

The Philippines

Background and Location:

The Philippines is a low-middle income country, situated in the western Pacific between latitudes 5° and 20° north of the equator. It forms an archipelago of hundreds of islands. The largest of the islands are Luzon and Mindanao.

Why is the Philippines a disaster hotspot?

- It is located on a destructive plate boundary where the Eurasian plate is moving towards the Philippine plate, this creates many subduction zones and active volcanoes - approximately 25 active volcanoes with frequent eruptions and earthquakes.
- It lies in a belt of tropical cyclones, and experiences a tropical monsoon climate and is therefore subject to heavy rainfall. Steep slopes combined with heavy rainfall mean that mass movements of earth are common. Deforestation has reduced interception with furthermore increasing this risk.
- There is a high population density of 240 people per km², with up to 2,000 people per km² in the megacity of Manila. Due to low incomes many people live on the coast which makes them more **vulnerable** to typhoon generated storm surges and earthquake generated tsunamis.

Key Hazards:

1. Volcanic Eruption - Mount Pinatubo 1991:

After 500 years lying dormant in June 1991 Mount Pinatubo erupted on the island of Luzon, it being the **second biggest in the 20th century**. It was caused by:

- The subduction of the Eurasian plate beneath the Philippines plate along the **destructive plate** boundary to the west of Luzon.

A large amount of ash was released into the atmosphere, pyroclastic flows and lahars accompanied it devastating the volcanoes surroundings. The combination of the **ash and the sulphur dioxide in the atmosphere lowered global temperatures by 0.5 °C between 1991 and 1993**.

<u>Social</u>	<u>Economic</u>	<u>Environmental</u>
58,000 people were evacuated within a 30km radius of the volcanoes.	A large amount of infrastructure such as roads and bridges were damaged and had to be replaced (costly). Furthermore the airport had to be closed stopping tourism for sometime and the export of goods.	The combination of the ash and the sulphur dioxide in the atmosphere lowered global temperatures by 0.5 °C between 1991 and 1993.
847 people were killed with 300 by collapsing roofs (due to the number of people who still live below the poverty line). 100 people were killed by lahar mud flows.	An estimated \$700 million of damages to homes and infrastructure.	Fast flowing lahars causes severe river bank erosion and undercut many bridges.
1.2 million people lost their homes and livelihoods who used to live at the volcanoes base. This meant they were forced to live in shanty towns in Manila, where sanitation is poor and housing is dangerous.	Many people that live in the Philippines rely on farming as there main source of income. The combination of heavy rain and ash means that land turned quickly into unusable land, with 650,000 farmers losing their jobs.	Volcanic ash combined with heavy rain meant that a large proportion of agricultural land became unusable.



Impacts:

2. Slides - The Guinsaigon mudslide:

A devastating mudslide hit the village of Guinsaigon in southern Leyte province on the 17th February 2006. The slide covered 9 km², was 3km wide and had a maximum depth of 30 meters. Around **1.2 billion cubic meters of mud** covered the village.

The main cause was a large amount of **heavy rainfall due to the La Nina event in the western pacific**. Within 10 days 200cm of rain had fell which severely saturated the already unstable slopes. It was caused by many factors, the main one being a **small 2.6 magnitude earthquake** before the mudslide. Another key factor though was the large scale deforestation that has occurred over the past 70 years, due to population growth increasing the demand for food, as well as illegal logging in the region.

Impacts:

- More than **1,000 people were killed including 246 children** at a primary school. This was due to the speed at which the event occurred. No one could escape with one villager describing it as a “wall of mud”
- Virtually all of the **300 houses** that once stood in the village had been destroyed.
- Valuably farming land used for agriculture was buried under many meters of mud, whilst livestock were killed.
- In total around **16,000 people were affected** by this mudslide.

3. Typhoon Haiyan:

The Philippines was hit by one of the strongest typhoons ever recorded. It was a Category 4 or 5 typhoon and had sustained wind speeds up 150mph. It was also the strongest to ever recored to make landfall. It formed because there was an area of deep warm water (around 26°C) and low wind shear. Due to how vulnerable the Philippines know they are **1000 people were evacuated before Haiyan made landfall** and the **PAGASA issued a warning that the storm was approaching 24 hours before**.

Impacts:

- There was a total of 6201 deaths and 28,626 people injured
- 16 million people were affected, wth 4 million people being displaced from their homes.
- 1.1 million homes were damaged or destroyed with total economic losses being \$13 billion

After Haiyan had passed through **OpenStreetMap was used to map the worst affected areas**, in which **777,000 edits were made in 4 days**. A month after the typhoon hit **30,000 new homes** were beginning to be built with **higher design standards**.

Response to the large number of natural disasters?

The government within the Philippines has recognised that they are extremely prone to devastating natural disasters and they have set up a large number of organisations to help with forecasting, preparedness and to explore ways in which they can mitigate against these events. Examples of these are:

- National Disaster Co-Ordinating Council
- Philippines Atmospheric, Geophysical and Astronomical Services Administration (PAGASA)
- Philippine Institute of Volcanology and Seismology
- Land use planing and structural programmes of defences help people to survive the huge range of hazards facing them.

