

SEA-EHA-13
Distribution: General

Health Aspects of Emergency Preparedness and Response

*Report of the Regional Meeting
Bangkok, 21-23 November 2005*



© World Health Organization

This document is not a formal publication of the World Health Organization (WHO), and all rights are reserved by the Organization. The document may, however, be freely reviewed, abstracted, reproduced or translated, in part or in whole, but not for sale or for use in conjunction with commercial purposes.

The views expressed in documents by named authors are solely the responsibility of those authors.

May 2006

CONTENTS

	<i>Page</i>
<i>Executive Summary</i>	v
1. Opening of the meeting	1
2. Objectives of the meeting	1
Methods	1
3. Panel session 1: Water-related hazards	3
3.1 Summaries of country presentations	3
3.2 Discussion and key issues	7
4. Panel session 2: Seismic risks including tsunamis	9
4.1 Summaries of country presentations	9
4.2 Discussion and key issues	19
5. Panel Session 3: Industrial accidents, conflicts and other emergencies	21
5.1 Summaries of country presentations	21
5.2 Discussion and key issues	26
6. Outcomes of the meeting	28
6.1 Multisectoral coordination	28
6.2 Community-level preparedness	31
6.3 Country capacity strengthening	33
6.4 Challenges and benchmarks: A synthesis	36
6.5 Country status	41

Annexes

1. Opening Remarks by the Regional Director	45
2. List of Participants	48
3. Programme	57

Executive Summary

Background

It has been recognized that disaster reduction is integral to the development of a nation, and a key element of national strategies to meet the Millennium Development Goals. The tsunami of 26 December 2004, which affected six countries and more than two million people in the WHO South-East Asia Region, further emphasized the importance of disaster preparedness and response. The countries' response to an unexpected disaster of this magnitude, and their ability to cope, sharply highlighted their levels of preparedness for health emergencies. There appeared to be a strong correlation between the levels of preparedness and the efficacy of a country's response to the disaster.

Preparedness and planning is therefore the key to effective response in an emergency, whether in health or other sectors. WHO Member States expressed their commitment to this issue by adopting a resolution, WHA 58.1, at the 58th World Health Assembly in May 2005. The resolution, among others, emphasized the need to formulate disaster management plans. The Regional Committee for South-East Asia also recognized the importance of this issue, and adopted resolution RC 57/3 at its 57th session in 2004. Further discussions on the subject were held at the Health Secretaries meeting in Dhaka and at the 58th session of the Regional Committee in Colombo in September 2005.

However, subsequent discussions on the lessons learnt from the tsunami revealed crucial gaps in the public health systems of many countries in the Region, in terms of addressing various public health issues during emergencies. Gaps existed at various levels, such as policy and legislation, human resources management including operational and coordination mechanisms. The need to establish institutional procedures and mechanisms to meet certain minimum standard requirements throughout the Region for disaster preparedness and response, to ensure that an effective and appropriate response can be mounted for any health emergency was recognized. Benchmarks were needed for more accountable and result-oriented actions and outputs.

Objective of the meeting

To achieve high standards of disaster preparedness in the Region in terms of health, a clear plan of action was needed, to cover the specific needs of the countries and ensure that the Region as a whole was better equipped for any future disaster. The main objective of the meeting was to identify the gaps in addressing response, preparedness and recovery for health needs of affected and vulnerable populations.

Outputs

Challenges and benchmarks

The meeting identified some key issues and benchmarks to be addressed in order to successfully establish a disaster preparedness mechanism:

- (1) Legal framework and functioning coordination mechanisms and an organizational structure in place for health EPR at all levels involving all stakeholders;
- (2) Regularly updated disaster preparedness and emergency management plan for health sector and SOPs (emergency directory, national coordination focal point) in place;
- (3) Emergency financial (including national budget), physical and regular human resource allocation and accountability procedures established;
- (4) Rules of engagement (including conduct) for external humanitarian agencies based on needs established;
- (5) Community plan for mitigation, preparedness and response developed, based on risk identification and participatory vulnerability assessment and backed by a higher level of capacity;
- (6) Community-based response and preparedness capacity developed, supported with training and regular simulation/mock drills;
- (7) Local capacity for emergency provision of essential services and supplies (shelters, safe drinking water, food, communication) developed;

- (8) Advocacy and awareness developed through education, information management and communication (pre-, during and post-event);
- (9) Capacity to identify risks and assess vulnerability at all levels established;
- (10) Human resource capabilities continuously updated and maintained;
- (11) Health facilities built/modified to withstand expected risks, and
- (12) Early warning and surveillance systems for identifying health concerns established.

Country status and priorities

For each of the benchmarks, the status of every country in the Region was analyzed.

Overall, the countries that met many of the criteria for disaster preparedness were Bangladesh, India, Indonesia, Sri Lanka and Thailand. Four countries i.e. India, Myanmar, Sri Lanka and Thailand, also have a legal framework in place.

Disaster preparedness is still at the inception stage in Bhutan and Maldives. Preparedness levels in Nepal, on the other hand, though more advanced than in Bhutan and Maldives, have not been uniform.

Often, immediately after a disaster, there is a time gap before external assistance arrives. It is therefore critical that the community is self-reliant in such a situation. In all countries, community-level preparedness needs strengthening. Bangladesh, India, and some provinces of Indonesia have community plans, but all countries agree that community capacity building requires greater attention. Local capacity to mobilize essential services during an emergency is also an area that needs improvement.

Early warning and surveillance systems need strengthening in most countries. Bangladesh and Maldives report a well-functioning surveillance system.

In all countries, risk assessment tools need updating, and greater capacity building in this area has been emphasized.

Awareness and advocacy is another key element of preparedness that needs greater attention. Bangladesh is proficient in this area at the community level, with members of the community being informed, through the mass media and by community leaders, about simple, life-saving measures. Myanmar promotes awareness by including information in the school curricula, as well as through the use of the mass media.

Future steps

With the country status identified in all critical areas of disaster management, the priorities for each country were also listed. Based on these outcomes, a framework of action will be developed by the countries in order to achieve the benchmarks proposed by WHO. These should be followed up at the country level, with WHO assistance.

In order to share experiences and track progress among the countries of the Region a password-controlled, online forum for emergency preparedness and response has been suggested.

A review meeting will be held in 2006 to monitor the progress and discuss further hurdles in establishing emergency preparedness mechanisms of the highest standards.

1. Opening of the meeting

The meeting was inaugurated by Dr Samlee Plianbangchang, Regional Director, WHO South-East Asia Region. In his opening remarks Dr Samlee emphasized the need for emergency preparedness in all countries to be able to respond effectively and on time to mitigate the affect of disasters. For a summary of Dr Samlee Plianbangchang's opening remarks please see Annex 1.

2. Objectives of the meeting

The objectives of the meeting were to:

- Identify the gaps in addressing response, preparedness and recovery to meet the health needs of affected and vulnerable populations;
- Discuss the next steps in addressing gaps vis-a-vis best practices with particular attention to those applicable in the Region, and
- Develop benchmarks that need to be achieved and a corresponding framework for action to strengthen health sector capacities in emergencies.

Methods

From every country in the Region, representatives from the government health sector, as well as other sectors that could play a key role in disaster management, were invited to participate. Other stakeholders in the process, such as various UN agencies and representatives of civil society, were also invited.

The panel sessions looked into preparedness and response issues based on the hazards and risks the countries faced. They were broadly divided into three areas:

- (1) Water-related hazards and emergencies
- (2) Seismic risks including tsunamis

- (3) Other risks and emergencies such as conflicts and industrial accidents

Within the scope of these broad topics, the discussions on the gaps and strengths explained in the deliberations of each country of the Region, focused on issues around three key themes, namely:

- Community preparedness
- Multisectoral coordination
- Country Capacity Strengthening

Participants were divided into six groups to further debate the issues within the broader scope of these three themes. The key issues that emerged from these sessions were then used by each country team to analyze the status of their country in these areas, the priority action points and the best way forward.

3. Panel session 1: Water-related hazards

3.1 Summaries of country presentations

Bangladesh: Floods, 2004

Background

Floods in Bangladesh in 2004 affected 42 of its 64 districts, and 25.4% of the total population. The economic loss from this disaster was huge, estimated at over three billion dollars. However, the health impact was, in comparison, minimal. The case fatality rate (CFR) for diarrhoea was 0.08%, while for acute respiratory infection (ARI) it was limited to 0.7%.

This reflects Bangladesh's level of emergency preparedness, and awareness of the health aspects of disasters, at the community level. A command and control system was in place, and the disaster management cell was activated round-the-clock. The Incident Command had the power to make instant decisions and execute them. Resources were mobilized, including stockpiling of essential drugs. ORT corners in public health facilities helped control morbidity due to diarrhoea. The Ministry of Health and Family Welfare (MoHFW) allocated US \$ 140 million from the Reserve Fund for emergency drugs and logistic support. A web-based Early Warning System (EWS) for disease outbreak was also activated.

Bangladesh received considerable external assistance in response to the disaster. Coordination was emphasized, with regular meetings at MoHFW with other relevant ministries as well as NGOs.

What was done well

There were a number of positive health-related outcomes response to the floods. These include:

- National Policy for Health Emergency Management adopted;
- Standard Operating Procedure (SOP) for public health guidelines and 'gold standards' for humanitarian health interventions developed;

- Prioritization of disaster-prone areas (according to public health coverage to ensure optimal resource mobilization), by using Health Risk Assessment Tool for Vulnerability Analysis completed and
- Public Health Mapping for disease surveillance and emergency operations done and disease surveillance strengthened.

Challenges

However, there are challenges to be addressed in the following areas:

- Coordination;
- Adequate disbursement of funds;
- Communication and logistic support;
- Capacity building in the Health Sector – ensuring an increase in the number of rural health personnel, and
- Media support in raising public awareness and enhancing community participation.

Bhutan: Glacial lake outburst floods (GLOF)

Because of the complex geological settings, a fragile ecosystem and also because all the rivers in Bhutan are fed by glaciers, the country is vulnerable to GLOF. This is further aggravated by variable climatic changes and tectonic processes taking place in the Himalayas. Socio-economic and changing demographic patterns are also steadily increasing the impact on natural disasters. Such floods were recorded in 1957, 1960 and 1968. A recent GLOF was recorded in 1994 due to an outburst of the Lugi Tsho (Glacial Lake) in western Bhutan. Similarly, in 2004, monsoon rains caused extensive damage to life and property in the eastern part of the country.

Gaps in Emergency Preparedness and Response

Presently, there is no legal framework dealing specifically with disaster management. Though the health coverage in Bhutan is 90%, primary health centres provide only basic preventive and curative services. There is a lack of information and knowledge among the general population and the health personnel on emergency preparedness with regard to disease

outbreaks. This is mainly due to lack of coordination among ministries/organizations. Whenever there is a natural disaster, the main focus has been on evacuation and provision of food and shelter to the affected people. Not much attention had been paid to environmental and mental health during these outbreaks.

Addressing the gaps

Following the recent floods in the eastern districts, the Royal Government of Bhutan has developed a policy pertaining to measures to deal with natural disasters. The Ministry of Home and Cultural Affairs has been made the focal agency for disaster management and the Department of Local Governance under this Ministry is responsible for coordinating disaster management. The draft Constitution, article 8(6) also provides that it is the responsibility of all the citizens to help those who are the victims of a natural disaster. Disaster management teams have been formed in different ministries and organizations. The districts and the blocks have been given administrative powers to organize relief measures during natural disasters and mobilize voluntary action in times of natural catastrophes and emergencies.

It is also necessary to have a baseline data on the knowledge and capacity of the health workers in the Basic Health Units and district hospitals about disaster management and prevention of disease outbreaks. Awareness about disease outbreaks during natural calamities among the general public is poor. Most of the health facilities do not have the human resources nor the logistical ability to cope with casualties during major disasters. Needs assessments are required in the health facilities. This will help in further creating awareness among the general public and preparing health workers and health facilities in dealing with major trauma management and prevent disease outbreaks. While the government is fully committed to carrying out all the emergency preparedness and disaster management activities, lack of financial and technical resources continue to be the main hurdles.

Myanmar: Floods as a seasonal occurrence

Background

With its many major rivers, floods are a regular occurrence in Myanmar. Since 1995, these have affected 298 680 people, and cost 1732 million K in economic terms.

What was done well

Myanmar has an apex body for disaster management, the Disaster Preparedness and Response Committee, which includes various ministries. This committee also coordinates activities with UN agencies. There is a clear chain of command identified in times of disaster.

Myanmar has attempted to mitigate disasters by identifying disaster-risk areas, and by regularly collecting information for timely reporting of impending disasters. Community participation in preparing for disasters like floods is ensured, through education and advocacy about appropriate responses in the school curricula; discussion with village leaders; organization of teams that will take adequate steps to ensure the safety of the community if, and when, an emergency occurs.

Following the floods, the response is focused on providing clean water and sanitation facilities to the affected communities, as well as shelter and relief material. Emergency clinics and mobile medical squads attempt to meet the medical needs of the community. A mass casualty management system is also in place.

Remaining challenges

The challenges to be addressed include:

- Preparing suitable places for hospitals, clinics and medical staff;
- Forming mobile medical squads at various levels, organizing training and practicing drills;
- Assessing and modifying the current ambulance system;
- Training health staff, nongovernmental organizations and the community in first aid treatment and emergency relief;
- Establishing surveillance for communicable and other diseases;
- Preparing to obtain adequate, safe water for emergency use in secure places before and after a disaster;
- Preparing to acquire vehicles for reliable and effective evacuation;

- Estimating in advance the supplementary food needed according to the age groups and religious beliefs of the affected population, and
- Preparing for identification of dead bodies and conducting autopsies.

3.2 Discussion and key issues

In the observations of the temporary advisers, and the general discussion that followed the presentations, several important issues regarding disaster preparedness in the Region were raised. These included:

- (1) **Clear Command, Control Systems and Standard Operating procedures:** These need to be in place during normal times, at the national, sub-national and community levels, so that when an emergency occurs, there is no ambiguity in the decision-making and implementation process, and therefore minimal delay in response. Bangladesh and Myanmar, for example, presented clear command and control systems.
- (2) **Ready Resources:** Having the right resources at the right time is crucial for a speedy response. This includes financial as well as human and material resources. In the Bangladesh floods of 2004, the response was aided by the release of BDT 140 million from the Reserve Fund by the Ministry of Health and Family Welfare (MoHFW) for emergency drugs and logistic support. Autonomous budget allocation was suggested for unforeseen health problems, including availability of cash at the grassroots level. Another observation was that after a disaster, people at the ground level, including health staff, were often traumatized themselves, and therefore mobile teams are needed to move in and help the affected people.
- (3) **Public information and education:** During and following disasters, rumours can circulate widely, perpetuating fear and sometimes further aggravating the serious health situation. Providing correct health information and ensuring that the message reaches the largest number of people is therefore critical. The mass media can play an important role in public information and education. In Myanmar, such information is

integrated into the school curricula. Using such tools, Bangladesh ensured that the vulnerable population was aware of the appropriate health measures. Village-level healthcare workers provide health education regularly, such as how to use saline, how to manage sanitation during floods etc. Consequently, though a large number of people were affected by the floods, mortality was comparatively low.

- (4) **Community-level preparedness:** Natural events and hazards will occur. However, it is usually the type and speed of response at the community level that can ensure that such events do not lead to disasters. Communities need to be made aware of actions that can prevent disasters. For example, in the fragile ecosystem of Bhutan, where disasters are closely linked to land degradation, they should be made aware of environmentally-friendly livelihood actions. Communities should be well equipped and networked, with regular training on disaster preparedness and response, which incorporates local knowledge and is sensitive to local cultures.
- (5) **Accessibility to healthcare:** Accessibility to healthcare is important, before and after emergency. This is a particular challenge in mountainous countries like Bhutan, where reaching primary health centres often means long treks on mountains.
- (6) **Increased focus on disease prevention and control:** There should be good systems in place for routine surveillance, which will then function effectively even during the emergency, thereby preventing disease outbreaks.

4. Panel session 2: Seismic risks including tsunamis

4.1 Summaries of country presentations

India: Earthquake in Jammu and Kashmir, 2005

The earthquake measuring 7.4 on the Richter scale, which devastated the Indian state of Jammu and Kashmir on 8 October 2005, was unexpected only in its magnitude. In India's hazard mapping for earthquakes, Jammu and Kashmir is in the very high risk zone. As many as 32 335 buildings collapsed, causing death and injury. As the disaster occurred in a politically and militarily sensitive zone, among the fatalities were a large number of military personnel. The military presence, however, resulted in an immediate response to the disaster, and their resources were initially used to evacuate seriously injured people by air. The central government also mobilized emergency medical teams immediately.

Appropriate health interventions were made following this earthquake. These included communicable disease surveillance, management of injuries and psychosocial support by the National Institute of Mental Health and Neuro Sciences (NIMHANS), Bangalore. The challenges were the terrain, the lack of satellite phones and reliable communication systems, the lack of sufficient numbers of para-medical staff trained in basic life-saving resuscitative procedure, and the lack of health sector coordination under one designated officer.

India's response followed the country's well-established disaster management guidelines. The Union Cabinet, headed by the Prime Minister, is responsible for decisions following a disaster, and the Ministry of Home Affairs is the nodal ministry for coordinating the relief and response measures with various crises management bodies. Technical organizations such as the Indian Meteorological Department (earthquake/cyclones), the Central Water Commission (floods), and others are also involved. The setting up of a national Disaster Management Authority is being contemplated.

Several state governments have based their disaster management legislation on guidelines issued by the central government. At the national

level, a Disaster Management Act has been drafted and will be placed in Parliament. However, two states have already enacted this.

Disaster Management Planning initiatives in the long-term include:

- Comprehensive process of vulnerability analysis and objective risk assessment
- Building up a robust information database
- Training and capacity building
- Urban planning to include suitable buildings that will provide greater resistance to earthquakes and other disasters
- Greater awareness among the public through schools
- Community-based approach
- Identification of vulnerable groups such as children and the elderly who will receive special assistance in disaster situations.

In the long-term, India is moving away from a purely relief-based response to disasters, towards more comprehensive disaster management.

Indonesia: the earthquake and tsunami of 26 December 2004

Background

Located on four moving tectonic plates and the Pacific 'Ring of Fire' with more than 100 active volcanoes, Indonesia is no stranger to hazards. In 2004 alone, in addition to the earthquake and tsunami of 26 December, it faced other earthquakes, floods, volcanic eruptions, a cyclone, a bomb blast, and even an industrial accident. Good disaster management plans are therefore of critical importance to the nation.

The event

The earthquake and tsunami of 26 December devastated Aceh. More than two million people were affected, and over 120 000 people died, including 240 health personnel. Health facilities were also severely damaged.

What was done well

The health challenges were tremendous, as the entire health system was severely affected. However, due to prompt measures undertaken by the central government, WHO and many international agencies, such as fogging, water quality monitoring, immunization, and epidemiology surveillance, no major disease outbreaks were reported. Coordination efforts among the hundreds of agencies involved were successful, with regular meetings. Human resources, supplies and logistical needs were mobilized rapidly to affected locations. A multi-donor trust fund, and Badan Rehabilitasi dan Rekonstruksi (BRR – Rehabilitation and Reconstruction Agency), was established for reconstruction.

What could have been done better

A more effective incident command system, better communication support such as radio and telephones/faxes, as well as better transportation support could have helped speed up the response. Other areas with scope for improvement include dead body management, logistics management, as well as appropriate temporary and permanent shelters for internally displaced persons (IDPs).

Recommendations

- Continuing capacity building (training) of health personnel in:
 - Disaster and emergency management
 - Technical skills (e.g., medical treatment, surveillance, nutrition, sanitation, logistics)
 - Support services (e.g., radio communication, transport)
 - Simulation, Table-top and field exercises
- Continuing support for:
 - Health System Preparedness at community level (e.g., Safe Community Initiative in Indonesia)
 - Development, adaptation and implementation of guidelines (SOP, management, technical etc)
 - Teams for Disaster Victims Identification (DVI) in four locations (West I-Medan, West II-Jakarta, Central-Surabaya and East-Makasar)

- Establishment and expansion of Indonesian Health Emergency Brigade, equipped with health personnel, facilities and logistics support
- Procurement of emergency equipment and supplies
- Allocation of emergency funds for quick response
- Development of national SOPs
- Establishment of joint civilian and military task force at national and regional levels (EPR Hubs)
- Strengthening coordination/networking between national, international and government agencies, national and international NGOs, the private sector and the community
- Strengthening the early warning and emergency information system (IT system, radio communication system)
- Establishment of Incident Command System (ICS)
- Strengthening logistic, communication and transportation system for emergency situations
- Dealing with media and public education
- Strengthening regional and international collaboration.

Maldives: The earthquake and tsunami of 26 December

“The massive wave hit us suddenly, and flowed across the island to the other side, sweeping everything in its wake, leaving behind our whole lives in a huge trail of rubble” – An island resident

The event

Following tremors felt in Maldives on 26 December 2004, at about 6:28 am, tidal waves ranging from 4 to 14 feet struck all the islands of the nation. The force of the waves caused widespread devastation in the atolls. Flooding caused by the tsunami affected electricity supply and destroyed communication links with most atolls.

Tourism and fishing, two major sources of income, were severely affected. A significant section of the population therefore suffered trauma and required psychosocial support. As with other countries, the health

challenges were made worse because more than 30 health facilities needed to be either reconstructed or rehabilitated. Shortage of freshwater, always a problem in these islands, became worse.

What was done well

Within three hours after the tsunami struck, the Maldivian government acted quickly to assess the situation and establish a disaster management committee with assistance from the community. Short-term experts soon arrived to assist with the relief effort, for example, by operating reverse osmosis (RO) plants and chlorination of wells.

Supply of drinking water was provided by the government, donors and the private sector. Immediate relief supplies were dispatched by sea and air, starting at 2:00 am on 27 December. Communication was restored to 11 atolls within the first 72 hours.

Psychosocial first aid was also made available, and communities self-mobilized in support of their neighbours.

What could have been done better

Considering the magnitude of the disaster, sufficient numbers of trained medical and paramedical personnel were lacking. Those available were also not trained to tackle emergencies. There were constraints of bed space, a shortage of drugs in hospitals and pharmacies. For 72 hours, there was no communication system.

Recommendations

- Reconstruct the lives and livelihoods of tsunami victims
- Provide shelter to internally displaced persons within one year
- Reconstruct and rehabilitate the social and economic infrastructure within three years.
- Establish an intensive and strategically designed Emergency Preparedness Plan and an Early Warning System
- Generate economic recovery and reach or exceed pre-tsunami levels in five years

A health sector emergency preparedness and response plan has been developed with WHO support. This plan is part of the health master plan as well as the government's national emergency plan. Presently, there is no legal framework for these plans – it is expected to be developed by 2007.

Thailand: National health perspectives on the tsunami crisis

Background

Thailand is one of the few countries where major natural disasters rarely occur. Therefore, people are not used to such unexpected crises, and, at a national level, responsible government authorities may underestimate the consequence of any natural disaster. As a result, warning systems or prevention measures for disasters were not in place. However, the whole scenario of natural disasters in Thailand was totally changed when the tsunami struck Southern Thailand along the Andaman Sea on December 26, 2004 without any warning. Six affected provinces, including Phang-nga, Phuket, Satun, Krabi, Ranong, and Trang, were devastated, physically, economically and psychologically. It was estimated that at least 66500 people were directly affected by this disaster. The death toll exceeded 4945, the highest in a single event in Thai history. Fortunately, health facilities in the affected areas did not suffer much damage.

What was done well

Accurate assessment of the whole situation and rapid response were key to saving people's lives. In responding to the disaster, all health facilities had immediately activated previously established, written mass casualty plans. Local health staff worked round-the-clock before additional health teams relieved them. The first 100 medical staff from the Ministry of Public Health, arrived at Phuket from around the country about 18 hours after the tsunami struck, followed by another approximately 100 teams. Initial hospitalized patients and foreign patients were evacuated by air to Bangkok on the third day. By the fifth day on 30 December, local hospital patient loads were returned to normal. The mortality rate of all the patients who reached hospitals was only 0.3%.

To prevent morbidity from infectious diseases, the Ministry of Public Health, with experience from SARS and Avian Influenza, set up an

effective, real-time active surveillance system for tracking and responding to possible disease outbreaks. Eventually, no disease outbreak was detected.

To provide care for psychological problems and to restore day-to-day living, training of community health workers and health staff were trained and mobile mental health clinics established.

What could have been done better

- (1) **Management and Identification of Dead Bodies:** The management of 5000 bodies turned out to be difficult and expensive. The experience from the tsunami showed that Thailand urgently needs to establish a Disaster Victim Identification (DVI) centre, develop skilled personnel, set up guidelines and improve coordination at national and international levels.
- (2) **Improvement of Coordinating Mechanism:** An effective response to a disaster requires involvement of diverse teams, including volunteers, local residents, experts, and government authorities. A well-coordinated mechanism to avoid chaos and conflicts should be established.
- (3) **Improvement of Disaster Information System and Public Communication:** Initially, there were rumours about dead bodies spreading disease, and fish being contaminated. Congestion of the mobile telephone network, and conflicting information emanating from different government agencies made gathering and dissemination of accurate information difficult.

Lessons learnt and recommendations

The tsunami crisis shaped the national measures adopted for the prevention of major natural disasters. Thailand is no longer seen as located in a risk-free area of the world. Valuable lessons were learnt.

First, strong leadership at all levels is indispensable in a disaster situation. Secondly, the well-developed local health infrastructure proved to be the best preparedness for this unexpected disaster, especially in the

initial response phase. Despite the huge influx of patients, the system was still intact, and functioned well. Third, a good, country-wide health network, including the public and private sectors, helped mobilize adequate health resources for the affected area quickly, and helped critically injured patients to get proper treatment. A strong health surveillance system plays an important role in monitoring and preventing any unexpected outbreaks. The final lesson, during the crisis, is that cooperation at all levels helped in responding to the situation effectively.

Nepal: Earthquake and existing response mechanism

Background

Nepal, a small landlocked country in the Himalayas, is prone to both natural as well as man-made disasters. It has been experiencing several natural disasters such as earthquakes, floods, avalanches, landslides, hailstorms and droughts causing loss of lives and property, in which 21438 people, of a total population of 23 million, have lost their lives since 1983. The country is particularly vulnerable to earthquakes. Though earthquakes cannot be prevented, the damage they cause can be greatly mitigated with communication strategies, proper structural design, emergency preparedness planning, education, and safer building standards. A number of factors add to the hazards: rapid urbanization; widespread poverty; improper management of land; hazardous building construction; quality of soil; narrow streets and lanes; concentration of industries and depletion of natural resources.

What has been done well

A number of laws and regulations have been put in place as part of the disaster mitigation efforts. A natural Calamity Relief Act was adopted in 1982, a National Action Plan on disaster reduction was put in place in 1996, and a Building Code Act in 1994. It was further reviewed for submission to the World Conference on Disaster Reduction (WCDR) in 2005. The tenth periodic development plan provides for an environmental impact and natural disaster appraisal study of each infrastructural construction project. A disaster response structure has also been established. Other positive developments include the following:

- His Majesty's Government of Nepal has initiated the process to develop a National Strategy for Disaster Management. This

initiative is expected to provide a coherent framework for disaster risk reduction in the country.

- Activities like appraisals for disasters while selecting development projects, operationalizing disaster preparedness, rehabilitation and support programmes and adherence to a building code are being emphasized in the process of development planning and implementation.
- An integrated information system has been developed to facilitate disaster preparedness as well post-disaster management.
- Collaboration and partnership among government, UN agencies including WHO, nongovernmental organizations, private sector organizations and external development partners being strengthened for disaster risk reduction and mainstreaming it into the national development process.
- The development of national strategies will be followed by an integrated periodic action plan for disaster reduction.
- Massive awareness campaigns on early warning systems and disaster risk reduction are being undertaken at the community level.
- Identification and mobilization of resources internally and externally have been initiated to strengthen activities related to disaster risk reduction.
- Priority has been given to capacity enhancement, emergency response planning, preparedness, rescue and relief as well as rehabilitation.

What could be done better

Despite the progress, Nepal continues to face many challenges. These include:

- Paucity of resources
- Adverse and rigid geo-physical condition of the country
- Inadequate infrastructure facilities

- Lack of public awareness
- Absence of modern technology including early warning systems
- Lack of co-ordination and cooperation
- Very few NGOs willing to work in tough terrain
- Perception of the people (some people, especially illiterate, rural people, think that natural disasters are an act of God. They seldom know that preventive measures can reduce the impact of natural disasters)
- Unplanned settlements
- Lack of trained manpower

Lessons learnt and recommendations

It is believed that the following measures could go a long way to help meet the challenges listed above:

- Mass education/awareness campaigns such as seminars, training workshops etc.
- Changing the perception of the people through public awareness programmes
- Infrastructure development
- Adequate resources
- Hospital emergency plan as part of sectoral strategy
- Effective coordination among the agencies related to disaster preparedness
- Advancement in technology including the establishment of early warning systems
- A course on disaster management included in the school and university curriculum
- A disaster management component incorporated in the government's development plan
- Motivating NGOs to work in remote areas
- Planned settlements are needed
- Making application of Building Code mandatory

- Enhancing capacity of the institutions involved in disaster management
- Strengthening experience-sharing programmes among countries
- Using mass media to create awareness
- Establishing a separate natural disaster management centre.

4.2 Discussion and key issues

Following the panel sessions, temporary advisers and participants raised many important issues in the discussions that followed.

- (1) **Legal Framework:** A legal framework lays down the ground rules and principles to be adopted in disaster management, and places the action to be taken in a broader, just, ethical and lawful social context. Two states in India have enacted the Disaster Management Act in order to move forward in this area.
- (2) **Coordination:** Coordination among the many organizations involved is important during a response to an emergency, not only to avoid duplication, but also to ensure that the response meets the necessary standards. This was a big issue after the tsunami, as, in many affected countries, more than 300 health agencies were in the field. Coordination is also important in disaster prevention, where the government at the national, sub-national and district levels, and NGOs, have to work in tandem.
- (3) **Early Warning Systems:** Having such systems in place is crucial. For example, in future, if an emergency like a tsunami is likely to occur, Indonesia could help Thailand if they have a good warning system, and an effective way to communicate these risks to Thailand.
- (4) **Command and control during disasters:** As discussed in the earlier session, a clear command and control system is essential for a speedy response to a disaster.
- (5) **Resources and logistics:** Logistics is a key issue. Resources, human and material, should be planned in advance, so they can be accessed immediately when a disaster occurs. Personnel should be trained at the community level. Essential supplies should be stockpiled. Systems should be laid down in advance

to ensure that essential supplies reach those who need them at the earliest.

- (6) **Strengthening health infrastructure:** It has been shown from the experience of many countries, and, most recently from Thailand's example after the tsunami, that a health system that is robust and functions efficiently in normal times is also likely to be more effective in an emergency. This includes well equipped hospitals and laboratories, good primary and secondary level healthcare, and an adequate number of skilled health personnel. Making the health facilities 'disaster resistant' as far as possible is also important to ensure that the facilities continue to function in an emergency.
- (7) **'Professionalizing the Field':** An effective response to disasters requires a wide variety of skills, and involves professionals from a number of fields, all working under the banner of 'disaster management.' After the disaster, experts with valuable training and experience return to their original places of work, and are 'lost'. "Professionalizing' the disaster management field could therefore retain talent and experience.
- (8) **Communications and information management:** Information by itself is not enough. For an effective response, information should be analyzed and disseminated quickly, and communicated to the concerned people. The mass media also plays a very important role, and it is important to have an identified spokesperson to provide updated information.
- (9) **Management of dead bodies:** This is an area that needs to be developed. Thailand used various scientific techniques to identify thousands of dead bodies – the first time such techniques were used after a natural disaster. This needs further strengthening.
- (10) **Mental health:** Thailand, after the tsunami, provided a good example of how mental health should be approached. There are two issues – the mental health of the affected people and the mental health of the health workers. Village health workers provided vital psychosocial support to the affected people. With regard to workers, in Thailand, relief workers were not allowed to work more than five days at a stretch without a break.

5. Panel Session 3: Industrial accidents, conflicts and other emergencies

5.1 Summaries of country presentations

Democratic People's Republic of Korea (DPRK): The Ryongchon train explosion incidence¹

Background

Ryongchon is a county in the northern part of DPRK, with a population of 123,000, of whom 27,000 live in the city. On 22 April 2004, two train wagons with ammonium nitrate and fuel oil exploded in Ryongchon after coming in contact with an electric wire from the train cables. This resulted in a massive explosion creating a large crater and leveling everything in a 500 m radius. Two schools and one polyclinic were completely destroyed. While 1850 houses were either destroyed or rendered unsafe, 156 people died within the first 48 hours, of which 76 were children in a school which collapsed. More than 7000 people were rendered homeless. Of the 1300 people who were injured, 370 were shifted to Sinuiju, 20 kms away, and provided with emergency care. Most people suffered burns and eye injuries.

What was done well

Concerted efforts by the government, along with large-scale international support, limited the devastating effects of this disaster. An immediate rescue operation was launched by local authorities, the army and the National Red Cross Society. Medical equipment and supplies available in the country were immediately relocated to the affected area, and further assistance was provided through international organizations and through bilateral assistance. International assistance was coordinated by WHO, Office of the Coordinator for Humanitarian Affairs (OCHA), United Nations Children's Fund (UNICEF), World Food Programme (WFP) and the International Federation of the Red Cross (IFRC). Essential emergency medicine was provided by international agencies, including Emergency

¹ Presented by Dr Vason Pinyowiwat, Medical Officer, WR-DPRK

Health Kits supported by JICA and some eye preparations and instruments, including a slit lamp.

IFRC, and other NGOs also provided tents, blankets, buckets, first-aid kits, water purification tablets, etc.

In the long term, this paved the way for the reconstruction of a new county hospital, a polyclinic, and technical support for improved surveillance of food and water-borne diseases.

What could have been done better

There was a shortage of certain essential commodities and medicines, such as eye preparations, topical creams and sterile vaseline compresses for burns and broad-spectrum antibiotics. Technical assistance for eye injuries was lacking. There was a need for follow-up of victims with counseling and community outreach programmes.

Recommendations

- A national health emergency preparedness plan should be developed
 - Flood Damage Rehabilitation Committee
 - No specific SOP or plan for other health emergency
- Necessary items for emergency use should be stockpiled
 - Storing 15 WHO Emergency Health Kits
- Need for stronger donor support for the health and social sectors in DPRK

Sri Lanka: Health system rehabilitation initiatives (North-eastern region of Sri Lanka)

Background

Over the past 20 years, ethnic conflict in the north-eastern region of Sri Lanka has resulted in 60 000 deaths, with more than 800 000 people

displaced. Comparative basic health indicators reveal the great toll this long-running conflict has taken on the health of the affected people. Maternal mortality rates, for example, at 23 per 10 000 live births in the rest of Sri Lanka are per 10000 live births in the North-Eastern Province (NEP). This region also has an acute shortage of skilled health personnel.

What has been done well

Over 200 health institutions have been mapped through the use of high accuracy GPS receivers in all eight districts of NEP. This includes Health Care Facility Mapping, Disease Trend Mapping, and basic health statistics and disease trends of eight major diseases. Basic laboratory support has also been improved, with 412 laboratory workers trained in five districts.

Mental health is a grave problem due to the long-running conflict. To cater to the needs, over 20 outreach clinics have been established, and multidisciplinary teams are available in each district. District health planning has also been strengthened, with norms and standards for planning units developed. Medical professionals have been mobilized by WHO. With the emphasis on human resources, five hospitals can now provide basic quality services, and another five can provide specialist services. Environmental health has also not been neglected, with 76 functional incinerators in hospitals.

What could be done better

Health support is not uniformly distributed across the entire region. Human resources also urgently need to be developed, as there is a severe lack of skilled health personnel. Inadequate attention has been given to strengthen outreach services except in the areas of psycho-social and mental health. There has also been an inadequate utilization of available manpower in the absence of appropriate technical tools.

Recommendations

- Health facilities in the North-east should be further improved;

- Outreach services should be expanded in 300 clinics with available manpower;
- The quality of health-care in 10 divisional and seven district hospitals should be improved;
- Prevention and early warning systems for diseases with epidemic potential should be further strengthened;
- Human resources for disaster and emergency management, e.g., recruitment, placement and training, should be better managed; and
- The planning, monitoring and implementation process should be streamlined and strengthened.

Timor-Leste: Recovery and rehabilitation of the health system in post-conflict Timor-Leste

Background

After 24 years of struggle, during which 250 000 people died, on 30 August 1999, the majority of people in Timor-Leste voted for independence. When the results were announced, violence by pro-integration supporters left 1500 people dead, 80% of houses and buildings destroyed, including 70% of health facilities. Another 400000 people were locally displaced. By 20 September 1999, with the Indonesian authorities agreeing to international assistance, a multinational military force was deployed. On 25 October 1999 the United Nations Transitional Authority of East Timor (UNTAET) was formed. However, the health situation of the affected people remained very bad. Maternal mortality was as high as 890 per 100 000 population. Death from diarrhoeal diseases due to contaminated food and poor water and sanitation was very common. So were respiratory diseases, tuberculosis and malaria.

What was done well

International agencies like WHO, UNICEF, IFRC and other organizations provided curative services. WHO Timor-Leste and UNICEF acted as a "Temporary Ministry of Health". Essential drugs and medical supplies were

provided, and health screening of the internally displaced people was established. Timor-Leste nationals were involved in Health Sector Planning. By 2000, an Interim Health Authority (IHA) was established. In April 2000 the first phase of the Health Sector Rehabilitation and Development Program (HSRDP), the framework for rebuilding a sustainable health sector, was launched.

During the emergency, a disease surveillance system was established. The national TB programme was re-established, and standard treatment guidelines provided for malaria and other infectious diseases. More than 56 000 children were immunized against measles.

What could have been done better

Procurement of goods, supplies, and consultants' services were slower than expected, and there was a lack of logistical expertise. Sufficient vehicles and other resources were also not available to the health sector to reach the majority of the affected people. A relatively large percentage of the available public health expertise was diverted, e.g. dealing with the asbestos issue at a time of much more urgent matters.

There were political issues too, with competing objectives and expectations held by national political leaders, UNTAET, international donors and international NGOs. Most INGOs are very good in emergency response, but only a few have a sense of long-term development. Consequently, offers accompanied by promises of long-term support were not fulfilled. There was also some reluctance by some INGOs to be coordinated by the Government, UNTAET and WHO.

There were no standard instructions for communication, priority actions and reporting, among UN agencies, nor was there adequate advance allocation of funds for the emergency. In the field, coordination was inadequate. Knowledge and guidance regarding transition from the emergency to the development phase was limited.

Recommendations

- Put in place agreements between UN agencies and INGOs for logistical arrangements;

- Involve logistic and operations specialists in emergency response;
- Develop and implement policies and strategies regarding transition from the emergency into development phase;
- Ensure integration of emergency phase to the development phase
- Implement standards for communication, priority setting and reporting;
- Develop and implement petty cash arrangement and delegation of authority;
- Ensure that flexibility and innovation are supported in emergency response action by agencies/offices in the field; and
- Ensure early involvement of the local authorities.

5.2 Discussion and key issues

- (1) **Use of technology (GIS, telecom):** Technology plays a vital role in disaster preparedness and response from the health perspective. Sri Lanka, for example, has effectively used technology to map its health facilities in the conflict zone. Technology is also vital for communication after a disaster, when regular modes of communication are often disrupted.
- (2) **Stockpiling of essential supplies:** Incidents like the Ryongchon blast, which could happen anywhere, highlight the importance of stockpiling essential items in every community.
- (3) **Human resources:** Conflict zones as in north-east Sri Lanka and Timor-Leste have reported a severe shortage of skilled health personnel. There should be greater investment in human health resources in such areas.
- (4) **Good surveillance systems:** These are as important in routine healthcare as in emergencies. Both in north-east Sri Lanka and Timor-Leste, with communities living with limited health resources for a long time, good surveillance systems are necessary to prevent disease outbreaks.

- (5) **Importance of coordination:** No single agency can fulfill all the complex demands of an emergency. Yet, as experience in Timor-Leste shows, conflicting agendas can seriously impede the response and development efforts.
- (6) **Emergency funds:** Availability of emergency funds is necessary, particularly for unexpected disasters like industrial accidents, which can lead to serious injuries unless there is an immediate response.

6. Outcomes of the meeting

Using specific examples from all countries in the South-East Asia Region, the panel sessions highlighted the gaps in disaster preparedness and response, particularly with reference to the health of affected or vulnerable people.

The next step was to identify best practices and agree on standards appropriate for the Region, which every country can target in order to fill the gaps, and achieve high levels of preparedness, and to ensure that a hazard does not lead to a disaster.

The participants were divided into six groups. Each of the groups was given the task of suggesting benchmarks on one of three important identified areas where the Region needs to strengthen its operational capacity:

- (1) Multisectoral coordination
- (2) Community-Level preparedness
- (3) Country Capacity Strengthening

Two groups, therefore, worked separately on each subject. Key suggestions that emerged from these discussions were used to set benchmarks, and a plan of action developed to improve disaster preparedness in the Region.

6.1 Multisectoral coordination

The following table summarizes the key outcomes from discussions on this issue.

Benchmarks	Mechanisms
1. Existence of legislation and authority for EPR at all levels with clear health components.	<p>Establish a forum for policy, legislation development and multisectoral coordination.</p> <p>Hold periodic, well-documented meetings with feedback to lower levels/various sectors.</p>
2. Provision of detailed Disaster Management Plan and SOP, clearly outlining roles and responsibilities of all stakeholders. It should include institutional and resource arrangements.	<p>Ensure engagement of stakeholders in development of the plan and SOP.</p> <p>Hold periodic well-documented meetings with feedback to lower levels and various sectors.</p> <p>Have a regular audit, while recognizing that an emergency is not a normal situation for preventing misuse.</p>
3. Defined procedures on financial/resources delegation of authority in case of disaster with strong accountability procedures.	<p>Develop financial management and accounting procedures to ensure prompt release of funds and reporting.</p>
4. Code of engagement (regulations) of external humanitarian agencies developed.	<p>Use recent experience and needs assessment to advise government on engagement of national and international agencies in the process.</p>
5. Functional Health information System (HIS) suitable for providing necessary information in case of emergencies exists and tested.	<p>Upgrade existing HIS to meet potential emergency needs.</p> <p>Ensure information flow regarding 'feedback' path to strengthen EPR at community level.</p>
6. Periodic drills and exercises focusing on EPR conducted.	<p>Conduct drills to practice the emergency plans at regular, scheduled intervals at various levels.</p>

Benchmarks	Mechanisms
7. Emergency Directory of Experts, Partners and Staff that can be deployed for emergencies, ready.	<p>Identify and categorize stakeholders, then compile and publish the information in various media.</p> <p>Conduct an annual review and update the information.</p>
8. National coordination focal point established.	<p>Develop and follow clear mandates, scope of authority, terms of reference of offices and staff in EPR.</p> <p>Develop an organogram illustrating line of command and control at various levels (e.g., province, district, sub-district levels).</p> <p>Establish coordination mechanisms accordingly.</p>
9. Policy and guidelines for all stakeholders available.	<p>Ensure that there is a forum for policy and legislation development.</p> <p>Ensure that guidelines and procedures are based on/supported by policies and legislation.</p>
10. Emergency financial mechanism established.	<p>Develop a system, and procedures, for prompt release and disbursement of funds including a unified reporting and accounting mechanism.</p>
11. EPR phasing including sustainable rehabilitation undertaken.	<p>Ensure that action during the response contributes to sustainable rehabilitation for the affected communities.</p> <p>Ensure coordinated action from one phase (e.g. response, recovery, rehabilitation) to another to ensure better planning and action in various phases of the disaster.</p>
12. Technical capacity building undertaken.	<p>Conduct capacity/training needs assessments to organize efforts for capacity building, both for institutions and individuals.</p> <p>Systems needed to support capacity building efforts include resource mapping, financial allocation, capacity building and monitoring and evaluation.</p>

6.2 Community-level preparedness

The major outcomes of the discussions on community-level preparedness are summarized below.

Benchmarks	Mechanisms
1. Vulnerability assessment mapping (VAM) with Participatory Rapid Assessment (PRA) conducted.	Set up a community-level working group which includes representation from various sectors such as: Health / Public Health; Water and Sanitation; Community-based Organizations (CBOs); Nongovernmental Organizations (NGOs); Security Forces, Education.
2. An agreed plan in place.	Mobilize the community-level working group by assigning responsibilities to plan for existing and emerging hazards. Planning should include: <ul style="list-style-type: none"> • Identification and planning of resources, training and capacity building • Drill training e.g. evacuation drill • Identification of safe places • Warning signals and systems • Information and communication e.g. telephone contact numbers • Information awareness and advocacy activities • Ensuring that essential stocks are in place
3. A contingency plan for disaster preparedness and response developed.	As above
4. Community participation in sector planning included.	As above
5. Mock drills for disaster response conducted.	As above

Benchmarks	Mechanisms
6. Community involved in health-related issues.	As part of the community working group, draw upon action plan on improving community shelters (safely located and constructed) and adequate access to safe water and sanitation.
7. Adequate number of community health centres, clinics, community centre for children less than 5 years, women's centres available.	As part of the community working group, advocate for better access to health services in view of better preparedness.
8. Appropriate disaster training programmes for health centre staff conducted.	Identify training needs and action needed, as part of the multisectoral working group.
9. Essential stocks, such as medicines, equipment etc. to respond to disasters, available.	Include local system for warehousing and stocking essential supplies as part of the community plan.
11. Information/training about disasters provided.	Give priority in the working group to information, awareness and advocacy.
12. Training in first-aid available.	Through the Local Red Cross/Crescent Societies (if present) community skills in first-aid can be addressed; other local resources can be identified as well.
13. Available resources used effectively.	Mapping of local resources should be done by the working group so that these are tapped.
14. Increased budget for disaster preparedness and response available.	Advocacy, as well as demonstration of benefits of previous preparedness and response efforts and investments.
15. Adequately trained HRD in disaster management available.	With a proper training needs assessment and plan, appropriate resource allocation and training can take place.

6.3 Country capacity strengthening

Summarized below are the outcomes of the discussion on country capacity strengthening.

Benchmarks	Mechanisms
<p>1. Emergency preparedness and response in the health sector institutionalized.</p>	<p>Establish a Task Force (by the Health Ministry) to deal with health aspects of emergency preparedness. It is advisable to co-opt members of other sectors also, to deal with health aspects more effectively.</p> <p>Allocate budget appropriately (plus resource mobilization for extrabudgetary funds).</p> <p>Establish an operational cell to respond to events effectively.</p>
<p>2. Risks, vulnerabilities and capacities identified and analysed.</p>	<p>Set up a multisectoral body to identify and analyse risks faced by countries and type of disasters (both natural and manmade) at the national level and their scope. Such an exercise includes vulnerability assessment and review of national capacities.</p> <p>Obtain prior minimum information (e.g. health facilities, health human resources, contact information) from vulnerable and disaster-prone areas.</p>
<p>3. National laws and policies for disaster management laid out, with appropriate contingency plans including simulation/drill, SOPs, designation of incident commander.</p>	<p>Ensure that a plan exists with the following characteristics: supported by a legal framework; addresses multiple hazards; well analysed in terms of opportunities, threats in implementation; multi-sectoral in approach.</p> <p>In order to be properly implemented, it is important for the plan to include these elements: prepared SOPs, manner and schedule of drills laid out, a focal person designated, with defined roles and responsibilities.</p>

Benchmarks	Mechanisms
4. Well managed human resources available for emergency and disaster management.	Prepare a comprehensive analysis and plan a for human resources, looking into skills needed, numbers of staff needed, areas where these trained staff should be deployed, and given appropriate authority.
5. Sustainable training/skills building programmes in place to address risks.	Involve existing academic or training institutions in setting up a sustainable system of training people so that the skills needed in the field are addressed and regularly updated. Utilize and strengthen appropriate training opportunities in WHO/SEAR for staff at national and sub-national levels.
6. Organized system in place for the identification and allocation of emergency funds.	Through a national multi-sectoral body responsible for disaster management, install a system that would ensure availability of funds at central, peripheral and grassroots levels for emergencies. Clearly establish a system to operationalize delegation of authority to utilize funds during an emergency at the local level. Identify a mechanism for use of funds for pre- and post-disaster activities.
7. Disaster preparedness and response integrated into all national activities.	Involve various sectors in national disaster management bodies to discuss and develop integrated systems.

Benchmarks	Mechanisms
<p>8. Information management system, including risk communication and media strategy in place for any emergency.</p>	<p>Strengthen hazard and disaster-related information collection, regular updating, analysis and dissemination.</p> <p>Invest in organized and well-targeted communication of risks to vulnerable populations.</p> <p>Improve media management through a well defined strategy incorporating key aspects such as verification and transparency.</p> <p>Establish inter-country linkage for information exchange, before, during and after disasters.</p>
<p>9. Coordination systems among all stakeholders and trust through political commitment established.</p>	<p>Increase awareness on disaster preparedness and response among politicians and stakeholders.</p> <p>Develop guidelines to involve stakeholders in the various aspects of disasters: preparedness, response, recovery, rehabilitation, mitigation and prevention.</p> <p>Establish a system for information exchange among stakeholders.</p>
<p>10. Smooth logistics channel for supplies and aid in place.</p>	<p>Organize transportation, communication and logistic requirements and mechanisms prior to a disaster.</p> <p>Develop a system for strategic warehousing, addressing central and local needs and roles.</p> <p>Develop a system for common inventory of incoming supplies.</p> <p>Develop and implement regulation of incoming supplies.</p>

Benchmarks	Mechanisms
11. Effective, enhanced and practical disease surveillance and early warning mechanisms for detecting disease outbreaks established.	<p>Enhance surveillance, collection, compilation, reporting and analysis of data at central level; including emerging and noncommunicable diseases.</p> <p>Dissemination of information to policy makers, health facilities.</p> <p>Establish / strengthen early warning systems.</p>
12. Public health guidelines for use in affected areas developed, adapted to local needs, and disseminated.	<p>Ensure easy access to guidelines in all forms of media and communication.</p> <p>Ensure that these are available in the appropriate language.</p>
13. Supervision and monitoring system established.	<p>Incorporate a system for supervision and monitoring in national and local disaster plans.</p> <p>A monitoring and evaluation system should be continuously implemented by an independent authority.</p>

6.4 Challenges and benchmarks: A synthesis

Many of the challenges and benchmarks identified in the group discussions for multisectoral coordination, community-level preparedness and for country capacity strengthening were overlapping, and applied to all aspects of disaster management. Based on those outcomes, therefore, the meeting identified the following 12 key issues and benchmarks that need to be addressed in order to successfully establish a disaster preparedness mechanism:

- (1) *Legal framework and functioning coordination mechanisms and an organizational structure in place for health EPR at all levels involving all stakeholders*

A legal framework lays down the ground rules and principles to be adopted in disaster management, and places the action to be taken in the broader just, ethical and lawful social context. A legal framework reflects awareness of, and political commitment

to, the importance of disaster preparedness. It spurs action in this regard by making actions to increase preparedness and response mandatory by law. A legal framework, including functioning coordination mechanisms and an organizational structure in place for health EPR at all levels, involving all stakeholders, is therefore crucial for successfully meeting the challenges thrown by natural or man-made crises.

- (2) *Regularly updated disaster preparedness and emergency management plan for health sector and SOPs (emergency directory, national coordination focal point) in place*

Disasters often strike unexpectedly, and require an immediate response. At that point, discussions and debates on the most appropriate action will result in critical delays. Ambiguities in the chain of command and control, and lack of clarity in the decision making process, also lead to confusion and diminish the effectiveness of the response. Therefore, clearly defined disaster preparedness plans and SOPs need to be in place.

- (3) *Emergency financial (including national budget), physical and regular human resource allocation and accountability procedures established*

Emergencies demand resources immediately for effective action. Attempting to identify sources of finance at that point could lead to loss of valuable time. Emergency financial (including national budget), physical and regular human resource allocation and accountability procedures are therefore necessary.

- (4) *Rules of engagement (including conduct) for external humanitarian agencies based on needs established*

A disaster has many aspects, and needs a multisectoral approach involving a wide range of stakeholders. However, unless well coordinated, this can lead to confusion and duplication of efforts. Sometimes, assistance offered by external humanitarian agencies is not appropriate to local conditions and culture, and may even cause offence. The tsunami is a case in point. Following the tsunami, there were more than 350 organizations working in the health sector in Aceh alone. Sri Lanka also faced a similar situation. Some were well trained and had resources.

Others had goodwill and good intentions but a limited repertoire of the skills and resources required at the time. In addition, they did not always understand the cultural context in which they were working, and could therefore hamper rather than help relief and rehabilitation efforts. The cultural context is particularly important in providing psychosocial support. Rules of engagement (including conduct) for external humanitarian agencies based on needs, are therefore essential.

- (5) *Community plan for mitigation, preparedness and response developed, based on risk identification and participatory vulnerability assessment and backed by a higher level of capacity*

Experiences from most countries show that preparedness at the community level is the most effective way for mitigating disasters. A community plan for mitigation, preparedness and response based on risk identification and participatory vulnerability assessment and backed by a higher level of capacity, is therefore a fundamental requirement.

- (6) *Community-based response and preparedness capacity developed, supported with training and regular simulation/ mock drills*

With people injured and lacking basic needs, a disaster calls for immediate response. However, it has been seen that frequently, after a disaster, there is a time gap before external assistance arrives. This could be due to logistical or geographical reasons. For example, following the recent earthquake in Jammu and Kashmir, India, the high mountains made it difficult for relief workers to reach affected areas. Even in Thailand, which has been lauded for its speedy response, it took eight hours for the first medical teams from Bangkok to arrive in the tsunami-affected areas.

Therefore, self-reliance of communities is of crucial importance. Community-based response and preparedness capacity should be supported. This includes training local people on what to do, identifying or building suitable places that could serve as temporary shelters, and regular simulation/ mock drills to ensure that when a disaster actually occurs, the response will be smooth.

- (7) *Local capacity for emergency provision of essential services and supplies (shelters, safe drinking water, food, communication) developed*

For a community to be self-reliant following a disaster, it is not enough to have a plan in place, and trained people. To launch a successful response, the community needs resources too, with which they can work before external assistance arrives. Local capacity for emergency provision of essential services and supplies (shelters, safe drinking water, food, communication) is therefore an important component of the community-level disaster preparedness and response planning.

- (8) *Advocacy and awareness developed through education, information management and communication (pre-, during and post-event)*

The experience of Bangladesh serves as a good example of the importance of advocacy and awareness in disaster mitigation. In earlier floods, more than half a million people had died. However, in the most recent floods, with only 275 deaths from diarrhoea, mortality had come down drastically although the magnitude of the event was still huge. This is because, due to education and advocacy, affected people now know what to do and what measures to take to save their lives. For example, they know that they have to take ORS if they have diarrhoea. Village-level health workers give health education regularly, on for example, how to use saline, or how to manage sanitation during floods. These measures have resulted in lower death tolls following floods.

More recently, following the tsunami, there were various rumours that dead bodies spread disease and that fish were contaminated because they had fed on the bodies. WHO and the ministries of health of the affected countries successfully countered these rumours with correct information, through the media.

Advocacy and awareness development through education, information management and communication (pre- during and post-event) is therefore important. It can be through various means. The mass media – print, broadcast and the internet – play a powerful role in taking the message to the people. It is important to have a pre-identified spokesperson who can provide updated information to the mass media.

Awareness and education can also be spread through inclusion of these messages in school curricula, as is being done in Myanmar. Community health workers, such as *anganwadi* workers in India, can also play a role in creating greater awareness among the community they work with.

(9) *Capacity to identify risks and assess vulnerability at all levels established*

Appropriate measures to prevent or mitigate a disaster can only be taken if there is a good idea of the kind of disaster one is likely to face. In Thailand for example, although the response to the tsunami was very good, it could have been even better. However, Thailand was not seen as a disaster-prone nation, so all the appropriate measures were not in place, and people in the area were physically (in terms of buildings and infrastructure) and psychologically unprepared. It is therefore important to identify risks and assess vulnerability at all levels.

(10) *Human resource capabilities continuously updated and maintained*

Following any disaster, there is usually an immediate demand for a large number of experts with various skills, e.g. doctors and surgeons to tend to injuries, as well as nurses and paramedics, water and sanitation engineers to ensure clean water, and epidemiologists to monitor outbreaks. India, for example, needed more trained paramedical staff following the 2005 earthquake. At the community level, trained members of the community can play a crucial role. Thailand's village health volunteers, for example, played a very important role in providing support to the tsunami-affected people. In order to ensure that adequate numbers of people with all the required skills are available following a disaster, it is important that there is investment in training for human resources, and that those skills and abilities are continuously sharpened and maintained.

(11) *Health facilities built/modified to withstand expected risks*

It has been noted that events like earthquakes, by themselves, do not lead to death. Death and injuries result as a consequence

of structures that collapse because they could not withstand the earthquake. The tsunami too provides some examples. In Aceh, the earthquake and tsunami destroyed a large number of health facilities, and even the main hospital in Banda Aceh was damaged. This worsened the impact, as people needing medical attention after the disaster had nowhere to go to. Health facilities should therefore be built/modified to withstand expected risks.

(12) *Early warning and surveillance systems for identifying health concerns established*

Early warning and surveillance systems are necessary for identifying health concerns before they grow into a major public health problem. Surveillance systems should therefore be strengthened and be optimally functional before a disaster strikes. In Thailand, for example, previous experience with SARS and Avian Influenza had ensured that an effective mechanism was in place for surveillance of communicable diseases. This mechanism and expertise was successfully used following the tsunami to monitor outbreaks in the affected communities.

6.5 Country status

Participants from each country analyzed the status of their respective countries vis-à-vis the 12 identified benchmarks. They also suggested mechanisms of action to reach those benchmarks. Their analyses are summarized in Table 1.

Overall, the countries that met many of the criteria for disaster preparedness were: Bangladesh, India, Indonesia, Sri Lanka and Thailand. Four countries i.e. India, Myanmar, Sri Lanka and Thailand, also have a legal framework in place.

Disaster preparedness is still at the inception stage in Bhutan and the Maldives. Preparedness levels in Nepal, on the other hand, though more advanced than in the Maldives and Bhutan, have not been uniform.

Often, immediately after a disaster, there is a gap before external assistance is received. It is therefore critical that the community is self-reliant in such a situation. In all countries, community-level preparedness

needs strengthening. Bangladesh, India and some provinces in Indonesia, have community plans, but all countries agree that community capacity building requires greater attention. Strengthening local capacity to mobilize essential services during an emergency is also an area that needs improvement.

Early warning and surveillance systems need strengthening in most countries. Bangladesh and the Maldives report a well functioning surveillance system.

In all countries, risk assessment tools need updating, and greater capacity building in this area has been emphasized.

Awareness and advocacy is another key element of preparedness that needs greater attention. Bangladesh is proficient in this area at the community level, with members of the community being informed, through the mass media and by leaders of the community, about simple life-saving measures. Myanmar promotes awareness by including information in the school curricula, and using the mass media.

Future steps

With the country status identified in all critical areas of disaster management, the priorities for each country were also listed. Based on these outcomes, a framework of action will be developed by the countries in order to achieve these benchmarks. These should be followed up at the country level.

In order to share experiences and track progress among the countries of the Region, a password-controlled online forum for emergency preparedness and response has been suggested.

A review meeting will be held in 2006 to monitor the progress and discuss further hurdles in the process of establishing emergency preparedness mechanisms of the highest standards.

Table 1: Matrix of the status of countries in the South-East Asia Region vis-à-vis the 12 identified benchmarks ²

Benchmarks	BAN	BHU	IND	INO	MAV	MMR	NEP	SRL	THA	TLS
Legal framework and a functioning coordination mechanism and organizational structure in place for health EPR at all levels involving all stakeholders	Coordination mechanisms in place but no legal framework	Legal framework discussed and drafted December 2005	Present	National disaster law still to be endorsed	Initial steps have been taken in drafting law	Coordination structure at all levels of government	Need for sectoral provisions, mainly response based; review last January 2006	Disaster Management Act no 13 – approved May 2005	Needs strengthening for pre-disaster phase	Law is pending approval in parliament
Regularly updated disaster preparedness and emergency management plan for health sector and SOPs (emergency directory, national coordination focal point) in place	Present	Currently need revision	Present	SOPs needed for national level	Draft plan ready	SOPs for specific hazards available	Need for SOPs	To be finalized	No clear focal point in health sector	Specific plan and SOP still to be developed
Emergency financial (including national budget), physical and regular human resource allocation and accountability procedures established	Present	No regular resources	Present	Amounts should be increased	Open emergency fund	None	Different relief fund provisions available but not adequate	Available in a patchy manner	None	Procedures pending
Rules of engagement (including conduct) for external humanitarian agencies based on needs established	Coordination office present	To be included in SOPs	System is there	Ministerial decree present but needs to be communicated	Present only for UN / Red Cross	None	Present	Need to develop and address ethical issues	Being developed	Well established
Community plan for mitigation, preparedness and response developed based on risk identification and participatory vulnerability assessment and backed by higher level or nearby capacity	Present	In progress	SOPs needed at this level and tapping of Accredited Social Health Activists (ASHAs)	Safe communities programme in 7/33 provinces	None	Not documented	Needs strengthening	Comprehensive plan needs to be specified	Available in many communities	Early phase of development

² DPRK invited to the meeting, but unable to attend

Benchmarks	BAN	BHU	IND	INO	MAV	MMR	NEP	SRL	THA	TLS
Community-based preparedness capacity developed, supported with training and regular simulation/ mock drills	Not sufficient	Needs strengthening	SOPs needed at this level, and tapping of ASHAs	Quick brigades present in 21 of 33 provinces	None	EPR included in upper primary school curricula	Needs strengthening	Comprehensive plan needs to be specified	Needs strengthening to be comprehensive	Early phase of development
Local capacity for emergency provision of essential services and supplies (shelters, safe drinking water, food, communication) developed	Not sufficient; more shelters, communication needed	Stockpiling system present	Present	Present – for medical supplies and water and sanitation	Capacity in place	Present, but limited	Needs to be developed	Currently ad-hoc, needs to be systematic	Sometimes inappropriate supplies are available	Minimal
Advocacy and awareness developed through education, information management and communication (pre-during and post-event)	Strategy developed and followed	Need for initial assessment	SOPs needed	Education on EPR piloted in one province only	None	Needs strengthening at state/division and town levels in more disaster-prone areas	Needs strengthening	Needs strengthening, but more organized for north-east conflict zone	Community system are in place	Minimal
Capacity to identify risks and assess vulnerability at all levels established	Tools need updating	Done but needs improvement	Present	Needs assistance	Needed	Needs technical support	Capacity building needed at all levels	Done through universities	Still needed in many areas	Need to update existing hazard and risk maps
Human resources capabilities continuously updated and maintained	Needs strengthening	Done but needs improvement	Need to incorporate regular refresher courses	Inclusion of curricula of universities	Limited, need for systematic training	Training in various skills needed	Need for systematic refresher courses	Formal courses have begun	Training in specific skills needed, especially for local authorities in planning for EPR	Minimal
Health facilities built/modified to withstand expected risks	Only for cyclones and floods	None	New initiative has recently begun	Only in Aceh has this been started but training has also begun	No initiative as yet	No initiative for assessments or mitigation yet	Needs specific training and further support	Need to incorporate in national plans	Policies/Rules Regulations in plan for this	
Early warning and surveillance systems for identifying health concerns established	Web-based early warning system developed	Needs strengthening	Needs strengthening	Needs improvement	Functioning reporting systems	Priority need	Strengthening and expansion needed	Existing for health sector	Present	Present only for infectious diseases

Annex 1

OPENING REMARKS BY THE REGIONAL DIRECTOR

Summary of opening Remarks by Dr. Samlee Plianbangchang, Regional Director, South-East Asia Region

As we all are aware, approximately 200,000 lives were lost, and an estimated 1.2 million people displaced in nine countries, due to the earthquake and tsunami at the end of last year. It was one of the worst catastrophes of our times. This was in spite of the prompt response by the governments of the affected countries and international organizations.

This year we saw large-scale devastation caused by hurricanes in the United States, and most recently, strong earthquakes in Pakistan, India and Afghanistan. Currently, more than 30 countries throughout the world are facing major, and often long-standing, crises. Worldwide, it is estimated that between 2-3 billion people are at risk of disasters, either natural or man-made.

Countries in the South-East Asia Region have experienced several catastrophes during recent years. Adding to these are the continuing political and social conflicts in several countries of the Region. These conflicts very often create disastrous events, affecting large groups of people which require emergency response of varying magnitude. The frequent occurrence of such events indicates the urgent need for effective emergency preparedness and response at all levels.

The World Health Assembly last year reaffirmed the need to strengthen countries' capacities in emergency preparedness and response, so that they are able to protect their populations efficiently during emergency situations. Effective management of disaster requires, among others, capacity for risk assessment and development of national multisectoral policy and strategy.

The ultimate goal is to enable countries to plan and coordinate effectively all activities relating to emergency preparedness and response. In addition, the countries need to be able to develop monitoring and warning systems to forecast future catastrophes. Through education and

communication, the people and community should be informed and prepared to effectively respond to emergency situations. Such information should also aim at dispelling myths about health consequences of disasters.

The WHO Regional Committee for South-East Asia, at its session this year, provided direction on several key issues. This direction is in line with the Hyogo Framework for Action, 2005-2015, for Disaster Risk Reduction. The Framework addresses specific gaps in the present responses to emergencies. The areas are preparedness, including risk assessment; management of emergency; recovery; rehabilitation; reconstruction; and other critical aspects.

WHO, as the health arm of the UN system, works in close coordination with other partners, including those outside the system, to assist countries in achieving these goals. This involves primarily the identification of appropriate mechanisms to help countries to coordinate all players efficiently during an emergency. Coordination mechanisms at the country level are an important part of national strategies and plans for emergency preparedness and response.

The health component should be considered as an overriding concern in national emergency preparedness and response plans. Within their own potential, communities and people must be empowered to respond efficiently and effectively to emergency situations, at least during the first hours. This will help curtail further damage and destruction by disasters to some extent, before the arrival of assistance from outside.

This regional meeting is aimed at developing concrete steps to strengthen emergency preparedness and response in countries. During this meeting, we will delineate benchmarks, and evolve a strategic framework and direction, for efficient coordination and combined efforts, that can guide countries towards protecting the health of the affected populations. However, this may be only the beginning of a long process.

Already, some countries have launched programmes on emergency preparedness and response with commendable results. Some examples are:

- preparedness for floods and cyclones (Bangladesh);
- strengthened capacity in community mental health during emergencies (Thailand);

- efforts to mitigate damage to health facilities (Nepal);
- updated legal framework to support disaster management (Sri Lanka), and
- decentralized preparedness and response (India and Indonesia).

Myanmar has exemplary community preparedness mechanisms. The experiences in Maldives, Bhutan, DPR Korea and Timor-Leste are also worth learning in this regard.

WHO will continue assisting countries in their endeavours. The Organization is involved in building a regional information base, and a network of expertise in this area. This will be another important tool for supporting countries in planning to address future emergencies more effectively.

To conclude, on behalf of WHO, I would like to convey our appreciation and thanks to all countries, organizations, and others who share our concern and responsibility to protect the health and welfare of populations affected by disasters. Our grateful thanks are extended to the countries and organizations that provided funds and other support to WHO during the previous crises. Given the sheer magnitude and the very wide scope of the catastrophic events, no organization or sector can carry out the relief operations alone. Let us work together for better outcomes for the affected countries and populations. We are looking at the way forward, whereby our unified direction and united strength will help us to successfully overcome the formidable challenges of disaster management.

Annex 2

LIST OF PARTICIPANTS

Country Participants

Bangladesh

Dr K.M. Wahidul Haque
Evaluator (CDC) and Deputy Programme
Manager (EPR)
Directorate-General of Health Services
Mohakali
Dhaka

Dr Md. Mozammel Haque
Emergency Medical Officer
Dhaka Medical College Hospital
Dhaka

Mr Md Kafil Uddin
Senior Assistant Secretary
Ministry of Home Affairs
Bangladesh Secretariat
Dhaka

Mr Md Delwar Hossain
Joint Secretary (FM&D)
Ministry of Health and Family Welfare
Bangladesh Secretariat
Dhaka
Email: delwar54@yahoo.com

Mr Murray L. Singer
Administration and Programme Officer
Focal Point for Logistic support for
EHA Activities
WHO Representative's Office
Dhaka

Dr Kazi AHM Akram
Focal Point for Emergency Preparedness
and Response
WHO Representative's Office
Dhaka

Mr Md Taufiqul Arif
Senior Project Officer
WHO Representative's Office
Dhaka

Bhutan

Major Loday Jamtsho
Commandant
Royal Bhutan Armed Police
Trashigatshel
Chukha
Email: lodayrbap@yahoo.com

Mr Karma Tsering Namgyal
Drungpa/Sub-District Administrator
Drungkhag/Sub District Administration
Phuentsholing
Ministry of Home and Cultural Affairs
Email: katsenam@yahoo.com

Dr Kunzang Jigmi
Medical Officer
Ministry of Health
Thimphu

Dr Lungten Z Wangchuk
Programme Manager
Department of Public Health
Thimphu

India

Dr A.N. Sinha,
Chief Medical Officer (Hospital Administration)
Directorate-General of Health Services
Ministry of Health and Family Welfare
Nirman Bhavan
New Delhi – 1100 11
Telefax: 11-23061978 / 11-25085700 (R)
Email: adgha@nic.in

Mr Madan Mohan
Deputy Secretary (Secondary Education)
Department of Secondary and
Higher Education
Ministry of Human Resource Development
Shastri Bhavan
New Delhi

Colonel (Dr) Pradeep Kumar Singh
Deputy Assistant Director Health
HQ Delhi Area, Office of DG AFMS
Ministry of Defence
Delhi Cantt.10

Mr A.K. Sengupta
National Professional Officer
Sustainable Development and
Healthy Environments
WHO Representative's Office
New Delhi

Indonesia

Dr Hartono
Director, Deconcentration &
Bilateral Governance
Ministry of Home Affairs
Jakarta

Ms Irma Nadjamuddin
Directorate of Human Rights, Humanitarian
and Socio-Cultural Affairs
Department of Foreign Affairs
Jakarta

Dr Mulya A Hasjmy
Head
Center for Health Emergency Preparedness
and Response
Ministry of Health
Jakarta

Dr H.T. Marwan Nusri
Head
NAD Provincial Health Office
Email: marwan_nusri@yahoo.com

Dr Yoni Utomo
Head
International Cooperation Section
Ministry of National Education
Jakarta
Email: yoni_utomo@yahoo.com

Dr Meinarwati
Head of Emergencies Response and
Recovery Division
Center for Health Emergency Preparedness
and Response
Ministry of Health
Jakarta

Dr Indiriyono Tantoro
Secretary
Directorate General of CDC & EH

Dr Yosephine Lebang
Ministry of Health
Medical Care

Dr Ratna Dewi Umar
Director
Medical Care
Ministry of Health
Jakarta

Dr Tomasz Tadeusz Starega
Deputy Head of Office
WHO Representative's Office
Banda Aceh

Dr Vijay Nath Kyaw Win
EHA Medical Officer
WHO Representative's Office
Jakarta

Maldives

Dr Mohamed Ahmed
Deputy Director General Medical Services
Ministry of Defence and National Security

Mr Abdul Ghanee Abdullah
Director
Department of Public Health

Mr Adam Usman
Community Health Supervisor
Ministry of Environment, Energy and Water

Mr Hussain Rasheed Moosa
Senior Coordinator
School Health Programme
Ministry of Education
Educational Development Centre
Salaahuddeen Building
Male-20-03
Tel: (960) 331 7440
Email: hussain@edc.edu.mv

Dr Lieselotte Schmid
Focal Point for Emergency Preparedness
and Response
WHO Representative's Office

Myanmar

Dr Hlaing Myo Tun
Epidemiologist
Central Epidemiological Unit
Department of Health
Ministry of Health
Yangon

Dr Kyaw Win
Chief Medical Officer
Myanmar Railways
Medical Department
Ministry of Rail Transportation
Yangon

U Maung Pi
Director
Fire Services Department
Ministry of Social Welfare
Relief and Resettlement
Yangon

Daw Tint Tint Win
Deputy Director (Planning)
Dept. of Educational Planning and Training
Ministry of Education
Yangon

Dr Stephan P Jost
Scientist (Public Health Administrator)
WHO Representative's Office
Yangon
Tel: 0095-1-212609
Email: josts.whomm@undp.org

Nepal

Mr Vinod Jnawali
Joint Secretary
Policy, Planning and International
Administration Division
Ministry of Health and Population
Kathmandu

Mr Jhabindra P. Aryal
Under Secretary
Ministry of Foreign Affairs
Kathmandu

Mr Lekh Nath Pokharel
Under Secretary
Ministry of Home
Katmandu

Mr Bhuwaneswar Pradhan
Administrative Officer
Ministry of Education and Sports
Kathmandu

Ms Trine Ladegaard
EHA Focal Point
WHO Representative's Office
Kathmandu
ladegaard@who.org.np

Sri Lanka

Dr H.D.B. Herath
Medical Officer
Ministry of Health Care
Nutrition and Uva Wellassa Development
Colombo
Tel: 94-11-2698507 ext.234
Email: hdbh@sltnet.lk

Lt Col H M U B Herath
District Disaster Management Coordinator
Tel: 94-11-2441570 / 077 - 3115513

Commander S J S N Silva
District Disaster Management Coordinator
Email:sjsn@naug.lk
Mobile: 94777304387

Dr Bipin K Verma
Focal Point for Emergency Preparedness
and Response
WHO Representative's Office
Colombo

Thailand

Dr Boonchai Somboonsook
Deputy Director-General
Department of Health Service Support
Ministry of Public Health
Tivanond Road
Nonthaburi 11000
email: boonchai@hss.moph.go.th

Dr Wachira Pengjuntr
Deputy Director-General
Department of Mental Health
Ministry of Public Health
Tivanond Road
Nonthaburi 11000

Dr Kateruttanakul Pairaj
Senior Medical Officer
Rajavithi Hospital
Department of Medical Service
Prayathai
Bangkok 10400

Dr Pornpet Panjapiyakul
Chief of Academic Service Section
Bureau of Health System Development
Department of Health Service Support
Ministry of Public Health
Tivanond Road
Nonthaburi 11000

Dr Darika Kingnate
Veterinarian, Chief, Emerging Infections
Section
Bureau of General Communicable Diseases
Department of Disease Control
Ministry of Public Health
Tivanond Road
Nonthaburi 11000

Mr Sakesun Manawiroj
Health Technical Officer
Bureau of Emergency Medical Services
Office of the Permanent Secretary
Ministry of Public Health
Tivanond Road
Nonthaburi 11000

Dr Wanchai Sattayawuthipong
Chief Medical Officer
Phuket Provincial Public Health Office
Amphoe Muang
Phuket 83000

Dr Jesada Chaikunrat
Chief Medical Officer
Phang-nga Provincial Public Health Office
Amphoe Muang
Phang-nga 82000

Dr Verapon Nitipong
Chief Medical Officer
Krabi Provincial Public Health Office
Amphoe Muang
Krabi 81000

Mr Anusorn Kaewkangwan
Plan and Policy Analyst
Department of Disaster Prevention and
Mitigation, Ministry of Interior
3/12 U-Thong Nok Road
Dusit, Bangkok 10300

Dr Paritat Watiktinkorn
Medical Officer
Central Institute of Forensic Science
Ministry of Justice
Chaeng Wattana Road
Pakkred
Nonthaburi 11120
paritatwatiktin@hotmail.com

Pol.Lt.Col. Pattana Kitkailass
Forensic Pathologist
Institute of Forensic Medicine
Thai Royal Police
492/1 Rama 1 Road
Wang Mai
Patumwan
Bangkok 10330

Ms Elisabeth Emerson
EHA Focal Point
WHO Representative's Office
Thailand

Timor-Leste

Mr Mario Sere Kai
Unit Officer for Specilised Services
Ministry of Health
Dili
Tel: 670 7259467
Email: serekai@yahoo.com

Mr Abrao Sarmento
Chief of Unit
Prevention and Mitigation
Ministry of Labor
Dili
Tel: 670 7263462
Email: aurelioguterras@yahoo.com

Mr Diniz da Silva Buru Bara
Coordinator of Humanitarian
Ministry of Labor and Solidarity
Dili
Tel: 670 7242937

Dr Teodulo Clemente de Jesus Ximenwes
EHA Focal point
WHO Representative's Office
Dili

UN Organizations

Ms Maggs Mac Guinness
Humanitarian Affairs Officer
UNOCHA-ROAP
OCHA Regional Centre in Bangkok
Press Suite, Ground Floor, UNCC Building
Rajdamnern Nok Ave. Bangkok 10200
Tel: 66 2288 2424 Fax: 66 22881043
M: 66 13732465
Email: macguinnessm@un.org

Mr Hiroshi Nishimiya
Dy Director
United Nations Environment Programme
Regional Office for Asia Pacific
UN Building, Rajdamnern Avenue
Bangkok 10200
Tel: 662 - 288 1873
Email: uneproap@un.org

Ms Viennarat Chuangwivat
National Program Associate
UNFPA, UN Building, 12th Floor
Rachadamnern Nok Ave
Bangkok 10200
Tel: 662 288 1849
viennarat@unfpa.un.org.th

Ms Makiko Koriyama
Environmental Affairs Officer
United Nations Environment Programme
Regional Office for Asia Pacific
UN Building
Rajdamnern Avenue
Bangkok 10200
Tel: 662 - 288 1873
Email: uneproap@un.org

Mr Daewon Choi
Chief
Health and Development Section
United Nations Economic and Social
Commission for Asia and the Pacific
UN Building
Rajadamnern Nok Avenue

Bangkok 10200
Tel: 662 2881502
Email: escap-healthdev@un.org

Mrs Nescha Teckle
Advisor on Crisis Prevention and Recovery
UNDP Regional Centre in Bangkok
UN Service Building, 3rd Floor Rachadamnern
Nok Ave, Bangkok 10200
nescha.teckle@undp.org

Ms NanaTaona Kuo
Technical Officer
Humanitarian and Uniformed Services
USAID/RST-AP
9th Floor, Block A
United Nations Building
Rajadamnern Nok Avenue
Bangkok 10200
Tel: 662-288-1216

Mr Per Engstrom
Avian and Human Influenza
Preparedness Project
World Food Programme
Regional Bureau for Asia, 7th Floor, Wave
Place Building, 55 Wireless Road, Lumpini,
Patumwan, Bangkok 10330
Tel: +66-2-6554115 Ext: 3940
Mobile: + 66 (01) 9134373
VSAT: 1353-3940

Partner Organizations

Dr Pichit Siriwan
Head of Relief Dept
Relief and Community Health Bureau
Thai Red Cross Society
Terd Prakiat Bldg
1871 Henry Dunant Road
Bangkok 10300
Tel: 662-251-7853 FAX 662-252-7976
Email: abarlee@yahoo.com

Dr Amnat Barlee M.D.
Director
Relief and Community Health Bureau
Thai Red Cross Society
1871 Henry Dunant Road
Patumwan
Bangkok 10310

Mr Jonathan Abrahams
Team Leader
Asian Disaster Preparedness Centre
Bangkok

Ms Janette Luaza Ugsang
Course Manager
Asian Disaster Preparedness Centre
Bangkok

Dr Prakash Nellopeeli
Health Director in Sri Lanka
Merlin International
No.19, Colonia, TG Jayawardene Mawatha
Clifford Road, Colombo -3
Fax +0094-11-2576460
Email: medco@merlin_sri_lanka.org

Mr Marvin L Birnbaum
President
World Association for Disaster
and Emergency Medicine
Po Bo. 55158, Madison,
WI, 53705-8958
USA
Tel: 1-1608-2622069

Mr Jim Mielke
International Rescue Committee
2106, New Petchaburi Road
Bangkapi, Huaykwang
Bangkok
Tel: 662-716 7310-1 Fax 66 2310 0364
Email: jim@ircthailand.org

Ms Wilai Yankirati
Health Program Officer
World Vision Foundation of Thailand
3/59 Thepprathan Road, Rassada, Muang
Phuket T: 076 252 749, F: 076 252 133
Mobile: 01 925 3077
Fax: 66 2381 6783

Mr Filip De Loof
Programme Officer
Delegation of the European Commission
Bangkok
Email: fillip.de_loof@cec.eu.int
filipdeloof@hotmail.com

Mr Grete Budsted
International Federation of Red Cross
and Red Crescent Society
Bangkok

Universities

Dr Veera Inkapastkorn, MD.
Director.
Thammasat University Hospital
Thammasat University
Rangsit Center
Pathumthani 12121 Thailand,
Tel: 02 9269326 Mobile: 01 644 6995 ;
E-mail: veeraing@tu.ac.th

Prof. Prasit Wattanapa
Director of Siriraj Hospital
Mahidol University
999 Phutthamonthon Sai 4 Salaya
Phuttamonthon
Nakhon Pathom 73170

Embassies

Mr Thomas M. Dolan
Senior Regional Advisor for Asia-Pacific
Office of U.S. Foreign Disaster Assistance
U.S. Agency for International Development
Regional Development Mission
Diethelm Towers A, 10th Floor
93/1 Wireless Road
Bangkok 10330
Tel: 66-2-2637458/2637400
Fax: 66-2-2637497
Email: tdolan@usaid.gov

Mr Toshiki Ono
Second Secretary
The Embassy of Japan
1674 New Petchburi Road
Bangkok 10320
Tel: 66 2252 6151 #245
Email: ae_working@yahoo.com

Mr David Yasui
Counsellor (Development) and Head of Aid
The Canadian Embassy
15th Floor, Abdulrahim Place
990 Rama IV Road, Bangkok 10500
662-646 4366 Fax 646 4373
Email: david.yasui@international.gc.ca

Mrs Manju
First Secretary
Embassy of India
46 Soi Prasarnmitr (23)
Sukhumvit Road
Bangkok 10110
Tel: 02 258 4491 Fax 02 259 4870
Email: polwing@inet.co.th

Mrs Anandi Venkateswaran
APR to the UNESCAP
Embassy of India
46 Soi Prasarnmitr (23)
Sukhumvit Road
Bangkok 10110

Mr Gelard Dylan
The Embassy of France
Asst. to the Regional Counsellor for
Cooperation
35 Soi Rong Phasi Kao (Soi 36)
Charoen Krung Road, Bangkok 10500
Tel. 662 627 2143
Email: dylan.gelard@diplomatic.gov.fr

Mr Filippo Maria Constantini
The Embassy of Italy
399 Nang Linchee Road
Thungmahamek
Bangkok 10120
Tel: 662 285 4090 (int. 145)
Email: ambasciata.bangkok@esteri.it

Mr Park Sung-Jou
Customs Attache
Republic of Korea (South Korea)
23 Thiam-Ruammit Road
Ratchadapisek, Huay Kwang
Bangkok 10320
Tel: 662 247 7537-9 #322
FAX NO:66-2-247 7535

Mr Jost Wagner
Head of Phuket Branch
German Partnership Initiative
Embassy of the Federal Republic of Germany
Bangkok
Honorary Consulate of Germany
100/425 Moo 3, Chalermprakiat Ror 9 Rd.
Rassada, Phuket 83000, Thailand
Phone/Fax: +66-(0)76-221-737
Mobile: +66-(0)70210446
Email: wi_phuket@yahoo.de

Temporary Advisers

Dr Supachai Kunaratanapruk
Deputy Permanent Secretary
Ministry of Public Health
Bangkok

Dr Thongchai Thavichachart
President
Center of Excellence for Life Sciences
Bangkok
Thailand

Mr Vijay Dev
Director of Estates
Ministry of Urban Development
Government of India
New Delhi
Email: devvijay@hotmail.com

Mr Victor Martinez
Cra. 49 No. 85-46 Casa 27
Bogota
Colombia
Tel: (57) 3107625439
Email: victor@fundesuma.uet

Prof. Dr. Pongruk Sribanditmongkol
Associate Professor
Faculty of Medicine
Chiang Mai University
Chiangmai
Thailand

Mr Robert Reed
Senior Programme Manager
Water, Environment Countries
Loughborough University, Leicestershire
LE11 3TU, United Kingdom
Tel: 44 1509 222628 / 885
Email: r.a.reed@lboro.ac.uk

Dr Khanchit Limpakarnjanarat,
International Emerging Infections Programme
MoPH-CDC Collaboration
Bangkok

Asst.Prof. Nuntavarn Vichit-Vadakan
Dean, The Faculty of Public Health
Thammasat University
Rangsit Campus, Klong Luang
Pathumtani 12121
Thailand

Dr Manuel Carballo
Executive Director
International Centre for Migration and Health
Route du Nant-d-Avril
CH-1214 Geneva
Switzerland

Observers

Ms Visra Vichit-Vadakan
Thammasat University
Rangsit Campus, Klong Luang
Pathumtani 12121
Thailand

Ms Sage Hyman
Thammasat University
Rangsit Campus, Klong Luang
Pathumtani 12121
Thailand

Dr Marc Van De-Putten
The Faculty of Public Health
Thammasat University
Rangsit Campus, Klong Luang
Pathumtani 12121
Thailand

Mrs Pamornrat Asavasena
Technical Officer
Department of Disease Control
Ministry of Public Health
Nonthaburi

Mrs Suchada Sakornsatian
Deputy-Director
Mental Health Technical Development
Bureau
Department of Mental Health
Ministry of Public Health
Nonthaburi

SEARO Secretariat

Dr Poonam Khetrpal Singh
Deputy Regional Director
WHO/SEARO

Dr Luis Jorge Perez
Regional Adviser
Emergency Preparedness and Response
WHO/SEARO

Dr Roderico Ofrin
Technical Officer
Emergency Preparedness and Response
WHO/SEARO

Mr Han Antonius Heijnen
Regional Adviser
Water Sanitation and Health
WHO/SEARO

Dr Vijay Chandra
Regional Adviser
Mental Health & Substance Abuse
WHO/SEARO

Dr Qudsia Huda
STP-EHA, Project Manager
Tsunami Operations
WHO/SEARO

Dr Yonas Tegegn
Strategic Alliance and Partnerships
WHO/SEARO

Dr Lin Aung
Programme Development Officer
Programme Planning and Coordination
WHO/SEARO

Dr Asheena Khalakdina
STP-Epidemiologist, CSR
WHO/SEARO

Mrs Harsaran Bir Kaur Pandey
Public Information and Advocacy Officer
WHO/SEARO

Dr Supriya Bezbaruah
STP-Public Information and Advocacy
WHO/SEARO

Ms. Nantika Sungoonshorn
STP-EHA (Administrative)
WHO/SEARO

Mr S.Sornakaleswaran
Secretary
Emergency Preparedness and Response Unit
WHO/SEARO

Local Organizers

Ministry of Public Health

Dr Sopida Chavanichkul
Bureau of Policy and Strategy

Ms Tarntip Karunsiri
Chief of Global Health Cooperation

Ms Paweena Tarnsondhaya
Foreign Relations Officer

Ms Paworn Chongcham
Foreign Relations Officer

Ms Prattana Thong-on
Foreign Relations Officer

Mr Nattapol Mungkung
Foreign Relations Officer

Ms Bung-Orn Boonrucksasat
Foreign Relations Officer

Ms Boosayarat Buadang
Foreign Relations Officer

Ms Phattiporn Ajalanant
Foreign Relations Officer

Annex 3

PROGRAMME

Monday, 21 November 2005

08.30-09.00 hrs	Registration Opening Ceremony at Queen's Park 1, 2nd Floor	
09.00-09.30 hrs	Welcome Address by <i>Dr Samlee Plianbangchang</i> Regional Director, WHO/South-East Asia Region	
09.30-09.45hrs	Group Photograph	
9:45-10.00 hrs	Coffee break Announcement and Administrative Arrangements for the Meeting	
10.00-10.15 hrs	Overview of the Day	
10.15-12.00 hrs	Thematic Panel Session-1 <i>Water Related Hazards and Emergencies</i> Bangladesh : 1998 or 2004 floods Bhutan : Landslides as a regular seasonal occurrence Myanmar : Floods as a regular seasonal occurrence	Moderator: <i>Mr Han Antonius Heijnen</i>
20 minutes presentation each and open discussions		
12.00-13.00 hrs	Lunch	
13.00-15:00 hrs	Thematic Panel Session – 2 <i>Seismic risks including tsunami</i> India : Earthquake in Jammu and Kashmir 2005 Indonesia : Earthquakes and Tsunami of 26 Dec 2004 Maldives : Earthquakes and Tsunami of 26 Dec. 2004	Moderator: <i>Dr Luis J. Perez</i>
20 minutes presentation each and open discussions		
15.00-15.15 hrs	Coffee break	

15.15-16.30 hrs **Thematic Panel Session – 2 (contd.)**
20 minutes **Nepal:** Earthquake Mitigation and Mass Casualty
presentation each Management
and open **Thailand:** Earthquakes and Tsunami of 26 Dec.
discussions 2004
19.00 hrs Reception at the invitation of Dr Samlee
 Plianbangchang,

Tuesday, 22 November 2005

08.30-08.45 hrs Overview of the Day
8:45-10:15 hrs **Thematic Panel Session – 3** **Moderator:**
 Other risks and emergencies such as conflicts *Dr Vijay Chandra*
 and industrial accidents
20 minutes **DPRK:** Ryongchon Blast 2004
presentation each **Sri Lanka:** North East Rehabilitation
and open **Timor-Leste:** Post conflict Rehabilitation
discussions
10.15-10.30 hrs Coffee break
10.30-12.30 hrs **Special panel discussion on Emergency**
 Preparedness and Response/Disaster
 Management
12:30- 13.30 hrs Lunch
13.30-16.30 hrs **Group Discussion** **Facilitators:**
 Mr Han Heijnen
 Dr Vijay Chandra
 Dr Qudsia Huda
 Dr Yonas Tegegn
 Dr Lin Aung
 Dr Asheena
 Khalakdina

09.00-10.00 hrs **Group Discussions continue**
10.00-10.15 hrs Coffee break
10.15-12.00 hrs Presentation and Synthesis of the Group Work
12.00-13.00 hrs Lunch
13.00-14.00 hrs Presentation of Draft Outputs and Plenary

13.00 -15.00 hrs.	Plenary contd..
15.00-15.15 hrs	Coffee Break
15.15-16.15 hrs	Presentation of Draft Recommendations
16.15-16.30 hrs	Closing Address <i>Dr Samlee Plianbangchang</i> , Regional Director, WHO SEAR