The Asian Forum on Disaster Management and Climate Change Adaptation

Country Report (Malaysia)

Mr. Alui Bahri (MMD)

Mr. Badrul Shah Mohd Idris (NSC)

COUNTRY PROFILE

Estimated Population = 27,000,000.00
Land Area = 328,550 sq km
Malaysia Coast Line = 4,675 km
Climate. Equatorial /tropical
-Lowlands-32 degrees Celsius
-Highlands-21 degrees Celsius
State: 13 State + 3 Federal Territories
District:114 Districts

INTRODUCTION

- Malaysia is geographically outside the Pacific Rim of Fire.
- Never had any experience of major earthquake, volcanic eruptions, typhoon, hurricanes or other severe natural calamities.
- Nevertheless still at risk of possible disasters such as flood and flash flood, landslide, forest fire, storm.
- Based on history, flood is the most frequent disaster that happened Malaysia.

SUMMARIZED TABLE OF NATURAL DISASTERS IN MALAYSIA 1900-2008

		No. of Events	Killed	Total Affected	DamageUS (000s)
Drought	Drought	1	-	5000	-
	ave. per event		-	5000	-
Earthquake (seismic activity)	Tsunami	1	80	5063	500000
	ave. per event		80	5063	500000
Epidemic	Bacterial Infectious Diseases	4	19	662	-
	ave. per event		4.8	165.5	-
	Viral Infectious Diseases	7	491	28765	-
	ave. per event		70.1	4109.3	-
Flood	Unspecified	16	193	790396	75100
	ave. per event		12.1	49399.8	4693.8
	Flash flood	6	36	151600	23000
	ave. per event		6	25266.7	3833.3
	General flood	15	134	325307	978000
	ave. per event		8.9	21687.1	65200
Mass movement dry	Landslide	4	152	285	-
	ave. per event		38	71.3	-
Storm	Local storm	1	2	155	-
	ave. per event		2	155	-
	Tropical cyclone	2	272	6291	53000
	ave. per event		136	3145.5	26500
Wildfire	Forest fire	4	-	3000	302000
	ave. per event		-	750	75500

Source: "EM-DAT: The OFDA/CRED International Disaster Database

KUALA LUMPUR
JANUARY 1971

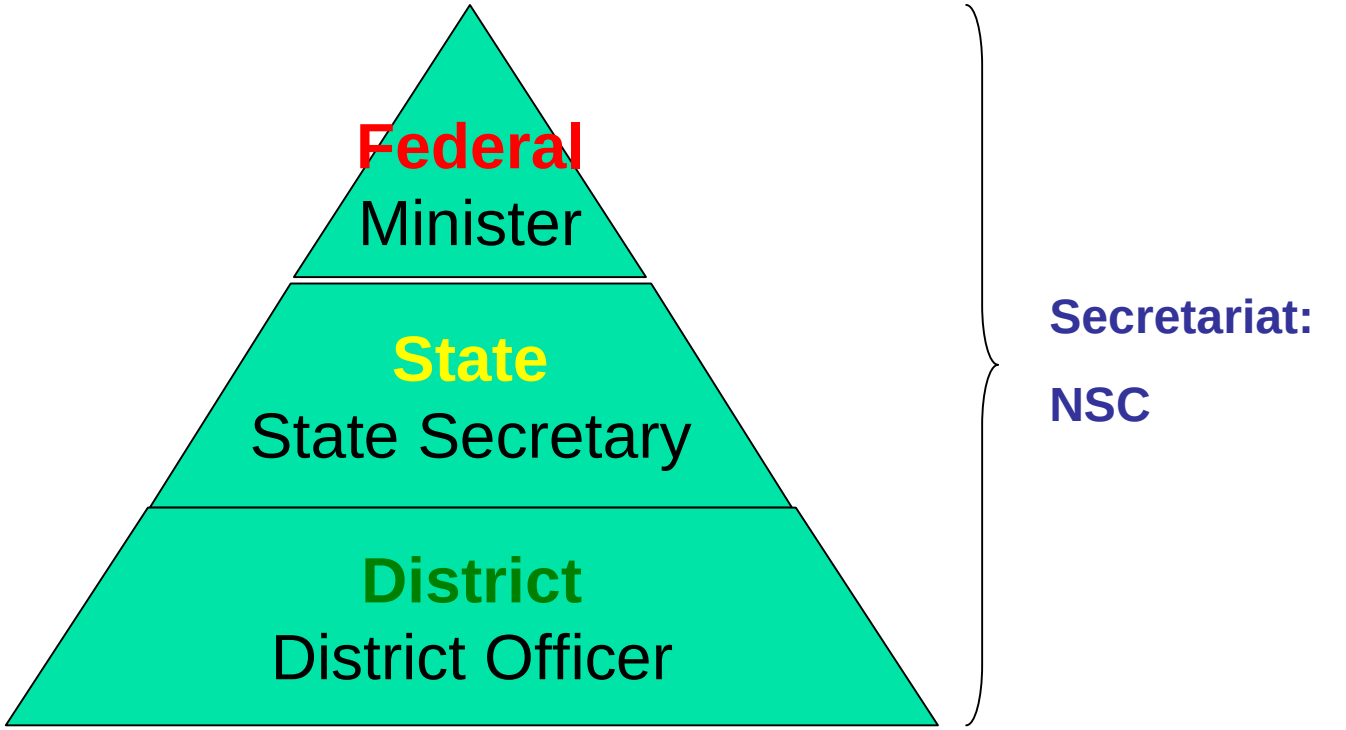
FLOOD MITIGATION DIVISION
DEPARTMENT OF IRRIGATION AND DRAINAGE MALAYSIA
MINISTRY OF NATURAL RESOURCES AND ENVIRONMENT

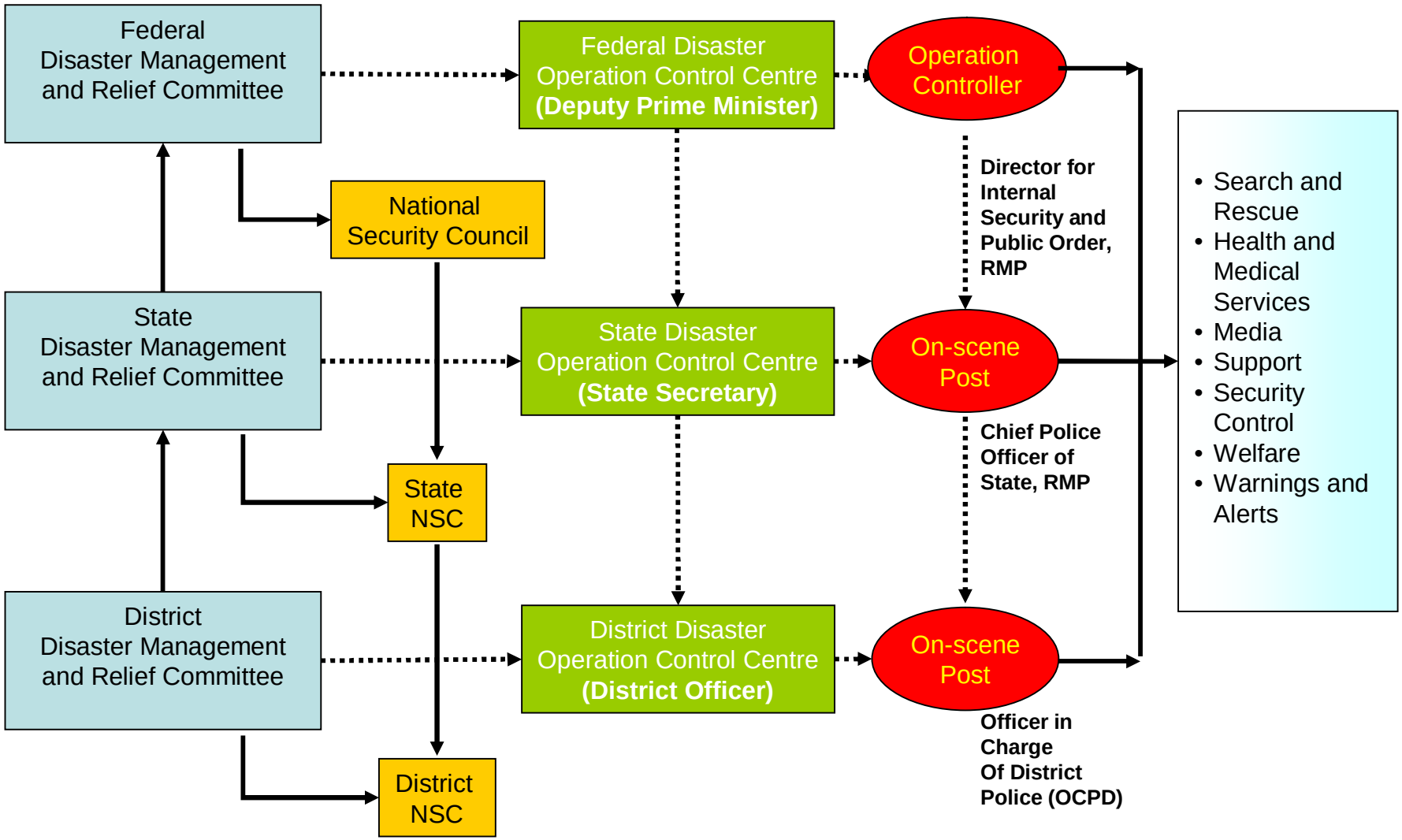

KUALA LUMPUR
JUNE 2007

Natural Disaster Management Organizations and Coordination System

Policy and Strategic Planning/Implimentation

- **The District Disaster Management and Relief Committee**
- **The State Disaster Management and Relief Committee**
- **The National Disaster Management and Relief Committee**




Federal Disaster Management and Relief Committee
Federal Disaster Operation Control Centre (Deputy Prime Minister)
Operation Controller
National Security Council
Director for Internal Security and Public Order, RMP
State Disaster Management and Relief Committee
State Disaster Operation Control Centre (State Secretary)
On-scene Post
Chief Police Officer of State, RMP
State NSC
District Disaster Management and Relief Committee
District Disaster Operation Control Centre (District Officer)
On-scene Post
Officer in Charge Of District Police (OCPD)
District NSC
• Search and Rescue
• Health and Medical Services
• Media
• Support
• Security Control
• Welfare
• Warnings and Alerts

Natural Disaster Management Organizations and Coordination Systems～Challenges～

- Prevention/mitigation and preparedness measures are not prioritized and much more focus on response.
- Understanding and implementation of disaster management mechanism by organizations concerned.
- The division of responsibility in natural disaster management among organizations concerned is not clearly define.
- The ability to give early warning to public.

Natural Disaster Management Organizations and Coordination Systems～Improvements～

Preventive by strict enforcement of laws such as:-

a. Land conservation Act
b. Environmental Quality Act
c. Local Government Act
d. Road, Drainage and Building Act
e. Occupational Safety and Health Act
f. Uniform Building Bylaws

Flood Mitigation Plan

- By Drainage and Irrigation Department of Malaysia
- Flood Mitigation Plan in 17 main river catchment and in 27 cities
- RM3.384 bilion in Ninth Malaysia Plan (RMK-9) to prevent and mitigate the impact of floods disaster
- SMART Tunnel
- Retention pond

National Master Plan on Slope Study

- By Public Works Department.
- Consist of 10 Scope;

1. Policies and Institutional Framework;
2. Hazard Mapping and Assessment;
3. Early Warning and Real-Time Monitoring System;
4. Loss Assessment;
5. Information Collection, Interpretation, Dissemination and Archiving,
6. Training;
7. Public Awareness;
8. Loss Reduction Measures;
9. Emergency Preparedness, Response and Recovery;
10. Research and Development.

Land Use Planning Appraisal for Risk Areas (LUPAr)

- By Town and Country Planning Dept.
- A current research program under 9th Malaysia Plan;
- Component: flood, landslide, tsunami, forest fire, hazardous industries.
- Purpose: to provide general guidelines on the type of development allowed in hazard-prone areas and to provide mitigation measures for policy makers, decision makers, national disaster managers, local authorities.

Disaster Management Application System

- Developed by Malaysia Centre for Remote Sensing (MACRES)
- central system for collecting, storing, processing, analyzing, and disseminating value-added data and information to support the relevant agencies in the mitigation and relief activities of disaster management in the country.
- provides important data and information about natural disasters.
- Emphasizes on the utilization of remote sensing technologies, Geographical Information System (GIS) and Global Positioning System (GPS).

Standard Operating Procedures/ Emergency Response Plan (ERP)

- **Standard Operating Procedures (S.O.P.) on prevention/mitigation, preparedness, response and recovery/ rehabilitation**
- **Four major S.O.P.**
  - S.O.P. for flood;
  - S.O.P. for industrial disasters;
  - S.O.P. for forest fire/open burning and haze; and
  - SOP for Oil, Gas and Petrochemical Disasters
- **National Contingency Plan for Oil Spill Combat**
- **S.O.P. on Pandemic/ Endemic Preparedness Plans**
- **S.O.P. on Earthquake, Tsunami and Drought Disasters – in progress**
- **Emergency Response Plan (ERP) for each area**

Natural Disaster Management Organizations and Coordination Systems～Resources in Malaysia for the other ASEAN Countries～

- **National Security Council –** Disaster Management and coordination system;
- **Royal Malaysian Police** – Command and control during response;
- **Malaysia Meteorological Department** – Early warning system (weather forecast, tsunami early warning, early warning dissemination)
- **Drainage and Irrigation Department** – Flood early warning system, The Stormwater Management and Road Tunnel (SMART)
- **Malaysian Centre for Remote Sensing (MACRES) -** Disaster Management Applications System
- **Department of Environment (DOE) –** Haze monitoring system (API)

Improvement of Natural Disaster Management Capacity in Communities and Local Societies ～current situation～

- Publication of Public Awareness Guideline on Disaster (on review)
- Public awareness programs conducted by various agencies;
- 26 December is declared as National Disaster Awareness Day;
- Publication of Safer School Manual by Ministry of Education;
- Publication of Safety Manual of Crisis and Disaster by NSC;
- Evacuation Drills involving various agencies;
- Workshops involving working committee at village level.

Improvement of Natural Disaster Management Capacity in Communities and Local Societies ～ Challenges～

- Community too dependent on government;
- Sharing information on disaster risks with public/community;
- Establishing community based disaster management;
- Disaster management drill for community;
- Disaster awareness raising.

Improvement of Natural Disaster Management Capacity in Communities and Local Societies ～ Resources in Malaysia for the other ASEAN Countries～

- National Security Council
- Royal Malaysian Police
- Malaysia Meteorological Department
- Drainage and Irrigation Department
- Malaysian Centre for Remote Sensing (MACRES)

– Department of Environment (DOE)
– Health Department
– Mineral and Geoscience Department
– Local universities such as UPM, UKM and USM
– Fire and Rescue Department
– Civil Defense
– NGO such as MERCY Malaysia, Red Crescent Society

Impacts of climate change on important sectors as identified in the Initial National Communication (INC) and the on-going work in the Second National Communication (NC2)

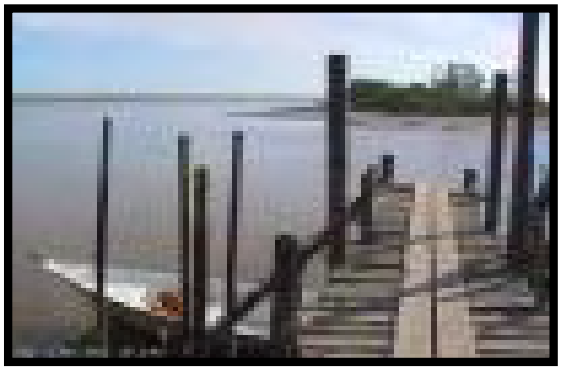
Important Sectors:

Agriculture

Water Resources

Forestry

Coastal Resources



Public Health

Climate Change Adaptation in Natural Disaster Management ～**Organizations Concerned**～

- **National Steering Committee on Climate Change (1994)**

Chairman:	Secretary General, Ministry of Natural Resources and Environment
Members:	Ministry of Science, Technology and Innovation
	Economic Planning Unit, Prime Minister's Department
	Attorney General Office
	Ministry of Finance
	Ministry of Transport
	Ministry Primary Industries
	Ministry of Energy, Water and Communication
	Ministry of International Trade and Industries
	Ministry of Agriculture and Agro-Based Industries
	Ministry of Education
	Ministry of Foreign Affairs
	NGO – Centre for Environment, Tech. & Dev. Malaysia
Secretariat:	MNRE

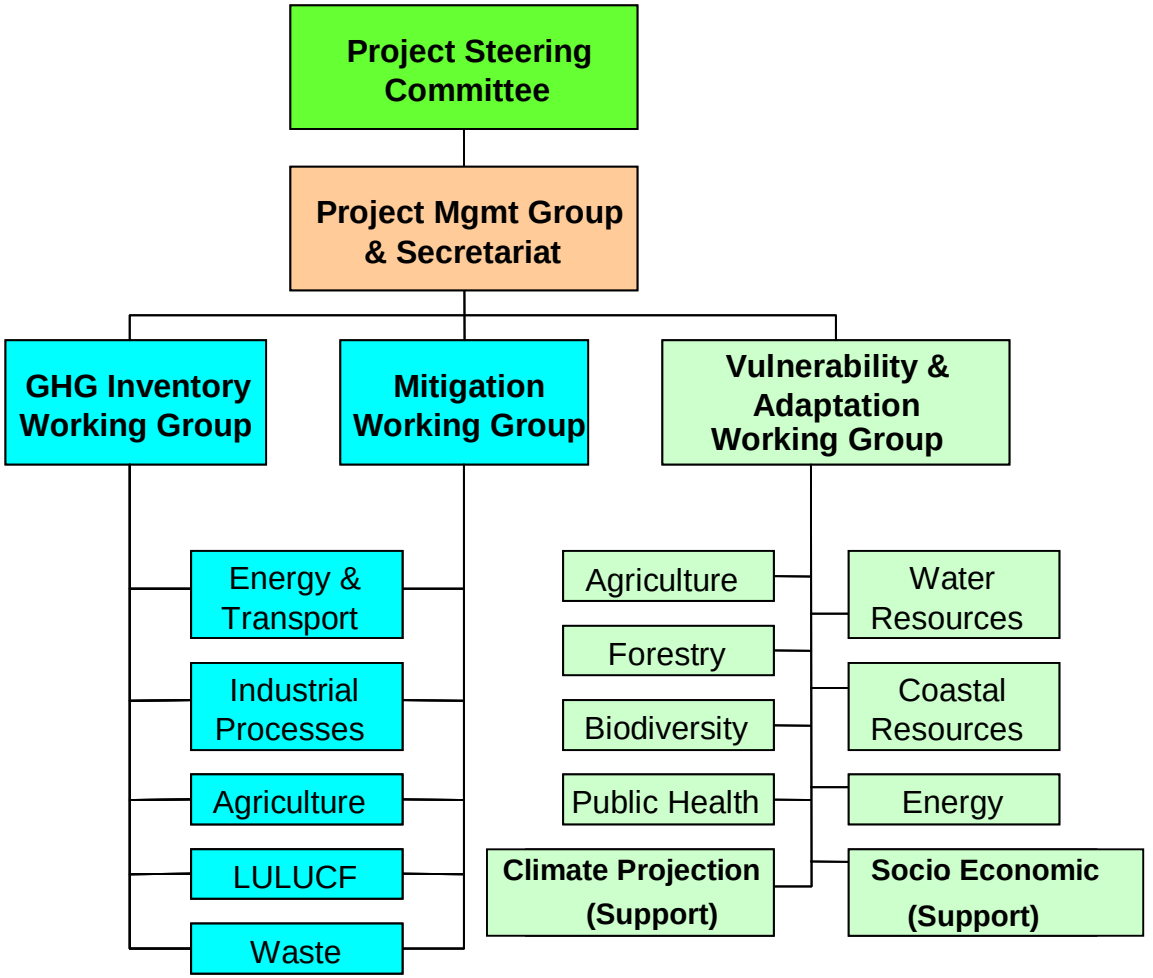
Climate Change Adaptation in Natural Disaster Management ～**Organizations Concerned**～

- **Cabinet Committee on Climate Change (2008)**

Chairman:	Prime Minister
Members:	Minister of Natural Resources and Environment
	Minister of Housing and Local Government
	Minister of Energy, Water and Communication
	Minister of International Trade and Industries
	Minister of Agriculture and Agro-Based Industries
	Minister of Science, Technology and Innovation
	Minister of Transport
	Minister of Finance II
	Minister of Health
	Minister of Prime Minister's Department
	Minister of Works
	Minister of Plantation Industries and Commodities
	Minister of Foreign Affairs
Secretary:	Chief Secretary of the Government
Secretariat:	Secretary General, Ministry of Natural Resources and Environment

Climate Change Adaptation in Natural Disaster Management ～Current Situation and Efforts～

- NC2



Agriculture:
Impacts, Risks & Adaptation Measures

Impacts:

- Yield
- Food Security






Risks:

- Flooding
- Drought
- Abandoning of low-lying planted areas

Suggested Adaptation Measures:

- Develop plant varieties that are tolerant to extreme weather (MARDI)
- Maximise efficient usage of water and nutrient input (MARDI)
- Establish national seed bank collection
- Preserve permanent forest reserves & water catchment areas (Forestry Department)
- Develop appropriate management practices for post-harvest (Agriculture Department)
- Develop appropriate responses to land use conversion (Land Department)

Water Resources:
Impacts, Risks & Adaptation Measures

Impacts:

- Water supply
- Water quality

Risks:

- Flooding
- Erosion and sedimentation
- Water availability

Suggested Adaptation Measures:

- Enlarging reservoir capacity
- Improving on hydrological forecasting
- Undertake flood zoning and flood risk mapping
- Changing land use practices
- Inter-basin water transfer
- Develop retention ponds and enlarge reservoirs for flood control management
- Buffer zones in agriculture & industries to minimise erosion and sedimentation
- Develop framework to preserve water catchment areas to ensure adequate water supply

Forestry:
Impacts, Risks & Adaptation Measures

Impacts:

- Loss of habitat and species






Risks:

- Loss of carbon sinks
- Loss of the global biological system

Suggested Adaptation Measures:

- Enhance ecosystem services
- Forest plantation establishment
- Strengthen and integrate conservation of protected areas
- Promote sustainable management in the conservation and protection of forests to act as carbon sink
- Promote environmental conservation through urban tree planning

Coastal and Marine Resources:
Impacts, Risks & Adaptation Measures

Impacts:

- Erosion of beaches
- Inundation of coastal lands & saline intrusion
- Increase wave action
- Acidification of ocean

Risks:

- Loss of agriculture lands
- Loss of fisheries production
- Additional costs to protect coastal communities
- Interruption of port operation

Suggested Adaptation Measures:

- Integrated coastal zone management
- Study the effect of climate change on development over coastal zones and low lying areas
- Creating a coastal buffer zone
- Coastal land buyback – convert to natural reserve/corridor
- Building defend option such as bunds and seawalls

Public Health:
Impacts, Risks & Adaptation Measures

Impacts:

- Dangerous vector-, air-, food- and water-borne diseases due to high rainfall and temperatures
- Migration of foreign diseases
- Deaths due to heat stress

Risks:

- More and new breeding grounds suitable for the malaria & dengue vectors
- Raises transmission opportunities for the vector-, air-, food- and water-borne diseases
- Re-emergence of contained diseases

Suggested Adaptation Measures:

- Strengthening of the existing programme for health surveillance and monitoring systems
- Study the effect of climate change on human health
- Increase awareness programs to public

Climate Change Adaptation in Natural Disaster Management ～**Resources for the other ASEAN Countries**～

- MINISTRY OF NATURAL RESOURCES AND ENVIRONMENT (MNRE)
- Act as National Focal Point for IPCC & UNFCCC
- Act as Designated National Authority (DNA) for CDM

- TWG for Policies and Measures, led by Treasury Department and MNRE.
- TWG for Science and Technology, led by MOSTI
- TWG for Development, led by Economic Planning Unit, Department of Prime Minister.
- TWG for Industries and Investments, led by MITI.

The Asian Forum on Disaster Management and Climate Change Adaptation

JICA Hyogo International Center, Kobe, Japan
(April 22-25, 2009)

Disaster Management and Climate Change Adaptation in Myanmar

Presented by

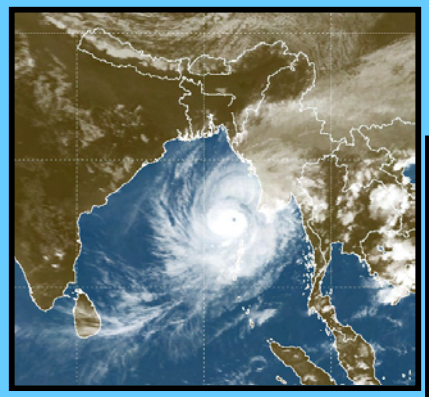
Aung Tun Khaing
Deputy Director General
Department of Social Welfare
Member of Tripartite Core Group

Contents

- Features of Natural Disasters in Myanmar
- Natural Disaster Management Organizations and Coordination Systems
- Improvement of Natural Disaster Management Capacity in communities and local societies
- Climate Change Adaptation in Natural Disaster Management

1. Features of Natural Disasters in Myanmar

- Tropical Cyclone
- Flood
- Earthquake
- Tsunami
- Landslide
- Drought



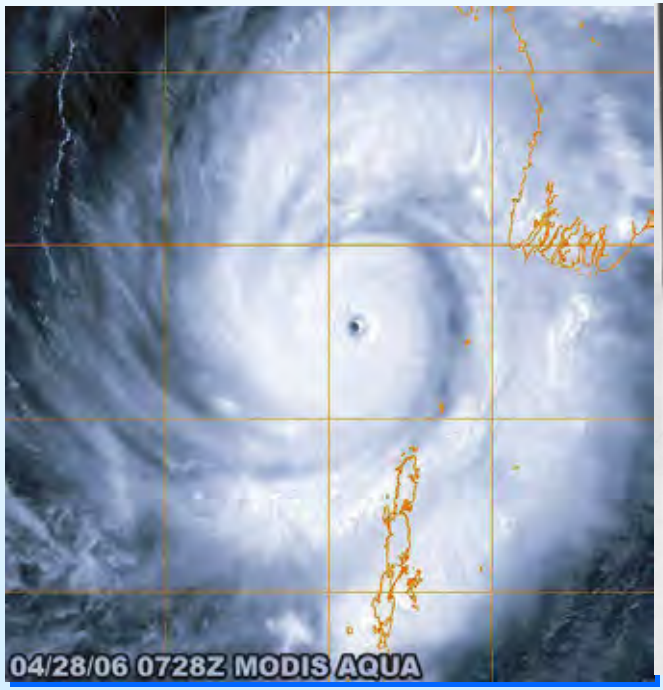
Total Number of storms (%) formed in the Bay of Bengal and that had crossed Myanmar coast during the period 1887 to 2007 (121 years)

Month	Storms formed in the Bay of Bengal	Storms which crossed Myanmar coast
JAN	16(1%)	2(2%)
FEB	3(0%)	1(1%)
MAR	8(1%)	---
APR	32(3%)	15(19%)
MAY	89(7%)	26(30%)
JUN	111(9%)	1(1%)
JUL	180(15%)	---
AUG	192(15%)	--
SEP	209(17%)	---
OCT	190(15%)	14(18%)
NOV	141(11%)	14(18%)
DEC	77(6%)	9(11%)
Total	1260(100%)	82(100%)
Average	10.49	0.66

APRIL-MAY IS FIRST STORM PERIOD FOR MYANMAR WITH POSSIBILITY OF 49% CHANCE OF LAND CROSSING.

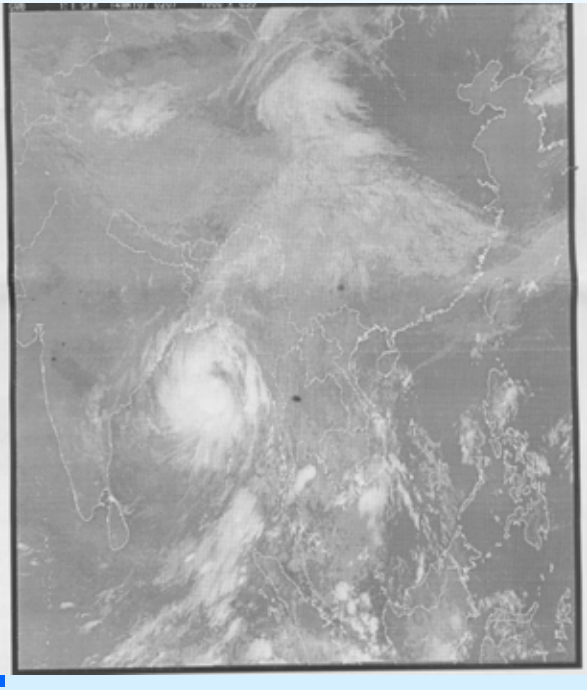
OCT-NOV-DEC IS SECOND STORM PERIOD FOR MYANMAR WITH POSSIBILITY OF 47% CHANCE OF LAND CROSSING.

Three storms struck Myanmar in last three consecutive years of 2006, 2007 and 2008.



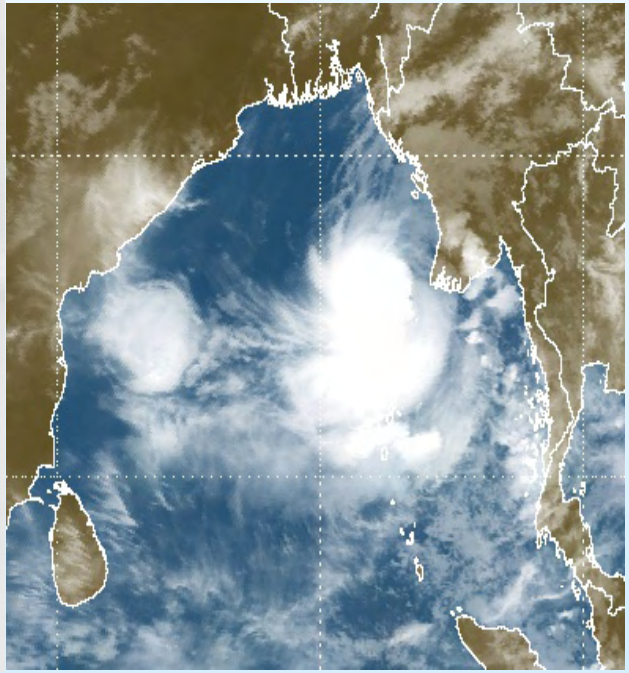
Marla , 2006

April 24-30, 2006



Akash C.S., 2007

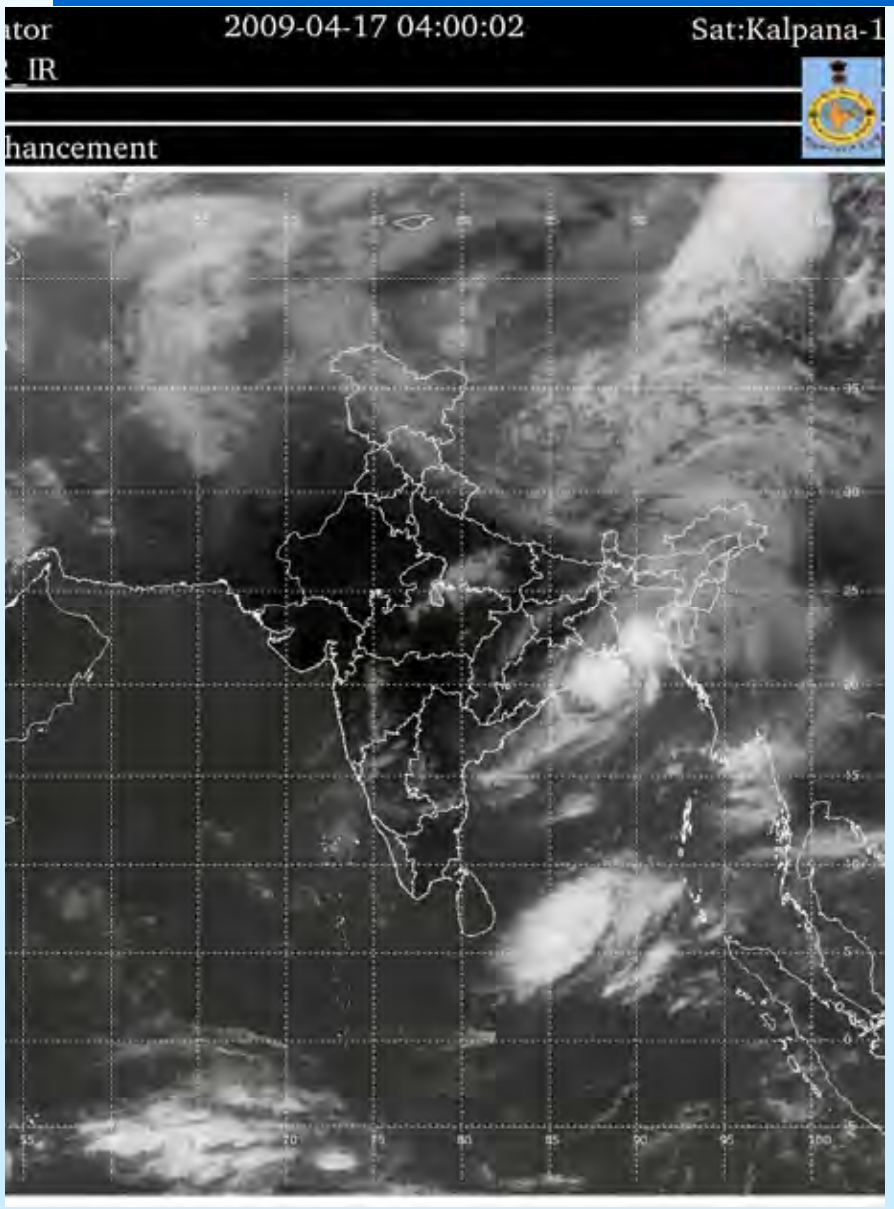
14-15 May 2007

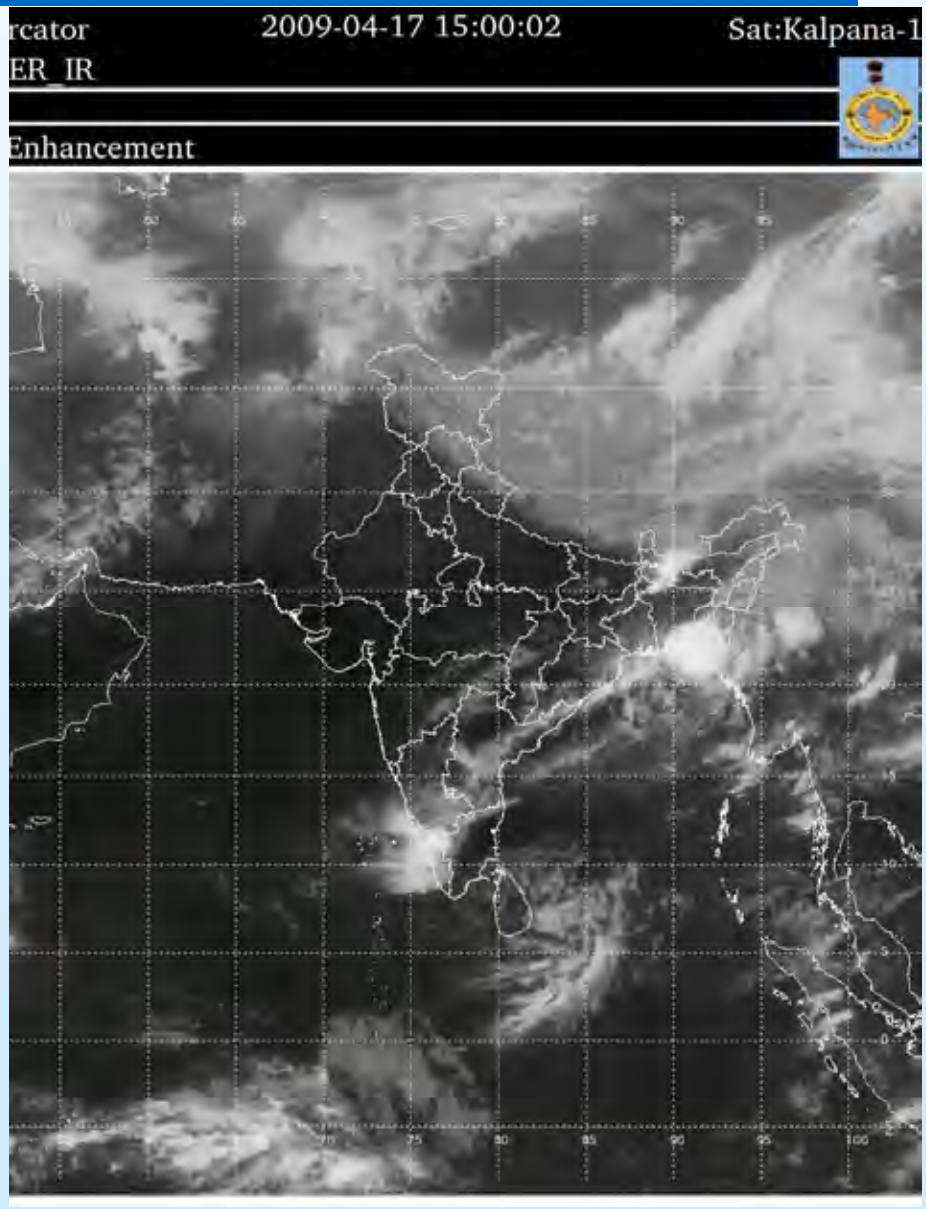


Nargis, 2008

24 April
-2-3 May 2008

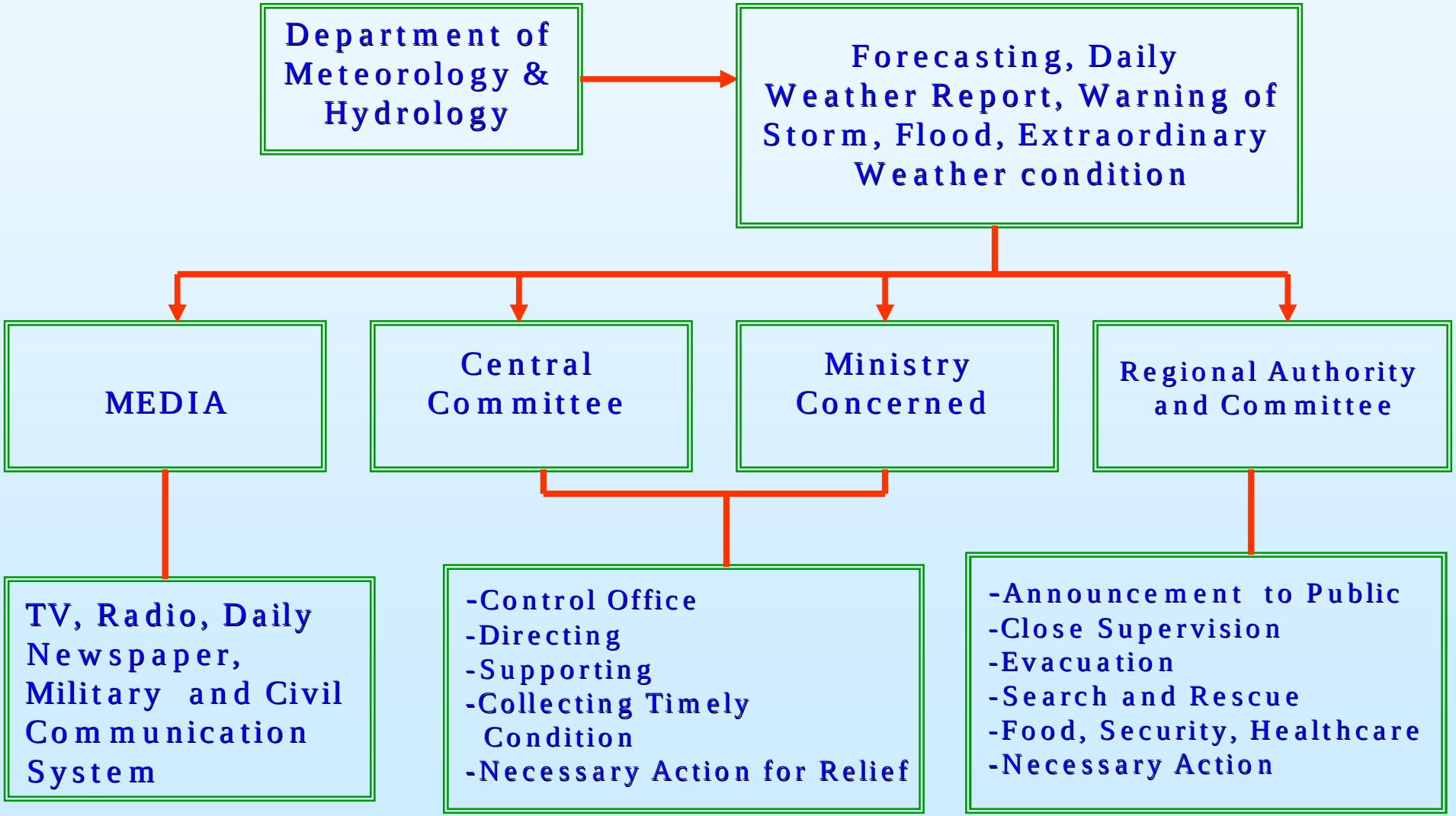
Bijli, 2009 April (14- 18)





2.1 Current Situation

Warning System



Project Proposals to JICA

In 2006 onwards on

-Establishment of End-to-End Multi Hazard Early Warning System in DMH, Myanmar

-Installation of Storm Radar in KyaukPhyu, Myanmar

-Installation of Weather Surveillance Radar in Yangon, Myanmar

In November 2008 on

- **Short-term expert dispatch program in Tropical Storm Forecasting and Warning**

Natural Disaster Management Organizations and Coordination Systems

Current Situation

- The National Natural Disaster Preparedness Central Committee (NDPCC) established since 2005.
- 10 Emergency Disaster Response Sub-committees under the NDPCC.
- Formed State / Division,District,Township,Village level Natural Disaster Preparedness Committees.
- Minister for MSWRR, the secretary of the NDPCC

Natural Disaster Management Organizations and Coordination Systems (Cont :)

Challenges

- Limited experience of handling large scale disaster
- Insufficient awareness about disaster and impacts
- Limited capacity in early warning systems as well as communication
- Limited capacity in rescue, evacuation and emergency transportation

Natural Disaster Management Organizations and Coordination Systems (Cont :)

Efforts and trial being made

- Institutional mechanism
- Disaster Management Framework
- Department specific DM plans
- National policy, guidelines, plans and programmes
- Private sector

Improvement of Natural Disaster Management Capacity in communities and local societies

Current situation

- Community Ownership
- Knowing the risks
- CBDRM is for the long term
- Knowledge and resource sharing
- Training and capacity building
- Mitigation
- Communication

Improvement of Natural Disaster Management Capacity in communities and local societies (cont:)

Challenges

- Before the cyclone nargis - awareness on disaster
- After the cyclone nargis – trauma of the affectedness
- To identify and establish appropriate advocacy strategy
- To allocate sufficient resources
- Possibility of facing untimely disaster before national DRR scheme is fully functioning

Improvement of Natural Disaster Management Capacity in communities and local societies (cont:)

Efforts and trials being made

- Establishing locally appropriate CBDRM
- Going to scale
- Sustaining engagement
- Mainstreaming strategy
- Collaborative mechanism
- Monitoring progress

Climate Change Adaptation in Natural Disaster Management

Organizations concerned

- NDPCC (National Natural Disaster Preparedness Central Committee)
- NCEA (National Committee on Environmental Affairs)
- Department of Meteorology and Hydrology
- Department of Forestry
- UNEP (United Nations Environment Program)
- Mingalar Myanmar

Climate Change Adaptation in Natural Disaster Management (Cont:)

Challenges

- Limited data
- Limited knowledge and technical know-how
- Limited skill and capacity

Climate Change Adaptation in Natural Disaster Management (Cont:)

Current situation and efforts

- Assessment on community coping mechanism regarding climate change
- Assessment on forest and mangrove
- Data collection (GIS mapping)
- Establishment of mechanisms
- Preparation of plan of action

Mangrove Plantation

(*Rhizophora apiculata* Blume. (**Byu-che-dauk Ywet-chua**)

Family: *Rhizophoraceae*

Flowering and fruiting occur in monsoon and post-monsoon seasons. Shedding of propagules (fruits) occur in summer and stranded propagules can be collected in pre-monsoon season. However, repeated cutting may alter the regular flowering and fruiting season. Propagules are 10 to14 inches long, recently fallen or ripe propagules are used for planting. Ripe propagules can easily be harvested from the parent mother tree and can be sown directly. Stick one quarter to one third of length of propagule in a vertical position into the mud, spacing of about 5x5/6x6 feet. Nursery can also be established if a lot of propagules can be collected. This species can grow in estuarine to marine influenced areas, enhanced growth attain in marine influenced areas.Tree height may reach 65 to 85 feet under favorable conditions.

THANK YOU!

The Asian Forum on Disaster Management and Climate Change Adaptation: The Philippines

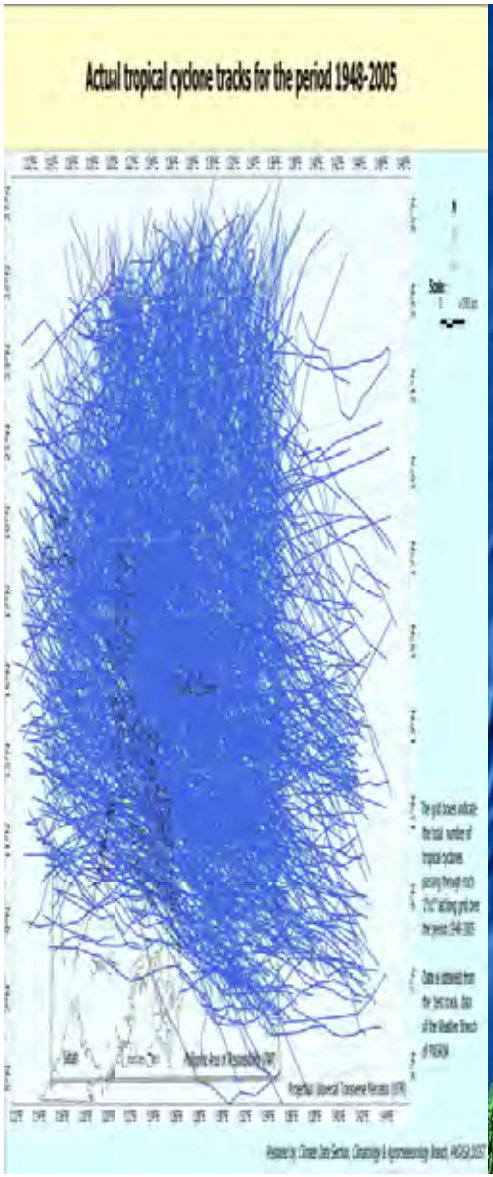
23rd April 2009

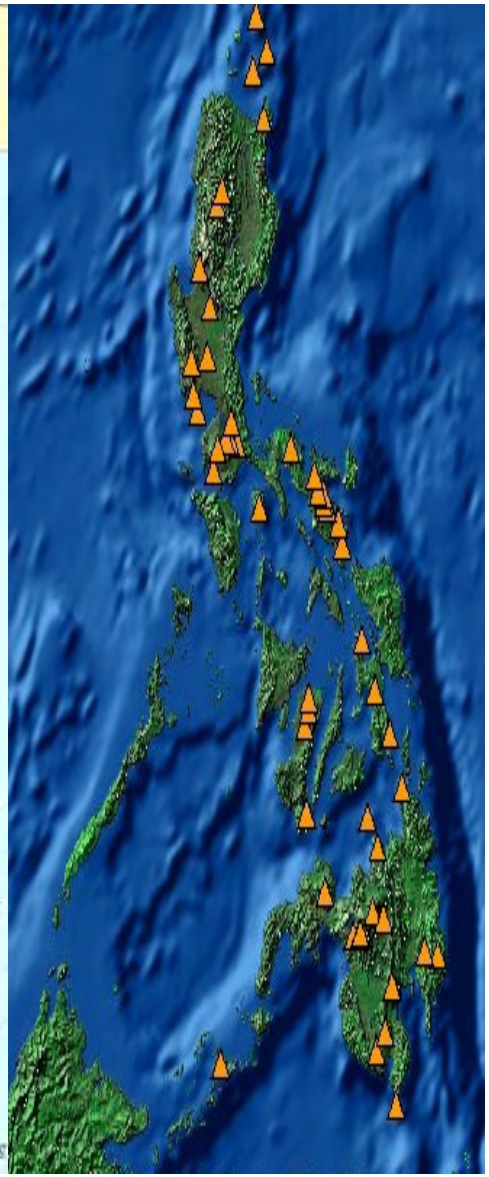
Maria Catalina E. Cabral, DPWH

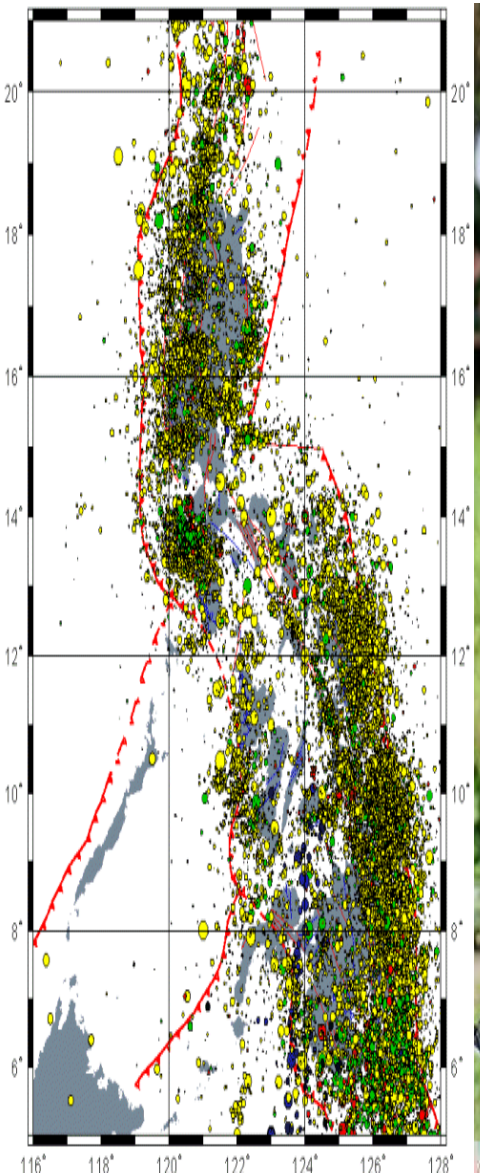
Glenn J. Rabonza, NDCC/OCD

Graciano P. Yumul, Jr., DOST

DISASTERS: Natural and Human-induced





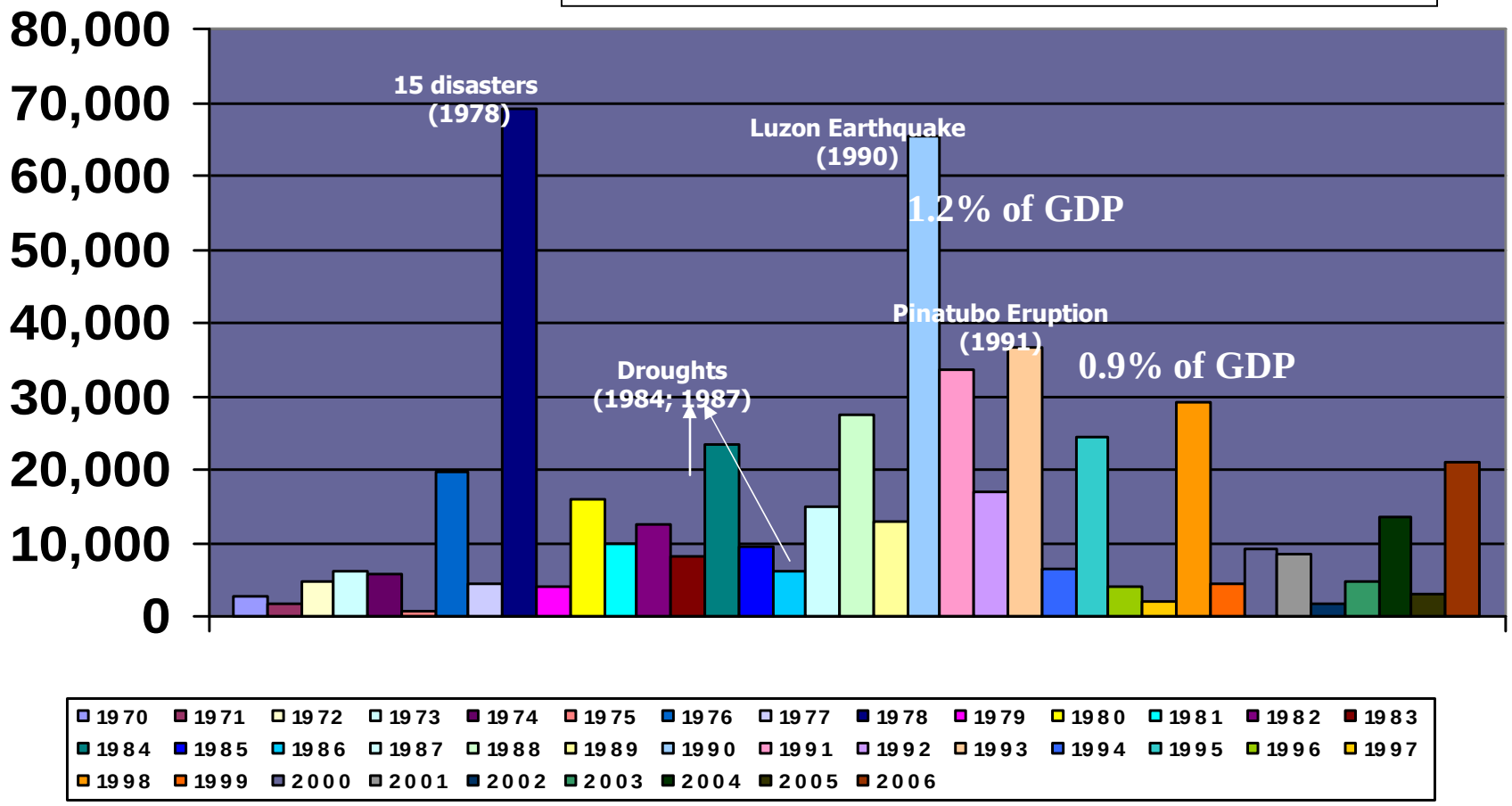


Estimated Cost of Damage Due to Disasters

(In M P @ 2000 Prices)

On the average, annual direct damage is P15 B

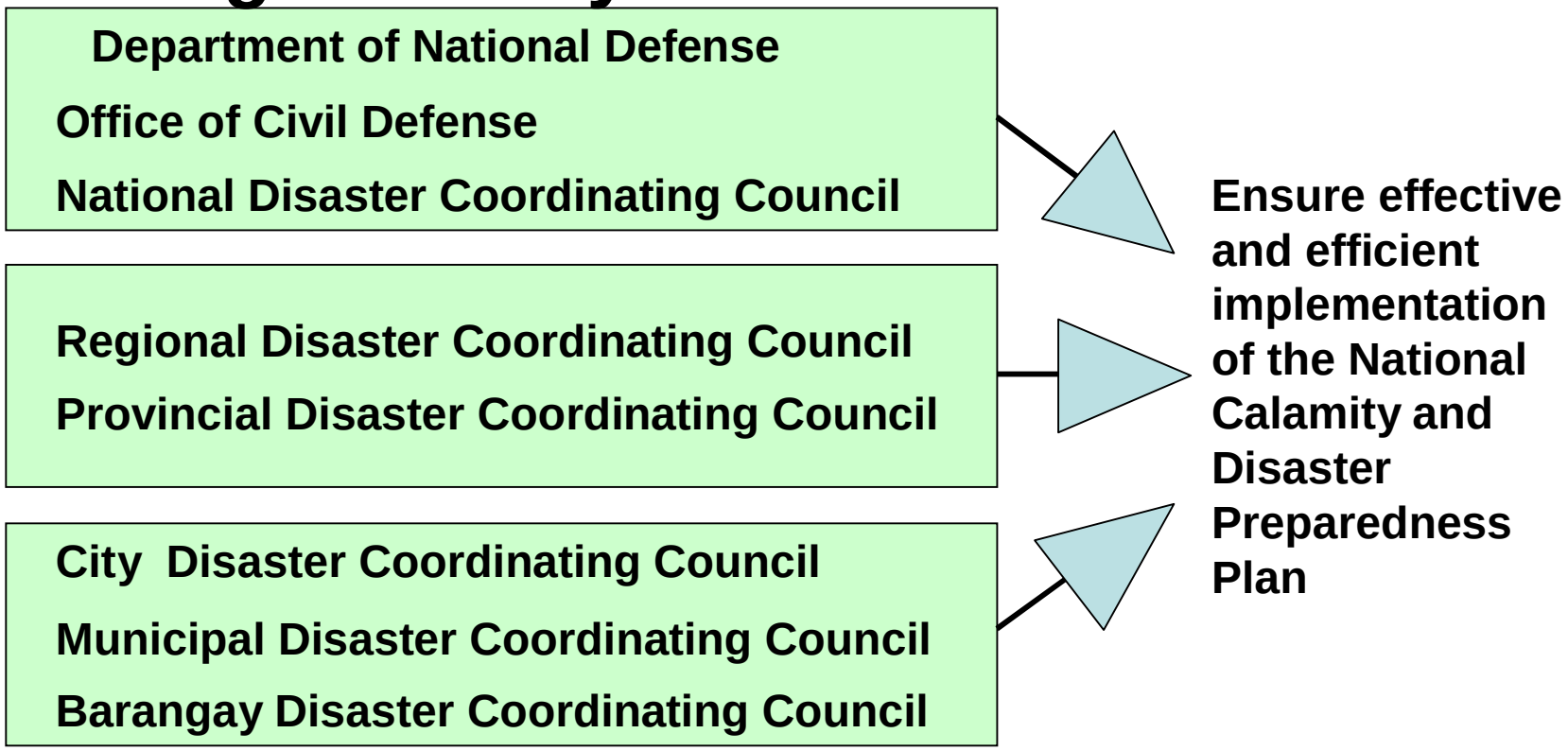
For typhoons, average of 0.5% of GDP every year



Source: WB-NDCC

Natural DM Organization and Coordination System: Current Situation

Philippine Disaster Management System



Milestones and Trends in DM

War Emergency Mode Civil Defense

'70's – '80's

Disaster Preparedness
Disaster Response

- Typhoon "Yoling"
- Birth of OCD
- AEGDM
- PD 1566

'90's – 2003

Disaster Management

- 1990 EQ
- Pinatubo Eruption
- RA 7160
- IDNDR
- 1997 Nat'l. DM Trng. Framework
- 1998 GAA
- EO 137 dtd Aug. 10, 1999
- ACDM / ARPDM
- ISDR

2004 – Present

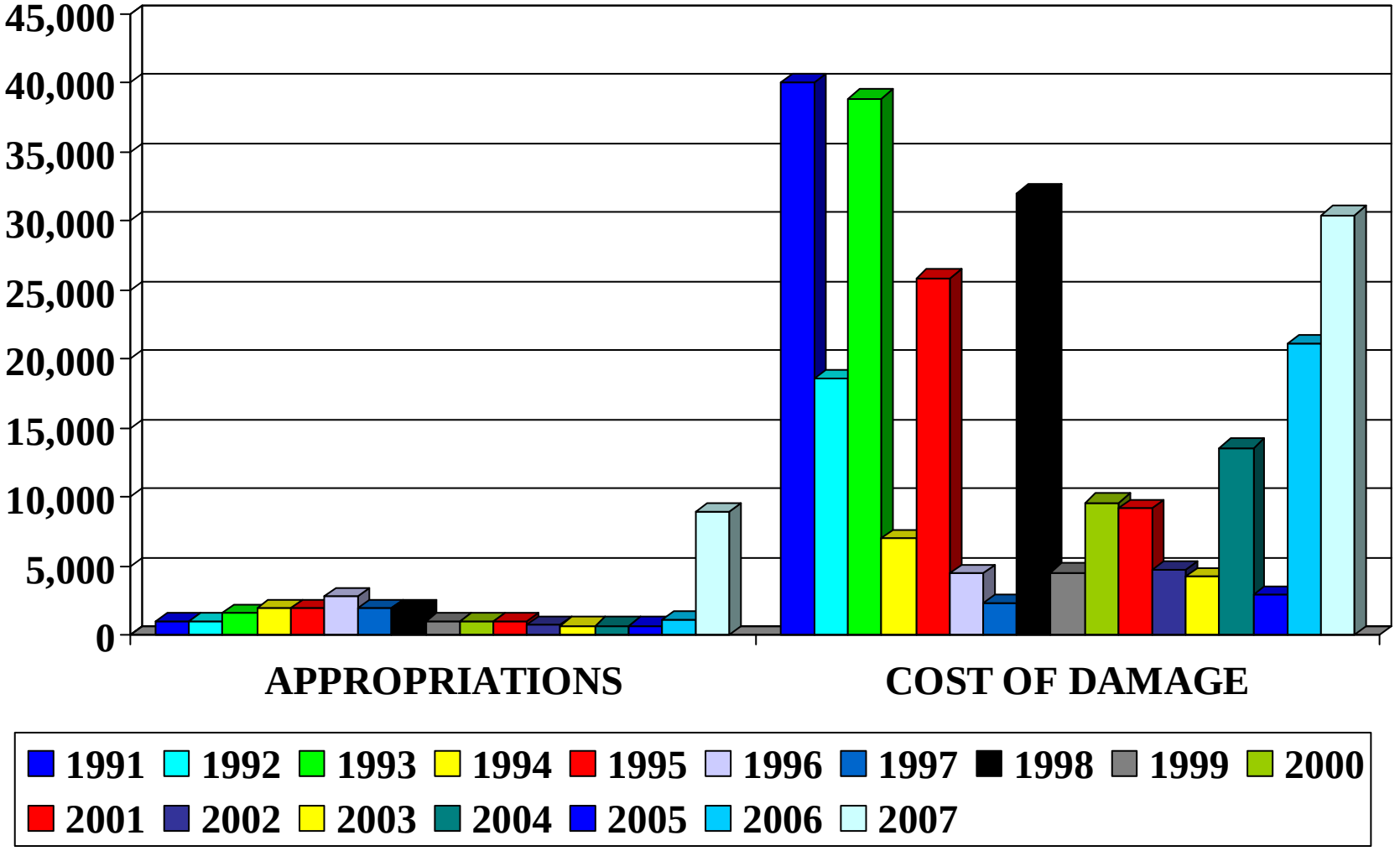
Disaster Risk Management

- REINA / Guinsaugn Landslides
- 'Milenyo, Paeng, Reming, Seniang'
- Guimaras Oil Spill
- 'Cosme'
- 'Frank'
- MV Princess of the Stars Tragedy
- Indian Ocean EQ & Tsunami
- Hurricane 'Katrina'
- Cyclone 'Nargis'
- Sichuan EQ
- DRR Initiatives
  - AADMER
  - HFA
  - 'READY' Project

Challenges

- DRR not mainstreamed in the Medium Term Philippine Development Plan
- Gender issue
- Education-embedded DRR programs nil
- DRR database not well established and disseminated
- Cascading information still poor

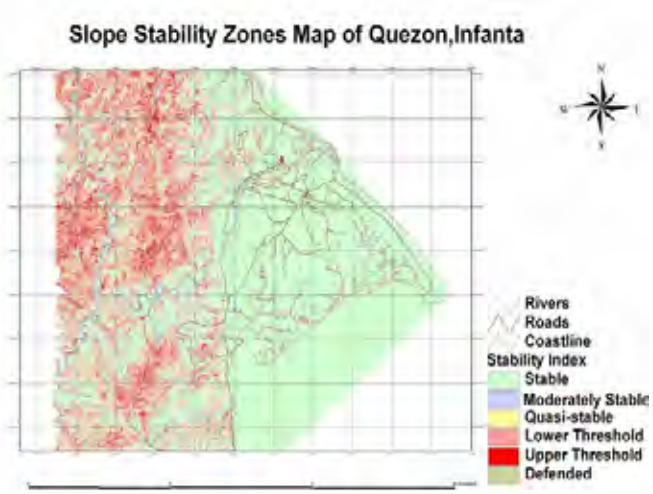
Challenges: Fund appropriations vs direct damage cost (1991-2007)*



*January to June 2007. Appropriations include 8 billion CARE fund

Efforts and trials made

- Community-based EWS
- Hazard mapping done; vulnerability & risk mapping started
- Enhanced capacity through training
- Series of dialogues & consultations done
- DRR contingency plans prepared



NDCCweb

Improvement of Natural Disaster Management Capacity in Communities: Current Situations

- **Prevention, mitigation and preparedness (PMP) framework**
- **Tied to the HFA**
- **Action agenda identified: *Policy; IEC; Media and communication; institutional arrangements & networking; Human capital; Resource mobilization; R&D***

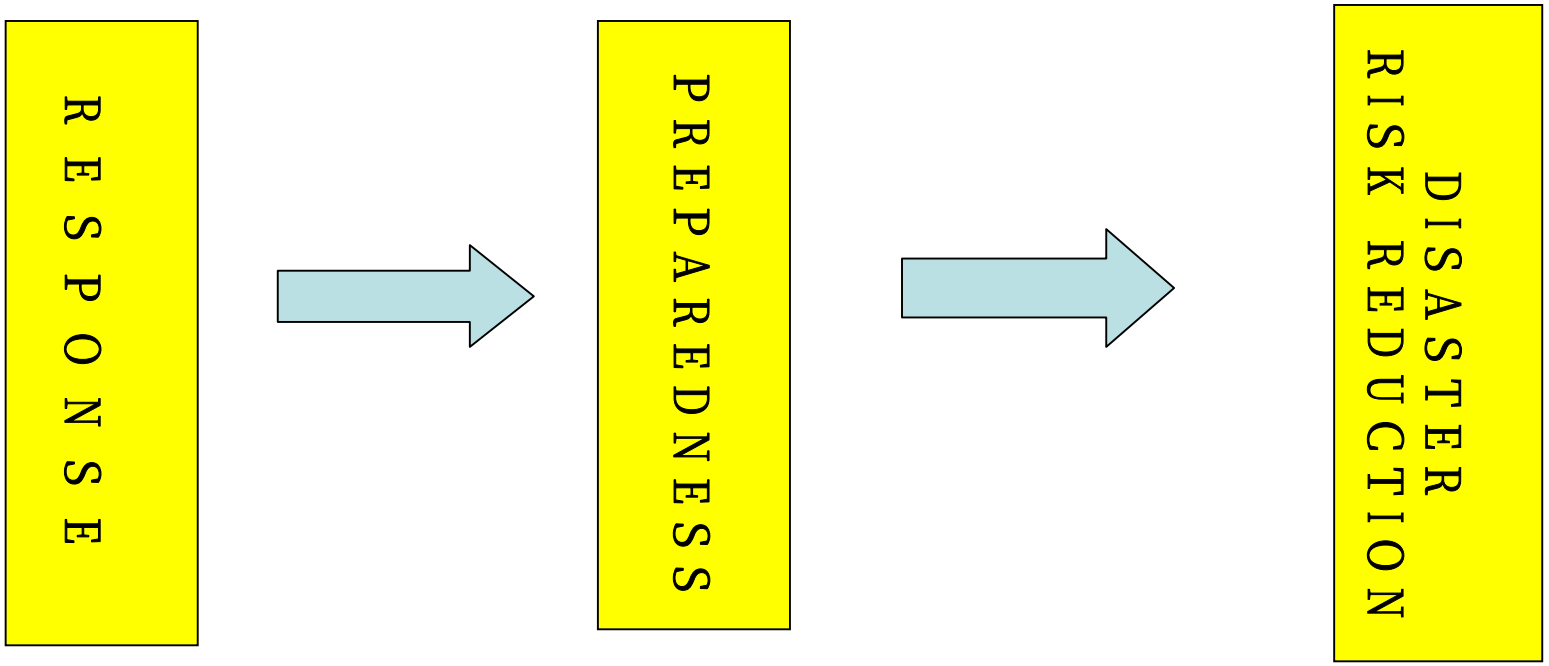
Evolutionary path

International Decade for
Natural Disaster Reduction (IDNDR)1990 -1999

Yokohama Strategy and Plan of Action for a Safer World (1994)

International Strategy for
Disaster Reduction (ISDR)

Hyogo Framework for Action (2005)



Intensify Public Information Campaign on Disaster Preparedness

- Conduct of Nationwide Synchronized Building Emergency Evacuation Plan (B.E.E.P.) Drills, Tsunami Drills, and Earthquake Drills

- Airing of "Safe Ka Ba?" Disaster Management School-on-Air

- Production and distribution of posters and flyers on related hazards

Enhance capabilities for LCEs and their DCCs in identified vulnerable areas

- Orient LCES on Disaster Risk Management and the Use of Local Calamity Fund
- Conduct of Contingency Planning Workshops
- Train local responders on MFR, CSSR, and WASAR

Strengthen Mechanisms for Government and Private Sector Partnership

PRIVATE SECTOR DISASTER MANAGEMENT NETWORK (PSDMN)

GAWAD KALINGA (GK)

Climate Change Adaptation in Natural Disaster Management: Organizations concerned

- National Disaster Coordinating Council
- Philippine Task Force on Climate Change, Office of the President
- NGOs, POs, CSOs
- Private Sectors
- Donor Community
- Church

Three Options

- **Protection/Defense/ Hard measures**
- **Retreat/Offense/Soft measures**
- **Accommodate/Accept/ Best effort**

Challenges and enabling environment

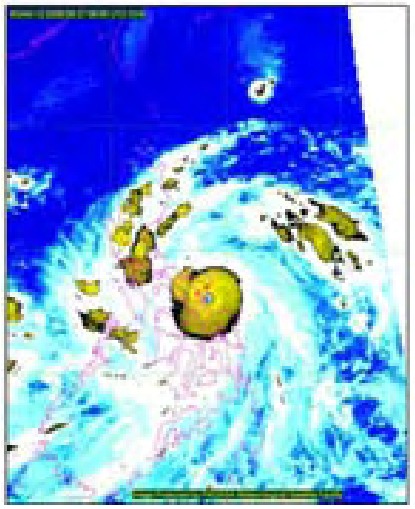
- Policy and governance
- Data gathering, database & discussion platforms
- Human capital development & institutional linkages
- Financial resources & technology needs
- On the ground implementation

starbulletin.com

www.msnbc.msn.com

Resources for ASEAN & neighboring countries

- **Frontline warning station**
  - **Tsunami: Trenches**
  - **Cyclones: Surrounding seas**
  - **Volcanic eruptions: Upper air**
- **Our experiences at the community level**
- **Collaboration with our DRR agencies**
- **Data and information sharing**



Challenges and possible directions

- **WHERE DO WE WANT TO GO? (State of becoming)**
  - **Enhanced DRR capacity: *proactive, appropriate, flexible, quick, sustainable***
  - **Complementary and mutually reinforcing**

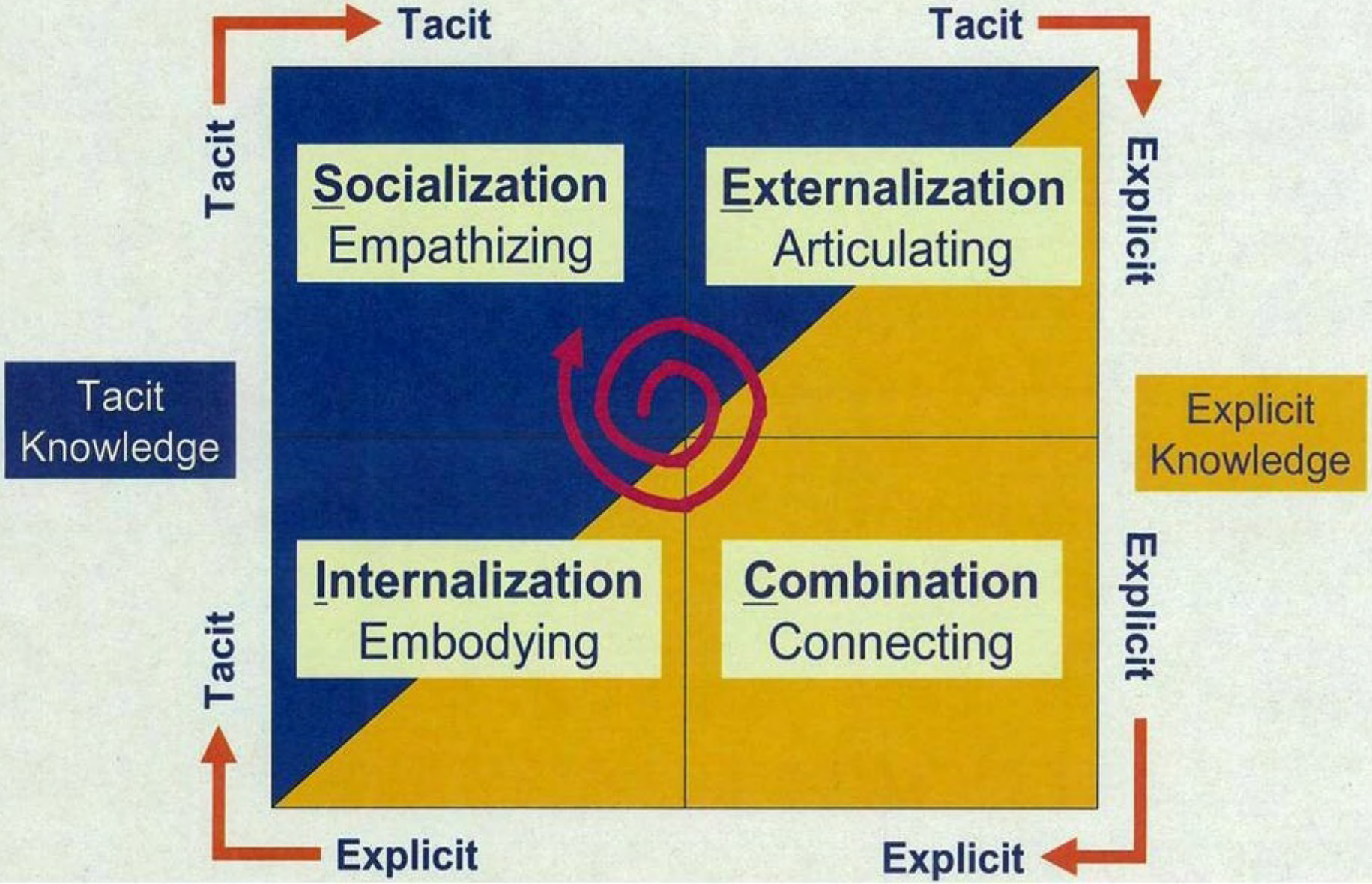
- **WHERE ARE WE NOW? (State of being)**
  - **More challenges than opportunities**
  - **Same destination, different routes**

- **HOW DO WE PROCEED?**
  - **Enhance adaptive capacity: *technology, information and awareness, human resource, infrstructure, governance and institutional support***

Challenges and possible directions

- **WHAT DO WE CONSIDER?**
  - **Regional versus national**
  - **Community versus individual**
  - **Thematic versus sector-based**
  - **Vulnerability versus resilience**
  - **Risk attitude versus risk perception**
  - **Institutional amnesia versus individual inertia**

SECI:The Knowledge Conversion Process



Conclusions

- **With DRR realities, priorities must be determined, and resources directed;**
- **Planning must be transparent, participatory; doable and sustainable plans with accountability in place;**
- **DRR must involve both the community & individual. Localized vulnerability must be known**

Conclusions

- **One size fits all training programs will not work: National Government, LGU, Community;**
- **Complement and enhance existing programs (e.g. APAST; ACCI; ADRR)**
- **Regional approach but localized implementation: Capacity, commitment and ownership issues;**
- **Disaster risks are just the symptoms and reduction the strategy; address the problem.**

Thank you