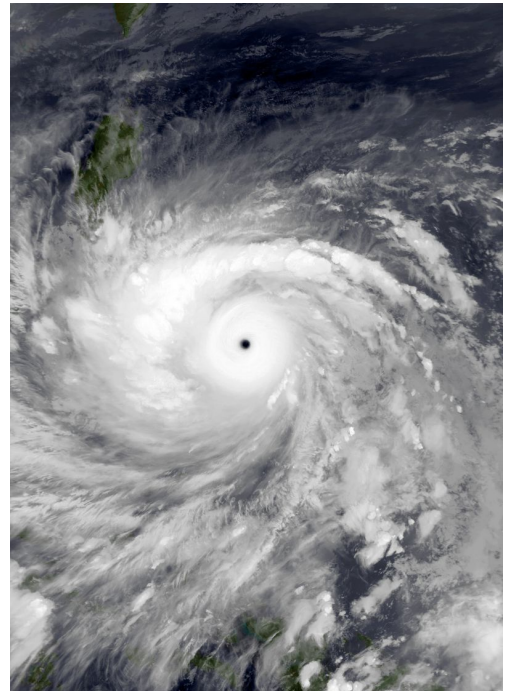# The Challenge of Natural Hazards: Typhoon Haiyan

Formation and Landfall

Typhoon Haiyan was a **category 5 super typhoon** that hit areas of Southeast Asia in November 2013, particularly affecting the **Philippines**. The typhoon was one of the **most powerful** and **devastating** tropical storms **on record**.
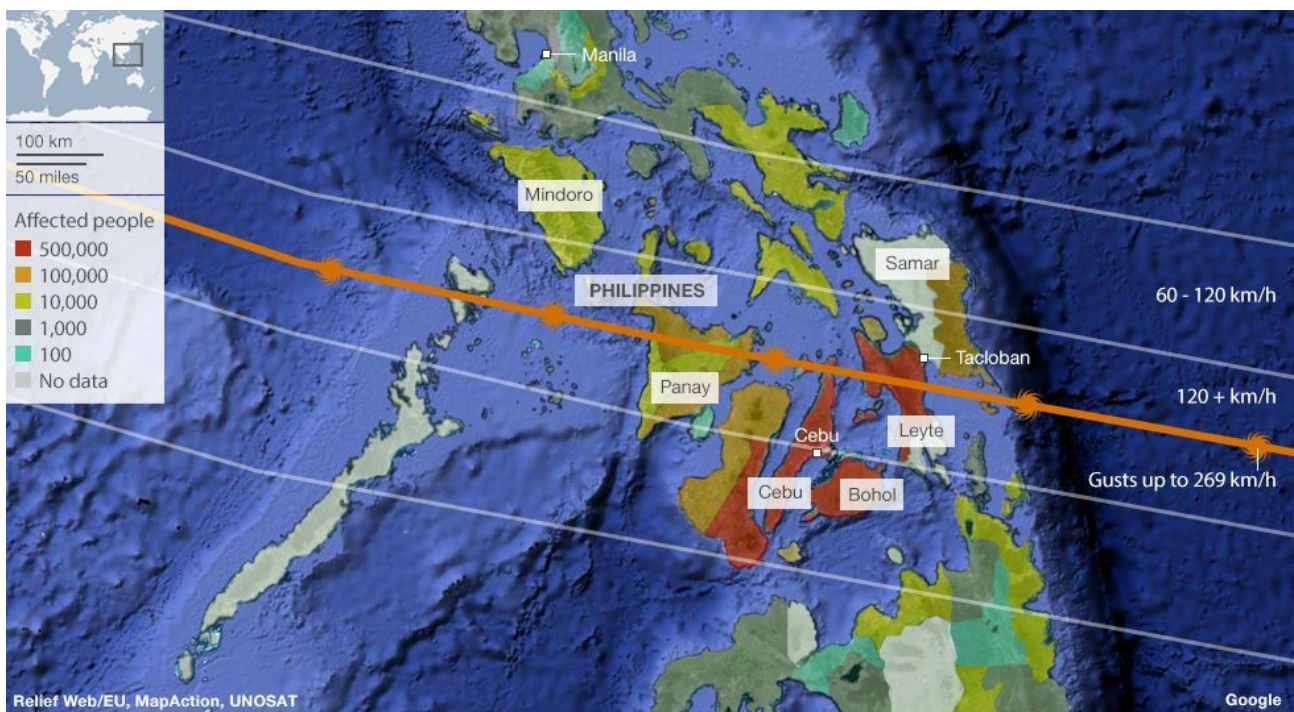
Typhoon Haiyan began as a **tropical depression** hundreds of kilometres east of the Philippines on the 2nd of November, and travelled westward until **making landfall in the Philippines on the 7th November**.

After devastating many islands in the Philippines with **strong winds, heavy rain and very high storm surges**, it weakened whilst travelled northwestwards, eventually collapsing after hitting Vietnam on the 10th November.

Typhoon Haiyan was very destructive due to its **incredibly strong winds**, with 10 minute sustained winds of **230 km/h** (145 mph) and 1 minute sustained winds of **315 km/h** (195 mph). Coastal areas were also devastated by **storm surges** that reached **over 5 metres** above sea level (some wave marks were recorded to be 14.1 metres high!).

T*yphoon Haiyan approaching the Philippines at peak intensity on the 7th November 2013.*

Typhoon Haiyan's track (east to west) (Source:www.bbc.co.uk/news/world-asia-24917722)

Effects of Typhoon Haiyan

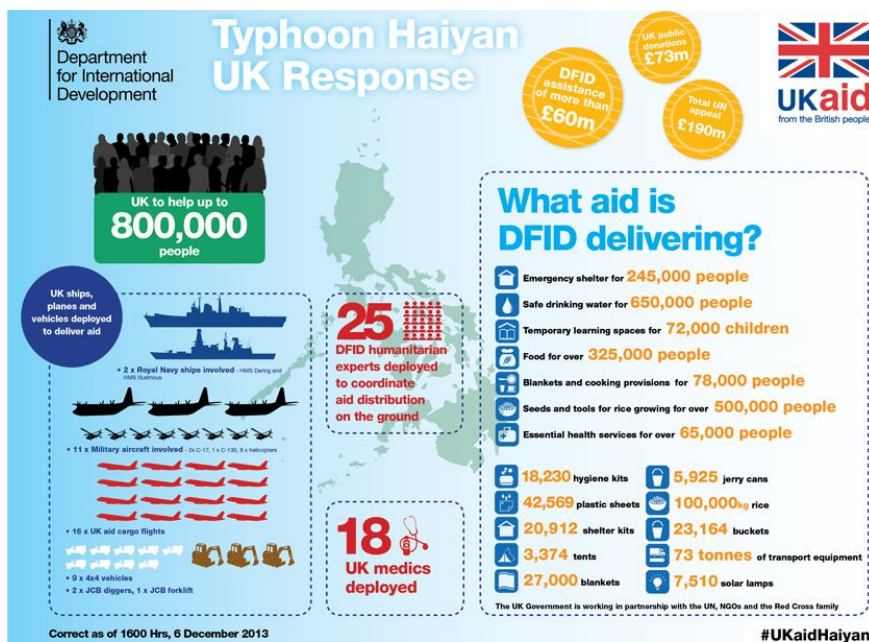| Primary effects	Secondary effects
At least **6,300 people died** (and more missing) in the Philippines from **drowning** or severe injuries caused by **falling debris etc.** *Damaged fuel tanks on the Tanawan coast.* (Source: AP Photo/Wally Santana)	Overall **14 million people were affected**. There were major **shortages of food, water and aid supplies**. This affected health and sanitation and led to outbreaks of **disease**. *'Help! Food. Water.' written in Tacloban.* (Source: AP Photo/Wally Santana)
30,000 fishing boats were destroyed, severely damaging livelihoods in the area.	**Flooding** and **heavy rain** caused **landslides** which blocked roads and slowed relief efforts.
Storm surges flattened and destroyed coastal areas. Over **600,000** people were displaced and **40,000** homes were damaged or completely destroyed, mainly due to surges. The province of **Leyte** was the worst affected area. After the **5 metre high storm surge** hit the city of **Tacloban**, **90% of the city was destroyed**, leaving hundreds of thousands of people homeless and killing hundreds. *The city of Tacloban after Typhoon Haiyan.* (Source: Reuters: Erik De Castro)	As the mortality rate was so high, morgues became overwhelmed and **identification** was difficult. **Mass burials** for thousands of **unidentified people** had to take place in order to limit the spread of disease from bodies. *Bodies being prepared for a mass grave.* (Source: CNN) **Flights and ferry services** were disrupted for weeks, which slowed down the **distribution of aid supplies** to remote communities and resulted in further deaths.
Strong winds and heavy rain damaged buildings and infrastructure, knocking down power lines and telephone poles. The storm also destroyed **crops**.	**6 million people** lost their **source of income** due to the destruction. **Hospitals, shops** and **schools** were damaged and destroyed, disrupting **education** and **livelihoods**.
Over **400mm** of rain fell over a few days, causing **widespread catastrophic flooding**.	**Power supplies** in some areas were cut off for a **month**, affecting communications and relief.
Airports, ports and public services damaged.	**Looting and violence** broke out in Tacloban.

Responses to Typhoon Haiyan

Immediate Responses

- **International aid organisations** and charities responded quickly after the Philippines declared a state of **'national calamity'**. They brought food, water, aid supplies and temporary shelters.

- **Emergency supplies** were pre-positioned by the **Philippines Red Cross** before the typhoon struck. Supplies such as **rice, canned food, cooking oil, salt and sugar** were ready to be distributed when Typhoon Haiyan made landfall.

- The Red Cross supplied over **1.1 million** people with **clean water** to limit the outbreak of disease from poor sanitation.

The Red Cross supplying relief items in Tacloban. (Source: IFRC)

- **Canada** and the **USA** deployed **military aircrafts** to assist with **search and rescue of survivors**. They also brought aid supplies.

- France, Belgium and Israel set up **field hospitals** to help the injured.

- Over **1,200 evacuation centres** were set up to help the homeless. Many centres were in public buildings like churches and schools. Countries like the UK also sent **tents and shelter kits** to the affected areas.

The UK's response. (Source: www.gov.uk/government/news/typhoon-haiyan-uk-disaster-response-update)

Long-term Responses

- 🕐 **Financial aid, medical support** and **supplies** were donated by countries such as the UK, Australia, Japan and the US, as well as the United Nations.

- 🕐 The United Nations Development Programme (UNDP) set up **cash-for-work programs** that paid villagers to clear debris and medical waste. Not only did this help with rebuilding and recovering from the disaster, but it also provided **incomes** to those who had lost their **livelihoods** to Typhoon Haiyan.

(Source: https://youtu.be/9-xwSGbkOfU)

- 🕐 Organisations like **UNICEF** and the **World Health Organisation** vaccinated **thousands of children** against diseases such as polio and measles. This mass immunisation scheme was set up to ensure the **diseases did not spread through temporary shelters**. This video from the BBC explains the mass immunisation programme. (www.bbc.co.uk/news/av/world-asia-25086717).

A child in Manila receiving a measles vaccine in January 2014. (Source: CNN)

- 🕐 The government created a **'build back better'** strategy which pledged that **205,000 homes** would be built to rehome those living in coastal areas that were **at risk from future typhoons**. A **no-build zone** on the coast of the Eastern Visayas was identified as too hazardous to live in. However, by 2016, only **1% of the target** had been achieved.

- 🕐 Rebuilding of **roads, homes, bridges and airport facilities** with assistance from foreign aid. Some **new typhoon shelters** were also built inland to accommodate future evacuees.

- 🕐 Aid organisations such as Oxfam have supported the **replacement of fishing boats**, supporting the recovery of a vital sector in the Philippines.

- 🕐 Rice farming and fishing was quickly re-established, but coconut trees take **years to grow and produce fruit**, and this has led to coconut farmers struggling to recover.

UK aid rebuilding homes. (Source:DFID)

- 🕐 **Environmental organisations** have worked with locals to restore **mangrove forests** that were destroyed on the coasts after Typhoon Haiyan, as they are important areas for wildlife, fishing and act as a **barrier against storm surges**.