



Natural and human-made hazards

This fact sheet is about natural and human-made hazards and is an introduction to Greater Wellington's Hazard Fact Sheets series. The other sheets in the series cover the hazards that affect us in the Wellington Region such as earthquake, flooding, landslide, tsunami, climate change, meteorological hazards, wildfire, petroleum hazards and hazardous substances.

When we talk about 'natural' hazards, we mean things that happen as part of nature like earthquakes and floods. 'Human-made' hazards, for the purposes of this fact sheet, are hazards that are created by people, such as petroleum products and hazardous substances.

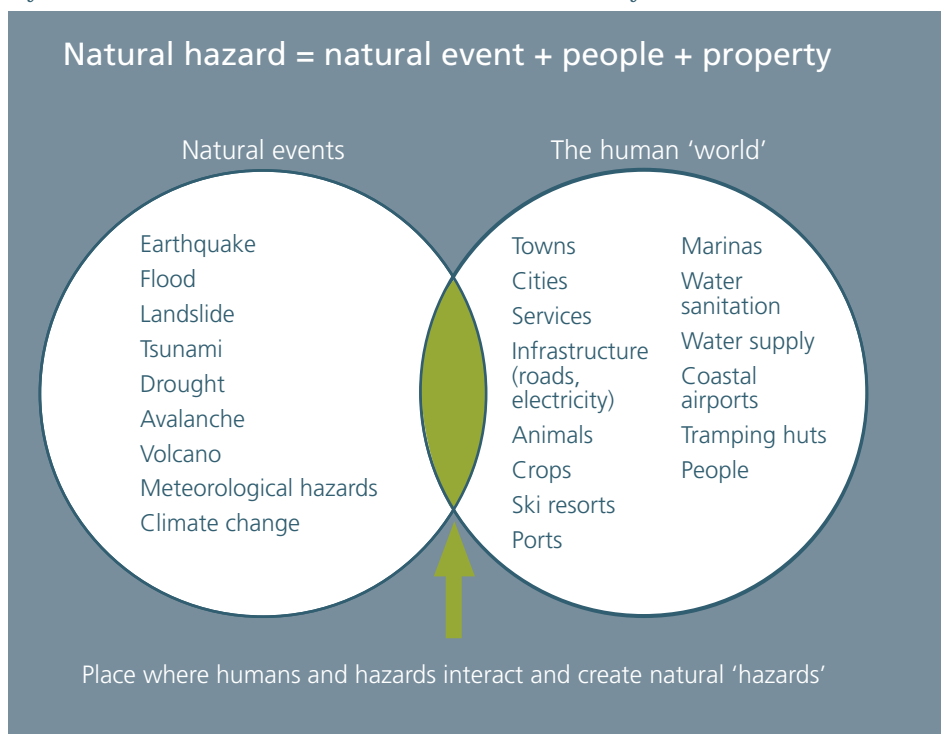
What are natural hazards?

A natural hazard occurs when an extreme natural event is destructive to human life and property. This event could interfere with activities in a minor way such as when strong winds blow trees down, or this event could completely disrupt activities like a large earthquake damaging your home, business or school. These natural events have been happening for thousands of years (a long time before we were even around!), but they only become hazards when humans are affected in some way.

See if you can match up what natural events could affect things in the 'human world'. We've done the first one as an example:

A tsunami will affect coastal towns and cities, ports, marinas, coastal airports, infrastructure, services and water sanitation.

Our fact sheet series covers all of these hazards (except avalanches and volcanoes as they are pretty unlikely in the Wellington Region!).



So, can we do anything about natural hazards?

We can't stop natural events from happening, but we can reduce our risk from the effects. This is called **mitigation**.

Three means of mitigation are:

1. Protection

Protection is about looking after our houses, buildings and structures that already exist in areas which may be exposed to a natural hazard. For example:

- Building stopbanks to protect the human uses near the river (such as houses or businesses).

2. Prevention

Prevention is about keeping buildings and activities that involve lots of people **away** from natural hazards. It is also about **how** we build. So, prevention includes:

- Making our buildings really strong so that they will stand up to an earthquake.
- Making sure that new buildings are not built over a faultline, or in the path of a flood, tsunami or landslide.

3. Preparedness

Preparedness is about things that people can do to be ready for an event.

- Having emergency supplies like water and stored food, and a plan for what to do in an emergency.
- Having people especially trained to respond to an emergency. Your local city or district and regional councils have dedicated people whose job it is to respond to emergencies and educate people about the hazards they face, and how to respond.

By using the protection and prevention measures we may be able to stop a natural event affecting us and becoming a hazard. The preparedness measures will help us if we are affected during a natural hazard event.

An example of **prevention** is an engineering design called Base Isolation. This is a New Zealand invention and is now being used all over the world including our national museum, Te Papa.

Base isolators are like a suspension system for buildings - they separate a building from the ground. Lead and rubber bearings are installed which act much like automobile shock absorbers, isolating the building from the violent ground movements induced by earthquakes.

You can visit the base isolators at Te Papa's 'Quake Breaker'. Check out www.tepapa.govt.nz for more information. Te Papa is the largest building in the Southern Hemisphere that is base isolated. Other buildings in the Wellington CBD area that have been base isolated include the Old Bank Arcade and the Central Police Station.



Check out the gap between the building and the ground.



An example of a base isolator underneath Te Papa.

What are human-made hazards?

Human-made hazards are caused by human activities. The most likely human-made hazards in the Wellington region are spills, fires or accidents from products such as chemicals or petroleum products.

Incidents can happen when products are transported on roads or on the sea such as in a petrol tanker or a ship, or where products are stored such as the bulk storage tanks at Seaview, Kaiwharawhara or Miramar.

The effects of natural hazards like earthquakes (ground shaking, surface rupture or liquefaction) can also cause a human-made hazard such as a petroleum spill or fire.



What can be done about human-made hazards?

Unlike natural hazards, human-made hazards can often be prevented. But we still need to use the three mitigation measures that we have talked about earlier. For example:

Protection

Storing chemicals in very strong containers with special tamper-proof seals.

Prevention

Locating storage sites away from large residential areas.

Preparedness

Training people for incidents so that they know what to do if there is a spill or a fire.

CONTACTS AND INFORMATION

Greater Wellington
Regional Council
Wellington Office
P O Box 11646
T 04 384 5708
F 04 385 6960
W www.gw.govt.nz