committee

for Disaster Management (PCDM) implemented Disaster Preparedness projects funded by DipECHO and MRC. In the course of the years, ACF focused its Disaster

Preparedness projects on three main components:

1. Strengthening PCDM, DCDM (District Committee for Disaster Management) and CCDM (Commune Committee for Disaster Management)
2. Flood Early Warning System for vulnerable communities
3. Flood Information management

Early Warning System for Vulnerable Communities Along the Mekong River and Flood Information Management

The Early Warning System (EWS) is a very promising activity in terms of relevance and sustainability. Using the daily forecast of the Mekong River Commission, received by e-mail at the PRC office around 12:00 p.m., the PRC radio operator sends at 2:00 p.m. by VHF radio the forecast to each village volunteer (47 villages now and 25 more in 2005). The village volunteer (Village chief or Red-Cross Volunteer) displays the current and 3-days forecast water level on a specially designed public board. Blue and green arrows show the trend of the water level in the village (increase or decrease) for the present day and the 3 next days. Finally, a warning sign (green, orange or red) inform the villagers if the village is nearly to be flooded or will be flooded in the coming days. The warning level is specific to each village and defined by the villagers through participatory meeting.

The implementation of EWS activity in a village starts with a participatory meeting where, after a hazard-capacity-vulnerability assessment, villagers expressed their knowledge on prediction and forecast and their preferred way to receive the forecast. The warning levels specific to each village are defined, as well as the way and persons

responsible for warning dissemination. Then, the actions to be taken when the warning level has been reached are discussed. A public place is identified where a flood mark with the warning levels (green, orange, red) is painted. Finally, facilitators present the public board where the forecast will be displayed. Villagers decide on its location and who will be responsible for the reception/display of information. The equipment (board, flood mark) is later on installed and training is given to the volunteers.

The volunteer also daily observes the water level on the flood mark and records it. The records are collected at the end of the flood season, together with a flood damage survey. All the information is compiled in a flood database that contains data from more than 600 villages since the year 2000. A set of maps is then produced. Besides serving as unique historical record for the province, the database and maps are essential tools for the local authorities in decision-making and development planning.

Lessons Learned

The main success of this activity is the autonomous and efficient communication between MRC and the villages, through the PRC and village volunteers. The water level forecast for the Mekong River is received and displayed correctly in each village targeted by the project. Moreover, the 1-day forecast from the MRC is accurate and credible to the villagers. All the villagers interviewed affirm that access to the water level forecast is really useful for them, even if they have never seen the board or even if they don't use it to get the information. Finally, this is a low cost, sustainable and easy-to-replicate system. All stakeholders strongly support this activity.

However, the method also had some limitations. Some of the difficulties that limited the achievement of the planned objectives are discussed below.

Although the dissemination of the information is optimal from national level down to the village, we observed however that the dissemination of the information within the village (from EWS village volunteer to the villagers) were not as expected. Evaluations showed that the information did not reach all the villagers, especially the households far from the board, illiterate people, and women head of family.

The volunteer fulfills his responsibilities of displaying the information on the board but does not undertake any other dissemination activities such as meeting with villagers and visits to vulnerable household. Social barriers and the absence of economic compensation for the volunteer are believed to be important limitations.

Moreover, the board remains complicated. Even with the use of colors and arrows, illiterate people still have difficulties to access the information. People living far from the board have difficulties to reach the board during flood season, a problem affecting especially the women head of families.

Conclusion and Way Forward

A too technical top-down approach, which, however, allowed setting up the system, had certainly some part of responsibility in the difficulties encountered.

A more systematic participatory approach with the villagers, the possibility for the villagers to choose their preferred way to receive the forecast and the simplification of the board will certainly improve the access of everybody to the information (in terms of reception and understanding).

The use of other communication channel (i.e. FM radio, television) is now investigated and will be the key to reach all the population especially the vulnerable groups. Messages should be simplified as much as possible.

Success will also depend on the improvement of the communication within the village. A special work with children in the schools will be undertaken. Children are an essential vector of transmission and dissemination of awareness messages between the outside and the household.

Efforts will be made to set up community action plan after the reception and understanding of the warning message. Finally, next steps should focus on the handover of the dissemination of the forecast and the flood information management to the PCDM.

Source: Action Contre la Faim Cambodia, *acf.kcham@laposte.net*

CASE STUDY 2

Coping with Flood and Mitigating Flood Risk in Cambodian Communities
ADPC

Cambodia is susceptible to annual river flood during the monsoon season along two major watersheds, the Tonle Sap Lake and the Mekong River. This annual threat prompted the Community-Based Flood Mitigation and Preparedness Project (CBFMP) of the Asian Urban Disaster Mitigation Program (AUDMP) of the Asian Disaster Preparedness Center (ADPC) to establish sustainable mechanism for flood vulnerability reduction by building the capacities of communities to plan and implement mitigation solutions or micro-projects.

The project was established in twenty-three villages under three districts – Kang Meas District in Kampong Cham, Kien Suay District in Kandal, and Peam Ro District in Prey

Veng. CBFMP relied on a network of Red Cross Volunteers (RCVs) and Cambodian Red Cross (CRC) officials at the commune, district and provincial levels to lead communities in protecting themselves from the impact of floods.

Four steps were undertaken to establish and sustain an organizational framework for identifying needs and cost-effective mitigation strategies.

1. **Selecting Project Sites and Volunteers**
   Red Cross defined the selection criteria for target communities and RCVs residing at selected communities.

2. **Capacity Building**
   Volunteers were trained using a curriculum developed by the ADPC that consisted of 4 modules. Additional support after training was done through regular group meetings and site visits to support the RCVs as they worked in their respective communities. Later, CRC replicated its achievements into the umbrella program called Community-Based Disaster Preparedness Program (CBDP).

3. **Community Organizing**
   Trained RCVs established a village-level Disaster Management Committees (DMCs) in each targeted community. DMCs were set up for the management of the project. However, many committee members also carried out disaster mitigation and preparedness activities in collaboration with the RCVs.

4. **Risk Assessment**
   RCVs were trained to facilitate a mapping exercise in their communities to identify hazard-prone areas. The activity was intended to help them discuss and reach consensus on planning and implementing mitigation solutions. However, when the RCVs lead the production

of the risk map, it limited community participation. Often the results were just sketch maps that were mostly for the benefits of CRC staffs and NGO visitors.

The process of selecting project sites, training community volunteers, establishing local DMCs, and risk mapping in villages aimed at participatory identification of mitigation strategies. During the process, community members were able to prioritize, plan and implement mitigation solutions to minimize the impact of flood.

It was recognized however, that implementing mitigation solutions need to consider the following issues: a) Does everyone agree with the mitigation solutions? b) Where to get the funding? c) How to mobilize resources? d) How to mobilize people? e) How to maintain the mitigation solution? f) Mitigation minimizes the impact of flood, but what about preparing for it?

Empowering communities to manage disaster risk required their full support and involvement for: a) resource mobilization and proposal development; b) implementation of mitigation solutions; and c) preparedness planning.

Resource mobilization and proposal development was undertaken by RCVs, with the support of the CRC and other agencies. Volunteers helped villagers find solution by addressing them at community events to gather consensus on mitigation solutions and request for their contributions (in cash or in kind) for planned activities. The mitigation solutions developed generally focused on water control structures necessary for livelihood or access. These included repairing dams and dikes, cleaning out irrigation ditches, culverts and water gates, raising road levels or constructing small bridges. DMCs and RCVs helped build the workforce and funds. Since most villagers were poor, communities had to develop proposals for donor funding of their projects.

In the implementation of mitigation solutions, ownership of projects is crucial because it affects people's motivation to use and sustain it in the long term. For example, an 'outsider'-managed road project in Prek Ta Keo village created conflicts due to differing needs and expectations of the donor, subcontractor and community. Failure to involve people in the decision-making process can lead to negative impacts on people's livelihood. Meanwhile, the people of Boeng Psauth Village decided to build a new bridge as their flood mitigation project. In the process they experienced a lot of difficulties and problems, such as limited resources (human, financial and material) and poor timing of project implementation leading to lack of commitment. However, upon completion of the project, the DMC members felt confident enough to build a bridge of their own having understood most of the technical aspects involved.

Despite the complications experienced by several villages, replications of mitigation solutions were apparent after the completion of CBFMP. Villagers in Peam Mean Chhey Commune built two more bridges after their first construction. Replications of the CBFMP approach were also seen beyond the targeted communities. Neighboring villages that observed the good output of the target villages became interested with the initiative and also started their own projects.

Preparedness planning varied from one community to another. RCVs also used community events to advice people on specific disaster preparedness actions that they needed to consider. Such discussions lead to communities working together in assisting the relocation of houses that are located along the Mekong River in Koh Ta Ngor I village. Other communities were mobilized to fill sandbags along roads and riverbanks in preparation for the year 2001 floods in Kampong Cham and Kandal provinces. Early warning and people's participation in disseminating

such messages enables communities to prepare for flood occurrence and to take necessary actions such as evacuations in advance.

The successful completion of flood mitigation solutions and its immediate benefits resulted to increased trust among community members, minimized the impact of flood and improved the quality of life of the people. Communities under vulnerable conditions that are empowered and enabled to increase their managerial and technical capacities often creates further development initiatives within and beyond their own community.

Source: Safer Cities 2 and 3, Asian Urban Disaster Mitigation Program, Asian Disaster Preparedness Center

Indonesia

CASE STUDY 1

Preparedness in Disaster Management in Indonesia Indonesian Red Cross and Danish Red Cross

In Indonesia there is a proverb that says “better to prepare, than regret later,” which echoes the English saying of “prevention is better than cure.” These maxims should be adhered to when dealing with natural disasters.

If we know that there is the possibility of a disaster in the area where we live, it would be most prudent if we took action to prevent it, or at least to reduce its impact. Disaster management is no longer only about responding after a disaster has occurred, but also involves conducting prevention and risk mitigation initiatives, known as disaster preparedness.

Disaster management is a series of continuous activities that are carried out to mitigate the impact of a disaster. The activities are conducted before, during and after the disaster strikes. When a disaster occurs, initial actions include the provision of first aid and emergency aid, and the distribution of relief items. Post-disaster actions include rehabilitation and reconstruction.

Just because a disaster has not yet occurred, that does not mean that there are no disaster management activities. In disaster prone areas, it is necessary to implement risk mitigation to reduce the negative consequences of potential disasters.

The Indonesian Red Cross (PMI), in cooperation with the Danish Red Cross (DRC), is implementing Community-based Disaster Preparedness (CBDP) and Community-based Risk Reduction (CBRR) programs. The programs are quite similar, as the goal of both is to reduce human suffering and loss of livelihood when disaster strikes. The two programs are not merely responsive, but are carried out before disaster hits.

So how can the impact of a disaster be reduced before it happens? Is it really possible to do this? Certainly. When floods strike, it is difficult for communities to gain access to clean water, which forces the people to use unsanitary water and this leads to outbreaks of disease. We should therefore think about how to procure clean water for flood prone areas to avoid the emergence of various diseases.

Of course, it is also important to think of physical ways to combat flooding, such as the construction of dikes. But when local conditions make it too difficult to build a dike, then the procurement of clean water becomes the priority within the framework of disaster mitigation. Examples of other forms of disaster mitigation include reforestation, the

breeding of fish which eat the larvae of mosquitoes that transmit malaria and dengue fever, the rehabilitation of rivers and streams, etc.

Who can conduct disaster preparedness? Everyone. In the CBDP Program, the PMI and local community form a Community-based Action Team (CBAT). CBAT members are PMI volunteers who receive special training in disaster management. When a disaster strikes, CBAT will carry out evacuations, provide first aid, and distribute food and other necessary items. Before a disaster occurs, CBAT and the community identify potential disaster risks, assessing which types are most likely to occur and what are the worst hazards.

Through regular meetings, CBAT and the community discuss how to reduce these risks. The community can then make an action plan, which will serve as input for the local PMI chapter. A good action plan is one that follows the bottom-up approach, coming from the community's ideas and letting the people determine their priority actions. PMI and the government can contribute to action plans. Contributions can be made in many forms, such as a technical draft on how to conduct risk reduction action, or the establishment of a communication channel to the government. Alternatively, a contribution can be in the form of funding of a disaster mitigation program. In this case, mitigation could be conducted in physical (structural) and non-physical forms.

At the branch level, PMI trains a Disaster Response Team (Satgana) which is tasked to conduct training for CBAT at the village level. The curriculum for the CBAT training is provided by PMI National Headquarters.

It is envisaged that within the years to come, hundreds of thousands of people throughout Indonesia will benefit from the CBDP and CBRR programs because they will be

more capable of protecting themselves against disasters and thus enjoy better and safer lives.

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CASE STUDY 2

Strengthening Community Resilience in Crisis through NEAR
Catholic Relief Services

It takes very little to push a vulnerable community over the edge and one crisis can destroy thousands of lives and livelihoods. Indonesians, like residents of many developing countries, are constantly faced with some crises or other. Existing problems are often exacerbated and already weak systems can collapse completely, leaving people in desperate need of food, health-care and other basic services.

Between 1997 and 2003, Indonesia has suffered more than 30 major humanitarian crisis including floods, droughts, earthquakes, and conflict. Catholic Relief Services' (CRS) Network for Early-warning Assistance and Resilience (NEAR) program was created to mitigate the effects of these disasters by working with communities to identify vulnerabilities, and to develop mitigation and preparedness strategies for future crises. NEAR stands for networks through community, government, civil and private sectors for early warning in order to analyze, map, prepare and plan for the disaster event and assistance via relief, response and mobilization, and to build resilience by empowering, securing, creating an ownership leading to sustenance. NEAR's over-arching goal thus is to enhance community resilience throughout Indonesia. This is done

sustenance. NEAR's over-arching goal thus is to enhance community resilience throughout Indonesia. This is done by reflecting on past trends, patterns and perceived vulnerabilities, on-site appraisals to determine validity of information, cross-sharing of lessons through workshops and abating crisis through implementation of community designed small scale resilience activities. These local community initiatives help minimize loss of life when crises occur, support sustainable recovery and resiliency and serve as model examples for sharing with other vulnerable communities and local government offices.

Because multiple sectors are often affected by a crisis, the strategy of NEAR is gathering experts in a variety of fields: education, health, food security, agriculture, capacity building, and economics to share their knowledge with participants. It encourages community exchange networks, mapping, mitigation planning, integrated human development, associations and links, concept design and proposal development, accountability, awareness raising, and setting up early warning system.

CRS believes that accurate knowledge of community needs and the root causes of crisis will help reduce their impact. Building local capacity is one of CRS's core goals, and NEAR is an important means of achieving this. Local organizations throughout Indonesia have joined with CRS to increase the collective capacity to respond to crises. Through workshops and other activities developed by CRS, these organizations have an opportunity to learn how to identify their communities' unique vulnerabilities and local crises indicators. By analyzing this information, the organizations can develop activities to reduce the impact of crises and effectively respond to them.

Activities such as awareness campaigns, community meetings, and the distribution of literature on early warning systems are helping to build individual capacity

activities under this pilot program have included Environmental Protection; Geographical Information Systems for Vulnerability and Poverty Mapping; Disease Monitoring; Hygiene Awareness; Flood Proofing; Safety and Preparedness Programs for schools, religious groups and community groups; Conflict Reduction/Peace Building Schemes; Public Safety Information Campaigns; Earthquake Drills and Emergency Response Simulations.

While implementing these activities and sharing of experiences it is noted that community groups quickly start to take their own initiatives to find solutions towards their problems by advocating to the local government authorities through the media and open dialogues, designing small scale activities to abate potential crisis and seek external assistance when local capacity is insufficient.

Currently, NEAR is working with local organizations in selected regions of Indonesia to build their capacity to prepare for and respond to emergencies. The program encourages other organizations to link up to this network. In addition to its activities with local organizations, NEAR is also strengthening linkages with local governments, central ministries, local agencies and other networks. Activities are currently being implemented in selected regions of the country - North Maluku, West Kalimantan, Lampung, West and East Nusa Tenggara and Central Java.

Lao PDR

CASE STUDY 1

Reducing Fire Threats to Homes: Piloting Community-based Fire Risk Assessment in Ban Hatsady Village

Fires cause the greatest loss of life and property in the urban areas of Lao PDR. In response to the challenge, the government initiated the Lao PDR Urban Disaster Mitigation Project (LUDMP) in July 2002. It is composed of 3 organizations: the National Disaster Management Office (NDMO), the Urban Research Institute (URI), and the Fire Prevention and Protection Police Department (FPPPD). Each of these LUDMP partners has specific roles in the LUDMP program activities. The LUDMP focuses on incorporating risk management and hazard mitigation into development planning of urban areas with the city of Vientiane as pilot.

As the center of both national and municipal government administration, the capital city of Vientiane is experiencing construction boom and it is specifically susceptible to the recurring problem of fires. Dense building concentrations, narrow roads, flammable building materials, aging water supply and electrical system, as well as the lack of resources to upgrade preparedness and response skills have resulted in a growing risk of large scale, multiple structure fires.

LUDMP initiated activities to reduce fire disaster vulnerability of population, infrastructure and economic assets in Vientiane and other cities and other urban communities of Lao PDR. It brought together community members and government agencies at the local level to prepare the ground for a joint development of fire protection initiatives.

A fire risk zonation mapping process took place in Vientiane, covering 100 villages in the 4 administrative districts of Chanthabouli, Sikhottabong, Sisattanak, and Xaysettha. These places have important roles in the political and economic activities in the city. The Vientiane Fire Risk Zonation map was produced by integrating seven layers of information: building material type, availability of fire sources, fire fighting scenario, fire history, electrical wiring, building density and accessibility. Result showed more than half of communities covered were “high risk” while six were “very high risk” to fire hazards. The map served as the basis for the formulation of fire risk reduction strategies at the city and national levels. Fire prevention measures identified were regulatory development, community education and outreach, increased number of upgraded fire service equipments and trainings and exchange programs.

Among the “very high risk” communities, Ban Hatsady village in Chanthabouli district was selected to undertake the community-based fire risk mapping process. It was chosen based on fire history and heightened awareness for fire protection activities, as well as presence of banks, market and other community entities. Ban Hatsady is a medium-sized community with 242 houses in 5 subdivisions. In the last five years, four big fire events had occurred.

The Ban Hatsady villagers produced their own fire risk map using the same attributes used in the Vientiane city risk mapping with some modification to suit the community’s situation. The fire risk mapping was carried out in the following stages: assessing level of preparedness; identifying fire risk attributes and community resources; mapping attributes and resources; identifying risk mitigation measures; and risk reduction planning.

Group discussions, interviews, ocular survey and review of secondary data were done to assess the community’s level

of preparedness and perceptions to risk. The community identified the following fire risk attributes and community resources that can be used in the preparedness, mitigation and prevention activities: fire history; fire resources related to livelihood; building construction and density; quality of electrical wiring system; access in and out of community of fire truck, vehicles, and people in the event of fire; houses where there are young children (7 years and below) and elderly (65 and above) who should be put to safety in the event of fire; community resources (e.g. fire hydrants and other water sources, sand, buckets, fire extinguisher, ladder, ropes and public/private telephones); and community resources that can provide support in the risk reduction process (e.g. community leaders, health professionals, teachers and security committee). Then they marked in their base map the location of risk attributes and the location of community resources.

The community identified short and long term risk reduction strategies. Specific objectives were set up by the participants to guide them through the strategy of the identification process. They brainstormed on examples of preparedness, mitigation and prevention measures and also based on their experiences. They listed specific reduction activities, set a time frame to perform such activities, identified organizations or persons responsible, type of resources needed, and the agency or organization that could possibly support the process.

The following are the risk reduction activities that were identified and implemented:

- Increasing community awareness was done through posters on “Fire Safety Procedures” and the fire emergency number “190” that were distributed to all households and posted in strategic corners in the community.

- Implementing a 24-hour fire preparedness measures by households having ready water buckets and sand at strategic places in their homes.
- Organizing and strengthening of community fire volunteers brigades composed of youth, women and men were done to guard the community against fire.
- Training and education on fire drills and first aid were conducted to enhance skills of community fire volunteers.
- Enforcing fire safety regulations such as inspection and rehabilitation of electrical wiring system, widening of roads for easy access to fire services, installation of fire hydrants and regular community clean up.
- Networking and resource generation was planned by the community through fundraising activities for the Ban Hatsady Security Community Welfare Fund to support disaster-affected families.

Lessons learned from the Ban Hatsady fire risk mapping and risk reduction planning experiences were: the importance of community-based approach to disaster mitigation; enhancing skills and knowledge in fire prevention; community self-help by improving skills of fire volunteers; proper selection of community fire volunteers; manual mapping works; budgeting attributes for long-term sustainability; replicating success to neighboring communities; building a safe and sustainable community; regular monitoring ensures long-term community safety; holistic and integrated planning; adherence to building and fire safety code is an outstanding challenge; and the importance of cooperation/coordination among stakeholders.

Source: Safer Cities 9, Asian Urban Disaster Mitigation Program, ADPC

CASE STUDY 2

Disaster Preparedness Program (DPP) in Lao PDR CONCERN Lao PDR

CONCERN's Disaster Preparedness Program (DPP) in Lao PDR consisted of 3 phases. The first phase, from 2000-2002, focused on strengthening institutional and operational mechanisms of disaster management units at the provincial and district level. The second phase, from 2003-2004, focused on strengthening the capacity of district authorities to assist vulnerable villages prepare and implement disaster risk reduction action plans. The third and final phase was conducted from April 2004 to March 2005. Phase 3 focused on implementing risk and vulnerability reduction activities in seven poor and vulnerable villages of Khammoune and Savannaketh provinces identified in phase 2; and on strengthening the capacity on disaster risk management of partners from the central, provincial and district levels.

Program Objectives

The overall objective of Phase 3 is to increase livelihood security by reducing people's vulnerability to disasters in the Lao PDR. Specifically, it aimed to reduce the disaster risks faced by seven villages in Khammoune and Savannaketh provinces by enabling the districts and village teams to implement the disaster risk reduction action plans prepared in previous phases. It also aimed to strengthen the capacity of CONCERN and its partners to prepare and respond to disaster risks.

Activities Implemented

The final phase of the DPP implemented the phase-out strategies that were identified. Disaster management structures in the provincial district and village levels were strengthened. Reorganization was carried out in 2 Provincial Disaster Management Committees (PDMCs),

7 District Disaster Management Committees (DDMCs), 7 Village Disaster Protection Units (VDPUs), and 7 District Focal Point Units (DDFPUs). A memorandum from each Provincial Governor and District Governor was circulated to clarify roles and responsibilities of each units and member agency in disaster risk management.

Capacity building of DDFPUs through workshops and training activities, and side-by-side coaching was conducted to ensure that district officials are equipped with technical skills to assist the pilot villages implement the activities especially after project completion. At least four DDFPU coordination meetings were likewise held.

DDFPUs assisted 7 vulnerable villages implement disaster risk reduction action plans. The activities included: managing rice bank, village fund, training on preparation and application of organic fertilizers, implementing and promoting environment friendly and sustainable farming practices, organizing weaving group among women, and constructing boreholes and wells. Meanwhile, CONCERN's staff provided technical inputs to district teams in the implementation of disaster risk reduction plans in the villages.

Two district level Community-Based Disaster Risk Management (CBDRM) workshops were held using the CBDRM training module prepared in phases 1 and 2. An orientation-workshop on Participatory Community Development was also conducted in each province.

Study tours to rural development projects were conducted to better understand practical application of risk reduction measures. International and local study trips exposed participants to the experiences of other communities in reducing vulnerabilities to disasters.

A workshop on Strategic Planning was held. The PDMC of Khammoune and Savannaketh developed a strategic plan for 2005-2010 which were in line with the strategic plan 2020 of the central government of Lao PDR.

Two partners meetings were conducted. The second meeting held on March 2005 was about lessons learned. It tried to identify best practices among disaster risk management projects being implemented by INGOs, NGOs and GOL units and to examine the possibility of replicating best practices in other communities of Lao PDR.

The Lao Disaster Situation pamphlets was produced and distributed to partners and stakeholders. The booklets are useful information and promotional materials.

Capacity-building at the Community Level

The VDPUs are composed of officials of the Village Development Committee, such as the village chief, representative from the elderly, youth, Lao Women Union, etc. Villagers were mobilized in self-help and community mobilization towards vulnerability reduction. A series of vulnerability reduction and organizational consolidation activities were conducted in the 7 pilot districts and villages. A village-level emergency plan was developed to prepare the community members in responding to flooding.

People's involvement and participation was the key to ensuring success of its implementation. Although slow, there was an increasing level of participation by the villagers in implementing community vulnerability reduction activities. Attendance in meetings and participation in decision-making have improved through time. Women's participation likewise improved as they have been regularly attending and participating in most village activities. Several women attended workshops on weaving, while others participated in study tours to learn

how women managed community projects, such as animal raising, vegetable farming and weaving.

Lessons Learned
Lessons learned during the implementation of the DPP include: focusing of analysis and intervention on vulnerability and risk reduction; realizing that capacity-building is a long-term process and takes time to develop in staff and partners; developing a strategic plan is an effective exit strategy to sustain DM operations; and developing people's ownership over the project is very important.

Tmor Léste

CASE STUDY 1

Capacity Building for Disaster Risk Reduction in Lautem District
CONCERN Timor Léste

A project of CONCERN Worldwide-Timor Léste in collaboration with the Democratic Republic of Timor Léste and a local non-government organization and vulnerable communities in four sub-districts of Lautem District was funded under the Fourth DIPECHO Action Plan for South East Asia from 2004 to 2005.

CONCERN Worldwide - Timor Léste
CONCERN Worldwide supports a Livelihood Security Programme in Luro sub-district, Lautem. In 2005, it expanded its activities into the area of disaster risk reduction by involving communities and local government units in developing flood and drought prevention, mitigation and preparedness in four target sub-districts of Luro,

units in developing flood and drought prevention, mitigation and preparedness in four target sub-districts of Luro, Muro (Lautem), Iliomar and Tutuala, Lautem District. CONCERN works at all levels of government (village, sub-district, district and national levels) to develop capacity in Community-Based Disaster Risk Management (CBDRM).

Partner Organization

The National Disaster Management Office (NDMO), District Disaster Management Committee of Lautem, and Matak NGO

Project Objective

Principal: To contribute to the overall livelihood security for the poorest communities in the Lautem District, Timor Léste, through the reduction of vulnerability to environmental shocks.

Specific: By May 2006, there is an increased capacity in Lautem to appropriately prepare for and mitigate against disasters which impact on livelihood security.

Project Methodology

- Piloting of disaster risk reduction approaches in communities identified as particularly vulnerable to disasters
- Development of competencies and institutions at the community, sub-district and district levels
- Enabling of ongoing preparedness
- Mainstreaming into local development plans
- Replication of pilot activities

Project Duration and Location

This project runs for 15 months (February 2005 to April 2006) in eight pilot villages of four Lautem sub-districts including Luro (Lakawa, Wairoke, Afabubo villages), Muro (Daudere village), Iliomar (Iliomar 1 and Iliomar 2 villages) and Tutuala (Mehara and Tutual villages).

Beneficiaries

- Those who suffer yearly from food shortages brought about by drought, chronic flash flooding and soil erosion
- Those living in villages and hamlets covered by the project
- Population within the district that will benefit from information sharing and awareness raising

Expected Results

- An increase in institutional capacity for Disaster Risk Reduction at District Level through the development and sharing of best practices with key government and civil society stakeholders
- Measures have been developed in four villages in Lautem to reduce the impact of drought on food security
- Small-scale flood mitigation measures have been developed and implemented in four villages along the Raumoco River using a watershed management approach.

CASE STUDY 2

The Nature and Practice of CBDRM in East Timor (Eduardo da Costa, OXFAM GB)

Paper presented during the Third Disaster Management Practitioners Workshop for Southeast Asia, May 2004, Bangkok

Oxfam is one of the few agencies involved in CBDM in Timor-Léste, and perhaps the only one developing a CBDM program at this stage. This presentation, therefore, will largely focus on the CBDM work of Oxfam in Timor-Léste, and in particular the preparatory work already done

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The main outcomes that Oxfam is seeking to achieve through its CBDM work include the following:

- Communities in target areas are able to manage their own disaster mitigation, preparedness and response activities.
- Partner organizations and local government in target areas are able to develop, implement and support CBDM initiatives.
- Key stakeholders in CBDM (communities, partners, and government) coordinate on CBDM strategies and activities at all levels.

Oxfam in East Timor

Oxfam has been supporting projects in Timor-Léste since 1974, primarily working through national organizations that have linked with communities. In early 1999, Oxfam supported training in simple disaster preparedness with selected NGOs and church groups. This was to increase their capacity to respond to the increasing numbers of Internally Displaced Persons (IDPs) due to the violence and intimidation that followed the announcement that the popular consultation would be held later that year. In the immediate aftermath of the post-ballot violence in late 1999, Oxfam responded with an emergency environmental health program and also continued to support the work of national organizations. Since September 2000, the Oxfam program has consolidated the activities of a major emergency program and progressed to the current long-term development program. The program integrates work in the areas of livelihoods, health, education, Disaster Management (DM), gender, and fostering local participation in economic, social and political life. Oxfam implements projects at national level and in various districts - Oecusse, Covalima, Liquica, Bobonaro, Manatuto, Baucau, Lautem and Viqueque. The program includes facilitating and developing linkages between regional, national, district and community level activities. To achieve, this Oxfam works with CSOs (NGOs, community-based organizations, and networks) and with local and national government. Oxfam coordinates closely with other international actors such as international NGOs, UN agencies, and donors. Currently, three Oxfams have field based staff in Timor-Léste - Oxfam Australia (OCAA), Oxfam Great Britain (OGB) and Oxfam Hong Kong (OHK) - working together to implement a joint Oxfam strategic plan. Several other Oxfams also support work in Timor-Léste.

In this joint approach, DM work is being closely integrated with the other program areas, especially livelihoods and health. The integration of DM within long-term development

work is a major element of Oxfam's approach in Timor-Léste. While DM response capacity is always important, Oxfam's approach encompasses strategies aimed at reducing risks faced by the most vulnerable communities and the most vulnerable within those communities. Recognizing the gender issues related to vulnerabilities and capacities, Oxfam strives to integrate gender analysis within all aspects of its DM work.

The focus of Oxfam's DM work is on CBDM, including CBDRM, in three target districts - Oecusse, Covalima and Liquica districts - along with a smaller engagement in other districts where Oxfam is working. In February 2002, Oxfam provided some initial Participatory Capacity and Vulnerability Analysis (PCVA) training with staff and partner CSOs and in February 2003 some basic DM orientation for staff and partners. In the first half of 2003, Oxfam assisted drought affected communities in Oecusse district to access seeds and increase their awareness of nutritional practices. In mid-2003, it assisted community groups in flood affected communities in Covalima to organize and link in with the district administration. In late 2003 and early 2004, more focused CBDM work began when Oxfam began providing CBDM training and support for government and civil society in the three target districts. The focus thus far has been on building up basic knowledge and skills around CBDM, including some review of past emergency relief activities and the commencement of some local contingency planning. In conjunction with this district based work, Oxfam provides national level support to and coordinates closely with the NDMO. The focus of this support is on building up the capacity of the NDMO to liaise with CSOs and other agencies in the development of DM policy and practice, including developing regular monitoring of community vulnerability and in designing and implementing appropriate public education and awareness raising campaigns. Oxfam has also sponsored East Timorese to regional workshops related to CBDM.

Area of Reach

The three target districts for Oxfam's program were identified on the basis of their needs. Oecusse district is the isolated enclave on the north coast in the western half of the island of Timor. Covalima district is on the south coast and borders West Timor. The district of Liquica is on the north coast to the west of the capital Dili.

Oecusse, Covalima and Liquica districts have experienced increased vulnerability over recent years. Oecusse and Liquica have experienced poor rains and destructive winds, and floods have affected Covalima district. Within these districts, there are specific areas that appear to be more vulnerable than others. In Covalima district, the areas of focus are either extremely remote and have experienced poor harvests or are areas that regularly experience floods. In Oecusse and Liquica, the areas closest to the coast have tended to be most affected by drought. Oecusse and Covalima, as border districts, have had their vulnerability increased by the closure of the border to livestock trade.

The target groups within these districts include community groups of men and women in six sub-districts - two sub-districts in Oecusse district, three in Covalima district, and one in Liquica district. Target groups also include district and sub-district government officials, the NDMO, district based CSOs, including women's groups and youth groups, and Oxfam local staff. The direct beneficiaries at the community level are still being determined, but include specific villages, NGOs and government staff. Indirect beneficiaries are the remaining populations of the sub-districts and districts involved. The estimated beneficiary population is approximately 65,000.

Problems in CBDM Implementation and in Getting Support for CBDM

There are significant challenges to developing CBDM in Timor-Léste. One problem is that key local agencies may

not have adequate capacity or be willing to integrate CBDM into their programs and projects. There is a need to assist local organizations to understand the importance of such integration, to provide the necessary capacity building support, and to engage them in CBDM work carried out directly with communities by organizations such as Oxfam. A second difficulty is that communities may not sufficiently support a CBDM approach. The quality of local leadership is often a key factor in engaging communities, so it is necessary to work closely with community leaders and key community members to build up understanding and support for CBDM at community level. It is also important to integrate work around CBDM with activities that clearly address current community needs and concerns, for example activities in the areas of livelihoods and health.

Possible lack of support from national and district government is a further concern. Providing government with opportunities to be involved in the design and monitoring of CBDM and to develop an understanding of how CBDM can be supported by government policy and practice is critical to expanding the reach of CBDM beyond a limited number of target communities.

Integrating CBDM with existing livelihoods, health and DM work can also help promote involvement of local and national government. Also of concern is that the specific needs and situations of women will not be adequately attended to in the development of CBDM in Timor-Léste. Building gender analysis and women's participation into all stages of program and project design, implementation and review is essential.

Some key lessons learned by Oxfam so far in relation to CBDM in Timor-Léste are that:

- Significant awareness raising with local CSOs and local government is needed regarding CBDM.

- CBDM needs to be integrated with broader activities carried out at the community level using a community organizing approach to identify risks and develop action plans.
- Discussion with and mentoring of sub-district, district and national stakeholders is needed to provide an enabling environment for CBDM.
- A CBDM focal point needs to be identified and resourced in each district.
- Both men and women need to be targeted in analysis, program and project design, training and other activities, to ensure that outcomes are gender equitable.

Impact

As CBDM work, including CBDRM is in its very early stages in Timor-Léste it is too early to assess impact. Indicators to assess future impact include:

- The number of key community members, district government officials and partners who have increased awareness of CBDM.
- The increase in capacity of men and women to identify and respond to the risks that they have identified through community organizing, advocacy and actions within their communities.
- The number of communities in which men and women community members identify local risks and undertake activities to reduce them and manage them better.
- The number of men and women in communities who actively participate in preparation for disasters and design and implement responses to disasters.
- The number of communities that are better able to access resources and influence key decision-makers for CBDM activities.
- The number of agencies that incorporate gender sensitive analysis of risks and corresponding risk management into their programs and projects.
- The number of agencies that respond in an effective and equitable way to future disasters.

- The increase in involvement of local government in DM initiatives.
- The number and impact of initiatives implemented as a result of increased coordination.
- The development of plans and structures for enhancing coordination around CBDM.
- The increase in understanding of CBDM by national level government.
- The incorporation of policy support for CBDM in government legislation.

Vietnam

CASE STUDY 1

Development Workshop France Initiatives in Thanh Thuy Chanh Village
Thuy Thanh Commune

Married at the age of 17, Madam Phan Thi Yem assures us that this was not considered young at the time, but life was really hard - difficult to express how hard. To begin with, the young couple were farmers. Then her husband went off in 1963 to fight in the Resistance. He was killed in May that year in a ghastly massacre. This was a terrible blow, leaving her with 5 young children to care for, the eldest 13 and the youngest only 3 years old. With meager savings from making straw hats, like others in the village, she was able to pay for her children to attend school. But once basic needs were met, she could only afford to lie in a poorly maintained bamboo shelter. Using savings scraped together and with manual help from cousins and neighbors, she managed to build a cement block house with a tin roof, but no reinforcement, only to find herself

homeless, 11 years later when a typhoon ripped off all the roofing. She was then forced to purchase fibro-cement sheets to replace it. “That’s why when I hear a typhoon warning, I’m absolutely terrified,” she adds.

Asked about strengthening house against storm damage, she says she had heard about this and was most interested. For this reason, Madam Yem took an active part in the village meeting held to decide which families should benefit from the damage prevention project. In the event she met all the conditions for becoming a beneficiary, she made assurances that, should she become a recipient of a loan, she would do everything she could to help improve her house as required.

Before strengthening, her house was built of cement blocks, with a tin roof and very rudimentary tin panel doors. All her children are married and are employed, but at some distance, except her youngest daughter who lives with her. So she hopes her house can be finished before the Test (Vietnamese New Year) holiday so that she can celebrate with her neighbors. The total budget for the work is some 4,200,000 dongs, of which Madam Yen is contributing 200,000 dongs. A further loan of 1.5 million dongs at the interest rate of 0.3% per month was agreed. She receives a State pension of 120,000 dongs (as a Revolution widow) and this together with her income from raising animals will enable her to make the monthly repayments of 57,000 dongs. Before, she used to borrow from the Women’s Union for her farming activities, but until then, no organization had provided loans for strengthening homes against storms. She is delighted with the new loan scheme and is determined to save and repay on time so that others can also benefit. At the time of writing, the walls of her house have been carefully rendered and eight iron reinforcements have been added to the roof, making it both attractive and strong!

CASE STUDY 2

Planting Mangrove Saves Lives and Money in Vietnam
Vietnam Red Cross

Vietnam is one of the most typhoon-lashed nations in Asia. Every year, an average of four sea-borne typhoons and many more storms wreak havoc on this low-lying country. In what may seem a curious pursuit for a humanitarian organization, the Vietnam Red Cross (VNRC) has, since 1994, been planting and protecting mangrove forests in northern Vietnam.

The reason for its commitment to mangrove protection, which has included planting nearly 12,000 hectares of trees and defending them from shrimp farmers who want to hack them down, is a simple one: mangroves protect Vietnam's coastal inhabitants from the ravages of typhoons and storms. These submerged, coastal forests act as buffers against the sea, reducing potentially devastating 1.5-meter waves into harmless, centimeter-high ripples.

The mangroves planted by the Red Cross protect 110 kilometers of the 3,000-kilometer sea dyke system that runs up and down Vietnam's coastline. The VNRC, with financial support from the Japanese and Danish Red Cross, plant four different species, which reach a height of 1.5 m after three years.

The benefits are staggering. In financial terms alone, the mangrove program proves that disaster preparedness pays. The planning and protection of 12,000 hectares of mangroves has cost around US$ 1.1 million, but has helped reduce the cost of dyke maintenance by US$ 7.3 million per year.

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In lives spared, one need only look to the dividend reaped during typhoon Wukong in October 2000. This typhoon pummeled three northern provinces, but left no damage to the dykes behind regenerated mangroves, and no deaths inland of the protected dykes. In the past, waves would breach the coastal dykes and flood the land of poor coastal families.

As well as the lives, possessions and property saved from floods, the VNRC estimates that the livelihoods of 7,750 families have benefited from the replanting and protection of the mangrove forests. Family members can now earn additional income selling the crabs, shrimps and molluscs which mangrove forests harbor – as well as supplementing their diet.

The presence of additional mangrove forests in a country that has seen them decimated in the last 50 years, due to shrimp farming, coastal development and chemical defoliants dropped during the Vietnam war, is crucial. As sea temperatures and levels rise, more severe typhoons

and storm surges can be expected. This could be disastrous for the inhabitants of Vietnam's east-facing coastline.

This risk has spurred the Red Cross to continue its investment in mangrove regeneration, despite continued threats from coastal shrimp farmers and developers. It is just as well. Those who live inland of sea dykes are a little less at the mercy of typhoons and storms now. And they hope to keep it that way.

This excerpt was taken from the World Disasters Report 2002 - Focus on reducing risk, launched on the 19th June 2002.

chapter 6

resources

National Resources

Cambodia

Government

The Royal Government of Cambodia (RGC) established the National Committee for Disaster Management (NCDM) in 1994 as a result of recurring disasters. The main purpose is to achieve an effective RGC inter-ministerial coordination system in disaster management including prevention, mitigation, preparedness, response and rehabilitation, and as a result reduce the impact of disasters on Cambodian Communities.

National Committee for Disaster Management
H.E. Dr. Nhim Vanda
First Vice President
No. 274, Monivong Road
Phnom Penh, Cambodia
Tel: +855-23-211171 Fax: +855-23-987719

Other Ministries

Other ministries may be involved in activities on disaster preparedness, emergency assistance and mitigation.

Cambodian National Mekong Committee
23 Mao Tse Tung Blvd.
Phnom Penh, Cambodia
Telephone: +855-23 426201

Ministry of Agriculture, Forestry and Fisheries
200 Norodom Boulevard
Phnom Penh, Cambodia
Telephone: +855-23 211351
Fax: +855-23 217320

Ministry of Country Planning, Urbanization & Construction
771-773 Monivong Blvd.
Phnom Penh, Cambodia
Telephone: +855-23 215 659
Fax: +855-23 215 277

Ministry of Environment
48 Sihanouk Blvd.
Phnom Penh, Cambodia
Telephone: +855-23 427844

Ministry of Foreign Affairs and International Cooperation
413 Sisowath Boulevard
Phnom Penh, Cambodia
Telephone: +855-23 426 814
Fax: +855-23 426 144

Ministry of Water Resources & Meteorology
No. 47 Norodom Blvd.
Phnom Penh, Cambodia
Telephone: +855-23 426 354
Fax: +855-23 426 354

Ministry of Planning
362 Monivong Boulevard
Phnom Penh, Cambodia
Telephone: +855-23362 307
Fax: +855-23 920 944

Cambodian Mine Action Center (CMAC)
10 Street 528
Phnom Penh, Cambodia
Telephone: +855-23 981083/4
Fax: +855-23 367096

INGOs / NGOs
These organizations have been implementing Community Based Disaster Risk Management Programs and Projects in Cambodia

Action Against Hunger
Mr. Laurent Romagny
#8, Street 328, Toul Svay Prey 1,
Phnom Penh, Cambodia
Telephone: +855-23 993-002
Fax: +855-23 361291
Email: acf-laurent.romagny@libertysurf.fr
Flood disaster preparedness and mitigation in Kampong Cham

ZOA Cambodia
Mr. Bernard Jasper Faijer
P.O. Box 559, # 41, Street 476,
Phnom Penh, Cambodia
Telephone: +855-23 362-134
Fax: +855-23 213-460
Email: bernard@zoacambodia.org
Reducing the impact of drought in Oddar Meanchey province

Dan Church Aid
Mr. Alan D. Jensen
c/o LWF, #37, Street 592,
Sagkat Beung Kak II, Khan Toul
Kork, Phnom Penh, Cambodia
Telephone: +855-23 881-100
Fax: +855-23 881-616
Email: dcaglobalfunding@everyday.com.kh

Community-based disaster preparedness and mitigation
Danish Red Cross
Mr. Andrew Oliver Smith
#17 Street 180 (Red Cross St.)
Phnom Penh, Cambodia
Telephone: +855-23 654247
Email: danishrc08@online.com.kh
A model for community-based disaster risk reduction in Cambodia

CARE International
Noel A. Puno, Project Coordinator
52 Street 352, Phnom Penh, Cambodia
Telephone: +855-23 215 267
Fax: +855-23 426 233
Email: caredpap@online.com.kh
Living above the floods project

World Food Program (WFP)
250 St. 63 (corner of 398)
Phnom Penh, Cambodia
Telephone: +855-23 210943, 212137
Fax: +855-23 724081
Email: wfp-pnh@forum.org.kh

International Federation of Red Cross and Red Crescent Societies
Seija Tyrninoksa
No 17, Street 180
Phnom Penh, Cambodia
Telephone: +855-23 210162 / 362690
Fax: +855-23 210163
Email: ifrckh01@ifrc.org

NGO Forum on Cambodia
Russell Peterson, Representative
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Phnom Penh, Cambodia
Telephone: +855-23 360-119
Fax: +855-23 214-429
Email: ngoforum@camnet.com.kh

PACT Cambodia
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Phnom Penh, Cambodia
Telephone: +855-23 427 820, 427 855
Fax: +855-23 427 820, 427 855
Email: pact_cam@worldmail.com.kh

World Vision International
No. 20 Street 71, P.O. Box 479
Phnom Penh, Cambodia
Telephone: +855-23 216 052
Fax: +855-23 216 220
Email: thea_pich@wvi.org

Oxfam GB
Mike Bird
House# 54, Street 352
Phnom Penh, Cambodia
Telephone: +855-23 720 928
Fax: +855-23 211 873
Email: isolinda@oxfam.org.kh

Indonesia

Government

In 1967, the Indonesian National Coordinating Body for Natural Disaster Management (BAKORNAS PBP) was established. The structure for disaster management was also institutionalized at the provincial and district levels (SATKORLAKs). In 1990, the Presidential Decree expanded the scope of BAKORNAS to include man-made disasters.

BAKORNAS PBP
Dr. Indrawadi Tamin
Vice Secretary
BAKORNAS PBP
Jalan Jr. Juanda 36, Jakarta 10110, Indonesia
Tel: +62-21-3458000
Fax: +62-21-3458500

Other ministries may be involved in activities on disaster preparedness, emergency assistance and mitigation.

Ministry of Social Affairs
Salemba Raya 28, Jakarta Pusat, Indonesia
Tel: +62-21-8489632
Fax: +62-21-3100309

Ministry of Health
Jl. Belanak Raya, #25A Rawamangun, Jakarta, Indonesia
Tel: +62-21-5202257
Fax: +62-21-5202257

Ministry of Agriculture
Jl. Harsono RM, No, 3 Pasar Minggu, Jakarta, Indonesia
Tel/Fax: +62-21-7304176

Ministry of Home Affairs
Directorate of Disaster Management
Jl. Kebon Sirih, No. 42 Jakarta, Indonesia
Tel: +62-21-3142142 ext 139 / 145
Fax: +62-22-7202761

Department of Energy, Geology and Mineral Resources
Directorate of Volcanology and Disaster Mitigation of Geology
Jl. Dipenogoro 57, Bandung, Indonesia
Tel: +62-22-7272604
Fax: +62-22-7202761

UN Agency

United Nations Development Programme
Menara Thamrin 7-9th Floor
Jl. M.H. Thamrin Kav. 3,
Jakarta 10250, Indonesia
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Fax: +62-21-3145251
Email: media.id@undp.org

INGOs / NGOs

These organizations have been implementing Community Based Disaster Risk Management Programs and Projects in East Timor.

CARE
Jl. Pattimura No. 33,
Kebayoran Baru,
Jakarta 12110, Indonesia
Tel: +62-21-7279-6661
Fax: +62-21-7222-552
Strengthening of initiatives in PEAT areas to increase preparedness for disaster

DANISH RED CROSS
Gedung Palang Merah Indonesia
Jl. Jend. Gatot Subroto Kav. 96
Jakarta 12790, Indonesia
Phone: +62-21-79195921
Fax: +856-21-79193270
Community-based risk reduction (CBRR) in Indonesia

OXFAM GB - Indonesia Office
Puri Gejayan Indah Blok B-20°
Yogyakarta 55281, Indonesia
Tel: +62-274-584722 ext 112
Fax: +62-274-584722 ext.102

Catholic Relief Services
Jl. Wijaya 1 No. 35, Kebyaoran Baru,
Jakarta 12170 Indonesia
Tel: +62-21-7253339
Fax: +62-21-7251566

Indonesian Red Cross
Jl. Jenderal Datot Subroto Kav. 96
12790 Jakarta, Indonesia
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Fax: +62-21-7995188

Indonesian Institute for Disaster Preparedness
Tebet Barat Vc/18,
Jakarta Selatan 12810
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World Vision Indonesia
JL. Wahid Hasyim 33
P.O. Box 3532
Jakarta 10340
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Institut Teknologi Bandung
Center for Disaster Mitigation
Research and Development Bldg 8/F
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Lao PDR

Government
The National Disaster Management Office (NDMO) of Lao PDR serves as the secretariat of the National Disaster Management Committee

(NDMC) and has a key function to cooperate with government agencies, INGOs, NGOs on disaster management.

National Disaster Management Office
Pangkham Road, P.O. Box 347,
Vientianne, Lao PDR
Tel: +856-21-213011
Fax: +856-21-219525
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Other Ministries
Other ministries may be involved in activities on disaster preparedness, emergency assistance and mitigation.

Ministry of National Defense
Vientiane, Lao PDR
Tel: +856-21-9800459

Department of Transport
Vientiane, Lao PDR
Tel: +856-21-2400731

Ministry of Labor and Social Welfare
Vientiane, Lao PDR
Tel: +856-21-5906540

Ministry of Housing and Finance
Vientiane, Lao PDR
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Ministry of Foreign Affairs
Vientiane, Lao PDR
Tel: +856-21-451936

Department of Meteorology and Hydrology
D.M.H, Luangprabang Road,
Vientiane, Lao PDR
Tel/Fax: +856-21-223446
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INGOs / NGOs

These organizations have been implementing Community Based Disaster Risk Management Programs and Projects in Lao PDR.

CARE
Ms. Geraldine Zwack
Country Director
P.O. Box 4328, 217/18
Sibounheaung Rd. Ban Sibounheaung,
Vientiane, Lao PDR
Tel: +856-21-212-991
Fax: +856-21-214-415
Email: geraldine@carelaos.org
Remote area disaster preparedness and response project (RADPRP)

World Vision
Mr. Stephen Rozario
Country Director
P.O. Box 312,
01005 Vientiane, Lao PDR
Tel: +856-21-412-933
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Community-based disaster management (CBDM) project for Pakkading and Soukhouma districts

Mekong River Commission
Dr. Olivier Cogels
Director
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Tel: +856-21-263-263
Fax: +856-21-263-264
Email: cogels@mrcmekong.org
Capacity building for preparedness planning and response through the use of flood information products in the lower Mekong basin (in partnership with the Asian Disaster Preparedness Center)

Urban Research Institute
Mr. Saykham
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Church World Service (CWS)
Mr. William H. Dangers
Representative
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Concern Worldwide (CONCERN)
Luang Prabang Road
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Cooporazione e Sviluppo Onlus (CESVI)
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Oxfam Solidarity (Belgium)
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Save the Children (SC)
Mr. Shaun Hext
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Email: postbox@scn.laopdr.org

Mine Advisory Group (MAG)
Ms. Joanne Durham
Country Programe Manager
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Email: maglao@laopdr.com

Village Focus International (VFI)
Mr. Richard L. Reece, Director
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Timor Léste

Government

The National Disaster Management Office (NDMO) of East Timor has the central role of coordination of government departments and other international agencies regarding Disaster Management.

National Disaster Management Office
Mr. Francisco Rosario, Chief
GPA Kobe House 4, Civil Protection
Ministry of Interior, Dili, East Timor
Tel: +670-3322597 / 7231552
Fax: +670-3322535
Email: francisco_ndmo@yahoo.com

Other ministries may be involved in activities on disaster preparedness, emergency assistance and mitigation.

Ministry of Foreign Affairs and Cooperation
GPA Building #1, Ground Floor
Rua Avenida Presidente Nicolau Lobato
P.O. Box 6, Dili, Timor-Léste
Telp. +670 (333) 9600, 9610, 9625
Fax. +670 (333) 9025
For information on other government ministries, please contact the NDMO.

UN Agencies

United Nations
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UN Dili
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United Nations Development Programme
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INGOs / NGOs

These organizations have been implementing Community Based Disaster Risk Management Programs and Projects in East Timor.

CARE
Mr. Jill Umbach
Dili, East Timor
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Email: cd.careet@bigpond.com
Timor-Léste community managed food banks for disaster preparedness project

CONCERN
Ms. Danny Harvey
Dili, East Timor
Tel : +670 390 312 039
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Capacity building for disaster risk reduction, Lautem district

OXFAM
Jalan Caicoli, Caicoli,
P.O. Box. 152, Dili, Timor Léste
Tel: +670-3312605
Fax: +670-3321914

International Committee for the Red Cross (ICRC)
Bairo dos Grilos no.20, Dili, Timor-Léste
P.O. Box 73, General Post Office, Dili
Phone: +6703321448
Fax: 00872.761.847.147 satelite phone facsimile
E-mail: dili.dil@icrc.org
Web: www.icrc.org

World Vision East Timor
Fiona Hamilton
P.O. Box 43, Dili
Phone: (+670) 390-312831, 7230854
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Email: fiona_hamilton@wvi.org

Vietnam

Government

The Department of Dyke Management and Flood and Storm Control (DDMFSC) of the Ministry of Agriculture and Rural Development (MARD) serves as a secretariat for the Central Committee for Flood and Storm Control (CCFSC) and has a key function to coordinate with government agencies, INGOs and NGOs on disaster management.

Department of Dyke Management and Flood and Storm Control
Mr. Dang Quang Tinh, Director
A4 Building, 02 Ngoc Ha Street
Hanoi, Vietnam
Tel: +844 733 5686
Fax: +844 733 6647
E-mail: pclbtw@fpt.vn
Website: www.ccfsc.org.vn

Other Ministries

Ministry of Fisheries
Luong Le Phuong, Deputy Minister of Fishery
Tel: +844-771 8628

Ministry of Natural Resources and the Environment
Nguyen Cong Thanh, Deputy Minister of Natural Resources and Environment
Tel: +844-773 3928

Vietnam Hydro-Meteorological Service
Bui Van Duc
Director of Institutional Department
Tel: +844- 826 4020

Ministry of Investment and Planning
Nguyen Xuan Thao
Deputy Minister of Investment and Planning
Tel: +844-43979

Ministry of Finance
Tran Van Ta, Deputy Minister of Finance
Tel: +844-933 0284

Ministry of Transportation and Communication
Ngo Thinh Duc, Deputy Minister of Transportation and Communication
Tel: +844-942 02959

Ministry of Labor, War Invalid, and Social Affairs
Dam Huu Dac, Deputy Minister of Labor, War Invalid, and Social Affairs
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Ministry of Health
Tran Chi Liem, Deputy Minister of Health
Tel: +844-8463529

Ministry of Science and Technology
Hoang Van Huay, Deputy Minister of Science and Technology
Tel: +844-943 6503

Voice of Vietnam
Hoang Van Ham, Head of the Economics-Science Department
Tel: +844-825 3171

Vietnam Television
Tran Dang Tuan, Vice-Director
Tel: +844-834 4216

INGOs/NGOs
These organizations have been implementing Community-based Disaster Risk Management Programs and Projects in Vietnam.

Action Aid International
Mr Phan Van Ngoc
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Hoan Kiem, Hanoi, Vietnam
Tel: +844-771-7692
Fax: +844-771-7693
E-mail: ngocp@actionaidvietnam.org
Pilot project on CBDRRM in three long-term program locations in Vietnam

Care
Ms. Carol Sherman
25 Hang Bun Street,
Ba Dinh Dist., Hanoi, Vietnam
Tel: +84-4-716-1930
Fax: +844-716-1935
E-mail: csherman@care.org.vn
Getting prepared: enhancing community-based disaster preparedness and coping capacity in vulnerable communities of Binh Dinh province, Vietnam

Development Workshop France
Mr. Guillaume Chantry, Project Coordinator
91/44a Phanh Dinh Phung, Hue, Vietnam
Tel: +84-4-84 82 31
Mob:+84-91 341 71 38
E-mail: dwvn@dng.vnn.vn, guillaume.chantry@dwf.org
Reduction of the material and economic vulnerability of families and communities caused by natural disaster in central Vietnam

Oxfam GB
Steve Price-Thomas, Country Programme Manager
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Regional Resources

These organizations function on a regional level and among governments to promote and enhance disaster risk management in the region.

The Mekong River Commission (MRC)

The Mekong River Commission (MRC) was established on 5 April 1992. The MRC member countries are Cambodia, Lao PDR, Thailand and Vietnam. MRC maintains regular dialogue with the two upper states of the Mekong River Basin, China and Myanmar.

The MRC member countries agree to co-operate in all fields of sustainable development, utilization, management and conservation of the water and related resources of the Mekong River Basin, such as navigation, flood control, fisheries, agriculture, hydropower and environmental protection.

The MRC Secretariat is the operational arm of the MRC. It provides technical and administrative services to the Council and the Joint Committee. Under the supervision of the Joint Committee, the Chief Executive Officer is responsible for the day-to-day operations of more than 100 professional and general support staff. The main counterparts for MRC activities in the four member countries are the National Mekong Committees (NMCs).

MRC Program on Disaster Preparedness

Flood Management and Mitigation Program

The Flood Management and Mitigation Program is a rolling program that commenced operation in January 2005 and is funded with a total value of around US$20 million. At the heart of the program is a Regional Flood Center, which provides technical and coordination services to the four

countries in the Lower Mekong Basin. Forecasts, flood data, technical standards and training packages are key outputs of the program.

Mekong River Commission Secretariat
P.O. Box 6101, Unit 18 Ban Sithane Neua, Sikhottabong District,
Vientiane 01000, Lao PDR
Tel: (+856) 21 263 263
Fax: (+856) 21 263 264
For general queries: mrcs@mrcmekong.org
For press information: mrcmedia@mrcmekong.org
For flood information: floodinfo@mrcmekong.org
Website: http://www.mrcmekong.org

ASEAN Committee on Disaster Management (ACDM)

The ASEAN Committee on Disaster Management started as a group of Experts for the Establishment of ASEAN Combined Operation Against Natural Disasters that first met in 1971. The ASEAN Regional Program on Disaster Management document (ARPDM) is an umbrella framework to guide ASEAN cooperation for promoting more systematic disaster management. The ACDM intends to implement the ARPDM through synergies with ongoing projects and to use it as a platform for extending existing one or two countries projects to other ASEAN member countries. It also explores an implementation on a pilot basis with limited geographic scope in country to other similar areas within the same country.

ARPDM Priority Projects
- Regional Response Action Plan
- Refresher Course/Expertise Development
- Information Sharing and Communications Network
- Public Education & Awareness and the ASEAN Disaster Management Day
- External Partnership & Donor Coordination

The ASEAN Secretariat
70A, Jalan Sisingamangaraja
Jakarta 12110, Indonesia
Tel : (6221) 7262991, 7243372
Fax : (6221) 7398234, 7243504
Email : public@aseansec.org

The Typhoon Committee

In view of the significant impacts of typhoon in this region, the UNESCAP and WMO had set up the Typhoon Committee way back in 1976 to promote and coordinate efforts among members with a view to minimizing typhoon damages. It has 14 members, Cambodia, China, Hong Kong, Japan, Korea DPR, Korea R., Laos, Macau, Malaysia, the Philippines, Singapore, Thailand, USA and Vietnam.

The Typhoon Committee consists of three major components that play significant roles in the mitigation of disasters due to typhoons and severe storms. In any event related to typhoon and severe storms, the meteorological community will begin to track their development and movements. Their regular updates of forecast are normally made at six-hourly intervals when the typhoon or storms are at their initial stages. These forecasts are circulated to all members. The national level, these advisories or warnings are also sent to the relevant agencies involved in the mitigation of disasters. Currently, Japan Meteorological Agency's typhoon centre in Tokyo has been designated as the regional center responsible for the tracking of typhoon and storm with the support of other centers in Guam and Honolulu.

Once the typhoon or storm is moving towards land, the hydrological component will begin to generate hydrological forecasts, providing advisories and warnings regarding the possible flood water, timing and areas to be affected. These information are then circulated to all agencies involved in the mitigation of disasters so that early action could be taken. The disaster prevention and preparedness community in receiving the advisories and warning, will initiate all necessary actions mobilizing relevant agencies, police, civil defense, medical, voluntary organizations as well as community-based groups. This is to ensure the loss of properties and lives will be minimized.

Typhoon Committee Secretariat
c/o PAGASA, 4th Floor PAGASA
Science Garden Complex, Agham Rd., Diliman
Quezon City, Philippines
Tel. (+632) 434 9026
Fax (+632) 434 9026
Email: tcs@philonline.com
Web site: www.tcsphilippines.org

Haze Technical Task Force

The Sixth Meeting of the ASEAN Senior Officials on the Environment (ASOEN) held in Bali, Indonesia on 20-22 September 1995 agreed to establish a Haze Technical Task Force to operationalize and implement the measures recommended in the ASEAN Cooperation Plan on Transboundary Pollution relating to atmospheric pollution, including the following tasks :

- Demarcate critical areas of land and forest fires;
- Identify the critical periods for occurrence of smoke haze;
- Develop a system for National Focal Points to alert ASOEN on impending haze;
- Facilitate proper collection and effective dissemination of meteorological data, including satellite photographs on “hotspots” by the ASEAN Specialized Meteorological Center (ASMC) and the countries concerned;
- Develop proper monitoring system on actions taken on the ground to fight and contain land and forest fires; and
- Monitor and report on status of projects relating to the management and control of transboundary haze pollution involving international organizations and developed countries.

The Haze Technical Task Force consists of senior officials from the 10 ASEAN Member Countries. It meets regularly to review the progress of the Regional Haze Action Plan. The Regional Haze Action plan (RHAP) outlines an overall framework for guiding the process of strengthening the region’s capacity to address its transboundary haze pollution problem. The RHAP has three major components: prevention, mitigation and monitoring. Its primary objectives are to:

- Prevent forest and land fires through better management policies and enforcement
- Establish operational mechanisms to monitor forest and land fires
- Strengthen regional land and forest firefighting capability with other mitigation measures

Haze Technical Task Force
Ministry of Environment
Jalan D.I. Panjaitan Kav.24, Kebon Nanas,
Jakarta Timur, 13410, Indonesia
Tel: (+6221) 8580112 Fax: (+6221) 8580112

Asian Disaster Preparedness Center (ADPC)

The Asian Disaster Preparedness Center (ADPC), established in 1986, is an international organization and an important neutral focal point in Asia and the Pacific for promoting disaster awareness and the development of local capabilities to foster institutionalized disaster management and mitigation policies. It supports the advancement of safer communities and sustainable development, through implementing programs and projects that reduce the impact of disasters upon countries and communities in Asia and the Pacific, by:

- Developing and enhancing sustainable institutional disaster risk management capacities, frameworks and mechanisms, and supporting the development and implementation of government policies;
- Facilitating the dissemination and exchange of disaster risk management expertise, experience and information; and
- Raising awareness and enhancing disaster risk management knowledge and skills.

Asian Disaster Preparedness Center
P.O. Box 4,Klong Luang Pathumthani 12120,Thailand
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Email: mzubair@ adpc.net
Website: www.adpc.net

Sources

A Dramatic Tool for Cyclone Preparedness Manual, FSP Fiji, 2000

ASEAN Regional Program on Disaster Management 2004-2010, Bangkok, ADPC

BBC World Service, 2004
http://www.bbc.co.uk/worldservice/specials/1715_reporters/page5.shtml

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Community Based Drought Preparedness Plan, UNDP

Coping with Flood in Cambodian Communities, Safer Cities 2 Case Studies, Bangkok, AUDMP, ADPC, June 2002

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http://www.dartcenter.org/tips_tools/children_trauma.html

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W. Nick Carter, *Disaster Management, A Disaster Manager's Handbook*, 1991

Disaster Management Course 28 Training Manual, ADPC

Lolita Bildan, *Disaster Management in Southeast Asia, An Overview*, Bangkok, ADPC, 2003

Babu Thomas, *Disaster Response, A Handbook for Emergencies*, 1993

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