




The Challenge of Natural Hazards: Chile and Nepal

Chile and Nepal's Contrasting Levels of Wealth

 Chile 	 Nepal 
<ul style="list-style-type: none"> • Gross Domestic Product: 298.2 billion USD. 38th in the world (out of 193 countries). • Human Development Index: 41st in the world (out of 187 countries). 	<ul style="list-style-type: none"> • Gross Domestic Product: 29.04 billion USD. 109th in the world (out of 193 countries). • Human Development Index: 145th in the world (out of 187 countries).

Gross Domestic Product (GDP) - A measure of the **total wealth of a country**.

Human Development Index (HDI) - A measure of the **development** of a country.



Santiago, Chile

(Source: www.atlanticcouncil.org/blogs/energysource)

Kathmandu, Nepal

(Source: www.theguardian.com/travel)



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Hazards in Chile and Nepal - Earthquakes

Both Chile and Nepal have suffered **severe earthquakes**. These countries have dealt with **different effects** and had **different responses** to the events.

2010 Chile Earthquake

On the **27th February 2010**, a huge earthquake measuring **8.8 on the Richter scale** struck off the **coast of Chile**, lasting for over **three minutes!**

The earthquake occurred on a **destructive plate margin**, where the **Nazca plate subducts beneath the South American plate**. Smaller aftershocks followed the initial earthquake.

As the earthquake occurred in the **Pacific Ocean**, the plate movement displaced a lot of **seawater**, triggering a **tsunami**.



(Source: www.britannica.com/event/Chile-earthquake-of-2010)

2015 Nepal Earthquake

On the **25th April 2015**, a **7.9 magnitude earthquake** hit Nepal, caused by the subduction of the **Indo-Australian plate** beneath the **Eurasian plate** (destructive plate margin). The earthquake's **epicentre** was around **80km away from Nepal's capital, Kathmandu**.

The earthquake originated only **15km below the surface**, which meant it was felt **very strongly** on the surface. **Huge avalanches and landslides** were triggered in the **The Himalayas** which run through Nepal. Damage from the earthquake extended **hundreds of kilometres** into Pakistan, Tibet and India, and severe **aftershocks** occurred afterwards.



The Effects of Earthquakes in Contrasting Areas



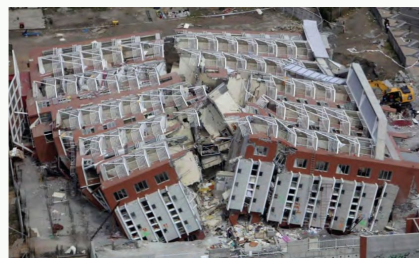
Chile



Primary effects

- Around **500 killed** and **12,000 injured**.
- **800,000 people affected** overall.
- Many buildings were destroyed, including **22,000 homes**, **4,500 schools**, **53 ports** and **56 hospitals**. The **Santiago airport** was also badly damaged.

(Source: ©Reuters)



- **Water, electricity and communications** lost in many places.
- Many **well-constructed buildings** were left standing after the earthquake.
- Estimated cost of **USD\$30 billion**.



(Source: Martin Bernetti/AFP/Getty Images)

Secondary effects

- **Landslides** triggered by the earthquake damaged **1500km of roads**. Debris **blocked roads** for weeks, which cut off **rural communities** and slowed relief efforts.
- A **tsunami** was triggered by the earthquake, which devastated coastal towns and destroyed ports. The tsunami also hit other **Pacific countries**.
- **Fires broke out** in buildings due to burst pipes and other complications. A fire in a **chemical plant** near Santiago meant many people had to be evacuated.



A landslide near Arauco.

(Source: <https://blogs.agu.org/>)



The village of Penco after being hit by a tsunami.

(Source: Evaristo Sa/AFP/Getty Images)



Smoke from a fire outside Santiago.

(Source: Martin Bernetti/AFP/Getty Images)





Nepal



Primary effects

- **9,000 killed** and **20,000 injured**.
- **8 million people** affected ($\frac{1}{3}$ of Nepal's population)
- **3 million people left homeless** after homes were destroyed.
- **7,000 schools destroyed**, and **50% of all shops destroyed**, leading to food and supply shortages.
- **Power, water and communications** were severely affected.
- **1.4 million people** were urgently in need of food, water and shelter.
- The cost of damage was estimated at around **USD\$5 billion**.
- Many **historical sites and landmarks** were damaged or destroyed.



(Source: [ReSurge International](https://www.reurge.com/))



(Source: www.ctvnews.ca/world/nepal-earthquake-before-and-after)

Secondary effects

- **Landslides and avalanches** triggered by the ground shaking, causing widespread damage to **infrastructure**, blocking **roads** and trapping people under **snow and rubble**.
- The avalanches on **Mount Everest** killed at least **19 people**, and avalanches elsewhere left hundreds missing.
- Landslides **blocked rivers**. For example, the **Kali Gandaki River** was blocked by a landslide, and many people had to be evacuated in case of **flooding**.
- There was no tsunami as the earthquake started on **land**.



Base camp on Mount Everest. (Source: [National Geographic](https://www.nationalgeographic.com/))



The Responses to Earthquakes in Contrasting Areas

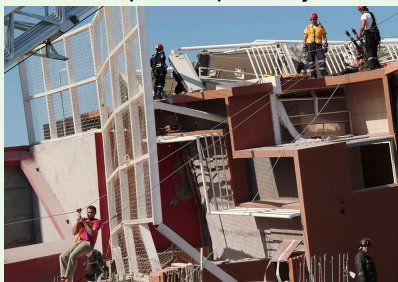
Chile and Nepal had **different responses** to the earthquakes they suffered due to the countries' different levels of **preparedness** and **wealth**.

⚠ Immediate Responses ⚠

Chile

Nepal

Emergency services were deployed quickly. **Search and rescue teams** were sent out to **search for and help survivors**, and **emergency field hospitals** were set up to help the injured.



A survivor from a collapsed apartment complex is lowered to safety by a cable. (Source: [REUTERS](#))

International aid quickly arrived from the **UK, India and China**. They brought search and rescue teams, **medical support and essential supplies**. Over **£87 million** was raised in aid by donations.



RAF aircraft loaded with aid sent from Britain. (Source: [Steve Lympany/MOD](#))

Within **24 hours**, temporary repairs were made to the **Route 5 north-south highway**. This reconnected the capital (Santiago) to other areas, and allowed **response teams** to travel to more remote communities.

Helicopters were used for **search, rescue and supply distribution**. Those left stranded by avalanches were rescued by helicopter, and **communities** cut off by severe landslides were given vital supplies.

Temporary shelters were set up for the homeless. The **Chilean government** immediately distributed **5,000** temporary shelters, and a further 30,000 temporary emergency shelters **were built** after fundraising.

International aid groups also set up **emergency response units** for healthcare and emergency supply distribution.



IRFC Emergency response units. (Source: [IFRC](#))

Half a million tents were provided after the earthquake, many from **UNICEF**. These tents provided shelter for the **homeless**, and were also used as temporary classrooms and healthcare facilities as the **strong aftershocks** prevented people from using buildings.

Field hospitals were set up as hospitals were extremely overcrowded with casualties.



Tents used as emergency shelters after the Nepal earthquake. (Source: [UNICEF](#))

Power and water was restored to **90% of homes** within **10 days**.

300,000 people fled from the capital, Kathmandu, to seek shelter elsewhere, e.g. with family.

USD\$60 million raised in relief funds after a national appeal, which went towards reconstruction and emergency aid.

Social media was used as a means of communication for those affected. Facebook introduced a **safety check feature** after the earthquake which allowed people to mark themselves as 'safe' to family and friends.



🕒 **Long-term responses** 🕒

Chile

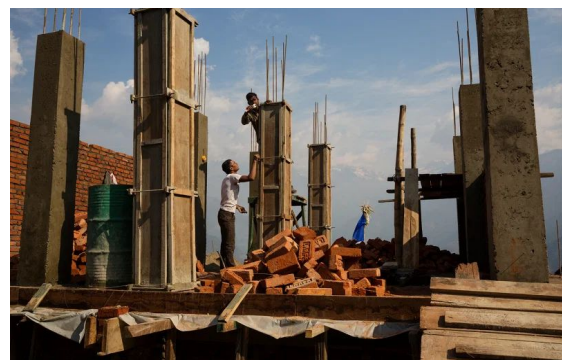
Nepal

Chile set up a national housing reconstruction plan one month after the earthquake, pledging \$USD2.5 billion in housing subsidies for 196,000 households affected.	In 2019, three-quarters of homes that were destroyed from the earthquake were either fully rebuilt or under repair . Over 7000 schools needed to be rebuilt or repaired.
Thousands of houses and buildings were deemed unsafe to stay standing, and had to be demolished .	The government introduced stricter building codes with better earthquake resistance .
Foreign aid was not heavily relied upon as Chile had the funds available for reconstruction and recovery . The frequency of earthquakes in Chile meant the country was prepared for the disaster.	Landslides were cleared and roads were repaired. Temporary lakes formed by landslides that blocked rivers had to be carefully drained , such as in the Kali Gandaki river .
The president of Chile announced that full recovery could take 4 years , especially to fully reconstruct buildings and ports .	In June 2015, Nepal hosted an international conference to seek advice and financial support from other countries to help the recovery process.
	By August 2015, repairs to Everest base camp and mountain routes meant the area could be reopened to mountaineers. Other tourist sites were opened over time, boosting the tourism sector.
	In September 2015, Nepal suffered severe shortages of fuel, medicines and earthquake relief materials after India imposed a blockade at the Nepal-India border, stopping goods from entering Nepal.



A newly constructed lagoon designed to help flooding after Constitución was damaged by the tsunami.

(Source: www.theguardian.com)



Villagers in the Gorkha district rebuilding houses, April 2016

(Source: <https://time.com/4305225/nepal-earthquake-anniversary-disaster/>)

