

Topic: Example of a megadisaster			
Case study name: Japan 2011 tsunami			
Location: East Coast of Japan at the coast of Tohoku region of Northern Honshu Focus: Under the Pacific 72 km east of the Oshika peninsula			Date (if applicable): 11 March 2011 (Friday 2:46pm)
Causes: <u>Physical</u> - The focus was located around 30 km underground and the epicentre was on the east coast of Japan(129 km east of Sendai) - It was located along the Japan Trench near the subduction zone by the Pacific and North American Plates from movement on the thrust fault. The steep slope in this zone helps create a larger more impactful tsunami - The main cause was by an underwater earthquake with a 9.0 magnitude		<u>Human</u> - Many buildings and settlements were located on or near the low-lying coastline - There was a lack of proper systems, evacuation plans and awareness to help and guide people to safety from the tsunami in a short time - The coastal defence methods used on the coastline weren't effective enough to withstand the height and force of the waves. This made 400 km of coastline fall 0.6 metres.	
Impacts: (highlighted=second ary impact) <u>Social</u> - 15,845 people were killed, 3,375 were missing and 5895 people were injured. - Over 128,000 buildings were destroyed, displacing many people from their homes or forcing them to stay in evacuation centres, temporary housing and so on. - Electrical outages due to the rest of the nuclear power plants being shut down	<u>Economic</u> - From damage alone, it cost around 300 billion USD - It disrupted the local economy as many industries, ports and fields were destroyed - Japan's GDP decreased by 3.7% from January to March - Tourism dropped by 28% - Exports decreased due to disrupted supply lines and poor reputation - Farming and fishing damage due to facilities being damaged	<u>Environmental</u> - 17,257 tremors at the capital alone - Parts of Japan moved 2.4 metres east - Major disruption to coastal ecosystems and habitats destroying estuaries and coral reefs - Harmful pollutants (e.g. caesium, iodine) were released for example from Fukushima nuclear power plant	<u>Political</u> - The tsunami caused the Fukushima nuclear disaster which caused pressure and observation upon Japan's energy policies - The government was under a lot of observation to coordinate an efficient and swift response

Responses:

Short term

- Immediate evacuation and rescue missions were placed and temporary shelters were set up for displaced people. These shelters included basic necessities for people and public buildings were also turned into shelters
- Medical assistance was also deployed to certain areas to help treat injured individuals.
- 20 km (12 miles) exclusion zone was created around the Fukushima Nuclear power plant
- Automated cooling systems implemented to cool reactor cores and prevent more radiation from spilling out.

Long term

- Many damaged buildings were reconstructed along with some new facilities being constructed as well.
- Assistance was provided for businesses/ farmers and fishermen to help revive the economy and more practices were added to restore coastal ecosystems.
- Changes in Japan's energy policies and disaster preparedness were added to help lessen the impacts for future cases.

Impacts on global travel/tourism

- An immediate decline in international tourism to Japan due to concerns about safety and worries about aftershocks
- Severe reputation damage due to radioactive materials being released into the Pacific Ocean
- Japanese government put more efforts into promoting tourism attractions and launching marketing campaigns - encouraging hotels to set up alarm systems, having multiple language warnings, building accommodations with dramatic ocean views

Impacts on USA

- The US banned the import of certain vegetables and milk from Japan due to concerns of radiation
- The US relies on Japan's automobiles, semiconductors, and electronics parts and final products, meaning the disaster resulted in a disruption in the supply chain

10 Years later...

- Fukushima nuclear power plant remains out of service and the clean-up and decommissioning work has taken many years
- 160,000 people evacuated from the area
- Radiation-contaminated soil is stored in Minamisoma
- March 11 2021 Japan mourned the 10-year anniversary of the Fukushima disaster
- Around 40,000 people are still unable to return to their homes near the plant
- There has been an increase in anti-nuclear activism and in 2021 nuclear energy only contributed to 7% of the electrical supply meanwhile their goal a decade ago was to increase it to 22%
- Fukushima has a 'difficult-to-return zone' which restricts residents from entering due to high radiation. Therefore, houses in that area, which were partially destroyed by the tsunami, were left there untreated.