

# COUNTRY PRESENTATION

Asian Disaster Reduction Center (ADRC, Japan)  
Visiting Researcher 2009

## The Philippine Disaster Management System

by:

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# Scope of Presentation



**Part 1 - General Information on the Philippines**

**Part 2 - RP Disaster Profile**

**Part 3 - The Philippine Disaster Management System: An Overview**



# Introduction



The Philippines is an archipelagic nation located in Southeast Asia, comprising 7,107 islands, spanning 1,840 kms from north to south.

- Total land area - 300,000 sq. kms.
- Coastlines - 36,000 kilometers, the longest coastlines in the world
- Bounded by three large bodies of water:
  - on the west and north - by the South China Sea
  - on the east - by the Pacific Ocean
  - on the south - by the Celebes Sea and the coastal waters of Borneo





# Topography

Large mountainous terrain, narrow coastal plains and interior valleys and plains make up the country's topography.



- **Three major island groups:**
  - Luzon** - largest island group with 141,000 sq. kms.
  - Mindanao** - second with 102,000 sq. kms.
  - Visayas** - third with 57,000 sq. kms.
- **Luzon** is the most mountainous with extensive valleys and plains running through its interiors
- Three major mountain ranges in the area: the Sierra Madre, the Central Cordillera and the Caraballo Mountains
- The southern portion of the island has a dominantly volcanic topography with ridges and valleys of gentle slope and generally accordant drainage
- Active volcanoes such as Mt Pinatubo, Mayon Volcano and Mt Bulusan are found in this group of islands



# Topography

- **Visayas** Island - located in the central Philippines, has a severe dissection of topography due to its exposure to typhoons from Pacific and torrential rains
- characterized by mountains and hills (where peaks reach 900m), river basins, floodplains, plateaus and valleys
- **Mindanao** - has diverse structural elements and different forms of physiographic development including fault block mountains, volcanic peaks, uplifted plateaus, low flat basins, a notable fault zone which also cuts through Luzon and Visayas, fissure low masses, and incised valleys and canyons.
- Major mountain ranges: the Eastern or Pacific Cordillera, the Bukidnon-Davao Range





# Climate

- Tropical marine climate (has high temperature and warm air currents flow over its land masses)
- Dominated by two major seasons: wet and dry seasons
- The summer (southwest) monsoon brings heavy rains to most of the archipelago from June to November
- The winter (northeast) monsoon brings cooler and drier air from December to May
- Mean annual temperature is  $26.6^{\circ}\text{C}$
- $28.3^{\circ}\text{C}$  during summer months



# Climate

- 25.5°C during rainy months
- Rainfall is the most important climatic element in the Philippines.
- Rainfall distribution throughout the country varies from one region to another, depending upon the direction of the moisture-bearing winds and the location of the mountain systems.
- Mean annual rainfall varies from 965 to 4,064 millimeters annually





# Mabuhay!

Population - **88.57 million** as of August 2007

**Filipino** – official language

90% of the population are Christians

80% are Roman Catholics

The Philippines is a newly industrialized country, with an economy anchored on **agriculture** but with substantial contributions from **manufacturing**, **mining**, **remittances from overseas Filipinos**, and **service industries such as tourism**, and **business process outsourcing**.



Philippines







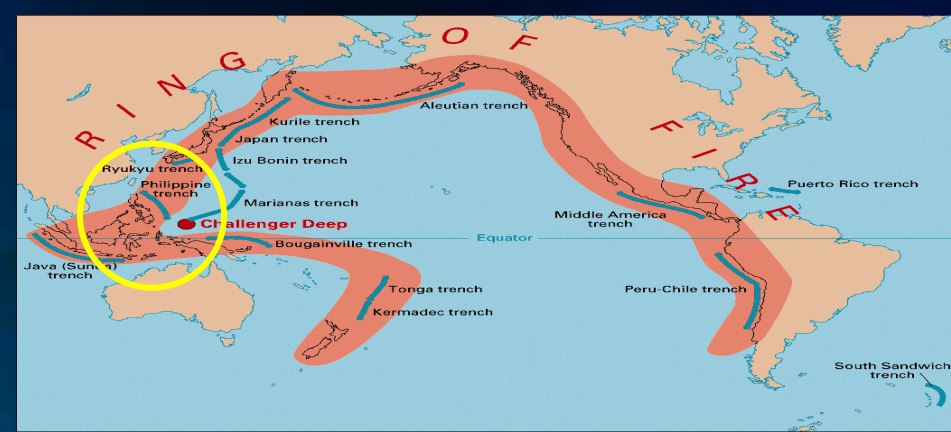
# RP DISASTER PROFILE

THE ECONOMIC  
DEVELOPMENT  
OF A COUNTRY  
DEPENDS UPON  
THE KIND OF  
ENVIRONMENT

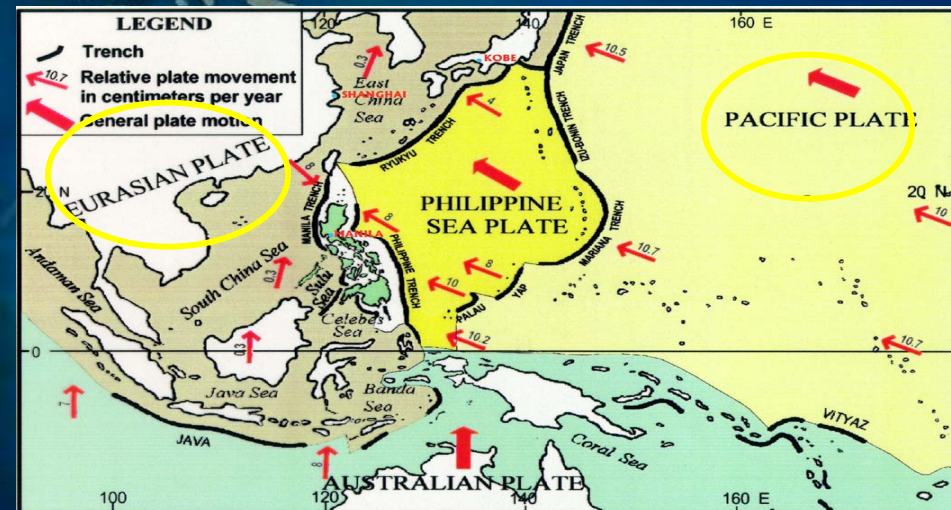
ON CNN

QUERIDO  
STORE

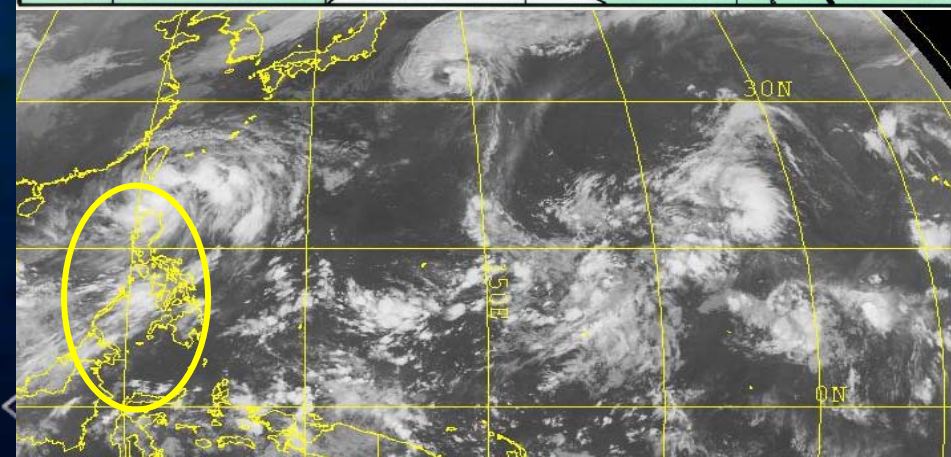




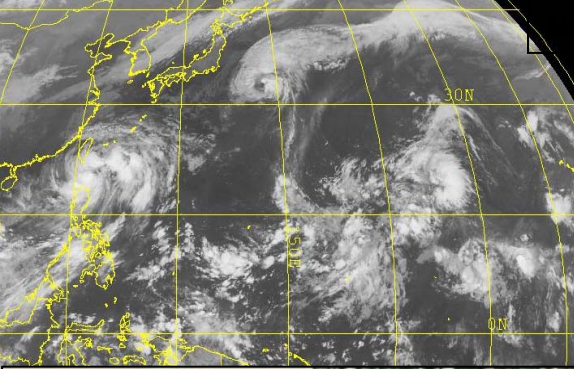
- situated along two major tectonic plates of the world – the **EURASIAN** and **PACIFIC** Plates



- 300 volcanoes, 22 as active
- average of 20 quakes per day
- average of 20 typhoons a year, five (5) of these are destructive
- 36,289 kms. of coastline vulnerable to tsunami



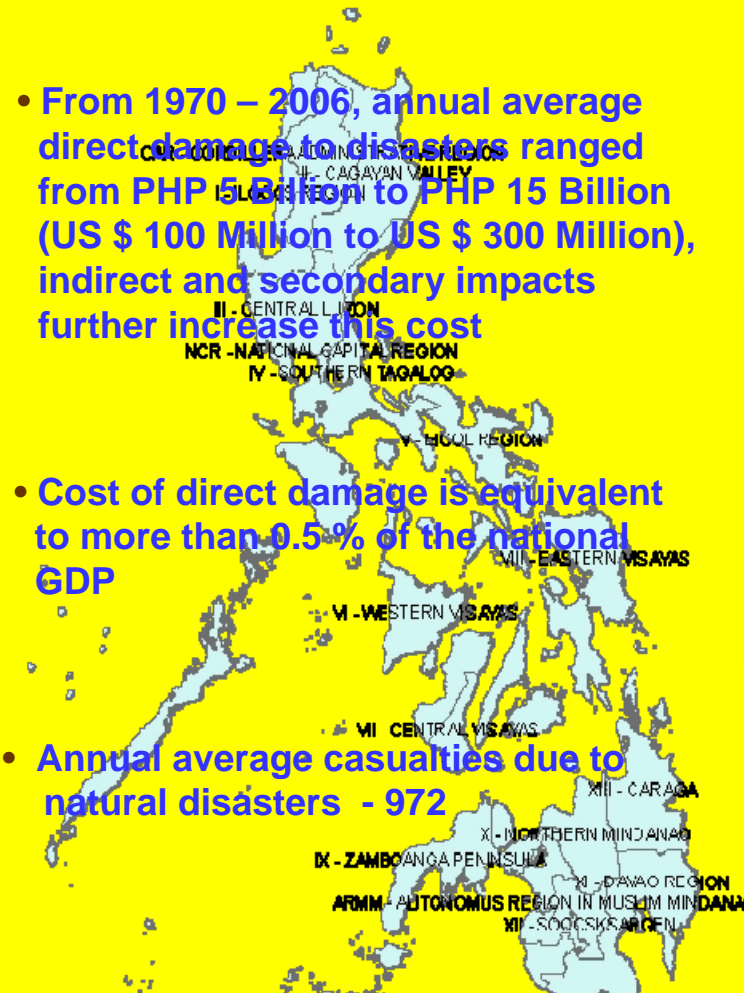




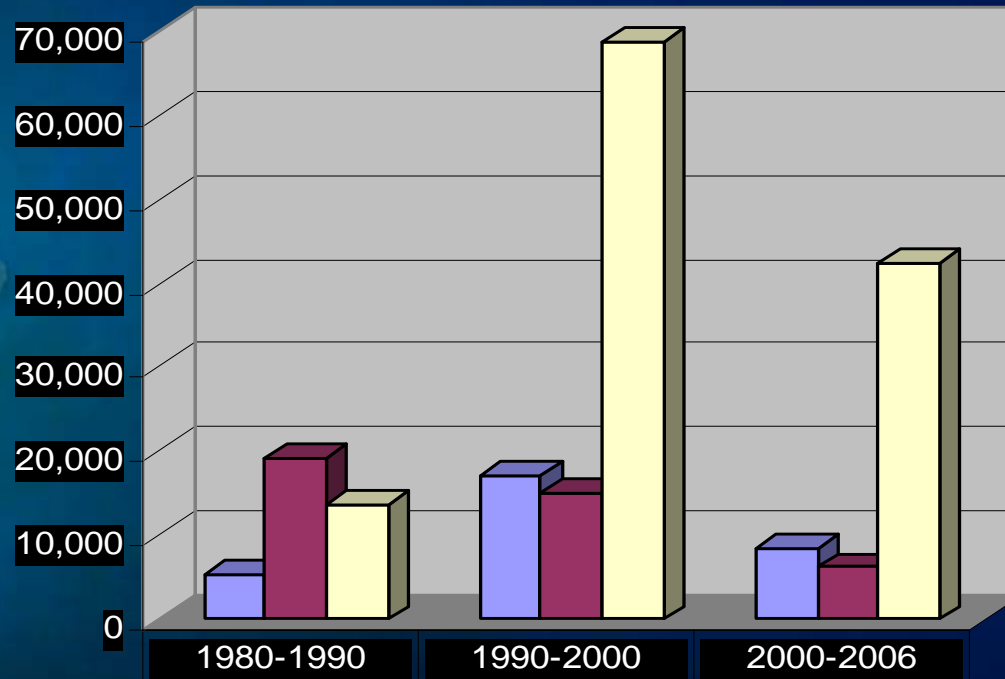
- From 1970 – 2006, annual average direct damage to disasters ranged from PHP 5 Billion to PHP 15 Billion (US \$ 100 Million to US \$ 300 Million), indirect and secondary impacts further increase this cost

- Cost of direct damage is equivalent to more than 0.5 % of the national GDP

- Annual average casualties due to natural disasters - 972



# RP's No. of deaths, injuries and affected persons, 1980-2006



■ Deaths	5,220	17,249	8,555
■ Injured	19,315	15,166	6,201
■ Affected ('000 persons)	13,713	68,911	42,543

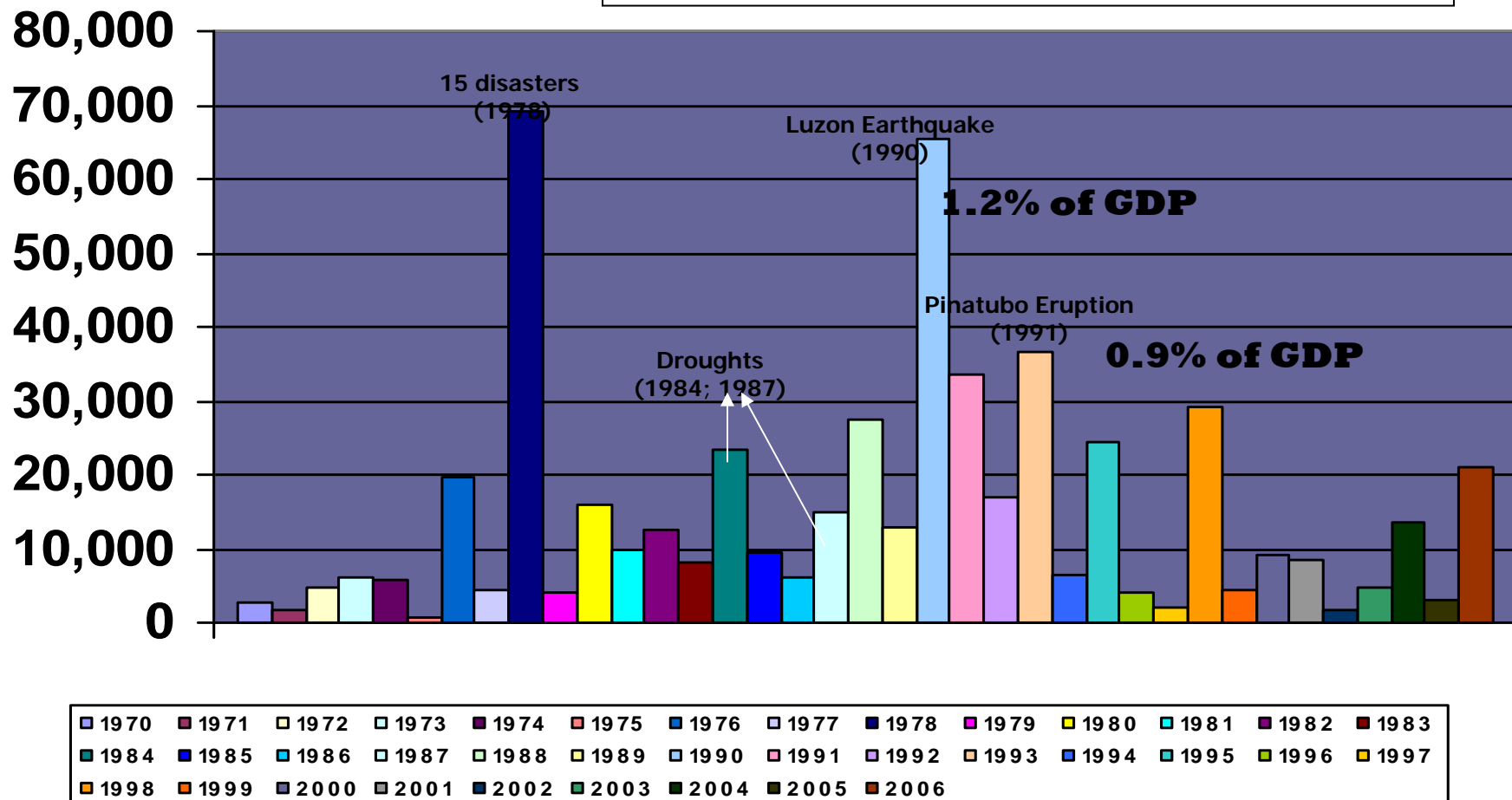




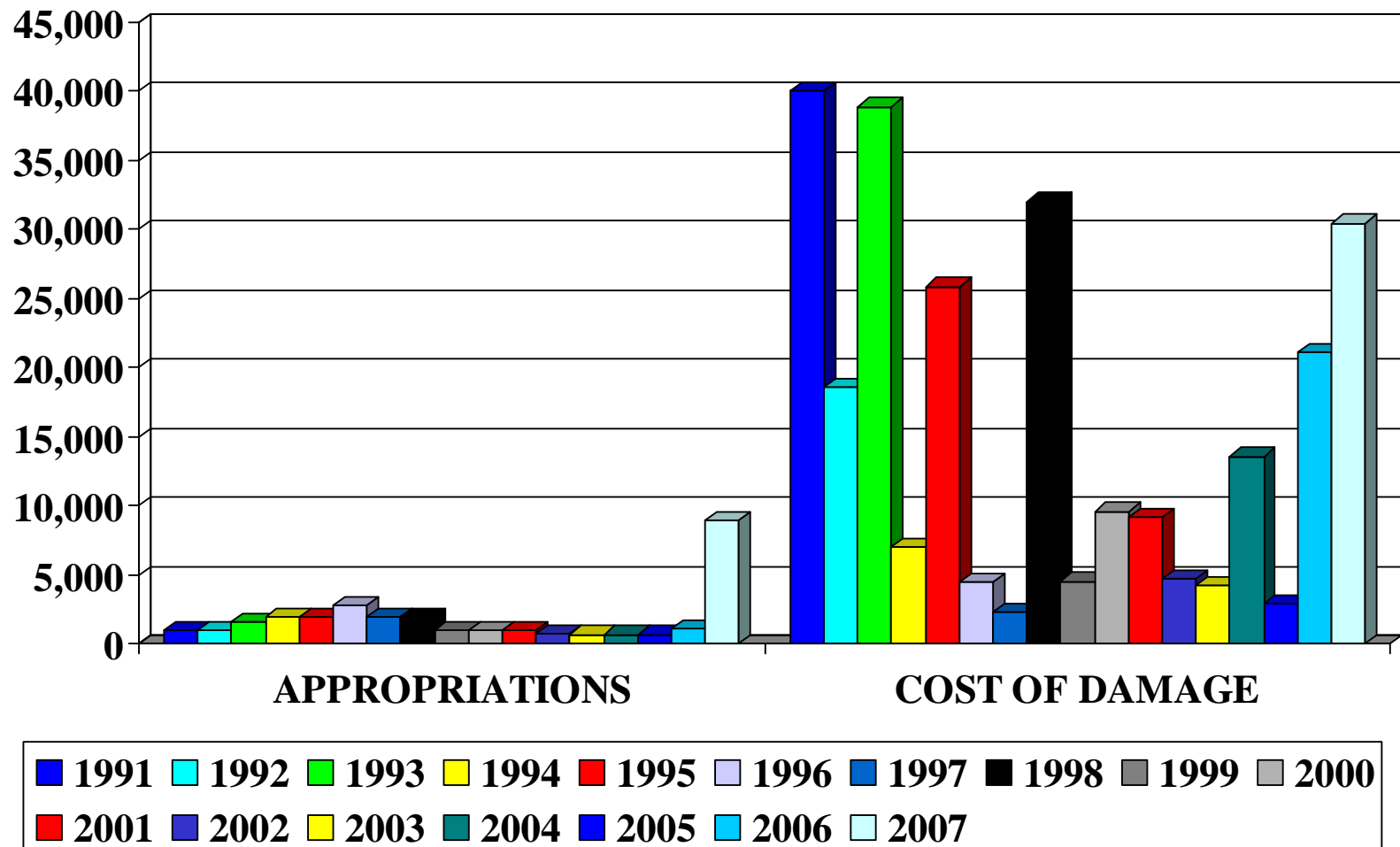
# Estimated Damage of Disasters in RP (In M P @ 2000 Prices)

On the average, annual **direct damage** is P15 B

For typhoons, average of 0.5% of GDP every year



# CALAMITY FUND APPROPRIATIONS VS. COST OF DIRECT DAMAGE (1991-2007)\*



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





# The Philippine Disaster Management System



# LEGAL AUTHORITY

## PD 1566

- ***JUNE 11, 1978***
- **Strengthening the Philippine Disaster Control Capability and Establishing the National Program on Community Disaster Preparedness**





# PD 1566, Sec. 1 Declaration of Principles



☐ RESPONSIBILITY FOR LEADERSHIP RESTS ON THE PROVINCIAL GOVERNOR, CITY MAYORS, AND MUNICIPAL MAYORS, (AND BARANGAY CHAIRMAN), EACH ACCORDING TO HIS AREA OF RESPONSIBILITY.





## PD 1566, Sec. 1 Declaration of Principles



- ❑ EACH POLITICAL AND ADMINISTRATIVE SUBDIVISION OF THE COUNTRY SHALL UTILIZE ALL AVAILABLE RESOURCES IN THE AREA BEFORE ASKING FOR ASSISTANCE FROM NEIGHBORING ENTITIES OR HIGHER AUTHORITY





PD 1566, Sec. 1  
Declaration of Principles



❑ THE PRIMARY RESPONSIBILITY RESTS ON THE GOVERNMENT AGENCIES IN THE AFFECTED AREAS IN COORDINATION WITH THE PEOPLE THEMSELVES.





## PD 1566, Sec. 1 Declaration of Principles



- ❑ SELF RELIANCE SHALL BE DEVELOPED BY PROMOTING AND ENCOURAGING THE SPIRIT OF SELF HELP AND MUTUAL ASSISTANCE AMONG THE LOCAL OFFICIALS AND THEIR CONSTITUENTS.





PD 1566, Sec. 1  
Declaration of Principles



- ❑ THE NATIONAL GOVERNMENT EXISTS TO SUPPORT THE LOCAL GOVERNMENTS IN TIMES OF EMERGENCIES AND ACCORDING TO THEIR LEVEL OF ASSIGNMENT, ALL NATIONAL GOVERNMENT OFFICES IN THE FIELD SHALL SUPPORT THE OPERATIONS OF THE LOCAL GOVERNMENT.





❑ IT IS RESPONSIBILITY OF ALL GOVERNMENT DEPARTMENTS, BUREAUS, AGENCIES AND INSTRUMENTALITIES TO HAVE DOCUMENTED PLANS OF THEIR EMERGENCY FUNCTIONS AND ACTIVITIES.





# **DCC ORGANIZATIONAL NETWORK**

**NATIONAL DISASTER COORDINATING COUNCIL**

**17 REGIONAL DISASTER COORDINATING COUNCILS**

**81 PROVINCIAL DISASTER COORDINATING COUNCILS**

**113 CITY DISASTER COORDINATING COUNCILS**

**1,496 MUNICIPAL DISASTER COORDINATING COUNCILS**

**41,956 BARANGAY DISASTER COORDINATING COUNCILS**



# The National Disaster Coordinating Council



- HIGHEST POLICY MAKING, COORDINATING AND SUPERVISING BODY AT THE NATIONAL LEVEL FOR DISASTER MANAGEMENT IN THE COUNTRY
- ADVISES THE PRESIDENT ON THE STATUS OF NATIONAL DISASTER PREPAREDNESS AND MANAGEMENT PLAN
- RECOMMENDS TO THE PRESIDENT THE DECLARATION OF STATE OF CALAMITY AND RELEASE OF NATIONAL CALAMITY FUND AS NEEDED





## Secretary, National Defense - Chairman

Secretary, Interior & Local Gov't- Member  
Secretary, Public Works- Member  
Secretary, Transportation & Communication - Member  
Secretary, Social Welfare & Development - Member  
Secretary, Agriculture - Member  
Secretary, Education - Member  
Secretary, Finance - Member  
Secretary, Labor & Employment - Member  
Secretary, Trade & Industry - Member  
Secretary, Health - Member  
Secretary, Science & Technology - Member  
Secretary, Budget - Member  
Secretary, Justice - Member  
Secretary, Natural Resources – Member  
Secretary, Foreign Affairs - Member  
Director, Phil. Information Agency - Member  
Sec-Gen, Phil National Red Cross - Member  
Chief of Staff, AFP - Member

**Administrator, Office of Civil Defense –  
Member & Executive Officer**

NDCC MEMBERS



# TYPICAL ORGANIZATION OF DISASTER COORDINATING COUNCIL

**DISASTER COORDINATING  
COUNCIL**  
**CHAIRMAN**

**DCC**  
**ASST. CHAIRMAN**

**DISASTER OPERATIONS  
CENTER**

**STAFF ELEMENTS**

**INTELLIGENCE  
AND DISASTER  
ANALYSIS**

**PLANS AND  
OPERATIONS**

**RESOURCES**

**TASK UNITS**

**COMMO &  
WARNING**

**TRANSPOR  
TATION**

**EVAC  
UATION**

**RESCUE  
& ENG'G**

**HEALTH**

**FIRE**

**POLICE**

**RELIEF**

**REHABI  
LITATION**

**PUBLIC  
INFO**









... the nerve center for alert and monitoring,  
resource mobilization, response coordination  
and information management



Operates on a 24/7 basis

Manned by OCD personnel  
round-the-clock, with  
complementation from selected  
NDCC member-agencies such as  
DSWD, DOH, AFP, DPWH,  
PNRC during emergency  
situations







## Core Functions

- Alert and Monitoring
- Multi-agency Operational Coordination
- Response Resource Mobilization
- Information Management, and
- Program Coordination for Operations Capability Upgrade



# OFFICE OF CIVIL DEFENSE



- One of the five (5) bureaus of DND (PD No. 1 as implemented by LOI No. 19, s-1972, and DND Order Nos. 737 and 737-A, s-1973)
- Officially established on July 1, 1973
- The operating arm and secretariat of the National Disaster Coordinating Council per PD 1566 issued on June 11, 1978
- It has the primary task of coordinating the activities and functions of various government agencies and instrumentalities, private institutions and civic organizations for the protection and preservation of life and property during emergencies...



# VISION

- A service – oriented organization
- A prepared population
- A safe nation

# MISSION

To administer a comprehensive national civil defense and civil assistance program by providing leadership in the continuous development of measures to reduce risk to communities and manage the consequence of disasters



# 17 OCD REGIONAL CENTERS

CAR

REGION I

REGION III

REGION IV-A

REGION IV-B

REGION VI

REGION VII

REGION IX

REGION XII

RC2  
Tuguegarao City

RC1  
La Union  
RCCAR  
Baguio City

RC3  
San Fernando City  
NCR  
Quezon City

RC4  
Batangas City

RC5  
Legaspi City

RC8  
Tacloban City

RC6  
Iloilo City

RC7  
Cebu City

RCCARAGA  
Butuan City

RC10  
Cagayan de Oro City

RC9  
Zamboanga City  
RCARMM  
Maguindanao

RC11  
Davao City  
RC12  
Cotabato City

REGION II

NCR

REGION V

REGION VIII

REGION X

CARAGA

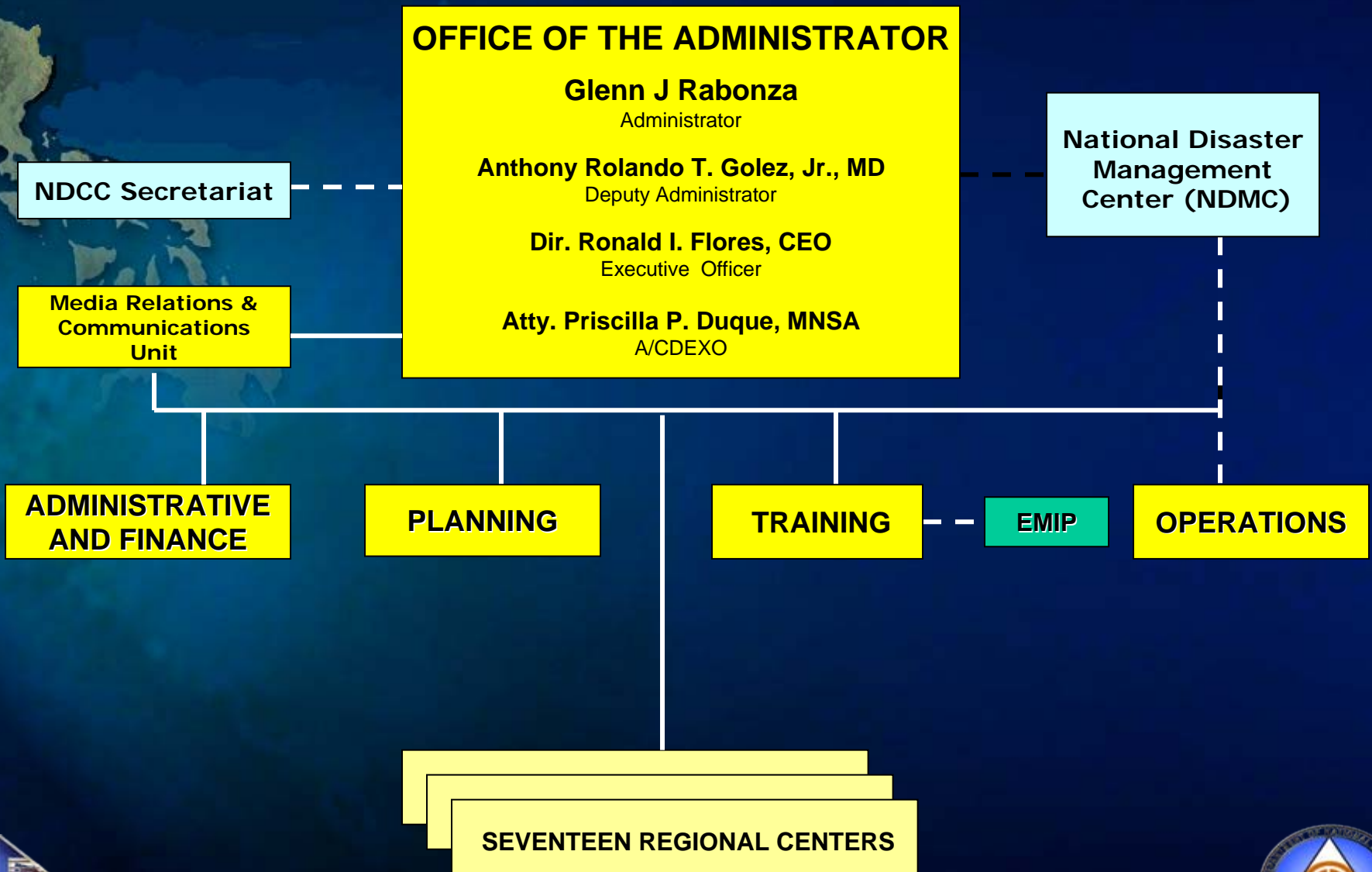
ARMM

REGION XI





# OCD Organizational Structure



Civil Defense  
War Emergency  
Mode

## Milestones and Trends in DM

'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 / ARPD
- ISDR

2004 – Present

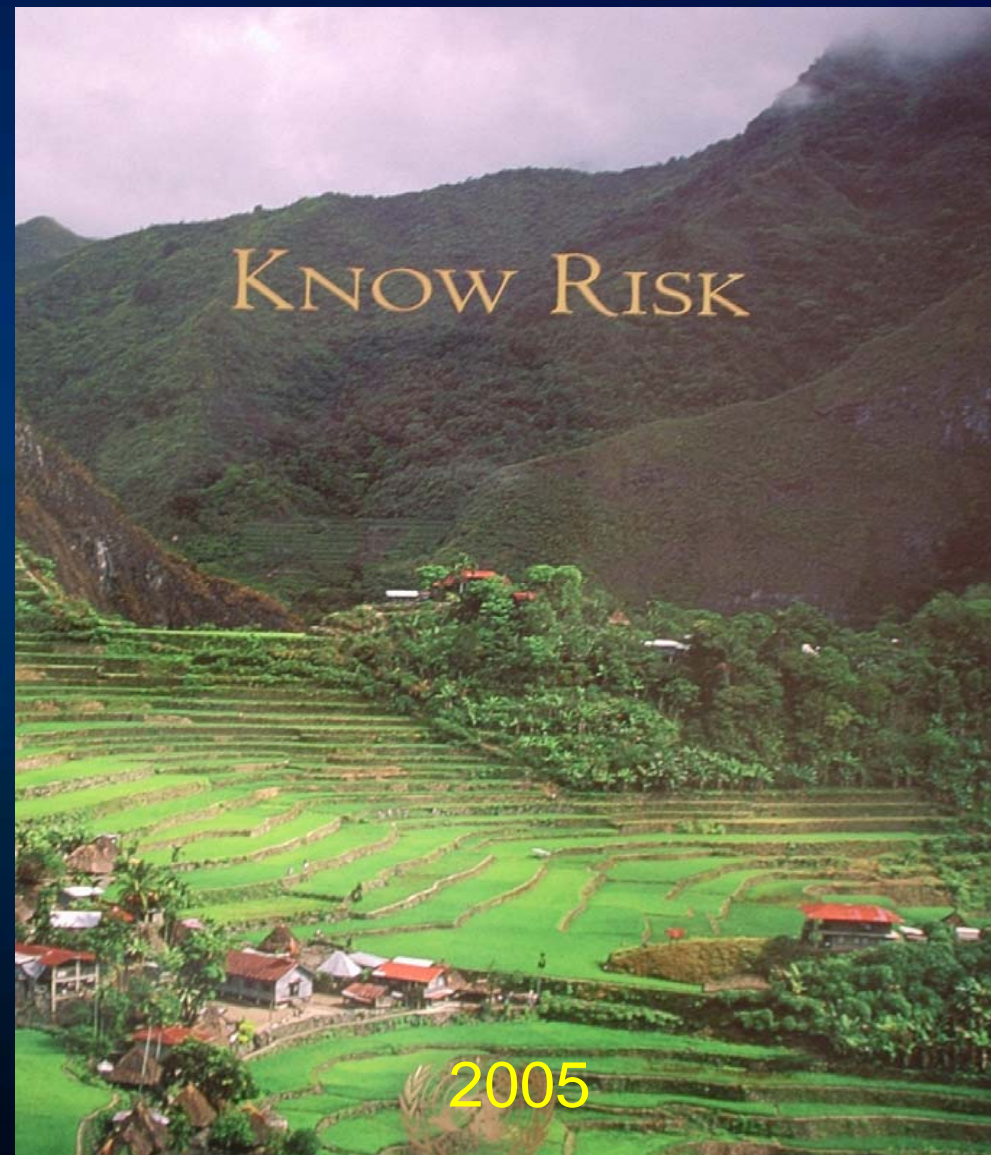
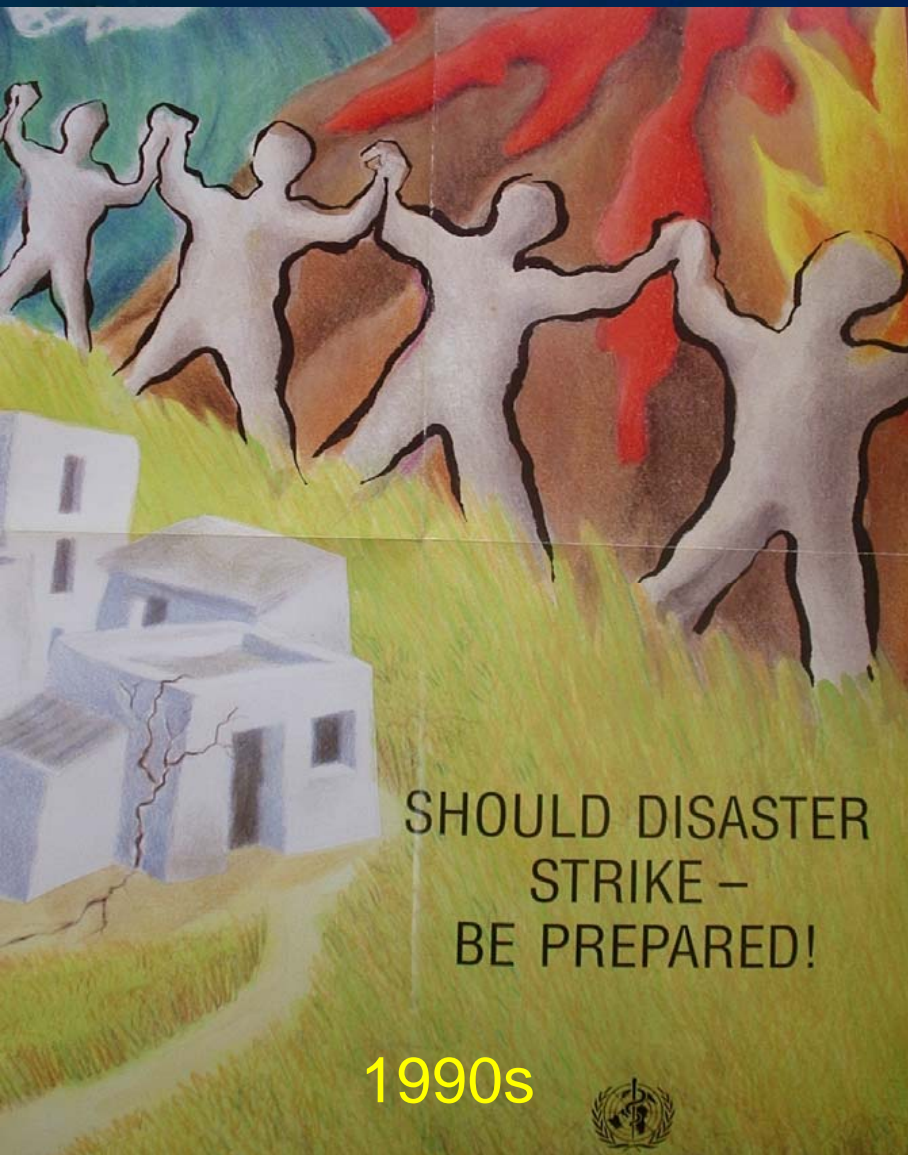
Disaster Risk  
Management

- REINA / Guinsaugon 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

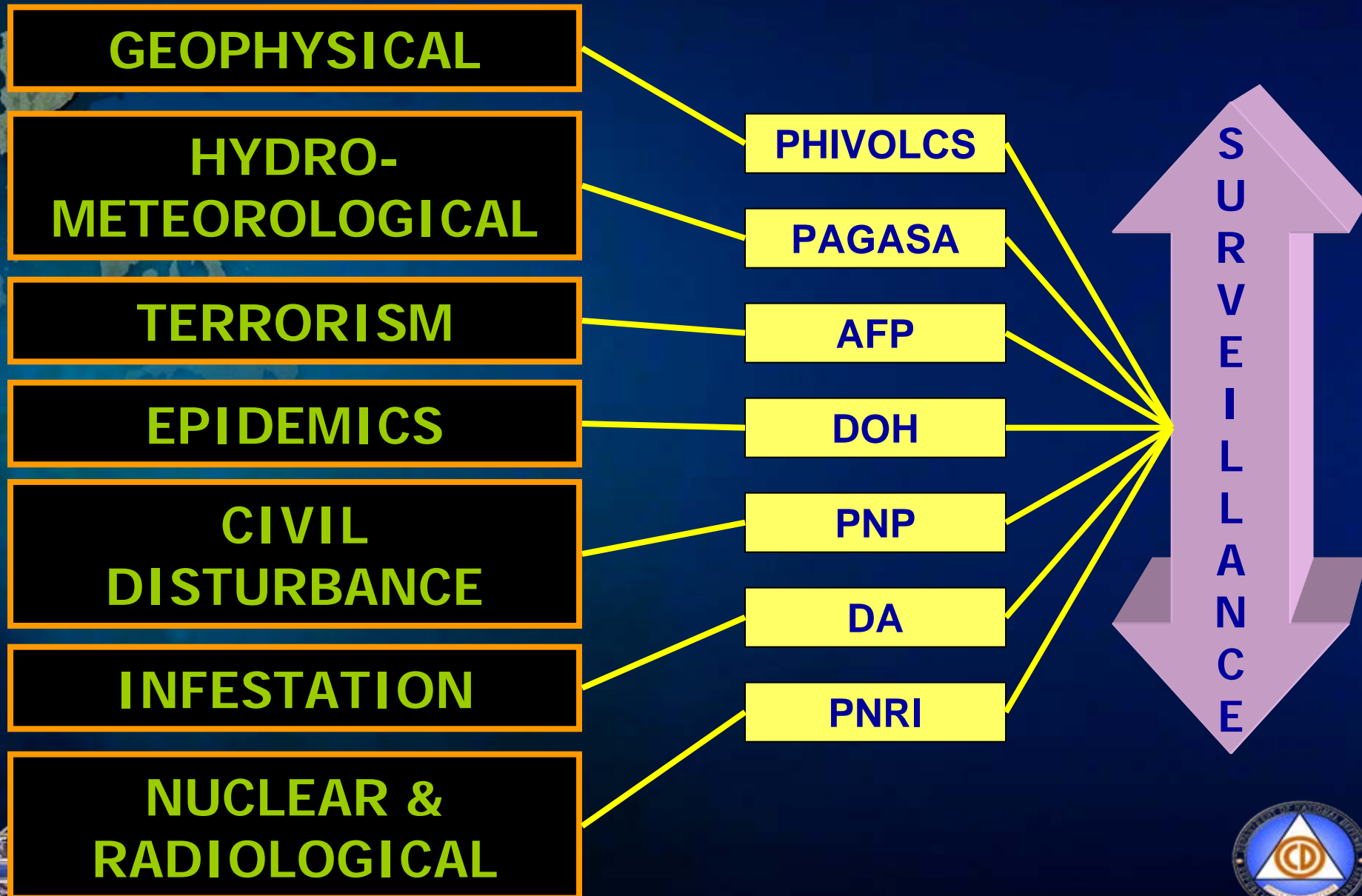




# IDNDR to ISDR: Focus on reducing disaster risks.



# HAZARDS





PARADIGM SHIFT FROM REACTIVE  
TO PROACTIVE MODE. . . .



**DISASTER RISK MANAGEMENT  
FRAMEWORK**



$$R = \frac{H \times V}{C}$$



# Comprehensive Disaster Risk Management Framework


- Dev. Plan
- Executive/Legislative Agenda
- Environmental Management
- Comprehensive Land Use Plan
- Critical infra
- Financial tools
- Risk Assessment & Analysis
- Hazard ID / Analysis & Monitoring
- Vulnerability/capacity ID & analysis

- Livelihood
- Housing
- Lifelines
- Education
- Infrastructure



- Awareness
- Public commitment (institutional /legal, framework)
- Community actions
- Knowledge development thru education & training, research & information
- Early warning system
- Plans / SOPs
- I C S Development
- Drills / Exercises
- Damage Assessment & Needs Analysis
- Relief
- Search & Rescue
- Incident Command System
- WATSAN / Health
- Temp. Shelter




$$R = \frac{H \times V}{C}$$

**R = Risk**

the probability of harmful consequences or expected losses, resulting from interaction between natural or human-made hazards and vulnerable conditions.

**H = Hazard**

a potentially damaging phenomenon or human activity that may cause the loss of life or injury, property damage, social and economic disruption and environmental degradation.





**V = Vulnerability**

**set of conditions resulting from physical, social, economic, and environmental factors which increase susceptibility to losses from the impact of natural or human-made hazards. It is important to remember that incidence, especially of natural events that could cause disasters lie beyond our control, while vulnerability can be controlled.**





# **C = Capacity**

refers to the ability of people, organizations and society as a whole to manage their affairs successfully.

## **Capacity Development**

refers to the process whereby people, organizations and society as a whole unleash, strengthen, create, adapt and maintain capacity over time.



# Disaster Risk Management

is the systematic process of using administrative decisions, organization, operational skills and capacities to implement policies, strategies and coping capacities of the society and communities to lessen the impacts of natural hazards and related environmental and technological disasters. This comprises all forms of activities, including structural and non-structural measures to avoid (prevention) or to limit (mitigation and preparedness) adverse effects of hazards.





# World Conference on Disaster Reduction 2005

## Kobe, Hyogo, Japan



# Hyogo Framework for Action (HFA)

- A comprehensive, action-oriented response to international concern about the growing impacts of disasters on individuals, communities and national development
- Adopted by 168 Governments at the World Conference on Disaster Reduction (WCDR) held in Kobe, Japan, on January 18-22, 2005
- A global print for disaster risk reduction efforts during the next decade (2005 – 2015)







# Hyogo Framework for Action (HFA)

**GOAL:** To substantially reduce disaster losses by 2015 – in lives, and in the social, economic and environmental assets of communities and countries



# Hyogo Framework for Action (HFA) 2005 - 2015

Building the resilience of nations & communities to disasters

## Strategic Goals

- Integrate disaster reduction into sustainable development
- Strengthen institutions and mechanisms to build resilience
- Incorporate risk reduction into emergency management and recovery



# Hyogo Framework for Action priorities for action

## **1** Make Disaster Risk Reduction a Priority

Ensure that disaster risk reduction is a national and a local priority with a strong institutional basis for implementation

## **2** Know the Risks and Take Action

Identify, assess, and monitor disaster risks - and enhance early warning

## **3** Build Understanding and Awareness

Use knowledge, innovation, and education to build a culture of safety and resilience at all levels

## **4** Reduce Risk

Reduce the underlying risk factors

## **5** Be Prepared and Ready to Act

Strengthen disaster preparedness for effective response at all levels





Philippines



# Current Disaster Risk Reduction Strategies / Initiatives



# Governance

## 1. Development of Policies and Guidelines

- *Forging of national and regional agreements (e.g. AADMER, IHAN, SASOP, Cluster Approach) to define the detailed procedures and mechanism in facilitating accommodation of international humanitarian assistance*
- *Advocacy for the passage of the DRM Bill (S.B. No. 3086 entitled: "An Act Strengthening the Philippine Disaster Risk Management Capability by Institutionalizing the National Disaster Risk Management Framework, Appropriating Funds Therefor and For Other Purposes*

## 2. National Assessment of the State of DRM in the Philippines (ADB/UNDP)

- *Assessment of DRM Issues in the Phil.*
- *Formulation of 50 Community Contingency Plans*
- *Documentation and Dissemination of Lessons Learnt*
- *Preparation of DRM Framework*

## 3. Strategic National Action Plan (SNAP) Project (EU/UNISDR/UNDP)

- *Establishment of a Multi-stakeholder Consultative Mechanism on DRR*
- *Formulation of a Strategic National Action Plan in the Phil.*
- *Development of DRR Capacity Building Programme for Selected Sectors*
- *Support to Mainstreaming of DRR in Selected Sectors*



# Governance

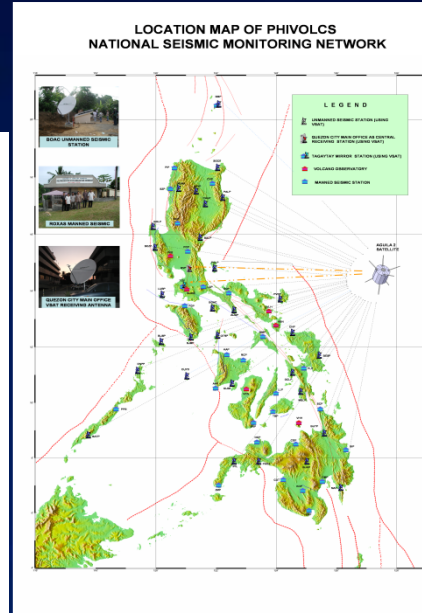
4. **Supporting Local Government Capacity to Manage Natural Disaster Risks in the Philippines (World Bank/DILG)**
5. **Mainstreaming Disaster Risk Reduction in Local Governance (GTZ/DILG/ECHO)**
6. **Partnership for Disaster Reduction in Southeast Asia (PDRSEA) Phase 4 Project (ECHO/ADPC)**
  - *National Strategic Plan on CBDRM*
  - *CBDRM Pilot Project in Albay Province*
  - *CBDRM Training for Local Authorities*
  - *Integration of CBDRM Recognition Scheme in the Gawad Kalasag*
7. **Learning From Good Practices in DRM (ECHO/OXFAM GB)**
  - *CBDRM Case Studies Development and Publication*
  - *Promotion and replication of CBDRM Good Practices and Institutionalization of DRM Office*



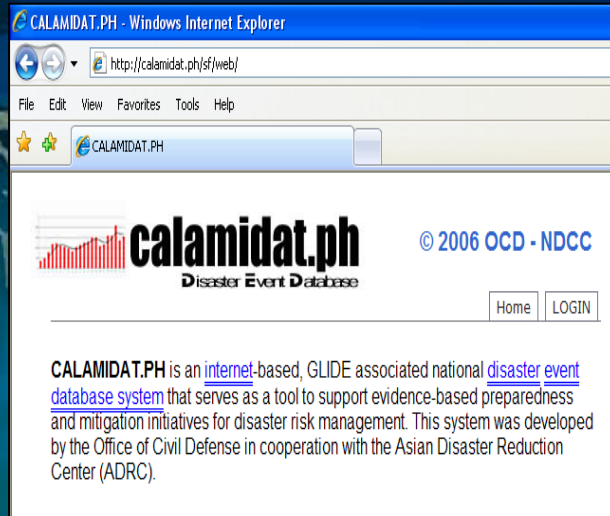


# Risk Assessment and Early Warning

1. **Hazards Mapping and Assessment for Effective Community-based Disaster Management (READY) (UNDP/AusAID/DOST/DENR).**  
*Covers 27 vulnerable provinces*
2. **National Disaster Coordinating Council – Collective Strengthening of Community Awareness to Natural Disasters (NDCC-CSCAND)**  
*(AUSAID – DFAT/PHIVOLCS/PAGASA/NAMRIA/MGB)*
3. **GoP Harmonization and Prioritization of Hazard Mapping to complement efforts of READY project. Covers additional 16 provinces**
4. **Climate Change Adaptation Project (Spanish Government/World Bank/ DENR) Study to establish impact of climate change in the agriculture sector in two pilot areas (Bicol Region and Region 2).**



# Knowledge Management and Education



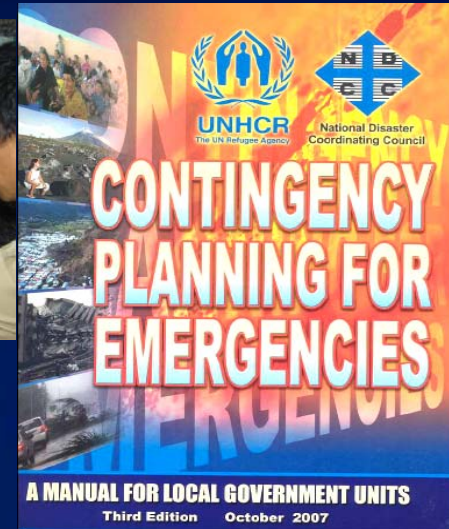
1. **Development of a web-based GLIDE associated national disaster event database under the CALAMIDAT.ph collaborative project of with ADRC.**

2. **NDCC – WBI web-based DRM Courses**



# Knowledge Management and Education

3. Mainstreaming DRR into the Education Sector, in partnership with ECHO and ADPC, which aims to develop DRM modules into the secondary school curriculum and undertake research on the impact of disasters to the education sector
4. Stepping up of Department of Education's efforts on production and distribution of Educational Multi-media on natural and man-made hazards
5. Continuous conduct of hazard-specific multi-sectoral Contingency Planning Workshops
6. Enhancing effective incident management through conduct of Incident Command System (ICS) trainings
7. Introduction of the ASEAN Rapid Damage Assessment and Needs Analysis (RDANA) Training for effective response



The Association of Southeast Asian Nations (ASEAN)

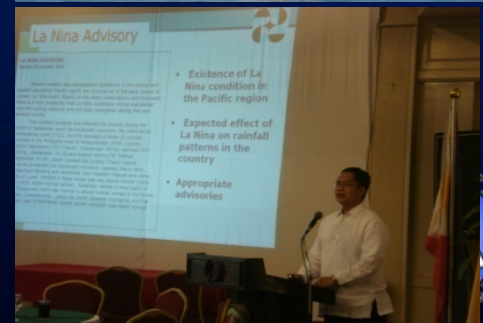
Rapid Damage Assessment and Needs Analysis Manual





# Knowledge Management and Education

7. Continuous conduct of Collapsed Structure Search and Rescue (CSSR) and Medical First Responders (MFR) trainings under the Program for Enhancement of Emergency Response (PEER) project (NSET/USAID)
8. Conduct of Nationwide Water Search and Rescue (WASAR) Training for local government and volunteer rescue groups in order to enhance their response capacity for flooding and landslide incidents
9. Capacity-building of health personnel through skills development courses (e.g. Basic Life Support) and management courses (e.g. Hospital Preparedness for Emergency – HOPE Course)
10. PHIVOLCS, PAGASA, and DENR continue to hold Seminars/Trainings on Seismic and Hydro-Meteorological Hazards Awareness and Preparedness
11. Development of training modules on DRM



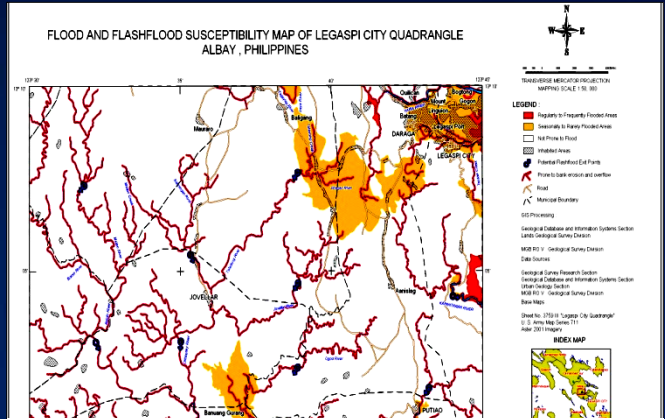
# Risk Management and Vulnerability Reduction

1. **Mainstreaming Disaster Risk Management in Sub-national Development and Land Use/Physical Planning in the Philippines (ECHO/UNDP/NEDA)**
  - *Formulation of Guidelines*
  - *Formulation of DRR-enhanced plans (Region 1 and Surigao del Norte)*
  - *Documentation of the application of the risk assessment methodology (Leyte, Southern Leyte, Surigao del Sur, and REINA)*
  - *Training of 400 regional and provincial land use planners nationwide*
2. **Priority Implementation Project on Mainstreaming DRR in the Infrastructure Sector (ADPC/DPWH) by incorporating Risk Impact Assessment procedures into planning process before construction of new roads and bridges**



## Risk Management and Vulnerability Reduction

4. **Mines and Geosciences Bureau - Department of Environment and Natural Resources (MGB-DENR) carries out the National Geohazards Mapping; Suitability Assessment of Relocation Sites; and Environmental Impact Assessment.**
5. **Implementation of the “*Be Better, Build Better*” program that envisions the construction of innovative school buildings that are not only conducive for learning but also safe from disasters.**





# Disaster Preparedness

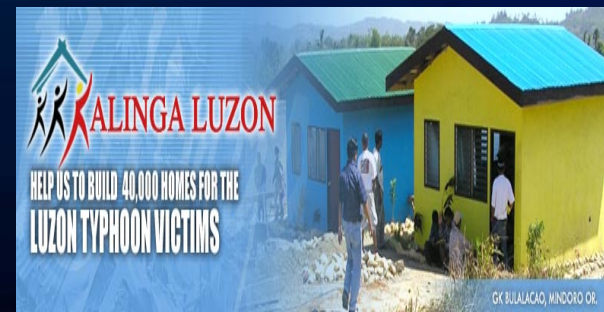
## NDCC's Four-Point Plan of Action on Disaster Preparedness

1. Upgrading the forecasting capability of warning agencies for hydro-meteorological and seismological hazards through improved equipment and staff development as well as networking with foreign forecasting institutions
2. Promoting an integrated and coherent strategic public information campaign on disaster preparedness through the conduct of nationwide tsunami and earthquake drills; distribution of posters and flyers on natural hazards; and other IEC through the tri-media.



## NDCC's Four-Point Plan of Action on Disaster Preparedness

- 
- Water
- Excessive Water
    - Overuse of Water
    - Wastage of Water
  - Polluted Water
    - Contaminated Water
    - Dirty Water
  - Drought
    - Water Shortage
    - Water Scarcity
  - Overflow of River Banks
    - Flood
    - Waterlogging
  - Water Shortage
    - Water Deficiency
    - Water Lack
  - Water Pollution
    - Water Contamination
    - Water Degradation
  - Water Conservation
    - Water Saving
    - Water Efficiency
  - Water Quality
    - Water Purity
    - Water Cleanliness
  - Water Quantity
    - Water Volume
    - Water Amount
  - Water Distribution
    - Water Allocation
    - Water Sharing
  - Water Access
    - Water Availability
    - Water Reachability
  - Water Security
    - Water Safety
    - Water Reliability
  - Water Equity
    - Water Fairness
    - Water Justice
  - Water Sustainability
    - Water Endurance
    - Water Viability
  - Water Governance
    - Water Management
    - Water Control
  - Water Policy
    - Water Regulation
    - Water Legislation
  - Water Law
    - Water Legislation
    - Water Jurisprudence
  - Water Economics
    - Water Finance
    - Water Commerce
  - Water Technology
    - Water Engineering
    - Water Innovation
  - Water Education
    - Water Awareness
    - Water Knowledge
  - Water Research
    - Water Science
    - Water Study
  - Water Innovation
    - Water Creativity
    - Water Novelty
  - Water Cooperation
    - Water Collaboration
    - Water Partnership
  - Water Partnership
    - Water Alliance
    - Water Union
  - Water Collaboration
    - Water Cooperation
    - Water Jointness
  - Water Integration
    - Water Unity
    - Water Wholeness
  - Water Interconnection
    - Water Linkage
    - Water Connection
  - Water Interdependence
    - Water Reliance
    - Water Dependence
  - Water Interlinkage
    - Water Interconnection
    - Water Interdependence
  - Water Interrelationship
    - Water Interconnection
    - Water Interdependence

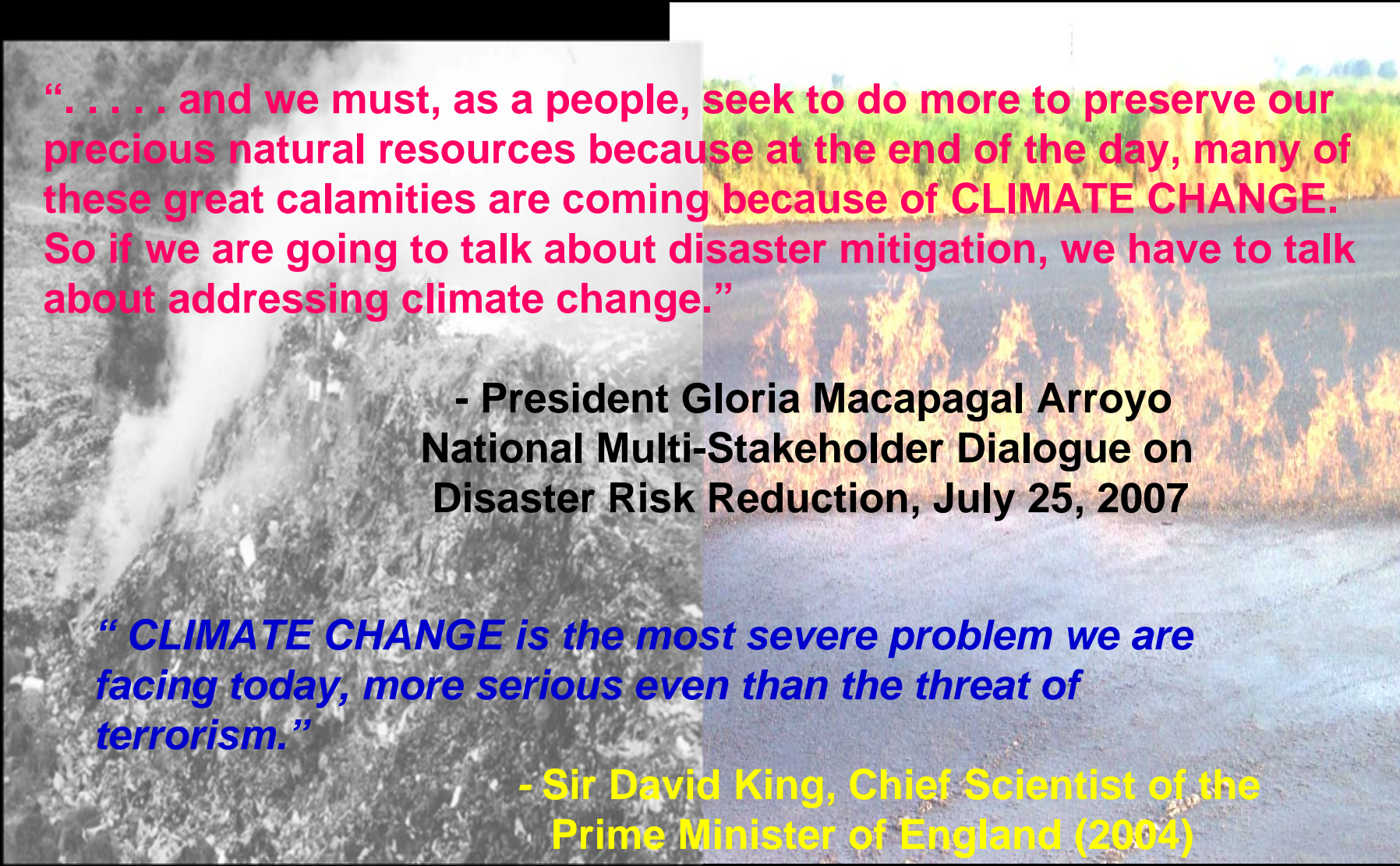


# Disaster Preparedness

1. **Annual Observance of National Disaster Consciousness Month (July)**
2. **Search for Excellence in Disaster Management and Humanitarian Assistance (Gawad Kalasag)**
3. **National campaign to “Keep the Philippines Bird Flu Free” through the National Avian Influenza Task Force and the civil society organizations led “AI/PI Network.”**
4. **Institutionalization of the Cluster Approach in the Phil. DM System**







**“ . . . . . and we must, as a people, seek to do more to preserve our precious natural resources because at the end of the day, many of these great calamities are coming because of CLIMATE CHANGE. So if we are going to talk about disaster mitigation, we have to talk about addressing climate change.”**

**- President Gloria Macapagal Arroyo  
National Multi-Stakeholder Dialogue on  
Disaster Risk Reduction, July 25, 2007**

***“ CLIMATE CHANGE is the most severe problem we are facing today, more serious even than the threat of terrorism.”***

**- Sir David King, Chief Scientist of the  
Prime Minister of England (2004)**



**Decaying solid waste in  
landfills emits methane**

**Decomposing waste in  
water also emits methane**





# NDCC video





# Thank You!

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