



Draft Report of
the Health Aspects of the Tsunami Disaster in Asia
WHO Conference
Phuket, Thailand, 4-6 May 2005

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1. Introduction

1. The World Health Organization (WHO) Conference on Health Aspects of the Tsunami Disaster in Asia took place in Phuket, Thailand from 4 to 6 May 2005. The event was organized in cooperation with the Royal Thai Government and with co-funding from the Government of Italy.

2. The conference brought together some 400 senior policy advisers and expert practitioners from Asia and elsewhere. They came from national governments, United Nations agencies, nongovernmental organizations, civil society groups, academic institutions and countries that provided relief assistance to the Tsunami-affected populations.

3. The conference focused on the lessons learnt during both the immediate health sector response to the Tsunami and the early phase of recovery, within the broader framework of the affected countries' own efforts, supported by international assistance. The specific objectives of the conference were to:

- Review health sector experience with response and early recovery so as to determine successes and limitations *i.e. what was done well, and what could have been done better?*
- Identify lessons learnt for improving future health sector crisis response and recovery systems and processes *i.e. in what way could future operations be better organized, and their technical components rendered more effective?*

4. The conference addressed these objectives from the perspective of (a) national response and recovery actions and (b) actions taken by the international assistance community - UN agencies, donors, nongovernmental organizations, with a particular focus on WHO. The conference was organized around three themes: health protection and disease prevention; health services delivery; and health policy and coordination. These were discussed in plenary sessions and eighteen technical panels. The panels addressed key issues relating to: needs assessment; coordination; filling gaps in essential services and capacity building at country level. Each issue was analysed using a common framework covering the appropriateness, adequacy, effectiveness, efficiency, and 'connectedness' of different national and international interventions viewed from both a technical and organizational perspective.

2. Proceedings

2.1 Developing national capacity for disaster preparedness, risk management and vulnerability reduction

5. The conference reiterated the centrality of disaster reduction to national strategies for achieving the Millennium Development Goals.
6. Participants endorsed the need for nations to be better prepared for major disasters: this would include stronger capacity to address health issues both in disaster risk management and in vulnerability reduction. It is anticipated that several governments will commit to such enhancements at the forthcoming World Health Assembly in May 2005, as a key part of their national development strategies. Levels of financial commitment to disaster response are increasing; however, such funding should also be available to support the building of national capacity for disaster preparedness and vulnerability reduction.
7. The findings from Tsunami relief experience at the local and national levels indicated that:
 - Communities that had faced past disasters and developed coping mechanisms were more resilient and responded better to the Tsunami than those which had not;
 - Community bodies and national agencies that had established emergency and disaster response plans and had undergone regular practice drills reacted to the Tsunami with greater promptness and worked in a better-coordinated manner;
 - National and international health agencies with previous experience in emergencies had pre-defined procedures and systems and had determined that they were more prepared to respond to the disaster;
 - Pre-existing governmental capacities were important in determining the intensity with which the health sector could respond and speeded up the restoration of service provision;
 - The profound emphasis on coordinated public health responses with effective early warning of disease outbreaks had a crucial impact on limiting disease outbreaks and preventing epidemics - despite significant displacement of populations;
 - The prompt deployment of military logistic capabilities hastened and facilitated assistance delivery, especially in hard-to-reach areas, thereby enhancing people's chances of survival.
8. Reviews also exposed limitations in the response and recovery phases:
 - Millions of people in South Asia still live in hazard-prone areas without adequate infrastructure to reduce vulnerability;
 - There were no pre-existing systems for *early warning, alert, response and evacuation* in the health sector (though disease surveillance, early warning alert and response was implemented after the Tsunami);
 - Mechanisms for managing the logistics aspect of the response, including customs, warehousing and contingency plans for distributing supplies and drugs, were largely absent, obsolete or under-resourced;
 - Key health facilities were destroyed - though damage was inevitable (given the overwhelming force of the Tsunami), some buildings could have withstood major damage if constructed to more robust standards drawn up based on local hazard analysis;
 - The speed of the health response was uneven and existing services were overburdened with a sudden influx of injured; and
 - Because of unnecessary anxiety about the possibility of disease spreading from dead bodies, many were quickly buried in mass graves with no opportunity for visual identification, photography or tagging.

9. The participants concluded that a prepared health sector and strong physical infrastructure had the potential to mitigate the impact of disasters and provide the platform for a rapid, effective response. *This emphasized the importance of preparedness and response capacity at community and local level.* The health sector is expected to educate the public on the means to assess health risks: how to prepare for and cope with disaster, and on the myths - and truths - about the health consequences of disasters. A prepared health sector can mitigate the impact of disasters by reducing avoidable deaths, injuries and illnesses; anticipating population displacements; establishing disease surveillance systems; managing and preventing psychological and psychosocial problems; planning for food shortages and nutritional deficiencies; monitoring for diseases due to environmental health hazards; preventing damage to health facilities and other infrastructure; and anticipating and minimizing disruption to routine health services.

10. The conference participants recalled that models for cost-effective disaster preparedness exist worldwide, ranging from the epidemiology field-training programme in Thailand to the regional and national preparedness programmes in the Americas supported by WHO/PAHO. They aim to reduce the risk of damage and assure resilience of health facilities to commonly prevailing hazards. Thus, the intention is to maintain priority hospital services, manage mass casualties, rapidly evacuate the injured and establish disease surveillance and control measures. These require competently-led health workers with skills that are kept up-to-date through training and practise. Partnership between different organizations providing specialized capacities can be useful.

11. Advance planning is vital to ensure that affected populations and individuals are prioritized to receive access to essential health care. This includes addressing specific needs of women and children, older people, those with psychological trauma, disability and chronic illnesses, as well as vulnerable displaced persons.

12. Governments adopted the Hyogo Framework for Action for Disaster Risk Reduction at the conference held in Kobe, Japan in January 2005. This includes strong expectations that governments and the United Nations will work in partnership with each other, and with NGOs and the private sector, to develop cross-sectoral disaster preparedness capacity through financial and technical backing.

2.2 Information for post-event disaster needs assessments: implementation of needs-based action

13. The Tsunami experience demonstrated that uncoordinated, incomplete, inaccurate, competing and overlapping assessments were undertaken by different agencies and organizations. These not only wasted time and resources but also raised ethical concerns in relation to traumatized populations being subjected to repeated questioning by different entities.

14. Accurate, reliable and appropriate information is fundamental to the planning, organization and management of effective crisis responses. As soon as is feasible, and definitely within two weeks of the disaster's onset, information on damage, needs and capacities is needed for decision-making and action. Further assessments are needed at various stages in the relief, recovery and reconstruction phases to monitor and evaluate ongoing interventions, identify evolving or unexpected needs and inform the planning of each phase. Data collected, collated, and analysed during a crisis is also valuable in planning future disaster risk reduction interventions.

15. Participants stressed the crucial role of baseline information in assessing the impact of humanitarian aid and identifying new needs as the situation evolves in Tsunami-affected communities. They noted that many assessments had been undertaken yet they were still not able to access all the baseline data they needed in the aftermath of the disaster. Good data were available from some communities in which public health surveillance systems had been well-developed before the disaster. Information from these data enabled a more rapid and effective response and shortened the relief phase.

16. However, if assessments are to be undertaken promptly, appropriate techniques should be defined and tested in advance. Pre-event data should be located and assessment designs should use universally-available Geographical Information System coordinates and standardized sampling and data collection modules. Assessments should yield population-based health information identifying groups of people with needs through disaggregation of results by age, sex and location. In addition, consideration should be given to combining food and livelihood security assessments with nutrition, morbidity and mortality surveys.

17. The meeting concluded that a single, consolidated post-disaster assessment mechanism should be applied to specific populations. This should include both the initial assessment and appropriate ongoing surveillance of health needs. It should be followed by coordinated provision of services - whose accessibility and quality must be regularly assessed. To establish this mechanism, international agencies must continue the vital work of agreeing how best to support local and national authorities to undertake post-event health needs assessments, disease surveillance and provision of both primary health care and referral services. They need to invest in developing the capacity of national groups to do this work. Preparedness includes assigning responsibilities for collecting, maintaining and disseminating the baseline data needed in emergencies, such as data on community level health needs and services and the social situation of populations. Donor funding policies should also encourage the conduct of timely and good quality needs assessments, and donor funding practices should be guided by the results. WHO is working with NGOs, the Red Cross and Red Crescent Movement, UN agencies and the IOM to develop standard health assessment tools.

2.3 Neglected issues in the public health management of disasters

18. The initial health response to the Tsunami focused on the rescue of the living, treatment of casualties and recovery of essential services. These critical tasks were undertaken by many partners with varying degrees of success that depended on the extent of the devastation and the practical difficulties of access and assistance delivery, availability of resources, competence of service providers, and cooperation between them and local and national counterparts.

19. Emergency rapid needs assessments should focus on basic health needs, as well as on health determinants such as access to food, water, sanitation and shelter. The uneven availability and distribution of food was exacerbated by the wide dispersion of displaced people in often remote locations. The risk of malnutrition, morbidity and mortality increases among vulnerable populations such as infants, under-fives, pregnant and lactating mothers and the elderly.

2.3.1 Mental health

20. Assistance efforts had to be sensitive to the psychological trauma of survivors, many of whom were also troubled by the uncertainty of not knowing the fate of their loved ones. The Tsunami experience suggests that unregulated counselling and other psychosocial interventions were problematic in several locations. Mental health is often given inadequate recognition as an integral part of the health and wellbeing of individuals. However, the only interventions that should be provided are those that have been shown to be efficacious.

21. The most effective rescue and relief teams include community health workers who are able to provide social support and psychological first aid, and who do this in ways that reinforce innate strengths and coping mechanisms within communities. Every effort should be made to normalize the life of individuals, families and communities, as soon as possible, through strenuous efforts to ensure prompt access to livelihoods, schooling and housing. Responsibility for psychological support to those who are distressed should not be restricted to medical practitioners, as only a minority is likely to need clinical mental health services. The conference concluded that clear guidelines for the use of psychotropic medication for disaster-affected populations should be developed by WHO.

2.3.2 Management of mass casualties

22. Reviews of the Tsunami experience revealed that most countries were ill-prepared to handle large numbers of casualties. They lacked standardized triage systems and pre-established networks of hospitals for referrals and burden-sharing. Most of the immediate assistance given to the injured was provided by other, less-injured, survivors. This suggests that training of members of the public in first aid techniques could have a large-scale life-preserving benefit.

23. The conference concluded that the management of casualties in future disasters could be strengthened through: keeping contingency plans up-to-date, testing and rehearsing them, establishing networks of critical health institutions, and training - at both professional and community levels. The special role of National Red Cross and Red Crescent Societies, supported by the International Red Cross and Red Crescent Movement, was commended during the conference. Reference was made to cooperative arrangements between the Societies, national and local health authorities and WHO.

2.3.3 Forensic aspects of disaster fatalities management

24. Participants questioned whether excessive human resources were devoted to the handling of the dead while the survival and welfare needs of the living were not being met. They recognized that political and cultural factors were often key determinants of practices used to dispose of human remains, with decision makers often influenced by the myth that dead bodies generate disease. There are other reasons for not rushing to cremate or bury victims. The lack of an identified body impedes attempts by survivors to establish their rights over assets and property, to grieve over the loss of a loved one and to perform the rituals required at the time of death.

25. Participants heard of the many gaps in systems for managing mass fatalities in the Tsunami-affected countries. The selection of methods for dead victim identification is guided by four factors: the number of victims, the rate at which remains are being recovered, disposal practices and the existence of a list of persons who are thought to be missing (a manifest). Participants concluded that for more effective action in future disasters more appropriate and affordable methodologies are needed. Arrangements for the rapid procurement of body storage facilities at a time of need should be planned in advance. Participants asked WHO to convene a task force of forensic experts to promote the sharing of expertise, development of standards, and building of national capacity. This should include a review of existing guidelines in the management of dead bodies, which is important in order to incorporate cultural and social factors observed during the Tsunami experience.

2.4 Gender dimensions

26. Participants heard about the significant impact of gender on the survival and welfare of populations affected by the Tsunami. In most locations, more women died than men; multiple factors: biological, physical, social and cultural, put them at a disadvantage. It was also reported that subsequent service delivery was insufficiently sensitive to the needs of women. Demographic imbalance will increase the pressure on young females to marry or to remarry (with risks to their reproductive and psychological health); this may have longer-term implications for the differential gender impact of the Tsunami. Households headed by female survivors will face particular economic burdens and pressures. Women need to be in a position to realize their rights and contribute to processes of planning and decision-making for community recovery; they should be seen as valuable partners and not as "vulnerable victims".

27. Experience in Tsunami-affected communities, and in other disaster situations, suggests that the integration of gender concerns into disaster management may call for a shift in the attitudes and approaches of all involved in disaster response and recovery. Participants agreed that the minimum requirements are: (a) the collection of gender (and age) disaggregated data, and (b)

gendered analysis of population needs, so that (c) health assistance strategies must explicitly address gender-based disadvantages. They should include, but not be limited to, minimum service packages for reproductive health, maternal and child health services, and actions to prevent transmission of sexually transmitted diseases and HIV.

2.5 Benchmarks, standards and codes of ethical practice

28. Over the last few years, a considerable effort has been made to develop standards, norms, tools, techniques and health kits for use in disaster situations. The “Sphere Project”, a multi-agency initiative, sets minimum standards to be used in disaster situations. WHO has developed standardized health kits. A Standardized Monitoring and Assessment of Relief and Transitions Initiative has also been developed. Gaps include indicators for assistance to vulnerable subgroups and aspects of analysis methodology.

29. While progress on standard setting has been made at the global level, and while there has been a general professionalization of humanitarian assistance, the Tsunami experience highlighted the gap between what is desirable and what happens in actual practice. Different organizations used different measurements, methodologies and interpretations in their own assessments, making it difficult to compare results, identify the populations of greatest need and achieve consensus on priorities. This lack of coordination resulted in wasted resources and was partly explained by inconsistencies in leadership, undue pressure to generate information rapidly and lack of expertise in the application of available standards. Inadequate assessments result in inappropriate strategies that neither make the best use of resources nor result in optimal reductions in avoidable morbidity and mortality.

30. To avoid this state of affairs, disaster preparedness plans should include standardized assessment and reporting formats, with an appropriate set of indicators, to ensure that key data are collected in a comparable manner and yield reliable information on gaps that need to be filled. An essential requirement is widespread international acceptance of standards and indicators, together with the means to enforce them. Participants proposed the establishment of a peer group to serve as a means through which health organizations working in disasters could regulate themselves and assess (and accredit) the competencies of response personnel. They asked that WHO consider options for such an initiative. They also proposed that the curricula of health training institutions incorporate standards and basic best practice for humanitarian health work.

31. When humanitarian agencies respond to a crisis and define a set of goals and objectives for their operation, they enter into a professional contract with their partners and donors. However, it is often forgotten that they are also entering into a moral contract with their beneficiaries. There is an obligation for humanitarian actors who accept donated funds or commit to assisting a community or institution to behave ethically, to function transparently and to be accountable for the impact and outcomes of their actions and not just for their use of donated resources. Complementary ethical codes of practice are expected from donors to ensure common consistency.

2.6 Management and coordination of disaster responses

32. In-country health sector management capacities were overwhelmed by the scope and suddenness of the Tsunami. The subsequent global response resulted in confusion, congestion and competition for scarce logistic and transport resources. Within the health sector, some of these operational difficulties could have been prevented.

33. The responsibility for preparing for disasters, managing the response, undertaking assessments and monitoring progress, coordinating and filling gaps in the response rests with local and national authorities. However, successful management and coordination requires the consent and cooperation of all stakeholders, which is often not forthcoming in the early stage of disaster response. Governments of disaster-prone countries have indicated that they seek the United

Nations (UN) system's authoritative support in responding to (and, at times, directing and controlling) offers of people, equipment and materials that are made available through external assistance - with WHO serving as the health arm of the UN system. This is vital in situations where the sheer number of external groups offering assistance poses major challenges for national authorities when planning and phasing relief efforts.

34. External assistance to a major disaster country should be managed by governments through a participatory structure involving representatives from both recipients and donors. This is particularly relevant for actions in the health sector where needs can change quickly over time, and the cost of handling inappropriate assistance (people, equipment and materials) is very great indeed. Several countries are reviewing or revamping their national and local coordination structures, to reflect the Tsunami experience, and considering the establishment of 'disaster management authorities or centres'. WHO can advise on how these overall coordination structures could adequately and specifically reflect health sector concerns.

35. Participants heard that during the Tsunami response, effective supply systems and logistics were often the key to efficient action. It is unacceptable for relief - at a time of acute disaster - to be impeded by administrative burdens imposed on affected communities (or on personnel in the front line who are trying to provide assistance) by relief workers. Excessive supervisory visits should also be discouraged.

2.7 The key role of voluntary bodies in preparedness and response

36. Voluntary bodies - including civil society organizations, the Red Cross and Red Crescent Movement, and nongovernmental organizations - make a major contribution to international and local humanitarian responses. They have been a driving force in defining both humanitarianism and the standards that govern its application. The major international and national voluntary agencies are professional, committed and well-resourced, have extensive networks of partnerships and collaborations with civil society, and operate at the local level, often in remote areas and frequently working with groups that tend to be marginalized. Indigenous voluntary bodies also have cultural and social knowledge that is crucial in the planning and implementation of ethically sound humanitarian operations. Professionals from the Red Cross and Red Crescent Movement, as well as well-functioning non-governmental organizations (NGOs), can make crucial contributions to preparedness and response efforts. Coordination among NGOs and other groups should be time-efficient and result in the needs-based deployment of available resources. It was concluded that WHO should work with NGOs to agree on more efficient and effective means for health coordination.

37. However, voluntary bodies are also relatively lightly regulated and many lack the essential expertise, and professional codes of conduct, that are essential to minimize the likelihood that their actions will be counterproductive. This lack of codes may be compounded by high staff turnover; in such circumstances, lessons may not be institutionalized.

38. The interface between the voluntary and government sectors is sometimes tense, with lack of clarity on mutual roles, obligations, and accountabilities. While much more can be done to strengthen the capacity of voluntary agencies and the standards to which they adhere, their autonomy also needs to be respected. At the same time, government capacity to monitor performance standards of NGO partners needs to be enhanced.

2.8 Private sector partnership for health action in crisis

39. There was an unusually high level of both national and international private sector involvement in the response to the Tsunami, with contributions of professional skills, in-kind relief supplies and funding. This included both private companies in the region and global corporations. Participants heard of local-level experiences that illustrated the potential benefit of combining

private sector provision of resources and expertise with the contributions of both government and voluntary sectors.

40. Reviews showed that successful partnerships between the private and public sectors reflected the preparations made by the partners before people or materials were deployed. Success is most likely if there are pre-existing personal relations, memoranda of understanding or ongoing programmes of work between private entities and either UN agencies, the Red Cross and Red Crescent Movement, NGOs or governments. If experienced professional and technical experts are to be provided by private entities to work under public sector direction, arrangements for direction and reporting have to be clearly agreed in advance. This reflects the absolute importance of mutual investment - by both groups of partners - in the building of trust and credibility. There is then scope for rapid agreement on whom or what is needed, where and when, and under what management arrangements.

41. In the Tsunami response, private sector experts were successfully deployed to work with international agencies. Their roles were carefully defined, enabling skilled personnel to be rapidly identified and deployed. The deployments were facilitated through support provided by key UN and government officials (including bespoke briefing and debriefing arrangements). Participants heard how private entities were able to work with government and other stakeholders to map and estimate generic needs in crisis.

42. Despite this positive experience, concerns continue to be expressed over the motives of private entities involved in disaster response and the need to ensure the neutrality and the integrity of the public sector. As the ways in which public-private partnerships develop can have significant policy consequences in relief and recovery settings, there is a need for clear principles of engagement between private and public sectors.

43. Private sector groups gain trust and credibility if they identify core competencies and resources, develop databases of what is available and establish procedures to match available resources with needs. They are then in a position to mount speedy and supportive responses.

2.9 Government donor funding policies and practices

44. The generous response of government donors from around the world was a characteristic feature of the Tsunami experience. But participants debated the extent to which the agreed principles of "Good Humanitarian Donorship" were put into practice. The earmarking attached to individual donor contributions did not always reflect community-level needs. Consistent tracking of resource flows and reliable data on aid pledges, commitments and disbursements, are essential for planning and accountability. Funding methods - ranging from the establishment of funding pools to tight earmarking - influence both the ways in which agencies behave and the efficiency and effectiveness of their programmes. Several reviews are now being undertaken with a view to reforming the financing and management of humanitarian responses to crises and disasters. The goal is to devise a more rational system that matches available resources to needs, thus reducing inter-agency competition for funds, disputes over "who does what" and the occasional tendency of donors to select the most visible projects.

45. Some of the frustrations expressed by donors centred on information provided by agencies and their accountability for resources used. Donors reported receiving inconsistent messages from agency field offices and from their headquarters, particularly in respect of what was most urgently needed. They called for more consistency and predictability at different levels within individual agencies, better tracking of project implementation and more rigorous reporting systems that indicate how funds are being used. Within the Tsunami response, some donor agencies felt that there was an excessive focus on curative health care and not enough on the delivery of public health interventions in peripheral areas.

46. Participants heard that funding needs to be available rapidly and capable of being directed to priorities. Those who receive funds need sufficient flexibility to be able to respond to changing needs. Funding decisions should be made with minimal transaction costs. The burdens of proposal writing, reporting and accounting can be considerably reduced with more harmonization of requirements among donors. A coordinated assessment of needs can reduce transaction costs and increase value for money. Funding for new disasters and crises should not adversely affect the provision of resources for meeting needs from ongoing crises (especially those out of the gaze of the media) or divert resources from other health sector needs. Funding decisions should not exacerbate existing inequities between population groups or nations.

2.10 Civil-military cooperation

47. The Tsunami disaster was characterized by unusually close civil-military cooperation. Soon after the disaster, the military response was coordinated by a combined Support Force based in Utapao, Thailand. It brought together the military capabilities of 30 nations alongside a United Nations civil-military liaison cell. The arrangement enabled the early dispatch of several assessment and response missions. One - the multi-agency health assessment mission in early January - systematically assessed needs in several hard to reach locations in Aceh. It resulted in the first comprehensive assessments of need covering 500,000 vulnerable people.

48. Participants heard that the civil-military interface worked best if civilian authorities took responsibility for specifying what was required from the military in the way of logistical, transport and other practical assistance. Civilian planners should be involved alongside their military counterparts from the beginning and deployed in the field at the same time, with clear agreements made beforehand on command and control, and tasking. The use of national military assets in disaster relief is not unusual but international cooperation among militaries on humanitarian assistance is still *ad hoc*. This international cooperation remains beset with concerns. These need to be addressed through focused dialogue specifically designed to further develop standards for civil-military cooperation. The standards can then be incorporated into future training.

49. The scale, and overall success, of civil-military cooperation in the Tsunami response has triggered a serious debate. Concerns over the military's ability to operate within accepted humanitarian principles and to ensure the integrity of humanitarian space preoccupy staff of many humanitarian agencies.

50. Participants considered that these concerns were valid: hence the need for careful work to enable persons working at different levels - within civilian bodies and within military organizations - to understand each others' motives (and fears) and to agree the procedures through which they can work together. These include joint efforts under agreed memoranda of understanding. However, great care needs to be taken when civilian humanitarian agencies and militaries work together in a conflict area. Proper information must be provided to the population beforehand. Such joint work is best undertaken within the context of the already existing civil-military and public-private liaison mechanisms led by the United Nations, as well as innovative means at national - and community - levels.

2.11 Working within local, national and international media

51. Media and communication professionals play a critical role in providing information about affected populations whose survival is at stake, not only to members of the public but to those governments and donor organizations who make funding decisions. Journalists are often the only source of information and analysis at the initial, and critical, stages of the crisis. Local and community media, particularly those who broadcast via the radio, also provide essential public health information to communities about what they can do to improve their chance of survival.

52. To broadcast or write a story, journalists need facts and figures, reliable analysis, human interest stories, good pictures and interviews with technical experts. To get vital information

broadcast, humanitarian organizations need to ensure that journalists have the information they need - this means that technical staff in humanitarian organizations need to be media-friendly and trained in communication skills.

53. Immediately after the Tsunami, many journalists observed that population-based information about health risks was in short supply. As a result, critical issues such as psychosocial trauma and mental illness, diarrhoea and malaria risks and women's ill health, received media coverage that was out of proportion to their public health importance. On some of these issues, decision-makers - who tend to rely on the international media for up-to-date information - were relatively uninformed. There is a clear need, in disaster response, for increased investment in building effective relations between humanitarian agencies and the media - including analyses of what did or did not work in the way of health interventions.

54. Effective relations with the media take time to establish. They can be built up during "down time" when humanitarian personnel are not preoccupied with responding to a major crisis. Journalists want to receive informed briefings and analyses of what did or did not work from a technical perspective. These do not always need to be "on the record".

55. Participants heard that media and communications work should be prioritized as part of all humanitarian operational plans - both for the relief and recovery phases. Journalists and broadcasters should be treated as part of the response team: they are key partners in helping to shape and frame the policy agenda for disaster preparedness and response. They can play a major role in disseminating key public health messages. WHO was encouraged to establish more effective relations with key media groups to enable them to appreciate health issues during disasters and to help demystify myths that hinder national and international response efforts. WHO was also encouraged to hire local journalists, who are usually better at collecting and organizing information than health and humanitarian professionals.

2.12 A commitment to act

56. Participants agreed on the need not just to observe and analyse past events but also to learn and apply results as quickly as possible. The WHO secretariat is committed to take account of the results of this conference as it continues to support Member States and health programmes to work more effectively for vulnerability reduction and disaster preparedness, relief, and recovery in both Asian Tsunami-affected communities and wherever they are at risk of disasters and crises. WHO's support will be provided through its country and regional offices, collaborating centres and headquarters departments. WHO proposes to report to conference participants – within six months – on ways in which the outcomes of this conference are being taken into account at both national and international levels, particularly in the areas where specific action has been urgently requested.

3. Session and panel reports

3.1 National health perspectives on the Tsunami crisis Session 1.2

The Tsunami crisis was a large scale emergency that challenged existing mechanisms for response in national and local authorities. Although there are differences in the magnitude and scale of the impact of the event in each country, the challenge to and burden placed upon health systems were nevertheless tremendous. This is demonstrated by the following data:

| | |
|-----------|---|
| India | In the affected areas of Tamil Nadu, Andaman and Nicobar, and Kerala a total 80 sub-health centers and 13 Primary Health Care (PHC) centers were damaged. Seven district hospitals were also partially damaged. |
| Indonesia | A total of 691 health personnel died in the Tsunami with 53 of 244 health facilities rendered non-functional. Most provincial and district health facilities, including laboratories, were severely damaged. |
| Maldives | One regional hospital, two atoll hospitals, 14 health centers, 20 health posts and ten family health sections were severely damaged. |
| Sri Lanka | 82 health facilities were damaged with an estimated loss of US\$68 million. |
| Thailand | A total of 9,798 out-patient and 2,223 in-patient consultations were recorded. Medical evacuation of a thousand injured people, the majority of whom were foreigners, comprised a major part of the operations. |

Indeed, the work of national health authorities in Thailand is highly commendable considering the urgent health services required to respond despite the damage incurred. The premise that a resilient and prepared health system can respond better to an emergency was demonstrated in this event.

All speakers during the session noted that the extent of damage of this disaster further emphasized the various risks and hazards communities live with; these risks can be reduced with programmes on preparedness, mitigation and prevention, based on risk assessments and proper and appropriate methodologies.

3.1.1 What was done well from national perspectives

Setting up of surveillance systems was an action in which health authorities in cooperation with health actors took the lead and delivered promptly and, as such, provided early detection of diseases of epidemic potential and prevention of outbreaks.

The international community responded relatively rapidly to address gaps in national response.

Different branches of governments worked together and there was good inter-country cooperation.

3.1.2 What could have been done better?

Coordination of action of various health actors, particularly international organizations, was highlighted as an area needing improvement. In this overwhelming disaster with an equally overwhelming response, management of the humanitarian response, synergy of goals and maximizing resources to achieve a common end for the health of disaster survivors proved to be a greater challenge than in previous emergencies.

The technical areas needing improvement, although addressed, were:

- water and sanitation,
- mental health and psychosocial care,
- surveillance systems,
- management of dead bodies, and
- health information systems.

These various aspects of public health have equal importance and are critical components of the approach needed in emergencies.

Assessment methods as the emergency progressed were not available to some countries. Corollary to this, monitoring and information systems to follow up on what was done well in the Tsunami response and recovery in all countries were lacking.

National representatives also mentioned that communication and logistics are areas that need strengthening in preparedness and response.

In summary, with the exception of a few country experiences, basic and fundamental structures as well as expertise need to be put in place for preparedness and response.

3.1.3 The way forward

The Tsunami made national authorities re-think their focus and approach on disaster management. At the same time, the Tsunami experience served to demonstrate that preparedness of health systems can alter the quality and speed of response to a disaster. Integrating disaster preparedness and making this a priority in health agendas, policies and programmes of ministries as a cross-cutting goal is key to reducing vulnerabilities of communities and nations.

Institutionalization in national and local health authorities is a key initial step to preparedness. Efforts of national and local authorities focused on health systems to support preparedness and response are fundamental. Supporting legislation and policies are important to give these authorities the mandate to respond and act accordingly. For countries with disaster management arrangements in place, the Tsunami has provided the impetus for current initiatives on review of policies, legislation, structures and administrative procedures.

National mechanisms should frame the collaboration for all stakeholders to support preparedness and response in the health sector. Clearly, addressing gaps of ministries and finding synergies among donors, national and international organizations, multilateral and bilateral organizations will take further the capacities of countries in this area.

A community-based approach adopted would be a sustainable strategy for preparedness and response. Several initiatives are under way and include the Rural Health Mission in India and the Safe Communities Initiative in Indonesia. Community approaches and structures to support existing disaster management action are equally a key priority in the six months of recovery and long term preparedness following the Tsunami disaster.

The importance of preparedness cannot be overemphasized; there are various systems in countries and prioritizing next steps in preparedness is important so that capacities are built in systematically with the most efficiency and efficacy. Inter-country and inter-regional cooperation through a network in the region should be developed to allow exchange in the support for response and recovery needs and gaps. More consistent capacity building of emergency health practitioners may also be better achieved through this network of exchange.

3.2 Health protection and disease prevention: a critical review of experience Session 1.3

3.2.1 National perspective

The experience of health protection and disease prevention activities in Thailand was provided. On 27th December, one day after the Tsunami had hit six provinces of Thailand, an operation centre for disease control was established by the Ministry of Public Health (MOPH) based on the existing SARS and avian influenza operation centre. This served as the nerve centre for all the planning and coordination of activities relating to communicable disease surveillance, outbreak investigation and public information. Following the Tsunami, an initial assessment of the critical needs was carried out which is presently ongoing and possible occurrences of various communicable diseases was anticipated over time. This helped in the planning of disease prevention support from the Ministry to the affected provinces.

Various teams were established and were assigned responsibilities for surveillance and response, for vector control and for sanitation support-- each with specific roles. Surveillance data was collected from local hospitals, health centres and other facilities. This was analysed and summary reports were sent to the provincial health centres on a daily basis. To ensure food and water safety, samples were collected and tested for bacterial contamination. As a result of the surveillance and response efforts, apart from a few sporadic cases, no major outbreaks of communicable diseases were reported even during the four months following the Tsunami.

In the process, many lessons in Thailand were learnt. These included leadership of the Government and the MOPH as key and this played an important role in mobilizing multisectoral coordination and resources. Field coordination and command system functioned well and contributed to disease control and fast recovery - WHO guidelines were very helpful for this. However, experience also clearly showed that Thailand was not prepared enough for such a major disaster as it lacked a preparedness plan, stockpiles of essential items and there was limited capacity for international coordination and communication. As a result of these experiences, there is an identified need in Thailand to further:

- improve organizational aspects of the disaster health management by re-establishing a MOPH standing office (for coordination of preparedness and response),
- enhance preparedness planning,
- carry out capacity building including training,
- undergo stockpiling of essential items, and
- improve on risk communication using public education and communication channels. At international level, the MOPH could benefit in the future by enhancing its collaboration in early warning system, in building international stockpiles of essential items and by improving its communication with the international community.

3.2.2 An international perspective on the health protection and disease prevention

An international perspective was presented on behalf of the Health Protection Agency (HPA) and was based on a critical review of experiences. The HPA is a specialized independent public organization established by the UK Government in 2003 that coordinates and provides health protection services across the UK and deals with all health protection threats. Health protection initiatives focus on disease prevention and reducing the adverse effects of chemical and biological hazards. There are eight themes that are essential to health protection.

- Firstly, good objective intelligence and needs assessment are key to get a clear picture of the needs, which were quite overwhelming in the context of the Tsunami. Based on WHO's needs assessment, HPA placed its staff to assist in health promotion and disease prevention efforts, including those in Banda Aceh, and provided advice on management of dead bodies.

- Secondly, infectious diseases pose a major threat. There was some debate as to whether outbreaks occur after disasters since there were no major disease outbreaks reported from any of the Tsunami-affected countries in Asia following the Tsunami, although these had been expected given the conditions in which the affected people had to live. There was query whether public health professional exaggerated the potential risk of outbreaks in the beginning of the response. The plenary session presenters argued that in the past many disasters, such as floods and drought, have witnessed outbreaks of infectious diseases including diarrhoea, malaria and measles; it was therefore reasonable to expect that communicable disease outbreaks would also occur post-Tsunami. Moreover, people are displaced, living in over-crowded conditions with poor sanitation and water --- thereby creating an environment conducive for easy and rapid spread of communicable diseases. Many health events such as cases of measles, dengue etc have been investigated as a part of early warning system in Tsunami affected areas, verified and preventive measures taken thus contributing to preventing or limiting further transmission of infectious diseases.
- It is clear that dead bodies do not lead to any infectious disease outbreaks and efforts to dispel this myth during the response were made.
- Thirdly, good surveillance and early response saves lives. Surveillance and response in disease control requires a multisectoral response and high level political commitment. Clearly, health is not the responsibility of the health ministry alone, or health cannot be left only to the health ministry.
- Fourthly, evidence-based interventions and use of previous experiences are vital. Experience shows that epidemics do not spontaneously occur after a disaster and dead bodies do not lead to catastrophic outbreaks of diseases. The key to preventing diseases is to improve sanitary conditions and education of the public.
- Fifthly, psychological sequelae are inevitable, also among the responders, but can be reduced.
- Sixthly, build on what already exists, rather than creating new structures in order to ensure sustainability of the response.
- Seventhly, learn from experience and practice beforehand, if possible. This can help a great deal when disasters are frequent such as hurricanes in the West Indies.
- Finally, anticipate the expected but be prepared to be surprised. For example, many organizations responding to the Tsunami disaster did not anticipate and prepare for responding to this health situation and had no stockpiles of tetanus anti-toxin in their supplies.

These eight themes could form some of the guiding principles in planning and responding to disasters and could help in protecting the health of the affected populations and in protecting them from health conditions.

3.2.3 Laboratory aspects in communicable disease surveillance during disasters

It was emphasized that laboratory support is not often given necessary due importance while planning for surveillance and response. Laboratories can assist in diagnosis of health conditions and for guiding treatment options through monitoring of resistance patterns. In many countries, laboratories are, however, not well developed and there is a need for a systematic strengthening of laboratory infrastructure that can help in diseases surveillance and control and also in appropriately responding to the disaster situation when people often suffer from communicable diseases.

The quality of laboratory services is important in disaster work. Capacity building of health care workers both in the public and private sector is critical in addition to their participation in the proficiency testing systems. Strengthening of health infrastructure and monitoring and supervision are critical aspects to be considered by all countries. One practical problem faced in the field is how to store laboratory specimens and transport them properly to laboratories. Simple field manuals are available which can be disseminated to personnel in the field to assist in this area. Ultimately, greater recognition of the importance of the role of laboratory services in communicable

disease surveillance and response, and building infrastructure and capacity building, would contribute to improved communicable disease control during disasters.

Partnership

A further issue raised related to the role of partnerships during the disaster including involvement of Global Outbreak Alert and Response Network (GOARN) coordinated by WHO. A major positive outcome of the Tsunami disaster was the outpouring of support from not only local, national but from the international community. GOARN partners, WHO staff and consultants, Centre for Disease Control (CDC) and experts from many countries working hand in hand with national health personnel all contributed greatly in establishing the emergency surveillance, early warning system, and outbreak alert system and in rapidly responding to any communicable disease events. The role played by the public health professionals from local level to the international level was ultimately responsible in ensuring that no outbreaks of communicable diseases occurred or no deaths occurred post-Tsunami due to communicable diseases.

As well, the role of media in highlighting the disaster, its magnitude, the intensity and visual images of the disaster on electronic media and its impact was singularly instrumental in mobilizing the enormous international response to this enormous disaster.

Conclusion

It is important to learn the lessons from the Tsunami disaster; No lesson is learnt unless it is applied. The lessons learnt from the Tsunami disaster are necessary for strengthening preparedness and response capacity for the future.

3.3 Health services delivery: a critical review of experience Session 1.4

Speakers on this panel examined health service delivery in the Tsunami aftermath from three perspectives: affected country (Maldives), rapid international responder (Singapore) and the United Nations. The discussant, rapporteur and chair further informed the panel's conclusions based on experiences in Aceh, Indonesia, Thailand, and by serving with a foreign military (U.S.).

3.3.1 Needs assessments

Panellists agreed that in the immediate post-Tsunami period, conducting rapid, lifesaving interventions should take precedence over conducting needs assessments, even at the risk of delivering unnecessary supplies and services. The Army of Singapore, for example, activated its Operation Flying Eagle for medical relief on the 27th of December. A self-sufficient landing ship tank with sea, air and land transport capability set sail with a mere anticipation that the west coast of Aceh, Indonesia would be devastated and its population in need of assistance. The composition of the ship's task force--a primary health team, field surgical team and public health component--as well as the supplies and equipment carried by the ship were decided in advance of on-the-ground assessments.

Detailed needs assessments were only carried out once the task force reached the area of Meulaboh, where its efforts came to be focused. Up to a quarter of the population there had perished, including many health care workers. The Singaporean team was among the first to arrive and initiate operations, thanks in large part to possessing logistical capabilities such as a mobile air traffic control tower. Needs assessments were performed by Singapore's United Nations Disaster Assessment and Coordination (UNDAC) public health-trained physicians and medical officers, and additional resources and supplies were then brought in during re-supply runs.

This approach worked well in Meulaboh. In contrast in the Maldives, pre-packaged supplies delivered prior to conducting needs assessments at times posed problems. Because the country's population is spread over roughly 200 islands, some quite small and separated by shallow water

that large ships cannot navigate, the large size of standard medical, surgical and reproductive health aid packages offered by agencies such as the WHO, UNFPA and the Red Cross required trained personnel to disassemble and repack them at the airport.

As time passed, many more international agencies began to conduct individual needs assessments throughout the various Tsunami-affected nations. In the Maldives, this fragmented approach to assessment strained national resources which were greatly needed to respond to the Tsunami itself. One of the session presenters, who had worked with these visitors morning to night, noted that “too many external people wanted to visit the country...The costs are high. They have to charter planes and sea boats. When too many of them come, it sometimes becomes a burden....Sometimes an international agency would come to us and say, can you give me such and such by tomorrow?”. Volunteers sometimes arrived unprepared to meet their own food and shelter requirements, putting additional strains on the communities where they worked. Authorities were also asked to supply information needs and perform additional information analysis.

Assessments performed by local actors were also subject to difficulties; the incentive to exaggerate needs existed and multiple demands on health providers sometimes kept them from promptly reporting the assessment and surveillance data they collected.

3.3.2 Coordination

Coordination of service delivery was attempted in different ways in different countries. In the Maldives, the National Disaster Management Centre took the lead role. Even so, once approval to work in the Tsunami affected areas was given, certain national groups and external agencies began operating on their own. National efforts to coordinate relief were also complicated by the receipt of vast quantities of un-inventoried supplies, ranging from high to very low priority items, which created bottlenecks at the airport, tied up national relief workers and filled up storage capacity. Drugs arrived without notice, often with unintelligible labelling in foreign languages. “We also noted there was competition among donors, and between donors and national agencies,” noted a presenter. These agencies began chartering boats at high rates, driving up the cost of transportation. Even more frustrating to government coordination, initial commitments from donors often did not materialize.

3.3.3 Gap filling

In the Maldives, gaps in health services resulted from the destruction of health facilities and the displacement of populations from islands with adequate health service to islands with no or few curative care facilities. National medical teams were mobilized from the capital with emergency drugs. Severely injured patients were evacuated to the capital.

International agencies along with the national teams attempted to fill other gaps. These included needs for psychosocial assistance, strengthened disease surveillance and medical supplies. International service personnel were of variable quality, from highly prepared to those lacking necessary training or experience - even among those working with UN agencies and the WHO. In many countries, reproductive health interventions continued to receive inadequate attention or resources. Even given widespread interagency endorsement of the Minimum Initial Service Package (MISP) (basic reproductive health measures appropriate for immediate introduction in emergency situations), it was barely known and unevenly implemented.

Importantly, ongoing public health initiatives, such as tuberculosis and national immunization plans, were often ignored in a blinkered emphasis on providing primary clinical care. Supplies that could and should have been procured locally were often procured internationally.

3.3.4 Capacity building

The response of the Singaporean Air Force exemplified an effective form of disaster preparedness. The Air Force possesses trained medical elements that remain on standby for deployment under the United Nations Disaster Response and Coordination System (UNDAC). These elements are prepared to respond to multiple forms of natural disasters, including earthquakes. This allowed them to work effectively in the immediate aftermath of the Tsunami.

Indeed, having been involved in previously established disaster response plans and having drilled regularly were also characteristics of the most effective international responders who came to assist in the Maldives. Well-functioning systems offered models for strengthening local capacity through commitment to engaging in national and international disaster drills.

In the Maldives, failure of fixed and mobile phone systems hampered needs assessments and highlighted the need to obtain standby satellite phones, and prepare VHF and HF radio communications systems.

A number of tetanus cases in Indonesia and other countries highlighted the gap in national and international preparedness for this devastating disease.

3.3.5 What have we learnt, what was done well, what could have been done better?

The most important actors in the immediate Tsunami aftermath are local actors. Countries and the international community must do more than pay lip service to disaster preparedness—real investment must be made in developing national scientific capacity and fully integrating advancements in technology (e.g., early detection networks, GIS and information technology) with emergency preparedness and public hazard and risk education. A suggested 20% of international disaster aid should be spent on prevention, local capacity-building and other forms of risk reduction. A new millennium development goal should be aimed at reducing loss of lives in disasters through implementation of risk reduction and preparedness activities.

Proximity, preparedness and military logistic capabilities facilitate a rapid response to disaster.

Pre-standing agreements on military-civil cooperation should be recognized and actualized in disaster response. The United Nations Office for the Coordination of International Affairs (OCHA) is well placed to disseminate information on what frameworks exist.

In the post-emergency phase, a fragmented approach among many agencies to needs assessment and service delivery results in redundancies and strains national resources. There is a role for WHO here: to collate assessment results and coordinate surveillance and surveys and to disaggregate data by gender, age and geography.

External responders were of variable quality. Some advocate requiring humanitarian responders to undergo approved training courses or a certification procedure. Sphere standards, though much more recognized across agencies and national authorities, were still not uniformly striven for or met.

Likewise, inappropriate medical aid and other donated supplies still pose problems. International public education and other mechanisms are needed to prevent harmful flooding.

An international organization is needed to coordinate disaster victim identification teams. Such a group would be wise to standardize not only technical procedures, but also ethical principles—including the impartial treatment of bodies of all nationalities and races. Perhaps most importantly, family members of the missing, who after all have the largest stake in the outcome of identification efforts, should be offered both full access to information and decision-making representation in any future crisis. It is crucial that their preferences and belief systems count.

Disaster planning and regular drills of disaster response and relief provision need to be implemented on a national level across sectors, including in the handling and management of dead bodies. The media could play a strong role in enhancing preparedness and disseminating early warnings. Accurate reporting is also needed to dispel myths and fears in the post-disaster phase.

How might the presence of large numbers of international humanitarian actors in conflict zones such as Sri Lanka and Aceh be leveraged to encourage an end to violence and the possibility of peaceful solutions?

Is it time to reconsider the dozen UN assistance agencies set in place 60 years ago? Is it time to simplify what is now, according to one of the session presenters, “a complex cross-hatch of agreements and responsibilities?”

3.4 Health policy and coordination: a critical review of experience

Session 1.5

Much of the outcomes of the Tsunami have occurred before. The scale of the disaster was not unique in global terms or in terms of what the international community has had to deal with in the past, but for some of the countries involved, the event was unprecedented. We still make the same mistakes and we still try to do things in ways that we know have not worked in the past.

Those countries that had well-developed disaster management policies/systems, strong public health systems and clear lines of authority between the various levels of government did relatively well. It seems that in general, the coordination (national and international) on this occasion was better than experienced in the past. But as always it showed that foreign aid arrives too late to save lives yet it is useful in ensuring coverage to all affected areas. The problem remains of how to be sure foreign workers are properly qualified and behave ethically.

UN agencies work well when local authority is established and functional but do less well when their counterparts are themselves poorly organized or absent. However, assessments of needs tend to be donor or agency driven – information is not collected about health outcomes.

Disaster events increasingly occur in countries and areas of countries where poverty is established - we need to address risks comprehensively. More events are occurring in mid-HDI countries (emerging economy hazards); the rapid rate of unregulated growth itself creates conditions that allow hazards to be more harmful. The trend is that death rates are decreasing, so response is getting better - but more events are occurring due to increasing vulnerability, so we need to put more effort into mitigation. The number of events can be expected to increase due to climate change and marginalisation of populations.

The second world conference on natural disaster reduction was held in Kobe three weeks after the Tsunami struck. The international community was able to come up with more relevant conclusions because of the Tsunami. Vulnerabilities are rising so fast that we are falling behind in protecting people even though death rates from natural disasters are falling. To meet the challenge we need an integrated approach - multi-sectoral, multi-hazard, education, information and a long term vision. The Ministry of Health (MOH) must use the outcome of the conference, the Hyogo Framework for Action, as a guiding tool and actively engage in its implementation.

Protection of health facilities and health sector infrastructure is a priority in disaster reduction and hazard mitigation. All governments need to take active efforts to ensure that health facilities are protected from damage by good design and careful location.

An important research question is to find out why coordination doesn't happen. Some of the issues are that each crisis is approached as a unique event; doing anything is seen as better than nothing, authority (given by policy) is not present to command coordination and there is lack of real accountability driving a need to coordinate. Coordination is relatively easy in the relief phase but

much harder in recovery and reconstruction. We are using knowledge gained from managing refugee camps to manage disasters in countries but camps can be run autocratically without a need for coordination – the model is not appropriate for managing a natural disaster. Coordination means sharing responsibilities and it is the locals who must take most of the share. Remittances from foreign workers exceeds foreign development aid but is often not counted – international trade provides most of a country's external resources, and restoration of livelihoods is crucial for recovery.

India has a well-developed disaster management system and particularly so in the health sector. The government of Tamil Nadu was well organized and its staff clearly knew what they had to do right down to the local level. WHO has been supporting disaster management in India for over 15 years and this has been a beneficial experience on both sides. WHO has learnt much from its partnership with India and this knowledge has been shared with other Member States.

Effective disaster response is based on local capacity. The successful response in India was due to a strong public health infrastructure already in place and disaster policies well known to all government officers, well established partnerships between government and external actors to ensure policy is followed and rapid deployment of resources through responsive administrative procedures.

Psychosocial needs can best be met by people who speak the language and understand the culture.

We must remember the value of evidence in setting policy and the need for appropriate and reliable indicators to tell us that policy is working. Data must be collected reliably and disaggregated to describe vulnerabilities by age, sex and place. The Regional Committee in SEARO has been calling for investments in preparedness since 1991 and yet there are many countries that have not done so - even now there are still important questions in relief that have yet to be answered.

3.5 Assessing needs and measuring impact

Panel 2.1

The earthquake and the following devastating Tsunami disaster that affected South East Asia on December 26th 2004 has been a horrible and unique experience for the international community and for WHO in particular. For WHO it was crucial particularly in the very early stages to demonstrate its ability to effectively perform its core functions in emergencies, specifically: health needs assessment, coordination, filling gaps in provision of needed services and local capacity strengthening.

As if the experience from previous disasters would have required yet another painful confirmation, the lessons learnt from the Tsunami demonstrated again that: no community or country can consider itself safe from disasters or crises and that only a consolidated effort to invest in building up local capacity to cope with health aspects of future crises can provide sustainable coping capabilities for local communities and health systems. Often insufficiently prepared and equipped local systems were the ones that had to respond immediately, until the external assistance for various reasons extremely generous this time, began to flow in: effectively and appropriate in some areas, late and sometimes too late in some of the worst hit locations.

3.5.1 Assessing needs

Rapid health assessment missions, connecting with partners and involving multi-agency teams to access even isolated affected communities evidently became crucial to provide reliable data to determine the resources required in order to effectively address the identified priority health needs of the affected population. One of the limitation factors was the lack of uniform data sets and, in some areas, the questionable validity of data at the country level. Specifically, the lack of accurate population data as well as missing critical information on the location of essential health-related

infrastructure, water supplies, wells, health facilities, etc. seriously hampered the compilation of a comprehensive situation analysis. In combination with the insufficient quality on geographical information it was, particularly in the early assessment efforts, extremely difficult to come up with an accurate estimate on the actual number of affected victims and a reasonably realistic impact assessment, particularly for some of the more secluded areas.

The sharing of available information and the involvement of other partners and stakeholders however seemed to have worked better, with WHO broadly sharing available situation reports on health issues of affected communities; information sharing and the integration of information from various sources enabled WHO to develop a strategy, although initially based on incomplete data from some of the affected regions, which identified health priorities at a very early stage of the disaster. This provided the international relief and donor community with a reasonably well-defined perspective of immediate health needs to be addressed, as well as the service gaps to be filled, and a projection of the resources required. The continuous exchange of information facilitated the transition from the immediate relief operation to rehabilitation activities of a more long term nature and enabled informed decision making based on the needs of local communities.

The broad diversity of the regions struck by the Tsunami posed specific logistical challenges to conduct the needs and impact assessments in a timely manner in the post disaster context. Some geographical areas were only accessible with sophisticated transport equipment, and assessment missions turned out to be an increasingly complex task, accomplishable only through the support and involvement of military assets, with a collaborative effort involving local authorities, UN agencies and NGOs. A clear picture of the devastation, the impact on the health facilities and the loss of human resources - local health professionals became disaster victims themselves - the damages to other health related infrastructure with its implications and long term health effects became only apparent with a substantial delay for some of the worst hit communities. It took several months after the disaster until certain long term consequences were better understood, based on the increasing availability of detailed information and a more thorough analysis of the social impact. Again diversity is an important factor reflected in the health impact of specific population segments, with vulnerable groups (women and children and the elderly) showing higher mortality rates and a greater risk to suffer from disaster related ill health.

3.5.2 Measuring impact

Measuring the impact of the international health response has been and is still largely based on the application of quantitative techniques. Several of the traditionally used indicators, which are often based on population figures with questionable reliability, calculating percentages based on those figures, might have to be reconsidered as far as their relevance and credibility is concerned. Some of the internationally promoted quality standards for humanitarian assistance provided basic guidance but in practical terms were often unrealistic and culturally insensitive. For a comprehensive evaluation of the impact of the international health relief, the necessary data and evidence still needs to be compiled.

One of the lessons learnt is that a well-prepared and well-equipped local health system is able to cope - even with a dramatic increase in service demand, can absorb the resources provided by external assistance and can coordinate more effectively through channelling international support through the local systems. In some regions, the severe structural damages of health facilities and a seriously affected local medical community compromised the response capacity of the local system to the extent that external support was mobilized to provide essential health services. The deployment of field hospitals had in previous disaster situations turned out to be often inappropriate to serve the needs of local communities; their effects on the Tsunami response still needs to be evaluated.

Evidence-supported interventions, such as the WHO guidelines and the Cochrane recommendations "evidence aid", need to be shared among relief organizations to ensure that potentially harmful interventions are avoided. These are available via the internet and provide

evidence-based treatment and intervention protocols relevant in the post disaster context, including specific recommendations on post traumatic stress disorder (PTSD).

3.5.3 Lessons learnt and recommendations on the way forward

Health aspects have played a key role in the response to the Tsunami crisis. WHO was able to quickly mobilize health intelligence and to assess the health needs of local communities. Rapid assessments in certain areas were extremely complex, requiring extensive coordination and civil military collaboration. Basic agreements to quickly mobilize required resources in future crises should be negotiated upfront to facilitate a quicker response. Coordination of needs assessment missions still needs to be improved to avoid overloading of local victims with questionnaires addressing similar issues. As well, a common understanding on the scientific methodologies needs to be further clarified. Specific lessons and recommendations are as follows:

- A clear set of standards for an institutional confirmation of publicly disseminated figures and statistics needs to be defined.
- Thorough needs assessments provided timely and more reliable information successfully, where national frameworks exist, and where the local health system is grounded on a sound and comprehensive strategy for health systems preparedness and is supported by a strong institutionalized public health infrastructure.
- Impact measurement criteria need to be reconsidered regarding their relevance and validity: To effectively measure the responsiveness of the international health response to the actual needs of affected communities, quantitative indicators might be misleading and more analytical methods need to be developed, analysing the processes and structures before and after the intervention. International relief interventions can cause substantial changes in national health systems; They can provide a window of opportunity to trigger reform processes but can on the other hand potentially cause serious side effects.
- There is a clear role for WHO to constantly promote and articulate even stronger the desirability to adhere to well established, existing guidelines (for example, on drug donations), and to develop or modify and promote new guidelines on certain technical issues (i.e., on in-kind donations and the management of dead bodies, including the forensic identification of disaster victims) and to support evidence-based interventions.
- No help organized by even the most sophisticated and fastest response of the international community can ever substitute what the affected communities have to establish to take care of their most urgent needs in the first hours after a disaster. Therefore, WHO needs to even further prioritize capacity strengthening in order to enhance the capacity of national health systems and to empower local communities, to reinforce preparedness and to reduce vulnerabilities. This requires a stronger institutional capacity to work with member states to develop sustainable local preparedness and response mechanisms that enable health systems to become increasingly resilient to health aspects of crisis.

3.6 Surveillance, early warning alert and response: communicable and vector borne diseases Panel 2.2

Over two million people were displaced and health services disrupted in India, Indonesia, Maldives, Thailand and Sri Lanka in the aftermath of the Tsunami of 26 December 2004. The immediate health concern in such emergency situations with massive population displacement is the identification and control of potentially widespread outbreaks of communicable diseases. WHO staff, including Global Outbreak Alert and Response Network (GOARN) partners were deployed to Aceh Province in Indonesia, Sri Lanka and the Maldives to assist the ministries of health (MOH) with the establishment of supplemental surveillance, early warning alert and response systems (EWARN). India and Thailand, who were not as extensively affected and had more robust epidemic response capacities, were supported by WHO country offices as needed. The principal objectives of these surveillance systems were to: detect epidemic-prone diseases occurring in the

population, based on symptomatic diagnosis followed by laboratory confirmation, and to institute necessary interventions to contain further spread of disease to limit morbidity and mortality in affected populations.

The key questions addressed by this panel elaborated on how effective was the surveillance, early warning alert and response system for communicable diseases in:

- establishing a sensitive and responsive surveillance system;
- ensuring good coordination of reporting by providing clinical care agencies (government, NGO, military);
- detecting and responding to alerts in a thorough and timely manner;
- outbreak investigations, including: confirmation of potential pathogen by laboratory diagnosis, determination of the mode of transmission and identification of persons at risk;
- instituting necessary control measures and interventions;
- utilizing available resources to prepare for outbreak management and control; and
- building local and national capacities.

The panellists represented two countries where WHO and external agencies played a more substantial role in developing and maintaining the surveillance system, Indonesia and Sri Lanka, and two countries that were able to cope with limited external assistance, India and Thailand. The perspectives presented by these speakers brought to the fore the different elements and inputs required in establishing surveillance and early warning for epidemic-prone communicable diseases, depending on the capacity of the existing disease surveillance system and state of preparedness to respond to health emergencies. The discussion focused on the broader issues of ensuring continued success and how the lessons learnt could be applied to responding to future emergencies.

3.6.1 Needs assessment

In all areas that were affected by the Tsunami, there was a substantial risk of the spread of communicable diseases because of large population displacement and poor environmental conditions, including disruption of water and sanitation and over-crowding in camps or host communities. Therefore, it was immediately recognized that a highly sensitive surveillance system was required to monitor trends in epidemic-prone diseases in order to intervene at the earliest possible sign of an outbreak. As much as possible, the existing MOH surveillance system needed to be enhanced and supplemented to conduct more intensive active surveillance in these areas for syndromes that might potentially become epidemic.

There were two factors that determined the type of inputs that were needed in the affected countries to institute necessary surveillance for epidemic-prone diseases: (1) the status of the existing surveillance system pre-Tsunami, both technically and functionally, and (2) the scale of the destruction caused by the Tsunami, in terms of both the infrastructural and human toll taken. In Aceh Province in Indonesia, not only was the damage to the health infrastructure and manpower extensive, but the pre-existing surveillance system conducted by multi-purpose staff at the health centres, was only minimally functional. In contrast, Thailand's Ministry of Public Health (MOPH) has built on lessons learnt from their recent experiences with severe acute respiratory syndrome (SARS) and avian influenza to reinforce their relatively robust routine system with surge capacity in the form of Surveillance and Rapid Response Teams (SRRT), which could be mobilized immediately to the affected areas. The situation in India is mixed; Although a primary health infrastructure exists throughout the country, it is inadequate and the national disease surveillance programme does not function effectively. Thus, in Indonesia international field epidemiology teams with necessary equipment and supplies were immediately deployed through WHO's GOARN. In Thailand and in India, trained manpower available from other regions of the country was re-assigned to the affected areas. Sri Lanka has a reasonably functional surveillance system but they required external support because of the extent of the devastation in the provinces affected. They were able to rapidly put into place field epidemiology teams with subsequent assistance from WHO and international NGOs.

All affected areas had established the following essential elements as part of EWARN: syndrome-based report formats with standardized case definitions; early warning alert mechanisms; involvement of all partner health agencies (NGOs with clinical facilities, hospitals and laboratories); and rapid response teams for outbreak investigations. Almost all countries had limited laboratory capacity although the importance of adequate public health laboratory support for verification was recognized. Reporting and analysis of data with regular feedback was more complete in Aceh and in Thailand. India has the added problem that only 20% of health services are provided by the government and the private sector was not involved in surveillance efforts.

3.6.2 Coordination

The MOH must be the lead agency for undertaking all health actions in disaster response including surveillance. WHO provides support to this system mainly in the form of technical assistance (human resources and tools such as guidelines, formats, software, training) when requested. Even in the case of Aceh where WHO was leading surveillance efforts in the first few weeks, they did so under the auspices of the MOH and all activities were conducted jointly; the MOH has taken the lead as the transition into the rehabilitation phase has occurred. NGOs and other international agencies that provide clinical care to populations in the affected areas are responsible for reporting syndromes of epidemic potential to the MOH. However, coordination requires that both sides are aware of the need for this hierarchy to be maintained and to respect the MOH. In Aceh where there was an open-door policy for NGO assistance, this coordination became one of the most important facets for making the surveillance system successful and required a concerted effort. In addition, active surveillance was required to ensure the system was complete and training in use of standard case definitions was imparted frequently to ensure that the reporting was accurate. Fewer outside agencies meant less of a burden on coordinating non-MOH entities providing care to affected populations for the other countries.

Coordination between the different levels of the MOH for response to unexpected communicable disease events, whether due to natural disasters or outbreaks, requires a structure to be planned and established in anticipation. The ability of a routine surveillance system to be flexible, i.e. expand to incorporate EWARN as needed or to mobilize rapid response teams from other regions, must be planned as part of the capacity building efforts. All countries indicated that the FETP is an integral part of such a response. In addition, international networks such as GOARN are also a valuable resource in emergencies but it is important to bring human resource in based on relevance and capacity and for the longer term so as to engender trust and build effective relationships with local actors. More important is the need to develop local capacity, at least at the country level, since any external assistance is only temporary. Local communities can also be used to assist surveillance efforts, especially as EWARN needs to be sensitive rather than specific. In Indonesia, the *posyandus* are community based volunteers (often midwives) who are used for various health outreach efforts; However, the Tsunami destroyed this resource. It is worth repeating that coordination with the public health laboratory services is crucial to a responsive early warning and surveillance system but this requires a quality-assured laboratory service to exist in the first place; in India, although laboratory services exist, the quality is problematic.

An important element of the coordination between the various arms of the EWARN system during the emergency was to maintain regular feedback mechanisms. Once data are analysed, the results need to be disseminated to all stakeholders, particularly those collecting the data, and used to identify problems and to undertake interventions. In Aceh, this happened during weekly health coordination meetings and via a published epidemiologic bulletin in both English and Indonesian. In India there was regular information flow between the primary health centres, district and state headquarters. Although data analysis was conducted in Sri Lanka, this happened without standard indicators and there was no feedback so utility of the information was limited. Responsiveness to an outbreak is dependent on the threshold levels that should be identified *a priori* based on an understanding of the epidemiologic situation in the areas, i.e. for establishing a baseline, so that area-specific and locally appropriate thresholds can be clearly defined.

2.6.3 Gap filling

The necessity of having some sort of surveillance in place for epidemic-prone communicable and vector borne diseases was recognized and prioritized by all of the national health authorities in the countries affected. The quality and extent of the elements in the surveillance system varied based on availability of local capacity and resources and on the nature of external assistance requested.

Thailand attempted to undertake a rapid assessment and situation analysis of the state of the surveillance system post-Tsunami in the affected region in a formal way. However, the reality was that, due to limited communication and the focus of local staff efforts on saving lives in the immediate aftermath, this assessment was based only on subjective observations. India was on the verge of launching a national integrated disease surveillance programme for 14 diseases using a syndromic approach and a national level assessment of the likely needs was thus possible for the affected areas. The identification of the population requiring coverage by EWARN, i.e. IDPs, host populations and volunteers, was difficult in all instances but particularly so in Aceh and in Thailand. Population coverage by the active surveillance teams is thus very labour-intensive so more innovative solutions are required on the ground.

Instituting interventions to prevent spread of disease is important after all disasters, regardless of whether an outbreak is identified or not. Bottled water distribution, monitoring of “cooking centres” and environmental control of vectors was prioritized in Thailand. For instance, measles vaccination campaigns were initiated in Thailand and in Aceh, especially since EPI coverage levels were unknown because of the loss of data in the Tsunami. The fact that, although sporadic cases of epidemic-prone diseases have been identified, no major outbreaks have been detected in any of the countries post-Tsunami is a reflection of not only the success of such measures being instituted but also in the overall health system response to the crises including effective surveillance.

3.6.4 Capacity building

Building human resource capacity for communicable disease surveillance cannot be stressed enough to ensure sustainability long after the emergency is over and until the next one comes along. A good routine surveillance system that is well-planned, well-coordinated and connected and is functional at all levels of the MOH will be able to respond to any unexpected events. India's planned national integrated disease surveillance system will incorporate the lessons learnt during the Tsunami disaster. It was universally agreed that this crisis has created a unique opportunity to build on the current momentum and develop a more effective and responsive surveillance system than the one that existed before with all the improvements required for not only disaster response but also for routine activities—the two go hand in hand. Better-trained personnel in routine systems also mean that they are better able to handle emergencies with fewer further inputs, particularly from external sources.

Field Epidemiology Training Program (FETP) is a vital element in capacity building in all the countries and must be promoted and encouraged. Thailand plans to incorporate surveillance as an integral component in the curriculum for mobile medical teams and India plans to involve the private sector in its integrated disease surveillance programme. Besides mobilizing such human resources rapidly within countries, cooperation between countries in the region, that share language and a common culture for sharing personnel, could also be considered. Training the human workforce in surveillance is not a one-time event and it must remain a priority for re-training in order to keep it appropriately responsive to future unexpected events.

Technical support from international agencies such as WHO in training personnel and in better equipping surveillance systems, particularly with computers, was requested by all countries. This disaster has indicated that public health laboratory capacity building and improved linkages to the routine surveillance activities require prioritization in all the countries, especially with respect to

quality assurance. In planning for improved surveillance systems at country level, the EWARN methodology should be reviewed for relevance and appropriateness; for instance, consideration should be given to as to whether mental health conditions and nutrition should be included. The issue of management of stockpiles of donated medical supplies is an important consideration as it requires manpower and infrastructure inputs.

3.7 Gender dimensions and human rights aspects to response and recovery

Panel 2.3

In considering the gender dimensions and human rights aspect to the health response and recovery following the December 2004 Tsunami, all sectors and actors need to be mindful that States have a irrefutable non-negotiable obligation under various internationally agreed Instruments, for the protection of all its people, at all levels, societal and individual. Such protection includes protection from all forms of harm, and the right to health, life and liberty, among others. Protection from natural disasters, such as the December 2004 Tsunamis, may not always be possible for a variety of reasons. However, the international agreements are still clear -States, and all other actors involved in response and recovery work, have an obligation to protect all people from the avoidable consequences of natural disasters and from further harm, discrimination and rights violations. To fulfil this obligation, the State, and all other actors, must adopt a human rights framework, which include being able to measure both the impact of the disaster on all its people, as well as access to and impact of recovery efforts on groups known to have different needs, in particular gender differences as well as differences between adults (both men and women) and children (boys and girls).

3.7.1 Identified gaps and major issues

Despite the rhetoric on mainstreaming human rights and gender perspective by the health and development, and the humanitarian affairs, aid and disaster relief communities, one of the most astounding aspects of many reports on the 2004 Tsunami, including those presented at this important conference, is the lack of comment on gender perspectives and human rights, and the reporting of sex disaggregated data (with only few exceptions, the State of Tamil Nadu being one). There has also been to date a serious lack of gender analysis on all aspects of the Tsunami in relation not just to those who died but also in relation to injuries, those missing, mass burials, as well as internally displaced persons (IDPs), children -both those lost and left orphaned, and even on programmatic issues: for example, on the distribution of food and non-food items, water and for sanitation issues, shelter and education.

The major disappointment for those involved in gender and human rights is a lack of leadership and coordination on these issues by the international health community, including WHO and other UN agencies. OCHA however is facilitating the setting up of systems for the international community to coordinate and liaise with governments using the four pillars of their new policy on gender equality launched in 2004. The four pillars include: information management and analysis; humanitarian response and coordination; humanitarian policy and evaluation; and humanitarian advocacy. The four pillars offer a systematic way to ensure gender perspectives are included into humanitarian and disaster management. In this context, the issue of women's participation and their rights needs recasting to ensure that woman are not simplistically seen as "vulnerable victims".

Thus, all sectors and all agencies, including UN agencies, need to integrate visibly and concretely gender and human rights into their work, and their obligation to fulfil the various mandates that call for gender and human rights not to be seen as an after-thought. For WHO, this means using gender sensitive health indicators, the participation of men and women in immediate response and recovery and applying a gender perspective in all processes and methodologies.

3.7.2 Limitation of what has been done

Following the Tsunami there has been some human rights violations and, as recent studies from Oxfam for example has shown, the Tsunami has impacted differently on men and women and more women than men died in the Tsunami. From the limited information available, it is clear there has been insufficient attention given to protecting the rights of people and integrating a gender perspective in what has been done. There is however too little information and systematic analysis to be able to draw firm conclusions. Thus it is impossible to plan recovery that is effective, relevant and will benefit all people. For example, if more women than men have died, then what will be the consequences for those who have survived? Will the women who have survived have a voice in the recovery and reconstruction plans? And, what will be the impact on the children who are left behind? What policies are needed for preventing further problems and avoiding, for example, the rush to remarriage or seeing young girls enter into early marriage, with the known consequences this can bring for early onset of pregnancy and high risk obstetric and neonatal complications that lead to increased mortality and morbidity?

It is clear that some children, those unaccompanied, were put at risk in the initial stage as few countries had a functioning system and protocol that could deal with orphaned children. It is not clear that even now in some countries the rights of children are being protected. Some areas of concern here are the establishment of orphanages and the slow emergence in some countries of more culturally appropriate alternatives, such as formalized fostering.

3.7.3 What could be done better?

- All actors, including UN agencies and particularly WHO, as the lead on the health sector in the relief work, must be more proactive in integrating gender issues and human rights into their work. This is crucial for effective, efficient and an appropriate health sector response to human relief / disaster management.
- Governments also need to be reminded of their obligations. They need to take political action and show commitment to taking seriously the agreements they have signed up to regarding protection of all people and woman and children, in particular.
- Politicians and senior policy makers need assistance to become more gender sensitive as a general principle, not just for when disasters occur. Experiences from Tamil Nadu, for example, show that gender issues were integrated into all sectors' recovery plans because women's and men's participation and gender perspectives have been well-established into systems and policies before the Tsunami.
- Finally, it must be recognized that the current international arena, given the conservative views of some States, is not conducive to informed discussions and appropriate interventions that uphold the rights of girls and women and address gender issues. There is need for careful and considered strategies to ensure gender and human rights can be raised free of ideological and political pressures.

3.7.4 Recommendations

Recommendations from this panel group include:

- Gender considerations must be included in the plans, programmes and structures of all agencies involved in relief and recovery work.
- All agencies involved in relief and recovery work to have an action plan for integrating gender and human rights into their work and should be held accountable for such.
- There is still a need for more information and education to the wider community as well as those involved in the health sector, that gender is not just women's issues, or reproductive health - it is about looking at different needs of men and women, and about equity.

- Government must be pressed to become more gender sensitive and required to abide to international and national obligations to integrate and develop gender sensitiveness in all they do including disaster preparedness and recovery plans.
- Development of gender sensitive indicators for monitoring is vital. For example, track activities and impact by a range of characteristics such sex, age and ethnic background.
- Ensure equity and gender balance of those working in the area from the initial step as far as is possible, then redress imbalances as soon as possible.
- Agencies should ensure they employ and deploy gender experts to advise on all parts of plan of action, as early as possible in any intervention.
- Integrate gender analysis into assessments, as opposed to vertical assessments.
- All assessments, plans and strategies must be based on systematic sex disaggregated indicators.
- Research must be undertaken on the medium and long term consequences of disasters on demographics, family functions and structures and parenthood, and their implications for the health, livelihoods and well-being of men, women and children.
- Interventions that are culturally appropriate best practice options should be considered, in particular for the medium and long term care of orphaned children.

To facilitate the above practical recommendations:

- Gender and human rights working group should always be established in the early phase of all disaster response work and should assist in gender and human rights mainstreaming across all sectors.
- WHO should take the lead to develop a user-friendly guideline on how to mainstream gender and human rights in all aspects of the health response and disaster preparedness and recovery.

3.8 Funding policies and practices

Panel 2.4

This panel is qualitatively different from the other panels concerning the technical health issues. The implications and issues raised regarding this broad-based theme reach beyond the Tsunami. Issues are addressed from the perspective of various players in the humanitarian aid market – the donor, the implementing agency, the recipient, the UN and its specialized agencies and the multilaterals.

3.8.1 How big was the Tsunami response really?

Although the global response (about \$6.5 billion pledged) to the Tsunami is being billed as unprecedented, in comparison to other disasters, it is at the same level as was pledged for hurricane Mitch and only a bit bigger than what was pledged for Afghanistan. The total overseas development assistance (ODA) to Tsunami-affected countries in 2003 was just under USD \$2.5 billion, so the pledged amount does not look large since most of it is for multi-year spending. Moreover, bilateral donors have the practice of re-announcing pledges; so the additionality of inflow of Tsunami funds is suspect.

Tsunami has gained from the “CNN effect” where media coverage draws public and political attention on a particular issue. The downside is that this may distort other global priorities including adversely affect equity with other crises and chronic poverty.

Health formed 12% of the requirements in the UN Flash Appeal and according to the mid-term review, it had received USD \$63.2 million, about half of what it had asked for. Some sectors including food have been over-funded.

3.8.2 Is CAP a strong enough financial instrument?

It is important to note that USD \$5 out of every \$6 pledged to the Tsunami were for needs outside the Consolidated Appeals Process (CAP). Of the total pledges made to Tsunami outside the CAP, only 1% was to health. However there is a large proportion allocated to unspecified sectors and health may still get a part of these multisectoral funds. It is clear therefore that the CAP was not the donors' preferred mechanism for disbursement of funds. As an instrument, the CAP has certain limitations. In its bid to serve as both a fundraising tool as well as a needs assessment, it is a difficult balance to strike. Moreover, the CAP is a one-time expression of needs which are continuously evolving over time. Historically, CAPs have never been fully funded and is viewed by most donors as an extensive shopping wish list. Traditionally, donors have preferred to place funds through their own accepted channels. Development funding is about people and human relationships and trust. The UN CAPs do not seem to do this satisfactorily for them. They do not have the status and credibility for most donors to leave their preferred channels of funding and consistently buy in to it.

There may be an alternative; The current system of collecting needs is based on agency requirements, which are then funded (or not) line by line. Then there are various mechanisms for filling the gaps. The idea of a single fund was mooted: to or from which donors would make or take contributions and against which allocation would be made in accordance with need. More research into this needs be done as there are also implications on bilateral and multilateral funding.

3.8.3 Some issues

Data: One of the main deficiencies noted by the panel is the lack of quality data on aid flows relevant in disasters. Generation and maintenance of data is important from the perspective of efficiency (which organizations for which needs, when and how earmarked), equity (which disasters, which people, how much per head and how much in relation to needs), adequacy (funding in relation to priority needs) and resource mobilization (who has given what and where the shortfalls are).

Sustainability: In relation to humanitarian aid and longer term funding, it was noted that humanitarian aid tends to have a ratchet effect and political commitment to humanitarian work often translates into longer term commitment as was the case with Germany.

Capacity building: The capacity of multilateral and specialized international agencies should be built from the core funding provided by agencies such as the Department for International Development (DFID). Standing capacity, including those for external resource coordination, should be availed from the core funding and should not be projectised. Another policy issue was that of spreading funding over time. It was noted that money has an inverse effect on capacity building, if time is a constraint. With little time and more money (the "push effect"), it hampers the natural and organic development within institutions.

Unspecified funding: The view is that while unspecified donor funding, or unearmarked funds, give the necessary flexibility from the recipient's point of view, it is not preferred among donors due to political pressures from parliament and media to account for the funds and this process delays the establishment of an accountable system. The possibility of attraction of unearmarked funds from donors is linked to the broader issue of UN Reform and changes in the UN architecture. At present donor perception concerning the UN is that, for example: there is no clarity of roles and mandates, a lack of cooperation among organizations and there is "cherry picking" and agency targeting. Issues of visibility and "turf overlap" are common. This hampers resource mobilization efforts.

Links to development aid: The preferred option for most major donors, including DFID, is to give budgetary support to aid-dependent countries with an agreed poverty alleviation strategy. Disaster planning and preparedness must be integrated into the overall poverty reduction policy. A large number of poor people with varying degrees of vulnerability are affected by disasters. Who they are, what is the nature of their vulnerabilities and how to resolve them should form the core of

funding proposals for rehabilitation and reconstruction. The links to poverty reduction and the Millennium Development Goals (MDGs) are critical to sustain the flow of funds but the exact quantum of flow depends also on geopolitical realities. The Congo is an example of this.

3.8.4 Lessons learnt - WHO through the donors' lens

- In Indonesia where there was an abundance of resources, the WHO capacity to coordinate was severely tested. Tighter control on health sector interventions and more rigorous reporting systems are called for.
- Donors received WHO messages from both the field and Headquarters in Geneva that were not consistent, particularly in the case of what was actually and immediately needed.
- In Sri Lanka, an emergency health action plan was prepared which ran alongside a pre-existing mechanism and donors were confused regarding the legitimacy and status of this plan.
- Within the health response, donors felt that there was an excessive focus on curative care and not enough on delivery of public health in peripheral areas.
- The needs assessment and capacity assessment requires to be done in advance so as to enable rapid deployment of resources.
- Donors noted that Health Action in Crises at Headquarters(HAC/HQ) appeared well-funded and that adequate capacity existed to respond to the emergency.

3.8.5 Lessons learnt - donor community practices

- Funding needs to be: available quickly, directed to priorities, flexible and rapidly deployed.
- Funding should be done with minimal transaction costs – the burden of proposal writing, reporting and accounting can be considerably reduced with more harmonization between donors. Common proposal writing formats and reporting could be adopted. A coordinated assessment of needs and funding would make funding more comprehensive and less *ad hoc*.
- Funding should be delivered in ways that does not distort or divert resources and capacity from other areas of work. Funding new crises should not adversely affect meeting needs of ongoing crises or even a diversion of resources from other areas within the health sector.
- Funding patterns should not exacerbate existing inequities. The response should be commensurate with relief and rehabilitation equity conforming to development patterns preexisting within the country and should not lead to islands of "Rolls Royce service".
- The need to ensure conformity with governance structures embedded in most countries is important. Funding should not create new structures that marginalize, duplicate or reduce the effectiveness of existing local institutions.

3.8.6 Recommendations

Some recommendations relating to the funding policies and practices in health response to disasters and crises are as follows:

- The situation post-Tsunami should be used as a laboratory to create mechanisms and structures that builds up accountability towards donors and towards beneficiaries: to build a monitoring system to enable generation of data for all stakeholders in a reliable and cost-effective way.
- Develop a comprehensive understanding of the incentive donors have to provide targeted unearmarked funding, the constraints they face in providing unearmarked pooled funding and how these might be addressed. These may be included as part of a white paper on alternative funding mechanisms that studies the emergence of non-traditional donors and pros and cons of multilateral funding.

- Evaluate Tsunami relief funding against best practices principles, for instance, through the Good Humanitarian Donorship (GHD) initiative. The Development Assistance Committee (DAC) of the OECD has in principle agreed to take on an active role in promoting GHD.
- Improve coordination within organizations, across organizations and between donors.

3.9 Mass casualty management and hospital care

Panel 2.5

3.9.1 Issues

The following issues were discussed by the panel:

- The general principles of mass casualty management;
- The specific clinical management of cases after the Tsunami in Thailand;
- The role of foreign medical teams in mass casualty management in Indonesia, Maldives, Sri Lanka and Thailand; and
- Description of the areas and problems that have to be improved in mass casualty management after disasters.

3.9.2 What have we learnt?

In general, countries were not prepared to handle such a huge number of casualties and there were not enough trained persons to carry out a proper mass casualty management of the survivors. The capacity and capability of the public health sector to deal effectively and efficiently with mass casualty situations are largely inadequate.

A large segment of the population affected by the Tsunami lived in rural areas, far away from health facilities where they could be treated in a quick manner. On the other hand, those living in large towns or cities, where health facilities are readily available, had a much better chance of surviving.

Furthermore, a pre-established networking of hospitals did not exist, for the quick and appropriate referral of the survivors in place in the countries. This was even more evident in those cases where the health facilities themselves had been destroyed or seriously damaged.

Of the countries affected by the Tsunami no standardized effective triage system was in place and in some cases there was a lack of awareness about the hundreds of victims that would be arriving shortly afterwards.

The Intensive Care Units were able to respond quite efficiently in the referral hospitals because they had their own emergency plans and also because they had sufficient time to prepare for the reception of those critically injured patients.

Some of the problems in establishing mass casualty management in developing countries are that there are limited human resources, limited material resources and poor communication. Similarly, information management was deficient and as a consequence the teams did not perform as well as expected.

In most countries the most immediate assistance to the injured came from the uninjured survivors and from persons living close to the Tsunami affected who provided whatever basic first aid and basic assistance.

Hospitals in Thailand review and revise their hospital emergency plans every two years, while Japan does it on a yearly basis, and in Myanmar it is done only in a few hospitals that have these plans. Japanese medical teams were deployed to four Tsunami-affected countries within the first

48 hours after the event, after receiving the request from the affected countries to provide primary emergency health care.

3.9.3 What was done well?

In Thailand it was shown that efficiency for disease prevention in hospitals depended upon the utilization of the triage system on arrival at the Emergency Departments. Survival and the outcome after complex surgical procedures correlate directly with the experience of the surgical teams and with the resources available to provide the immediate treatment. Surgical and Trauma teams were set up within a few hours and operated on a 24-hour basis during the first few days.

The support provided by solicited primary emergency care services from the Japan Disaster Relief Medical Team to the four affected countries came at the right time and complemented what the local health authorities could provide during that period.

3.9.4 What could have been done better?

Preparedness and response could have been better if more first aid and triage had been imparted at the local level. Transportation and evacuation from the affected areas could have been much faster and efficient if these systems had been established and tested beforehand and also if the vehicles used to transport the victims and the few ambulances available had had the appropriate equipment.

3.9.5 Recommendations on how to strengthen mass casualty management

- Improve the coordination of all assets at country level.
- Develop and update internal hospital plans at the local, regional and state level
- Have continued education and advanced training programmes at all levels for all personnel involved in mass casualty management.
- Carry out drills at least once a year to test and improve the efficiency of established plans.
- Government institutions should coordinate with other institutions and organizations, such as the National Red Cross Society and the International Federation of Red Cross and Red Crescent Societies (IFRC) for the training on triage and first aid.
- Link mass casualty management plans with plans for the management of dead bodies.
- Include other topics in the mass casualty plans, such as psychological aspects and mass media management.
- Establish systems for transportation and evacuation of injured victims from affected areas.
- Establish an intergovernmental network and coordination of primary care services in Asia and South East Asia, similar to the International Search and Rescue Advisory Group (INSARAG).

3.10 Mental and psychosocial aspects

Panel 2.6

Mental health and well-being is an integral part of the health and functioning of individuals. Thus, the response to any disaster – natural or human made, must include principles of service delivery that contribute to the restitution of mental well-being and regeneration of community life.

A model describing six levels of meeting the mental well-being needs of individuals and communities affected by a disaster is shown below:



3.10.1 Psychosocial support services

The base of the pyramid consists of community resources broadly termed as “psychosocial support”. These constitute a variety of services delivered by appropriately trained, supported and supervised community level personnel and will serve the needs of a majority of affected persons. They must be culturally appropriate. Psychosocial support does not necessarily mean medical intervention but is still an important health issue and thus leadership and technical guidance should be provided by ministries of health and WHO. Unfortunately, there is still limited awareness among mental health professionals about approaches in and for the community.

In planning these services, every effort should be made to ensure that planners use the innate strengths of the community as existing local services must provide immediate relief. External assistance which comes later should support and strengthen this capacity and should not undermine the local efforts.

Many different members of the community can be called upon to support the work of mental health professionals, for example, teachers, community leaders and religious figures, practitioners of alternative and indigenous systems of medicine. They can provide differing levels of social and supplementary care.

Generally, these services should be implemented as soon as community level workers can be mobilized and trained. In the initial phase they should supplement other rescue and relief services. These services should reach out to every affected person. Besides providing social support and psychological first aid, they must conduct an assessment of the psychological distress in the community and refer those in need of clinical services to mental health professionals. Wherever possible, these services should be linked to human and social welfare services.

One observation in the Tsunami disaster has been that the term “psychosocial” has sometimes been trivialized. Many agencies have gone to the affected communities and conducted nonspecific actions and termed it “psychosocial support”. Although difficult, it is necessary to regulate these

agencies. The successful experience of the Maldives, which rigorously controlled entry of external agencies without permission, is worth noting.

Every effort should be made to normalize the life of individuals, families and communities as soon as possible. Advocacy and interaction with agencies that can help normalize the lives of people (such as financial institutions, housing, means of livelihood and schools) can facilitate the normalization process.

The experience of Thailand and the Maldives clearly shows that community-based psychosocial support to the community is very valuable. In India, although there was a strong focus on community-based psychosocial support, the mental health professionals were ambivalent on how to deal with the community. In Sri Lanka, although the decision has been made to recruit and train community level workers, their role three months after the disaster needs to be re-evaluated. In Aceh, Indonesia, despite efforts being made, there is almost no community-based services being provided under the supervision of health authorities. This may be a result of the massive destruction of infrastructure.

Although activities to reduce the distress are in progress in all affected counties, their impact on improving the quality of life should be assessed periodically and in the long term.

Many issues remain to be decided:

- How many community level workers should be recruited?
- What qualifications should they have?
- Who will pay them?
- How does one identify community level workers from a community which has been highly traumatized?
- Who will train, supervise and coordinate these workers?
- How will the training be conducted?

Three important messages regarding psychosocial support services are:

- Do not medicalize the distress of affected people.
- Cultural sensitivity of the support programmes is very important.
- Impact assessment of the programmes should be conducted.

3.10.2 Mental health services

The two upper levels of the pyramid in the diagram above are mental health services targeted at people who can be described as having a psychiatric disorder (disaster induced or pre-existing). These services are usually provided by doctors based either in hospitals or in mobile community mental health teams. However, these services are also needed to train and support community based care workers and volunteers.

An important task for mental health services is to pay special attention to high risk groups such as orphans, widows, poor, elderly or people with pre-existing mental illness.

Doctors must avoid the tendency to prescribe medications for what could be considered as normal and appropriate human emotions to the disaster, such as anxiety, sadness or grief. Clear guidelines for use of psychotropic medications for disaster-affected communities should be developed.

Mental health services must not only be effective but also cost effective. Only those interventions that have been demonstrated to be efficacious should be used. Mental health services should be based on need and not solely on demand.

The Thai and Indian experience has shown the value of well-developed back-up mental health services. On the other hand, in the Maldives, with only two psychiatrists neither of whom were involved with Tsunami relief, the psychosocial support provided by the Emotional Support Brigade was more than adequate during the first three months. In Sri Lanka, despite the availability of clinical services, these were under-utilized.

There are two important messages concerning mental health services:

- Clinical mental health services are required by a minority of subjects.
- People with normal and appropriate human emotions should not be given medications routinely.

3.10.3 Thai response

The response launched by the Department of Mental Health of the Ministry of Public Health of the Government of Thailand is an excellent model of how a response should be organized and delivered. There are several reasons for the excellence of the Thai response:

- A well-developed pre-existing mental health care delivery system integrated within the health system existed.
- Complete support, agreement and synchronization at all levels starting with the political, to bureaucratic, to professional, going down to the community and reaching the affected people.
- Over 700,000 Village Health Volunteers, who could be rapidly trained and mobilized for community based psychosocial support, existed.
- There was close supervision and coordination of all service providers including NGOs by the Department of Mental Health.
- Information and education was provided to the community through the media, (TV, radio, newspapers) and the internet. This kept all informed of what was being done and where help could be provided.
- There was interdisciplinary collaboration and close liaison with other sectors (including housing and welfare), which has a bearing on the mental well-being of individuals.

The Thai response has a clear cut plan now that the emergency phase is over. Long term recovery efforts will be coordinated from Mental Health Recovery Centre, which has been set up in Phang Nga Province. In the recovery and rehabilitation phase, the focus will change. The Department of Mental Health will change from:

- being a provider to a facilitator,
- considering affected people as victims to their being survivors,
- being function-oriented to being area-oriented, and
- placing a focus on individuals to a focus on the family.

It is highly recommended that, as a part of disaster preparedness of all members of the South East Asia region, the Thai response should be visited and studied for possible adaptation in their own countries.

3.10.4 Needs assessment

An objective assessment of needs whether it be the need for health services or an estimate of the magnitude of psychosocial distress, is essential to provide the appropriate evidence-based services to the affected communities. Since no two disasters and no two communities are exactly the same, projections from other disasters or from other counties must be extrapolated with caution.

Several different methods have been used for needs assessment. Rapid assessments, may sometimes compromise on methodology. Qualitative assessment which in disaster mental health may not focus on systematic programme development. These must be linked to quantitative assessments.

Often people are indirectly affected. For example, in the Maldives directly affected people have been forced to move in with other relatives thereby creating crowding and a financial demand on the relatives. This indirect effect should be assessed and dealt with when assessing needs. Stress on the care giver and the health care providers is extremely important to recognize and address. Similarly those who have physical injuries may also have co-existing psychological problems.

Several issues need to be considered when using any instrument to conduct a quantitative needs assessment:

- Is the questionnaire culturally appropriate?
- Has the questionnaire been validated in the community where it is being used?
- Has normative data for the questionnaire been established for the community?
- Have the definitions of conditions been culturally validated?
- If needed will local experts examine the affected persons to reach clinical diagnosis?

Thailand has very successfully used the General Health Questionnaire 12 (GHQ 12) for assessing psychosocial distress in individuals. Based on this information, appropriate services are provided. They aim to study the evolution of psychosocial distress by repeated application of the GHQ 12 over the next two years. Similar assessments using the GHQ 12 are in progress in Tamil Nadu, India and in Maldives. Sinhala and Tamil versions have previously been tested in Sri Lanka, but whether it will be used in Sri Lanka for the Tsunami disaster remains to be seen.

There are two important messages regarding needs assessment:

- The methodology for needs assessment in the community needs to be carefully developed and standardized.
- An appropriate needs assessment study can be very useful both in the short term for providing evidence based services, and in the long term in monitoring the evolution of signs of psychosocial distress.

3.10.5 Coordination

The experience of Aceh and Sri Lanka has shown that if unchecked, numerous agencies can go to the affected areas and work with total independence often duplicating efforts and wasting resources and sometimes doing things which maybe harmful (e.g. forced debriefing of stressful experiences). Efforts to control and coordinate such agencies at both sites have not been successful. Many of these organizations do not speak the local language and have very little knowledge of the culture. There are two important messages concerning coordination:

- The guidelines for selection and rules of working of all external agencies should be clearly established for use by any affected country which wishes to use them in future disasters.
- It should be mandatory for all external agencies to report to and work under the supervision of local health authorities or their nominees.

3.10.6 Filling the gaps

A gap can practically be defined as an unmet psychosocial need of the Tsunami affected communities. Gaps can be examined from the perspective of:

- the disparity in the needs of different segments of the affected community, i.e., the perceived vs. the real needs and the real need vs. available services;
- appropriateness of services being provided;
- management of services;
- policy for delivery of services; and
- available and allocated resources vs. the actual need.

Services should address the specific needs of vulnerable groups including orphans, widows, elderly and those deprived of their livelihood. A mix of psychosocial support and professional mental services is desirable and a proper balance should be achieved. Policies which facilitate international and national relief and reconstruction efforts to reach the affected communities are essential. Optimum and timely allocation of resources (not too much or too little) should be given priority. Two important messages regarding filling gaps are:

- The strengths of the local communities should be recognized and enhanced.
- Policies at the international, national and local level should support each other to facilitate the relief and reconstruction efforts and optimum utilization of resources.

3.10.7 Capacity building

Capacity building is sometimes restricted to human resource development. In a broader sense it should include capacity building at all levels which have an impact on disaster mental health programmes. Examples of such levels include:

- Legislation, policies and mental health plans
- Human resource development
- Protocols for specific interventions
- Epidemiological information
- Public education and media relations
- International collaboration

Development and promotion of local leadership is important not only in the short term but also in the long term for sustainability of the programmes.

Two key messages regarding capacity building are:

- National capacity should be enhanced at multiple levels.
- Public education and media alliances should be maintained on an on-going basis.

3.10.8 Public-private partnerships

The private sector has resources and skills with which they promote their businesses. These talents, such as their skills in training their employees and in delivering services, can be utilized by the public sector for its benefits in programme development, ultimately to benefit the community.

3.10.9 Way forward

Although the acute emergency phase is over, the reconstruction and rehabilitation phase is now in progress and will continue for several years. The psychosocial and mental health needs of the

community will change and evolve over time. It is mandatory for psychosocial support and mental health services to be appropriate for the needs of the community for that phase.

The best form of disaster preparedness is to plan and build a health care delivery system of which mental health services are an integral part. Disaster management plans, even if they are in place, will work only if the infrastructure exists to deliver what is needed. The experience of Thailand clearly establishes this. Concluding recommendations for the next phase and the future are summarized as follows:

- Post-disaster needs of the community should be provided based on an objective needs assessment.
- Post-disaster needs of the community should address a range of issues from psychosocial distress to mental illness.
- Post-disaster interventions should be delivered at multiple levels, involve multiple sectors, be suitable and appropriate for each phase of the disaster.
- Post-disaster interventions should be based on understanding of the local culture and delivered by locally available, appropriately trained and supervised human resources.
- Any gaps in service should be quickly identified and local solutions devised to fill the gaps.
- The most effective form of disaster preparedness is to build on the existing capacity of the community based health and mental health services before the disaster.
- Independent evaluation of the impact of service delivery should be conducted at regular intervals.

3.11 First 30 days: organizing rapid response

Panel 2.7

Issues

Whilst it is generally acknowledged that the first response to the disaster is by local communities and national governments it is worth noting what the national contingency plans were for such an event as the Tsunami and earthquakes of 26 December 2004. If there were contingency plans, were they affectively and efficiently applied in the first response?

Have any of the affected countries committed themselves to reviewing their Contingency Plans and what is being done by the international community to assist them in this process?

Some three months into the emergency there were still elements of the stricken communities in Aceh Province that did not know how they should gain assistance. Although the provision of information is the responsibility of the State, how could the UN have assisted in this process to ensure that such situations did not arise? For example, was public information included in the initial response and how was this amalgamated with other sectors and recipient nations?

Bearing in mind the continual seismic risks which exist in the Region, how did WHO incorporate mitigation and preparedness into its initial response? For example, did WHO use structural engineers to evaluate the safety of medical facilities such that they might be repaired and strengthened before re-occupation/use? Did they just accept the buildings/structures? Existing buildings if used may suffer further damage.

From the private sector perspective, key issues in organizing a rapid health sector response to disaster are:

| | |
|----------|---|
| Money | early commitments and unearmarked funding |
| Medicine | the identification and provision of relevant supplies according to WHO guidelines |
| Minds | the deployment of experts with the appropriate technical skills who have undergone rapid response training and who comprehend the essentials of humanitarian practice |
| Manpower | surge capacity during the initial phases and ensuring personnel are given clear |

tasks and focal points with key partners and host government are established to enhance coordination in the response system.

Mechanisms setting-up systems and procedures in place during the early phases to ensure the right resources go to the right places when needed.

Lessons learnt

Key lessons learnt concerning organizing a response to disaster and the first 30 days are:

- There is a need to empower national governments and communities
- Command and control are necessary, but not mutually exclusive
- It may be helpful to already develop clear, simple health messages that should be shared with media even before a disaster so that these can be immediately disseminated if the emergency occurs.
- Building the capacity of the public health system and practices during the early response phase is crucial for the sustainability of adequate health practices in the long-term. Additionally, supporting the decision making role and collaborating with all levels of the host government's Ministry of Health ensured that connectedness with local communities and downstream measures are at the epicenter of the emergency response.
- Psychosocial support to humanitarian health workers (both national and international) is important to ensure productivity and greater continuity of staff.

Recommendations

- Effective coordination - in order to avoid overlap and to identify the gaps in the humanitarian response system. This also requires monitoring to ensure that coordination is leading to decision making and implementation.
- Information management is yet another crucial mechanism in the initial response phase –not only to disseminate information to humanitarian response actors, in order to make informed decisions on how to allocate their funds and respond to the most pressing of needs, but also in the form of public information so as beneficiaries are also aware of where they can get assistance and the various options that are open to them as victims of the disaster.
- Finally, the most important part of disaster response is disaster preparedness. Establishing standard operating procedures (SOP) and clear practical guidelines for communications and operations are crucial to respond effectively to emergencies. National governments and organizations responding to disasters should set up mechanisms to activate systems swiftly and to train their staff on these operating procedures.
- Preparedness also includes preparing reporting formats so that data collected and collated is useful for decision making. For example sex-aggregated data to identify the specific health needs of women.

3.12 Water, sanitation, food safety and environmental health Panel 2.8

The Tsunami of 26 December 2004 caused major loss of infrastructure destroying and damaging houses, hospitals, water supply and sanitation, roads and communication links. Very large numbers of people became displaced and many essential services were disrupted.

The damage and the impact of the damage in the affected countries was rather varied. In Aceh and the Andaman and Nicobar Islands damage was such that it took weeks to make a proper assessment, while South India and Sri Lanka managed a quick overview of the affected areas and could rapidly mobilize assistance. The Maldives suffered in its entirety, with most islands experiencing physical and environmental damage. In all instances water supplies were damaged and the wells that households used were unusable due to salinity and dirt. Debris and damaged

housing caused risk of injury and changed the vector borne disease risk potential. Displacement exposed the population to a changing situation in which access to water, sanitation, food and shelter demanded adjustments that may have introduced exposure to health risks.

3.12.1 Assessment of needs in the immediate response

Needs assessments should preferably be undertaken by teams that address a range of issues relevant to the emergency. The teams will at least have competencies in public health, water and sanitation, nutrition and food security- and if possible also in primary health care/maternal and child health. The team would consist of national/local officials or would be supported by local officials to ensure adequate consideration of local cultural conditions and feed-back to local authorities.

The environmental health component of the assessment would concentrate on immediate relief in water supply and sanitation. It should preferably have taken into account the pre-disaster situation with respect to water supply. If at all possible such information should be collected before the assessment. In Sri Lanka piped schemes in the towns and dug wells in the coastal belt were damaged. Plans of existing schemes helped to restore supplies quicker (a reasonable supply within four days) and allowed water distribution to communities not linked up with a piped scheme through tankering. Initial water and sanitation assessments formats were deemed adequate for the purpose of immediate relief. However, through community consultation and sensitivity to cultural needs and expectations, an improved response would be possible.

OXFAM, in Aceh, indicated positive results with the rapid community consultation. These assessments were done by a health and engineering team who were able to start implementation within 24 hours with an action plan set in motion often by mobile phone on the journey back to the office. Knowledge of pre-crisis levels of health awareness, health-seeking behaviour, community social structures and women's status were supplied by the national staff members. The assessments were generally effective and efficient when community-driven or undertaken in consultation with the community.

Water supply

Drinking water was not a very big problem in most affected areas. In Aceh, water and firewood was available and as people were used to boiling water, most communities survived until aid came. The use of hypochlorite based disinfectants for water was cautioned against by Government of Indonesia as it did not fit in the current habits. For example, people were found to boil water after disinfection.

Adequate supplies of drinking water of reasonable quality were available in Sri Lanka in affected areas within a few days. Most of the water was supplied by tankers and so adequate chlorination of the water at the water point or household level was a challenge. Residual chlorine at the distribution point was checked with chloroscopes. The chloroscopes were also provided to public health inspectors and field staff to ensure water quality surveillance. In this emergency where people have lost nearly everything, provision of safe water containers or buckets with a lid would be useful.

The Tsunami crisis did however cause a mismatch between needs and supplies. For example, package treatment plants and reverse osmosis plants were brought in which mostly cannot be maintained long-term by the community on their own. While there is a place for quick fixes that can produce large quantities of safe water, the final water supply option should meet community capabilities in operation and maintenance, management and affordability. Additionally, limited attention seems to have been given to restoration or construction of institutional water supply and sanitation systems in health facilities and schools.

Sanitation

Sanitation in internally displaced person (IDP) settlements/camps was a problem due to improper design or locations such that women and children could not use the latrines during the night. Pit latrines were not acceptable in Aceh since the population was used to anal cleansing using water, while the inhabitants of former fishing villages in the affected coastal areas had often limited experience with latrines.

The limited number of latrines caused problems with maintenance (regular cleaning and desludging). Suitable sites for discharging latrine waste were not easily available. Some of the agencies that came to assist did not have experience with the challenges that they faced in sanitation and the design of camps.

Hygiene

It is important to maintain hygiene standards by providing sufficient water, soap, hygiene kits, etc. It is equally important to be careful not to take away from deeply traumatised people the last vestiges of dignity by assuming that they are not aware of the basic concepts of hygiene. Thus, if so necessary, hygiene promotion should be done with reference to the local cultural context. OXFAM provided underwear through a bazaar-tent that allowed women to select their requirements in private.

Lesson Learnt 1

Restoration of water supply services, adequate and acceptable sanitation arrangements, proper shelter and ability to maintain personal hygiene are important instruments to restore physical and mental health in the household. Items such as plastic sheeting and a basic household kit are supportive to this effort as it enables the household flexibility to look after its own affairs. For example, a plastic sheet is multi-functional as it provides a roof, can protect household assets, can help to collect rainwater, etc.

3.12.2 Institutional capacity and coordination

Where the main government set-up was not seriously affected, or in areas that were not so remote, restoration of essential services was quite quickly ensured. The local governments in Thailand, India and Sri Lanka basically remained in charge of the relief efforts. The existence of a decentralized structure of government and water supply agencies ensured quick and reasonably effective action (Tamil Nadu, Sri Lanka).

In Sri Lanka sector coordination is institutionalized informally through a network of Government agencies, NGOs and sector support institutions, led by the National Water Supply and Drainage Board. The group meets quarterly, supports action-research, develops policies and exchanges sector experiences. This entity allowed for a rapid coordination and networking, cooperative action and understanding of needs. A similar emerging effort in India, and the existence of a roster of emergency-mitigation trained engineers under RedR- India allowed rapid deployment of additional expertise to support relief efforts in water supply, sanitation and environmental health.

Pre-crisis existence of these mechanisms has certainly enhanced coordination and speeded up deployment of national experts. In Indonesia, a similar set-up was established during the Tsunami crisis. These coordination mechanisms will certainly have assisted Government and NGO development partners who were already working in the country before the emergency to harness and guide the inputs of new humanitarian aid agents. The existence of similar mechanisms in Bangladesh in both emergency response and the water and sanitation sector has over the last few years allowed for faster and more effective responses to emergencies.

A functioning coordination mechanism will also allow capacity building for emergency preparedness, including agreement on local standards and approaches for water and sanitation, taking into account national expertise and the SPHERE standards.

Lesson Learnt 2

A functioning interest and needs-based watsan sector network will enhance preparedness, facilitate agreement on minimum standards for response, speed up initial response and assist in matching external support to local needs.

3.12.3 What was done well and what could have been done better?

Water supply, personal hygiene and shelter was done reasonably well. Sanitation and nutrition aspects of the response to the Tsunami disaster could have been done a lot better. Matching needs and supplies (in watsan hardware) was done poorly. The following describe what should be done better:

- Coordination; more effective use of resources and less duplication
- Logistical management so that items could be given out quickly, with coordination and agreement between agencies
- Agreement among organizations on standards and design of latrines, shelter and water provision/ water disinfection
- More (realistic) technical support to ministries and NGOs

3.12.4 Capacity building and emergency preparedness

First of all, it needs to be emphasized that some capacity is always available in the country. However, for a variety of reasons, the capacity and competence may have been eroded and actors need to restore their capability through training, and reviewing and updating Standard Operating Procedures (SOP) (including appropriate practical, technical guidelines on water supply and sanitation in emergencies). Capacities are also available within the military and these should also be included in the Emergency Preparedness scenario.

Lesson Learnt 3

A sector that functions well during regular operation will find that its infrastructure is easier to rehabilitate than a sector that has suffered from neglect. In Sri Lanka and Tamil Nadu, water supply services were up and running quite quickly, while in some schemes in Aceh, it will still take time to rehabilitate the schemes as the treatment plants were not functioning before the disaster.

Even then, it may be possible nowadays to plan a bit better, through the use of computerized scenarios, and ensure that regular agency assets are identified and designated for emergency duties (reservoirs, treatment plant, certain vehicles), thus allowing different annual inspection and maintenance schedules. Additional engineering and security protection measures will also be necessary to ensure that water supplies and waste (water) management plants are not easily compromised in the event of a disaster

Training of management and staff in case of emergencies (training modules/SOP for different types of emergencies) will be required.

Lesson Learnt 4

Emergency preparedness for disruptions in water and sanitation services, for hazardous waste spills and explosions, and other incidents that threaten to expose the population to environmental health risks, needs to be strengthened urgently at national and local level, in a multi-disciplinary

way, that brings together local authorities, health and engineering competencies, and framed in a suitable set of preparedness and response policies, strategies and SOP.

Waste and vector borne disease

The risk of hazardous waste spills seems to have been limited although some industrial facilities and a nuclear research plant required certification of risk. In Tamil Nadu the Tsunami brought up titanium from the sea bed. It is not clear whether this will cause longer term environmental or water quality problems. Similarly, the Tsunami caused the small islands in the Maldives to be churned up, leading to high nitrate contamination in some islands. The restoration of some freshwater storage in the aquifer will take at least one monsoon.

Health care waste has been registered as a common concern but has not been linked to any disease outbreaks.

Waste management, i.e., safe disposal of human waste, solid waste and hospital waste, caused problems due to volume and the absence of functioning or newly designated landfill sites. Inadequacies in waste management may have led to higher risk of recontamination of water sources and water-borne diseases. The potential for vector borne disease such as dengue and malaria has been raised but it is not clear whether any trends have been found that indicate higher than usual caseload. Of course fogging that was undertaken in a number of areas, in particular, in the IDP camps, may have influenced the situation.

Food Safety

Food safety has been monitored but no outbreaks of note of food borne diseases have been recorded. Hand-washing and general personal hygiene was identified as probably the most effective way of avoiding infectious disease in the circumstances.

Nutrition?

Due to the timely and significant response from the multinational militaries, basic food staples, particularly rice and noodles, have been distributed by helicopter to most locations on the west coast of Aceh affected by Tsunami. However, in most locations food supplies did not include protein, oil, sugar and vegetables. There has been no targeting of food relief and no special effort to get food to the most vulnerable populations (children under 5 years, elderly, pregnant and lactating women). No cases of severe acute malnutrition were observed. Nevertheless, the nutritional status of IDPs cannot be sustained on the rations that are currently being distributed (most often 1.5 kg rice per person for three days). No nutritional assessment of the affected population has been conducted.

Food distribution has been largely coordinated by TNI (the Indonesian army) or in collaboration with administrators that have survived.

Environmental health

The aftermath of the Tsunami has raised interest in environmental health. Focus should be on how to keep this interest prioritized. If the pre-existing situation is poor or not well-maintained, restoration will be more difficult. Crisis and disaster preparedness starts with what seems to require proper management before the event. Recommendations include:

- Better coordination; more effective use of resources and less duplication
- Better logistical management so that items could be given out quickly with coordination and agreement between agencies
- Agreement among organizations on standards and design of latrines, shelter and water provision

- A uniform approach to household water disinfection: supporting the Ministry
- More realistic support to ministries
- Healthy city/healthy island self reliance/local level/ community involvement should be part of physical and mental rehabilitation
- Ensure that the environmental health perspective is part of the health aspects of rehabilitation.

3.13 Repair and recovery of health systems

Panel 2.9

The Tsunami as well as many other emergencies demonstrates that the recovery process already started one month after the disaster struck. The risk of losing the momentum when the relief period slows down and the recovery and rehabilitation effort are not yet at their maximum speed is very high. A certain degree of relief effort is still needed to fill this gap and continues to support the communities. It is essential to further strengthen health care delivery to the affected as they move into their new housing and to new communities and villages.

Recovery as definition: "...focuses on how best to restore the capacity of the government and communities to rebuild and recover from crisis and to prevent relapses. In so doing, recovery seeks not only to catalyze sustainable development activities but also to build upon earlier humanitarian programs to ensure that their inputs become assets for development" (UNDP, 2001)

3.13.1 What we have learnt

It is probably too soon to talk about lessons learnt or even lessons observed in terms of repair and recovery, especially in the most affected areas and countries where health systems have been totally disrupted, and where we are at the beginning of this recovery phase. What can be done is to incorporate the lesson learnt into a general framework and to reflect on the richness of our collective experience in different settings as well as our experiences from the past four months in the Tsunami affected areas.

In recovery phase, knowing what are the health needs of a crisis-affected population and their immediate causes is not enough. We also need to know:

- what is the capacity of the health system to meet those health needs;
- what are the system's main weaknesses / distortions (and their determinants) that need to be addressed; and
- what are the gaps that need to be filled.

In so doing, recovery seeks to build to analyse key components of health systems affected by crisis and their interconnection. Only a comprehensive analysis can help us better understand what's wrong and can help formulate adequate strategies and decide on resource allocation. A system analysis helps to understand the main features of the health system components, make comparisons with and learn lessons from other countries that experienced similar crisis or situation.

The analysis of only some components, carried out in isolation from the others, can result in unbalanced allocation of resources (for example, too much money on infrastructure in relation to recurrent costs).

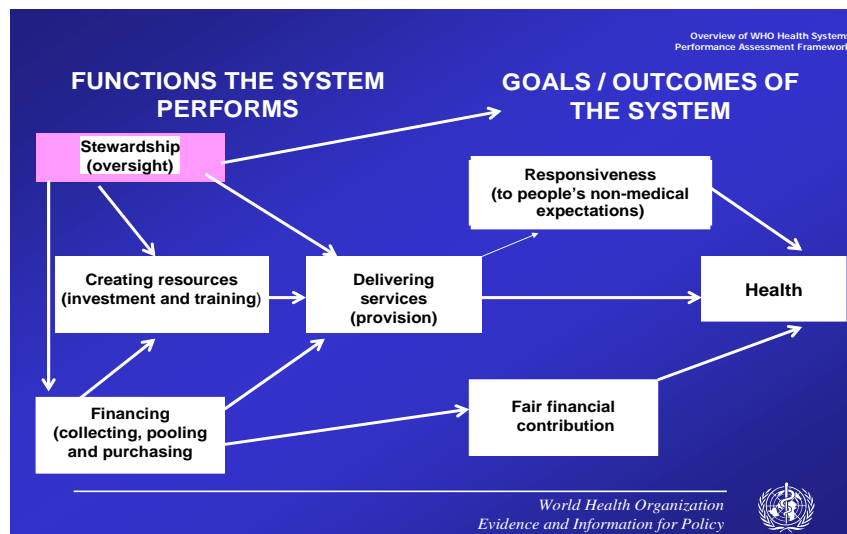
The key components of health systems that require to be analysed are those interconnected parts of the system without which its output—i.e. the delivery of health services—would be either impossible or inadequate to produce the desired outcome (i.e. an improved health status and fairness distribution).

They include either 'software' components, such as stewardship (or policy formulation, regulation, management, information management) or 'hardware' components, including health infrastructure, human resources, medicines and financing.

Planning for the recovery of the health sector needs to be:

- Inclusive: country-wide, systemic;
- Country-owned: national stakeholders should lead the process with stakeholders partnership;
- With a zoom approach: medium/long-term frames, with short-term planning cycles;
- Looking at the big picture;
- Taken into the overall context (political, economic, military) and understood;
- Done such that partnership with the key stakeholders is established.

In recovery phase, whichever components of health systems we choose to focus on, there is always reference to respective functions and relations between functions as a dynamic process.



3.13.2 What was done well

Some practical examples and lessons learnt through the health system functions are:

- Interrelation between stewardship and planning for health infrastructure, human resources and medicines was illustrated by a set of tools developed with WHO support and endorsed by the Ministry of Health in Sri Lanka in order to ensure an evidence-based rehabilitation process and to restore and improve health service provision, healthcare technology planning and management;
- An experience in Aceh concerned the interrelation between planning for health infrastructure and generating human resources for health, illustrating the implementation of temporary primary health centres for displaced persons while staffing and general management remained the responsibility of local health authorities;
- The generation of human resources component for the health services was illustrated by and as a result of lessons learnt in Aceh and the future planning for the creation of an emergency management system to improve the day to day trauma and emergency care system as well as the management of disasters. The health systems first have to properly manage day to day trauma and emergency cases and improve the quality of care in a sustainable manner; and
- The experience of need assessment in Sri Lanka with regard to the availability of pharmaceutical and medical supplies through the health system, to support the acute phase as well as the rehabilitation of health services, was done well.

3.13.3 What could have be done better

The need for better coordination among all partners was an issue commonly raised. Are we ready to make this commitment to coordinate? This commitment encompasses further joint and standardised assessments and more strategic consultation for the recovery phase planning.

As important, in such a disaster the role of the international community has been instrumental at the initial phase by providing financial resources, human resources and logistics. Now at the recovery phase the local established authorities must lead the process and the international community must support the national effort in partnership and in a coordinated manner.

The fundamental principle becomes a consensus to work on developing the local capacity and the two main priorities are: 1) to re-establish primary health care including the referral system, preventive and community care and the information system and 2) to raise the level of emergency preparedness and multi hazard risk reduction in order to better cope with the unavoidable disaster situation in the future.

3.13.4 Recommendations

How to strengthen heath systems in order to be better prepared for coping with a disaster situation?

We know that planning and preparation can reduce the impact of a natural disaster. This encompasses the institutionalization of emergency preparedness, including the reduction of the vulnerability of health infrastructures. Another example was given in Thailand and demonstrated how building local long term capacity has paid off. The rapid response teams were established in response to the SARS and avian influenza epidemics very efficiently and were turned into rapid response teams for the Tsunami crisis.

The need to have a strong public health infrastructure cannot be over-emphasized and the role of international organizations is to support national leadership in developing adequate coordination mechanisms.

Sustainability of the health system is now in the early recovery phase, we have to think now and plan for it. A lot of damage has been done and more will be if we do not follow proper planning and adopt a global vision.

To improve in the recovery phase, what is done during the immediate response will be reflected in the long term and have repercussions to the health care service.

There is a need to speak the "same language" between researchers and implementers, and the only way is to provide enough evidence for better planning and decision makers. We have many assessment tools; the methodology should be standardised.

How to support the local capacity to be ready and prepared for the next emergencies

Health workers are also victims in this tragedy. Many have lost relatives, colleagues and friends. Whether victims or heroes of this tragedy, health workers are survivors, too. Any recovery effort supported by the international community must take their mental health needs and well-being under serious consideration.

The capacity of national/local public institutions to implement projects, includes:

- experience, capacity and familiarity with implementation procedures for donor-funded projects;

- the condition of facilities and equipment needed by ministries to function effectively;
- The state of infrastructure and energy services that affects the capacity to import and distribute commodities necessary for reconstruction. Logistics is key and the country should be self-sufficient; and
- Availability of equipment and inputs in local and international markets for construction and other investments; this point cannot be dissociated from the health system recovery.

Resources from the outstanding coordination effort that followed the 26 December tragedy can be either be poorly spent or can result in stronger health systems and public health infrastructures that will respond better to the next challenge.

3.14 Reproductive, mental and child health

Panel 2.10

3.14.1 Issues

- The importance of raising the level of awareness of the health needs of both women and children who were affected by the Tsunami; evidence indicates that these populations are the most affected, and have increased health risks as a result of the disruption of basic social/health services and support mechanisms.
- Generally, response/relief efforts target neonates, infants and 0-5 years of age groups. However, it is vital not to forget the needs of adolescents and young people who are at an increased risk of sexual violence and sexually transmitted infections, including HIV/AIDS.
- Generally, during the acute phase of the emergency relief aid, the focus is on establishing communicable disease surveillance, the provision of clean water and sanitation as well as addressing needs of food and shelter in order to prevent mortality and reduce levels of morbidity. However, it is important to note that addressing reproductive, maternal and child health needs is also a priority and should not wait for the emergency to stabilize. Pregnant women and women that recently delivered require critical health care. Hence, health care services for these vulnerable groups must be implemented immediately and should be based on best practices and previous lessons learnt.
- The psychosocial impact of the Tsunami on children must not be underestimated and initial assessments in many affected areas indicate a significant level of psychological disorders.

3.14.2 What have we learnt?

- We (national authorities, health care personnel and humanitarians) need to better profile and understand population demographics, traditions, cultures, beliefs and health status of high risk populations before a disaster strikes in order to effectively and efficiently mount response activities.
- Building national and local capacity for disaster reduction will ensure that the right people have the right skills and knowledge to perform their jobs efficiently and effectively.
- Initial assessments indicate that the health needs of young people and adolescents are often neglected. Moreover, these groups can be mobilized to play a vital role in the recovery process.
- Sexual and gender-based violence (SGBV) infringes upon the fundamental human rights of adults and children. This form of violence includes specific acts against women and children, such as sexual harassment, rape, wife beating, forced marriage, forced prostitution, and child trafficking and child labour. There have already been reports from Sri Lanka that there have been incidents of rape and inducement of children and young people into sexual activities.
- The literature indicates that rapidly engaging young people and adolescents in routine activities helps in alleviating the onset of psychosocial disorders. For instance, restarting schools as well as engaging teachers was shown to be an effective healing mechanism.

3.14.3 What was done well?

- The availability of a strong health care infrastructure in Thailand and India prompted rapid mobilization of services and support to affected communities. Health interventions, such as measles vaccination and vitamin A supplementation for children in shelters, reduce rates of child mortality
- In Sri Lanka, women and children's needs were prioritized during the onset of the disaster, preventing excessive deaths. Also functional health services were restored and maintained. This limited the needs for foreign and mobile hospitals
- The use of the IASC Guidelines and Matrix as a means to focus relief, recovery and reconstruction analyses, planning, implementation and monitoring activities with the aim towards reducing HIV/AIDS risks and reducing vulnerabilities are adequately addressed.
- Prompt mobilization of health care personnel (midwives) in Indonesia and the establishment of temporary health post facilitated deliveries and monitoring of neonates.

3.14.4 What could have been done better?

- The immediate implementation of the minimum initial service package (MISP) to meet the reproductive health needs of women, coordinate the various health actors, and ensure the availabilities of essential supplies and equipment.
- HIV was included more as an afterthought by most partner agencies responding to the Tsunami, with no comprehensive HIV vulnerability or risk needs assessments conducted yet to date in any of the affected countries.
- Despite having been launched since 2003, the IASC Guidelines had not been actively used or integrated into Emergency Preparedness work and thinking in the countries hit by the Tsunami until after the event had occurred.
- In addition to the fundamental challenge of addressing the health needs of displaced populations, was the urgency to identify and address the needs of a number of marginalized / high-risk groups in the affected countries and affected areas (such as, legal and illegal migrants, injecting drug users, male and female commercial sex workers), who were often deprived of access to services BEFORE the Tsunami occurred, and who have become even more marginalized in the post-Tsunami period.
- Finally, in certain affected countries there were a number of "sensitive" issues which had to be addressed. For instance, the national decision-makers in a certain country were affronted by the suggestion that their military teams that were sent for immediate relief and recovery activities in the Tsunami-affected areas might actually need condoms and HIV/AIDS prevention education.... Likewise, the influx of large numbers of "mobile men with money" for the recovery and reconstruction phase pose added challenges as well.

3.14.5 Recommendations

- Establish linkages with other sectors in addition to the health sector to address reproductive health, maternal and child health needs with a special emphasis on child protection and gender related issues;
- Institutionalize minimum initial service package (MISP) training in the national curriculums for health providers (i.e. medical and nursing schools, etc) as an effective tool to implement reproductive health services in an emergency;
- Involve young people immediately in the planning and implementation of rebuilding and recovery efforts as a measure of sustainable and appropriate action but also to reduce incidence of psychosocial disorders;
- Ensure that recovery and rehabilitation interventions are designed and implemented with the intent of reducing HIV risk and vulnerability through the restoration of individual and community livelihoods as well as comprehensive health services, including in particular the full range of Reproductive Health services;

- Develop appropriate interventions during recovery and rehabilitation phases which will ensure that the basic needs of women and children with particular vulnerability to HIV/AIDS are adequately met. These women and children include single, widowed or economically insecure women and unaccompanied, unsupervised children and adolescents
- Reproductive Health services and commodities, in the face of the risks and vulnerabilities for HIV transmission – must be restored or provided for all segments of the affected communities. This would also include access to safe delivery, contraception for men and women, and syndromic STI treatment services;
- Trained child and maternal health personnel should be an integral part of disaster assessment and relief efforts. These may include health professionals representing various civil societies and associations, academic institutions, non-governmental organizations which can be trained and mobilized in the event of a disaster to provide effective relief to local populations
- Strengthen existing health services (the system) in high risk and remote areas in order to be able to provide effective and efficient services in times of a disaster
- Tools and standards developed and tested for reproductive and child health in emergencies should be promoted and adapted to local situations (i.e., MISP and IASC guidelines)

3.15 Food security and nutrition

Panel 2.11

Following the Tsunami, the immediate needs were in terms of provision of health care, food, water, sanitation and shelter. Malnutrition rates were already high in the countries before the disaster. Combined with displacement, loss of caregivers, and poor environmental conditions, it was a situation that needed to be monitored. People who are malnourished are not only more susceptible to infections and at a higher risk of death, but infections can result in moderate malnutrition progressing to severe cases. There have been joint UN, NGO and government initiatives to establish nutritional surveillance systems, including carrying out rapid nutrition assessments to identify the malnourished and look at underlying causes.

The predominant humanitarian response to acute food insecurity has been the provision of a general food ration to the affected groups. Supplementary feeding programmes have been targeted to the nutritionally vulnerable groups. These had the objective of reducing the prevalence of moderate malnutrition and associated mortality in malnourished children and other at risk groups such as pregnant and lactating women. Management of severe malnutrition including therapeutic feeding programmes have been planned at various levels, i.e. hospitals, health centres, and at the community/household levels.

Micronutrient deficiencies, especially anaemia is prevalent among women and children and needs to be prevented and controlled. The United Nations World Food Programme (WFP) has been distributing fortified food items in the general and supplementary rations. Helen Keller International (HKI) and other NGOs have been distributing micronutrient supplements to vulnerable groups.

Appropriate infant and young child feeding has been promoted. Responding to concerns about the large quantities of milk powder being sent into the region, WHO and the United Nations Children's Fund (UNICEF) issued a joint statement on appropriate infant and young child feeding, cautioning caretakers and health staff about unnecessary use of milk powder and the need for monitoring the distribution to those who need it.

3.15.1 Needs assessments

The objectives of the numerous Emergency Needs Assessments (ENAs) carried out by WFP and partners in the disaster-affected areas were to:

- Provide an understanding of the impact of the disaster on food security and analyse the profile and livelihoods of the different groups of population affected;

- Define the food security and nutrition needs of these groups, integrating issues related to household livelihoods and asset security; and
- Provide recommendations on response options and follow-up actions in preparation of recovery activities.

The Emergency Needs Assessments focused on food security issues but also covered nutrition, health, income sources, breast-feeding practices, availability of clean water, sanitation arrangements, population displacements and need for shelter, sources of aid, coping mechanisms. In each case, rapid assessments were to be followed by more in-depth assessments in subsequent months, important for establishing baselines for results reporting, and refining the scope, scale and duration of various relief and recovery options.

For the ENAs, common methods were sought across countries assessed (Indonesia, Sri Lanka, the Maldives, and Myanmar). Sample frames differed, based on need, timing, resources and focus. Lessons learnt include the importance of having well-trained enumerators, and sufficient time to have extended discussion within households.

The nutritional status of affected populations was assessed in parallel to the main needs assessments. In Aceh, UNICEF, WHO and WFP linked with GOI to establish a more representative baseline on nutrition and health, which would also link with food security indicators, and serve as a platform for more regular surveillance and feedback.

Main constraints were: Logistics, road conditions (including loss of hundreds of bridges), and a lack of office and sleeping quarters; human capacity (national staff were overwhelmed; finding good multilingual, numerate enumerators was not easy at short notice; lack of institutional capacity to support this kind of quick action); insecurity (many aspects of personal insecurity, which also affected the quality of surveys, and hence findings).

3.15.2 Coordination

Inter-agency cooperation in Aceh was good (UNICEF/WHO/WFP cooperation that also included HKI, Save the Children Fund (SCF), etc). Humanitarian actors together with the MOH organized regular coordination meetings both at the central as well as at the provincial levels where issues were discussed jointly, e.g. monitoring distribution of donated infant formula for infants who have no access to breast milk, the establishment of a nutrition surveillance system, treatment of severe malnutrition. Other line ministries such as the Ministry of Social Welfare who are responsible for food distribution, and the Ministry of Agriculture who support communities in local food production, should have been more actively involved.

Coordination, however, has not been so good among the actors in the health, water, and food sectors. There has been a lack of information sharing and no attempts were made to integrate surveillance systems in the various sectors even though nutritional status is an outcome of the health, food and environmental conditions.

Concerning nutrition assessments, ways have to be found to better coordinate ahead of crises, on what to measure, how, and when. Ways also have to be found to better embed nutrition surveys into broader livelihood surveys. Done in parallel they can inform each other, but done using separate sampling universes with separate sample frames (and time frames), nutrition and mortality data cannot be compared to data from food and livelihood security assessments.

There also needs to be a standardized approach in the reporting and dissemination of data from assessments. For example, even when small numbers of children were measured in accessible camps in one part of one district, those data were immediately cited as if representative at a province-wide level for all affected populations (including those not in camps).

3.15.3 Gap filling

Response to defined needs was quick (e.g. micronutrient needs) resulting in reduced post-crisis morbidity and mortality. Many of the operations have sought to combine nutritionally-sound food with rebuilding schools (WFP-UNICEF), with multiple micronutrient distribution (WFP-HKI-UNICEF), with building institutional capacity for surveillance and distribution of fortified foods to pregnant women and infants. However, response in nutrition should be better linked to activities in health, and water and sanitation so that gaps in addressing the needs are not overlooked.

What needs to be done better is the screening of incoming health/food materials to prevent a huge waste and an overloading of logistics facilities (such as the military airport in Banda Aceh). Far too many unsolicited items and some culturally inappropriate foods showed up, including milk powder and infant formulas that often contravened the international code of marketing of breast-milk substitutes.

3.15.4 Capacity building

People from the central and local governments were involved in conducting assessments. Without them the assessments would not have been able to be carried out because of language, cultural barriers.

Local breastfeeding counsellors were trained and deployed.

Local authorities are the most influential group in planning and implementing interventions, thus it is important that they are involved in assessments and in using the information generated to develop a longer term action and monitoring plan.

The improvement of nutritional status should become an integral part of community development. Each affected district should be supported to develop an appropriate combination of interventions for improving the health and nutritional situation of the community.

3.15.5 Recommendations based on lessons learnt

To improve information sharing and coordination among the humanitarian actors:

- Develop common nutrition assessment tool that can be used by all humanitarian actors in collaboration with governments.
- Develop clear working mechanisms (roles and responsibilities) between WHO and the key UN agencies in the area of nutrition in emergencies. Memoranda of Understanding (MOUs) already exist between UNICEF, the United Nations High Commissioner for Refugees (UNHCR) and WFP.
- Develop information, education and communication material at the country level that can be distributed to the local communities, i.e. "ready to use" adaptable community communication tool-kit that would be ready for any emergency.

To better address issues related to inappropriate donations of foods for infant and young children after disasters:

- Raise awareness of communities: Establish local breast feeding counselling and support groups (conduct trainings and involve them in the community to improve awareness of importance of exclusive breastfeeding and appropriate complementary feeding practices, as well as guidance on proper use of breast milk substitutes for those who need it).
- Raise awareness of policy makers at the central level and institutionalize Code of Marketing of Breast milk Substitutes in countries that have no national policy on this.
- Countries need to establish a central receiving and monitoring system for donated food items.

To build national and local capacity:

- Provide training of health staff regarding nutrition (infant feeding, macro- and micronutrient requirements, detection and management of severe malnutrition). Appropriate supervision and monitoring mechanisms need to be put in place after training.

To improve response:

- Involve local community whenever possible. In Krabi, collaborative planning involving local government, civil society, UN, and private sector resulted in improved communication between village leaders and district officials about needs related to food, water and sanitation, housing and livelihood rehabilitation.
- Integrated response systems should be developed to address all the underlying causes of malnutrition.
- Mechanisms should be in place to allow for more flexible use of funds including addressing nutrition issues in the host communities and in the rest of the population of the countries affected by the disaster.
- Countries at risk of disasters should keep stocks of commodities such as, therapeutic foods, micronutrient supplements, and fortified food products.

3.16 The health sector contribution to disaster reduction Panel 2.12

3.16.1 Issues

There has been a change in the perception of the vulnerability reduction. It must be part of a multisectoral and multidisciplinary approach. Health sector risk reduction should not be an isolated effort. Rather, it must be part of the national risk reduction framework mainly implemented at local / community level.

The health sector has been a first contributor to disaster reduction. It is a pioneer in disaster reduction. Now other sectors are contributing to promote and enlarge the concept. Hospital vulnerability reduction is an objective of choice however it must include not only building vulnerability but also system, services and its link to the community. Strengthening primary health care system will contribute to increase the resilience of the health sector at community level. Training of health professionals in disaster risk reduction has received little attention. For example, almost no WHO guidelines take into account the existence of hazards.

There is a change among donors to recognize that mitigation and preparedness are important but it is not enough. However, the EU sees preparedness and mitigation as the most effective instrument to link response and development.

There is a link between millennium development goals (MDGs) and disasters but it is not precise enough for any country or organization to really take action in disaster reduction. The main present link is in Goal 7 that is linked to the environment.

3.16.2 What have we learnt?

There has been very little work done in reducing specific risks prior to the Tsunami.

Preparedness is only one tool. Mitigation is another very important and cost effective tool. Both of them are much more cost effective than response.

There is still a lack of clarity in the terminology. The International Strategy for Disaster Reduction (ISDR) chooses reducing risk as including preparedness, prevention and mitigation.

Many people died in the Tsunami not so much due to the tidal wave but rather to the fact that they were not alerted of its arrival. An early warning system will not be enough to protect lives. The population and authorities must be better informed and educated on all types of hazards that could affect their area.

The private sector could be a very active partner in disaster reduction if it is included systematically in the risk reduction process.

Most hospital and health centres have been destroyed because they were badly located or built. For example: a good mass casualty management system will contribute enormously at reducing the number of lives lost.

Safe hospitals mean much more than just the safety of buildings. It also includes its functional component. It is also representative of the inter-sectoral approach to vulnerability reduction. A hospital will be safe if it has proper water and electrical supply as well as good access. Hospitals are at the interface between the health sector and the community and can become a flag ship of promoting the concept of disaster reduction.

There are good stories however few of them are documented. For example, many hospitals in Thailand have been built at a second level and many have not been affected by the Tsunami.

Not enough has been done in risk reduction partly because ministries of finance or international financial institutions have not been briefed well enough on the financial consequences of the absence of appropriate mitigation measures in development plans. There is no clear existing indicator of community vulnerability useable by the health sector.

3.16.3 Recommendations

- Identify systematically best practice in integrating mitigation in the daily practice of the ministry of health.
- Ministry of finance should be more engaged in mitigation.
- WHO should identify vulnerability indicators, among others, at community level in order to monitor the disaster risk reduction process. One indicator to be implemented is safe hospitals as proposed in the Kobe conference.
- Involve other partners such as the private health sector in contributing to health disaster reduction.
- Safe hospitals are a multisectoral indicator as it requires the contribution of many sector and partners at community level to function properly in disaster.
- Active advocacy by donors, WHO and other institutions on the importance of risk reduction. WHO is a development agency and will be the most efficient in promoting risk reduction.
- Mitigation activities must also be integrated in the recovery process.
- All WHO staff are contributing to development activities and therefore should have basic knowledge of disaster risk reduction.
- The staff of primary health care must be trained in disaster risk reduction as they will be the first responder in case of disaster.

3.17 The role of media and communication

Panel 2.13

“I’m just trying...to present important material in a balanced way so as to draw people into the program and not chase them away because it is too big, too much, too painful, too overwhelming to absorb in the way that television presents information.”

Aaron Brown, Anchor, CNN NightLine – Reuters source

“There is a difference between information you give out for news and the communication that affected populations need on health in emergencies”

Susan McKay, UNICEF Communications Officer - at the media panel

The role of the media and news journalists in particular, is to provide news and reporting in a fast, accurate and interesting way that will sell news papers and make good listening and viewing. Because of tight and multiple deadlines, the media and particularly television often do not have time to do full research and to get a complete analysis, and so rely on the first story they come across or the first information they are given by an NGO or international organization.

Health and humanitarian agencies are also competing with each other to get their information out to the media and have two clear needs: 1) news coverage and public information to affect policy change and to fundraise and 2) health education and operational communication.

The problem is that although both sectors need each other, the expectations and ways of functioning of the media and the humanitarian agencies do not always match, so opportunities to effectively communicate strong stories, analysis and public health messages are often missed. With its increasingly important role in humanitarian responses, it is necessary to ask what could be learnt from the media coverage of the Tsunami and what could be learnt to bridge this gap and to better communicate for policy and operational effectiveness.

Two media analysis studies have been done on the media coverage in the Tsunami affected countries: one by Reuters Alertnet on global coverage by the main English language media and the other by the Centre for Media Studies in Delhi. Whereas in most disasters the highest media coverage is at the beginning with the dramatic pictures, both studies found that in the Tsunami disaster, coverage peaked two weeks after the Tsunami struck due to the increasing body count.

Reuters Alertnet also found that the Indian Ocean Tsunami got more media attention in the first six weeks after it struck than all of the world’s top ten “forgotten” emergencies combined have received in the past year. The research also suggests the Tsunami squeezed out coverage of other crises. This was due to the unprecedented magnitude of the Tsunami, the lack of competing news, the fact that people had never seen a Tsunami on their TV screens before, and that so people from so many countries were affected.¹

Although some of the WHO did much better in terms of communicating in big emergencies, the IFRC and NGOs including Oxfam and Médecins sans Frontières (MSF) clearly dominated the media coverage with effective communication of operations. Generally, much of the Tsunami coverage was based more on delivery of aid than on analysis of the problem, probably due to the pressures of fund raising.

In any natural disaster, many issues and stories compete for attention. Although health issues affect everyone, in the Tsunami affected countries, health received just 7% of coverage in the first two months while relief, rescue and contributions to the Tsunami Relief accounted for over 50% of the coverage. When there was coverage of health issues, it did not always reflect the reality of the situation or the health risk in the field which creates frustrations among agencies and governments.

¹ Delhi research

Although mental trauma affected the majority of Tsunami survivors, it received just over a fifth of all health coverage², with the risk of malaria and cholera receiving the majority of coverage in global English language media, with over 40%. This suggests that the health agencies were not communicating basic information effectively about the extent of the importance of health risks in a natural disaster nor about the analysis of real risks.

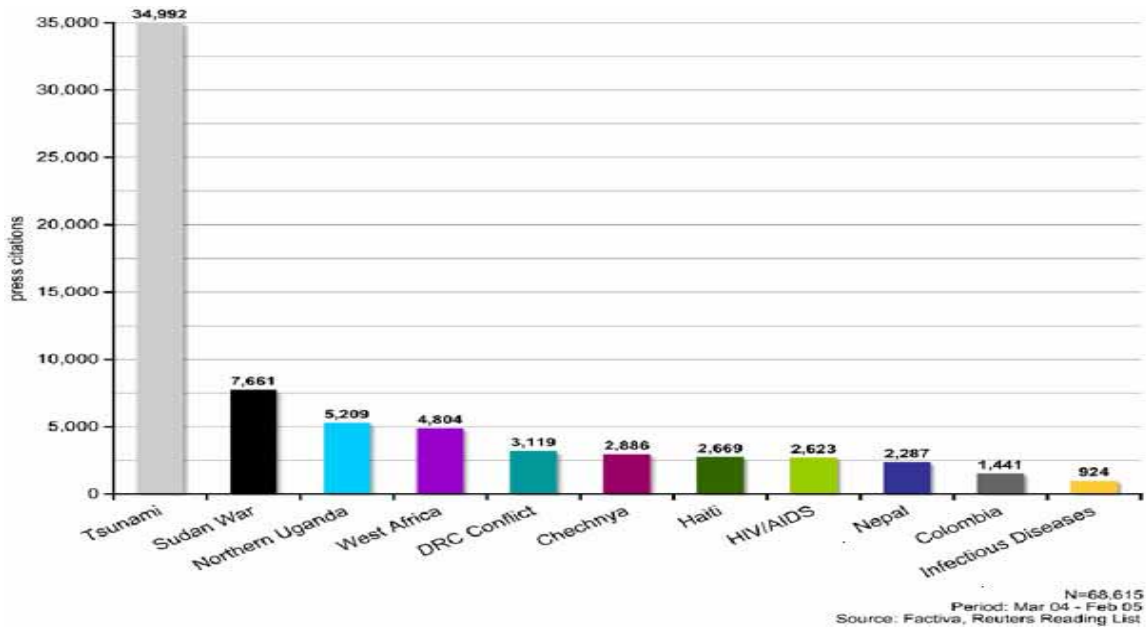
News coverage around health issues was generally much stronger than health education and communication. Many people knew they were traumatized but didn't know what to do about it.

Clearly there were problems for health organizations, particularly international organizations and governments and local NGOs in terms of what to communicate and how. Key recommendations of how to strengthen future health responses in media and communication include:

- Ensure that communications needs are part of the operational plan from the beginning (the Singaporean government did a good job of this in SARS).
- Emergency communication strategy should be clearly divided into: 1) Public Information - facts statistics and human stories for news stories and policy. This can be done by improving relations with the mainstream and local media and 2) health communication that people can use. Alternative methods such as soap operas, use of community radio and theatre are needed.
- Invest in Public Information based on real journalists' needs; Flag upcoming issues – as the military does - and set news agenda with analysis and facts - essential to have personnel who understand the real needs and constraints of journalists.
- Strengthen analysis. Publish in-depth analysis of what worked and what did not in recognized journals. This has been very weak in the Tsunami coverage.
- Build long term personal relations with journalists in down time – Companies and NGOs take advantage of down times to build relations with journalists and to improve the understanding of their business and constructive critique of the way health, business or economic issues are covered.

² Reuters research

- Organize a workshop on health communications in natural disasters (further to the Tsunami, UNICEF will be prioritizing this kind of communication and would like to collaborate with WHO).



3.18 Contribution of non-governmental actors

Panel 2.14

3.18.1 Executive Summary

NGOs, unlike governments and International NGOs (INGOs), are able to identify needs and rapidly deliver services because they are: based in, and intimately familiar, with the community they serve; maneuverable, willing to take risks, without fixed protocols; and less constrained by security and political considerations. Their identification with community aspirations can facilitate the effective brokering and matching of community needs with donor, INGO and government resources. However, these same characteristics make NGOs less capable in other aspects of disaster response. NGOs are unable to coordinate their activities with one another or with the government and international aid agencies. A lack of equipment and technical expertise means an NGO's response is limited to fewer activities, and these services are often sub-par and result in poor health outcomes. Governments and aid agencies view these shortcomings as a rationale to exclude or limit their work with NGOs. NGOs believe these larger actors patronize them and ignore the essential work NGOs can perform and the valuable inputs from the field that NGOs can provide. Enabling NGOs to overcome these deficiencies are an important opportunity for actors in the international health system to develop a more robust disaster response. Governments and international NGOs should accept that NGOs must remain community-based, flexible and imperfect if they are to successfully deliver essential health services in a post-disaster situation. Instead of ignoring or marginalizing NGOs due to this limited capacity, governments and aid agencies must complement NGOs by bolstering coordination amongst them, by building their capacity to deliver technically sound services and by learning from the important work NGOs perform.

3.18.2 What have we learnt?

Needs assessment

NGOs were particularly able to identify basic needs as they arose and to conduct surveillance in communities. The NGO perspective is particularly unique since they mostly assess need with respect to the livelihoods of affected communities. These surveys uncover health risks and concerns that only an intimate presence in communities can reveal. Needs assessments and institutional knowledge unique to NGOs can provide an effective intermediary between the actual needs of local populations and the available resources of governments and INGOs. Finally, being a part of civil society, NGOs traditionally have good links with the media. NGOs have used their relationship with the media to create public awareness and maintain focus on issues affected communities consider important.

On the contrary, some NGOs identified needs based upon the resources that were made available to them, in lieu of requesting the resources that they perceived were most important. This reinforced the decision-making patterns of donors, governments and aid agencies, and robbed affected communities of expressing their perspective in the aftermath. Many NGOs were unwilling to act independently because of the traditional competitiveness amongst NGOs to obtain a greater proportion of resources - they are worried that the needs they identify will be ignored by donors, resulting in their loss of identity and role during an emergency response. Furthermore, given the presence of NGOs in only one or a few communities, they are often unable to see the 'bigger picture'. This is exacerbated by the exclusion of most NGOs from the planning and coordination process, thus providing them with fewer opportunities to engage donors and governments for resources. This exclusion leaves NGOs in a master-servant relationship with donors and governments. NGO-generated surveillance data and needs assessments were ignored or underappreciated because no dialogue existed between NGOs and decision makers.

Coordination

Evidence from all affected countries reveals that many NGOs did effectively coordinate their activities with each other, the government and aid agencies. The defining characteristic of every successful effort to coordinate activities was simply that the coordination mechanism had been developed and utilized beforehand in a separate context. Some frameworks for coordination resulted from the initiative of an NGO, while in other cases, the initiative of a government or aid agency to develop an understanding with their counterparts, even if rarely put into practice until the Tsunami, was sufficient to ensure that coordination occurred. Underlying these efforts to coordinate with NGOs prior to the Tsunami was a willingness of certain governments and aid agencies to recognize that partner NGOs were making significant contributions and should be respected as equal partners.

On the other hand, many NGOs had no capability to coordinate or knowledge of what other organizations were doing. These NGOs were incapable of linking identified needs to resources that were available, or determining whether other NGOs were also trying to satisfy these same needs. Due to this lack of coordination, there were duplicative efforts and wastage of resources. A lack of coordination also meant that other communities with immediate needs did not receive essential services which were in excess elsewhere. Some governments were incapable of mounting a serious effort to coordinate NGOs or to develop a system where NGOs worked in equal partnership. Instead, government meetings with NGOs were entirely hierarchical, with government agencies only relying upon NGOs to deliver specific services, instead of revising the government's response based upon the specific inputs of NGOs.

Filling gaps in provision of needed services

NGOs were uniquely situated in the affected communities to act as first responders. NGOs with long standing ties to the affected communities provided immediate and essential services to affected populations. Some NGOs had strong technical capabilities and professional staff to rapidly engage in disease surveillance, curative services, vector control, training and health education, and water and sanitation services.

On the other hand, many other NGOs were non-health NGOs, and had little or no training in disaster response. Instead, they were community-based organizations that mobilized their staff and resources to fulfill immediate needs. While they may not have technical expertise, they had the ability to identify basic needs of affected populations and provided services that had important implications for the health of the affected populations. Some of the non-technical services provided by NGOs included: (1) creating a clean environment, (2) transporting persons to the hospital, (3) providing water and food, (4) distributing clothes, (5) simple water purification, (6) sanitary napkin distribution, (7) engaging children through recreation, (8) constructing shelters, functioning toilets and bathrooms and (9) identifying and preventing human rights violations that have health consequences, particularly the exploitation of women and children to sexual violence, trafficking or forced labor. It is imperative that governments and INGOs recognize that NGOs can do more than merely complement government and INGO vertical (technical) programs to prevent disease or treat medical injuries. Too often, NGOs note that they are ignored because they do not have specific technical capacity to provide medical services or engage in public health surveillance, even though the other services and their assessments of health needs are equally important in preventing poor health outcomes.

Capacity building

Certain NGOs already had a long-standing capability to deliver health services, control or eradicate infectious diseases or conduct health surveillance. In fact, successful partnerships between the government and NGOs in some affected areas allowed for NGOs to develop the capacity of government personnel to provide basic health services in a resource deficient environment. In

other instances, links between NGOs and the government allowed governments and INGOs to rapidly train NGOs and volunteers to deliver essential services.

Other NGOs were able to assess the needs and vulnerabilities of affected populations, but did not have the ability to actually deliver an effective, efficient or adequate response (namely a response that satisfied minimum protocols and standards developed by governments and aid agencies) since they were non-health NGOs or were not ready to engage affected communities. This reflects some of the inherent limitations of NGOs. However, it also reflects the need for governments and INGOs to actively engage NGOs to train and prepare them for future disasters based upon their protocols, or to develop minimum standards and engage NGOs to follow these standards hereafter. This is only possible if governments and INGOs transfer resources, responsibilities and knowledge to these groups to compensate for any deficiencies. One useful mechanism to build capacity and transfer needed resources is through an accreditation process, which was shown to have worked well in some Tsunami-affected regions in India. An accreditation authority can also simultaneously develop an effective coordination mechanism through their interactions with NGOs.

Furthermore, certain INGOs were guilty of depleting the capacity of local NGOs by drawing out these employees with higher salaries and benefits. This delivered a serious blow to the capacity of local NGOs, and made it difficult to deliver essential and coherent services in affected communities. Furthermore, NGOs were often difficult to work with because of high turnover of personnel. This made coordination difficult since established mechanisms between different actors had to be taught again or modified frequently.

Conclusions

Because aid agencies and governments tend to engage in disaster responses through a technical perspective, many of the actual needs of affected communities are ignored. While NGOs may not always deliver responses that are effective, efficient or adequate, NGOs are particularly suited to ascertaining the appropriateness of a particular program in a community, and the connectedness of a health response with other activities conducted in affected communities. Ultimately, responses should be based upon what the community needs and requires for sustenance, survival and development. If NGOs are engaged equally and meaningfully, the health outcomes of affected communities will be drastically improved.

3.18.3 Recommendations

Develop a comprehensive framework to effectively link Ministries of Health, other government agencies, NGOs and INGOs. Emphasis should be placed particularly on stimulating links between NGOs and the MOH; INGOs should focus more upon building the capacity of NGOs and the government to effectively work together. Links developed and utilized prior to disasters will function more effectively during an actual disaster.

Make a concerted effort to develop an attitude and culture amongst staff in governments and INGOs to recognize NGOs as partners in the decision making and planning process. NGOs should be viewed as particularly important in enabling governments and aid agencies to match community needs with actual resources that can be devoted to affected areas.

Spend resources on training NGOs to engage in disaster response during non-disaster situations, and develop appropriate protocols that can be used to train all NGOs. One effective mechanism to train and ensure quality control amongst NGOs is to tie training and capacity building to a government accreditation scheme. An accreditation agency can also be used to develop a coordination mechanism amongst NGOs and with the responsible government agency.

Make an active effort to include NGOs at all stages of developing national capacity to build an effective disaster response in the future, regardless of the size of the NGO. Countries should

develop responses with a 'bottom-up' approach that identifies community and NGO assets as the first response to disaster, and an important resource throughout a disaster response.

Discourage aid agencies from 'stealing' personnel from local NGOs during a disaster response, and encourage or devote government and INGO personnel to work with NGOs throughout a disaster response to compensate for rapid turnover and to develop better communication and coordination links between NGOs, government agencies and INGOs. This could include creating a position in a government or aid agency department to act as a full-time NGO liaison, trainer and coordinator that trains NGOs and then coordinates the NGO response during a disaster.

Discourage NGOs from competing for resources by allowing NGOs to dictate the work they believe is most important based upon their experiences and assessments.

Recognize that capacity building can work both ways. While most capacity building will require governments and INGOs to support and train NGOs, NGOs that have delivered innovative, rapid, efficient and adequate methods to deliver health services should be scaled up when possible.

Ensure that NGOs have immediate access to humanitarian intervention funds for a timely and effective response. One mechanism could involve channeling donor funds directly to non-governmental organizations, perhaps as much as 25% of all funds.

3.19 Civil-military cooperation in humanitarian health action Panel 2.15

The Tsunami disaster in Asia was characterized by extra-ordinary cooperation between civil and military relief efforts. This interaction was greatly facilitated by the establishment of the Combined Support Force 536 at the Royal Thai Air Base U-tapao and the staffing of the United Nations cell with a Civil Military Liaison Officer from WHO. These efforts culminated in the Health Assessment Missions where military sea-based assets flew WHO led multi-agency teams to 24 internally-displaced person (IDP) camps in Aceh Province, Indonesia where an estimated 500,000 people were at risk of outbreak of communicable diseases. No widespread outbreaks occurred and the continuous flow of information gathered during the missions helped address immediate health concerns, such as directing limited measles vaccine to where it was most needed. For the longer term, the health assessment missions helped guide relief efforts from those based on estimated need ("push") to those based on actual need ("pull"). Given the success of this civil military interaction, it could prove useful to all concerned that guidelines for specific civil military cooperation on health be drafted.

3.19.1 How does effective civil-military cooperation in humanitarian health action help address the key questions of:

Needs assessment?

To be effective, needs assessments need to be done quickly and systematically, and these assessments should be well connected with relevant agencies and organizations. Quality assessments are needed and thus "slow is often fast". There are often many assessments done, with variable quality, results, and dissemination. It is critical that this information is constructively and proactively shared.

Given that the majority of the world's population lives within helicopter distance from open water, militaries, particularly sea-based assets, may be best positioned to supply the rapid and secure logistical platform for carrying out efficient needs assessments. The 2004/5 Tsunami disaster in Asia featured a highly efficient, well-coordinated systematic health sector assessment led by WHO and operated by the military conducting 40 missions to 24 internally displaced persons camps in Aceh Province, Indonesia.

For the military, threats to human life in the immediate setting include trauma and drowning. Life saving interventions are the immediate provision of clean water, safe food and shelter. These are followed by adequate sanitation, immunization, vector control, and urgent medical and surgical care.

Survivors of the immediate setting will face thirst and starvation and be at risk for water borne disease outbreaks, such as diarrhea and cholera. Displaced persons who form camps are threatened by air borne diseases, such as measles and diphtheria as well as tetanus requiring appropriate care. Life saving interventions include adequate sanitation, immunization, vector control, specialty care and inpatient care. Camps will also be threatened by insect borne disease with concerns about malaria or dengue.

Coordination?

- Civil-military coordination of the host country

In the affected, or "host" country(ies), the national military is often already involved in delivering relief efforts, such as has been seen in the floods in India and Bangladesh. In Indonesia this military support to national relief efforts has been incorporated into law in 2004. What might need clarification is who is in charge of a humanitarian relief operation? The law or standard operating procedure (SOP) should consider the following questions. Does the military response and therefore the military command come under the civil administration overall in charge of the effort (if the civil administration has been identified as the overall in charge)? How is the civil-military coordination initiated? Does this depend on central government or, if SOPs are in place, could this be done at state/province/division level? Can a state/province level Disaster Management Body, which would include a member from the military, decide that the military should be involved?

- Foreign military assets

When foreign military assets are deployed, to whom have they been provided? An example is the Singaporean helicopters provided to Indonesia for the Nias relief effort. In this setting, it was not clear who was in charge. Was it the Governor (who had received this mandate from the President) or the Commander of the Indonesian military (TNI)? Thus, it was also not clear who could direct where the Singaporean helicopters were expected to fly. In addition, items (medical supplies, etc.) flown from Banda Aceh to Medan by the TNI got held back in the TNI warehouse and the TNI was not willing to release them as they were supposed to be carried by Singaporean helicopters. Finally agencies had to try to release their own supplies from the TNI warehouse after a lot of bureaucratic paperwork and send the items out with a French Red Cross plane to Nias. This caused a delay of one week for the items to arrive in Nias.

It should therefore be clear whether assets provided are to assist the UN operations or the government operations or whether the assets will be under the command of the providing government for specific requests.

- Criteria for entry and exit strategies for the military

It was mentioned that the moment the US military decided to participate in the relief effort they immediately started thinking of an exit strategy. This is standard for military doctrine and is in keeping with international expectations, e.g., that foreign militaries operating in an affected country would stay for only the necessary time to allow the more sustainable relief operation to build and take over. It would, therefore, be useful to identify entry criteria for international military support as well as criteria for when this support is no longer required. These criteria could be attached as an annex to the guidelines. This task would be best accomplished as a collaborative effort between the military and UN agencies.

- How is international military support to disasters viewed?

An important issue discussed is the perception of the affected population to the support provided by international militaries. For example, militaries have built sanitation facilities (pit-latrines) for populations that are not familiar with them (this example comes from a different emergency). In the 2004/5 Tsunami relief, the United States' military was deployed unarmed, which was highly appreciated. This point was made that this policy might be different in a more active conflict setting and how would this be viewed by the affected population and relief workers? How do the affected populations view helicopters providing supplies, particularly those with military identification? Could relief helicopters be painted white to easily identify them as part of a humanitarian operation?

Filling gaps in provision of available services?

From military experience with responding to emergencies, the military views the following as key health sector needs: combat health logistics, blood management, medical evacuation and regulation, combat stress control, laboratory services, preventive medicine, medical treatment, dental services, veterinary services, hospitalization, as well as medical command, control, coordination, and communication.

What organizations can best fill these gaps in essential services? On the local level these organizations would include local government, private practice medicine, and community/volunteer networks. On the national level, it would be national relief organizations, governments, and militaries. International responders include multi-lateral responders, international militaries, international organizations, and non-governmental organizations.

What are the relative values of military versus civilian assets in the emergency setting? Militaries are logistically capable, have a defined command and control structure, and are sustainable with a depth of support. Service personnel are on an assigned duty in the relief setting, but are often over-taxed. Finally, military deployment are costly and the military is inherent bureaucratic in nature.

On the other hand, civilian relief efforts are generally high quality, come from a broad, cross-section base with excellent links to academic institutions and foundations. They usually consist of volunteers on a short-term basis and lack structure or the highly-disciplined military culture.

Most deaths occur in the few days of major disasters. In the case of the 2004/5 Tsunami, the military met the health sector need in the first few weeks by supporting the WHO led health assessment missions. These missions could only have been done with the support of sea-based military assets. Later in the relief operation, the military hospital ship, USNS MERCY, was deployed but did not arrive until seven weeks after the disaster at a point when emergency medical care was no longer. Nonetheless, the MERCY's role was quickly changed and it filled tertiary care need for the duration of its deployment while the local resources were being rebuilt and re-staffed.

Capacity building?

Capacity building is not really a priority for the military. If the next crisis occurs in a less accessible place how should this be done? International relief efforts should be able to learn from how the military functions with lines of command, self sufficiency, and logistical back-up. This should help produce better standard operating procedures resulting in better coordinated action. There was an observation by relief efforts that international organizations sent too many people in an uncoordinated fashion during the few weeks from headquarters and regional offices giving rise to questions of the motive being visibility or whether to demonstrate that support was being provided.

3.19.2 What was done well and what could have been done better?

Lessons observed from the health assessment mission in Aceh include the following. The health assessment missions were successful because there was a demonstrated and well articulated need that was validated through an inter agency request for action process. The missions were characterized by extensive planning for a complex situation requiring close coordination with excellent liaison between the military headquarters, the ships, and the principal coordination point in Aceh, Banda Aceh. Rapid feedback of assessment information on a daily basis was critical - this information allowed a real-time adjustment of relief efforts to include directing measles vaccination efforts to avert outbreaks as well as immediate life-saving and life-sustaining assistance and immediate recovery needs. The assessment mission also helped develop active programming recommendations for agencies for 30-day actions.

3.19.3 What are the conclusions and recommendations on strengthening the future health response in civil-military cooperation in humanitarian health action to disasters?

Such future operations/emergencies should consider rapid deployment of civil military liaison offices to the military headquarters, rapid health assessment of needs as above, and incorporating these principles into standard military and civilian doctrine and training.

Assessments done by other agencies and actors need to be consolidated to form the broadest possible picture possible to craft a more measured, balanced and targeted response.

3.19.4 What are the best coordination mechanisms for civil-military cooperation in humanitarian health action?

The panel felt existing coordination and cooperation mechanisms through the United Nations Office for Coordination of Humanitarian Affairs (OCHA), Military Civil Defence Unit are a good base. What was essential in the 2004/5 Tsunami response was the rapid deployment of competent liaison offices to the military headquarters. The panel did feel that additional guidelines for international military involvement in humanitarian health action would be useful. There was a concern that international military involvement in natural disasters or emergencies would be significantly different than international military involvement in complex humanitarian emergencies.

3.19.5 What are the suggested additions and improvement to the draft guidelines for civil-military cooperation in humanitarian health action?

The following guidelines are based on experience with the 2005 Asian Tsunami relief operations and supplement existing guidelines.³

³ Guidelines:-

- o Guidelines on the use of military and civil defence assets to support United Nations humanitarian activities in complex emergencies, March 2003. Available at <http://www.humanitarianinfo.org/darfur/uploads/military/Guideline%20on%20Use%20of%20Military%20Assets%20in%20Support%20of%20UN%20Humanitarian%20Action.pdf> - accessed 07 June 2005
- o Guidelines on the use of civil and military defence assets in disaster relief, May 1994. Available at <http://ochaonline.un.org/DocView.asp?DocID=871> accessed 03 May 2005.
- o Civil military relationship in complex emergencies - an IASC (inter-agency standing committee working group) reference paper, June 2004. Available at [http://www.reliefweb.int/rw/lib.nsf/db900SID/DPAL-62GCWL/\\$FILE/ocha-civmil-28jun.pdf?OpenElement](http://www.reliefweb.int/rw/lib.nsf/db900SID/DPAL-62GCWL/$FILE/ocha-civmil-28jun.pdf?OpenElement) accessed 03 May 2005
- o Draft resolution ICMM-WHO (International Committee of Military Medicine and the World Health Organization). 14 September 2005. Available at <http://www.cimm-icmm.org/page/anglais/washrapp/omsang.php>, accessed 03 May 2005

Draft guidelines for international civil military cooperation in emergencies

1. Military assets employed to support global public health are in a supporting role to the competent sovereign national authorities and international organizations.
2. Planning to deploy international military assets in support of global public health should include early technical contact at the appropriate levels between all nations involved and relevant international organizations.
3. Appropriate liaison officers and activities should be simultaneously deployed with military assets to ensure full coordination of activities, assets, and responsibilities.
4. Properly executed inter-agency health sector assessments should be conducted at the first opportunity to best determine the extent of the emergency and to best guide relief efforts.
5. Joint plans between appropriate civilian and military authorities for emergencies should be drawn. These plans should include entry and exit criteria for the militaries.
6. Inventories of potentially available militaries' assets and capabilities should be kept by the relevant international organizations.
7. Joint civil military humanitarian exercises should be conducted on a periodic basis.

3.20 Forensic aspects of disaster fatality management**Panel 2.16**

As is the primary mission in any disaster, the initial response to the Asian Tsunami was focused on the rescue of the living, treatment of casualties, and recovery of essential systems for immediate survival. These critical tasks were done with varying degrees of success, depending on the level of devastation in each region, and the availability of resources in that area.

Our panel discussed the somewhat controversial area of mass fatality management: what resources, if any, should be directed toward the care of the dead? Although on the surface this might seem to be a political or cultural decision which would depend on the customs of the affected nation, we believe there is a public health issue that has rarely been addressed.

Effective mass fatality management following a disaster can ensure the safety of the living through well-thought out public health measures. In a new era of increasing threats from terrorism, hazardous materials such as nuclear waste, high-speed travel, and emerging biological agents, we must look beyond our usual practices to anticipate measures needed to mitigate the damage future events may engender.

The Medical Examiner's traditional role is to determine cause and manner of death, identify the decedent, and arrange proper disposition of the remains. In doing so, they may be the discoverers of a sentinel case and identify an agent before a disease can spread. Indeed, the Anthrax terrorist attack in America was first discovered by a forensic pathologist who autopsied the body of a man who had been exposed to a white powder. Tracing the powder to the Postal Service, where it had been disseminated, helped mitigate the exposure of countless others. In the role of final arbiters as to disposition of remains, Medical Examiners may decide to Bio-seal bodies, and require burial in restricted areas to prevent the spread of Marburg virus. Remains contaminated by radiological waste following an accident at a nuclear power plant will need to be effectively decontaminated before they can be safely examined and handled by personnel, and returned to their families.

What of the need for identifying the deceased? Is this really an important public health issue? Given the overwhelming grief we have witnessed from survivors of the Tsunami and the World Trade Center attack, we believe that the loss of a loved one is greatly compounded by the uncertainty of never knowing if they really died and the lack of a body to perform the proper burial rituals over. The degree of psychological and emotional distress is immeasurable, but we do know

that the resultant post-traumatic stress disorder will affect the community's ability to recover and rebuild their lives.

In our panel, we looked at how mass fatality management was handled in two disasters, the Tsunami and the World Trade Center, in order to compare and better elucidate the mistakes made and lessons learnt in each. In the Tsunami disaster, the needs assessment for handling of the dead was largely based on the level of devastation in each region. Thus, the nations hit hardest, like Indonesia, were overwhelmed by sheer numbers of bodies found within a largely destroyed infrastructure and countless casualties desperately needing treatment. In that instance, there is only one appropriate and efficient method for the disposition of remains, painful though it may be for their families.

In Thailand, where a large number of foreign tourists died, a decision had to be made as to how many resources were to be devoted to identification of the dead, when areas like KhaoLak were without adequate shelter and water. In a pragmatic assessment of the situation, it was decided to identify the deceased following the Thai Medical Examiner protocols. In the confusion of the first critical days, however, appropriate methods were not always followed and valuable information was lost, resulting in greater expense later on. For instance, some morgue sites relied heavily on getting DNA samples when photographs, fingerprints, and forensic dental examinations would have been far cheaper, faster, and more efficient overall. This points out the need for advance planning to maximize the effectiveness of even the most well-qualified practitioners.

After an initial period of work done solely by the Thais, Interpol DVI teams arrived from some 30 different nations. Coordination did not go well at first, as some teams focused their efforts on finding only the dead from their own nations. Good communication and diplomacy resolved this issue, but time was stolen from the task at hand. Again, advance planning for international response would have precluded this problem.

In identifying the gaps in services, we looked at lessons learnt and made specific recommendations as to what was needed for the future. It can be safely said that the gaps in mass fatality management are huge, and very few nations are able to effectively cope with large numbers of dead citizens. New York City, for all its disaster planning and well-staffed agencies, was overwhelmed by the work involved in recovering and identifying the less than 3,000 dead from 9-11, which work continues today after more than three years.

We offered some methods we have found effective to fill those gaps.

- **Assessment tools:** practical methods to rapidly assess a disaster and identify resource requirements, so that good decisions can be made as to where to allocate those resources. One methodology for characterizing an incident is based on four factors: number of victims, rate of remains recovery, condition of remains, and existence of a manifest. These will determine the time and money needed to identify victims.
- **Advance planning:** it is not practical to develop plans for every disaster imaginable, but all disasters have certain elements in common. We pre-identify the most important needs, such as communication systems, personnel and training needed, command structure, logistical support, and strategies based on best practices. For instance, we know we will always need body storage facilities like refrigerated trucks; it would be impractical to buy them, but we can easily identify in advance where we might quickly obtain those trucks when an incident occurs.
- **Shared expertise:** Our panel described the work done by the Interpol DVI teams, and saw the unified command structure developed to work effectively for 30 different governments hosted by Thailand. The data systems used by DVI, and those used by the United States for 9-11, were briefly mentioned, as were the different modalities for DNA identification. Basic forensic practices were discussed, such as the desirability of using the simplest, cheapest, and fastest methods for identification. Photographs, fingerprints, and dental comparisons are far easier than DNA analysis. Recent research we have done with electron beam irradiation

to destroy biological agents while preserving DNA was described. The role of NGOs, and their ability to collect antemortem data while providing services to victim's families is an invaluable resource for forensic teams.

It is recommended that an international organization such as WHO convene a task force of experts from all over the world to address these gaps. There should be little resistance, for surely, given that the world is shrinking, what happens to one of us happens to us all. The Tsunami has shown us that death and disaster know no borders; the work done in the aftermath of 9-11 has demonstrated that the mistakes and lessons of one country can be shared with others to prevent their being repeated.

Each country has something to contribute. We heard of an interesting and valuable new use for TeleMed on a remote island off the coast of India, where they videotaped the deceased and sent the images to the mainland over TeleMed. Relatives there were able to identify 200 people immediately through this innovative method.

In sharing their experiences and hearing others, every country will also build their own capacities for effective response and recovery. When needed, an international assessment team should be available not to direct, but rather to assist and recommend best practices and resource allocation, while respecting the sovereignty and native capacities of each nation.

We hope that this conference will inspire such a plan.

3.21 Private sector partnerships for health action in crises Panel 2.17

The Tsunami demonstrated an unusual level, and type, of private sector involvement with public actors, forcing both the private and public sectors to act in less traditional ways, demonstrating the potential power of combining resources and expertise. Many private sector actors performed unexpected work and provided unanticipated resources in kind, goods, facilities and personal skills.

3.21.1 What did we learn?

The Tsunami relief and recovery effort demonstrated that both private and public actors, each could bring special skills and resources to those in need. Together, a diverse group of partners, complementing each other, could have a "multiplier effect" on the abilities of all to contribute.

There are strategic benefits to disaster management outcomes of private sector provided engagement, the resources can be engaged in a pre-planned, systematic and predictable manner, facilitating their availability in a timely and sustained manner.

The multinational corporations, being global and profitable, give particular privileges and clear responsibilities and moral obligations. One of those is helping to respond in times of natural disaster.

Private sector possesses a blend of skills and resources (e.g. money, materials/equipment, technical manpower and intellect), that coupled with the sophisticated business mechanisms of a global corporation, can well be used in cooperation with the public sector for achieving greater impact. Private sector possesses expertise usually not resident in the public sector and vice versa.

Pre-existing connections/contacts/collaboration/partnership between private sector and public sector, UN and NGOs proved to be of great value in rapid response without vesting time to "learn to know each other".

In the emerging paradigm shift, involving all stakeholders including private sector, coordination is being highlighted once more. In pre-arranged partnerships, where all stakeholders are identified and roles defined and assigned, the coordination takes place prior to rather than during the response.

3.21.2 What was done well?

The Tsunami crisis underlined how each partner being complementary to each other, enabled them mutually to perform better. The question is whether there is the will, resolve and energy to build on this experience leading into a sustainable new type of partnership.

In addition to the traditional response from the private sector, e.g., funding, medicines and equipment, provision of manpower and minds proved to be important private sector assets, made possible due to:

- Pre-existing relations and work programmes with some UN agencies, NGOs and governments;
- The vision and flexibility exhibited by senior UN officials – especially at WHO and UNICEF, private sector was able to deploy senior staff with expertise in supply chain management and logistics, water/sanitation, medicine/public health. (All deployed experts worked as part of UN teams); and
- The mutual investment by private sector/UN in building a certain level of trust and credibility was an essential prerequisite to being able to share people resources.

Mechanisms behind the more than expected success of the expert deployment initiative comprised:

- Selection of those deployed in terms of pertinent skill sets, personal qualities and commitment to help and matching expressed needs;
- Forceful support and vision displayed by key officials within the UN (HQ) system;
- Geneva and India(WHO/SEARO) based briefings before the work commenced;
- Pragmatic approaches taken by UN officials on the ground and government officials; and
- Quick identification of experts matched with needs.

3.21.3 What could have been done better?

Collaboration challenges private sector – governments/UN/other stakeholders

What barriers need to come down and what processes, motivators and systems need to be put in place to derive greater and more systematic benefit to disaster management approaches from the latent private sector pool of resources? Suspensions, ideology and antagonisms are a reality and should be addressed honestly and consistently.

- Difficulty matching needs/resources

Private sector offers that are sometimes inappropriate to the need, donor driven and not demand driven, should be based on needs assessment.

Public sectors has had difficulty in forecasting future needs, rather limited experience working with the private sector, particularly in emergency relief operations, as well as scarce resources in times of emergency to evaluate in-kind offers and managing new collaborations.

There is mutual distrust with regard to agenda and proficiency.

Key steps forward

The private sector has to identify core competencies and resources and develop internal systems and processes for response. Government and other stakeholders need to map and estimate generic needs in crisis and develop systems and framework to undertake dynamic assessment of emergency needs.

Output

A database to match resources with needs, service packages for emergencies s needed, allowing businesses to quickly mobilize in face of disasters, as well as internal emergency action plans.

- Lack of appropriate rules for engagement

The private sector's need of better understanding of government role in emergency relief has lead to a lack of clarity on ways to engage with government and to limited processes or guidelines to determine appropriate response.

The public sector needs guidelines to identify structure and manage partnerships in emergency situations. Furthermore, a consensus-driven approach can sometimes slow down ability to react quickly to emerging needs

Key steps forward

Recommended action is to develop guidelines for engagement with appropriate stakeholders, develop a framework, create processes and management structures for collaboration through joint task forces, and memoranda of understanding (MOUs) between the private and public sector internationally and nationally.

Output

Internal guidelines outlining the extent of, and priorities for, engagement, and a collaborative body providing oversight of engagement would be useful.

- Difficulty in establishing common ground

The private sector's lack of clarity on strategic value of engagement in relief efforts and frustration at perceived mistrust of government and other stakeholders as to their business motivations has impeded proper response efforts.

There is a concern, by the public sector, about the impact of private sector engagement on independence and neutrality of government, the UN, NGOs, and level of commitment of the private sector, in addition to lack of clarity on, and general mistrust of, motivations for private sector contributions.

Key steps forward

It is suggested that clear internal rationale and principles for engagement in relief efforts and communication to relevant stakeholders be developed.

The public sector has to engage in constructive dialogue on motivations for collaboration and set clear mutual expectations.

Output

Standard Operational Procedures and Memorandum of Understanding developed between the public and private sectors should be developed.

3.21.4 Conclusion - cooperative, response / recovery challenges / capabilities for the private sector

Assessing the needs: of medical supplies, material, equipment, communication, human skills, and excessive and inadequate response issues. The private sector can support governments and the UN system in assessments, and in return, better understand the needs, to coordinate their assistance with others and to monitor progress.

Identifying gaps: Global coverage of many of the partners in the private sector, with in-country presence and relations with governments, can provide first hand information on gaps between needs and resources.

Coordination: Identify minimum standards and best practices in the areas where they have competency. Examine reconstruction issues including priorities, cost, resources, and labour. Communicate and share information with partners on a regular basis. Examine potential redundancies and duplication of effort.

Capacity building: Understand the impact of relief on social, political, and environmental issues, and examine locally available skill base – in order to keep as much work at local level as possible. The private sector can provide corporate management skills, technology transfer, capacity building, health systems improvement, inventory of people and resources, medicine inventory supply techniques, etc., not only locally but also to UN and other stakeholders.

Preparedness: The private sector can and should be involved with other stakeholders (governments, the UN, NGOs, etc.) in mitigation, risk reduction and preparedness efforts, in order to strengthen vulnerable communities.

3.21.5 Next steps / recommendations - commitment / consolidation / enhancement / deployment

- The shift of paradigm needs to involve all stakeholders and be institutionalized.
- Build on the success of the government, the UN, NGO and private sector joint development programmes which evolved during the Tsunami relief effort.
- Identify systems and processes that can serve as a planning basis for future joint systems.
- Reach out to government and private sector representatives to initiate the partnership process. Sign MOUs on international, national and local levels, with the UN, NGO consortia, governments / communities, etc.
- Establish an official Business and UN Liaison office to build relationships between the private and public sector. During times of crisis it should serve as a coordination centre between the public and private sectors.
- Private sector is actively seeking to establish best practice in collaboration and learning to work together through preparatory training events and simulations to test readiness.
- Embrace an “open systems” philosophy to address international, national, state, and local government requirements for independence and flexibility.
- Design contingency solutions that can be easily adapted to address cultural and operational needs. Such contingency must include the private / public sector as stakeholders with multiple mutual interests and objectives in rapid response, accelerated recovery, and financial / social welfare.
- Establish an inventory/database of all resources available.
- Application of private sector management skills, project planning, technology transfer, IT knowledge transfer and other areas of capacity building, contributing to the improvement of overall systems, thus helping build better capabilities to withstand future disasters.
- Acknowledgement of and praise of participants in public / private partnerships.

3.22 Logistics, information technology (IT) and telecommunications in crisis management Panel 2.18

Responders need accurate and timely information to effectively distribute critical supplies, equipment and resources. Without this the results are often inadequate, misdirected or excessive response efforts. As a key enabler Information Technology (IT) and Telecom capability has a priority place within support for disaster management. Cooperative strategic logistics planning is a critical component for timely, adequate and appropriate response to any disaster.

3.22.1 Issues

Needs Assessment

Disasters cause loss and damage to the local telecommunications infrastructure for both data and voice. Lack of or redundant telecommunication capacity causes delay in relief operations and thus requires prompt intervention from external sources.

IT plays a crucial role in supporting the assessment of disaster situations. Further operational platforms include systems to support tracking of human, financial and logistics resources. The development of electronic templates, information systems with mobile computing facility and hand-held computing devices (PDA) to collect and manage information could further improve the efficiency.

Consolidating / sharing results of various assessments at the local and global level would avoid duplication of work. More information flow is necessary among various groups to identify opportunities for consolidation.

Without proper supply chain management, supplies were sent without adequate needs

assessment thereby resulting in wastage, unnecessary logistics congestions and delays in filling the actual gaps.

Coordination

Inadequate coordination results in duplication of effort and a lack of overall coordinated response to high priority requirements. Better coordination would help in maximizing the use of existing infrastructure. To the extent possible, there should be a coordinated approach to communications infrastructure to avoid appearances of an exaggerated UN telecommunications presence and better alignment with the country capability.

Filling gaps in provision of available services

Most humanitarian relief agencies faced serious problems to establish effective communications e.g., import, install and operate (license) satellite communications. Governmental issues have hindered the effective use of such equipment. Similar challenges were faced in establishing HF/VHF communication networks.

Computerized information systems for tracking resources had to be developed during the disaster in order to provide “real-time” decision support information, comprehensive reporting and linkage to organizational systems including legacy systems.

The major barriers in delivering timely and effective logistics support were the massive scope and sudden onset of disaster. The scale of the response caused congestion and confusion, and sometimes competition for logistics resources between agencies, which overwhelmed the capacity of suppliers and local transport hubs. Damage to the local infrastructure caused “absorption capacity” to be reached while supplies were still arriving.

Capacity building

Better preparedness is imperative. Timely investments in flexible, scalable and secure technology solutions for preparedness and disaster mitigation are key to an effective response. The national disaster plans should strengthen preparedness by building fault tolerant and redundant Information, Communications and Telecommunications (ICT) capacities, related standard operating procedures and competencies with personnel to manage in the event of disaster.

3.22.2 What were the lessons learnt?

Timely and adequate IT and Telecommunication resources are critical for disaster mitigation and relief efforts. IT and Telecommunication systems should be a strategic element in the development of comprehensive preparedness plans (including early warning systems and alert mechanisms). Inventory of essential IT and Telecom equipment should be maintained. ICT applications, deployment strategies and operational procedures should be developed as part of preparedness planning.

Relief organizations should establish well-equipped standby Operation rooms with adequate ICT to facilitate information flow with all levels of the organization and the national disaster management programmes.

An important lesson learnt from the private sector response to the Tsunami crisis is that agreements should already be in place BEFORE a disaster strikes in order to allow quick deployment and ensure inter-operability and integration with existing networks/services. It is not practical during the emergency of a big disaster to begin reviewing agreements with new contractors, and train technical staff and users in the field to use new technologies.

IT managers should be involved from Day One of the disaster response phase. Experienced IT

staff should be placed in the field immediately, preferably mobilized from within the relief organization for the entire response phase (with backfilling arrangements in cooperation with public and private sector). Information systems and information dissemination tools should be rapidly implemented with a potential to work in both connected and unconnected environment.

In most major disasters, telecommunication infrastructure is damaged or destroyed. Rapid deployment of telecommunication equipment to re-establish communication links for incident management and resource deployment should be the highest priority during the response phase. Relief operations need to have the capacity to communicate within and outside using external communication channels beside local ones.

During the recovery phase, destroyed infrastructure should be rebuilt in a sustainable. E-health (Telemedicine and e-learning, for instance) could contribute to building capacity for future disaster response.

Poor communications prevented the effective dissemination of valuable logistics information. Systematic supply chain analysis should be undertaken as an immediate remedy to this. Currently several supply chain processes are still largely manual or "excel" driven.

Competing supply chains caused a "bullwhip" effect in procurement and led to significant congestion in the distribution network. More effective pre-disaster collaboration and agreements should be established to avoid that situation.

It was clear that in the early days of the response there was insufficient transport capacity to meet needs, especially from strategic staging points to the affected area, and then for distribution.

National disaster plans should be developed that incorporate mechanisms for managing the logistics aspect (both at the central and peripheral level) of the response including customs, warehousing and distribution plans.

Shortage of trained and experienced logistics staff led to significant internal reassignment. Ineffective processes and time to develop skills in local staff was a major barrier. The emphasis should be on the deployment of logisticians in the field as first responders, local capacity for logisticians should be strengthened along with the development of operational procedures and coordination mechanisms with national NGOs.

3.22.3 What was done well?

Needs assessment

IT played a significant role in supporting the assessment of the disaster situation. Systems and processes were rapidly developed to support this.

Unprecedented levels of private sector response added to the response immensely.

In Thailand, the adaptation of the "General Health Questionnaire – 12" for identifying the levels of psychosocial distress in the community, showed successful results.

Health mapping (GIS) support in Sri Lanka, Indonesia, India and Maldives addressed temporary camps, displaced persons, number of deaths, injuries, and impacted primary health care centers and hospitals.

Projects are being initiated across Aceh Province and affected provinces in Sri Lanka to leverage ICT in areas such as strengthening the health information systems. Associated infrastructure shall build capacities to respond to future disasters with a potential to contribute to systemic post-disaster improvement of health system often to a level exceeding pre-Tsunami conditions.

Many UN agencies contributed from an ICT perspective in the initial response phase as well as recovery phase. For example, in Indonesia the WFP Radio room operates on a 24/7 basis monitoring HF and VHF networks equipped with VSAT, SAT phones, fax, PSTN lines (2 wire telephone lines) and GSM (Global System for Mobile Communications).

In logistics support, agencies with an existing footprint responded very quickly and offered assistance to “new agencies”, for example, the International Organization for Migration (IOM) in ACEH. 94% of agencies conducted assessments with multidisciplinary participation⁴. Individual agencies worked well in assessing their own needs. Information sharing worked well where the United Nations Joint Logistics Center (UNJLC) was present.

Coordination

Where possible, the UNJLC deployed logisticians and established coordination centres.

The Working Group on Emergency Telecommunications (WGET) worked well in 1) coordination and inter-operability of ICT networks and 2) mobilization of surge capacity. The WGET is an open forum of UN agencies, NGOs, Red Cross, the private sector and academia.

Excellent cooperation among various UN agencies has been reported. WHO installed a ‘common service ready’ VSAT in Meulaboh, which could be shared with other agencies. UNICEF agreed to coordinate the sharing and maintenance, including the installation and operation of any inter-agency wireless connections. UNHCR have established the UN common calling frequencies.

Telecommunications companies from both the supply and operation side of the industry and from across the world, have come together to provide, install and deliver a working telecommunications cable between Banda Aceh and Medan in Sumatra, Indonesia enabling onward connectivity to Singapore where much of the disaster recovery is being coordinated.

Filling gaps in provision of available services

Disease surveillance strengthened in Sri Lanka using health mapping activities.

Telecommunication infrastructure for high speed data transmission with voice and video connectivity within and outside the country has been implemented in the countries.

ICT infrastructure deployment strategy were developed and WHO field offices ICT infrastructures established. Telecommunication plans developed for WHO field staff supporting the health sector WHO country offices in Sri Lanka and Indonesia were extended VSAT connectivity. VSAT connectivity was established at WHO field offices at Banda Aceh and Meulaboh and they were connected to three levels of the organization through the WHO’s Global Private Network (GPN). Internet connectivity was also extended to Provincial and District health offices at Banda Aceh and Meulaboh through various means by WHO.

Information flow for resource tracking was improved using web based systems.

Partners such as Telecom Sans Frontier (TSF) have been engaged in putting its expertise in telecommunications and experience at the service of long term solidarity projects.

⁴ Fritz Institute Survey

3.22.4 What could have been done better?

Needs Assessment

More human resources required with in-country field related ICT experience and complementary public health skills to assess requirements and provide informed input to capacity building initiatives.

There is a need for structured, shared and well maintained ICT systems (including GIS spatial data) that are pre-configured to respond to needs assessments and information coordination between stakeholders. Such activities should be coordinated by a distinct entity tasked to fulfill this function.

In the area of logistics, there is need of rapid response needs to be aligned with the ability of agencies to coordinate. Integration of international response with national response also needs to be improved.

Cooperative strategic logistics planning should be attempted. Information sharing about logistic situations needs to be improved and prioritised (especially between military and civilian actors) (Lack of information was due to the lack of trained local staff and appropriate connectivity).

Coordination

Life saving equipment and supplies were delayed at ports of entry because of a failure to modify customs regulations to simplify the receipt of goods during catastrophic events. This includes the receipt of IT and communications equipment donated to relief efforts.

Custom clearance procedures developed by national authorities to import and use telecommunications equipment during the important first hours after a major disaster, without custom duties. Licensing requirements should be waived and certain immunities should be granted to foreign emergency telecommunications personnel.

Regarding logistics, competing coordination mechanisms created chaos. Communication / coordination between field level operation centres and national level coordination was not always clear.

Better ownership and involvement in logistics coordination by relief agencies is needed. Collaboration was done mostly on an *ad hoc* basis and only in response to clear need. Better commitment to “preemptive” coordination and advertisement of “assets available” lists is required. In some locations better linking of national logistics coordination mechanisms with international mechanisms is needed.

Filling gaps in provision of available services

Better preparedness would enable more effective response to future crises. Therefore, focused attention is needed on disaster preparedness and its advocacy. Information systems for tracking human resources, supplies chain monitoring and such should be developed as part of preparedness. The required personnel should be trained on its usage, so that during a crisis, actual deployment of the system and its effective usage would avoid having to learn how to use new systems and processes /procedures.

Overwhelming agency and bilateral assistance meant a great deal of chaos and less coordination. Better linkage of logistics of national response to the international response would greatly help. More standby capacity for temporary warehousing, more sharing of assets and establishing common logistics services, for instance, would be useful.

Capacity building

It is imperative we build on the success of the Tsunami relief IT and communication programmes currently in place. There is need to consolidate, enhance and deploy “best of breed” applications and technologies for global use in disaster preparedness, response and recovery. IT and Telecom functions should be viewed as strategic components of the disaster relief effort and a foundation for building comprehensive resiliency and preparedness plans. IT and telecom support must be designated as immediate deployment resources in any crisis event.

Development and training of staff to support tracking systems and better tools to link different coordination centres.

Interagency coordination of logistics assistance needs to be strengthened. Establishing links between government mapping / assessment agencies and international response is needed, and vice versa.

3.22.5 Recommendations

IT and telecommunications should be a strategic partner in the development of national disaster management plans (including preparedness plans) and should be involved from Day One during the disaster response phase.

The suggestion is to create a governing process to coordinate the sharing of IT and telecom skills and infrastructure between UN agencies, public and private enterprises and to be a first point of contact in the development of a coordinated IT disaster response.

IT-enabled Operation rooms within each country office linked to national disaster management programmes needs to be in place to ensure the readiness of countries. Local capacities in ministries needs to be strengthened in IT, telecoms and logistics.

An emergency management information system should be developed to manage communication, coordination, track resources and staff and to share information with all key players.

All Member States should ratify the Tampere Convention⁵ and ensure related SOPs are implemented in national legislation to allow unhindered importation and use of emergency equipment and related human resources (no import duties and regulatory barriers and licensing, for example) for relief efforts.

Strategic planning of logistics needs during a crisis should be maintained and shared. Contingency planning is needed to contain logistics components, for example, alternate customs regimes, logistics capacity assessments, strategic hubs identified (possibly regional) and supply stockpiling agreements. Better coordination and information sharing is required on the logistics situation, including understanding the needs and pipeline resources.

3.23 What have we learnt?

For the most part, this section is a synthesis of ideas raised during panel discussions and plenary sessions of the WHO Conference on Health Aspects of Tsunami Response, 4-6 May 2005, held in Phuket Thailand. To some degree some observations and opinions represent the personal perspectives (and biases) of the authors / synthesizing rapporteurs.

⁵ The Tampere Convention on the Provision of Telecommunication Resources for Disaster Mitigation and Relief Operations
<http://www.reliefweb.int/telecoms/tampere/>

3.23.1 Needs assessment

Needs assessment appears to be one of the most prevalent concepts in disaster response and relief planning. Indeed, the term "needs assessment" was used by many at this conference and appeared in presentations on a variety of topics. For that reason, it is helpful to begin by revealing some underlying concepts. The Humanitarian Policy Group (HPG) of the Overseas Development Institute (ODI) suggests that:

"The main reason for conducting a humanitarian needs assessment is to inform an organizational decision about what to do in relation to a given situation."⁶

HPG further suggests that needs assessments are conducted to answer four main decision-making questions:

- whether to intervene;
- the nature and scale of the intervention;
- prioritization and allocation of resources; and
- programme design and planning.

These fundamental concepts underlie needs assessments that may be conducted in a variety of subject areas as part of the response to a disaster. While the subject matter of this conference is health needs, they apply to reconstruction needs, needs for financial support, information needs and a host of other considerations. In addition, we tend to think that the term implies the needs of the indigenous peoples affected by the disaster but it may just as well include emergency responders, relief workers and reconstruction personnel.

Coordination issues

The most frequently cited concern regarding needs assessment was the lack of coordination between different parties conducting needs assessments in a Tsunami area. There was tremendous redundancy of needs assessments, including site visits and surveys. One conference participant reported a hospital in which a physician told a group of visitors and that they were the 17th delegation to ask him the same questions! This repetition is tremendously inefficient. Participants also mentioned that assessors needed housing, guides and transportation. This logistical burden on the local responders, diverting local personnel, resources and vehicles from focusing on the actual response, could have been minimized by eliminated assessment redundancy (source: panel 1.4).

Assessment redundancy also had a human toll on Tsunami survivors. Several participants suggested that when multiple assessors ask the same questions over and over to survivors who had lost so much, this denied to those survivors the opportunity to complete their grieving process and move on.

Conference participants therefore identified a major need in future disaster response efforts to integrate diverse needs assessments on topics including health, food and nutrition, water, shelter, and gender- and age-specific needs (sources: panels 2.3, 2.8, 2.11). The goal of this integration would be to reduce the number of times that survivors or others are approached by needs the assessors. If this strategy is to succeed, however, someone must coordinate the surveys, and collate, integrate and disseminate the resulting data. Some participants suggested that WHO should play this role, while others did not identify a specific entity.

⁶ Darcy J, Hofmann C. According to need? Needs assessment and decision-making in the humanitarian sector. London: Overseas Development Institute, 2003. p. 26.

Effectiveness of needs assessments

Participants stated that needs assessment must be effective, and suggested several criteria to this end. First, assessments must be timely, meaning that the entire needs assessment process, including the design and administration of the data collection process, the analysis, and the production of results, must be completed in as short a time as possible. This will ensure that the results are available in time to make a difference (source: panel 2.1). Those planning to cite a assessments shouldn't differentiate between collecting information which is a central to planning any response as opposed to information which would be "interesting" but has no value for response planning, and should not waste time or resources collecting the latter (panel 2.1.). Finally, needs assessments are effective only when they are linked to action. One participant described how survivors in their country reported having been asked in multiple surveys about their material and financial needs, and then received no resulting assistance (panel 2.1). From the perspective of those survivors, who are the reason for relief efforts, these assessments were completely ineffective.

Needs assessments change over time

Information needed, and the assessment strategies for collecting it, will change over the duration of a disaster response effort. In the initial period immediately following the event, responders need the most basic information about the event and its possible impact. Some of this information may be inferred from the baseline status of the affected area and that type of disaster. One presentation, for example, described a novel approach that combined pre-existing graphical information systems (GIS) data on population location and density in the Tsunami-affected area with a satellite imagery showing the extent of water incursion on land in order to estimate the size of the affected population (panel 2.1). Information such as this could be used to plan the very first relief efforts, even while strategies for collecting more detailed information are devised.

However, there was at the conference a tension between those who advised launching responses as soon as possible and those who advised waiting for information to guide that response. In one panel, it was stated that rapid, life-saving interventions should take precedence over needs assessments "even at the risk of delivering unnecessary services and supplies" (panel 1.4). Advocates of the strategy recommended launching the response task force immediately, and then defining needs assessments en route and upon arrival. That approach was opposed by some who had seen the delivery of inappropriate supplies to the Tsunami-affected areas. These representatives suggested that upon hearing of the disaster, potential responders should wait hours or even a full day to make certain that relief supplies being loaded up on aircraft would be relevant in the affected area (panel 2.1). Humanitarian relief workers will be challenged to find the middle ground between these extremes.

As the disaster response moved from the initial emergency phase into the relief and reconstruction phase is, more detailed information is needed to plan appropriate responses. Participants particularly mentioned the need for assessors to consult with them local colleagues and members of the local affected population when designing needs assessments. These individuals are more likely to understand local customs and practices and can help define the areas where it needs assessment will be most relevant (panel 2.1). The corollary to this observation is that there is a need to invest in local capacity for conducting its needs assessments as part of pre-disaster planning. They should include bolstering the technical skills of local workers (panel 2.1), and building local routine health surveillance systems to include a capacity to expand as needed to address a disaster situation (panel 2.2). Unfortunately, however, an event of a severe devastation may disable local needs assessment capacity, so expectations in this area must be realistic. In some Tsunami-affected areas, local assessment efforts were possible, but in others external assistance was required for virtually all assessment functions for weeks. Finally, the Aceh experience in which military resources (especially transportation resources) were so successfully

used to conduct needs assessments showed how novel collaborations can facilitate needs assessments (panel 2.1).

Qualifications for conducting needs assessments

There was no explicit discussion of specific training or experience needed for those who will conduct different types of needs assessments but relevant experiences were cited. Organizational affiliations did not guarantee competence, as some individuals representing WHO or United Nations agencies lacked appropriate training to conduct their needs assessments (panel 2.1). Conversely, some who might not have been expected to possess the skills in fact did so. A specific example was the Singaporean military, whose health care workers had previously received UNDAC training a needs assessment and perform that task well (panel 1.4). These experiences indicate that relevant training is both essential and enabling.

Dissemination

All aspects of needs assessments must be made public and disseminated. Otherwise, redundancy needs assessments would be carried out rendering response inefficiency, placing a variety of burdens on the affected community. In addition, it must be stated that nobody "owns" the data they collect in a needs assessment. Access to the affected area and its inhabitants is a privilege expanded with the understanding that the information collected will be used to help those inhabitants. They are best helped when information is freely available to the affected population, their governments and external responders. An example was presented of an NGO that had conducted a survey and considered itself to "own" the results, which at the time of this conference (almost two months after the survey), still had not been made available to the government of the affected region. This is unacceptable and should not be a part of future disaster responses.

Emergency needs overlay background needs

Participants pointed out that disasters occur in the context of a pre-disaster setting and that a pre-existing situation significantly affects the needs of the post-disaster response. Needs assessments should account for these pre-disaster aspects. The pre-disaster epidemiology of disease in the area determines which diseases, endemic before the disaster, are potential problems after the disaster (panel 2.1). Assessors should also understand pre-existing local disease control programmes, so that relief efforts can supplement rather than supplant them (panel 2.1). Similarly, knowledge about pre-existing population health and nutritional status (panel 2.1), water/sanitation capacity (panel 2.8) and health care system capacity (panel 2.9) will help indicate what has been lost, what must be rebuilt or replaced, and what must be developed anew. Finally, some participants indicated that areas under their jurisdiction received sophisticated equipment that local users had no capacity to use or maintain. Local capacity for equipment maintenance must be included when planning aid deliveries (panel 2.1).

The Need for Standards

Standards in the area of needs assessment are themselves needed. When standards exist, disparate users of information understand how the data were collected and how reliable they are. Standardized indicators of population need, such as those developed in the Sphere Project, helped unify perspectives on the relief needed in a given situation (panel 2.1). Standardized sampling methods and analytic methods will allow better understanding of assessment results (panel 2.1). Participants indicated that new indicators and analytic methods are needed to better assess the needs of sensitive subgroups, particularly women and children (panel 2.3), and to assess psychosocial or a mental health needs (panel 2.6). Finally, standardized reporting formats will allow users to quickly extract relevant information from shared needs assessment reports. Despite the similarities of different disaster situations, however, new and unusual issues frequently arise. The response community will be challenged to retain the flexibility to meet novel situations even while efforts to better standardized needs assessments continue.

3.23.2 Coordination

Some participants helped define coordination as:

- Allocating tasks to maximize complementarity; harmonizing procedures; planning strategies,
- Channeling efforts of all actors to achieve a common goal e.g. as in a symphony orchestra, and
- Akin to leadership i.e. getting things done through people or in this case of Tsunami emergency, through other organizations.

The health sector actors needing coordination were listed as:

- Community efforts of those affected,
- National and local governments in the affected areas,
- Donor governments (bilaterals),
- Multilateral agencies (including the UN and international financial institutions (IFIs)),
- National and international NGOs,
- Academic Institutions,
- Military, and
- Media.

Who coordinates during a disaster or crisis response? National governments, especially the MOH, should do. It is the primary responsibility of governments to coordinate response to an emergency and where structures of government exist and are strong, this has been done well. However, these efforts are often supported by WHO in the health sector as necessary, especially in bringing expertise and materials that might not be locally available. But where government has failed during conflict for example, WHO might take the lead in health sector coordination to guarantee a minimum standard of health care for the victims.

The role of the coordinator is to:

- Works with all actors to set and agree norms, standards e.g. on the content of response.
- Takes the lead in emergency preparedness planning and dry run or drills
- Actively engages other actors within the sector, sharing information as they become available
- Integrates health expertise and activities for effectiveness and efficiency
- Acknowledges the roles of all actors i.e. giving credit to whom it is due during the response

Appropriateness, adequacy, effectiveness, efficiency, and connectedness of response to the Tsunami: what was done well in coordination

- **Resilience of communities affected:** participants felt that most of the communities in the affected countries have faced similar incidents in the past, even if smaller in scope, and as a result have developed some coping mechanisms and resilience, which was very helpful in the immediate aftermath of the disaster.
- **Strength, or capacity of national governments affected:** the capacity of governments was recognized, particularly in India, Thailand and Sri Lanka, and this strength bolstered the health sector response and speeded the restoration of normalcy in the sector.
- **Immediate and prompt response:** the national and international response was adjudged by participants to be fast in all countries, affected thus mitigating the effect of this disaster, even as the final death toll was uncertain.

- **WHO'S Health Mandate effectively utilized:** from country to country affected, the mandate of WHO as a lead agency helped it to be recognized by everyone as the lead agency for health.
- **Credibility and strength of coordinator:** because WHO was already present in all the countries and had developed good working relationships with partners in the sector, it was easy for the Organization to come in and support the efforts of government in sector coordination
- **Agreement of common goals:** again, because of the magnitude of the disaster, there was no time for bickering about roles among the health agency; everyone just wanted to get on with the work at hand.
- **Colleaguability:** rather than control and command, coordination was the relationship among governments, WHO and other agencies.
- **Disaster preparedness of participating agencies, with pre-defined roles:** except for the Maldives, most agencies working on health, had worked in emergency response with WHO in other settings. There was an unwritten set of rules and each party knew what to expect.
- **Speed of mobilization of assets and other resources (human, material, money, etc):** especially by national and foreign militaries was unprecedented and thus set a new standard in humanitarian response.
- Some excellent cooperation worthy of emulation has been reported among UN Agencies. For example, WHO installed a common service ready VSAT in Meulaboh, which could be shared with other agencies. UNICEF agreed to coordinate the sharing and maintenance, including installation and operation of any interagency wireless connections. Also, UNHCR has established a common calling frequencies.

Challenges of coordination: what could have been done better

- **Open communication and prompt information sharing:** data and information from the field was not widely shared by many actors who treated these data as their organizational property instead of common goods.
- **Type of emergency and scale of disaster:** one natural disaster covering about ten countries within hours of each other is something the global community has not seen for some time and took time to comprehend. This, therefore, meant the speed of response was uneven in many countries.
- **Credit claim by each actor / visibility or flag posting:** each organization wanting to do its own thing is not a good precedent for a future humanitarian response to any crisis as this resulted in duplication and waste of effort and time, and is burdensome to recipient governments and communities.
- **Sovereignty of states:** much as states should take the lead and are primarily responsible for the welfare of their own people in times of crisis, no state is an island and offers of assistance where genuinely needed should not be refused on sovereign or political grounds as this could lead to violation of the rights of individuals to health.
- **Dealing with multiple agencies could be disruptive:** especially in Sri Lanka, the Maldives and Indonesia, dealing with multiple actors could be very disruptive to the efforts of local authorities doing their best to cope with a disaster.
- **Emotions,** not just of the people immediately impacted by the disaster but also by sympathizers (an example of this is the sending of air freights of materials that not needed or already oversupplied, or that are culturally inappropriate in the affected site) was also a major challenge in this response.
- **Multiplicity of actors doing the same things in the same places:** A good example of this is the multiple needs assessments conducted in the same communities of people who were already traumatized for example in the Maldives and Aceh, Indonesia.
- **Rapid turnover of international and national staff who come for short assignments:** professionalism needs to be brought into emergency response. For example, in Aceh, it was not uncommon for national and international staff to come for one week or less. By

the time they built relations, understood what was going on and could begin to make contributions, they were already on their way out.

- **Many supplies / drugs in languages not understood and no prior information:** Although generosity was welcome, the Maldives is an example where drugs and other supplies arrived at the airport without notice and were sometimes written in languages no one could read. This was wasteful and frustrating to everyone.
- **“Competition”** between and among donors lead to induced inflation, for example in the Maldives, because agencies wanted to get things done rapidly, and local rates were unduly raised, making it difficult for the government to compete.
- **Every crisis and each country is unique**, so some lessons cannot be transferred wholesale. However, there are common characteristics of an emergency that should be applied in most situations

Conclusions and recommendations for the future

- Governments, assisted by WHO, should accelerate investment in national capacity building. The Epidemiology Field Training Programme in Thailand, is an example of best practice in this field that could be emulated by others.
- Coordinated investment in preparation of national and sub-national emergency preparedness with periodic reviews and updates and possibly dress rehearsals by all concerned should be a priority of all governments and WHO should advocate and facilitate this process - disaster may occur anywhere and at any time. This preparedness should include preparing reporting formats so that data collected and collated could be shared and used for decision making by all.
- In the process of emergency preparedness, it pays to allocate tasks ahead of time, to maximize complementarity while harmonizing procedures – all of which will be important in the face of UN reform. For example, needs assessment should preferably be undertaken by teams that address a range of issues relevant to emergencies in the areas of public health, nutrition and food security, water and environmental sanitation (WES), mother and child health (MCH) and gender issues.
- Each country should inventorise potentially needed assets for different types of emergency scenarios, even those materials belonging to other agencies willing to give or lend them (including from bilaterals and the private sector) and should negotiate these assets before disaster strikes.
- There are some legislative processes to empower actions in most countries. Where needed, advocate for the legislative process to be accelerated, for example in the Maldives, Sri Lanka and India where bills are pending.
- Victim identification has become a major issue in disasters which have mass casualties. It is recommended to strengthen the forensic lab system for victim identification which was a major problem in most countries affected; WHO is the agency that could take the lead in this. It is also recommended that WHO take the lead to convene a task force of experts to address the gaps.
- The military has just set a standard of civil military collaboration in emergencies against which future emergencies will be measured! It is recommended that OCHA identify neutral / friendly military institutions in other zones of the world and prepare them for emergencies. This preparation could be in the form of MOUs between two or more countries – a process that OCHA could facilitate.
- In-like-manner, the private sector has become a major player in disaster preparedness and mitigation. This relationship should be cultivated while WHO promotes and articulates the desirability to adhere to well-established and existing guidelines for drug donations and develops or modifies and promotes new guidelines for other in-kind donations. It is also appropriate to develop guidelines for engagement of the larger private sector.
- Understanding each actor in emergency: There is a tendency to study only the organigram of other actors; there is plenty of chemistry and interpersonal relationship not

described in the organigram and this needs to be fostered. It is therefore, recommended that WHO mid and lower-level staff identify and develop working relationships with potential partners with common purposes - well ahead of emergencies. Each collaborating agency should, however, be self-sufficient and not be a burden on others in the field.

- The content of health response is still unclear and this is an area where WHO should take the lead and set standards and norms in consultation with its partners.
- Planning for the recovery of the health sector needs to be inclusive; it should be country-wide, systemic, owned by the country and supported by all stakeholders.
- In addition to the fundamental challenges posed by displaced populations during an emergency, there are a number of marginalized groups in the affected countries. These include illegal migrants and sex workers and WHO should lead the effort in ensuring the rights of these people to health.
- The experience of Aceh and Sri Lanka has shown that if unchecked, numerous agencies can go to affected areas and work in total independence often duplicating efforts and sometimes doing things that may be harmful (e.g., forced debriefing of stressful experiences). Efforts to control and coordinate such agency should be expediated to ensure a this experience is not repeated.

3.23.3 Filling gaps in available services

With regard to filling gaps in available services, there were several services or types of services that were relatively neglected and/or delayed in the overall response to the Tsunami. There are ways by which those gaps (and others) might be filled and a number of issues should be considered when offering solutions before deciding upon proposed solutions.

To begin, three general points should be made. Many participants at the conference stressed the 'uniqueness' of the Tsunami, citing the number of people affected, the magnitude of the response, its multi-country nature and the need for long-term reconstruction and rehabilitation. While there are certainly unique characteristics to this and to every disaster, unless we admit that there are common features to both man-made and natural disasters, regardless of etiology and regardless of magnitude, then the exercise of trying to learn lessons to apply to future disasters is somewhat futile. This section 3.23.3 stresses the common features of disasters, and its observations and conclusions are intended to be generally applicable. Second, it is assumed that one of the most important commodities of any relief effort is information. In the early stages of disaster relief, information is gathered through a process of "needs assessments". Although we have learnt from experience that the needs of disaster-affected populations are few, and generally the same, their quantification and importance relative to each other is of utmost importance, and is essential to the process of establishing priorities for action (Issues regarding needs assessments are addressed at this section 3.23.1). Finally, the ability to describe the impact of a disaster, to provide appropriate quantities of relief goods, to direct services appropriately, and to monitor and evaluate trends in morbidity and mortality depends entirely on basic demographics – the population and its characteristics, in terms of age, gender, and location. With population data (both numerators and denominators that enable the establishment of morbidity and mortality rates and rates related to the provision of services), relief workers will always be at least partially blinded to the real situation.

During the early days, the emergency phase of disaster relief, the most important interventions relating to the health sector are: the provision of food, the supply of adequate water and sanitation facilities, construction of temporary shelter and the rapid restoration of preventive and curative health care services. A few words are in order regarding each.

A consistently major issue in disaster relief concerns the relative priority that should be assigned to the provision of relief food versus the attention that should be given to ensuring long-term food security. Obviously, both are of major importance, but over-emphasis on one of these risks diverts attention from the other. In general, the conference felt that the response to defined needs of the Tsunami-affected population was good, and that maintaining the adequate nutritional status of the

population contributed to low post-crisis morbidity and mortality. Still, problems were cited regarding the donation of inappropriate relief foods, including milk powder and infant formulas. These unwanted items contributed to the overcrowding of storage facilities and prevented the delivery of more useful, vital relief commodities.

For the most part, water supply was not a problem in the Tsunami-affected areas. Adequate quantities of drinking water became quickly available in all areas. The “strictly relief” nature of some interventions was an issue – high-technology solutions to water purification cannot be managed, maintained or afforded by local populations on a long-term basis and, although there is no replacement for adequate quantities of water of high-quality, efforts should be made to ensure that the supplies match both the immediate and longer term needs of the population.

More of an issue was the imbalance between water supply and the development of adequate sanitation facilities. Working to improve sanitation is more difficult – it requires a knowledge of local practices and preferences, sensitivity to culture and tradition, and a more manual labor approach to trench-digging, latrine construction and the like. Those responsible for leading the water and sanitation aspects of the disaster relief need to ensure that adequate sanitation, arguably the most important aspect of their work, is restored as quickly as the other components of their sector.

The conference did not deal to any significant degree with issues of shelter provision. Yet, these are crucial and the provision of adequate shelter, in both the short and longer term, is essential for survival. WHO should become more involved in: working with national and sub-national authorities, other UN agencies, and, especially, local communities in site selection for resettlement of displaced persons; in the selection and provision of shelter materials, including insecticide-impregnated plastic sheeting, that contribute to the prevention of vector borne disease transmission; and, always with an eye towards ensuring the best public health outcomes, in the development of long-term resettlement policies that are often difficult and slow to implement.

In regard to the delivery of health services, the Tsunami relief effort, as is the case with most disaster relief efforts, concentrated initially on the control of communicable diseases. This is entirely appropriate, as air borne, enterically-transmitted, and vector borne diseases have always been the most important causes of morbidity and mortality in the post-disaster environment. These diseases, including diarrhea, pneumonia, malaria and dengue (where they are endemic), and measles, frequently compounded by malnutrition, take a particular toll on children under five years of age, and these should be particularly targeted for intervention. Specific aspects of disease surveillance, diagnosis including laboratory services, and specific interventions are discussed earlier on in this conference report. The priority accorded to communicable diseases is appropriate and needs to be maintained. WHO, in conjunction with national authorities, should consistently formulate and adapt communicable disease control policies to the needs of each disaster and ensure that all interveners in the health sector are familiar with them and working toward their widespread implementation.

Response to the Tsunami was characterized by an excess of attention in some health service areas, and inadequate activity in others. In the Tsunami relief effort, given the exceedingly prominent place of injury, and post-traumatic infections, as a cause of serious morbidity, hospital care was an absolute necessity and a high priority in the early days of intervention. However, as is consistently the case in a post-disaster environment, tertiary care, especially the development of hospital capacity, was excessive in the Tsunami relief effort. Offers of field hospitals, their deployment and staffing, came from a wide variety of sources, especially from the governments of unaffected countries seeking to help. Attempts to decline these offers consistently cause political and other relational difficulties, yet the need for hospital services was exceeded during the early days of the Tsunami relief effort. The need to emphasize primary care services should be re-asserted by WHO and a system of coordinating and organizing the donation of fully-equipped and staffed field hospitals should be developed.

The rapporteur has never worked in a disaster situation in which the mental health needs of the affected population received as much attention so early during the response. Nevertheless, services were slow to develop and the emphasis on clinical care was perhaps somewhat disproportionate to the needs of the communities. The mental health and psychosocial panellists at the conference rightly established a pyramid with household- and community-level social services at the base, and clinical care at the apex (see diagram in section 3.10, above). The rapid restoration and schools, places of worship, jobs and other community structures will go farther towards mitigating the psychosocial impact of disaster than the provision of psychotropic drugs to those who need them only on a short-term basis or not at all.

The other major gap in the provision of health care services during the Tsunami relief effort, as is the case in disaster relief efforts time after time, is in the area of women's health. From a narrower perspective, the loss of midwives and clinics, accompanied by the destruction of roads and means of transport and communications, had a major impact on the ability to provide emergency obstetrical services and very possibly contributed to at least a temporary increase in maternal mortality. More broadly, reproductive health services in general were disrupted and their restoration was given, for the most part, only secondary priority. The minimum intervention services package (MISP) for reproductive health services, although well-known to the more professional and experienced actors of the humanitarian assistance community, was inadequately implemented. Finally, both needs assessments and service provision activities were generally conducted with a near-total neglect of a gender dimension and respect for the basic human rights of women. In many disasters, relief supplies are distributed to those most able to access them, and several studies have shown significant gender differences in the possession of relief supplies and in access to emergency services. Perhaps most important is the lack of information regarding the plight of women affected by the disaster. With few exceptions (the State of Tamil Nadu being a prominent one), disease surveillance systems and other information systems established during the emergency relief effort were not disaggregated on the basis of gender. Because of the body of evidence that suggests that women and children suffer disproportionately from the effects of both man-made and natural disasters, WHO should insist that health information be collected and reported in a way that allows for the calculation of sex- and age-specific morbidity and mortality rates and relief efforts should be directed on the basis of these data.

How can these, and other, gaps in the provision of the basic commodities necessary to support life, including the provision of health services, be filled? One way is by taking into account the strengths and weaknesses of the many actors who intervene in disaster response. Perhaps more prominently than ever before, both the armed forces of many nations and the commercial private sector (especially large multinational corporate entities such as Pfizer Inc., International Business Machines and Citigroup - all of whom were represented at the Conference) figured in Tsunami relief efforts. The more usual cast of characters, including national authorities, UN agencies, non-governmental organizations, donors, academic institutions and communities, themselves, will undoubtedly have to make an effort to incorporate these newer partners into relief activities in a way that emphasizes their strengths and allows them to contribute to the filling of gaps that have commonly been identified.

Coordinating the efforts of all the partners is obviously a daunting challenge - one that received considerable attention during the conference. This issue is addressed elsewhere in this report and a few words are also in order here. One disaster relief expert has included poor coordination as a leading cause of death in disasters, along with diarrhea, pneumonia, and the like. During the conference, it was mentioned several times that we have learnt the lesson of how to coordinate. Perhaps we have learnt the lesson, and the lesson is that we will never coordinate well, for reasons that are complicated, but that includes the state of relations between the bilateral and multilateral donors, the UN agencies, and the NGO community, compounded by the inherent characteristics of those different cultures. In disaster relief, it is rare for respected leaders to emerge. Even more problematic is that it is equally rare for good followership to be displayed by any of the players. Independence, autonomous action, and uncoordinated efforts have been the rule rather than the exception. In order to overcome these inhibiting factors, when successful,

coordination is very time-consuming. In the words of one Somali diplomat, “coordination is the slowest common denominator”. And in disaster relief, time is of the essence.

Discussions focused to a large degree on the differences where the military culture, where a command structure precludes the need for “coordination” – there are designated leaders and designated followers and the punishment for not playing one’s role competently is severe. In the humanitarian community there are no mechanisms of enforcement – there are no particular incentives for helping to develop strong coordinating mechanisms, and no penalties for not doing so. In the health sector, competent technical and managerial leadership would be most welcome – ideally, it should be provided by national authorities, where these are acting in the best interests of the affected populations. Otherwise, appropriate roles should be designated by other mechanisms. Personality, more than institutional affiliation, may be the most important factor when deciding upon an appropriate coordinator.

But, if as contended above, coordination is impossible or too difficult and time-consuming, and the command model of the military culture is unacceptable to the humanitarian community, is there an alternative? The best would be a situation in which all of the various actors were clear as to their roles in a relief effort, and each was competent to play that role. This means that in preparing for future disaster relief efforts, training or capacity building is the key. Could some controls be instituted to ensure that those individuals and organizations responding to a crisis situation have the appropriate knowledge, training, and experience to make a positive contribution with only minimal guidance from a “coordinating authority”? Perhaps, as one partial solution to this problem, donors can condition their grants on the ability of NGOs and UN agencies to show that their relief teams have a minimal level of competence and will function as a valuable member of the overall crisis response team.

The Tsunami relief effort clearly showed that crisis response is no longer a matter of different teams responding independently. Instead, each sector of the response community can be seen as playing a particular position on a single team. To conclude, a few words should be said about the newest of the team players – the armed forces and the multinational corporations – and about some of the issues that incorporating them into disaster relief will raise.

First and foremost among these, the fundamental question, as the keynote speaker of the conference put it, is whether or not these partners can be constant. While it is true that their contributions, made in an *ad hoc* fashion in the Tsunami relief, were important and welcomed, can they be systematized as part of a coherent planning process for future disaster relief efforts? Will the armed forces, instruments of national foreign policy more concerned with security issues than humanitarian ones, consistently show up to help in disasters where no national security issues are at stake? Will the multinational corporations be as generous when disasters occur in parts of the world with less-developed present and future market potential than that of the South Asia region? Will the more permanent external fixtures on the humanitarian assistance scene, the UN agencies and the NGOs, have to have duplicate plans – for responding when the military and private sector will be present, and for responding when they will be absent?

A second problem is one of representativeness. Who should be at the table, representing these partners, when important decisions are made, when policy is developed, when roles are assigned? It is possible that the armed forces, although in the Tsunami relief effort they were from 35 different countries, can work out a “central command” mechanism, but in practice a lot is lost between decisions taken at the most central level and execution at the most peripheral. For the private sector, the situation may be different. Each of the entities mentioned above has strong, and interested, competitors. Who should governments or UN agencies listen to? There are business coalitions but these will need to be activated in order for advance planning, including clearly defined memoranda of understanding, to be developed. Each of the corporate representatives at the conference expressed their desire to move towards a planned, as opposed to *ad hoc*, system for soliciting and acquiring their assistance in future disasters. WHO and other UN agencies should act on this proposal in the next few months.

Finally, as new partnerships develop, and as the standard response mechanisms for disaster relief evolve, it will be important to monitor the actions of each of the players to see if the existing gaps in service delivery are, indeed, filled. The development of professional standards should be strongly considered, as part of WHO's normative role. For the more technical aspects of disaster relief – the forensics involved in the identification and disposal of bodies, the diagnostics and drug prescriptions required for the control of communicable diseases – this will be relatively easy. When it comes to the equally, or arguably more important but certainly different moral and political aspects of disaster relief, including in the application of basic humanitarian principles (most prominent among them a respect for human rights and equity), the establishment of an agreed-upon set of norms will be more difficult. Still, these remain the most important of the unfilled gaps in the field of disaster relief and the conference was clear in its feeling that immediate and forceful action is required.

3.23.4 Capacity building for health response in disasters

The concept of capacity building varies widely depending on operational and disciplinary perspectives. Discussions often lose focus due to differences in views regarding whose capacity has to be developed and for what purpose. As a result, there has been a great deal of conceptual discussion without much action at almost any level. The broadness of the scope of capacity building, which can include the capacity of the military to respond to the capacity of laboratories to undertake tests at the approved quality level, is partly the consequence of an absence of clear policy and definition as to what exactly capacity building will mean for an organization like WHO and to some extent its partners. Without such specifics, financial investment in capacity building is unlikely to come about.

What are specific goals of capacity building for health sector in emergencies

The aim of building capacity of the health sector is not different from those in other sectors. The first impetus comes from the recognition that autonomy and self reliance for disaster response and relief is a primary goal for communities at risk. In that context, building the capacity of the local communities is the main strategy to accomplish this objective.

The second goal derives from the first. Relief and response is known to be most effective if local communities are well-trained and prepared for disasters. As those quickest on the ground and familiar with local conditions, efficiency and effectiveness is greatly enhanced by improving the capacity of the local health professionals. Effectiveness is also enhanced by improving skills of the international relief workers whose performance although much improved, needs adjustment.

Finally, skilled and well trained personnel will ensure sustainability of the health gains made or systems put in place when relief stops, providing the affected community with long term benefits.

What are two main focal areas for capacity building?

Building capacity for health preparedness implies "getting communities or relief teams ready to respond". This is quite different from developing the capacity of communities to undertake disaster prevention / mitigation activities that are ideally part of regular development programmes. To establish a clear programme that builds capacity at whichever level, these focal areas will need to be clearly stated and the activities linked to related goals.

There are five elements recognized for building and sustaining human capacity in health preparedness for disasters and emergencies:

1. Making available simple and appropriate training programmes on key competencies for response and relief monitoring; These include those directly involved in providing relief services (such as health care workers, veterinarians, nurses, midwives and medical officers) and those

providing critical adjunct services (including pharmacy, laboratory, transport, waste management and referral services).

2. Designing country-specific approaches to training and human resource development; Most countries or regions have distinct disaster and vulnerability profile and require specific strategies for human resource development according to the prevailing conditions and national priorities.
3. Providing targeted technical assistance for rolling out training programmes; WHO collaborating centers and other networks of expertise could provide essential catalyst support. Training packages in the public domain could facilitate ongoing expansion of training at the country and regional levels. To be most effective and practical they need to be in line with national disaster response plans and regulations.
4. Developing training certification and quality control mechanisms; Recognised degrees and diplomas from national and regional academic institutions would ensure continuity and quality control – essential for disaster relief personnel.
5. Ensuring the availability of sufficient funds for implementing training. Resource mobilization is extremely difficult for capacity building initiatives. It is essential that an action plan with concrete products and goals be developed without which funding is unlikely to come through.

What have we achieved so far in building capacity

Over the last decade humanitarian actors have been encouraged to partner with local institutions in all of their operations. These partnerships or twinning have an indirect effect in supporting and developing skills and competencies of local partners.

There has been a surge in short intensive courses in disaster management. The quality of these courses are extremely variable and they produce small groups of trained persons who represent a small contribution with regard to need.

There has been a remarkable development of standards, norms, tools, techniques and kits (e.g., Sphere Project, WHO kits and UNICEF handbook) which have been important enabling factors for better and more professional performance.

The Good Humanitarian Donorship Initiative has taken on the challenge of improving the capacity of donors to allocate their resources better and evaluate performance of their fundees.

There has been generally a great improvement in the professionalisation of emergency relief over the last decade, which is testified by an increase in capacity without explicit policy.

What then are the challenges

Today we are still faced with the daunting task of how do get the district / community levels brought up to speed for improved disaster relief and response. This is the biggest challenge that faces national authorities who are in the driving seat on this initiative. Secondly, capacity building concepts need to be transformed into action and goals. Unless we have a set of activities that can be done towards a capacity building exercise, the concept will remain academic. Thirdly, all capacity building actions need to be institutionalized into sustainable frameworks within the country or within the international organization.

What are the areas in which capacity building activities are to be undertaken

The first and possibly the most difficult is strengthening organizational and management capacities. These areas are famously difficult to change in any sector and even more so, for health response to disasters – a sporadic event quickly lost from the political memory.

Second, human resource development - the most effective measure for sustainability and cost-effectiveness. What is needed is not emergency health managers but health managers who know emergencies.

Leadership skills is a issue commonly raised as a key element in successful capacity building. Leadership qualities are quintessentially a personal trait and this does not seem to lend itself particularly to a fixed training intervention.

Fourthly, partnerships and networking are an extremely promising channel and successful efforts in this direction have already been made by professional associations of nursing or veterinarians.

Some examples of activities that could be envisaged for building health capacity for disaster response and management would be:

- Setting up partnerships among institutions within the region – between regional groups and centres outside the region. Networks have been very successful in providing support, exchanging information and technical know-how;
- On-line courses developed by academic institutions in collaboration with operational partners; and
- Developing standard curricula for training in health response to emergencies endorsed by the WHO.

Conclusion

Well-trained staff whether at international and national levels are recognized to be the sole barrier to improved capacity of the health sector to respond adequately. This will not be solved by ad hoc small courses run by various organizations for some years drawing on insecure funding sources. The one cost effective option is the institutionalization of health management in disasters within the standard curricula of relevant disciplines. These include medical, nursing, veterinary, laboratory sciences and paramedical aspects. This approach would not only ensure continuity over the years but integrate it within the budgetary framework of established institutions and therefore reduce the fragility of disaster health training, currently dependent on yearly funding.

3.24 How can we do better?

While much of the information for improving our response in disaster situations is known, the same mistakes are often repeated. “Lessons learnt” may be more accurately titled “lessons identified.” They are not always learned.

This session focuses on what we can do better.... what we can do to remember the lessons experienced and be better prepared for the next emergency.

3.24.1 Measuring results in health interventions in disasters

Over the years many lessons have been gathered on the monitoring and evaluation of health interventions in disasters. The Active Learning Network for Accountability and Performance in Humanitarian Action (ALNAP) database, for example, has more than 500 evaluative reports containing lessons. The key lessons point out the need for improving coordination, standardizing methods and indicators, ensuring sufficient and appropriate baseline data, providing appropriate technical expertise and ensuring more commitment to funds to act on recommendations. For future disasters there is a continued and urgent need to bridge the gap between disaster response and development, both in terms of actors and funding mechanisms.

In any emergency -- natural disaster, complex emergency, communicable disease epidemic -- ongoing monitoring and intermittent and focused evaluations are needed to measure the physical, psychological and socioeconomic effects of a disaster and the effect of interventions.

Evaluations are especially important in the case of the Tsunami, given the large amount of resources invested. Where will these funds go and how will they be used? What are they accomplishing? Evaluations need to clearly examine and compare the results of health interventions undertaken by the local populations themselves, as well as humanitarian and

development NGOs, both national and international. Intermittent system-wide, multi-staged evaluations, spaced over the next ten years, are needed to evaluate the Tsunami health response.

A proper monitoring and evaluation system requires political and financial commitment by governments, donors and key organizations, not just to implement the systems and to undertake evaluations, but to ACT on them. A clearly identified, recognized and respected coordinating body that has authority to coordinate interventions and evaluations needs to be identified before the disaster occurs – preferably in the disaster preparedness plan. If this does not occur, then from Day One, such a coordinating body needs to be established. Serious discussion must occur regarding the establishment of a regulating body to enforce accepted disaster response principles and standards. Such a body, which focuses on “disaster malpractice,” requires extensive collaboration among the players.

Baseline data should be collected in the disaster preparedness phase. We need to ensure disaster preparedness plans have standardized assessment forms to ensure key data, disaggregated by appropriate categories, and are collected in a similar manner. For the current Tsunami, all assessments that have so far been undertaken need to be gathered and examined to allow for the establishment of a proper monitoring and evaluation system. Due to some of the poor quality of assessments, better assessments must be undertaken immediately to direct interventions and allow for proper monitoring and evaluation.

In summary, measuring results in health interventions in disasters can be improved through these recommendations:

Recommendation 1: One agreed upon disaster preparedness plan.

Recommendation 2: One designated Disaster Coordinating Authority.

Recommendation 3: One agreed upon Monitoring and Evaluation System.

Recommendation 4: Implement system-wide and multi-staged evaluations (short, medium and long term evaluations over the next ten years) for all major disasters.

Serious discussion needs to be undertaken regarding the accreditation of those who respond to disaster and the establishment of a peer regulating body for disaster organizations. Without such a regulating body, the usefulness of monitoring and evaluation systems and reports will continue to be limited.

3.24.2 Developing systems and capacities for health interventions in disasters

In developing improved systems and capacities for health interventions in disasters, there are three essential elements: planning, preparedness and practice.

Planning

Emergency preparedness begins with an emergency plan. National and international bodies should establish time frames for the establishment of these emergency preparedness plans, followed by the assessment of these plans. There should be no health facility system without an emergency preparedness plan. Emergency planning for the health sector should not take place in a vacuum. Other sectors should be involved and the plans built jointly, rather than attempts made at filling them together later on.

Many guidelines for preparing for and responding to emergencies are already available. Rather than create new ones, existing guidelines should be adapted using participatory approaches by health entities at all levels, preferably a “top down – bottom up” process, using checklists. The

World Health Organization can play an important role in providing leadership in creating or adapting such guidelines.

Prepare

In emergency preparedness, it is important to assess what one already has done and assess what resources are available, identifying strengths, risks, vulnerabilities and capacities. Based on this information, well-defined capacity building should take place, using experienced trainers. Capacity building should be continuous and monitored.

Public health infrastructures may need to be strengthened to prevent and mitigate disasters. Emergency teams should be trained, prepared and on-call, ready to respond in high-risk areas. They should be regularly monitored and kept abreast of new developments.

Within the limits of available resources, medicines, supplies, food, equipment and other materials should be stockpiled.

There should be familiarization with and agreement to standards and measures of accountability – the professionalism of emergency preparedness and response. It is too late to develop these once the emergency has taken place.

Coordination mechanisms, frameworks for and divisions of responsibilities, clarification of leadership and followership roles within the health and nutrition sectors and other sectors need to be established well in advance of emergencies, recognizing that they may differ from those used during normal periods of operation.

Practice

Lessons are not learnt until they are put into practice. Within local contexts and capacities, emergency drills should be carried out. There should be widespread use and dissemination of guidelines and checklists.

Routine self-assessment to measure vulnerability and the potential for response is recommended, adjusting measures based on new knowledge and experience.

Rather than reinventing the wheel; available resources should be used more efficiently and more effectively, whenever possible.

A cycle of planning, preparedness and practice needs to be created, and this cycle will build continuously, feeding new knowledge and experiences into planning and improving preparedness.

3.24.3 Developing partnerships and resourcing for health intervention in disasters

In order to benefit from past lessons, there needs to be movement from talk and commitment to action. Knowing is not enough; we must apply. Willing is not enough; we must do.

Partnerships need complementarities of strength to do more and do it better. Partnerships need commonalities of priorities, mutual obligation to identify partners' strengths and limitations and no duplication of action. Innovation and change is brought into partnerships by people for people.

In a partnership, behavior is crucial for people, especially those who are bringing humanitarian aid to other people. Function and dysfunction are linked to behavior, and it is dysfunctional behavior which keeps us from learning the lessons. Dysfunctional partnerships (non-coordination, duplication and waste, for example) focus on undue competitiveness, struggle for funds, visibility, power and proving themselves rather than helping those in need

A strong partnership is one which is “win-win” for everyone. Individual partners are developed and nurtured within the partnership.

Behavior, however, is not sufficient. We also need good leaders and good managers. Leaders do the right thing. Managers do the things right.

An authoritarian directive is needed if anything of value needs to be accomplished. A leader has the capacity to create a compelling vision, translate it into action and sustain and inspire, keeping the focus, putting down fences and building bridges within each partner.

3.24.4 How can we do better?

First, establish good partnerships in preparedness, working together with others on such activities as:

- Training drills;
- Funding for building capacity within partners, preparedness exercise, maintenance of partners’ core competence, mitigation programmes in high risk areas for natural disasters;
- Transfer of knowledge within and between partners to avoid the organizational syndrome of the “eternal student” and paralysis by analysis; and
- Integrate funding within the broader picture of development.

Secondly, establish non-conventional partnerships, including the military and private sector. Establish partnerships with the media for strategic communications and as a tool for intelligence gathering and dissemination.

WHO is a leader in technical advice, global health policy, setting up standards / guidelines / recommendations; research; analysis; and liaisons with government and academia. WHO is a partner to guide and support field operations in an emergency.

In summary, developing partnerships and resourcing for health interventions in disasters can be improved through these recommendations:

Recommendation 1: Move from talks to action.....we must change.

Recommendation 2.1: Develop and adhere to a healthy, highly functional organizational behaviour.

Recommendation 2.2: Write up partnership agreements (MOUs) as implementing tools, with an accountability clause – not as a document for shelving.

Recommendation 3.1: Identify leaders around you and give them a platform.

Recommendation 3.2: Identify the operators / implementers, delegate and empower, trust and let them do what they know best how to do right – without interfering.

4. Putting it together: Stronger Public Health Capacity within Disaster Management Systems

We have broad agreement on ways to develop public health capacity within disaster management systems. This will result in less suffering and death when disasters strike. There are twelve elements:

- 1) **National Capacity for risk management and vulnerability reduction:** Participants from national governments confirmed that they are ready to be better prepared for major disasters and that they want to strengthen their own capacity to address health issues in disaster risk management and vulnerability reduction. They want the representatives of their governments to commit to such enhancements at the forthcoming World Health Assembly in May 2005, as a key part of their national development strategies. Implementation requires (a) updated policies and legislation, (b) the restructuring of disaster management authorities, and (c) finance that can be used for risk management and vulnerability reduction. Government financial commitments to disaster responses are on the increase. Increased funding is also needed to support the health elements of disaster preparedness and vulnerability reduction.
- 2) **Information for post-disaster needs assessments and programme management:** Participants indicated the advantage of undertaking prompt assessments of people's health situations and needs when a disaster strikes. Population-based information (expressed as rates and not as absolute numbers) is needed. There is a need for increased consensus between governments, multilateral and bilateral agencies on techniques for obtaining this information. Once agreed, the techniques should be well prepared and tested in advance, take advantage of pre-existing data, use standardized multi-stage methodologies and be supported with adequate logistic capacity. Increased use of GIS-based data would be an advantage. Duplicate assessments waste time and frustrate disaster-affected communities. They sought WHO's help with encouraging the conduct of consolidated multisectoral population-based health needs assessments well within two weeks of the event. They recognized that further data collection will be needed over many years - particularly among vulnerable populations - to enable proper planning and management of support and assistance to track evolving health needs and access to services: data should be disaggregated by location and gender. WHO is working with NGOs, the Red Cross, other UN systems agencies and the IOM to develop standardized health assessment tools.
- 3) **Best Public Health Practice in Vulnerability Reduction and Disaster Response:** Participants called for up-dated and evidence-based guidance, and well-functioning professional networks, to help improve responses to specific problems faced by crisis-affected populations - including:
 - psychological reactions to threats and losses and mental ill health,
 - gender equity and the particular health and nutritional threats (including threats to reproductive health) faced by women,
 - food, nutrition and health care needs of children,
 - standard approaches for identifying dead victims and the management of dead bodies,
 - ways to involve volunteer health workers and manage in-kind donations during disaster response, and
 - health education and communications guidelines, with sample messages - particularly in the fields of water, hygiene and sanitation.

WHO should revise materials and support the availability of appropriate professional support within these areas during the next 6 months.

- 4) **The need for benchmarks, standards and codes of practice:** National authorities, the Red Cross and Red Crescent Movement, NGOs, other UN agencies and should be helped, by

WHO, to agree benchmarks, standards and codes of practice for the health aspects of disaster preparedness and response, as well as for supporting post-disaster recovery. These could be based on the well-known SPHERE standards, and agreement should be taken forward through processes of the global Inter-Agency Standing Committee (IASC). Participants heard that national authorities seek mechanisms to help them ensure that groups working to relieve suffering after disasters adhere to these standards.

5) **Management and co-ordination of disaster responses:** Participants from disaster-prone countries indicated that they wish to implement concrete steps to improve the management and co-ordination of disaster responses. They face particular problems when numerous external groups commit to offering assistance: this creates major challenges for the planning and phasing of external inputs. Participants may well seek the UN system's authoritative support with responding to (and, at times, directing and controlling) offers of people, equipment and materials made available through external assistance - with WHO serving as the health arm of the UN system. When external assistance reaches a disaster-affected country, it should be managed through a participatory structure that involves representatives from both the recipient and donor communities. This is particularly relevant for actions in the health sector where needs can change quickly over time, and the cost of handling inappropriate assistance (people, equipment and materials) is very great indeed. Country-level inter agency standing committees, which enable the bringing together of UN agencies, NGOs, the Red Cross and Red Crescent Movement, and other organizations, can be a means through which the co-ordination of agencies, and their links with national authorities, can be improved.

6) **Supply systems, communications and logistics:** Participants requested capacity building in supplies management and logistics and requested additional support in these critical areas from UN systems' agencies, including WHO. They noted that effective supply systems and logistics are key to efficient disaster management. At times of major disasters, adequate logistic support must be made available so that disaster response assistance - whether in-country or international - is self-sufficient. It is unacceptable for it to impose burdens on affected communities (or on personnel in the front line who are trying to provide assistance). Excessive supervisory visits should also be discouraged.

7) **The key role of voluntary bodies in preparedness and response:** Voluntary bodies make a major contribution to health aspects of emergency response efforts: professionals from the Red Cross and Red Crescent Movement, as well as well-functioning NGOs, should be at the centre of, and not marginal to, preparedness and response efforts. Co-ordination among NGOs and other groups should be time-efficient and result in the needs-based deployment of available resources. WHO should work with the NGOs to agree more efficient and effective means for health co-ordination.

8) **Donors and donorship:** Participants sincerely appreciate the active role of public and private donations in support for preparedness, mitigation and vulnerability reduction, as well as permitting a prompt and comprehensive response to disasters (most notable in the response to the Tsunami). They acknowledged the continued efforts by governments and private individuals to find more effective means to relieve suffering, save lives, promote recovery and support reconstruction. However, principles of good donorship are relevant. This includes the requirement for timely, sustained, appropriate and flexible funding that can be applied to emerging needs - including the many disasters and crises that are unable to command international attention.

9) **The potential contribution of Government Military forces and the Commercial Private Sector:** Members of private sector and military groups are frequently involved in the health aspects of national disaster responses, alongside local and national government, civil society and NGOs. While there are concerns about their ability to operate within accepted humanitarian principles and to ensure the integrity of humanitarian space, many participants saw the value of

further developing this co-operation. The concerns, though, are valid - hence the need for careful work to enable different groups to understand each others' motives (and fears), and to agree the procedures through which they can work together. These may include joint efforts under agreed memoranda of understanding. Ways of working together may well be more constrained when military forces and private sector groups are supporting disaster preparedness and response on foreign soil. Participants called for these issues to be explicitly addressed. This could best be undertaken within the context of the already existing civil-military and public-private liaison mechanisms as well as innovative means at national - and community - levels.

10) **Persons working within local, national and international media:** Journalists and broadcasters are key partners in helping to shape the policy agenda for disaster preparedness and response and to disseminate key public health messages: participants asked that WHO establish more effective relations with key media groups (to brief them on health issues during disasters and to identify myths that hinder response efforts), and to develop guidance on media relations.

11) **Accountability and ethics:** All health humanitarian actors need to become fully transparent in terms of the standards of performance to which they aspire, the responsibilities they accept, the accountability principles that they apply, the extent to which they encourage participation of affected communities and the professional ethics that they adopt. These should include a commitment to honest evaluations of their own performance (a characteristic demonstrated by many conference participants from national governments).

12) **Developing capacity for disaster preparedness:** All these considerations imply that local communities must be enabled to develop cross-sectoral capacity for vulnerability reduction and effective disaster responses, and to receive financial and technical backing to do so.

A commitment to act: Participants agreed on the need not just to observe and then analyse past events, but to learn and apply the results of the analysis as quickly as possible. What are the opportunities for learning and application?

- The results of this conference will be debated by delegates at the World Health Assembly in 10 days time: they will influence undertakings by both Member States and the WHO Secretariat.
- WHO is committed to take account of the results of this conference as it continues to support professionals working for vulnerability reduction and disaster preparedness, disaster relief and recovery, not only in communities affected by the December 2004 Tsunami, but in all communities which are threatened by, and at risk of, disasters and crises.
- Participants will be encouraged to act on what they have seen and heard during the conference. WHO will initiate a process through which participants can - within the next six months - inform the Secretariat on what they have found useful in their regular work.
- WHO will set up a mechanism to track actions taken that relate to the conclusions of conference participants, and will - within six months - report to participants on ways in which these conclusions are being taken into account at both national and international levels (particularly in the areas where specific action has been urgently requested).
