SPECIAL REPORT

Health Aspects of Disaster Preparedness and Response

Report from a Regional Meeting of Countries of South East Asia Bangkok, Thailand, 21–23 November 2005

Regional Office for South East Asia World Health Organization*

*List of participants and affiliations on page s90

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The Democratic People's Republic of Korea was invited to the meeting, but was unable to attend.

Keywords: advocacy; awareness; benchmarks; budgets; capabilities; capacity; communities; competence; coordination and control; countries; donors; earthquake; education; funding; gaps; hazards; legal framework; plan; preparedness; recovery; rehabilitation; responses; rules of engagement; South East Asia Region (SEAR); strategies; training; tsunami; vulnerability

Abbreviations:
SEAR = South East Asia Region
UN = United Nations
WHO = World Health Organization

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Abstract

Introduction: This Supplement is a Report of the Conference convened by the South East Asia Regional Office (SEARO) of the World Health Organization (WHO). The Conference was a follow-up to the WHO Conference of May 2005 in Phuket, Thailand on the Earthquake and Tsunami of 26 December 2004. The invitational meeting brought together representatives of 11 countries impacted by the events. The goal of the Conference was to produce a plan of action that meets the specific needs of the countries and ensure that the countries of the Region will be better equipped to cope with any future event.

Objectives: The objectives of the Conference were to: (1) identify gaps in the health needs of the affected and vulnerable populations for preparedness, responses, recovery, and rehabilitation; (2) determine the next steps in addressing these gaps; and (3) develop benchmarks and a corresponding framework for action that must be achieved to solidify the capacities and capabilities of the health sector to meet emergencies.

Methods: Presentations of background papers, panel discussions, and Working Groups were used. Based, in part, on the materials presented, the Working Groups drafted benchmarks that could mark the progress in achieving the overall goal and proposed strategies that could be used to reach the benchmarks. Representatives of the participating countries summarized the current status of their respective countries relative to each of the defined benchmarks.

Results: The benchmarks relate to: (1) legal framework for preparedness and response; (2) national disaster plan for preparedness and response; (3) budget; (4) rules of engagement for external actors; (5) community plan based on risk identification and vulnerability assessment; (6)community-based capacities; (7) local capacity for provision of essential services and supplies; (8) awareness and advocacy programs; (9) identification of hazards, risks, and vulnerabilities; (10) education and training; (11) "safe" health facilities; and (12) surveillance and early warning systems.

There exists a wide range in the levels of preparedness at all levels in the affected countries particularly at the community level. The country representatives agreed that community-level preparedness, legal frameworks, local and national disaster plans, surveillance and early warning systems, and advocacy and awareness programs demand more attention.

The strategies and mechanisms that will facilitate achievement of the benchmarks were grouped into seven categories: (1) monitoring, evaluation, surveillance, and assessments; (2) education and training (human resource development); (3) information and communications; (4) legislation, policies, and authority; (5) funding; (6) planning and preparedness; and (7) coordination and control. Any or all of the strategies suggested could be implemented by the countries in the Region.

Conclusion: The Conference delivered an important set of benchmarks and strategies that, when implemented, will facilitate the countries and the communities within them reaching better levels of preparedness and response to future events. Attaining the benchmarks will decrease the number of lives lost and minimize the pain and suffering associated with such events.

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Executive Summary

This Conference was convened by the South East Asia Regional Office (SEARO) of the World Health Organization (WHO) as a follow-up to the WHO Conference of May 2005 in Phuket, Thailand on the Earthquake and Tsunami of 26 December 2004. This combined event devastated large portions of the countries in the Region. The invitational meeting brought representatives from 11 of the countries impacted by the Earthquake and Tsunami. The goal of the Conference was to develop a plan of action that would meet the specific needs of the countries and ensure that the Region, as a whole, will be better equipped for any future disaster. Therefore, the objectives were to: (1) Identify gaps in the health needs of the affected and vulnerable populations that address preparedness, responses, recovery, and rehabilitation; (2) Determine the next steps in addressing these gaps; and (3) Develop benchmarks and a corresponding framework for action that must be achieved to solidify the capacities and capabilities of the health sector to meet future emergencies.

The methods used included presentations of background papers, panel discussions, and working groups. The outcomes were the development of 12 benchmarks, analysis of the current state of preparedness in each of the countries represented, and identification of strategies to meet these benchmarks. The benchmarks defined include:

1. *A legal framework* for preparedness and responses has been achieved at the national and community levels;
2. *Coordination* mechanisms that include defined roles are in place.
3. A *disaster plan* for preparedness and response is in place and exercised at all levels. It must include: (a) standard operating procedures; (b) memoranda of understanding; (c) mechanisms for coordination and control; (d) responses; and (e) all-hazards and hazard-specific approaches;
4. Community plans for disaster preparedness and response are in place;
5. Communities have the capacity (resources) required to manage crises. Shelters, safe drinking water, food, and communication capabilities must be available at the community level;
6. Countries have a line item in their budget to assure financial resources are accessible to meet the immediate needs in case of a catastrophic event. Essential personnel, equipment, and supplies also are available in quantities necessary to cope with the damage and compromise of function created by the event. Accounting procedures for the use of such resources are in place;
7. Rules of engagement exist for the management of external actors;
8. Awareness and advocacy programs to prepare the population-at-risk have been implemented;
9. The hazards to which the population is at risk and the vulnerability of the society to the hazards have been identified. Appropriate measures have been implemented to reduce the vulnerability;
10. Appropriate programs to educate and train people to cope with events and disasters have been implemented. Adequate numbers of people are being trained and trained experts are on-call in case of a disaster;
11. Health facilities are able to continue to provide the required medical care during events and disasters; and
12. Surveillance and early warning systems for the hazards for which the population is at risk are in place.

There exists a wide range in the levels of preparedness at all levels in the affected countries. This was evident particularly at the community level with Bangladesh, India, and some Provinces of Indonesia being much better prepared than were other communities in the Region. All of the countries agreed that community-level preparedness demanded more attention than it currently is receiving. At the country level, many of the benchmarks defined already were achieved while in others, preparedness only is at the inception stage. Only four of the countries participating had a legal framework in place for preparedness and response activities at the time of the Conference. All agreed that early warning and surveillance systems must be strengthened throughout the Region. Although some countries have developed and implemented advocacy and awareness programs through education of the lay public and/or inclusion of the information in the school curricula, it was believed that awareness and advocacy should receive more attention in the Region. It also was agreed that more attention must be directed toward the education of the mass media and their integration into the planning processes.

The strategies and mechanisms that will facilitate achievement of the benchmarks by the countries in the Region were grouped into seven categories: (1) monitoring, evaluation, surveillance, and assessments; (2) education and training (human resource development); (3) information and communications; (4) legislation, policies, and authority; (5) funding; (6) planning and preparedness; and (7) coordination and control. A total of 72 strategies were suggested. Any or all of these strategies could be implemented in the countries of the Region.

In summary, the Conference delivered an important set of benchmarks and strategies that, when implemented, will facilitate the countries and the communities within them reaching better levels of preparedness and response.

Context of Discussions

Introduction

The Earthquake and Tsunami in the Andaman Sea and the Indian Ocean of 26 December 2004 was one of the worst natural disasters in recent history. Six countries of the WHO South-East Asia Region (SEAR) were among the worst hit, with >3 million people affected. The countries' responses to an unexpected disaster of this magnitude, and their abilities to cope with the damage and loss of function 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 the country's responses to the disaster.

Therefore, preparedness and planning by the health sector or other sectors, is the key to effective response in an emergency. However, in the public health systems of many countries in the Region, subsequent discussions on the lessons learned from the Tsunami experiences revealed cru-

cial gaps in terms of addressing various public health issues during emergencies. Gaps existed from the level of policy and legislation to human resources management to operational and coordination mechanisms.

Importance and Rationale

In order to ensure that effective and appropriate responses can be mounted to any health emergency, the need was recognized to establish institutional procedures and mechanisms that meet certain minimum standard requirements for disaster preparedness and responses throughout the Region. Therefore, this meeting was convened for the countries involved in the disaster could learn from the experiences of other countries and to evolve some benchmarks that could help direct the activities and practices in the Region to be prepared better to cope with the next potentially devestating disaster.

Political Commitment to Disaster Preparedness

It was recognized that disaster reduction is integral to the development of a nation and must be key element of national strategies in order to meet the Millennium Development Goals. Member countries expressed their commitment to this issue through a Resolution in the 58th World Health Assembly. The Resolution, WHA 58.1, emphasized the need to formulate disaster management plans and improve access to clean water and sanitation. It urged member states "to formulate, on the basis of risk-mapping, national emergency preparedness plans that give due attention to public health, including health infrastructure, and to roles of the health sector in crises, in order to improve the effectiveness of response to crises and to contribution of the recovery of health systems."

The Regional Committee also had discussed disaster preparedness issues in the Region at length. This resulted in Resolution RC 57/3 in the 57th Regional Committee meeting. It was discussed further at the Health Secretaries Meeting in Dhaka and the Regional Committee Meeting in Colombo in September 2005.

Objectives

The overall goal of the meeting was to achieve high standards of disaster preparedness in the Region in terms of health through development of a clear plan of action that will meet the specific needs of the countries and ensure that the Region as a whole, is better equipped for any future disaster. Therefore, the objectives of the Bangkok meeting were to: (1) identify the gaps in addressing preparedness, responses, and recovery for health needs of affected and vulnerable populations; (2) determine the next steps in addressing gaps *vis-à-vis* best practices with particular attention to those applicable in the Region; and (3) develop benchmarks and a corresponding framework for action that must be achieved to solidify capacities of the health sector during and following emergencies.

Methods

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

The participants in the Panel Sessions examined preparedness and response issues based on the hazards and risks countries faced. The presentations during the Panel Sessions were divided into three broad sections: (1) water-related hazards and emergencies; (2) seismic risks, including tsunamis; and (3) other risks and emergences such as conflicts and industrial accidents. Within the scope of these themes, each country of the Region, using specific examples of their experiences with such disasters, were requested to bring issues facing the Region to the forefront. Among the three key themes were: (1) multi-sectoral coordination; (2) community preparedness; and (3) country capacity strengthening.

Each of the participants then was assigned into one of six Working Groups to further debate the issues within the broader scope of these three themes. The key issues that emerged from these sessions were used to define a set of benchmarks and strategies to achieve them. The staff of SEARO collated the outputs of the Working Groups into benchmarks and each country team was requested to analyze the status of their country in these areas, and to prioritize action plans and to relate and the best way forward for its country.

Results

Challenges and Benchmarks

Using specific examples of experiences from the presentations by representatives of each of the participating countries, the Panel Sessions identified common gaps that currently exist in disaster preparedness and response particularly with reference to the health of affected or vulnerable people in the Region. The next step was to identify best practices and agree on standards appropriate for the Region. It was felt that given such standards, every country could target these standards and best practices in order to fill the gaps identified, and thus, achieve higher levels of preparedness for any disaster, and to minimize the risks that a hazard will lead to a disaster. Thus, each of the Working Groups was assigned the task of suggesting benchmarks for one of three of the identified areas for which the Region must strengthen its operational capacities and capabilities. The three areas for discussion were: (1) multi-sectoral coordination; (2) community level preparedness; and (3) country capacity strengthening. Two separate groups worked on one of these three subjects. The key suggestions that emerged from these discussions were used to develop benchmarks and a plan of action to meet these benchmarks as a method to improve disaster preparedness in the Region. The resulting benchmarks that were suggested and some mechanisms that could assist in achieving the benchmarks are tabulated by topic in Appendices I–III.

Suggested Benchmarks

Since many of the benchmarks suggested by the Working Groups were quite similar (Appendices I–III), they were combined for the discussions that follow. The sorting process used has resulted in the identification of nine basic

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themes, and thus, each of the benchmarks could be grouped into only one of these categories. The categories selected are: (1) human resource development, training, and education; (2) planning; (3) legislation and policy; (4) funding; (5) vulnerability assessment; (6) information systems; (7) surveillance; (8) absorbing and buffering capacities and responses; (9) patient care; and (10) coordination.

Human Resource Development, Training, and Education

Several benchmarks were suggested that would indicate improvement in the human resource components of disaster preparedness. Since disasters occur at the local level, the principal stakeholders are at the community level. At the community level, first-aid education and training must be provided to the lay public as well as knowledge of the location and safety of available shelters. In addition, the disaster managers and persons who will staff the community-level Coordination and Control Center must be educated and trained in disaster risk management.

At the national level, in order to strengthen the multi-sectoral coordination in the development of human resources, training, and education, it is important that periodic drills and exercises focusing on Emergency Preparedness and Response (EPR) have been conducted and that technical capacity building processes either are completed or are underway. Thus, it was recommended that mock drills for disaster responses are conducted, as well as appropriate disaster training programs for health center staff. It is important that information and training about disasters and the management of them is provided to the lay public and community leaders. This education and training in disaster management should be directed at persons who are part of the health sector as well as other sectors/stakeholders in related issues.

The proposed benchmarks that would strengthen a country's capacity in human resources, training, and education are that the processes for the development of human resources are underway and that a regional training program for emergency management has been initiated (e.g., public health in emergency management in Asia and the Pacific).

Planning

Adequate planning and the development of plans are critical for disaster preparedness. The planning process and the resultant multi-sectoral coordination include having in place, a detailed Disaster Management Plan, as well as policies, and standard operating procedures (SOP), and mechanisms for the development of multisector coordination that outline the respective roles and responsibilities of each of the stakeholders. They also should include mechanisms to access institutional resources. It was suggested that in case of disaster, the plans include defined procedures for the appropriate delegation of authority, provide strong procedures for accountability, and that there is an established and tested directory of emergency personnel including their respective areas of expertise. Authority should include transfer of the required authority and responsibility to designated members of the coordination and control centers at all levels.

To augment community-level preparedness, it was proposed that: (1) community participation in health sector planning is ensured; (2) contingencies for disaster preparedness and responses are in place; and (3) an agreed community disaster plan has been developed and tested through implementation of drills, exercises, and other simulations.

Legislation and Policy

It was advocated in the Panel Discussions, that there must be enabling legislation and authority for emergency preparedness and responses in place at all levels. Such legislation must include clear health components. It also was recommended that policies and guidelines for each of the stakeholders be established. In addition, a code for the engagement (regulation) of external humanitarian actors that is be based on recent needs assessments was deemed as essential. Lastly, an operational, national coordination focal point should be in existence.

The legislation and policies that would help to strengthen the capacities of countries to cope with a disaster should include: (1) implementation of public health guidelines; (2) support for the structure of a task force for the health aspects of preparedness for emergencies; (3) institutionalization of disaster preparedness; (4) establishment of smooth logistics channels for obtaining required supplies and aid; and (5) exercise of coordination with all stakeholders in a manner that ensures trust between sectors through political commitment.

Funding

In order to improve disaster preparedness, the acquisition and allocation of necessary funds must be predetermined. It was suggested that each country have established emergency mechanisms to obtain required finances. At the community-level, there should be established increase in budgets directed to disaster preparedness and responses. Lastly, mechanisms for allocation of such funds should be established that are in accordance with the needs. Such funds also should be specified in the WHO country budgets as well as in the national budgets.

Vulnerability Assessment

Proper assessments of areas of identification of hazards, the respective risk assessments, and vulnerability are critical in order to better prepare to cope with a disaster. At the community level, it was advised that vulnerability assessment mapping (VAM) using Participatory Rapid Assessment (PRA) methodologies should be completed.

Information Systems

To improve multi-sectoral coordination in responses to a disaster, it was advised that a functional Health Information System (HIS) suitable for providing necessary information in case of emergencies, should exist and have been tested. In order to improve the country capacities, a monitoring system must be implemented as well as the establishment or strengthening of an information management system for emergencies. A strategy must be established for informing and managing the media.

Surveillance

It was suggested that effective, enhanced, and practical disease surveillance mechanisms and early warning systems for detecting disease outbreaks should be established to enhance the country capacities in disaster preparedness.

Absorbing and Buffering Capacities and Response

The augmentation of the absorbing and/or buffering capacities lessen the impact of an event caused by a hazard on a specific society. The *absorbing capacity* is the ability of the natural or built environments and/or living beings to absorb the free energy associated with an event, and hence, minimize the damage sustained from the event. The *buffering capacity* is the ability of a society to continue to function despite the damage sustained from an event. The absorbing and buffering capacities either can be augmented or degraded by human actions. For example, construction of dykes increases the absorbing capacity of the environment to resist flooding while deforestation results in a decreased ability of the environment to absorb heavy rainfalls. Reserve supplies of medicines may buffer the impact of increased demands for the medicines from the stricken community, while absence or failure to exercise a disaster plan lessens the ability of the community to continue to function due to the damage sustained from and event. Multi-sectoral coordination facilitates phasing of the emergency responses. At the community level, it was recommended that there are available extra stocks of essential medicines, equipment, etc. that may be required to respond to disasters and that they are effectively and efficiently dispensed. To strengthen the capacities of countries in disaster preparedness, it is critical that: (1) the World Health Organization (WHO) provides technical support for emergency preparedness and response in affected countries; (2) human resources are trained for health planning for emergency preparedness and response (see HRD above); (3) the capacities of regional and country offices are strengthened; and (4) a review meeting and post-event analysis is conducted.

Patient Care

To better prepare a community to cope with a disaster, it is imperative that the necessary facilities are established to deal with unexpected casualties. It was advocated that an increase in the number and quality of community health centers, clinics, community centers for children <5 years of age and for women be developed, and that these community service centers have integrated disaster plans. In addition, every effort possible should be directed towards the development of safe hospitals and medical facilities (increased resilience to hazards for which they are at risk).

Coordination

The need for coordination of all of the activities of the all of the stakeholders and responders was a benchmark suggested by each of the Working Groups.

Benchmarks

Many of the challenges and benchmarks identified in the group discussions applied to all aspects of disaster management. Based on the outputs from the groups, 11 key issues and benchmarks should be addressed, in order to be successful in establishing enhanced disaster preparedness:

Legal Framework for Preparedness and Response

Background

Without a legal framework upon which to base disaster preparedness and response, it is difficult if not impossible to bring the necessary resources together to prevent a disaster from occurring or enhance the preparedness to cope with disasters. The legal framework not only must provide a mandate, but also must include funding, the required resources, and the designation of authority. A legal framework lays down the ground rules and principles to be adopted in disaster management, and places the actions to be taken into a broader 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.

Issues

Many countries do not have a legal framework upon which to base preparedness and responses. Some legal frameworks are response-oriented and do not touch upon preparedness or mitigation strategies.

Conclusion

All countries should have a legal framework in place for preparedness and responses. Such a legal framework includes a functioning coordination mechanism and an organizational structure at the national and community levels that involves all of the stakeholders. An established legal framework is crucial in order to successfully meet the challenges caused by events from natural or human-made hazards.

Recommendations

All countries must have an established legal framework upon which to base preparedness activities and responses. This framework must include allocation of resources and transfer of necessary authority as well as organizational structure and mechanisms for the coordination of preparedness and response activities.

Benchmark 1: A legal framework with functioning coordination mechanisms and an organized structure is in place for preparedness and response.

National Disaster Plans for Preparedness and Responses

Background

Disasters often strike unexpectedly and require immediate responses. Responses, discussions, and debates to determine the most appropriate actions result in critical delays. Ambiguities in the chain of coordination and control and/or a lack of clarity in the decision-making process also lead to confusion and diminish the effectiveness of the responses. Preparedness plans minimize the time-demanding need to achieve agreement on the use of resources during a time of crisis. Good plans include: (1) standard operating procedures; (2) memoranda of understanding; (3) mechanisms for coordination and control; (4) responses; and (5) all-hazards and a hazard-specific approaches. Practice makes perfect at all levels including the community level.

Issue

Many countries, regions, and communities do not have adequate disaster plans.

Conclusion
All countries and communities should have a completed and up-to-date disaster preparedness plan.

Recommendation
Clearly laid out disaster preparedness plans are essential for the protection of the population-at-risk and should be practiced and critiqued at all levels and at frequent intervals.

***Benchmark 2*: Regularly updated disaster preparedness and emergency management plan for health sector and SOPs (emergency directory, national coordination focal point) is in place. It must include: (1) standard operating procedures; (2) memoranda of understanding; (3) mechanisms for coordination and control; (4) responses; and (5) all-hazards and a hazard-specific approaches.**

Budget
Background
Emergencies demand that resources are immediately available in order for effective actions to be implemented. During the emergency period, attempting to identify required resources often leads to loss of valuable time, unnecessary loss of life, and increased pain and suffering. Furthermore, in order to gain maximum efficiency, effectiveness, and benefits to the stricken community, there must be careful accounting of how, why, and the amount of resources that were consumed.

Issue
Although resources are required immediately to cope with emergencies, often the required resources are not readily available. Attempts to obtain these resources during the actual crisis are difficult if not impossible.

Conclusion
Resources that may be required for emergency situations should be part of the budget of each country and community so that they can be made immediately available when needed. Provisions must be linked to accountability.

Recommendation
Financial resources for disaster preparedness and responses should be included in the local and national budgets. Additional funds must be accessible in the time of emergency. Funding of these activities should be part of the disaster plans at all levels. Accountability procedures for documenting their use are necessary.

***Benchmark 3*: Countries have a line item in their budget and system to assure financial resources are accessible to meet the immediate needs in case of a catastrophic event. Essential personnel, equipment, and supplies also are available in quantities necessary to cope with the damage created by an event for which it is at risk. Accounting procedures for the use of such resources are in place. Emergency financial (including national budget), physical and regular human resource allocation and accountability procedures have been established.**

Rules of Engagement for External Actors
Background
A disaster has many aspects that require a multi-sectoral approach involving a wide range of actors. The responses to and following the Tsunami provide examples. Following the Tsunami, in Aceh alone, there were >350 organizations working in the health sector. Sri Lanka also encountered a similar situation. Some of the respondents were well-trained and brought the resources required for their operations. Others had goodwill and good intentions, but only brought a limited repertoire of the skills and resources that were required at the time. In addition, responders and responding agencies did not always understand the cultural context in which they were working, and therefore, hampered rather than helped the relief and rehabilitation efforts. Confusion and duplication of efforts often results unless the responses are well-coordinated between the responding sectors. Often, responses by external actors are not coordinated by an authorized national and local agency. External actors who wish to provide assistance to the stricken must be self-sufficient or they create an additional burden on the affected society.

Issue
Sometimes, the assistance offered by external humanitarian actors is not appropriate to local conditions and culture, and even may offend those affected.

Conclusion
All response interventions must be coordinated with the activities of all of the actors and must be culturally suitable. Countries have the responsibilities to coordinate such activities. Also, the cultural context is important particularly in providing psychosocial support. Rules of engagement for external assistance in case of a disaster, should be established by each country.

Recommendation
Rules of engagement (including conduct) for external humanitarian actors based on needs must be developed and implemented in each country. Specific attention must be directed to qualification of the responders to meet the needs of the affected population including psychosocial support. Each responding agency must be self-supporting.

***Benchmark 4*: Rules of engagement exist for the management of external actors.**

Community Plan Based on Risk Identification and Vulnerability Assessment
Background
During disasters, it is important that people are physically and psychologically prepared. For example, although the response to the Tsunami in Thailand was very good, it could have been even better. Prior to the Earthquake and Tsunami, Thailand was not considered to be a disaster-prone nation, so all of the appropriate measures were not in place and the society was physically (i.e., buildings and infrastructure) and psychologically not well-prepared. In order to be prepared, the hazards and the risks that the hazards may become an event to which the society is susceptible should be estimated. Some preparedness measures are

appropriate for all hazards, while others are event specific. Knowledge of the hazards allows assessment of the vulnerability of the population-at-risk to the hazard. Such vulnerability assessments are essential for setting priorities for implementation of appropriate preparedness measures.

Issue
Many societies are not aware of all of the hazards to which they are exposed and/or of their respective vulnerability to the hazards once they are identified.

Conclusions
It is not possible to be prepared to cope with an event if the hazards and the vulnerability to the hazards are unknown. People should be prepared physically and psychologically for an emergency. Implementation of appropriate measures to prevent or mitigate the likelihood of a disaster developing requires the knowledge of the hazards for which the society is at risk as well as identification of the areas of vulnerability of the society to events from these hazards.

Recommendations
The hazards, risks, and vulnerabilities for which the population is at risk should be identified at all levels (local to national). Appropriate measures should be taken to reduce the vulnerability of the population to specific and all hazards.

***Benchmark 5*: Capacity to indentify risks and assess vulnerability leeves has been established. Appropriate measures have been implemented to reduce the vulnerabilities.**

Community Capacities
Background
A sudden onset disaster calls for immediate responses. For example, following the recent earthquake in Jammu and Kashmir, India, the high mountains made it difficult for relief workers to reach the affected areas. Local capacity for the emergency provision of essential services and supplies (buffering capacities) including shelters, safe drinking water, food, communication, is an important component of the community-level disaster preparedness and response planning.

Issues
Frequently, after the onset of a disaster, there is a time gap before external assistance arrives. Given the magnitude of the event, launching a full-scale response posed challanges for Thailand, which was relatively well-prepared. Thailand was lauded for its speedy responses, but eight hours elapsed before the first medical teams from Bangkok arrived in the Tsunami-affected areas. For a community to be self-reliant following a disaster, it is not enough to have a plan and trained people, it must have access to the other resources required to manage the crisis.

Conclusion
Self-reliance of communities is of crucial importance. Essential services and supplies should be available at the community level.

Recommendation
Community-based response and preparedness capacities should be supported. This includes training local people on what to do during the onset of a disaster, identifying or building suitable places that could serve as temporary shelters, taking measures to increase the absorbing and buffering capacities, and performing regular simulation/mock drills so that that when an event occurs, most of the responses needed will be smoothly and efficiently implemented. In order to launch successful responses, the community must have access to those resources required so that it can survive until supplemental external assistance arrives.

***Benchmark 6*: Community-based response and preparedness capacities have been developed, and are supported with training and regular simulations and/or mock trials.**

***Benchmark 7*: Local capacity for emergency provision of esssential services and supplies (shelters, safe drinking water, food, communication) is developed.**

Awareness and Advocacy Programs
Background
Advocacy and citizen awareness of the dangers and ways to protect themselves and their families is important for disaster mitigation. The experience in Bangladesh serves as a good example. In Bangladesh, 7,500,000 persons have died from floods. More than 500,000 persons died during and following a single tropical cyclone in the 1970s. But, with political advocacy and community consultation following the cyclone, numerous cyclone shelteres were constructed. Use of these shelters and other preparedness measures resulted in remarkable reductions in mortality rates despite the magnitude of the floods that stuck the country. Remarkably, only 275 deaths occurred from diarrhea. This drop in mortality rates has been related to the education of the public and the development of an advocacy plan. Now, people know what to do to save their lives. For example, they know that they must ingest an oral rehydration solution (ORS) when they experience severe diarrhea. More recently, following the Tsunami, there again arose various rumors and myths, e.g., dead bodies spread diseases, and that fish were contaminated because they had fed on the dead human bodies. Such rumors spread quickly and are detrimental to the disaster relief efforts. The WHO and the Ministries of Health of the affected countries successfully countered these rumors with correct information that was distributed through the media. Village-level health workers frequently provide health education that includes how to use saline, how to manage sanitation during floods, etc. These measures have resulted in lower death tolls associated with floods. Therefore, advocacy and awareness development through education of the population-at-risk, information management, and communication (pre-, during-, and post-event) are essential. They can be achieved through the use of various means: mass media—print, broadcast, and the Internet—play a powerful role in taking the message to the people. It is important to appoint a

competent spokesperson who can provide updated, correct information to the mass media. In Myanmar, essential information about methods of protection during a disaster has been included in the school curricula.

Issue
In spite of the available knowledge, lack of awareness about the hazards and risks as well as not knowing what to do in case of an emergency, creates preventable deaths and injuries.

Conclusion
Most people do not know how to protect themselves and their families in case of an event that creates an emergency. Education and training help to minimize the loss of life and the pain and suffering that may be caused by an event. Countries should promote advocacy and awareness through education of the population-at-risk. Community health workers, such as *anganwadi* workers in India, also can play a role to successfully create greater awareness among the community they work with.

Recommendation
Awareness of the dangers and education on how to cope with such events should have high priority at the country and community levels. Appropriate information should be shared by the inclusion of these messages in school curricula. Educational materials must be prepared and distributed to the general population. Advocacy programs to promote awareness must be attained before a potentially catastrophic event occurs in order to render protection to the population.

***Benchmark 8*: Advocacy and awareness has been developed through education, information management, and communication (pre-, during-, and post-event).**

Identification of Hazards, Risks, and Vulnerabilities
Background
Disasters occur at the community level. Experiences from most countries indicate that preparedness at the community level is the most effective tool for mitigating the damage created by an event, and thereby, preventing or limiting the scope of the disaster that may result. Good plans include: (1) standard operating procedures; (2) memoranda of understanding; (3) mechanisms for coordination and control; (4) responses; and (5) and all-hazards and hazard-specific approaches. Practice makes perfect at all levels including the community level.

Issue
Although events that result in disasters occur at the community level, many communities do not have comprehensive disaster plans.

Conclusion
Community-level plans for mitigation of damage caused by an event, preparedness for an event, and responses to the event should be based on risk identification and participatory vulnerability assessment. These plans should include mechanisms for recruiting higher levels of capacity.

Recommendation
Community-level plans for damage mitigation, preparedness, and responses should be in place in order to reduce the damage and loss of function created by an event. These plans must include the ability to request and receive the needed resources.

***Benchmark 9*: A community plan for mitigation, preparedness, and response that is based on risk identification and participatory vulnerability assessments, and backed by a higher level of capacity has been developed.**

Education and Training
Background
During any sudden-onset disaster, there usually is an immediate demand for a large number of persons (including some experts) with various skills, e.g., doctors, nurses, and paramedics, to tend to injured persons; water and sanitation engineers to ensure the provision of safe, clean water; and public health workers to monitor outbreaks of diseases. Following the 2005 earthquake, India recognized a need for more trained paramedical staff. Thailand's village health volunteers played an important role in supporting the Tsunami-affected people. In order to ensure that adequate numbers of people with the required skills are available during a disaster, it is important that there is commitment to train human resources, and that those acquired skills and abilities are refreshed and maintained.

Issue
Overall, there is a paucity of individuals who have been prepared to cope with the damages created by an event.

Conclusions
During sudden-onset disasters, there is an immediate demand for trained persons and experts. At the community level, trained members of the community can play a crucial role. It is essential that an adequate number of persons in the community be educated and trained to prepare for an event and to respond once an event has occurred.

Recommendation
Adequate numbers of people must be educated and trained to participate in preparedness activities and to provide appropriate responses once an event has occurred.

***Benchmark 10*: Human resources capabilities are updated and maintained continuously. Appropriate programs to educate and train people to cope with events and disasters have been implemented. Adequate numbers of people are being trained, and trained experts are on-call in case of a disaster.**

Safe Hospitals
Background
It has been noted that events like earthquakes, by themselves, do not lead to deaths. Deaths and injuries result as a consequence of buildings and structures that collapse because they could not withstand the forces exerted by the earthquake. In Aceh, the Earthquake and Tsunami destroyed a large number of health facilities, and even the main hospital in Banda Aceh was damaged and was unable to provide

care to the injured and ill victims. This worsened the impact of the event, as people needing medical attention had nowhere to be treated.

Issue
Many healthcare facilities are not structured so they can continue to operate during disasters.

Conclusion
It is essential that healthcare facilities are able to continue to function during disasters. This may require retrofitting current structures and strengthening of the building codes for the construction of new facilities. The structures of all essential healthcare facilities should be able to withstand the forces caused by natural events.

Recommendation
Health facilities should be built/modified to withstand the forces of expected events.

***Benchmark 11*: Health facilities are built/modified to withstand expected risks and to able to continue to provide the required medical care during events and disasters.**

Surveillance and Early Warning Systems

Background
Surveillance and early warning systems are necessary for identifying health concerns before they grow into major public health problems. In Thailand, for example, previous experiences with the severe acute respiratory syndrome (SARS) and avian influenza had help establish an effective mechanism for surveillance for an outbreak of communicable diseases. This mechanism and expertise was used successfully to monitor outbreaks in the affected communities following the Tsunami. In Thailand, members of the community are involved, and health workers are trained in surveillance and reporting.

Issue
Adequate public health surveillance and early warning systems are not in place in all countries.

Conclusion
All countries should have adequate surveillance capabilities and early warning alert systems.

Recommendation
Surveillance systems should be strengthened and be functional before a precipitating event strikes. An early warning system for hazards to which the population is at risk should be strengthened to provide the community with information prior to the event when possible.

***Benchmark 12*: Early warning and surveillance systems for identifying health concerns are established.**

Country Status

Participants from each country analyzed the status of their respective countries *vis-a-vis* the above benchmarks (Appendix IV). They also suggested mechanisms of action to reach those benchmarks. Their analyses are summarized below.

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

Disaster preparedness still is at the inception stage for 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 catastrophic event, there is a gap of time before external assistance arrives on the scene. Therefore, it is critical that the community impacted by such an event is self-reliant in such a situation. In all countries, community level preparedness must be strengthened. Bangladesh, India, and some provinces of Indonesia, have community plans, but all of the countries participating in this Conference agreed that community capacity and capability building require greater attention. In addition, the local capacity required to mobilize essential services during an emergency is an area that requires improvement.

Early warning and surveillance systems must be strengthened in most countries. Bangladesh and the Maldives reported a well-functioning surveillance system. In all of the participating countries, risk assessment tools must be updated, and greater capacity building in this area was emphasized.

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

Strategies and Mechanisms

In addition to suggesting benchmarks to strengthen the operational capacities and capabilities of the Region, each of the Working Groups identified strategies and mechanisms by which these benchmarks could be achieved. These mechanisms were targeted to the same three areas as used for the development of the benchmarks: (1) multi-sectoral coordination; (2) community-level preparedness; and (3) country capacity strengthening. As for the benchmarks, many of the strategies were suggested by many of the Groups and are combined in the discussion that follows. Achievement of any, any combination of, or all of these strategies should result in eventual achievement of the respective benchmarks. The strategies and mechanisms have been categorized into seven different themes: (1) monitoring, evaluation, surveillance and assessments; (2) education and training; (3) information and communication; (4) legislation, policies, and authority; (5) funding; (6) planning and preparedness; and (7) coordination and control.

Monitoring, Evaluation, Surveillance, and Assessments
There were several suggested mechanisms that fit into the category of monitoring, evaluation, surveillance, and assessments:

1. Classify the risks by countries and type of hazards—both natural and human made;
2. Enhance surveillance, collection, compilation, and interpretation of data and analysis of the resulting information at the central level;
3. Strengthen monitoring and evaluation methods and conduct an update using an annual analysis and review; and
4. Develop and test of standardized tools for use by all.

Education and Training

Education and training are required in order to build competencies, capacities, and capabilities. Strategies suggested include:

1. Identify the skills and competencies required. For the most part, these competencies are universal and should apply to all settings;
2. Develop and implement education and training programs that are based on these competencies;
3. Evaluate these competencies and the educational programs used to develop them in terms of efficacy, effectiveness, efficiency, benefits, and costs;
4. Strengthen in-country training programs at national and sub-national levels;
5. Encourage development of mechanisms to update and implement skill-specific and university-based sources of knowledge;
6. Performance of training drills and exercises will be result in gains in capacities and capabilities;
7. Convene a Regional forum to deal specifically with the development of educational standards that will include mechanisms for the development and implementation of the above strategies and multi-sectoral coordination;
8. Provide educational programs at the community and lower legislative levels; these programs should include the conduct of periodic, well-documented exercises, and the use of feedback to all of the stakeholders at the community and national levels; and
9. Implement programs to increase the sensitization and provide guidance for donors.

Information and Communication

Information and communications are essential during any responses. Such systems must be operational during normal times. Recommended strategies include:

1. Conduct analysis of strengths, weaknesses, opportunities, and threats (SWOT);
2. Obtain, catalogue, and regularly update minimum static information (e.g., health facilities, health human resources, contact information) from vulnerable and disaster-prone areas;
3. Strengthen the availability (accessibility) of hazard and disaster-related information;
4. Enhance surveillance, collection, compilation, and interpretation of data and analyses of information at central level using information and communication systems;
5. Compile a tested directory of emergency personnel and their areas of expertise;
6. Upgrade existing health information systems to be able to meet potential emergency needs;
7. Establish emergency information and operations units;
8. Design or improve warning signals;
9. Provide risk communication to vulnerable populations;
10. Obtain consensus for language and terminology. This would be accomplished best at the international level;
11. Analyze and publish a yearly review of preparedness in the region;
12. Develop media management strategies with a designated spokesperson;
13. Define strategy for media management including verification and transparency; and
14. Develop a simplified reporting mechanism for use the of financial resources.

Legislation, Policy, and Authority

The following strategies and recommendations were proposed that when implemented at the country and national levels, should result in the development of enabling legislation, policies, and rules for its implementation including the appropriate transfer of authority during times of crisis:

1. Determine if national enabling legislation, plans, and policies exist;
2. Perform legislation review pursuant to health during times of emergency. If an adequate legal framework for health during emergencies does not exist:
    a. Increase awareness among politicians and obtain political commitment to emergency preparedness and response (EPR);
    b. Obtain a legislative mandate and a constitutional/legal framework at the national and community levels that include delegation of the authority required during emergencies;
    c. Develop appropriate policies and guidelines for use and disseminate them to policy-makers and health facilities; and
    d. Build the required infrastructure;
3. Advise the national government on issues regarding the engagement of national and international actors in the provision of aid and relief;
4. Obtain local authority and delegation of the ability to utilize funds during emergencies; and
5. Develop and publish an organogram that establishes formal lines of command at the province, district, sub-districts, and community levels.

Funding

Adequate responses to disasters and emergencies require immediate access to the funding required to mount and continue responses. The following strategies must be implemented in order assure the necessary resources will be available during such emergencies:

1. Standardize funding mechanisms that include cash contributions, pooling, and disbursement mechanisms;
2. Assure the availability of earmarked funds at the central, peripheral, and grass-roots levels for pre-

event, during the disaster, and for recovery and rehabilitation; Develop an agreed plan for the allocation of the available financial resources;
3. Allocate appropriate budgets at all levels that includes resource mobilization of extra-budgetary funds; and
4. Develop and implement a simplified reporting mechanism for use of financial resources.

Planning and preparedness

Planning and preparedness for disasters are part of development and should be included as part of development activities. Consideration of these aspects of development often has not been included in strategies for national and local development projects. Planning and preparedness should include:

1. The Health Ministry of each country should set up a task force to deal with the health aspects of emergencies;
2. Perform needs assessments and identify gaps;
3. Assess national capacities;
4. Undertake a multi-hazard approach;
5. Develop the ability to define the scale of an emergency;
6. Define the nature and extent of vulnerability;
7. Design/improve early warning signals and assure that a warning system is in place;
8. Identify and make known safe places;
9. Develop and test a mechanism for the phasing of responses;
10. Develop and exercise drills and exercise SOPs;
11. Implement a supervision and monitoring system and incorporate it into the plans;
12. Formulate best-practice guidelines;
13. Define and assign roles and responsibilities:
    a. Designate focal person;
    b. Develop job descriptions;
14. Identify stakeholders and ensure engagement of these stakeholders in the development of the plan, policies, and SOPs in order to provide inter-sectoral, contingency plans.
15. Categorize stakeholders by expertise and competencies;
16. Develop mechanisms to obtain and cache supplies and equipments and for central stockpiling at the national and community levels;
17. Establish mechanisms for establishing priorities;
18. Adopt a common mechanism for the dynamic inventory of available, consumed, and incoming supplies;
19. Identify and plan use of available resources;
20. Develop long-term recovery plans and estimate and gain commitment for the provision of the resources required, including additional production capacity and replenishment of consumer goods; and
21. Implement mitigation engineering for health facilities (safe hospitals).

Coordination and Control

The inadequacies of coordination and control of the activities during and following a catastrophic event were a principal finding in the Phuket papers (*Prehospital and Disaster Medicine* Volume 20, Number 6). Overall, little attention has been provided to the further development of this important aspect of disaster preparedness and response. Important strategies for the enhancement of coordination and control were provided by the Working Groups. They include:

1. Develop the ability to define the scale of an emergency;
2. Develop inter-country linkage for information exchange, before, during, and after an event;
3. Develop a set of coordination rings that participate in regular meetings;
4. Involve other stakeholders; devolution from other sectors;
5. Recognizes that an emergency is not a situation for misuse of resources;
6. Perform regular audits;
7. Coordinate the supervision and monitoring systems that have been implemented;
8. Logistical coordination mechanisms to access all resources;
9. Regulation of all incoming supplies of goods and services;
10. Set-up a community-level working group that includes all of the basic societal functions (sectors): (1) medical care; (2) public health; (3) water and sanitation; (4) food and nutrition; (5) shelter and clothing; (6) energy supplies; (7) engineering and public health; (8) security; (9) economics; (10) education; (11) logistics and transportation; (12) communications; and (13) environmental services. Community-based organizations and non-governmental organizations also should be included.

Future Steps

With the country status identified in all of the critical areas of disaster management (including preparedness), the priorities for each country also were listed by the participants. Based on these outcomes, a framework of action will be taken by the countries in order to achieve these benchmarks. It was agreed that these will be followed-up by frequent meetings and by regular reporting of the progess acheived.

In order to share experiences and track progress among the countries of the Region, a password-controlled, on-line forum for emergency preparedness and response has been suggested. In addition, review of the progress achieved since the current meeting will be held in 2006. It will provide a forum for the discussion of further hurdles in the process of establishing emergency preparedness mechanisms of the highest standards.

Summary

The results of this meeting provided guidelines and benchmarks for development of preparedness and capacity building for the countries impacted directly by the earthquake and tsunami of 26 December 2004. There existed varied levels of development in the different countries involved. Strategies for attaining the defined benchmarks were suggested by each of the countries involved in the meeting. A follow-up meeting will define the progress made by each of the countries relative to the 12 benchmarks.

Appendix I—Benchmarks and mechanisms to achieve them as suggested by the Working Groups I and II regarding community preparedness (EPR = Emergency Preparedness and Response; HIS = Health Information System; SOP = standard operating procedures)

Suggested Benchmarks	Mechanisms
1. Legislation and authority for EPR at all levels with clear health components exist	Convene a Forum on Multisectoral Coordination and periodic, well-documented meetings including instruction to lower legislative levels
2. Plans, policies, and SOP outlining roles and responsibilities of all stakeholders are in place. They should include institutional and resource arrangements	Ensuring engagement of stakeholder in development of the plan, policies, and SOPs Document meetings including instruction to community levels Recognize that an emergency is not a situation for misuse of resources Audit regularly
3. Defined procedures for the delegation of authority in case of disaster that includes strong procedures for accountability are in place	
4. A code for engagement (regulation) of external humanitarian actors is in place. It should include or be based on recent needs assessments	Advise the national government on issues regarding the engagement of national and international actors in the provision of aid and relief
5. A functional HIS suitable for providing necessary information in case of emergencies exists and has been tested	Upgrade existing HIS to be able to meet potential emergency needs Use "feed-back" to strengthen EPR at community level
6. Periodic drills and exercises focusing on EPR have been conducted	
7. An established and tested directory of emergency personnel and their areas of expertise is completed	Identify stakeholders Categorize stakeholders by expertise/competence Compile stakeholders Analyze and publish yearly review and update
8. A national coordination focal point exists and is operational	Establish a line of command (organogram) at the province, district, sub-district, and community levels Begin planning processes Develop job description Obtain a legislative mandate Develop a set of coordination rings that participate in regular meeting Establish emergency information and operation units
9. Policies and guidelines are established for each of the stakeholders	Develop policy Perform legislation review Formulate guidelines Rehearse mechanism using exercises Develop SOPs
10. Emergency mechanisms to obtain required finances are established	Standardization of funding mechanisms that include cash contribution, pooling, and disbursement mechanisms Develop a simplified reporting mechanism for use of financial resources
11. A plan for phasing the emergency response has been developed and tested	Develop the ability to define the scale of an emergency Develop and test a mechanism for phasing of responses Develop long-term recovery plans and estimate and gain commitment for resources required
12. Technical capacity building processes are completed or underway	Perform needs assessments and identify gaps Establish training programs to enhance the capacity and capabilities of human resources Develop mechanisms to obtain and cache supplies and equipments (priority mechanism) Build the required infrastructure Assure the availability of financial resources and a plan for their allocation Monitoring and evaluation

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Appendix II—Benchmarks and mechanisms to achieve them as suggested by the Working Groups III and IV regarding community preparedness)

Suggested Benchmarks	Mechanisms
1. Vulnerability assessment mapping using Participatory Rapid Assessment methodologies have been completed	Set-up a community-level working group that includes: (1) Health / Public Health; (2) Water & Sanitation; (3) Community Based Organization (CBO); (4) Non-governmental Organization (NGOs); (5) Security Forces, etc., (6) Education
2. An agreed plan is developed and tested	Assign responsibilities Develop guidelines Identify and plan use of resources Build capacity through education and training Drill training e.g. evacuation drill Mitigation engineering Identify safe place Design/improve warning signals; and information and communication systems including a list of telephone contact numbers
3. Contingency plans for disaster preparedness and response are in place	As above
4. Community participation in health sector planning is ensured	As above
5. Mock drills for disaster response have been conducted	As above
6. The health sector is involved with other sectors/ stakeholders in related issues Community shelters (safely located and constructed) with latrines Safe water supplies	As part of the community working group, produce action plan to improve (safely located and constructed) community shelters and adequate access to safe water and sanitation
7. The number of community health centers, clinics, community centres for children <5 years of age and for women has increased	As part of the community working group, advocate for better access to health services in view of better preparedness
8. Appropriate disaster training programs for health center staff have been conducted	Identify training needs and action needed, stocking essential supplies as part of the community plan
9. Essential stocks of medicines, equipment, etc. required to respond to disasters are available	Include local system for warehousing and stocking essential supplies as part of the community plan
10. The number/quality of community service centres with Integrated disaster plans has been increased	
11. Information/training about disasters are in place	Give priority in the working group to information, awareness, and advocacy
12. Systems for the provision of training in first aid are in place	Through the Local Red Cross/Red Crescent Societies, community skills in first aid can be addressed; other local resourses can be identified as well
13. Local available resources are used effectively	Mapping of local resources should be done by the working group so that these are tapped
14. A budget for disaster preparedness and response is in place and has been augmented	Advocacy, as well as demonstration of benefits of previous preparedness and response efforts and investments
15. Human Resource Development personnel have been trained in disaster management	With a proper training needs assessment and plan, appropriate resource allocation and training can take place

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Appendix III—Benchmarks and mechanisms to achieve them as suggested by the Working Groups V and VI regarding strengthening country capacity (EPR = Emergency Preparedness and Response; SOP = standard operating procedures)

continued

Suggested Benchmark	Mechanisms
1. Risks and vulnerabilities have been identified	List risk by countries and type of hazards—both natural and human made Define the nature and extent of vulnerability Assess national capacities
2. National policy, contingency plan including simulation/drill, SOPs, and designation of Incident Command	Obtain political commitment to EPR Determine if national plan/policy exists Conduct analysis of strengths, weaknesses, opportunities, and threats Intersectoral country contingency plans Designate focal person and define roles and responsibilities Prepare drills and exercise SOPs Undertake a multi-hazard approach Obtain constitutional/legal framework
3. Human resource development is underway	Identify skills required Inventory numbers of trained persons available Inventory previous deployment deployment Gain authority required
4. Training programs are underway	Training and education programs should be: (1) Skill-specific; (2) University-based; and (3) Regular update of knowledge
5. Emergency funding is available with probable mechanisms for allocation according to needs	Make funds available at the central, peripheral, and grassroot levels Obtain local authority and delegation to utilize funds during emergencies Establish earmarked funds for pre- and post-event Devolve from other sectors
6. Disaster preparedness and response is institutionalized	
7. An information management system for emergencies is established and/or strengthened, including a media strategy	Strengthen available hazard and disaster-related information Provide risk communication to vulnerable population Develop media management strategies with designated spokespersons Define strategy defined for media management including verification and transparency Develop inter-country linkages for information exchange before, during, and after an event
8. Coordination with all stakeholders has been exercised, that ensures trust between sectors through political commitment	Increase awareness among politicians Involve other stakeholders Develop guidelines to involve stakeholders
9. A smooth logistics channel for obtaining required supplies and aid is established	Identify transportation, communication logistic requirements including: Warehousing; Replenishment of consumer goods; Logistic coordination mechanisms to access all resources; Additional production capacity; Central stockpiling; Common inventory of incoming supply; Regulation of incoming supplies
10. Effective, enhanced, and practical disease surveillance and early warning systems for detecting disease outbreaks are established	Enhance surveillance, collection, compilation, and analysis of data at central level Disseminate information to policy-makers and health facilities Enhance surveillance of diseases with epidemic potential and/or new diseases, and non-communicable diseases Operate early warning systems

Appendix III—Benchmarks and mechanisms to achieve them as suggested by the Working Groups V and VI regarding strengthening country capacity (EPR = Emergency Preparedness and Response; WHO = World Health Organization)

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Suggested Benchmarks	Mechanisms
11. Public health guidelines are in place	Easy access Language Sensitization of and guidance for donors
12. Supervision and monitoring systems have been implemented	Incorporate into the plan Continuously implemented by independent authority
13. Personnel have attended a regional training program for emergency management (e.g., public health in emergency management in Asia and the Pacific) 14. Line-items for EPR have been established in WHO country budgets as well as in the national budgets 15. There exists a focal point for disaster management as a defined cell or focal task force for health aspects of emergency preparedness 16. A supported structure for such a task force is in place	Allocate budget appropriately (plus resource mobilization for extra budgetary funds) The Health Ministry should set up a task force to deal with the health aspects of emergency preparedness Co-opt members of other sectors to deal with health aspects more effectively Utilize appropriate training opportunities in WHO SEAR for staff at national and sub-national levels Consider strengthening in-country training programmes at national and sub-national levels Develop human resources for health aspects of emergency preparedness Obtain prior minimum information (e.g., health facilities, health human resources, contact information) from vulnerable and disaster prone areas Regularly update the information Establish of operations center or cell at appropriate level
17. WHO provides technical support for emergency preparedness and response in countries 18. Risk assessments have been conducted 19. Human resources personnel have been trained for health planning for emergency preparedness and response	

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Appendix IV—Matrix of the status of the SEAR countries *vis-a-vis* the 12 identified benchmarks (Democratic People's Republic of Korea is not included because there was no official material on this issues from the country in this meeting (EPR = Emergency Preparedness and Response; NA = not available; SOP = standard operating procedure)

continued

Benchmarks	Bangladesh	Bhutan	India	Indonesia	Maldives	Myanmar	Nepal	Sri Lanka	Thailand	East Timor
Local capacity for emergency provision of essential services and supplies (shelters, safe drinking water, food, communication)	Not sufficient, more shelters and communication needed	Stocking system present	Present	Present for medical supplies, water, and sanitation	Capacity in place	Present but limited	Must be developed	*Currently ad hoc*, must be systematic	Sometimes inappropriate supplies are available	Minimal
Advocacy and awareness development 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	None	Needs strengthening at state/division/town levels in more disaster-prone areas	Needs strengthening	Needs strengthening, but more organized for North-East conflict	NA	Minimal
Capacity to identify risks and assess vulnerability at all times	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 refreshed and maintained	Needs strengthening	Done, but needs improvement	Must 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 begun recently	Only in Aceh has this been started, but training also has begun	No initiative as of yet	No initiative for assessments or mitigation yet	Needs-specific training and further support needed	Must incorporate plans	NA	NA
Early warning and surveillance systems for identifying health concerns	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 for infectious diseases

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Appendix IV—Matrix of the status of the SEAR countries *vis-a-vis* the 12 identified benchmarks (Democratic People's Republic of Korea is not included because there was no official material on this issues from the country in this meeting

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Benchmarks	Bangladesh	Bhutan	India	Indonesia	Maldives	Myanmar	Nepal	Sri Lanka	Thailand	East Timor
Legal framework and a functioning 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	Need strengthening for pre-disaster phase	Law is pending approval in parliament
Have and regularly update disaster preparedness and emergency management plan for health sector and SOPs (Emergency Directory, National coordination focal point)	Present	Currently need revision	Present	SOPs needed at national level	Draft plan ready	SOPs available for specific hazards	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	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 actors based on needs	Coordination office present	To be included in SOPs	System is present	Ministerial *decree* present but must be communicated	*Present only for* UN/Red Cross	None	Present	*Must develop* and address ethical issues	None	Well established
Community plan for mitigation, preparedness, and response, 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* ASHAs	Safe Communities Programme in *7 of* 33 provinces	None	Not documented	Need strengthening	Comprehensive plan must be *specified*	None	Early phase of development
Community-based response and preparedness and capacity 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 *provinces*	None	EPR included in upper-primary level school	Needs strengthening	Comprehensive plan must be developed	Not complete	Early phase of development

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