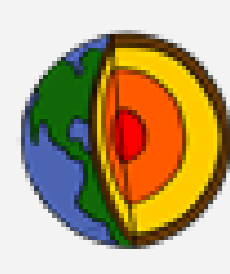


What increases hazard risk?

The risk of a hazard can be increased by several factors including location, magnitude, poverty, development of a country, and preparedness.


Why do tectonic plates move?



- The earth consists of 4 layers, the inner core, outer core, mantle and crust.
- The crust is divided into sections called tectonic plates.
- An area where two tectonic plates meet is called a plate margin.

Plates move due to the processes of slab pull, ridge push and convection currents in the mantle

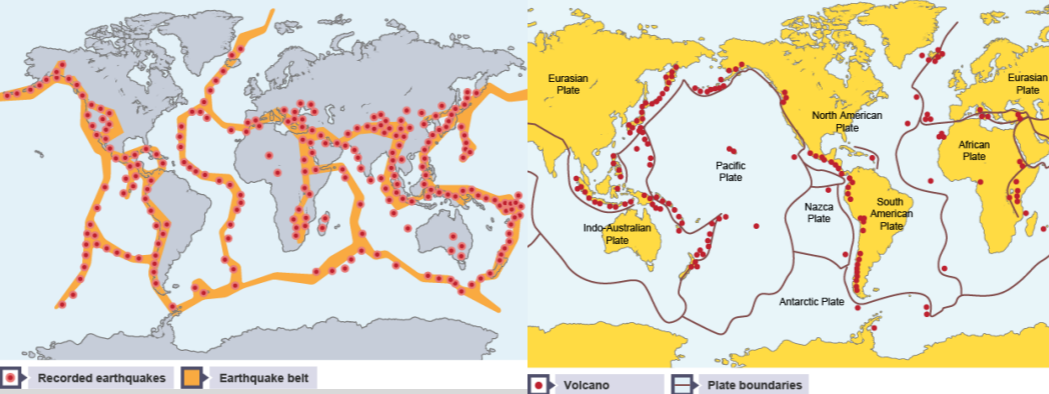
Slab Pull	<ul style="list-style-type: none"> Dominant force driving plate movement. Old dense oceanic crust sinks into the mantle due to gravity, pulling the rest of the plate. This causes convection currents in the mantle
Ridge Push	<ul style="list-style-type: none"> Magma rises through the gap created by slab pull, pushing the plate up to form a ridge at the margin. It cools and forms a new oceanic plate which becomes more dense and pushes away from the ridge due to gravity.
Convection Currents	<ul style="list-style-type: none"> Magma is heated at the bottom of the mantle and rises to the surface, cools, and sinks back down. This creates convection.



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Key Terms

Natural hazard	A natural event that threatens people or has the potential to cause damage, destruction and death.
Plate margin	The margin or boundary between two tectonic plates.
Hazard risk	The probability or chance that a natural hazard may take place.
Slab pull	The dominant force driving plate movement where gravity pulls the oceanic crust into the mantle.
Ridge push	A type of plate movement where plates are pushed upwards to form a ridge, then forced away due to gravity.
Tectonic plate	A rigid segment of the earth's crust which can 'float' across the heavier, semi-molten rock below.
Earthquake	A sudden or violent movement within the Earth's crust followed by a series of shocks.
Volcano	An opening in the Earth's crust from which lava, ash and gases erupt.
Effects	The impacts of a natural hazard on people and property. Primary effects are caused directly by it, secondary effects occur as indirect impacts, sometimes on longer timescales.
Responses	The reactions of people to a disaster. Immediate responses happen immediately, long-term responses happen weeks, months and years after the event.



Why do people live in risky areas?

Some people decide that the negatives of moving outweigh the risks of the hazard e.g. if they have family in the area and want to stay or they simply can't afford to move. On the plus side, volcanoes can create very fertile farmland which is useful for agriculture and are tourism hotspots.

In HICs some areas are very well protected against the hazard so the residents feel the risk is low.

Volcanoes can also provide geothermal power which is renewable and sustainable.

How do earthquakes and volcanoes create risks?

Three types of plate margin lead to hazards. Earthquakes occur at all three margins. Volcanoes do not occur at conservative margins.

- A **destructive margin** is where plates move towards each other and the denser plate subducts into the mantle. This causes it to melt and become magma. Friction between the plates builds until it is released as a powerful earthquake. Magma forces its way through weaknesses in the crust to create violent volcanoes.
- A **constructive** margin is where two plates are moving apart. Magma reaches the surface by filling the gap. New crust is created when the magma cools. Less powerful volcanoes occur when magma erupts through the weakness in the crust. Smaller earthquakes occur due to the build up of friction.
- Conservative** margins only create earthquakes when two plates slide past each other in opposite directions, or in the same direction at different speeds. Friction builds until it is eventually released as seismic energy creating an earthquake.

Haiti Earthquake 2010 (LIC) 7.0 magnitude 230,000 people killed and 1 in 5 jobs lost. Cholera outbreak due to poor sanitation 98% of rubble remained after 6 months. The World Bank waived Haiti's debt payments for 5 years.	New Zealand Earthquake 2011 (HIC) 6.3 magnitude 185 people killed. £28 billion in damages, with 2 further aftershocks four months later. Canterbury Earthquake Recovery Authority set up to provide 10,000 new homes.
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How can we reduce the risk of tectonic hazards?

Prediction and monitoring: Using scientific methods to predict when a hazard is going to occur e.g. satellite surveying changes in the movement of the earth, seismometers, historic seismic events.

Protection: Building earthquake or volcanic eruption resistant infrastructure to protect individuals against the risk.

Planning: Planning to reduce the risk by creating exclusion zones in areas most at risk, having emergency supplies ready in case of an evacuation and training emergency services to deal with the aftermath of a hazard.