# International Forum on Tsunami and Earthquake

# International Symposium

## Progress of the Implementation of the Hyogo Framework for Action and Recovery from Tsunami and Earthquake

## – Summary Report –

**Date:15 (Mon) January 2007, 10:30～17:30 Venue:International Conference Center, Kobe, Hyogo, Japan**

### Organizers

International Recovery Platform (IRP) Secretariat, Asian Disaster Reduction Center (ADRC), UN/ISDR, UNDP, UN/OCHA, UN-HABITAT, ILO, The World Bank (WB), IFRC, Cabinet Office of Japan, Ministry of Foreign Affairs of Japan, Hyogo Prefecture

### In Cooperation with

Ministry of Foreign Affairs of Italy, Swiss Agency for Development and Coordination (SDC), UNESCO/IOC, UNEP, JICA, Disaster Reduction Alliance (DRA), Asian Disaster Reduction and Response Network (ADRRN), NHK

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# Introduction

Almost two years have passed since the World Conference on Disaster Reduction (WCDR) was held in Kobe in January 2005, just after the Indian Ocean Tsunami in December 2004.
The WCDR adopted the Hyogo Framework for Action (HFA) as a guiding framework for disaster risk reduction efforts during the next decade, including the importance of 'Post Disaster Recovery Incorporating Risk Reduction Issues'.
Indian Ocean Tsunami affected countries and Pakistan, which were hit by a devastating earthquake in October 2005 are on the way of recovery aiming for Build Back Better than before.

On the occasion of the 2nd anniversary of the WCDR and the Indian Ocean Tsunami together with the 12th anniversary of the Great Hanshin-Awaji Earthquake which accomplished the 'Build Back Better Recovery', the Government of Japan with Disaster Reduction partners organized an International Forum on Tsunami and Earthquake with the theme 'Recovery from the Indian Ocean Tsunami (and other devastating earthquakes) along the Hyogo Framework for Action (HFA)'

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**Participants :** Officials in the field of disaster management and post disaster recovery, experts involved in disaster reduction and post disaster recovery, IRP stakeholders and the general public.

**Working languages :** English and Japanese

# Programme（January 15th）

**10:30-11:10** Welcome Remarks
Mr. Kensei Mizote, Minister of State, Disaster Management, Japan
Mr. Takeshi Iwaya, Senior Vice-Minister, Foreign Affairs, Japan
Mr. Toshizo Ido, Governor, Hyogo Prefecture
Mr. John Ohiorhenuan, Deputy Assistant Administrator, Senior Deputy Director, BCPR, UNDP
Mr. Sálvano Briceño, Director, UN/ISDR

**11:10-11:20** Video Message
President William J. Clinton, Former President of the United States and UN Special Envoy for Tsunami Recovery

**11:20-12:00** Keynote Speech:
Ms. Maryvonne Plessis-Fraissard, Senior Advisor, Vice-Presidency for Sustainable Development, The World Bank

**12:00-14:00** Break

**14:00-15:20** Tsunami Recovery Status Reports
- Indonesia : His Excellency Dr. Kusmayanto Kadiman, Minister, Research and Technology, Republic of Indonesia
- Sri Lanka : His Excellency Mr. Mahinda Samarasinghe, Minister, Disaster Management and Human Rights, Democratic Socialist Republic of Sri Lanka
- Maldives : His Excellency Mr. Mohamed Mauroof Jameel, Minister, Construction and Public Infrastructure, Republic of Maldives
- India : Prof. N. Vinod Chandra Menon, Member, National Disaster Management Authority, India

**15:20-15:40** Progress of the Indian Ocean Tsunami Early Warning and Mitigation System
Mr. Patricio Bernal, Executive Secretary of IOC, Assistant Director General of UNESCO

**15:40-16:00** Coffee Break

**16:00-17:30** Panel Discussion
Facilitator: Mr. Sálvano Briceño, Director, UN/ISDR
Special Speech: Mr. Marco Ferrari, Deputy Head, Department of Humanitarian Aid, Swiss Agency for Development and Coordination (SDC)
Panelists: Mr. Andrew Maskrey, Chief, Disaster Reduction Unit, UNDP/BCPR
Mr. Alfredo Lazarte-Hoyle, Director, International Programme on Crisis Response and Reconstruction, ILO
Mr. Satoru Nishikawa, Director for Disaster Preparedness, Public Relations & International Cooperation, Cabinet Office, Japan
Mr. Koji Suzuki, Executive Director, Asian Disaster Reduction Center (ADRC)
Special Commentator: Prof. Ian Davis, Visiting Professor, Cranfield Univercity, UK
Commentator: Country Representatives, WB, UNESCO/IOC

**17:30** Closing of the Symposium

# Welcome Remarks

**Mr. Kensei Mizote**

**Minister of State for Disaster Management, Japan**

Ladies and gentlemen, good morning.

Thank you for the kind introduction. My name is Kensei Mizote, Minister of State for Disaster Management in Japan. First of all, let me express my gratitude to the ministers, officials, representatives of UN agencies, and friends, who have gathered here from home and abroad.

Two years have passed since the Indian Ocean tsunami wreaked unprecedented damage, and the world still faces wide-scale natural disasters such as earthquakes in Pakistan and Indonesia. I would once again like to express my deepest condolences to the victims of those disasters.

Japan is one of the most earthquake-prone countries in the world. The Great Hanshin Awaji Earthquake hit this area of Kobe on January 17, 1995, and claimed the lives of more than 6,400 people. In addition to earthquakes, we also face natural disasters such as tsunami, volcanic eruptions, torrential rain, and tremendous snowfall. Last year alone, Japan suffered from typhoons and tornadoes. I visited many of these disaster-stricken areas, and tried to offer as much assistance as possible.

Tackling natural disasters is a common challenge to all humans, and is a prerequisite for both the safety and security of citizens and for sustainable development. It is possible for both industrialized and developing nations to prevent damage from natural disasters by preparing the country to face disasters and reducing social vulnerability.

Our country has learned many lessons from the horrific damage of past natural disasters and from our experiences in upgrading national countermeasures for disaster reduction. In the 1940s and 1950s, thousands of people were killed by huge typhoons. For example, the Isewan Typhoon, or Typhoon Vera, took more than 5,000 lives. Learning from these tragedies, we made comprehensive improvements in legislative and institutional systems and invested in disaster-preventive measures through collaboration among central governments, local municipalities and related private sector parties. These efforts were successful in helping reduce the number of victims of disasters.

As for unexpected earthquakes, the Great Hanshin Awaji Earthquake also taught us many lessons. Most importantly, we learned the importance of improving the earthquake resistance of buildings, taking measures for social infrastructure such as public transport and life-line services, as well as disaster prevention drills and education. We are also improving initial response systems, such as data collection, when disasters occur. For tsunami countermeasures, we are improving tide embankments and early warning systems, and implementing efforts to raise awareness among the people living along the coasts.

From the beginning, we have actively used our knowledge and technology to promote international cooperation for disaster prevention. Just two years ago, Japan hosted the World Conference on Disaster Reduction (WCDR) here in Kobe with over 4,000 participants from all over the world. The Hyogo Framework for Action was adopted at the conference to serve as a guideline for disaster prevention and reduction activities in our global society for the coming decade. Each signatory contributes to the Framework with specific efforts to build nations' and communities' abilities to withstand natural disasters.

The Hyogo Framework for Action also approved Japan’s proposal for promoting an international cooperative approach towards disaster risk reduction in planning projects related to recovery activities of post-disaster situations in the disaster-stricken areas. In the past, reconstruction projects tended to be carried out without sufficient measures for strengthening regions' abilities to withstand future disasters, thus causing repeated similar tragedies in the same area.

In order to break the vicious circle of natural disasters and poverty, Japan, the Asian Disaster Reduction Center, and other institutions (including UN-affiliated bodies) cooperated to jointly establish the International Recovery Platform, which will include information on good practices for disaster recovery, advice for building regional resilience to disasters, and ways to develop potential - all to be provided from Kobe.

This forum is one part of these efforts among people concerned about information sharing and opinion exchange on the experiences and lessons to be learned from disasters and about reconstruction processes. It is also geared to serve as a base for discussion on future prospects for cooperative promotion of the Hyogo Framework for Action on the international stage. I sincerely hope that this forum will achieve its intended results with your efforts and contributions.

Let me conclude my speech by thanking all the speakers, experts and panelists once again for their participation.

Thank you very much.

## Mr. Takeshi Iwaya

**Senior Vice-Minister for Foreign Affairs, Japan**

Good morning, ladies and gentlemen.

Thank you for the introduction. My name is Takeshi Iwaya, Senior Vice-Minister for Foreign Affairs. I am greatly honored to say a few words of greeting to so many distinguished participants on the occasion of this International Forum on Tsunami and Earthquakes.

Kobe is a city symbolizing the importance of disaster prevention measures and possibilities for reconstruction in Japan. As Minister of State for Disaster Management Mizote just mentioned, in January two years ago, the World Conference on Disaster Reduction, or WCDR, was held here in Kobe at Port Island. In that conference, international society expressed solidarity with the victims of the Sumatran earthquake and the Indian Ocean Tsunami which followed, and appealed for international support. Therefore, it is truly encouraging to see reconstruction efforts for disaster-stricken countries included in today's agenda.

Ladies and gentlemen, the Hyogo Framework for Action adopted at the WCDR sets a goal for a substantial reduction in disaster-related damage during this decade. However, natural disasters still occur throughout the world and still have the potential to destroy developmental results and undermine human security. Efforts for building nations' and communities' resilience to disasters are of great importance.

In this regard, Japan is making the most of the knowledge and technology obtained through our past hardship for the promotion of cooperative disaster prevention and management.

For example, at the global-level, the International Recovery Platform was formed with other institutions such as the United Nations for the incorporation of disaster-risk reduction into post-disaster recovery processes.

At the regional level, in Asia, reduction of disaster-caused damages is considered as a most urgent need. Therefore, Japan has been utilizing overseas development assistance as a major method for providing support and strengthening regional cooperation under the Initiative for Disaster Reduction proposed at the Convention center.

As a result, seamless support was successfully provided in the May 2006 Yogyakarta Earthquake, from the immediate aftermath of the disaster through the reconstruction and disaster prevention stages.

Today, Japanese Prime Minister Abe is to announce a comprehensive regional disaster management plan at the ASEAN regional summit in Cebu, the Philippines.

Steady investment is a prerequisite for disaster management to achieve superior results. However, these results might fall short of our expectations if we lack the strong determination to make disaster management a national priority.

I sincerely hope that this two-day discussion will further promote investment in disaster reduction and help us realize a world with fewer tragedies caused by natural disasters.

Thank you very much.

**Mr. Toshizo Ido**

**Governor of Hyogo Prefecture, Japan**

Good morning, ladies and gentlemen. Welcome to Kobe in Hyogo Prefecture.

In two days, it will be January 17th again. Twelve years ago, at 5:46 in the morning, the devastating Great Hanshin Awaji Earthquake occurred. It was just a short period of time - only twenty seconds of earth tremors – that killed more than 6,400 people and destroyed more than 100,000 homes. More than 300,000 people were forced to evacuate to temporary shelters. All these numbers show the tremendous scale and impact of natural disasters.

Since then, we have made ardent efforts to reconstruct and rehabilitate our city with support from home and abroad. However, there are still many problems to be solved. For example, we are still in the process of restoring the former lifestyles of senior citizens affected by the earthquake. Likewise, urban redevelopment and town projects are also being carried out with the Kobe City government as a major player.

Meanwhile, as you can see, Kobe is now restored, thanks to everyone's twelve years of effort. These endeavors bore fruit in hosting the UN's World Conference on Disaster Reduction two years ago, resulting in the establishment of the Hyogo Framework for Action. This is the United Nations' ten-year project for natural disaster reduction, which is now moving into the concrete operational stages.

The UN Conference focused on a number of points: 1) the importance of disaster reduction efforts, or preparedness against natural disasters, 2) the necessity for daily responses against disasters, or countermeasures at the community level, and 3) an international cooperative system for disaster prevention and reduction.

This background is one reason why Kobe has so many institutions devoted to disaster prevention, including the United Nations Office for the Coordination of Humanitarian Affairs Kobe, the UN Center for Regional Development Disaster Management Planning Hyogo Office, the Asian Disaster Reduction Center, the WHO Kobe Center, and the Disaster Reduction and Human Renovation Institution. We are proud to welcome many participants from these organizations today to this forum. I am very happy to have a two-day meeting dedicated to the discussion of tsunami and earthquake disasters here in Kobe, a global base for disaster prevention.

I sincerely hope that this meeting will provide another opportunity for telling the world about the lessons and experiences we learned twelve years ago, and will trumpet peoples' earnest efforts for reconstruction ever since. At the same time, I also hope to let others know of what we can do to help those in disaster-stricken areas.

After the World Conference on Disaster Reduction, the International Recovery Platform, or IRP, was established as a platform for cooperation among related international

organizations in post disaster recovery. We have high hopes that it will play an even greater role in coordination in the future.

Two years ago, after the tsunami disaster of December 2004, I was invited by the governments of Thailand and Indonesia to talk about our experiences during the Great Hanshin Awaji earthquake and to give advice for rehabilitation and reconstruction. Of course, it is impossible to precisely duplicate Japan’s experiences in different countries. However, it is still important to learn from others' lessons and apply this knowledge to new experiences for better preparedness. In this sense, it is absolutely necessary that we all collect and exchange data on natural disasters.

In recognition of our high expectations for the United Nation’s Central Emergency Response Fund, CERF, which is a fund raised to support UN agencies' rapid and timely response in an emergency, Hyogo Prefecture decided to donate one hundred million yen to its activities. We think that it is our responsibility as a region, which received much assistance in the past, to support others' endeavors to do the same. I expressed these intentions during a visit to the United Nations headquarters last year.

In this way, Hyogo Prefecture is determined to continue its efforts to realize a society with a stronger capability to withstand disasters, and to participate as part of a global commitment for strengthening security against natural disasters.

I sincerely hope that this conference will serve as a new step in global efforts against natural disasters. Further, I hope the participants make time to relax with a visit to Kobe's downtown after a hard day of discussions.

I would like to close by welcoming all the participants again to this special occasion. Thank you.


## Mr. John Ohiorhenuan

**Deputy Assistant Administrator,**
**Senior Deputy Director, BCPR, UNDP**

Excellencies, distinguished representatives, dear colleagues. My name is John Ohiorhenuan, Senior Deputy Director in UNDP's Bureau for Crisis Prevention and Recovery (BCPR). On behalf of Kathleen Cravero, the Assistant Administrator and Director of the Bureau, it is my pleasure to welcome you to this important forum under the aegis of the International Recovery Platform.

It is a great honor for me to be here in Kobe on the occasion of the 12th anniversary of the great Hansin-Awaji earthquake. Most of us can only imagine the devastation that affected the very area where we now stand, and the efforts that went in to turning disaster into successful recovery. In fact, I would warmly recommend a visit to the nearby earthquake museum giving an opportunity for reflection for both intellect and soul.

Let me start by expressing my deep appreciation to all co-organisers of this event in the IRP family for giving us the opportunity to come together in order to learn from the experience of recent major disasters. In particular, I wish to applaud our friends in the Government of Japan, the Cabinet Office, the Ministry of Foreign Affairs and the Hyogo Prefecture, as well as our colleagues at the Asian Disaster Reduction Centre (ADRC) and the IRP Secretariat here in Kobe. We believe that this will be an important step to strengthening our collective capacity to turn recovery from disasters into opportunities for risk reduction and resilient development.

As we know, experience increasingly affirms that the post-disaster recovery phase provides a critical opportunity to shift the focus from saving lives to restoring livelihoods. It is also a critical time to introduce measures to reduce future disaster risk. In other words, recovery provides an important window of opportunity to close the gap between relief and development and transform disasters into opportunities for sustainable development.

Experience also shows, however, that to be effective, disaster recovery needs to be an integral part of response planning systems. The necessary legislative and institutional systems as well as recovery personnel and resources must be in place well before a disaster occurs. Furthermore, post-disaster recovery needs to be conceptualised and designed to take account of the underlying causes and risks that provoked the disaster in the first place. This will help to avoid recreating conditions of risk and preparing the ground for future disasters.

The tsunami of December 2004 was one of the worst natural disasters in recent history, with more than 275,000 people believed to have died in the five most affected countries. In addition to this immense death toll, we must also consider the full impact of the tsunami on livelihoods, economic activity and individual well-being, particularly for the poorest and most vulnerable

sections of the affected communities.

The same is true in relation to the recent earthquakes in Pakistan in October 2005, and in Yoyakarta, Indonesia, in May 2006. While the immediate emergency response to these disasters is long over, the governments and affected communities - with the support of the international community - are still working hard to recover fully from the effect of the disasters to their lives, homes, livelihoods, the infrastructure and to the broader fabric of society.

Here, I must express particular appreciation to the representatives of the countries affected by these disasters, who have taken the time to join us at this forum to share their experience. We have the opportunity - and responsibility - to learn from their experience in order to develop our knowledge and understanding of the challenges of recovery and of how we can further increase our capability to prepare for, manage and support such efforts for future disasters.

As I am sure you are aware, UNDP has a very strong commitment to disaster risk reduction and recovery, rooted in the decision of the United Nations General Assembly at its 52nd session to assign this responsibility to UNDP. The recent report of the Secretary-General's High Level Panel, Delivering as One, further reinforces this mandate by recommending that the United Nations efforts in disaster risk reduction be urgently enhanced and that UNDP take the lead on this issue. The report also recommends that UNDP become the UN leader and coordinator for early recovery. Regardless of what ultimately happens to the Report, we UNDP are committed to playing this role. Indeed, we are already playing it in the context of the humanitarian reform process, where we lead the Inter-Agency Standing Committee (IASC) Global Cluster Working Group on Early Recovery.

To us, the International Recovery Platform, established in connection with the World Conference on Disaster Reduction - held right here in Kobe two years ago - provides an important opportunity in this regard. The IRP is a thematic platform within a strengthened International Strategy for Disaster Reduction (ISDR) system. As such, it gives us the opportunity to work with, and draw upon, the collective knowledge and experience of a broad community of recovery practitioners and policy makers - as we strive towards the fulfillment of the Hyogo Framework for Action. As you all know, the core theme is "Building the Resilience of Nations and Communities to Disasters". As part of our commitment to the IRP, we are very pleased to co-staff the IRP Secretariat based here in Kobe, together with the Asian Disaster Reduction Centre (ADRC).

Within the context of the IRP, and the IASC Cluster Working Group on Early Recovery, we are also taking forward – in broad partnership with actors in both the humanitarian and development areas - the development of a Post Disaster Recovery Needs Assessment (PDNA) methodology and tookit. We have asked the UN Economic Commission for Latin America and the Carribean (UNECLAC) to be our implementing partner in this work in order to make sure that we benefit from their work in the field of Damage and Loss Assessment (DALA).

I would like to say that we see the true value of the PDNA as a tool, not only for the use of international responders to disaster, but also for building national capacities - particularly in high risk countries - through a process that recognizes national specificities, and integrates existing national methodologies. Linked to this

and together with our friends in the International Labor Organisation, we are also taking forward a pre-disaster recovery planning initiative within the context of the IRP.

As you must have gathered from what I have said so far, we are certainly very pleased to participate in and contribute to the work of the IRP together with our partners in national governments and the international community – including, of course, our sister UN programmes and agencies, the World Bank, the International Red Cross and Red Crescent Federation as well as the broader international community, civil society and the private sector. IRP is still relatively a "new kid on the block". We hope that we will see the participation in the IRP grow as we know that there is a broad community "out there" with important contributions to make to this effort. By working together, we ensure that we take account of the broadest possible experience in creating synergies when we build capacities to reduce vulnerability to disasters, before they happen as well as when recovering from their effects.

If I may end where I started, I would like, again, to welcome you to this important forum. I look forward to a very active discussion and exchange of experience which I hope will feed into the development of innovative approaches and new partnerships for the effective implementation of the Hyogo Framework for Action.
Thank you very much.

**Mr. Sálvano Briceño**

**Director, UN/ISDR**

Distinguished Participants, Ladies and Gentlemen, It is an honour and a privilege for me to be here with you today at this International Symposium on progress of the implementation of the Hyogo Framework for Action and Recovery from Tsunami and Earthquake, which is being held in conjunction with 12th anniversary of the Great Hanshin-Awaji Earthquake and 2nd anniversary of the World Conference on Disaster Reduction and adoption of the Hyogo Framework for Action. I thank the organizers of the Symposium for their valuable and very effective efforts. I am also pleased to see that high-level representatives of Asian countries are present, as we need to learn from their experiences.

This is a timely and important Symposium, which I am confident, will make valuable contributions to building the knowledge base upon which the International Strategy for Disaster Reduction must rest.

According to the preliminary figures from the Centre for Research on Epidemiology of Disasters (CRED), there were 375 disasters with nationwide consequences in 2006. These disasters killed more than 20,000 people and did $18.3 billion worth of damage in 106 countries. The opening news this morning was the terrible floods in Malaysia, a few days ago it was Indonesia, before Philippines and other regions such as Africa and Lain America. We continue to see how every year disasters triggered by natural hazards continue to harm and slow down development in many parts of the world when existing knowledge could reduce their impact greatly.

Throughout the two years since the World Conference on Disaster Reduction, we have witnessed many achievements and progress in disaster risk reduction all over the world. There has been a growing recognition that disaster risk reduction is the most effective approach to address the challenge posed by natural hazards. This has resulted in considerable growth in the number of actors at global, regional and sub-regional and country levels engaging in disaster risk reduction. We need to continue working together to maintain the momentum and drive the global movement on disaster risk reduction towards a safer world.

I would like to mention in particular, three important initiatives that are contributing to implement the Hyogo Framework:

(1) The International Recovery Platform, which aim at integrating risk reduction in post disaster recovery and reconstruction efforts. The IRP, established under the auspices of the International Strategy for Disaster Reduction and managed by UNDP with valuable support from the ADRC, ILO, UN/HABITAT and other key partners, is one of concrete outcomes of the World Conference on Disaster Reduction.

The IRP is gradually developing a

service-oriented approach towards governments and national institutions facing high levels of risk. Assessments from past national recovery experiences at country level are being collected, systematised and made available to governments facing the task of rebuilding after disasters. In this context, this symposium provides valuable input to such activities of the IRP.

(2) The second and very important initiative that will greatly facilitate the implementation of the Hyogo Framework for Action is the Global Facility for Disaster Reduction and Recovery, launched in partnership by the World Bank and the ISDR system. We will have an opportunity to hear more about the Facility by Ms. Maryvonne Plessis-Fraissard from the World Bank, who is our keynote speaker today.

(3) Finally a third recent initiative, which I am pleased to announce, is a publication of the Guide "Words into Action: Implementing the Hyogo Framework". The guide has been produced by the ISDR secretariat together with a number of partners, to assist in the implementation of the Hyogo Framework. It is available on ISDR's website and some copies have been brought to Kobe.

The Guide is still a consultation draft and it is intended as a practical resource offering advice on specific strategies and good practices in disaster risk reduction. For each of the Hyogo Framework for Action's five priority areas it suggests a few tasks or actions, providing step-by-step guidance for implementation, suggesting supportive complementary measures, as well as providing examples from around the world and links to additional sources of information. The consultation draft represents work in progress. It is being shared with you and other key actors involved in disaster risk reduction, including partner agencies and experts, national platforms and regional organizations to request your comments for improvement.

A revised version of the Guide will be launched at the first session of the Global Platform for Disaster Risk Reduction to be held in Geneva 5-7 June this year.

As a key mechanism in the strengthened ISDR system, the Global Platform for disaster risk reduction will provide a forum for devising strategies and policies to reduce disaster risk, monitoring progress and identifying gaps in policies and programmes and recommending remedial action. It also aims at ensuring complementarity of action at all levels of implementation through increased coordination and cooperation. The Global Platform will also facilitate sharing knowledge and lessons among ISDR system partners. I would like to encourage your active participation in the Global Platform for Disaster Risk Reduction, and to join the global movement of the disaster risk reduction and efforts of the United Nations through its International Strategy for Disaster Reduction and the Hyogo Framework as its guiding policy document and to use it in your daily work to address the underlying causes of disasters. The ISDR secretariat remains available and committed to work with you in addressing these challenges to facilitate the work of its partners in various regions of the world.

I would like to conclude by wishing a productive discussion in this symposium and looking forward to learning from countries participating here today and tomorrow that have all faced major disasters and could provide knowledge to be factored into future recovery efforts on how to make disaster recovery an opportunity to build back better and safer, and to gradually reduce risk and vulnerabilities to natural hazards and facilitate a sustainable development.

Thank you for your attention.

# Video Message

UN Photo 2005 / Eskinder Debebe

**President William J. Clinton**
**Former President of the United States**
**Former UN Special Envoy for Tsunami Recovery**

I thank the Japanese government for hosting this International Forum and for its leadership on disaster risk reduction worldwide. It has been two years now since the World Conference on Disaster Reduction was held in Kobe, in this very same conference center. Then the international community agreed on the Hyogo Framework for Action, a ten-year global plan to reduce vulnerabilities to natural hazards.

In my role as the United Nations Secretary General's Special Envoy for Tsunami Recovery, I have often considered how governments and civil society throughout the world can avoid the type of devastation we witnessed in the Indian Ocean region on December 26, 2004.

Natural hazards will always exist. Poverty, urbanization, environmental degradation, and climate change will only increase the risks of them. It is therefore critical that governments and other stakeholders, such as international financial institutions, NGOs, and the private sector and media, accelerate efforts to implement a broad range of risk reduction measures.

We must also learn from past disasters. I hope there is now broad recognition that building back better means going beyond simply improving the way things were, but rather building a recovery process that leaves communities safer and more secure.

Not just safer homes, but also stronger public facilities such as schools, hospitals, power systems, telecommunications infrastructure. Not just new disaster-related agencies, but fully functioning early warning systems that reach the coast line and citizens that leave them more aware and better informed of how to cope with natural hazards.

I want to thank the organizers of this forum, as well as the participants for your commitment to disaster reduction.

I wish you God speed on this critical work.

Thank you.

# Keynote Speech

**Ms. Marryvonne Plessis-Fraissard**
**Senior Advisor, Vice Presidency for Sustainable Development**
**The World Bank**

# "Global Facility for Disaster Reduction and Recovery"

It is my pleasure to be here and present the keynote speech, looking at the new initiative to enable and accelerate the implementation of the Hyogo Framework. It is very important for us to realize that development has not been understood from its start. The International Development Bank for reconstruction and development with its launch in 1947, and during the first 20 years of its work it did not do development at all. Actually, its first development project was in 1964. The idea of development grew out of reconstruction of disaster damages and at the beginning, it was understood as a matter of construction and reconstruction of infrastructure, and we have heard that the processes of development grew more complex as we understood throughout the year. The need was for institutional capacity, human development, environment, poverty, and governance, and today it is further extended to risk and sustainability. So in fact, what we are doing today is bringing one more dimension to the understanding of the complex process of sustainable development. Reconstruction has always been a large portion of the World Bank activity, and the Bank has done self-standing reconstruction projects for 26 billion dollars. But, in fact, a lot of activity that is done for reconstruction goes somehow unnoticed because it is composed of re-allocation of funds that were otherwise dedicated to long-term development. In 20 years we have done self-standing 528 projects and these reconstruction projects have focused only on prevention.

We often have multiple disasters and now we are realizing that a particular attention has to be given to more vulnerable people; the elderly, the marginal group, the poor, and women. You can see that the share of the portfolio in natural disasters is increasing in every quintile and this number is growth under estimation because it does not touch on the real locations. Today we have understood that disasters are not a humanitarian issue to which you respond after it occurs as a curse to some communities, but it is really a development issue, part of the work of good management. Disasters erode development gains, for example, the last great earthquake in Pakistan is costing the government equivalent of three years of development aid. So, not only the government needs to repair because a numbers of years of progress have been erased. Also disasters affect the poor disproportionately, in particular in a time when rapid urbanization takes place. So the issue of development and the issue of poverty come together with the hazard risk. Disasters, which have increased in numbers and in losses, are a development issue as they eroded development gains, affected the poor more, caused damages that had increased 15 folds since 1950, and the climate related-disasters have increased dramatically. There are 86 countries in the world which have more than 30% of their GDP or 30% of their population at a high risk of catastrophe. This is our major concern.

The Bank has fulfilled major independent evaluation of its portfolio of disaster reconstruction in the last 20 years. In fact, there are several findings that are critical. First, crucial activities for

vulnerability reduction take more than three years. Also vulnerability reduction and prevention have relatively weak demand. The terrible event of the Great Hanshin-Awaji Earthquake and Indian Ocean Tsunami have changed the mindset quite a bit in the world as public opinions have been horrified with the scales and horrific circumstances of the populations of the affected area. But still, reduction, and management of risk remains something that is not very high on most governments' agenda. Early action has a major impact on the future, and decisions that are taken in the first few hours, in the few days and first few weeks have actually tremendous impact on the directions of sustainability of recovery. So they have to be planned properly. Often, funds are needed immediately when the government is taken by the catastrophe. These funds are not available immediately, and therefore there is reallocation and diversion of funds needed for a long-time program, and then disruption of development is multiplied. Finally, in the United States, 50% of damages were insured, while in a poor county the maximum would be two.

There are some positive findings on the evaluation of the World Bank's performance on reconstruction. The World Band has demonstrated flexibility as many different types of activities were presented according to their various circumstances. The World Bank is working with multiple sectors and is not assigned to one sector. Work with donors in a shared response has improved as all donors are learning to work together more effectively and we have seen it for example during Hurricane Mitch and in Turkey in 2000. Also another positive outcome is that projects of reconstruction have had overall a very good outcome and sustainability.

There have been, however, some negative findings on the performances of the World Bank. First it has been reactive and tactical. It has not really been proactive. It has not thought to have a place in the country assistance strategy. Another finding is that emergency 3-year interventions sometimes are rushed in order to look good and in fact miss their development goals. Finally the poor and special groups require special attention, and the attention to them has to be documented so that we may do it better, we may monitor it, and we may improve our impact. In the Bank, there is no mechanism to bring experienced staff, experienced with reconstruction to a situation. So there is a kind of need for the team to demand, like there is a need for a country to ask for or request for help, and not an automatic system that proposes support.

The recommendation from the disaster reconstruction portfolio that came out of these extensive works is of relevance to us today. Prepare a strategy for disaster assistance. Prepare it in the World Bank, prepare it in development institutions, and prepare it wherever you are responsible for public management. Revise the policies of the Bank to address risk management needs of all borrowers. Increase the Bank's capacity to respond quickly and automatically, participate in the development of instrumental finance risk transfer, my participation in this august' assembly as part of this implementation, and mainstream risk management as part of prudent public governance.

There have been some lessons from the Indian Ocean tsunami and the Great Hanshin-Awaji Earthquake. However there are two or three comments that come which are of relevance to all. First, we have noticed that sources of funding have diversified recently and private sources have become possibly more important than the public traditional funding. Secondly, there is a multiplicity of institutions coming and in fact sometimes overwhelming which sometimes bring complexity. Hence common policies, practices and pre-arranged coordination procedures are needed. Finally, the

national government also needs a level of preparedness for emergency plans and we see these among even the countries that are most developed, richest and better prepared. So, it's not just the poor country and less industrialized country that has a problem of institutional preparedness.

In the face of this learning, in the face of this expectation, in the face of these increased risks, the Hyogo Framework of Action gives us the mandate, all of us, to contribute to reverse the increased trend of vulnerability and disaster loss before 2015. The World Bank is taking this matter very seriously and this is why I shall be presenting to you the global facility for disaster reduction and recovery, which is our contribution to help bring all the partners together. It wants to build global and regional partnerships, foster coordination at all levels and use those networks that exist much more to develop the recovery platform, bring together all these emerging structures, mainstream risk densification, risk reduction, risk transfer. At the same time in developing strategies, every single bilateral donor and multi-national institution has to do that work of retrofitting its own procedures. Also, all national governments have to make sure that they are prepared. Link effectively this work with poverty reduction as we have seen that we cannot achieve MDGs if we do not take into account the vulnerability of the poor. Bridge the knowledge gap in risk identification, reduction, transfer and preparedness; help stimulate demand for disaster mitigation, vulnerability reduction and adaptation to climate change. In these the World Bank wants to contribute with intellectual, with technical and with financial leadership.

This through the Global Facility for Disaster Reduction and Recovery which has three tracks where track 1 builds networks, global and regional partnerships and fosters coordination at all levels (implemented through UN/ISDR); track 2 mainstreams risk identification, reduction and transfer in development strategies and national long-term development strategies (led by countries and executed with their chosen development partners); and track 3 accelerates recovery through a standby recovery financing mechanism for low income countries without access to market financing and who have initiated a disaster prevention scheme.

Finally, I emphasize that knowledge of risk must be at the core of decision making process. The governance and management would be comparable to those that have been done in other partnerships. We have many partnerships in the Bank and we know what has worked well. Usually we have a consultative group which has a strategic oversight, a Steering Committee that works and looks at work programming detail, and a Technical Advisory Group that is made of experts well-known worldwide to provide ad-hoc support. It is expected that this Charter would be approved on February 23. We have received a mandate in September to present a final proposal for the partners. In February, the Secretariat is inviting participants to approve the Charter on February 23.

So, thank you very much, thanking the beautiful City of Kobe for the fantastic view in my hotel room.

International Forum on Tsunami and Earthquake

Global Facility for Disaster Reduction and Recovery

New Initiative to

Enable / Accelerate the Implementation

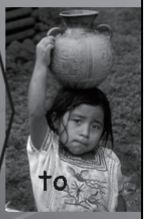
of the Hyogo Framework for Action

Kobe, January 15, 2007

Maryvonne Plessis-Fraissard
Senior Advisor ,Vice Presidency for Sustainable Development
The World Bank

## Development and Risks understood through long learning process


Institutional Capacity
Human Development
Environment
Poverty
Governance
Risks
Sustainability




Post WWII IBRD Reconstruction Infrastructure

Complexity

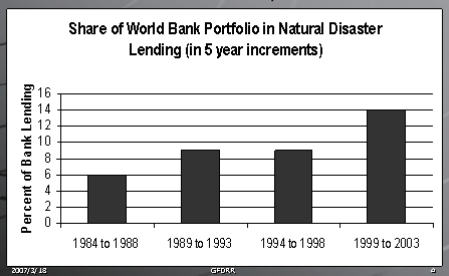
Poverty Vulnerability MDGs

## Reconstruction always a large portion of World Bank activity

Since 1984

- 110 countries borrowed
- More than US$ 26 Billion
- 528 projects
- Concentrated-
  10 borrowers =40% of loans,
  10 largest loans = 32% of lending
- Reconstruction focus
  21 prevention projects
- 25% multiple disasters
- Growing focus on women, marginal groups, the poor

## Growing share of Dedicated Reconstruction portfolio




## Disasters are a Development Issue

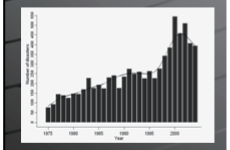
- Erode development gains
- Affect the poor more
- Major impact
- Are predictable 80% of GDP in risk areas
- Increasing damage in 1990s 15 times than of 1950s
- Concentrated: 86 countries 30+% GDP at risk

## Hotspots Global Risk Analysis Scientific Benchmark of Risks

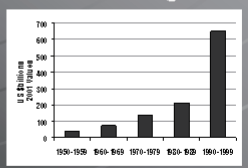

World Bank & Columbia University - Margaret Arnold, Robert S. Chen, Uwe Deichmann, Maxx Dilley, Arthur Lerner-Lam With Jonathan Agwe, Piet Buys, Oddvar Kjekstad,Bradfield Lyon, Gregory Yetman

## Disasters are Growing in Number and Destructiveness

Increasing numbers



Increasing losses




## Climate-related disasters are growing more

| Hazards | Mean number of persons affected for one killed(1974-88) | Mean number of persons affected for one killed(1989-2003) | Proportion of change between the two periods |
|---|---|---|---|
| Drought | 119,883 | 44,748 | -63% |
| Earthquake | 20,780 | 8,143 | -61% |
| Heat wave | 2,545 | 14,915 | +486% |
| Flood | 9,503 | 11,763 | +24% |
| Slides | 1,193 | 335 | -72% |
| Volcano | 5,395 | 11,960 | +121% |
| Wave/surge | 61 | 3,096 | +4975% |
| Wildfire | 995 | 2,523 | +153% |
| Windstorm | 5,977 | 21,225 | +255% |
| total | 11,526 | 13,706 | +19% |

windstorms, surges, and floods

Source:EMDAT

## Lessons from the Disaster Reconstruction Portfolio 1/3

Independent evaluation of last 20 years WBG

- → Crucial activities for vulnerability reduction take more than 3 years
- → Vulnerability reduction / prevention have weak demand
- → Early actions have major impact & need planning
- → Often immediate funding is needed & is diverted from long term program
- → Insurance against hazards does not exist in poor country/ is unaffordable

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## Lessons from the Disaster Reconstruction Portfolio 2/3

Some positive findings

- \+ WB demonstrate flexibility 60+ types of projects
- \+ WB deals with multiple sectors
- \+ Work with donors in a shared response Mitch 1999,Turkey 2000
- Projects have higher outcome & sustainability than average

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## Lessons from the Disaster Reconstruction Portfolio 3/3

Some negative findings

- Reactive & tactical, not proactive & strategic in Country Assistance Strategy
- Emergency 3 year interventions sometimes rushed & not optimized
- Recovery for the poor requires special action & needs better documentation
- No mechanism to bring experienced staff & relevant knowledge to borrowers & teams

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## Recommendations from the Disaster Reconstruction Portfolio

- Prepare a strategy for Disaster assistance
- Revise policy to address the risk management needs of borrowers
- Increase Bank capacity to respond quickly
- Participate to the development of instruments to finance risk transfers
- Mainstream risk management as part of prudent public governance

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## Lessons from the Indian Ocean Tsunami and great Hanshin-Awaji Earthquake

The knowledge is with distinguished delegates from the affected countries

- Sources of funding have diversified & private contributions are larger than traditional IFIs. US$5.8 Bl allocated will be spent by 2009, about 1,500 projects
- Multiplicity of institutions bring complexity – more than 300
- Common policies, practices and pre-arranged coordination procedures are needed
- National Governments need a level of preparedness and an emergency plan

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## Hyogo Framework for Action - HFA 2005-2015

Mandates all partners to contribute to reverse trends in vulnerability & disaster losses by 2015

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## Global Facility for Disaster Reduction and Recovery

- Builds networks, global & regional partnerships & fosters coordination at all levels
- Mainstreams risk identification, reduction & transfer
  - in Development Strategies
  - in National Long Term Development Strategies
- Links effectively with Poverty Reduction
- Is embedded in the UN / ISDR system
- Bridges knowledge gap in risk identification, reduction & transfer and preparedness
- Helps stimulate demand for disaster mitigation, vulnerability reduction and adaptation to climate change
- World Bank contribution of Intellectual, Technical & Financial Leadership

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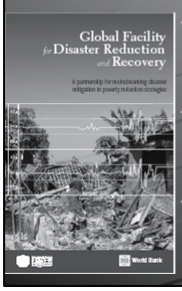
## Global Facility for Disaster Reduction and Recovery




- **TRACK 1** Supports ISDR to develop a coherent and coordinated approach to risk reduction
- **TRACK 2** Assists natural disaster hotspot countries to mainstream disaster risks in development strategies
- **TRACK 3** Provide speedy and predictable recovery financing in disaster stricken low-income countries

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## TRACK I Global & Regional Knowledge & Research

- A partnership between the World Bank and the Inter-agency Secretariat of the International Strategy for Disaster Reduction UN/ISDR
- Enhance global & regional advocacy
- Support partnerships & knowledge management for mainstreaming hazard risk management
- Promote standardization & harmonization of hazard risk management tools, methodologies & practices
- US$ 5 million from the World Bank - DGF

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## Track I : Main Features

- Not a World Bank product
- Under the leadership of the ISDR
- Provides for global and regional advocacy, partnership and knowledge sharing programs and projects with regional intergovernmental organizations as key implementation partners
- Promotes global public-private dialogue on disaster reduction activities

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## TRACK I - Results to date regional level

Regional Risk Reduction programs:

- South Eastern Europe: feasibility study in 10 countries on regional cooperation in weather forecasting - early warning system, disaster response coordination & regional risk transfer pool
- Middle East and North Africa: Identification natural risks hazards & mapping institutional capacities
- South Asia: knowledge networks to exchange good practices in emergency reconstruction & hazard risk management
- Sub Saharan Africa: regional cooperation program on drought risk reduction & climate change adaptation, anchored in regional economic commissions
- Central America: Regional study on risks & financial response capacity of financial institutions

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## TRACK I - Results to date global level

- Global Information Platform with *PreventionWeb* as clearing-house for disaster risk reduction
- Global partnerships with research institutions, parliamentarians, media & the private sector to support implementation of the HFA
- Contributing to developing a global report on risk benchmarking & emerging risks - in 2008
- Report on progress towards reducing disaster losses through the implementation of the HFA
- Guidelines on implementing the HFA
- Guidelines on Disaster Proofing Millennium Development Goals through poverty reduction strategy papers
- Integrating disaster reduction in MDGs to reverse environmental losses & adapt to climate change

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## TRACK II Mainstreaming Disaster Reduction at the Country level

- Led by Countries
- Executed with development partners selected by countries
- Countries engage at the time of PRSP
- 86 countries at high risk with 30+% of GDP or of population at risk
- Mainstream hazard risk reduction & mitigation into Strategic Plans especially poverty reduction strategies & sector policies
- Never been done before
- US $ 350 million over 10 years

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## TRACK II Activities

- Institutional framework for risk management including policy, legal & organizational elements,
- National plans for multi hazards early warning systems
- Country frameworks to catalyze investment in hazard prevention, mitigation, and preparedness
- Learning, research, and knowledge management for current and future risks

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## TRACK II Projects for cost-effective hazard risk mitigation to critical infrastructure

- Strengthen education & health infrastructure in hazard-prone areas
- Promote disaster-resilient housing
- Use of community-based initiatives
- Promotion of traditional construction techniques

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## TRACK II Pre-disaster recovery financing strategy & plans

- Pre-disaster plans for
  - damage and needs assessment
  - coordination for immediate, short-term & long term recovery
- developing risk financing and transfer options including
  - insurance and reinsurance
  - catastrophe bonds
  - weather derivatives
  - contingent credit
  - reserve fund...

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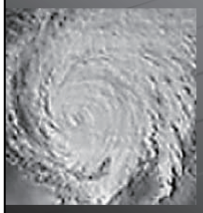
## TRACK II Catalyze investment in risk prevention, mitigation & preparedness



- National Hurricane, Cyclone / Typhoon Risk Mitigation Program
- National Earthquake Risk Mitigation Program
- National Catastrophic Risk Financing Program
- National Disaster Risk Communication Program

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## TRACK II Public-private partnerships for mainstreaming disaster reduction

- Establish regulatory & market-driven economic incentives for improved risk-based monitoring & maintenance of key public & private infrastructures
- Put in place a cross-industry public-private partnership to monitor compliance.

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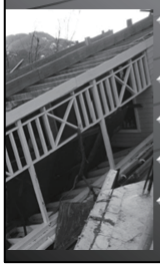
## TRACK II Learning, research, and knowledge management for current and future risks



- Documenting lessons from national experiences in disaster recovery and dissemination
- Research in management of current and emerging risks
- Documenting traditional coping mechanism
- Research in climate change management and adaptation
- Managing the risks due to sea level rise

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## TRACK II Phasing of countries

| Year | Y1 | Y2 | Y3 | Y4 | Y5 | Y6 | Y7 | Y8 | Y9 | Y10 | Y11 | Y12 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Phase | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | |
| P1 | 10 | | | | | | | | | | | | 10 |
| P2 | | 10 | | | | | | | | | | | 10 |
| P3 | | | 10 | | | | | | | | | | 10 |
| P4 | | | | 10 | | | | | | | | | 10 |
| P5 | | | | | 10 | | | | | | | | 10 |
| P6 | | | | | | 10 | | | | | | | 10 |
| P7 | | | | | | | 10 | | | | | | 10 |
| P8 | | | | | | | | 10 | | | | | 10 |
| P9 | | | | | | | | | 10 | | | | 10 |
| P10 | | | | | | | | | | | | | 90 |

3-yr TA

Ten countries enter planning cycle each year

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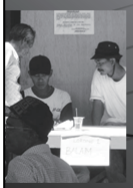
## Track II Results to date



- Work started in Malawi, Mozambique, Nepal, Nicaragua, Vietnam
- Enthusiastic donor response
- UK & Switzerland have already contributed
- Japan, Sweden, Australia & Denmark have pledged with details being negotiated
- EC, Canada, Germany, Spain and other donors' support being discussed
- Many recipient countries keen to contribute

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## TRACK II Other Perspectives

- Knowledge & Technology Transfer Fund
- Space Application in disaster reduction Fund
- Catalytic fund for Private-Public Partnership in disaster reduction and recovery

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## TRACK III Accelerated Recovery

- A Standby Recovery Financing
- For low income countries without access to market finance and…
- who have initiated a disaster prevention scheme
- Under design
- To be operated through a mechanism linked to the International Development Association
- Close cooperation with UN and IFIs

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## TRACK III Features

- Rapid & predictable funding for disaster recovery
- Enhance global preparedness for recovery
- Avoid reallocating development resources
- An incentive-based financing mechanism for low income countries to invest in *ex ante* risk management

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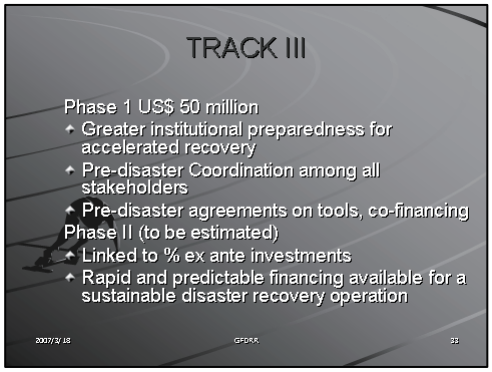
TRACK III
Phase 1 US$ 50 million
Greater institutional preparedness for accelerated recovery
Pre-disaster Coordination among all stakeholders
Pre-disaster agreements on tools, co-financing
Phase II (to be estimated)
Linked to % ex ante investments
Rapid and predictable financing available for a sustainable disaster recovery operation
2007/3/18
GPDRR
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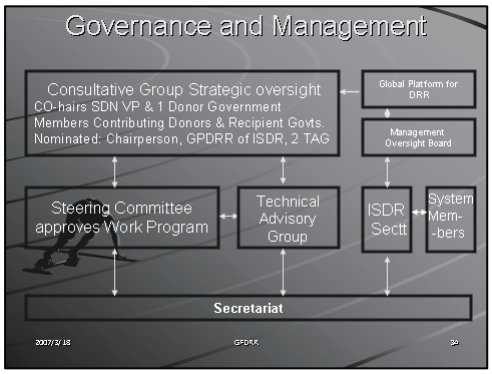
Governance and Management
Consultative Group Strategic oversight
CO-hairs SDN VP & 1 Donor Government
Members Contributing Donors & Recipient Govts.
Nominated: Chairperson, GPDRR of ISDR, 2 TAG
Global Platform for DRR
Management Oversight Board
Steering Committee approves Work Program
Technical Advisory Group
ISDR Sectt
System Mem--bers
Secretariat
2007/3/18
GPDRR
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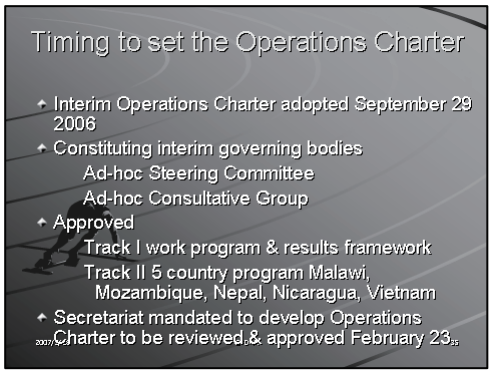
Timing to set the Operations Charter
Interim Operations Charter adopted September 29 2006
Constituting interim governing bodies
Ad-hoc Steering Committee
Ad-hoc Consultative Group
Approved
Track I work program & results framework
Track II 5 country program Malawi, Mozambique, Nepal, Nicaragua, Vietnam
Secretariat mandated to develop Operations Charter to be reviewed & approved February 23
2007/3/18
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International Forum on Tsunami and Earthquake
Arigato Gozaimachita !


国際津波・地震フォーラム
Disasters are a Development Issue


国際津波・地震フォーラム

# Tsunami Recovery Status Reports

**His Excellency Dr. Kusmayanto Kadiman**
**Minister, Research and Technology, Republic of Indonesia**

Thank you very much and I would like to thank the Government of Japan, and also the organizer for inviting me to share lessons learned from the recovery of tsunami disaster. In Indonesia, we had tsunami disaster on 26th of December, 2004, and also 17th of July, 2006 and I apologize to my friends in the neighboring countries Maldives, India, Sri Lanka and Thailand that we exported tsunami, especially on the 26th of December, 2004. My talk will be divided into four topics such as the situation of Indonesia, lessons learned from the tsunami especially Aceh and also Pandangaran, south of Java Island, tsunami early warning system currently being developed and implemented, and the tsunami recovery status both in Aceh and Pandangaran.

If you look at the Sumatra Island, Kalimantan, Java, Sulawesi, those are big islands which include about 17,000 small islands of Indonesia and all are prone to disaster, especially prone to earthquake and tsunami. From the south there is a huge plate called Indo-Australia plate and in the other side we have the Philippine Sea plate and Caroline plate. Since they are huge plates, the movement makes real disaster to us either in a form of earthquake, landslide, or other types of disasters. So every year we have more than 460 earthquakes with magnitude higher than four in the Richter scale. Currently we are using a simple rule, and if the Richter scale higher than 6.3 and it occurs in the ocean bottom, epicenter of less than 50 km then immediately we warn about potential tsunami until we can be really sure of that tsunami. Once confirmed that it will not occur we cancel the warning. In Indonesia we have coastline of 80,000 km, and 50% are prone to tsunami. So we must, in our system, pay attention to these 40,000 km of coastline especially from the tsunami perspective.

We will have less time to disseminate warnings, once early warning system that is developed. Once our system detects earthquake and potential tsunami, we will have averagely only 25 minutes, not more than 45 minutes to warn the people. If we establish it, the benefit will not be only for Indonesia, but also for the neighboring countries, to Singapore to Malaysia, Sri Lanka, India, and Maldives. Then, evacuation will play a very important role. If I am successful in this presentation, the most important message for me to share with you is that technology alone will not be effective in minimizing the effect of disaster. Cultural part, or habit, is much more difficult. For example, in Aceh they are facing huge difficulty. They successfully constructed some houses, but people don't want to move to those houses. Simply they say that their houses were here for many generations and they will only move to the newly constructed house if that house is built where the previous one was. We cannot build a house there because the particular place is very prone to disaster. We even define that place as being a buffer zone. So how do you meet these two conflicting interests, for example, the supply side and the demand side? This is what I mean by cultural issues. It is much more difficult to address, and to solve.

I will share with you the lesson that we learned. This is the data from the Aceh tsunami. More than

130,000 were confirmed dead, 37,000 missing, more than 500,000 people were displaced, 1.3 million homes and buildings were destroyed, 8 ports and fuel depots got damaged, 85% of the water and 92% of the sanitation system can no longer be used, more than 120 km of roads which include 18 main bridges was demolished. No warning was issued because the early warning system in Indonesia was not established yet by that time.

This is Pangandaran. One and a half year after the tsunami in Aceh on 26th of December, 2004 we had tsunami disaster at Pangandaran on 17th of July, 2006. After December 2004, Indonesia took a very serious move in establishing a tsunami early warning system. We established a grand scenario with the help of experts from all over the world. Right after the tsunami, there were two big initiatives taken by the government. Firstly, we established the agency for reconstruction and rehabilitation in Aceh and Nias. Secondly, we also took an initiative to build our tsunami early warning system. Indonesia is supported very much by Governments of Japan, Germany, China, France, Malaysia, and the US. They placed buoys in the Indonesian sea, and there will be some buoys in Indonesia this year six more Indonesian-built, of course with the help of the experts from elsewhere. We already have one in place in December 2006, which is currently being tested. We are happy with the result. For example, on Saturday a big quake in Hokkaido has been sensed by the Indonesian system and when we checked with the GMA according to our system, we have the measurements confirmed. We need to have integrated early warning systems with Pacific, Atlantic and Indian Oceans. The data generated by these centers have to be inter-exchanged. Currently these three early warning systems, the Atlantic, the Pacific and the Indian have been partially integrated, and now they are able to share the data as well as the information.

But again, the most difficult part is not the technological side but it is the cultural side. How to create culture of preparedness among people, community, and the local governments? How to create preparedness in order to make them understand, or know exactly how can they react if the warning is given. That is much more difficult issue to handle. So these are the components in a different way, that is what we have the technology up to this point and the last two points are on the cultural issues.

In the recovery process, our attention is very high immediately after the disaster on emergency relief issues then the intensity of recovery is gradually reduced. Then we have building of houses, livelihood and business recovery and then physical and social infrastructure. There are three main focuses of the recovery: one is meeting vital needs, like people etc., and then providing social services; second, managing disaster risks, and environment, and lastly establishing the infrastructure. So those are our focus both in Aceh and similar in Pangandaran. The way forward, hearing from Aceh, Nias and Pangandaran is very important. Loss of assets, coordination of the stakeholders, main role of the agency, and problems are major challenges. These points are mainly non-technical, but cultural parts. Major challenges are also the lack of resources particularly in implementing reconstruction stage, reconstructing people and areas devastated by disaster. The old model and pattern of emergency-response, response-oriented disaster management should be shifted to the risk-management oriented one. So I am very glad that I can share with you lessons that we learned and also things to do later.

Thank you very much for your attention.

State Ministry of Research and Technology
Republic of Indonesia

LESSONS LEARNED and RECOVERING
from
TSUNAMI DISASTER

by
**Kusmayanto Kadiman**
State Minister of Research and Technology,
Republic of Indonesia

presented at
***INTERNATIONAL FORUM on TSUNAMI and EARTHQUAKE***
*Progress of the Implementation of the Hyogo Framework for Action and Recovery from Tsunami and Earthquake*

Monday, January 15, 2007 page 1

# OUTLINE

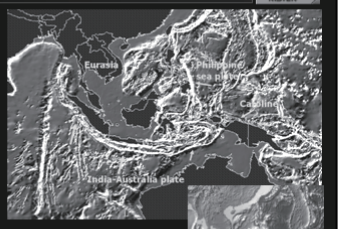
1. Introduction
2. Lesson Learned from Tsunami
3. Tsunami Early-Warning Systems
4. Tsunami Recovery Status

# 1. Introduction

## Tectonic Setting and Seismicity of Indonesia

The Indonesian region → very complicated plates convergence : subduction, collision, back-arc thrusting, back-arc and opening faults

Moving relatively to each other
- the India-Australia plate : moving northward
- the Philippine sea plate : moving west-northwestward.
- the Caroline plate : moving east-southeastward (near Aru) and west-northwestward (near Yap trench)




**Every year about 460 earthquakes (M > 4.0 )**

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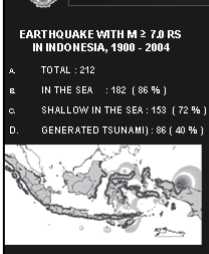
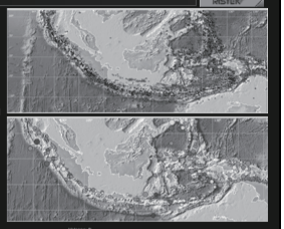
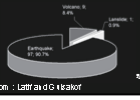
## Earthquake and Tsunami History

**EARTHQUAKE WITH M ≥ 7.0 RS IN INDONESIA, 1900 - 2004**

A. TOTAL : 212
B. IN THE SEA : 182 ( 86 % )
C. SHALLOW IN THE SEA : 153 ( 72 % )
D. GENERATED TSUNAMI) : 86 ( 40 % )







modified from : Latif and Gusiakov

## Tsunami threats in Indonesia

**Indonesia**
- has 17,000+ islands
- has coast-line of 81,000 kms, 50% of which are prone to tsunami
- coastal inhabitants : 20 million people

**Tsunami in Indonesia are local type**
- Generated very close to coastal communities
- Insufficient time to accurately assess the risk
- Less time to disseminate warnings and carry out orderly evacuation

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# 2. Lesson Learned from Tsunami

***Tsunami Banda Aceh : Sunday, 26 December 2004***
***Tsunami Pangandaran : Monday, 17 July 2006***

## Aceh Tsunami : a brief reminder

- 132,000 confirmed dead
- 37,000 missing
- 572,000 displaced
- 1.3 million homes and buildings destroyed
- 8 ports and 4 fuel deports damaged
- 85 % of the water and 92 % of the sanitation system broke down
- 120 km of roads and 18 main bridges demolished
- total losses amount to US$ 4.5 billion, which represents 2.2 % of National GDP and 97 % of Aceh's GDP

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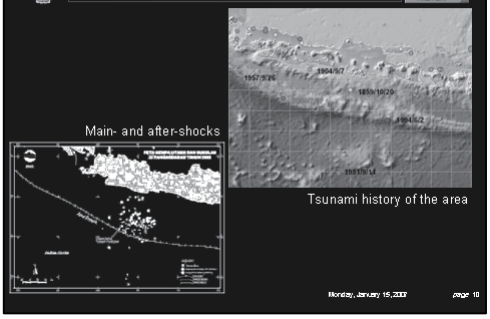
## the causes …

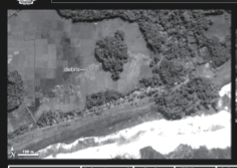
Catastrophic earthquake
- Scale 9 with shallow epicenter offshore
- Very strong ground shaking for 4 minutes felt in many areas
- People moved out of their houses out of fear

Followed by a tsunami
- Wave height ranging from 4 – 30 m
- Most people have never seen such calamity in their lives
- Did not know what to do – chaotic
- No warning was issued

## Pangandaran Tsunami 17 July 2006




## Victims of the Earthquake and Tsunami



| Lokasi | Meninggal (jiwa) | Luka (jiwa) | Hilang (jiwa) | Mengungsi (jiwa) |
|---|---|---|---|---|
| Ciamis | 413 | 379 | 15 | 4,190 |
| Tasikmalaya | 63 | 103 | - | 1,650 |
| Garut | 2 | 2 | - | - |
| Cilacap | 157 | 8 | 10 | 306 |
| Kebumen | 10 | 24 | 8 | 581 |
| Banyumas | 2 | 1 | | - |
| Gunung Kidul | 3 | - | - | - |
| Bantul | | 3 | | |
| TOTAL | 650 | 520 | 33 | 6,727 |

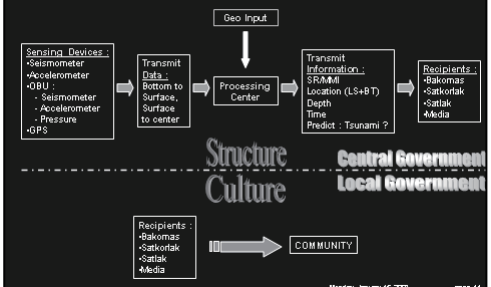
## 3. Tsunami Early Warning Systems

*Structure & Culture*

## … in response

- Government formed the Reconstruction and Rehabilitation Agency (BRR)
- Ministry of Research and Technology responsible in coordinating various agencies in the Development of Tsunami Early Warning Systems throughout Indonesia

## Indonesia Tsunami Early Warning Systems




## Elements of the systems

**Seismic Monitoring**
- Seismograph
- Accelerograph

**Database of Tsunami Modeling**

**Sea level monitoring**
- DART - BUOY
- Tide Gauge

**Information and Communication Technology**

**Crustal Deformation Monitoring**
- GPS

**Geospatial Information**
- Satellite Imagery
- Topographic and Bathymetric map

**Community Preparedness**

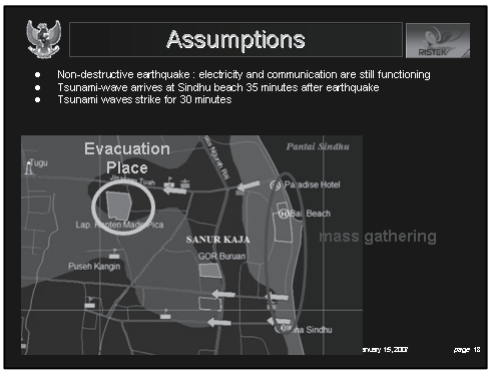
**Capacity Building on Disaster Management**

## Culture Activity : Tsunami Drill

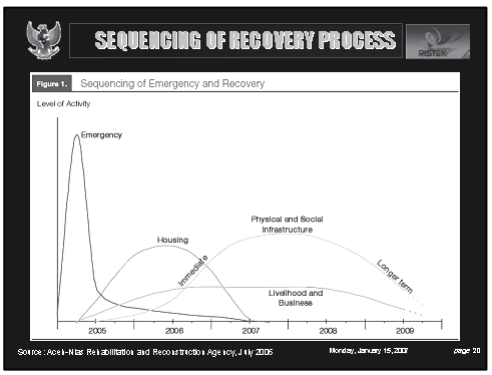

Padang, 26 Desember 2005

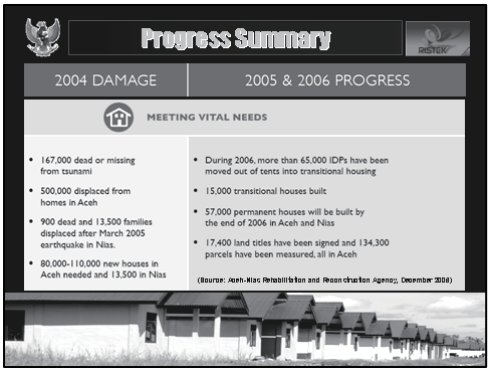
1. Increase the awareness for Local Government officials
2. TOT for community
3. Community Education
4. Evacuation route
5. Design and construction of signboards
6. Simulation of Early-warning Systems and Evacuation
7. Media campaign
8. Training for students

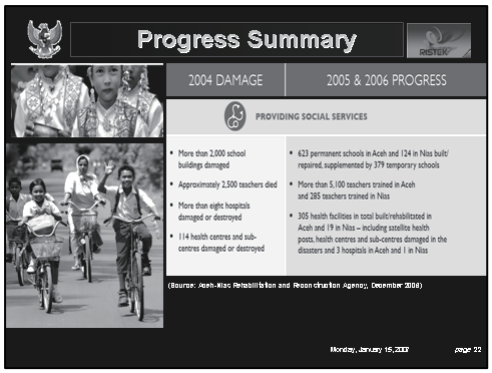

Culture Activity : Tsunami Drill
Bali, 26 Desember 2006
1. TOT for Local Government officials and community
2. Table top simulation
3. Rehearsals
4. Exhibitions
5. Design and construction of signboards
6. Media campaign
7. Warning issuance
8. Simulation of Early-warning Systems and Evacuation

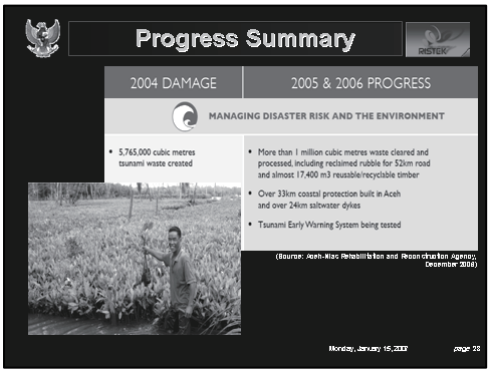

Assumptions
Non-destructive earthquake : electricity and communication are still functioning
Tsunami-wave arrives at Sindhu beach 35 minutes after earthquake
Tsunami waves strike for 30 minutes
Evacuation Place
Pantai Sindhu
Paradise Hotel
Global Beach
mass gathering
SANUR KAJA
GOR Buruan
Pusieh Kangin


4. Tsunami Recovery Status

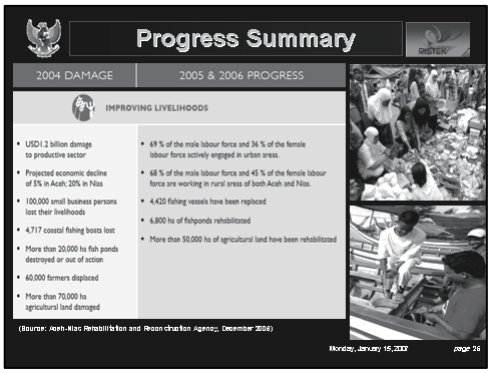

SEQUENCING OF RECOVERY PROCESS
Figure 1. Sequencing of Emergency and Recovery
Level of Activity
Emergency
Housing
Physical and Social Infrastructure
Immediate
Longer term
Livelihood and Business
2005
2006
2007
2008
2009


Progress Summary
2004 DAMAGE
2005 & 2006 PROGRESS
MEETING VITAL NEEDS
167,000 dead or missing from tsunami
500,000 displaced from homes in Aceh
900 dead and 13,500 families displaced after March 2005 earthquake in Nias.
80,000-110,000 new houses in Aceh needed and 13,500 in Nias
During 2006, more than 65,000 IDPs have been moved out of tents into transitional housing
15,000 transitional houses built
57,000 permanent houses will be built by the end of 2006 in Aceh and Nias
17,400 land titles have been signed and 134,300 parcels have been measured, all in Aceh


Progress Summary
2004 DAMAGE
2005 & 2006 PROGRESS
PROVIDING SOCIAL SERVICES
More than 2,000 school buildings damaged
Approximately 2,500 teachers died
More than eight hospitals damaged or destroyed
114 health centres and sub-centres damaged or destroyed
623 permanent schools in Aceh and 124 in Nias built/repaired, supplemented by 379 temporary schools
More than 5,100 teachers trained in Aceh and 285 teachers trained in Nias
305 health facilities in total built/rehabilitated in Aceh and 19 in Nias – including satellite health posts, health centres and sub-centres damaged in the disasters and 3 hospitals in Aceh and 1 in Nias


Progress Summary
2004 DAMAGE
2005 & 2006 PROGRESS
MANAGING DISASTER RISK AND THE ENVIRONMENT
5,765,000 cubic metres tsunami waste created
More than 1 million cubic metres waste cleared and processed, including reclaimed rubble for 52km road and almost 17,400 m3 reusable/recyclable timber
Over 33km coastal protection built in Aceh and over 24km saltwater dykes
Tsunami Early Warning System being tested


Progress Summary
2004 DAMAGE
2005 & 2006 PROGRESS
ESTABLISHING INFRASTRUCTURE
3,000 km of roads impassable
14 of 19 seaports badly damaged
8 of 10 airports damaged
120 arterial bridges destroyed, 1,500 minor bridges
1,200 km of all type of roads in Aceh and 300 km in Nias have been built/repaired.
121 bridges in Aceh and 37 in Nias have been repaired
All ports operational; 11 ferry terminals and harbours in Aceh and 3 in Nias are built/under development
All airports operational; 5 airports and 1airstrip in Aceh and 2 in Nias built/under development.


Progress Summary
2004 DAMAGE
2005 & 2006 PROGRESS
IMPROVING LIVELIHOODS
• USD1.2 billion damage to productive sector
• Projected economic decline of 5% in Aceh; 20% in Nias
• 100,000 small business persons lost their livelihoods
• 4,717 coastal fishing boats lost
• More than 20,000 ha fish ponds destroyed or out of action
• 60,000 farmers displaced
• More than 70,000 ha agricultural land damaged
• 69 % of the male labour force and 36 % of the female labour force actively engaged in urban areas.
• 68 % of the male labour force and 45 % of the female labour force are working in rural areas of both Aceh and Nias.
• 4,420 fishing vessels have been replaced
• 6,800 ha of fishponds rehabilitated
• More than 50,000 ha of agricultural land have been rehabilitated
(Source: Aceh-Nias Rehabilitation and Reconstruction Agency, December 2006)
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THE WAY FORWARD
• The healing of Aceh and Nias will take a long time, and will inevitably see setbacks, as well as celebrations
• The challenges of Sustainable Recovery:
• Rebuilding the economy is a great challenge and is best served by starting physical reconstruction as swiftly as possible.
• Commercial banks suffered major losses due to unrecoverable loans but are slowly recovering.
• Restoring the natural environment will require years of hard work.
• Coordination among all stakeholders is not yet strong enough and tends to focus on information-sharing;
• Reiterating the main role of the BRR is to coordinate on dependable mechanism as directed by the Master Plan
• The role of local governments of Aceh and Nias should be strengthened, along with the exit-strategy from BRR
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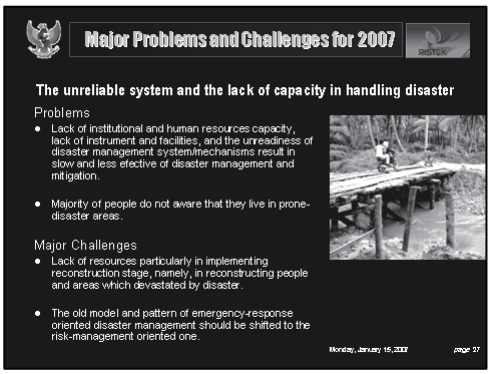
Major Problems and Challenges for 2007
The unreliable system and the lack of capacity in handling disaster
Problems
• Lack of institutional and human resources capacity, lack of instrument and facilities, and the unreadiness of disaster management system/mechanisms result in slow and less efective of disaster management and mitigation.
• Majority of people do not aware that they live in prone-disaster areas.
Major Challenges
• Lack of resources particularly in implementing reconstruction stage, namely, in reconstructing people and areas which devastated by disaster.
• The old model and pattern of emergency-response oriented disaster management should be shifted to the risk-management oriented one.
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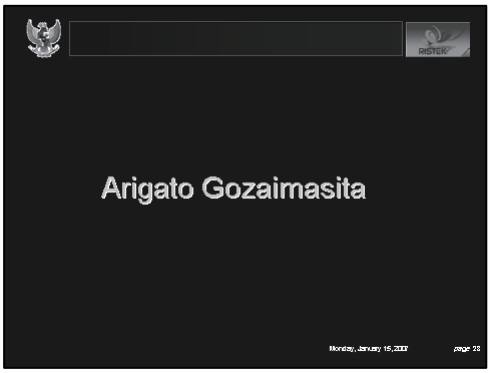
Arigato Gozaimasita
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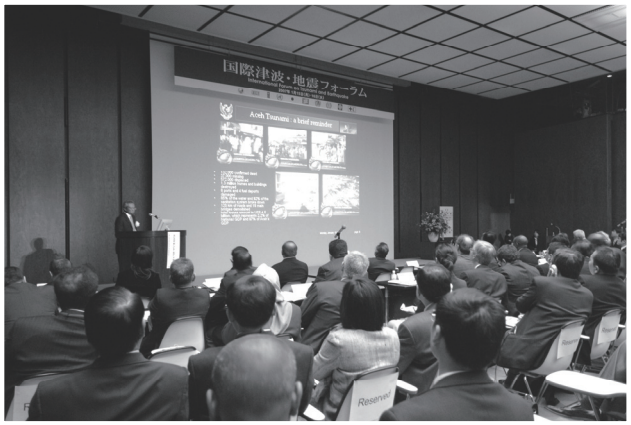

国際津波・地震フォーラム


国際津波・地震フォーラム

**His Excellency Mr. Mahinda Samarasinghe**
**Minister, Disaster Management and Human Rights,**
**Democratic Socialist Republic of Sri Lanka**

Excellencies, Distinguished participants, Ladies and Gentlemen. Thank you very much for giving me the opportunity to share with you today, "The Experiences of Sri Lanka". Most thankful to the ADRC, the IRP, as well as of course the Government of Japan for placing before this conference, the resources, technical know-how and the commitment, so that colleagues of mine from the region, as well as others internationally, could come together learn and share how we have responded to the tsunami, the earthquake of Pakistan, and then put in place the assistance that are necessary to ensure the prevention, mitigation, response and recovery which is so much an integral part of ensuring sustainable development in all of our countries.

The effect of the tsunami on 2004 December 26th, in Sri Lanka was devastating. We did not have the legal and institutional framework to respond to the disaster of that nature or of that magnitude. We did not have a dedicated ministry, such as we will have today, looking after the subject of disaster management and championing. All this was new in the immediate aftermath of the 2004 December 26th tsunami.

Now the statistics are as follows; 35,000 approximately were dead. 1 million affected were directly, and indirectly. 150,000 people were affected directly out of these 1 million. Nearly 100,000 homes were fully destroyed and partially damaged. Two-third of the coast lines in Sri Lanka were affected. Two-third of the fishery sector in Sri Lanka was affected as a consequence. The agricultural areas in the immediate vicinity of the coastline were affected as the result of salinity. Tourism sector got severely affected. Despite this effct, Sri Lanka still was able to achieve the rate of growth in the year 2005 of 6.8 percent.

What have we done since this great strategy？One of the first things that we did was we saw this as a national issue, and the Parliament of Sri Lanka took on the responsibility of setting aside the parochial party differences, and came together transcending political barriers to find solutions to this national issue. One of the initiatives is that the Sri Lanka Parliament took upon itself to put in place the parliament select committee consisting of all political parties being represented in the parliament. The result was a 362-page document with 13 important recommendations including sorting out very controversial issues, such as what our colleagues a little while ago referred to from Indonesia, in respect of the buffer zone which was also declared initially as a major reaction really to various pressures with our understanding how this whole challenges should be met and overcome, and which has in fact contributed to delay in reconstruction and development phase in the immediate aftermath of the tsunami.

But of course, we also came up with the recommendation that it was incumbent of the government of the day to embark on a scientific approach, so that the scientific data could be made available to the people who then use these to make an informed choice. But the final decision should be with the people, because the people are also

grappling with a great cultural, religious diversity, and peculiarities. So, our recommendation from the parliament to the government, who had taken a counter-view, was that you have to rectify that position because of the position that you took was not right on a scientific basis. So, what we have now done is we have embarked on this approach of mapping out the topography of the coast line. We have now at our disposal high resolution images, and these high resolution images would be used along with inundation models to ensure that people are advised, on the one hand, about the immediate vicinity that they live in is susceptible to a tsunami in the future, and of course, this information can also be used for the search and rescue operations that have people put into place immediately.

Now, one of the next recommendations of this selective committee was to have this legal and institutional basis. So, we embarked on a legislative step by putting in place the Disaster Management Act, which took a holistic approach to this vast comprehensive area of disaster management and, today, we have sound legal basis for the Disaster Management Council headed by the President of Sri Lanka, includes opposition politicians, and key personalities. They have roles to play in this council because we view this is as a national issue. We believe that Disaster management does not belong to one ministry or one government department. As our friend from World Bank outlined, it is the cross-cutting issue, it is something, which affects the entire government, as well as private sector, civil society. So you need the integrated and coordinated approach to ensure that you respond and recover from that kind of disaster efficiently and correctly. I also embarked immediately a 10-year Road Map on disaster management and human rights. There is definitely very strong human rights component in disaster management whether we talk of response or recovery and they should never be forgotten. There is not only the top-down effort, which is necessary; we also need a bottom-up effort to ensure that people's participation is solicited.
We also finalized a national policy on disaster management, and here we embarked on wide consultations through inter-ministry area and inter-sector approach. We went into extensive dialogue, and the result was a truly representative national policy which will be implemented. It has all the stakeholders participating and of course, putting in one direction, that is very important.

Under the Disaster Management Act, we also have taken on the responsibility of preparing the National Emergency Response Plan and the National Disaster Management Plan through wide consultation and dialogue. The 10-year Road Map is in line with the 10-year Hyogo Framework. This is a document which has approximately 109 projects taken from the different stakeholders who have roles to play in disaster management and costing in the region of US$ 650 million. We are now soliciting the assistance from both bilateral and multilateral donors as well as others who are interested in investing in this very, very important area. So these are some of immediate things we did in Sri Lanka.

We also committed under this legal and institutional framework to put in place the following. I have already in fact put in place 24-7 National Operation Center which is linked both domestically and internationally to the key stakeholders. If we had this system in operation before the tsunami, many thousands of lives could have been saved. Thirty-five thousands died because there was no warning given. When the water was receding after the first wave, people saw fish, and there were some people even going to catch the fish because there was ignorance. There was no dissemination of what we today know about the tsunami and the devastating effects of tsunami. While this is the interim solution of having this 24-7 Operation Center linked to these two institutes, we committed

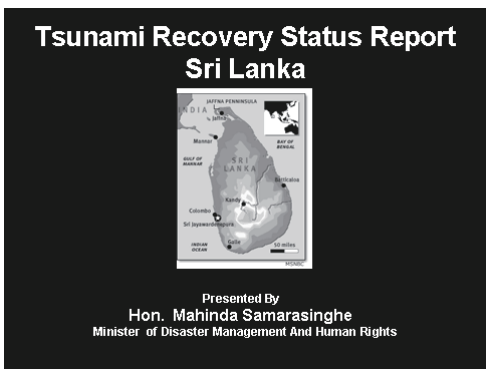
to building our own Multi-Hazard, tsunami specific, Early Warning Centers. We also, at the same time, committed to supporting the UNESCO and IOC initiative of putting in place in Indian Ocean Tsunami Early Warning Facility. I think now it is called Early Warning Provider, rather than Early Warning Center. But nevertheless we are supportive of this initiative. In addition to 24-7 Operation Center, I'm also putting in place a National Data Collection Research Analysis Center linked to a multitude of agencies, ministries, stakeholders in the area of disaster management but also internationally. The idea is to have all the stakeholders participating in analyzing these data together, coming to conclusions, and then disseminating that information with one voice in a consistent, coherent manner through designated focal points.

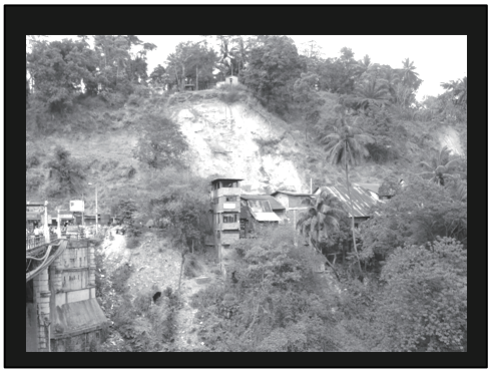
We have also taken the position that the subject of disaster management must be a decentralized function and the local authorities, the local police, other government agencies, NGOs, INGOs, civil society players, all of them have been brought into this capacity building exercise. I'm also committed to putting in place what I term "cultural voluntarism" in Sri Lanka. We want to train and equip volunteers in every village in Sri Lanka in the multi hazard, search and rescue capabilities. The volunteer culture that I'm trying to build would even go beyond the initial commitment that we would need from the people themselves, but to ensure that this commitment is sustained by rewarding them. We will negotiate with employers; we will negotiate with the government to give them the recognition in their future promotional prospect for being a volunteer. It'll be also ensured that these people, as I said earlier, are readily available at any given time with the agreement that we will reach with their employers so that they can be mobilized in the way that they want them to be mobilized. It is absolutely essential to break down those political barriers and get the people motivated to defend their respectively-related properties in the first instance and of course, after that it can be supported by the local authorities and if need be, at a national level.

They also adopted what is termed as being incident command system as far as the administrative apparatus is concerning in Sri Lanka. We are training the district administrative officers. Key people have been identified for this training, and incident command system will be put into place at a time of disaster so that all these key people will once again come together and respond effectively and in a knowledgeable manner.

That is all really that I have to share with you, and as I said earlier, I have not only come here to disseminate our experience, but to learn from others.

Thank you very much.



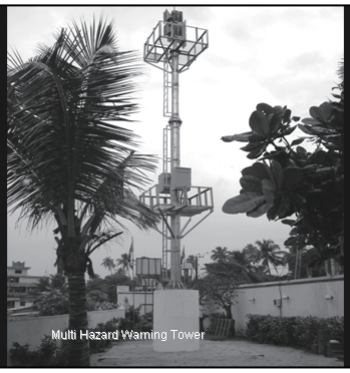


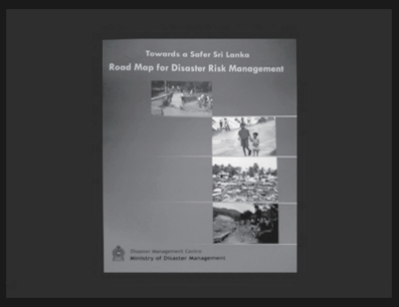
Center for National Operations (CNO)
established on 29th December

Special Institutions established consequently to cope with tsunami aftermath

•Rehabilitation of Persons, Properties and Industries (REPPIA)
•Task Force for Rebuilding the Nation (TAFREN)
•Task Force for Relief (TAFOR)

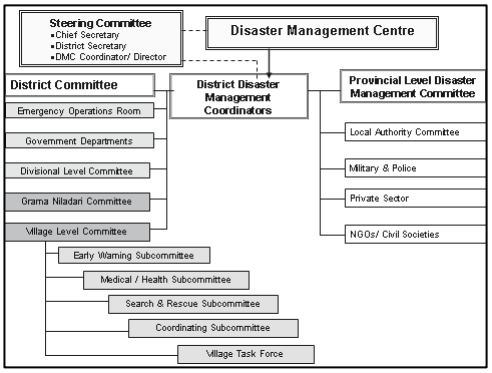
Government of Japan donates US$ 80 million
Hygo Prefecture assists in school rehabilitation effort
ADRC assists in several reconstruction/rehabilitation projects


Multi Hazard Warning Tower




Until a National Tsunami Warning Center becomes established an interim measure is in place.
Formal links between Department of Meteorology, Sri Lanka, Japanese Meteorology Agency (JMA) and Hawaii Tsunami Early Warning Center are operational.

Community Awareness Creation




Tsunami Recovery status

Permanent Housing
80 % of the current target of 120,000 houses achieved

Tsunami Recovery status

Restoring Livelihoods

Fisheries Sector
100% damaged boats repaired.
95% destroyed boats replaced

Tsunami Recovery status

Restoring Livelihoods

Agriculture Sector
23,449 acres of land restored for cultivation

Tsunami Recovery status

Restoring Livelihoods

Micro, small and Medium Enterprises
US$ 20 million provided to revive the affected

Tsunami Recovery status

Restoring Livelihoods

Tourism Sector
90% of hotels and operators back in business

Tsunami Recovery status

Physical reconstruction of affected
Health facilities, Schools and
Infrastructure

continues

Relief Distribution


Building Capacity within Communities to face disaster

**His Excellency Mr. Mohamed Mauroof Jameel**
**Minister, Construction and Public Infrastructure, Republic of Maldives**

Excellencies, Distinguished guests, Ladies and Gentleman, Good afternoon. It is my great pleasure and privilege to make this presentation about Maldives, and I thank organizers for inviting me for this forum. I will be sharing the Maldivian experience, after the Tsunami, especially on disaster management.

Maldives was never classified as a seriously vulnerable country from disasters. We have never experienced natural disasters. It was like our small heaven, Maldives and we were living in quite isolation. But after December 26th, 2004, the tsunami was a big wakeup call for us, because after the tsunami only we realized how vulnerable we are to natural disasters. Since we have never experienced such a disaster, we didn't know what we have to do even. So first we were in shock, and then we didn't have anywhere to go even.

We have over thousands islands in Maldives out of which nearly 200 is inhabited, and most of these islands are less than one square kilometer. 300,000 people are living on 200 islands with very little elevation only 1.5 meters above sea level. We don't have any immediate solution for disaster management. In case a large wave comes, what we have to do, we are still debating. Anyway, today what I would like to speak is about our impact and about our recovery program how we have dealt with the disaster. The world is changing at such a rate, and the effect of the climate change is being experienced by us through different phenomenon of natural disasters. So we know we can't be living with the structure what we have been living in the past. We have to look into alternative ways of handling this.

These are some of our vulnerable indicators. The remoteness of the islands and our dependency on the limited income resources which is tourism and fisheries, are also some of our great constraints for future disaster mitigation or management. It was the biggest and the first natural disaster in our recent history. As you may realize we had four meters high waves, we don't know what we should do if we get wave of 30 feet high as it happened in Indonesia.

Out of the 199 islands, 30 islands were completely evacuated. The internally displaced population initially was 30,000. Our population is 300,000. So 10 percent of our whole population was entirely displaced, and you may see our fatalities are rather less, compared to the magnitude of this disaster. Our people are quite fluent in and accustomed to the sea because we live so close to the sea. We have our boats which we clamber in case of large waves. So somehow only the old and the little children got fatal injuries.

The extent of housing damage is, also compared to Maldives, very big. 20 percent of our national house and stock got affected which are around 8,700 homes. Out of which nearly 1/3 was totally damaged and 2/3 need thorough repairs. These are our biggest problems which we faced after the tsunami. The environmental damage creates the coastal erosion and the ground water which we were

depending on was contaminated because of salt water intrusion. The reef was also suffocated by sedimentation, by the washed off topsoils from the island. So as we faced it was an ecological disaster. Damage to infrastructure was very extensive. 104 jetties or harbors, which were the only access to these small islands and their dependence, the lifeline to their livelihood, were damaged. Access to these islands, electricity, communications, and schools were all destroyed.

Our total loss was as you may see from here, it was nearly 450 millions. It was 62% of our GDP. It was estimated at that time that our development was set back for several years because of the Tsunami. We were almost at the stage that has been promoted developing from the risk, developed status initially at that time, but it has set us several years back in our development.

We were ignorant of disasters. We were ignorant of Tsunamis. So in first few hours we didn't know what, this was coming and we didn't know how to respond either. After the first 24 hours only we were able to establish emergency and immediate relief. We were able to get the assistance from donor agencies or other U.N. agencies that came very quickly. Since the establishment of our disaster management center, which was coordinated by our Ministry of Defense that was how we have started, we are now in the process of changing the organizations structure now.

We were able to quickly assess the damage and go to the islands because our problem was getting access. Aid coordination and donors were able to come very quickly. If you look at some of our structural damages, our airport, which is the only access from the sea at that time, was also damaged quite extensively. But we were able to clean up the airport very quickly and we were able to go to the next stage. At the moment, we have completed all the temporary shelters and people are housed very quickly. We are in the process of the construction of the permanent houses.

Disaster risk mitigation is our question now. How are we going to mitigate disaster from large waves or Tsunami or any other coastal problems? Our only solution was moving people to larger islands, to islands where people can have quick access. So population consolidation program was the only effort. Even though we know that moving people is the best solution, we were unable to move them, because people have to decide whether they want to move or not. Out of the 14 islands that were totally evacuated due to Tsunami, only people from 4 islands decided that they wanted to move and all others wanted to stay. Our primary commitment to them was you were not going to be forcefully evicted from any location.

Then second option for us was to create somehow safer islands. 100% safer island concept is not a realistic option but we have accommodated some of the features. Our solution to the people who decided not to move was a very expensive solution. It was to reclaim bandhs or high areas. In our housing reconstruction and repair works, we also adopt the build back better aspects. The buildings are much stronger and of better quality, but the problem in reconstruction is logistics and access to small islands. These are some of the problems which we are facing.

Two years after the tsunami, we have been able to achieve lots of the goals which we have intended to achieve, especially in the areas of construction and reconstructions. The areas which we have not achieved are institutional arrangements. We hope that most of the reconstruction will be completed before the end of 2008. We already have had poor quality harbors and to build back better, the harbors have to be of better quality. Especially old harbors were destroyed and still we have a lot of harbors

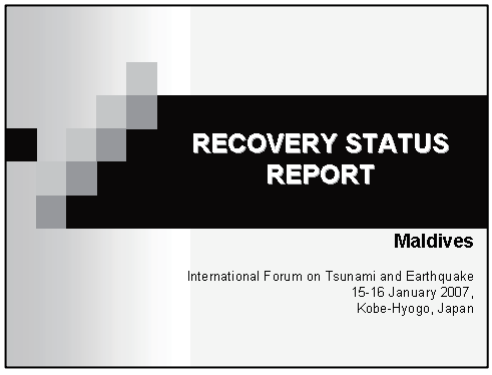
which are unfunded.

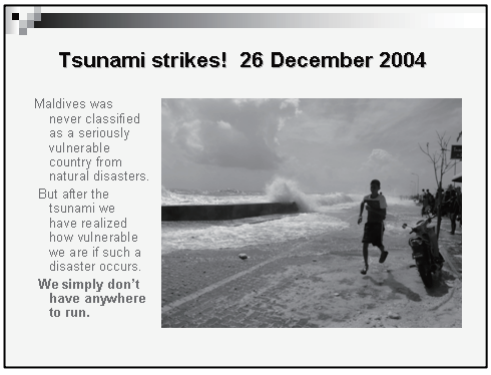
Initially when the donor agencies came to Maldives, we talked about the harbors, and many assumed this as an economic or commercial harbor. They did not treat this as a issue which was necessary for the country. So they were reluctant initially, there were lots of reluctances in giving assistance to the country. Even now there is a certain amount of reluctance that is why government has decided after one year to go for borrowing and most of our harbors are done with borrowed money. We had the foreign donor assistance for livelihood restoration which has special focus on women and IDPs (Internally Displaced Persons). In 2005, our GDP contraction was approximately negative. We had a 5% growth. The impact on the budget was 62 millions, but luckily, in 2006 we have recovered reasonably well. Our tourism and fisheries sectors have experienced a good year and we hope it is going to be better in next year. We have Disaster Management Center and Ministerial Council. But after we were in the process of reorganizing our institutional arrangements, we have got parliamentary act in draft form and disaster risk profiles are also prepared with the help of the UN agencies. We have established 5 regional emergency centers and they are almost in place. Our efforts to achieve the goals of Hyogo Framework are in progress even though we are still not the members of the ADRC. We are reasonably working towards that and we will hopefully very soon join the ADRC.

I would like to conclude my presentation, but for Maldives, my message is we still have to research a lot, we still have to find out what is the best way for disaster or mitigation for our future. How we are going to do to manage disaster, we are still not sure of exactly best solution for the country.

I will once again before I conclude, thank the organizers for inviting me.

Thank you very much.

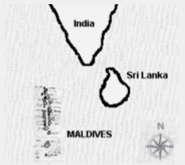


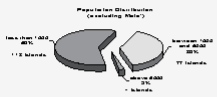
## THE MALDIVES

### Brief Introduction

- Total number of islands **1,192**
- Number of inhabited islands:**199**
- Land Area :300 sqkm
- Main industries
  - Tourism
    - 88 resorts currently operational.
  - Fisheries
- Population: 300,000
  - IMR: **21/1000**
  - Life Expectancy: **71.4 yrs**
  - Literacy: **98.9%**
  - Net primary enrollment: **95%**
  - GDP growth rate over last ten years **7-9 %**



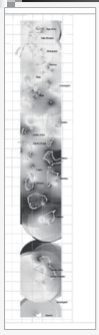

## Vulnerability Indicators



- Highest elevation **1.8m** above sea level
- Majority of islands are less than 1sq. Km.
- **88** inhabited islands face perennial beach erosion
- Wide dispersal of population across very small islands
- Remoteness and inaccessibility of islands
- Extremely high economic dependence on tourism
- High import dependency
- High diseconomies of scale
- Islands surrounded by fragile coral reef system and lagoons

## IMPACT

### Flooding Status after 24 Dec 2004 Tsunami



- It was the first biggest natural disaster in the recent history of the Maldives.
- Waves of up to **4** meters struck shortly after **9 am** on 26 December 2004.
- Out of 199 inhabited islands 13 islands were completely evacuated several of which have been abandoned.
- Only **9** islands had no flooding.
- **69** islands were completely flooded.

## Peoples and communities

- Internally displaced population immediately after tsunami was 30,000 (10% of the population).
- Social fabric of most islands were seriously effected by psychological trauma, physical damage, loss of lines and livelihoods.
- 108 fatalities; 1313 injuries.

## Housing damage

- 8797 houses which is approximately 20% of the national housing stock were damaged.
- 2980 houses were damaged beyond repair.
- 5817 houses needed repair.

## Environmental Damage

- Extensive coastal erosion.
- Ground water became contamination through salt water intrusion.
- Agricultural crops and farm land was destroyed.
- Islands had contamination through spreading of disaster debris and solid wastes.
- Reef got damaged by sedimentation of washed off top soils.
- Sewerage systems were damaged.

## Infrastructure Damage

- Jetties and harbours in **104** islands.
- Electricity in **26** islands.
- Communications infrastructure in over **70** islands.
- Schools, clinics and pharmacies in over **50** islands.

## Economic Damage

- Fishing boats in **50** islands.
- **19** out of **87** resorts shutdown
- $450 million in total asset loss – approx. **62% of GDP.**

## RECOVERY
### Responding to Disaster

- Emergency and Immediate relief.
- Damage Assessment.
- Temporary shelters.
- Reconstruction and Safer island concept.
- Risk mitigation and early warning.
- Better standards to reduce vulnerability. Building back better.
- Donor agencies and coordination.
- Missed opportunities.
- Capacity building and community empowerment.

### Aid coordination and donors.

- The international community responded generously.
- 40 mil $US before tsunami.
- 500 mil $US after tsunami.
- Aid coordination included government agencies, NGOs, ADB, UN agencies, Redcross societies, World Bank and IFRC.

### From temporary shelters to permanent housing

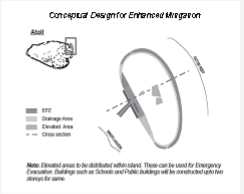
- 27 islands from 8 Atolls chosen for temporary shelters.
- 100% of temporary shelters have been completed.
- 30 000 people displaced immediately after tsunami
- 1073 people returned either to newly reconstructed or their own repaired house.
- Total IDP stands at 10,665 with 18% living in their own damaged house, 25% hosted in others' houses and there rest in temporary shelters.

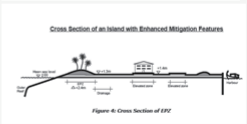
### Disaster risk mitigation and reconstruction

- Regional development and Population consolidation.
- Development of larger islands with better facilities and economic opportunities.
- Building Back Better.

### Safer Islands.

- The Maldives is inherently vulnerable to environmental disasters
- Tsunami has created new urgency in developing enhanced environmental mitigation measures
- Redesign the physical development features of islands including
  - wider environmental protection zones
  - elevated areas for vertical evacuation in the event of floods
  - easy access in emergencies




### Development of Safer Islands

- Five Islands are being developed as Safer Islands
- Island development plans are being prepared
- Development would be in phases
- Reclamation of one Safer island has been completed.
- The area land area has been increased from 16Ha to 64Ha
- Existing level of island increased.

### Housing Reconstruction and Repair

- Maldives has adopted the build back better principles and integrated quality reconstruction.
- Sound construction methods and quality assurance are carried out during construction.

### Housing reconstruction status.

- 2980 needed reconstruction in 49 islands of 17 Atolls.
- 228 completed.
- 1141 on going and completed before 3rd quarter of 2007
- 686 houses tendered not yet started.
- 973 not yet tendered due to the recent increase in cost of construction in Maldives.
- 22 houses remains unfunded.

## Housing repair status

- 5817 houses needed repairs
- 1338 houses in 19 islands repair completed.
- 2327 houses repair on going
- 2152 houses repair not yet started


## Harbour repair and reconstruction

- 82 harbours were damaged.
- Reconstruction of 6 harbours have been completed .
- Reconstruction is ongoing in 7 harbours.
- For 11 harbours, funding for reconstruction is secured.
- 18 harbours, have been proposed for funding for reconstruction.
- 40 harbours unfunded.

## Livelihoods restoration.

- Livelihood projects are undertaken in the fisheries and agriculture sectors
- The Bank of Maldives loan schemes
  Phase 1 – Completed. US$ 500 disbursed with a maximum limit of Rf.50000.

  Phase 2 - A fund of Rf. 18 million
  - BML, MTA and MATI. This phase is expected to completed by the end of the year

## Livelihoods restoration.

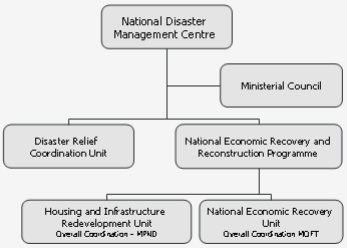
- Phase 3 – US $ 5 million from the French Development Bank and US$ 3 million from IDB have been finalised. Lending commenced on December 2006
- Skill development programs and special programs focusing on reviving the livelihood are being implemented by Government, Donors agencies, UNDP and NGOs
- Many livelihood programs are focused towards women and IDPs.

## Economic recovery

- Contraction of GDP by approximately - 5% in 2005.
- Negative impact on the budget: US$ 62 million deficit in 2005 representing nearly 15% of GDP & US$ 16.3 million deficit in 2006 representing nearly 2% of GDP
  - Sustained increase in Government expenditure for reconstruction activities
  - Costs arising from implementation delays
  - High world energy prices.
- **In 2006 tourism and fisheries sectors have rebounded strongly. GDP growth rate for 2006 is estimated at 18 %.**
- **Estimated growth rate for 2007 is 12.1%**

## Organizational / Institutional Arrangements.

Structure of National Disaster Management Centre




## Organizational / Institutional Arrangements

- In response to the tsunami, with the assistance from UNDP a programme for Disaster Risk Reduction for sustainable development of Maldives.

**•Objectives of the programme are**:

- Assist government in establishing an institutional framework and policy for disaster management;

- Develop multi hazard preparedness and response planes at the national, Atoll and Island levels; and

-Awareness raising, training and capacity building activities at all levels.

## Organizational / Institutional Arrangements

**Key Achievements:**

•Final draft of the National Disaster Management Act has been finalized in consultation with all line ministries. It is expected to be endorsed to the People's Majilis during the first quarter of 2007 for adoption and passage to law.

•The Disaster Risk Profile of the country has been prepared and published.

## Early warning systems in disaster risk mitigation.

**Key Achievements:**

•Early Warning System of the country established, installation of the system initiated.

•The National and 5 regional Emergency Operation Center fully functional.

•13 Islands in 2 Atolls, community disaster management plans developed which enhanced community's capacity for effective disaster management.

## Awareness and capacity building

**Key Achievements:**

•Awareness raising, training and capacity building activities at all levels

•About 200 key government officials, technical personnel and community people from various communities were trained in various disaster management concepts and specialized skills for effective disaster preparedness and response.

## THE WAY FORWARD

- Long term Adaptation & Mitigation plan
- Multi-hazard Early Warning System
- Continue Awareness, Training & Education
- Advocate at local, national, regional and international level
- Commitment from all!!!!!
- Key sectors of water and sanitation. harbors and others remain unfunded.
- Two years following the tsunami the Maldives requires additional funding of US $ 70 million to complete its recovery program.

## Thank You


**Prof. N. Vinod Chandra Menon**
**Member, National Disaster Management Authority, India**

Excellencies, distinguished delegates, senior officers, representatives from various countries. It is a great privilege and honor for me to be here representing India. Being here in Kobe and Hyogo Prefecture, we actually are endorsing also the spirit of disaster risk reduction and the way forward, especially looking at the sustainable recovery solutions.

I was a little disturbed to see some of the presentations primarily because even after two years, after the devastating disaster if, a small island community like Maldives still feels that they have a problem of funding, I think that poses us a very serious question in terms of the sustainable aspects of recovery. So before I begin my personal presentation, I would like to endorse a commitment on behalf of the disaster management fraternity to consider some of the issues which have not been concluded.

When you really look at the issue of disaster risk reduction and recovery, I think, both are very intimately related with the issue of governance which is probably going to be one of the biggest challenges in crisis prevention and recovery. With my past experience, now I could see the difference in approaches when you're trying to approach the issue of disaster risk reduction from the policy perspective. By the end of this year, we are starting with the 11 five-year plan, 2008 to 2012, which also overlaps with the UN Development Assistance Framework for India. So we have a new UN country program coming up and we have the 11th five-year plan coming up, so we are actually integrating the concept of mainstreaming disaster risk reduction initiatives into all aspects of development planning in India.

As we all know that the Indian Ocean Tsunami affected approximately 2,336 km of the coastal areas of Kerala, Tamil Nadu, Andhra Pradesh, Pondicherry and Andaman and Nicobar Islands and caused extensive damages to life, infrastructure, property and assets. Amount of damage was approximately 660 million dollars of damage and another 410 million dollars of losses in the affected areas of Andhra Pradesh, Kerala, Tamil Nadu and Pondicherry, which are the part of joint assessment mission from the UN, the World Bank and ADB. It is important to know that this does not include the extensive damages which were felt in Andaman and Nicobar Islands and the problems of recovery which we are actually facing in the Andaman and Nicobar Islands are primarily due to the issues which are very similar to Maldives in terms of logistics.

Now the pictures are very similar to what devastation the tsunami had actually unleashed in many parts of the tsunami-affected countries. But I think that, in terms of highlights of recovery, the challenges of building back better are primarily in the areas of housing, reconstruction of permanent houses, and also going from this transition into intermediate shelters and again into permanent housing. The issues related to water and sanitation, development and reconstruction of infrastructure and public assets, environmental conservation and environmental sustainability, livelihood protection, health and nutrition, psychosocial care, social welfare and social security, and finally gender concerns are the primary concerns in recovery.

I think if you really look at the challenge of housing construction, if you're really looking at this as an opportunity for building back better, we need really to look at hazard resilient houses which could be constructed for the communities affected by the disaster. But one of the challenges would be as to whether we could actually look at issues related to coastal regulation zoning which stipulate that we should actually have these constructions come 500 meters away from the shoreline?. The problems in the island communities of Andaman and Nicobar are much more complex. The issues in terms of livelihood and restoration, I think that should have also been a part of modernization initiatives. There have been new boats which have been made available to the fishing community. The problem of sustainability of fishing itself would actually come up. So I would like to say that, we need to understand what would be the second generation problems which we are actually unleashing, and which are actually originating as part of solutions which we are actually offering. We really need to look at these as opportunities when communities which have not been exposed to some of these privileges are actually now in the position to use some of the modern facilities in relation to education, health, water and sanitation and power supply because you are actually building back better.

Now let us consider the issues in terms of early warning system. One of the experiences of Cuddalore District, Tamil Nadu has been an initiative by the district administration supported by the UNDP to have a public address system which can actually disseminate early warning messages right up to the last-mile connectivity to the remote villages. In this district 681 villages have all prepared village disaster warning plans. They all have village task forces and so on, so you really have some of the potential replicable models of people's involvement as long as you are able to bring all the stakeholders together..

In terms of challenges, I think tsunami was an unknown phenomenon in India. Institutional convergence and co-ordination at all levels was one of the biggest challenges because we were dealing with multiple actors, and so the issue of co-ordination was a challenge. There was no proper institutional mechanism apart from conventional hierarchy in the government administration. The community initiative and social infrastructure came under serious stress in many areas because this is also a situation when there was a lot of grieving in the community, and the community which is always the first responder in emergencies is actually affected by the disaster themselves. There was also a problem of lack of accurate data and information.

Slow pace of recovery processes was due to delay in identification of local implementation agencies, and I think this has been one of the problems in many states. Infrastructural rebuilding and reconstruction was predominantly carried out by government agencies, which have to actually depend on procedures such as tendering, rates, quotations and so on. So, these procedural issues actually had brought in some of the delays in the entire process of reconstruction. Even after two years after tsunami, 50-60% of people are still waiting for their permanent houses, so the problems are attributed to some of the procedural problems in tendering. One of the best outcomes of the devastating disaster is creation of institutional systems as in Sri Lanka and as in Indonesia. The political consensus was created across political parties which came together to see that there was a need for institutional mechanism to really look at the preparedness, mitigation and recovery issues. Ownership and accountability of stakeholder groups, good media management conveying the right messages, the need for preparedness, co-ordination and networking, and participatory, inclusive and gender-sensitive approaches are much needed here.

I would like to point out that the hazard-resilience construction practices have now become a challenge for us in the government system. As a part of various activities of national disaster management

authority, we are coming up with earthquake resistant construction guidelines which make it mandatory as a part of statutory obligations of any construction which is going up in the country that all new construction has to be built according to strict compliance of earthquake resistant building standards and building codes and all planning by laws.

One of the major paradigm shift which we saw, which was triggered by the tsunami was from a hitherto reactive, post-disaster relief-centric regime be moving to a pro-active approach of strengthening disaster preparedness, mitigation measures and strengthening emergency response. I am very delighted to see in this room a lot of people who would actually be carrying forward this message after the WCDR, Kobe and taking the ISDR initiatives much further through the Hyogo Framework for Action into the several of countries who have actually become a signatory to this process. Now we find that many people are actually anchoring the process here in this conference. We need also make sure that there is need for an emphasis of political will, national will, and national resolve and national vision for working towards disaster-resilient communities by involving all stakeholders in creating a Culture of Preparedness, Mitigation and Prompt and Effective Emergency Response.

We have the National Disaster Management Act 2005 which was passed in December last year. The National Disaster Management Authority was also set up last year. It is headed by the honorable Prime Minister of India. This is an apex body for disaster management in India. We also have the second tier which consists of the State Disaster Management Authorities in 35 states and Union Territories which should be headed by the respective State Chief Ministers. We also have the District Disaster Management Authorities coming up in the 602 districts of India. So, in all States we will have the State Disaster Management Authorities headed by the State Chief Minister and also the District Disaster Management Authorities headed by the District Collectors. The National Disaster Management Authority has been set up as the apex body, set up as a part of the Government of India's decision to put in place necessary institutional mechanisms for drawing up and monitoring the implementation of disaster management plans, ensuring measures for prevention and mitigation of disasters and for undertaking a holistic, coordinated and prompt response to any disaster situation.

We have also prepared the national disaster management policy. We have National Executive Committee which was set up under the Union Home Secretary, the Government of India. National Disaster Response Fund and National Disaster Mitigation Fund have also been set up, with the provisions of similar funds at the State and District levels. In terms of strengthening emergency response, we have eight battalions of National Disaster Response Force created under a Director General. We are taking help from several civil institutions in the Philippines and Singapore to get them trained and equipped properly. We also have National Institute of Disaster Management which has been recently designated as the SAARC Center for Disaster Management.

Now I think the challenge before us as humanity is to really look at the whole issue of disaster management, disaster reconstruction and recovery as overlapping issues, which we would actually continue. We need to go to this process of search, rescue and relief, emergency response, then we go to the process of rehabilitation and going to reconstruction but the recovery is, I think, also related to the whole question of not only just physical recovery, economic recovery, but also issues of social recovery. The social recovery is an issue which is far more complex and challenging.

Thank you very much for this opportunity.

Recovery from the Indian Ocean Tsunami

The Indian Experience

Prof. N. Vinod Chandra Menon
Member
National Disaster Management Authority (NDMA)
Government of India

## Outline

- Overview of the Impact of the Tsunami
- Recovery in the Tsunami Affected Areas
- Good Practices
- Challenges
- Road Ahead

## Overview of the Tsunami Impact

- In India, the Indian Ocean Tsunami of 26th December 2004 affected approximately 2336 km of the coastal areas of Kerala, Tamil Nadu, Andhra Pradesh, Pondicherry and Andaman & Nicobar Islands.
- Extensive damage to life, infrastructure, property and assets
- Approximately US$ 660 million of damages and another US$ 410 million of losses in the affected areas of Andhra Pradesh, Kerala, Tamil Nadu and Pondicherry.

(The Joint Assessment Mission by the United Nations, the Asian Development Bank and The World Bank)

## Overview of the Tsunami Damage in India

| | |
|---|---|
| Coastal Length affected | 2336 kms |
| No of villages affected | 1396 |
| Population affected | 2.67 million |
| Human Lives lost | 9395 |
| Persons missing | 3964 |
| Persons moved to safer places | 646827 |
| Dwelling units destroyed (approx) | 168973 |
| Livestock | 73688 |
| Cropped Area (ha) affected | 20713.53 ha |
| Boats damaged/destroyed | 63317 |

## Recovery Highlights

**AREAS : BUILD BACK BETTER**

- Housing
- Water and Sanitation
- Infrastructure
- Environment
- Livelihood
- Health and Nutrition
- Psychosocial Care
- Social Welfare
- Gender concerns

## Pilot Early Warning System

Wireless-Linked Public Address System

- In 66 Villages
- Public Address System, Sirens
- Wireless Triggered Early Warning
- Real Time Communication
- Fail Proof

PUBLIC ADDRESS SYSTEM IN PLACE

Cuddalore District, Tamil Nadu

## Challenges

- Tsunami was an unknown phenomenon in India
- Institutional convergence and co-ordination at all levels
- Community initiative and social infrastructure under stress in most areas
- Lack of Accurate Data and Information
- Limited capacity amongst the community, first responders and other critical stakeholders
- Oversupply of relief materials such as boats
- Duplication of assistance

## Challenges

- Increased school dropout rates and non-enrolment in the five worst affected districts of Tamil Nadu
- Slow pace of recovery process due to delay in identification of local implementation agencies and lack of capacity at local level
- Infrastructural rebuilding and reconstruction was predominantly carried out by the govt. agencies. The procedures such as rates, quotations and tendering
- Transparency of Recovery Process
- Creation of Appropriate Institutional Mechanisms at the National, State and District Level

## Lessons Learnt

- Need for Risk Assessment and Vulnerability Analysis
- Need for hazard-resilient construction practices
- Regular maintenance of housing and infrastructure
- Ownership and Accountability of Stakeholder Groups
- Good media management conveying the right messages
- Preparedness is essential
- Co-ordination and networking
- Strength of Participatory, Inclusive and Gender-sensitive approach

## The Paradigm Shift in Disaster Management in India

- From a hitherto reactive, post-disaster relief-centric regime to a more pro-active approach of strengthening disaster preparedness, mitigation measures and emergency response
- Accompanied by the national resolve and national vision for working towards a disaster-resilient India by involving all stake-holders in creating a Culture of Preparedness, Mitigation and Prompt and Effective Emergency Response

## Institutional Mechanisms

- Disaster Management Act, 2005
- The constitution of the National Disaster Management Authority (NDMA) headed by the Prime Minister of India as the apex body for disaster management in India
- The setting up of the State Disaster Management Authorities (SDMAs) in States and Union Territories under the respective Chief Ministers and the District Disaster Management Authorities (DDMAs) at the districts under the District Collectors and Presidents of the Zilla Parishads

## National Disaster Management Authority (NDMA)

- The apex body for Disaster Management in India
- Set up as a part of the Government of India's decision to put in place necessary institutional mechanisms for drawing up and monitoring the implementation of disaster management plans, ensuring measures for prevention and mitigation of disasters and for undertaking a holistic, coordinated and prompt response to any disaster situation.

## National Disaster Management Authority (NDMA)

- The Constitution of the National Disaster Management Authority (NDMA) was notified on 30 May 2005.
- On 28 September 2005, the names of the Vice Chairman and Members of NDMA were notified. The Prime Minister of India heads the NDMA as its Chairperson.
- Gen N C Vij, PVSM, UYSM, AVSM (Retd), Former Army Chief, was designated as the Vice Chairperson of NDMA with the status of a Cabinet Minister.

## National Disaster Management Authority (NDMA)

The other Members of NDMA are:

- Lt Gen J R Bharadwaj, PVSM, AVSM, VSM, PHS (Retd)
- Dr. Mohan Kanda
- Shri M. Shashidhar Reddy, MLA
- Shri K M Singh
- Shri N. Vinod Chandra Menon
- Smt Jyoti Rao, and
- Shri B. Bhattacharya

## Institutional Mechanisms

- Draft of the National Disaster Management Policy prepared by NDMA circulated to the Ministries of Government of India and the State Governments and a Policy Workshop held at Hyderabad on 27th October 2006
- National Executive Committee (NEC) constituted under the Union Home Secretary, Government of India
- National Disaster Response Fund and National Disaster Mitigation Fund being set up, with the provisions for similar funds at the State and District levels

## Strengthening Disaster Preparedness

- 8 Battalions of National Disaster Response Force (NDRF) created under a Director General, NDRF and forces located at strategic disaster-prone locations
- National Institute of Disaster Management (NIDM) being strengthened as the apex training institute and also designated as the SAARC Centre for Disaster Management (SCDM) in New Delhi.

## Strengthening Disaster Preparedness

- First Responder Institutions like National Fire Services College, Nagpur and National Civil Defence College, Nagpur being upgraded as apex training institutes with state-of-the-art facilities.
- The role of Civil Defence is being redefined to make the Civil Defence responsible for strengthening disaster preparedness and emergency response

## Current Areas of Emphasis

- Risk Assessment and Vulnerability Analysis
- Guidelines for Management of Earthquakes, Floods, Cyclones, Landslides, Nuclear, Biological and Chemical (NBC) Disasters
- Guidelines for Medical Preparedness
- Heli-ambulance, Heli-rescue
- National and State Level NGO Task Forces for DM
- National Corporate Task Force on DM

## Current Areas of Emphasis

- Insurance
- Micro Finance
- Self Help Groups
- Techno-legal regime
- Techno-financial regime
- Early Warning Systems
- Community Based Disaster Preparedness
- Geographical Information Systems

## Current Areas of Emphasis

- Mock Drills
- Public Awareness Campaigns
- Scenario Building and Modelling
- Research and Development
- Documentation
- Capacity Building
- Micro Zonation of High Risk Cities
- Structural and Non-Structural Mitigation Projects
- National Database for Emergency Management

## Current Areas of Emphasis

- Strengthening the Emergency Operations Centre Network
- Dissemination of Alert and Early Warning Messages
- Review of Curriculum in Professional Disciplines
- Strengthening the Fire Services as Multi-Hazard Response Services
- Strengthening Civil Defence in 241 hazard-prone districts
- Networking of Professional, Scientific and Technical Institutions
- Mainstreaming DM in development planning

## Current Areas of Emphasis

- Identification of appropriate technologies for early warning systems
- Documentation of best practices, coping strategies and indigenous traditional knowledge in Disaster Management
- Creation of a bank of context-specific designs for temporary shelters and intermediate shelters
- Review of relief codes and preparation of DM Manuals
- Preparation of a National DM Plan
- Making DM a participatory, inclusive, gender-sensitive and eco-friendly multi-dimensional process
- Strengthening the governance of DM in India
- Empowering all stakeholders to create a disaster-resilient India

## Agricultural Preparedness for Natural Disasters

- Economic unviability of agriculture
- Dependence on rainfed farming
- Predominance of paddy cultivation
- Large tracts of cultivable wasteland
- Low average farm sizes
- Dependence on credit, mostly from rural moneylenders
- Lack of forward and backward linkages

## Agricultural Preparedness for Natural Disasters

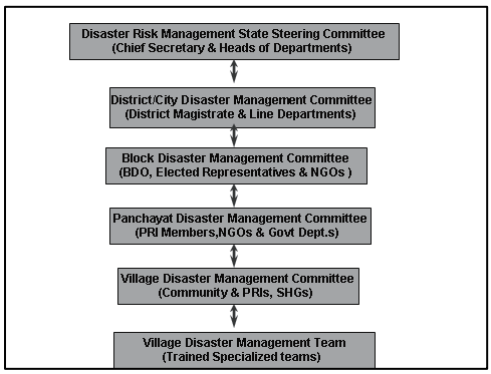
- Potential of Rural Knowledge Centres
- Use of Community Radio for dissemination of information, early warning and knowledge
- Identification of disaster mitigation components
- Thinking “out of the box”
- Sustainable Agriculture: S & T applications
- Bio Diesel sources: sunflower, rapeseed, canola or *Jatropha Curcas*
- Intercropping of *Jatropha Curcas* with other crops

## The New Frontiers

- Management attends to the realism of what is.
- Leadership looks toward what could be, what should be.
- Incrementalism versus Proactive Design of Institutional Mechanisms: National, State and District Authorities; National Plan, State Plans, Ministry Plans, District Plans; Guidelines; National Policy on Disaster Management; NDRF; NIDM; Disaster Response Funds and Disaster Mitigation Funds at National, State and District levels; Involvement of all stakeholders

## New Thrust Areas

- Improved Disaster Preparedness through Public Awareness campaigns
- Training, Capacity Building, Research & Development, Documentation
- Strengthened Emergency Response
- Enforcement of Compliance of Regulations
- Mobilising stakeholder participation: Elected Representatives, NGOs, Community, Corporate Sector, Media, Scientific and Technical Institutions, etc.
- Community Based Disaster Management initiatives




THE LESSON FROM BANGLADESH....

On 12 November, 1970 a major cyclone hit the coastal belt of Bangladesh at 223 km/hr. with a storm surge of six to nine meters height, killing an estimated 500,000 people.

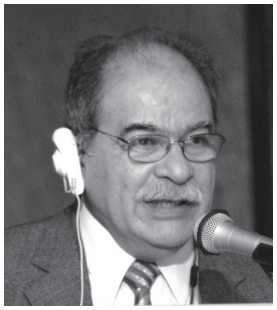
Due to the Cyclone Preparedness Program, the April 1991 cyclone with wind speed of 225 km/hr. killed only 138,000 people even though the coastal population had doubled by that time.

In May 1994, in a similar cyclone with a wind speed of 250 km/hr. only 127 people lost their lives.

In May 1997, in a cyclone with wind speed of 200 km/hr. only 111 people lost their lives.



# Progress of the Indian Ocean Tsunami Early Warning and Mitigation System



**Mr. Patricio Bernal**
**Executive Secretary,**
**Inter-governmental Oceanographic Commission,**
**and Assistant Director General, UNESCO**

# Progress of the Indian Ocean Tsunami Early Warning and Mitigation System

Good afternoon. First of all, I would like to thank the organizers, the government of Japan for inviting the IOC to do this reporting to you. I have been really very much taken by the presentations by distinguished Ministers here in this afternoon because it reflects so well how much we have moved from where we were on the 26th December 2004 and where we are today.

End-to-end Tsunami Early Warning and Mitigation System, we need to be clear where to start and end effectively, because from what we have been listening to this afternoon, we need to understand an early warning system must necessarily link and seamlessly link with the response systems. It is important because our experience comes from what we have done for many years in the Pacific Ocean and questions we had to answer during the first day immediately after the tsunami, and it was a really legitimate one. How is it if we had a system in the Pacific Ocean for 40 years, we didn't have one in the Indian Ocean, and the true answer to that is we had been trying to promote the creation of that for many years and we failed to convince policy makers that we need one.

The mindset has hopefully been changing, and it certainly has changed after the tsunami and we are definitely at the window of opportunity to really put these many elements for the first time in the history of humanity in place. There is no one-to-one relationship between earthquake and tsunami because 92% of earthquakes don't produce tsunamis. Half of the humanity is aware of earthquake. Half of the humanity and other half are not aware. The Atlantic coast of America, for example, is not exposed to earthquake. The question I had to answer was, "Why are these people living there?" I said, "Oh, look I come from Chile," Chile is certainly very exposed to earthquake and tsunamis. I say, "I live there because it is my country. Don't you realize that?" This is the basic answer. We live there because it is where we have been living all the time. We need to learn how to adapt our cultures to live here and to make sure that all our citizens understand that and can react accordingly.

In 1965, we established a successful tsunami warning system in the Pacific Ocean. We did that interestingly to address cultural and policy decision-making issues. We did it in 1965, because in 1960 we had the strongest earthquake in the history of humanity that triggered one of the largest tsunamis in the Pacific Ocean. That took more than 24 hours to arrive to Japan. It destroyed Hilo on the way to Japan, and destroyed several towns in Japan. In Japan, the dead loss was 330 people. Twenty four hours after the tsunami had started to travel from Chile. It hit Chile in eight minutes. We had no way to respond that and it is something similar today we had a very hard time to respond properly. So the system was not fairly approved and it has never been seen as a solution. It is built on robust and simple technology, but depends very much on preparedness and even one to have a successful end-to-end, depends on solving all these cultural aspects.

In Banda Aceh, if we had a full operating system, the day of the disaster, the people living in Banda Aceh most likely would have to depend on their own knowledge to save themselves. We would have had a truly same situation in Sri Lanka, in India, in Nicobar, south of Banda Aceh, in the coast of Indonesia. But Banda Aceh would have been in a critical situation even if we had a system 100% working today.

Interesting to know, Indonesia in the last ten years before the big tsunami, has suffered eight tsunamis, but there were more tsunamis. The accumulated loss was more than 6,000 lives, if I recall correctly. There are strong big tsunamis that cause tragedy as that one we saw and here are more local tsunamis that are generated by other mechanisms. A landslide or slide of snow fall can generate a tsunami, and there are cases where volcanoes have created tsunamis.

We wanted to just immediately bring this knowledge to the Indian Ocean because we saw the opportunity, we saw the needs, and we will pay for where you will have a good way for replica with no system to detect the presence of or the absence of the wave after the earthquake. The system goes on and off 40 times a year. The point is that the most important to have the system in the water that we can turn it off. It is the off signal that is very much critical for the system going on and off.

The effectiveness of a tsunami warning system depends on international cooperation. A national system might help the country but is useless for the region. There is no local early warning for tsunami. Early warning for tsunami is at least regional and in the case of the Indian Ocean as we proposed in Phuket. We were advocating that the solution should involve all the countries on the Indian Ocean, the east coast of Africa and the Arabian Sea and south of Pakistan which are exposed. We finally agreed to set up a system, have them motivating it into governmental meeting because we were getting an agreement and bases how to do it. We went over and we started the Indian Ocean Tsunami warning system, but also reacted for three other areas of the world. We were very active in the Caribbean Sea. We also reactivated upgrading of the Pacific system. We should have the system in the South China Sea. In fact, the strategy has been all the way to have a global system. There is no reason why we shouldn't have it for the whole world. There is a risk of tsunami in all oceans of the world to a different degree. As we speak today, there is a significant progress in all of them. The Pacific Ocean for the first time had a Pacific Ocean-wide drill last year, and it was a very successful one. They simulated a tsunami being broadcasted from southern American coast and one broadcasted from the Philippines. So they had different arrival times and the community had to react accordingly.

We need the global coordination. We can afford to have all these forces being isolated just at the regional level. We have a global ocean hazard warning, multi-hazard base system and mobilize resources to have a global coverage for tsunami warning.

We started immediately after January, in February 2005. The first meeting was held in Paris to identify any replica system as soon as possible. Since there was no such system, we did start right away implementing and putting new instruments in the water. The first phase ended in July 2006, and we had a significant upgrading of instrumental networks in the Indian Ocean. We have been able to work in very close coordination with other agencies in the system such as, ISDR, WMO, the World Bank, and the Federation of Red Cross/Red Crescent societies, together with national agencies that were willing to cooperate. With all these partners, we organized 18 national assessment

missions to assess the ability of each country and region to respond, to build in a short period of time a tsunami early warning system. The information has guided a significant proportion of donor commitments and engagements. The donors have contacted us to have access to the detailed information. It addresses infrastructure for early warning, it addresses communication, it addresses institutional arrangement, it addresses legal framework. So the answers in those 18 countries were already there, we were ready to move forward in a very effective way.

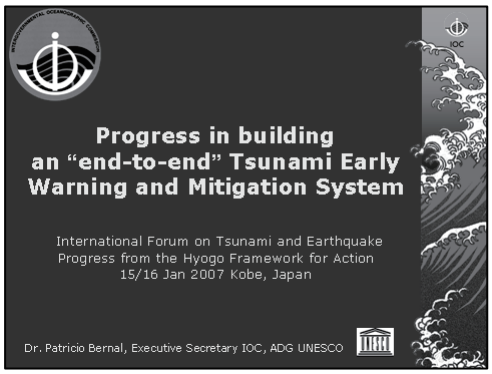
The day of the tsunami only five seismographs were operating in the surroundings of the Indian Ocean. An earthquake beside the one that generated tsunami will be felt in all seismographs in the world, so that is a new issue. In the Indian Ocean, for the first time, they are optimizing the seismographic network to detect tsunamis.

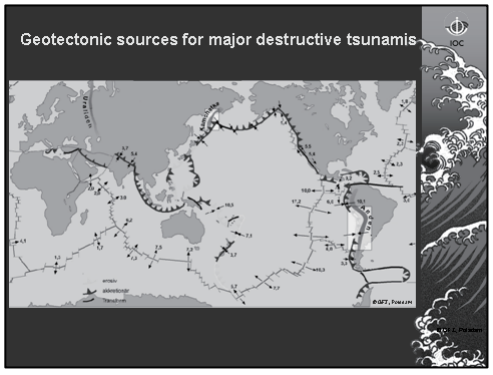
Therefore, we are happy to report you that these are commitments of our member states in the Indian Ocean Tsunami Warning System to put in place new instruments. More than 40% of these are readily installed and started broadcasting real time information. We also receive a help from the commission of the Nuclear Test Ban Treaty organization in Vienna to detect the passage of a tsunami wave for a given site. This is a new technology, it is very effective, but it is very demanding as well. We will look forward to this generation of tsunami warning system in the Indian Ocean probably as the best.

We have a long way to go yet. We need to improve the instrumental network, and we are already doing that with many partners. I am happy to report that we will have a much improved sea level network in the near future in the Indian Ocean. There are 28 real time sea level stations in operation today. We started a trial emergency system under operation procedures for Indonesia.

But the challenge is still pending. We need to complete assessment in three countries; still we need to fully harmonize the planning of different countries in a single implementation plan. We need to assist together with many partners in development of national plans, as they have been reported by the Ministries which were very interesting. So my final message is a perfect warning system would be useless if people do not know what to do in the case of emergency. Awareness and preparedness at a country level is essential.

Thank you very much.



- *After the big Tsunamis of 1960 (Chile) and 1964 (Alaska), in1965 the IOC established the ICG/ITSU International Coordination Group for the Tsunami Warning System in the Pacific (PTWC).*
- *This is a successful experience of an operational Tsunami Warning & Mitigation system, based on proved and robust technologies.*

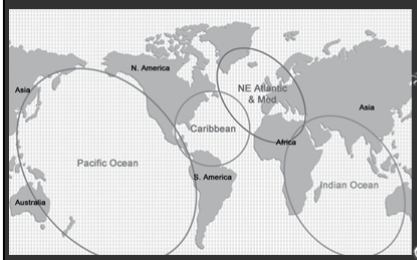
## Establishment of an Indian Ocean Tsunami Warning System

- *In the aftermath of the greatest tsunami recorded in history on Dec 26th 2004, IOC organized two International Coordination meetings: March (Paris) and April (Mauritius), to define the terms for the development of an Indian Ocean Tsunami Warning and Mitigation System (IOTWS)*

- In June 21-30, 2005: the 23rd **IOC** General Assembly approved resolutions for the establishment of **a global program and three additional regional** Intergovernmental Coordination Groups on TEWS (XXIII-12 to XXXIII-15) for

- *Global multi-hazard system (GOHWMS)*
- ***the Indian Ocean (ICG/IOTWS)***
- *the Caribbean (ICG/CARTWS)*
- *the NE Atlantic and Med (ICG/NEAMTWS)*

## Three more regions to coordinate




## Global coordination

*GOHWMS provides the necessary oversight function for the regional EWS, ensuring commonalities and good practice to define a common*

- ***Structure***
- ***Strategy***
- ***Standards***
- ***Resources***

## IOTWS time line and milestones in 2005/2006

| Ja | F | M | A | M | J | Jul | A | S | O | N | D |
|---|---|---|---|---|---|---|---|---|---|---|---|

Implementation Interim System IOC/JMA/PTWC

18 National Assessment Missions IOC/ISDR/WMO

Sea level stations being deployed

| Ja | F | M | A | M | J | Jul | A | S | O | N | D |
|---|---|---|---|---|---|---|---|---|---|---|---|

Initial IOTWS established

Core Regional System build up

IOTWS Implementation Plan

Focus on National Plans

19 out of 22 requested **assessment missions** by IOC/ISDR/WMO on tsunami warning and mitigation capacity to Indian Ocean member states, have been finalised.

These reports, by identifying deficits, provide clear guidelines for the design of national plans.

The 3 final missions to Timor Leste, South Africa and Djibouti are scheduled for the first half of 2007

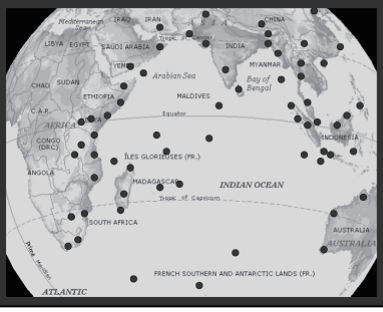
## Since July 2006 an Initial System is in place

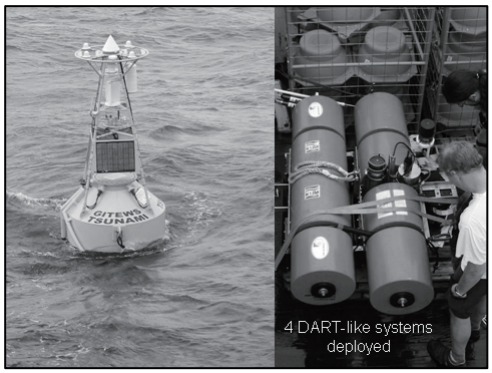
**Based on Existing:**
- 26(28) National 24x7 Information Centres slowly evolving into a
- Network of Tsunami Warning Centres in charge of National Plans

**Need to improve Regional Instrumental Networks:**
- Improved Seismographic network (faster and more accurate) detection of earthquakes
- Real-time (1-5min transmission interval) network of sea-level stations near tsunami source zones

28 new real time sea level stations


Agreed upgrade of the Seismographic network




Status and achievements in the ICG/IOTWS process
(mainly funded through the ISDR flash appeal project)

- 28 real-time sea level stations
- 25 new broadband seismometers
- more than 12 technical training courses on tsunami modelling and seismic analysis
- 19 TW capacity assessment missions
- Emergency Standard Operations Procedures for Indonesia (January 2007)
- *TsunamiTeacher*: multi-purpose educational toolkit in English and Bahasa Indonesia (5 more languages under way)
- various educational material on tsunamis massively reproduced and disseminated

A perfect warning will be useless if people do not know what to do in case of an emergency

Awareness and preparedness at the country level is essential

The Challenge

- *Governments and donors already know what is needed at the country level in 18 countries*
- *Indian Ocean countries, through the ICG, requested and endorsed (July 2006) a comprehensive Implementation Plan.*
- *Plan is a "living document", to be harmonized and constantly updated with national and regional commitments and contributions*
- *IOC directly assists with the development of National Plans*

Beyond immediate response:
**Multi-Hazard Platforms for Ocean generated Hazards**

- *Storm – surges (IOC, WMO)*
- *Tropical storms (WMO, IOC)*
- *Improving Storm and cyclones track forecasts (IOC, WMO)*
- *Ice Hazard (IOC, WMO)*
- *Oil Spills (IOC, WMO, UNEP, IMO)*

*For further information :*

*http://ioc3.unesco.org/ptws*
*http://ioc3.unesco.org/icg-iii*
*http://ioc3.unesco.org/neamtws*
*http://ioc3.unesco.org/cartws*

# Panel Discussion

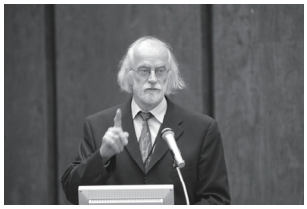
# Panel discussion

**Facilitator:** Mr. Sálvano Briceño; Director, UN/ISDR
**Special Speech:** Dr. Marco Ferrari; Deputy Head of Department of Humanitarian Aid, Swiss Agency for Development and Coordination (SDC)
**Panelists:**
Mr. Andrew Maskrey; Chief, Disaster Reduction Unit, UNDP/BCPR
Mr. Alfredo Lazarte-Hoyle; Director ad interim, Crisis Response and Reconstruction Programme, ILO
Mr. Satoru Nishikawa; Director for Disaster Preparedness, Public Relations and International Cooperation, Cabinet Office, Government of Japan
Mr. Koji Suzuki; Executive Director, Asian Disaster Reduction Center
**Special Commentator:** Prof. Ian Davis, Visiting Professor of Cranfield University, UK.

**Preamble:**

**Briceño**

Good afternoon. We have heard very valuable contributions this morning. A lot of new ideas and new information were shared and now we will have the opportunity to hear and listen to some experts that are also working on the subjects to comment and share the views on this important subject. We are going to have two separate moments in the panel. First one is dedicated to looking at what have been the efforts and practices on the implementation of the Hyogo Framework and the second part will focus on the future challenges, future cooperation on better recovery activities. With this brief introduction, we will start the proceedings with the special speech from Dr. Marco Ferrari of SDC.



**Special Speech:**

**Ferrari**

Ladies and gentlemen, it is really a pleasure to be here. My intention was here to come and make an advocacy as the Chair of the committee which is here in this building that discussed, elaborated and negotiated the Hyogo Framework for Action. I want to make an advocacy, especially on the greater attention which should be given to disaster risk reduction. I want also to talk about the holistic approach in identifying and putting into action this complex multidisciplinary disaster risk reduction measures.

Therefore, ladies and gentlemen, the Hyogo Framework for Action has given an impact to us for further strengthening the ISDR system. It was widely felt that successful and coherent implementation of the Hyogo Framework for Action requires such a strengthened capacity. Hence, after the Kobe World Conference a consultative process was launched to consider practical ways of strengthening this ISDR system, building on existing mandates, on institution, partnerships and mechanism with the key purpose of implementing the Hyogo Framework for Action.

In this process, we, the Government of Switzerland, have been much involved particularly in the role I assume the Chair of the Support Group. You may

remember that back in 2002 already we established this Geneva based group on the request of the then Under-Secretary General for Humanitarian Affairs, Mr. Kenzo Oshima. But since the Kobe Conference, this ISDR Support Group is now an open-ended group, bringing together approximately 60 countries or committed governments with a keen interest in supporting and development of the ISDR system. Since January 2005, a number of meetings of this support group have taken place and focused specifically on this ISDR strengthening process including a one-day workshop which took place in Geneva last month.

According to us, in this strengthening process, three aspects are absolutely important. The first one: the vision that emerged since the world conference is to see the ISDR evolving from an inter-agency coordination mechanism into a global movement for disaster risk reduction. With the active participation of governments that is new. Hence, all major stakeholders in disaster risk reduction, government, inter-government and non-government organizations, international organizations and agencies, financial institutions and scientific and technical bodies and networks, as well as civil society and the private sector ought to become an active part of the ISDR system. This would then allow building a stronger, more systematic and coherent international effort to support national disaster reduction activities but to support national disaster reduction activities and to support the implementation of the Hyogo Framework for Action. Second, we also believe that it is important that the ISDR system partners at regional and sub-regional levels be further empowered for promoting and coordinating disaster risk reduction initiatives and, in this regard, very much welcome the close linkage of the ADRC with the ISDR system. We think that it is not only essential to build a stronger international system for disaster risk reduction, but it is equally important that regions and states (particularly disaster prone developing countries) take charge of disaster risk reduction efforts and be supported in their efforts. Third, in terms of dealing with the substantive disaster risk reduction issues, we very much welcome the plans for the ISDR system to be organized in thematic platforms such as early warning, risk identification, preparedness, capacity development and recovery. The governments of Japan and Switzerland have supported the International Recovery Platform, the secretariat of which is based here in Kobe. We are very pleased to see that the IRP is orienting itself to become the thematic platform of the ISDR system for recovery. We believe that the IRP is a good example of a global network geared at having a positive impact at regional and local level. We hope, of course, that this Kobe meeting will enable the IRP to deal with some issues requiring further clarification including its future structure and governance.

The next step in the strengthening of the ISDR system is the establishment of the global platform for disaster risk reduction. We will be cooperating very closely with the ISDR secretariat in the preparatory phase, and hope that other governments and stakeholder groups will also actively support this process and provide substantive input in order to ensure the success of this important global gathering on disaster risk reduction.

Thank you very much.

**First Round:**

**Lazarte-Hoyle**

Thank you very much and good afternoon to all the members of the panel, and also to our audience.

First of all, it is not very common to see an

organization as the ILO, International Labor Organization, who is the development agency being on this type of forums. But fortunately since 1999, our organization was raising awareness in terms of importance to be present since the early aftermath of major crisis defining different and better future for a society-centered operation. Obviously, the area we are involved in was very concentrated, We deal with the area of livelihood, livelihood recovery, preparedness, more than to reduce the level of exposure to damage on the livelihood activities as well as to help the most vulnerable people to recover their capacity of handling their livelihood after these types of major hazard.

First of all, the livelihood dimension of disaster was practically unknown and in many cases neglected. Fortunately, this situation began to evolve significantly in the last years. We could feel at this moment that livelihood dimension of disaster began to be more systematic area of attention of international community even if there is a long way to be undertaken. But we could say that today we have firm advancement in terms of activity on the responsive side on recovery as well as on the area of prevention and preparedness. But reducing risk on livelihood implies the needs to properly address the reduction of social-economic vulnerabilities. We could say that one of the major conditions to enhance the impact of these disasters is just poverty, which began as one of the most important risks for us in terms of natural disasters. But it is a long-term process, and for the meanwhile we need to undertake special measures to protect the most vulnerable sectors of population. But we need to do something to address these types of challenges. We need to do something more than to help these people who are the most vulnerable to provide alternative source of livelihood that are going to enhance their capacity to respond when one of these new hazards happens again, but as well to reduce the way how these activities are threatening themselves and the conditions of the community.

Finally for this first part, the restoration of livelihood in the aftermath of disasters imply the needs of major consensus to be built between the different international and national actors for dealing with investment for recovery and reconstruction which facilitate environmentally-friendly reconstruction investment. It is important to identify and promote investments that are going to use local stakeholder, local manpower, local business community, and through their participation on these recovery activities to find opportunities to re-launch the process of sustainable development.

Thank you very much.

**Maskrey**

Thank you and good afternoon.

At national level, I think UNDP has really been trying to fulfill three different roles, each of which responds to three different senses of needs and constituencies. The first role which I think is a role we really play as a UN system rather than UNDP is really supporting coordination both for recovery assessment, for strategic planning and for information management. I think the immediate humanitarian phase is well understood by all the actors, such as national, international, non-governmental, and governmental. In a longer term, reconstruction of strategic infrastructure and physical assets is also well understood. Both of those are very clear political and economic imperatives. The middle phase is how we actually help people recover in a very short term and in a medium term, we still work on what kind of coordination mechanism is required and we are still at the beginning of learning.

A second area where we support on behalf of the

UN system is really facilitating recovery programming. This we do in conjunction with, and support of many other specialized agencies and programs of the UN. We work on livelihood restoration with ILO and FAO, on housing and shelter issues and support of Habitat etc. The effort that we have been trying to get recovery introduced into the humanitarian flash appeals to national authorities and some key sectors to actually initiate activities which can then perhaps be picked up in a much larger scale later on in the process by the international financial institutions.

The third area, nationally, which we support as really being as UNDP. This is perhaps alone an area where we can add values really in governance and institutional arrangements, again which probably has two dimensions in it. The first dimension is getting local governments by assisting national governments to get local government back on its feet. Secondly, we also try and assist the national government to see how we can use this political window of opportunities created by a major natural disaster to rethink institutional and legislative arrangements for the national level of disaster risk management. This came out so clearly today I think in the presentations from the four countries on how they really used the opportunities to do that.

When I review our work globally and national institutional and legislative arrangements, and in fact, if I go around the world most of legislations and institutions that exist at some time in the history have something to do with the UNDP. Most of the success stories came out of a major natural disaster, which isn't to say that doesn't work beforehand often to success, in the moment you have to be doing work beforehand. That is really where the recovery intersects with the whole HFA agenda and why we have to see disaster recovery as one of the major ways of taking the whole HFA forward.

Thank you very much.

**Suzuki**

Thank you very much. Now from ADRC, I will touch upon the issue of disaster-related community or education at school. As the receiving party, if the people's capacity is not sufficient, then good effects cannot be expected. In an effort to develop the school education, we have come up with various materials about disaster prevention and reduction. For teachers we have made guiding principles and in Sri Lanka, for example, for community town watching methodology is available. Together with the administrator and experts and together with local people in the highly risky area, we want to understand the disaster-prone area so that students will get more knowledge on the disaster reduction. This is the activity that we are carrying out. Also, in order to effectively carry out local activities, we have the pleasure to have representative from Malaysia, and we would like to deepen our relationship with NGOs also. In Japan also, so far we had various knowledge base in propagating disaster education at school level. We have tsunami disasters and this can be translated into French or English and distributed. We are doing this as ADRC contributes to improve the school level disaster education.

Thank you very much.

**Nishikawa**

Thank you very much. Two years ago, the Hyogo Framework of Action and Hyogo Declaration was made in the Hyogo Prefecture and as far as Japan is concerned,

there were various discussions made at that time based upon the ODA initiatives for disaster prevention. Disaster risk reduction has incorporated many things such as science and technology, education, and also organization of administration and risk management. Four countries have provided their reports earlier this afternoon. In case of the Indian Ocean Tsunami, the victims of the tsunami were invited to Japan in order to explain them on what kind of risk management approaches we have in Japan. It is often said that end-to-end measure is very important. Natural observation, information, communication and evacuation methods must be linked in order to have effective risk reduction. In some seminars we took the trainees to the coastal lines of various sites which are prone to tsunami. We showed them sign boards that warn the residents that this area is prone to tsunami. There is an alarming system and also a map in order to evacuate in case of tsunami. Sign posts are now located in Indonesia, which is reported by his Excellency, that was something we felt very pleased and honored to hear. Also, from Japan, we provided various funds and also we provided various know-how. We also provided other information. I think the most important thing is that disaster reduction culture must be established. Culture of prevention is the word that is used often, and so culture of prevention must be stabilized in various locations in order to have a long-term strategy against disaster. I hope that we will be able to continue our contribution towards the establishment of such a culture. Through IRP, we provide various cooperation and also through ADRC we provide various coordination, and ISDR is to be strengthening. Through ISDR, we want to provide information to various countries in the future.

Thank you very much.

**Special Comments:**

**Davis**

Thank you. We had some wonderful presentations today. The country presentations by our colleagues were breathtaking because we've seen huge progress being made very rapidly. The comment on the tsunami warning system is extraordinary heart warming. I think in such a short time, so much progress has been made. We followed that up in these discussions here.

I just have three observations to make. First, talk about governments. In governments, we have seen key roles being defined. It is very exciting to hear about the work that is going on in ISDR where the initiative of government platforms is underway. That is crucially important. Unless the government offices are protected, looked after and restored, nothing is going to happen. So we had a very good discussion about governments and we just heard further comments from our Japanese colleague about the importance of government being a donor. I think we really need to acknowledge the tremendous support from the Japanese government to this initiative.

We have also heard about local preparedness and we heard from Koji about the work of town watching going on in Sri Lanka. The great initiatives that come out from Kobe are community-based disaster risk management, and we have to thank ADRC and all the workers for putting on that in this field for many years.

I was very grateful to our colleague from ILO to talk about the economy, and how it is vital to protect jobs, and to protect jobs particularly of vulnerable people. The livelihood recovery is a

quite interesting part of the recovery process. Our preparedness has to be linked to design of buildings and strengthening programs to see things work together.

Lastly, my final point is just to congratulate colleagues in UN/ISDR to see the ways in these movements, which many people opposed when it first started. It's now taking off and we are seeing this movement becoming more open-ended and it is not a closed club.

Thank you very much.

**Second Round:**

**Lazarte-Hoyle**

First of all, what I want to share is to reaffirm the institutional commitment of ILO and to go deeper on working together with all the partners of the international community to the Hyogo Framework for Action participating on the ISDR system and then other partners on the international recovery platform on this major endeavor.

Secondly, it has to be announced that as part of this exercise the different activities were creating linkage between disaster risk reduction and the local communities. With the support of the international training center of the ILO, we launch on November 18 the first disaster management training program at a local level. It is a first such initiative that will cope with cases of the Central America, but we hope this is going to be viable, to be expanded in 2007 and 2008 after the training in different areas.

As well, the second important area of contribution working together with the UNDP is a work on the pre-disaster planning for preparedness on recovery that is a major challenge that we are committed and working together. Finally to a great better, what are the needs for recovery and reconstruction on the aim of our participation in post-disaster need assessment? We focus principally on the elements for the livelihood recovery assessment, and this is an exercise that we have started and we are already in a very inclusive process of consultation with different institutions, and that is going to be a major contribution for the finalization of the post-disaster need assessment.

Thank you very much.

**Maskrey**

I can actually pick up on exactly what Alfredo has just mentioned. I think the key challenge we have in the coming period, is really to move from a focus from post-disaster recovery to post-risk recovery. Because the challenge we have is not to recover from disaster, it is the recovery from underlying risks which caused the disaster in the first place. It really helps us if we refocus recovery in terms of reducing risks and not restoring conditions of risk. Most of the countries are aware large disasters will happen in the future, and after a large disaster, ensuring emergency is very difficult. We can save, we can make buildings back better, and we can get risk reduction into place, but it really depends on the amount of work done a lot of work before the disaster happens. We have to make the recovery better in the future, and it should now be one of the main focuses of the international recovery platform.

Thank you very much.

**Suzuki**

I would like to say two things. One is that for disaster reduction training to be more effective, we should utilize image and visual aids. The Japanese media has many disaster related images, and we

would like to incorporate them in the ADRC activities. We would like to translate it into various languages and distribute them to all the relevant countries.

Another thing is that the ADRC is carrying out cooperative attitude and in the future for the specific projects we would like to cooperate with the IRP.

Thank you.

**Nishikawa**

It has been repeatedly said, but I would like to emphasize that for sustainable development, disaster prevention is a must. Unless we have such a policy, people would become poor and also land use would be a failure, and this will lead to a greater disaster which will form a vicious cycle. In order to break this vicious cycle, the Hyogo Framework for Action was formalized. For that, various know-hows will be continuously provided from us. As for Japan, the government is concerned with various countries, how they should organize the administration of disaster prevention and also how they should strengthen their capacity for disaster prevention. We have had a bilateral comprehensive disaster prevention blueprint formalized between a country and our government. The day before yesterday, in Japan there was a warning of tsunami. Tsunami alarm was enforced and this was actually propagated by the mass media and the residents evacuated. How we can maintain this kind of living alarm is very important. We will continue providing such know-hows.

Thank you.

**Comments:**

**Ferrari**

Thank you very much. I have also three points which I just want to underline. Number one is the clarity of the international system at each level: international, regional and national. It has to be clarified who is doing what, who is giving the guidelines, who is making advocacy, who is serving as the clearing house, and who is serving and being operational, because two things cannot be mixed. They can but consequences will be a total mess, and that we have to really prevent it.

Second one is the culture of prevention. I think that is absolutely also essential for three reasons. Number one, one has to know what is the risk and issue of assessing the risk in order to have really everybody on the same line. The second thing is so-called last mile to the people can be bridged. The third point of this cultural prevention is the paradigm shift which is taking place and that has to come to notice to everybody again from the top to the bottom.

Third big point is the cooperation between all the actors especially in the international system, the humanitarians, the development people, and also the environmentalists, economists and so on because it is a holistic and integrated approach.

Thank you.

**Comments from Floor:**

**Kadiman**

Recovery must be treated as being a long term investment. This is a really big homework

for everybody in this room, how to convince not only the government but equally importantly the parliament that recovery also be a long-term investment. I really support that statement. Second, this is the suggestion to everybody, especially organizations and champions in making this recovery process successful. That is how we can deal to minimize the reluctance of people to let go things that have been become their habit or culture of the people. This is not merely a technological issue; this is a social, economic and political issue. Next is we must share information and knowledge so that participation of women will be more in recovery.

I thank you very much.

**Menon**

It was also mentioned in the morning about the need for identifying specific risk transfer instrument, as has been done in some counties for vulnerable communities. The issues of insurance, and reinsurance should be consolidated and promoted to developing countries by international financial institutions.

Thank you.

**Samarasinghe**

Disaster risk reduction is a cross-cutting issue and must receive consideration by parliament such as in the case of Sri Lanka. Further post risk recovery is needed for economic growth, especially of developing countries.

Thank you.

**Closing Remarks:**

**Briceño**

I like to use this time to make three comments that I think are relevant. One main comment I want to make is that in order to achieve a long-term effective reduction of risk and vulnerability, we do need to engage on a common process. We have the Hyogo Framework, and we have the ISDR as a movement and as a system ready to support now with the participation of many governments, many agencies, regional, international governmental, non-governmental, public and private. So it is becoming more important, however, the more it grows, the more mistakes we are bound to make and we have to understand that in a process like this, it is important to make mistakes, it is the only way to learn. I would very much point to the need to keep track of implementing the Hyogo Framework and using it, and using the ISDR system regardless of the mistakes we all make and that we will continue to make.

Second point is that we are going to engage very soon, in other words governments in the first place but also international organizations, regarding to climate change as the ultimate disaster. We have the Hyogo Framework, which is already an instrument agreed upon by governments, agencies and institutions, and is being gradually implemented everywhere. HFA could serve as an important negotiation tool for the adaptation of climate change.

Thank you very much again, and this ends the panel discussion.

# Annex

## International Forum on Tsunami and Earthquake

### ― Progress of the Implementation of the Hyogo Framework for Action and Recovery from Tsunami and Earthquake ―

# Kobe Communiqué

### ~ For Further Implementation of the Hyogo Framework for Action ~
### 16 January 2007

The International Forum on Tsunami and Earthquake "Progress of the Implementation of the Hyogo Framework for Action and Recovery from Tsunami and Earthquake" took place in Kobe, Hyogo, Japan on 15-16 January 2007. The Forum was hosted by the Government of Japan, International Recovery Platform (IRP) Kobe, Asian Disaster Reduction Center (ADRC) and Hyogo Prefectural Government in partnership with Governments of Switzerland and Italy, UN/ISDR, UNDP, UN/OCHA, ILO, The World Bank, IFRC and UN-HABITAT.

About 300 participants from 34 countries and 20 international organizations comprised of dignitaries, national and local officials, experts on disaster reduction and recovery, and representatives of various stakeholders, attended the Forum.

The Forum aimed to contribute to achieving the goals of the Hyogo Framework for Action (HFA) to reduce risks and vulnerabilities of countries and communities.
The concrete objectives of the Forum were to:

a) Present important perspectives of post disaster recovery;
b) Facilitate and promote exchange of lessons and experiences on post disaster recovery, particularly the on-going recovery efforts; and
c) Provide feedback from countries on their respective implementation of the HFA priorities of action.

His Excellency Mr. Kensei Mizote, Minister of State for Disaster Management, Japan, opened the Forum and conveyed its commitment to promote international cooperation in building the disaster resilience of nations.

The Forum facilitated constructive and dedicated discussions among the participants on the key issues on recovery and resulted in the following outcomes:

1. The Forum highlighted the importance of advancing international cooperation in disaster risk reduction, promoting build back better principles, and addressing issues on governance, institutional arrangements, education, and local culture in recovery processes.

2. The Forum brought about a better understanding among the participants regarding the appropriate and sustainable recovery practices deployed in disaster affected countries in different country contexts. The disaster recovery experiences of Indonesia, Sri Lanka, Maldives, India, Pakistan, Thailand, Japan

and other countries underscored the necessity of the incorporation of risk reduction elements in every aspect of recovery process.

3. The Forum discussed the following critical aspects of post disaster recovery from the tsunami and earthquake: a) Housing, b) Livelihood, c) Governance and Institutional Arrangements for Recovery, and d) Crosscutting issues, among others, Environment, Gender and Information Dissemination (Early Warning). The following issues were recommended as requirements to support better recovery;

・Need for an integrated recovery planning considering the socio-economic, cultural and environmental context,
・Use of appropriate recovery guidelines and standards for sectoral recovery initiatives,
・Sustainable institutional arrangement for effective post disaster recovery, and
・Equity issues in all aspects of recovery.

4. The participants emphasized the need for expansion of networks and partnerships through the International Recovery Platform (IRP) activities of recovery stakeholders, among others, UN agencies, international/ regional institutions, countries, local governments, NGOs, IFIs and communities for promoting effective experience sharing and pragmatic initiatives on disaster risk reduction and recovery practices. Further enhancement of global disaster recovery network was proposed to ensure better recovery. The importance of facilitating South-South cooperation was stressed.

5. Participants emphasized the need to strengthen the capacity of countries and communities by enhancing knowledge networking and recovery preparedness, providing human resource development training as well as damage and needs assessment tools, recovery monitoring tools, developing user-friendly recovery databases, and organising constant on-line dialogues and forums.

6. The Forum recognized risk reduction as an integral component of recovery to achieve sustainable development. Further efforts are required to mainstream risk reduction and to address appropriate policy development and reform in high risk countries. For this purpose, strengthening of the ISDR system is crucial for effectiveness of the Global Facility for Disaster Reduction and Recovery (GFDRR), IRP and other relevant platforms, networks and initiatives.

7. Overall, the Forum has called for collective action for the pursuit the goals of the HFA, in particular development and strengthening of national platforms, including enhanced mechanisms for multi-stakeholder coordination and collaboration and for increased involvement of national policy makers, national and local government officials, and community leaders in disaster risk reduction and post disaster recovery efforts.

**International Forum on Tsunami and Earthquake**
**- Progress of the Implementation of the Hyogo Framework for Action and Recovery from Tsunami and Earthquake -**
**International Symposium**

**＜Summary Report＞**

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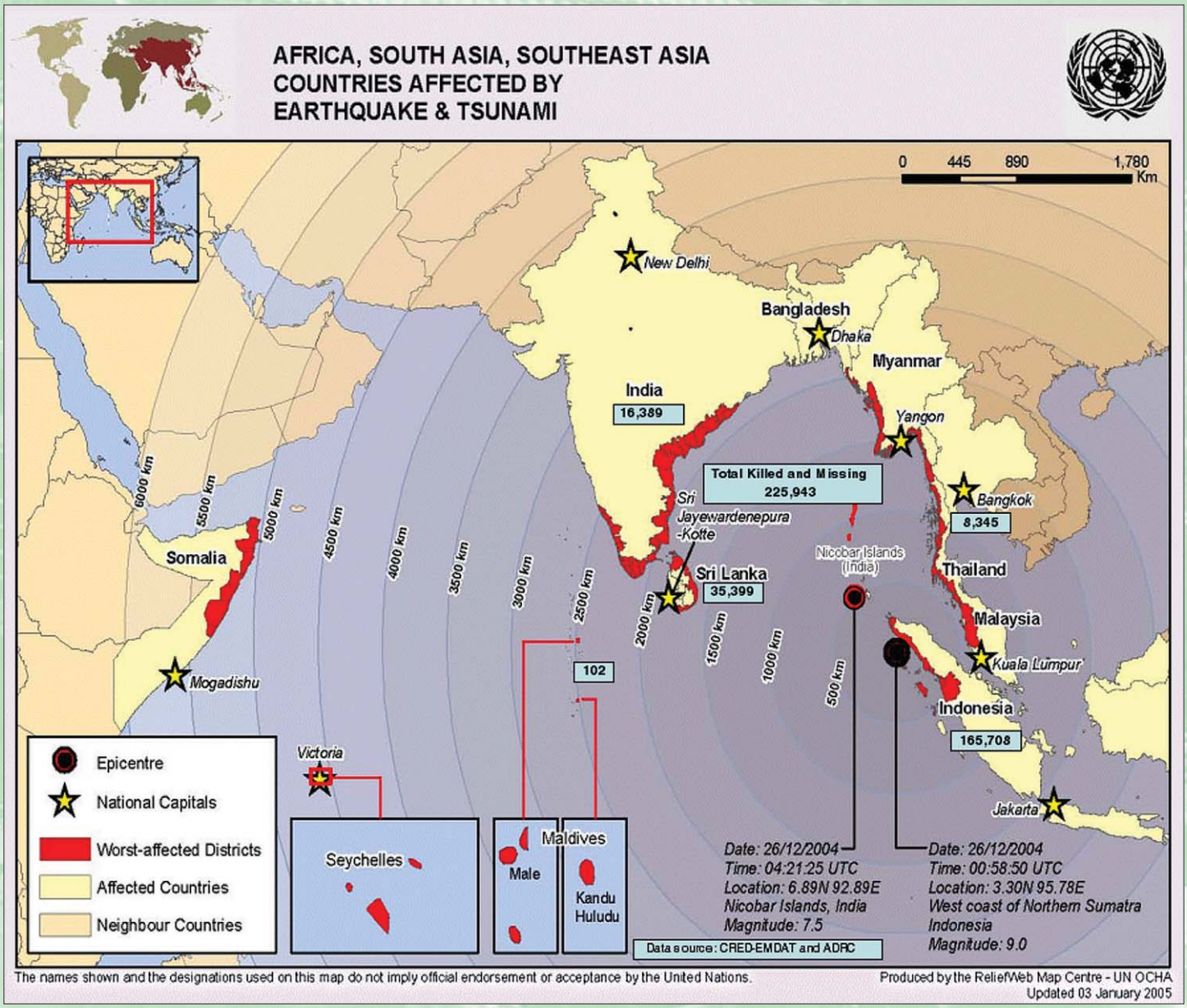


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