DISASTER RISK REDUCTION

Disaster Risk Reduction (DRR)

- Disaster risk reduction is aimed at **preventing new and reducing existing disaster risk and managing residual risk**, all of which contribute to strengthening resilience and therefore to the achievement of sustainable development

- The concept and practice of reducing disaster risks through systematic efforts to analyze and manage the causal factors of disasters, including through reduced exposure to hazards, lessened vulnerability of people and property, wise management of land and the environment, and improved preparedness for adverse events." (United Nations International Strategy for Disaster Reduction, 2009)

Why DRR

Disaster causes the loss of lives and properties. Disaster also turns one's life upside down. Disaster could erase all the social and economic progress achieved till date.

Therefore, although disaster couldn't be totally prevented, its impact can be reduced.

DRR thus, helps in identifying the vulnerable groups early and protecting them.

DRR is the way of being prepared against the sudden disasters

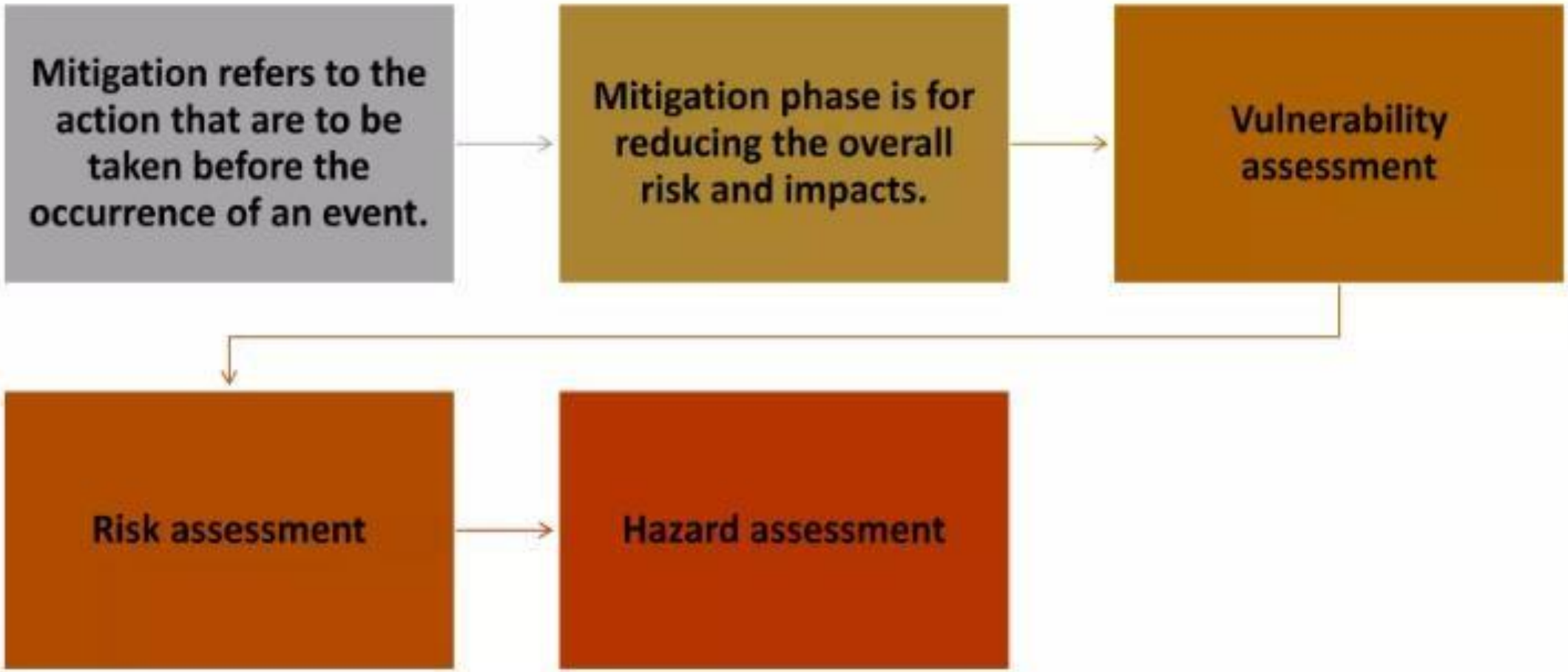
Natural hazards are naturally-occurring physical phenomena caused by either the rapid or slow onset of events having atmospheric, geologic and hydrologic origins on solar, global, regional, national or local scales.

Disasters often follow natural hazards, and they are a result of the combination of hazards, the conditions of vulnerability and of the insufficient capacity or measures to reduce the potentially negative consequences of the hazard.

Disaster risk reduction is the concept and practice of reducing disaster risks through systematic efforts to analyse and reduce the causal factors of disasters.

Components of DRR

Mitigation


Mitigation refers to the action that are to be taken before the occurrence of an event.
Mitigation phase is for reducing the overall risk and impacts.
Vulnerability assessment
Risk assessment
Hazard assessment

Disaster Mitigation includes

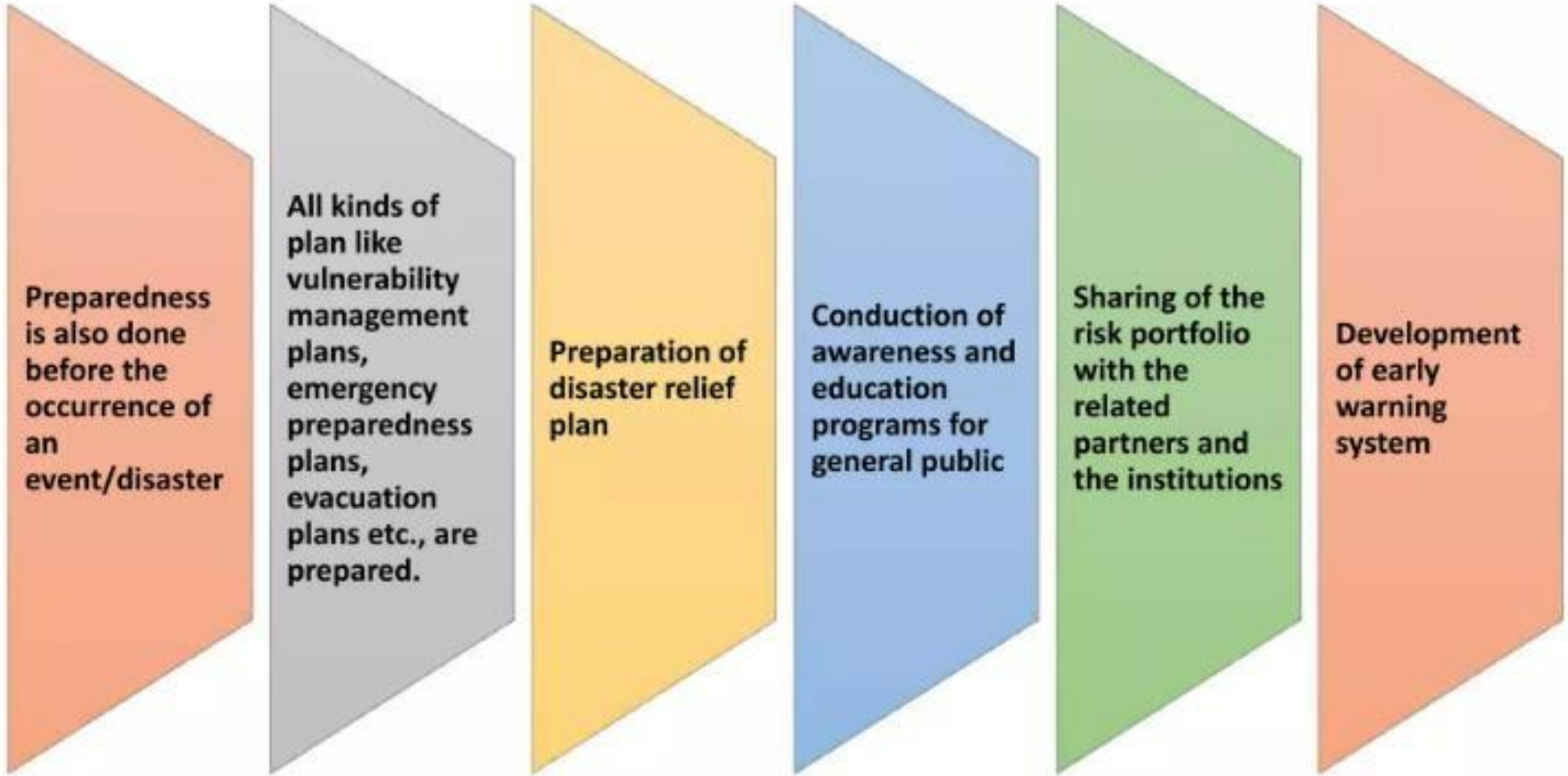
- Reviewing building codes.
- Vulnerability analysis updates.
- Zoning and land-use management and planning.
- Reviewing of building use regulations and safety codes
- Implementing preventative health measures
- Political intervention and commitment
- Public awareness

Disaster Mitigation

- Structural mitigation –construction projects which reduce economic and social impacts i.e., dams, windbreaks, terracing and hazard resistant buildings.

- Non-structural activities –policies and practices which raise awareness of hazards or encourage developments to reduce the impact of disasters

Preparedness



Preparedness

- Preparedness plans
- Emergency exercises/training
- Warning systems
- Emergency communications systems
- Evacuations plans and training
- Resource inventories Emergency
- Personnel/contact list.
- Mutual aid agreements
- Public information/education

Response

- Refers to the activities that are done after the event or disaster has occurred
- Saving human life is major concern at this stage
- Evacuation, Migration, administrating first-aid, transportation of affected people to hospital
- Emergency services (food, shelter, medical attention, etc.)
- Provision for medical help
- Coordination action between the local and international actions
- National and international support

Response

The mission of the response phase is to meet the basic needs of the people until more permanent and sustainable solutions are formulated.

There is growing awareness of costs associated with improper management of disasters and hence communities and government are trying hard to improve the first responder efforts.

Disaster response is aimed at providing instant support to maintain life and health of the affected population.

There is a wide array of response activities carried out after disaster like first-aid, transportation, shelter and food, initial repairs to damaged infrastructure.

Response

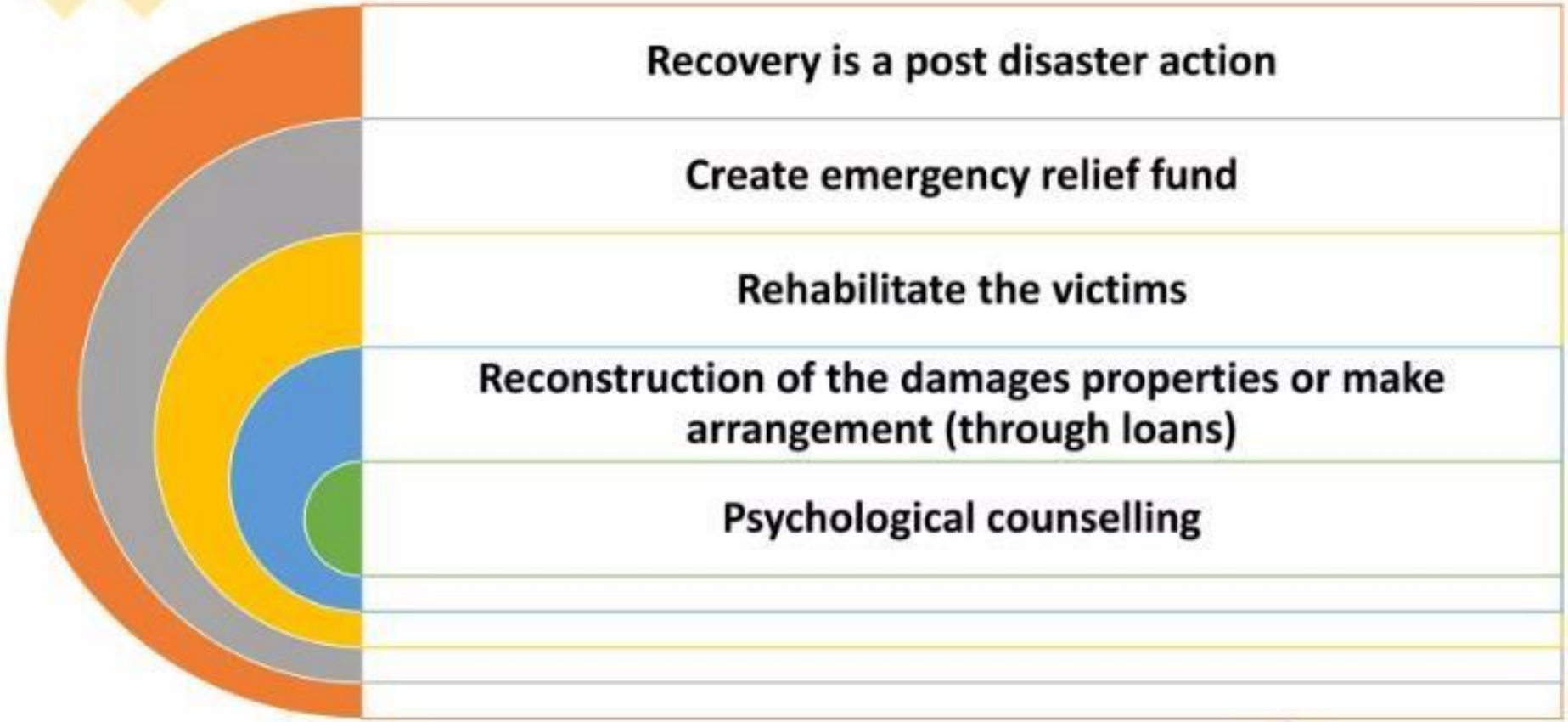
The level & kind of disaster response depends on several factors – the scale of disaster, the nature and number of affected people and site-specific conditions.

Response comprises the decisions and actions taken to deal with an urgent situation that has adversely affected life and property.

It calls for collaboration, coordination and communication between agencies involved in administrating rescue and relief operations.

The main aim of response is to save and protect human life.

Recovery


Recovery is a post disaster action
Create emergency relief fund
Rehabilitate the victims
Reconstruction of the damages properties or make arrangement (through loans)
Psychological counselling

Important Activities

Develop and test	Educate and train	Train	Establish
Develop and test warning systems regularly and plan measures to be taken during a disaster alert period to minimize potential loss of life and physical damage.	Educate and train officials and the population at risk to respond to the disaster.	Train first-aid and emergency response teams.	Establish emergency response policies, standards, organizational arrangements and operational plans to be followed by emergency workers and other response entities after a disaster.

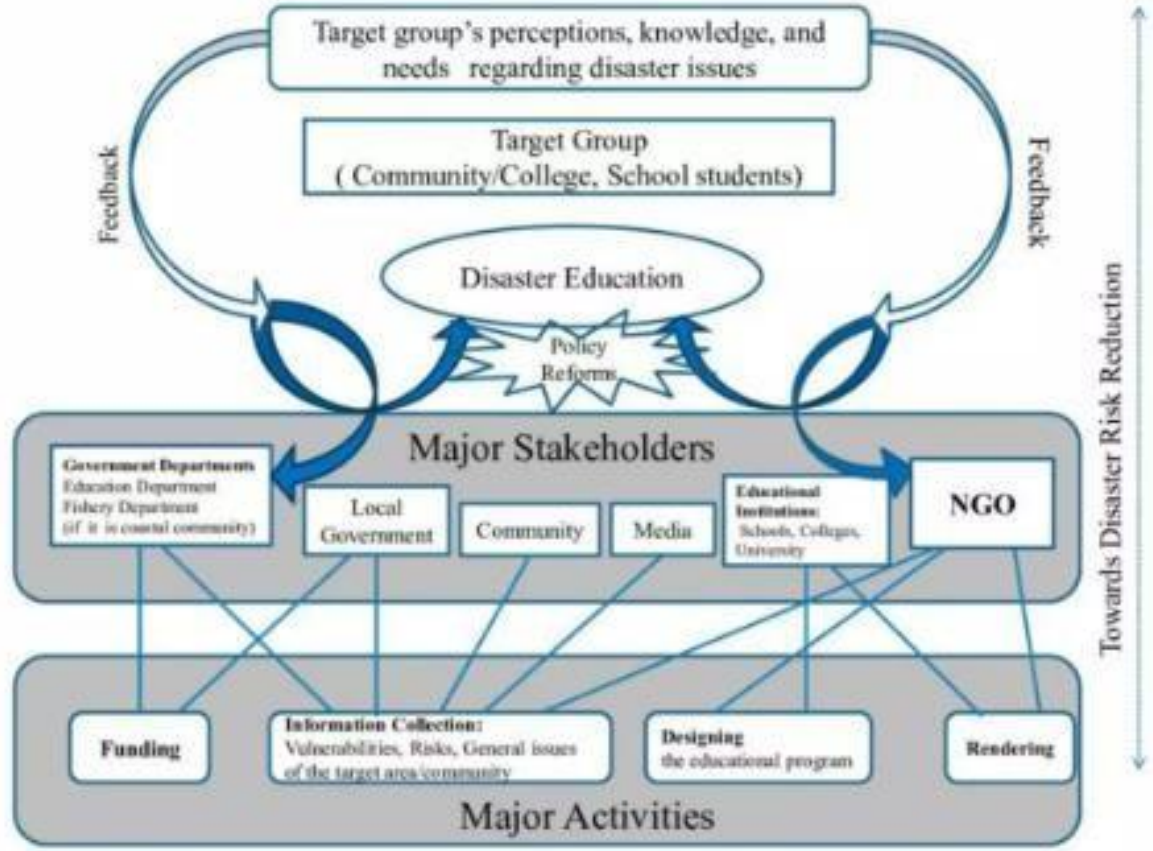
DRR Recommendations

Policy, planning and capacity building in disaster management

Physical prevention; example, building sea-walls against storm surge or flood shelters during flood events

Capacity building at institutional and systemic level in disaster preparedness.

Continued provision of food, potable water and health care.



GEOGRAPHIC PROFILE OF THE PHILIPPINES

PHILIPPINES

- We are an archipelago of 7,107 islands
- A total land area of approximately 300,000 square kilometers (116,000 sq. miles)
- Three main islands: Luzon, Visayas and Mindanao
- The seas surrounding the islands are the Philippine Sea on the east, the South China Sea on the west, and the Celebes Sea on the south.
- The island of Borneo lies a few hundred kilometers southwest and Taiwan directly north.
- The Moluccas and Sulawesi are to the south/southwest, and Palau is to the east beyond the Philippine Sea.

PHILIPPINES: DISASTER RISK PROFILE

Why are we prone to diverse natural hazards?

PHILIPPINES: DISASTER RISK PROFILE

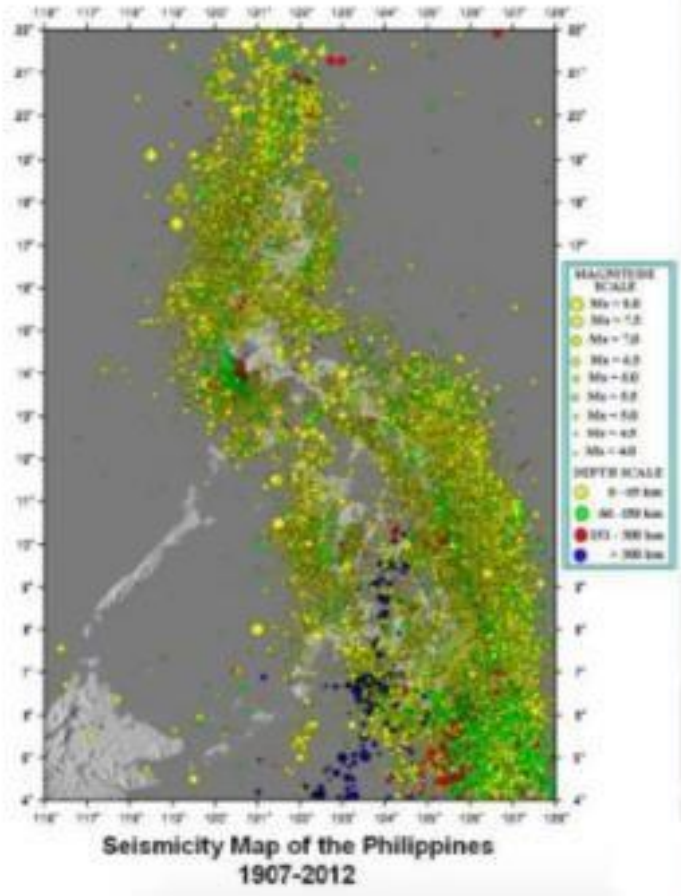
PACIFIC RING OF FIRE:

This is the area where the Philippine Sea and Eurasian Tectonic Plates meet and is prone to occurrences of different geologic hazards

PHILIPPINES: DISASTER RISK PROFILE

ACTIVE FAULT AND TRENCHES

(faultfinder.phivolcs.dost.gov.ph)



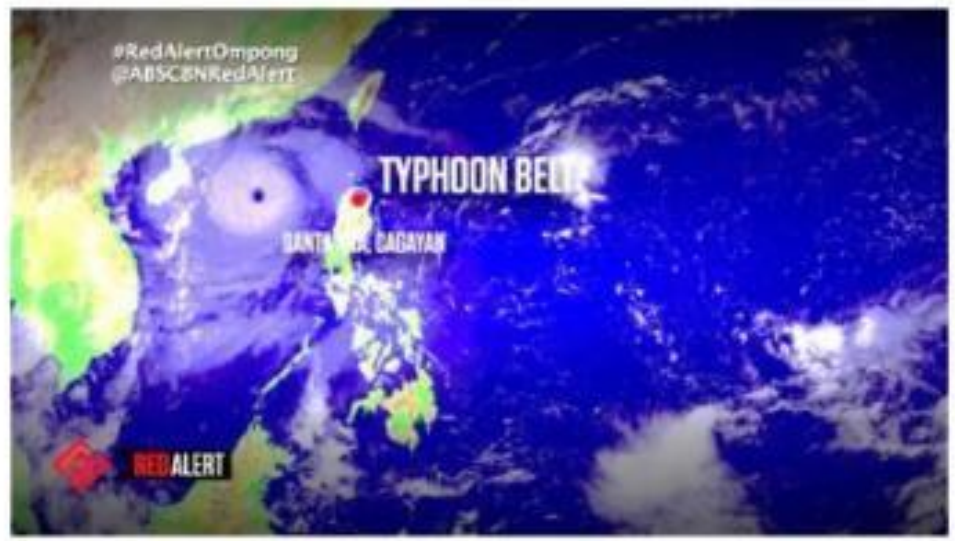
Seismicity Map of the Philippines
1907-2012

PHILIPPINES: DISASTER RISK PROFILE

PACIFIC TYPHOON BELT

This explains the occurrences of different weather disturbances such as typhoons.

Our country is visited by an average of 20 typhoons per year, according to the Philippine Atmospheric Geophysical and Astronomical Services Administration (PAGASA).



AGGRAVATING FACTOR

UNPLANNED URBANIZATION

1. Today 50 % of the world population lives in urban centers by 2030 this is expected to increase to 60%.
2. The majority of the largest cities, known as Mega Cities are in developing countries while 90% of the population growth of developing countries will be urban in nature.

AGGRAVATING FACTOR

CLIMATE CHANGE

Largely due to the emission of greenhouse gases such as carbon dioxide.

CLIMATE CHANGE

WEATHER VS CLIMATE

Weather :

- Short term changes
- Can change rapidly (what is happening outside right now)

Climate :

- Long term state
- Occurs over seasons or longer

CLIMATE CHANGE

- Change in climate identified by changes in properties
- Persists for an extended period
- Due to natural variability or as a result of human activity

CLIMATE CHANGE

- Stronger and more frequent typhoons
- Droughts
- Extremely warm and cold seasons

(Aftermath of Typhoon Haiyan in 2013)

Photo credit:: Google Images

CLIMATE CHANGE

GLOBAL WARMING?

Rapid rise in global temperature brought about by the **greenhouse effect.**

Photo credit:: Google Images

CLIMATE CHANGE

Greenhouse Gas (GHG)

Carbon Dioxide

Methane

CLIMATE CHANGE

Greenhouse Gas (GHG)

Nitrous Oxide

Chlorofluorocarbon

CLIMATE CHANGE

Greenhouse Gas (GHG)

Cutting and Burning of Trees

CLIMATE CHANGE

Effects of Climate Change

- Sea level rise due to melting of ice caps

- Growing unpredictability and intensity of rain and typhoon

Photo credit:: Google Images

CLIMATE CHANGE

Effects of Climate Change

- Drought

- Decrease in crop yields

Photo credit:: Google Images

CLIMATE CHANGE

Effects of Climate Change

- Diseases
- Coastal erosion
- Destroyed habitat

Photo credit:: Google Images

CLIMATE CHANGE

Effects of Climate Change

- Compromised water resources

Photo credit:: Google Images

PHILIPPINES: DECLARATION OF DISASTER

Major Disasters in the Philippines

2009 Tropical Storm Ondoy

464 Dead

37 Missing

529 Injured

4.9 M Affected

PhP 11B Damages

PHILIPPINES: DECLARATION OF DISASTER

Major Disasters in the Philippines

2013 Bohol Earthquake

209 Dead

8 Missing

877 Injured

3.2 M Affected

PhP 2.25B Damages

PHILIPPINES: DECLARATION OF DISASTER

Major Disasters in the Philippines

2013 Typhoon Yolanda

6 300 Dead

1 062 Missing

28 688 Injured

16 M Affected

PhP 89.6B Damages

PHILIPPINES: DECLARATION OF DISASTER

Major Disasters in the Philippines

2018 Mayon Volcano Eruption

Around 90 000
Affected

PhP 166 M
Damages

PHILIPPINES: DECLARATION OF DISASTER

Major Disasters in the Philippines

2018 Typhoon Ompong

82
Dead

2
Missing

138
Injured

3 M
Affected

PhP 33.9B
Damages

PHILIPPINES: DECLARATION OF DISASTER

Major Disasters in the Philippines

2019 Major Earthquakes

Porac, Pampanga (M 6.1)

Itbayat, Batanes (M 5.9)

Castillejos, Zambales (M 5.9)

San Julian, E. Samar (M 6.5)

Tulunan, Cotabato (M 6.6)

Davao Del Sur (M 6.9)

PHILIPPINES: DECLARATION OF DISASTER

Major Disasters in the Philippines

2020 Taal Volcano Eruption

737 K
Affected

PhP 3B
Damages

PHILIPPINES: DECLARATION OF DISASTER

Major Disasters in the Philippines

2020 (to present) Novel Coronavirus (COVID-19)

As of 16 August 2023 (WHO):

4,173,631
confirmed cases

66,646
deaths

PHILIPPINES: DECLARATION OF DISASTER

Major Disasters in the Philippines

2017, Marawi Crisis

87
Dead

350 000
Displaced

PhP 17B
Damages

WORLD RISK INDEX REPORT 2022

- 193 Countries UN-recognized
- Over 99 percent of the world's population
- The countries with the highest disaster risk worldwide are the **Philippines (WRI 46.82)**, India (WRI 42.31), and Indonesia (WRI 41.46).

Publisher WorldRiskReport 2022 Bündnis Entwicklung Hilft Ruhr University Bochum – Institute for International Law of Peace and Armed Conflict (IFHV)

WORLD RISK INDEX REPORT 2023

Rank	Country	Risk
1.	Philippines	46.86
2.	Indonesia	43.50
3.	India	41.52
4.	Mexico	38.17
5.	Colombia	37.64
6.	Myanmar	36.16
7.	Mozambique	34.61
8.	Russian Federation	28.20
9.	Bangladesh	27.29
10.	China	27.10
11.	Pakistan	26.45
12.	Papua New Guinea	26.30
13.	Peru	25.55
14.	Somalia	25.09
15.	Yemen	24.39
15.	Vietnam	24.39

Figure 2:
Excerpt from the WorldRiskIndex 2023

DISASTER: DEFINITION AND CLASSIFICATION

HAZARD VS. DISASTER?

How do we differentiate disasters from hazards?

HAZARDS

A dangerous phenomenon, substance, human activity or condition that pose threat to life and property.

RA 10121

WHAT IS DISASTER?

Serious disruption of the functioning of a community or a society

- Human losses
- Material losses
- Economic losses
- Environmental losses

Photo credit:: Google Images

WHAT IS MEDICAL DISASTER?

A catastrophic event that results in casualties that overwhelm the healthcare resources in that particular community.

Al-Madhari & Zeller

Cebu City hospital staff members cope with disaster | Inquirer News

CLASSIFICATION

2 Broad Categories of Disaster:

- Natural (Geophysical, hydrometeorological, climatological)

- Man-made (Human-induced)