

The Philippines and Its Disaster Risk Profile

- The Philippines, officially called the Republic of the Philippines, is an island nation located in the western Pacific Ocean in Southeast Asia between the Philippine Sea and the South China Sea. The country is an archipelago near the countries of Vietnam, Malaysia, and Indonesia. As of the latest count (2016), there were actually 7,641 islands, as shown by the Philippine Islands Measurements Project, a special project conducted by the National Mapping and Resource Information Authority (NAMRIA).
- The topography of the islands is mostly mountainous with narrow to large coastal lowlands depending on the island.
- The Philippines is divided into three main geographic areas: these are Luzon, Visayas, and Mindanao.
- The table below shows all 17 regions in the Philippines:

Luzon	Visayas	Mindanao
<ul style="list-style-type: none"> • National Capital Region (NCR) • Cordillera Administrative Region (CAR) • Region I (Ilocos Region) • Region II (Cagayan Valley) • Region III (Central Luzon) • Region IV-A (CALABARZON) • Region IV-B (MIMAROPA) • Region V (Bicol Region) 	<ul style="list-style-type: none"> • Region VI (Western Visayas) • Region VII (Central Visayas) • Region VIII (Eastern Visayas) 	<ul style="list-style-type: none"> • Region IX (Zamboanga Peninsula) • Region X (Northern Mindanao) • Region XI (Davao Region) • Region XII (SOCCSKSARGEN) • Region XIII (Caraga) • Autonomous Region in Muslim Mindanao (ARMM)

- The climate of the Philippines is tropical marine with a northeast monsoon from November to April and a southwest monsoon from May to October.
- In addition, the Philippines, like many other tropical island nations has problems of deforestation, and soil and water pollution. The Philippines also has problems of air pollution because of large populations in its urban centers.
- Filipino is the official national language while English is the official language of government and education. It has also eight (8) major dialects namely: Tagalog, Cebuano, Ilocano, Hiligaynon or Ilonggo, Bicol, Waray, Pampango, and Pangasinan (CIA, 2017).
- Philippines has a population of 104, 256,076 (CIA, 2017).
- Life expectancy in the Philippines is 67.6 years (CIA, 2017).
- Religions in the Philippines are as follows: Catholic 82.9% (Roman Catholic 80.9%, Aglipayan 2%), Muslim 5%, Evangelical 2.8%, Iglesia ni Kristo 2.3%, other Christian 4.5%, other 1.8%, unspecified 0.6%, none 0.1% in a 2000 census (CIA, 2017).

Disaster and Its Classification

A disaster is defined as a serious disruption of the functioning of a community or a society causing widespread human, material, economic, or environmental losses which exceed the ability of the affected community or society to cope using its own resources. A disaster is a function of the risk process. It results from the combination of hazards, conditions of vulnerability, and insufficient capacity or measures to reduce the potential negative consequences of risk.

- Rapid Onset Disasters – These are hazards that arise suddenly. (e.g. earthquakes, cyclones, landslides, floods, etc.)
- Slow Onset Disasters – These are hazards that take months or years to be disastrous. (e.g. droughts)

Disasters can take many different forms. The duration can range from an hourly disruption to days or weeks of ongoing destruction. Below is a list of the various types of disasters – both natural and man-made or technological in nature – that can impact a community.

1. **Natural Disasters** – a natural disaster is a major adverse resulting from natural processes of the Earth (e.g. floods, hurricanes, typhoons etc.) It is subdivided into the following:
 - Geophysical – a hazard originating from solid earth (e.g. earthquake and volcanic activity).
 - Meteorological – a hazard caused by short-lived, micro- to meso-scale extreme weather and atmospheric conditions that lasts from minutes to days (e.g., storm, extreme temperature and fog).

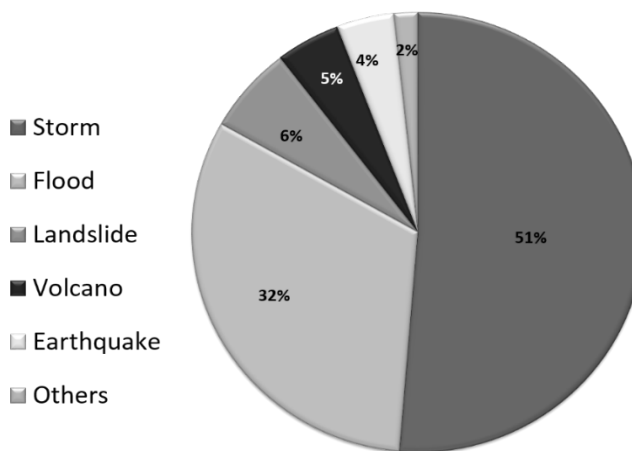
- Hydrological – a hazard caused by the occurrence, movement and distribution of surface, and subsurface freshwater and saltwater (e.g., flood, landslide, wave action).
- Climatological – a hazard caused by long-lived, meso- to macro-scale atmospheric processes ranging from intra-seasonal to multi-decadal climate variability (e.g., drought, glacial lake outburst, and wildfire).
- Biological - A hazard caused by the exposure to living organisms and their toxic substances (e.g., venom, mold) or vector-borne diseases that they may carry. Examples are venomous wildlife and insects, poisonous plants, and mosquitoes carrying disease-causing agents such as parasites, bacteria, or viruses (e.g., malaria).
- Extraterrestrial - A hazard caused by asteroids, meteoroids, and comets as they pass near-earth, enter the Earth's atmosphere, and/or strike the Earth, and by changes in interplanetary conditions that effect the Earth's magnetosphere, ionosphere, and thermosphere (e.g., impact and space weather).

2. **Man-made Disasters** - disasters also can be caused by humans. Hazardous materials emergencies include chemical spills and groundwater contamination. Workplace fires are more common and can cause significant property damage and loss of life. Communities are also vulnerable to threats posed by extremist groups who use violence against both people and property.

Disaster Risk Profile of the Philippines

Philippines is basically exposed to various natural hazards (lowest-highest exposure) of earthquakes, volcanic eruptions, landslides, floods, and typhoons. According to Centre for Research on the Epidemiology of Disasters (as cited in Doroteo, 2015), the figure below shows the frequency of the natural disasters that occurred in the Philippines in the last 25 years.

Here is the frequency of Natural Disasters Occurrence in the last 25 years (Doroteo, 2015).



- Due to its geographical location, the Philippines is exposed to high incidents of hazards such as tropical storms, tsunamis, earthquakes, volcanic eruptions, landslides, and droughts.
- Tropical storms or typhoons accompanied by heavy rain and/or strong winds result in floods and storm surges.
- The country is also situated along a highly seismic area lying along the Pacific Ring of Fire where two major tectonic plates (Philippine Sea and Eurasian) meet and is highly prone to earthquakes and volcanic eruptions. This explains the existence of more or less 300 volcanoes of which 22 are classified as active, and the several occurrences of earthquakes and tsunamis all year round (Doroteo, 2015). While being prone to hazards, its geographical location also endows it with abundant natural resources and some of the world's greatest biodiversity.
- Throughout recorded history, the Philippines is considered as one of the most disaster-prone countries in the world. This, combined with high poverty, leaves various communities throughout the Philippines in highly vulnerable situations.

Natural Disasters That Frequently Occur in the Philippines

1. Typhoons/Tropical Cyclones:

- The climate of the Philippines is tropical and is strongly affected by monsoon (rain-bearing) winds, which blow from the southwest from approximately May to October and from the northeast from November to February, although there are considerable variations in the frequency and amount of precipitation across the archipelago.
- From June to December typhoons often strike the archipelago. On average, 20 typhoons occur annually, with the months of June to November averaging approximately three (3) typhoon strikes per month.

2. Flooding:

- A review of the high impact tropical cyclones in the Philippines indicate that majority of the victims were affected by inland flooding and landslides.
- The torrential rain can result in flooding in overflowing rivers, saturated soil, low-lying areas, and poor drainage. The most number of deaths and economic losses come from this type of hazard.
- Deforestation are worsening the risk of floods and landslides. The uncontrolled urban growth, poor land use, the decrease in the number of protected forests and riverbanks, poor waste disposal and housing have clogged waterways and increased the risk of floods.

3. Landslides:

- Defined as the movement of rock, earth, or debris down a sloped section of land. Landslides are caused by rain, earthquakes, volcanoes, or other factors that make the slope unstable. It has three major causes:
 - Geology refers to characteristics of the material itself. The earth or rock may be weak or fractured, or different layers may have different strengths and stiffness.
 - Morphology refers to the structure of the land. A classic morphological cause of landslides is erosion, or weakening of earth due to water.
 - Human activity, such as agriculture and construction, can increase the risk of a landslide. Irrigation, deforestation, excavation, and water leakage are some of the common activities that can help destabilize, or weaken, a slope.

4. Volcanic Eruptions:

- The Philippines is sitting on the Pacific Ring of Fire and is among the countries with most active and dangerous volcanoes. There are three classifications of volcanoes:
 - A volcano is classified as *active* if it is currently erupting or is expected to erupt in the near future. There are 22 active volcanoes (out of the 300+ total) in the archipelago. Mayon Volcano in Legaspi City is the most active volcano in the Philippines (Doroteo, 2015).
 - A *dormant* volcano is one that is not currently erupting but has erupted within recordable history and is expected to erupt again in the near future. Some volcanoes can remain dormant for thousands of years before eruptions. Mt. Apo in Digos City, Davao Del Sur is an example of a dormant or potentially active volcano.
 - *Extinct* volcanoes are considered dead and are not expected to ever erupt again. Mt. Arayat in Angeles City, Pampanga is considered as an inactive or extinct volcano.
- The volcanoes in the Philippines rank as one of the deadliest and costly in the world. Lahars (mud flows) are very common in the country due to heavy rains
- Approximately 13% of its historic eruptions have caused fatalities, most notably at Taal and Mayon Volcanoes. Also, 22% of its eruptions caused significant damage (Doroteo, 2015).
- Tsunamis accompany eruptions more often than in any other volcanic region.

5. Earthquakes:

- Earthquakes are usually caused when rock underground suddenly breaks along the fault. Since it lies along the Pacific Ring of Fire, the country has frequent seismic and volcanic activities.
- A fault is a planar fracture in a volume of rock, across which there has been significant displacement along the fractures as a result of earth movement. This earth movement is what we called tectonic forces that compress the land.

- Within the past two decades (1990-2010), five destructive earthquakes were recorded and human casualty included 15 deaths and 119 persons injured. Damaged to the economy was estimated to reach PhP 207 million (Doroteo, 2015).
- The 1990 Luzon earthquake, the Moro Gulf Tsunami and the collapse of the Ruby Tower were some of the most devastating ever recorded in the Philippines (Doroteo, 2015).
- Here is the list of the major active fault lines in the Philippines:
 - a) Marikina Valley Fault – covers Montalban, San Mateo, Marikina, Pasig, Taguig, Muntinlupa, San Pedro, Biñan, Carmona, Sta. Rosa, Calamba, Tagaytay and Oriental Mindoro.
 - b) Western Philippine Fault – Luzon Sea, Mindoro Strait, Panay Gulf and Sulu Sea.
 - c) Eastern Philippine – Philippine Sea
 - d) Southern of Mindanao Fault – Moro Gulf and Celebes Sea
 - e) Central Philippine Fault – Covers entire Ilocos Norte, Aurora, Quezon, Masbate, Eastern Leyte, Southern Leyte, Agusan Del Norte, Agusan Del Sur and Davao Del Norte.

6. Droughts:

- Drought is a prolonged period of abnormally low rainfall; a shortage of water resulting from this.
- The Philippines has been affected by a strong El-Niño-related dry spell since December 2015, which has hit food production (GEO Hive, 2015)
- El-Niño peaked between December and February, and drought affected 40% of the country, and is expected to persist in 2016 (GEO Hive, 2015).
- The most drought-affected area is the island of Mindanao in the south, which is the country's poorest area and where more than half of the population is reliant on agriculture (GEO Hive, 2015).
- According to the Department of Social Welfare and Development, 676,465 people have been affected by drought in the following areas of Mindanao: Cotabato, South Cotabato, and Sultan Kudarat in Soccsksargen and Maguindanao in the Autonomous Region in Muslim Mindanao (ARMM). The Zamboanga peninsula in Mindanao has been facing severe water shortages (GEO Hive, 2015).

7. Terrorism:

- Defined as “criminal acts intended or calculated to provoke a state of terror in the general public, group of persons or particular persons for political purposes are in any circumstance unjustifiable, whatever the considerations of a political, philosophical, ideological, racial, ethnic, religious, or any other nature that may be invoked to justify them.”
- Abu Sayyaf Group (ASG), Moro National Liberation Front (MNLF), Moro Islamic Liberation Front (MILF), Jemaah Islamiyah (JI), New People’s Army (NPA), Bangsamoro Islamic Freedom Fighters (BIFF) and Maute Group also known as Islamic State of Lanao are some of the most notable terrorist groups in the Philippines.
- Zamboanga Siege in September of 2013 wherein 200 people died and the attack on Marawi in May of 2017 are the most recent terrorist attacks in the Philippines (GMA News Online, 2017).

Top 10 Natural Disasters to Hit the Philippines (100 Years Back)

-According to the Disaster Risk Profile and Disaster Risk Management Framework of the Philippines (Doroteo, 2015), here is the list of the top 10 natural disasters to hit the Philippines in the last 100 years in chronological order:

1. Typhoon Haiyan (Yolanda) devastated the Eastern Visayas region and the city of Tacloban in November 2013. Leaving the country with 7,986 deaths and 16.11 million affected people, it is considered as the strongest typhoon which made landfall ever recorded.
2. Typhoon Bopha smashes into the main southern island of Mindanao on December 3, 2012. Rarely hit by cyclones, the region suffers about 1,900 people dead or missing.
3. Typhoon Washi hits the northern part of Mindanao island on December 16, 2011, killing at least 1,080 people.
4. An entire mountainside collapses on the village of Guinsaugon on the central island of Leyte on February 17, 2006, killing 1,126.
5. Tropical Storm Thelma unleashes flash floods on the central city of Ormoc on Leyte island on November 15, 1991, killing more than 5,100.

6. A 7.8 magnitude earthquake strikes the mountain resort of Baguio city and other areas of the northern Philippines on July 16, 1990, killing 1,621 people.
7. Typhoon Ike hits the central islands on August 31, 1984, killing 1,363 people.
8. A tsunami triggered by a magnitude 7.9 earthquake devastates the Moro Gulf on the southern island of Mindanao on August 16, 1976, killing between 5,000 and 8,000 people.
9. Floods and landslides unleashed by Typhoon Trix kill 995 people in the Bicol region of the main island of Luzon on October 16, 1952.
10. Taal volcano, about 60 kilometres (30 miles) from NCR, erupts on January 30, 1911, killing about 1,300 people living in nearby villages.

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