

User guide:

National insights relevant for adaptation planning

About this document

This document is a guide to the Climate Change Commission's report, [National insights relevant for adaptation planning](#), which provides a high-level picture of exposure and vulnerability to selected climate-related hazards across Aotearoa New Zealand, to support national adaptation planning and decision making.

The insights report is a companion report to (and was published alongside) our [2026 progress assessment on the national adaptation plan](#).

This user guide provides information on:

- What the report is, how it relates to the Commission's other work, and how it will be updated over time
- Key insights from the report
- How the metrics in this report should be used
- How to read and use the maps in this report

For more information, see the full [national insights report on our website](#) or [contact us](#).

What is the national insights report? How does it relate to the main reports and to the NCCRA?

This report provides a high-level picture of exposure and vulnerability to selected climate-related hazards across Aotearoa New Zealand, to support national adaptation planning and decision-making.

This report is an important step towards building a more quantitative picture of risk at a national level that can inform the measurement of adaptation progress. It is focused on key aspects of risk, particularly exposure and vulnerability, that are relevant to adaptation planning.

The insights report is a companion report to (and was published alongside) our [2026 progress assessment on the national adaptation plan](#). It builds on the national metrics developed for the [2024 progress assessment](#). These metrics have been updated and expanded with some additional measures.

This report also complements and builds on the [second national climate change risk assessment for Aotearoa New Zealand](#). The metrics in this report touch on multiple areas relevant to the risks identified in the 2026 risk assessment.

By understanding the extent to which people and infrastructure are exposed to climate hazards, decision-makers at all levels can make informed decisions on where to focus adaptation efforts. The report provides high-quality quantitative data on significant climate risks – information that can support such decision-making.

How should these metrics be used?

The report provides national and district-level insights that can support national-level adaptation planning.

It's important to note that more detailed local data will be needed to support planning and decision-making at a community level.

Communities need to be involved in deciding the best actions for their local circumstances. The high-level information in this report can support decision-making about Aotearoa New Zealand's adaptation needs but does not recommend specific actions to address climate related hazards.

How will this report be updated over time?

This is the first time the Commission has published this work as a separate report.

This report begins to establish a baseline and approach for ongoing monitoring. International best practice increasingly combines quantitative metrics with qualitative analysis to understand adaptation progress, which can be complex.

Measuring adaptation requires metrics that can be linked to clear adaptation objectives and outcomes, so changes can be tracked over time and across different locations.

The Commission will continue to refine and expand the suite of national metrics as this work develops.

What are the key themes in this report?

Exposure to climate-related hazards varies across the country

- Exposure to climate-related hazards, and social vulnerability, vary considerably across Aotearoa New Zealand, and the nature and scale of risks are likely to change over time.
- Some districts already have significant numbers of people, buildings and infrastructure exposed to climate-related hazards, with some areas exposed to multiple hazards at the same time.
- In some districts, people, communities and businesses could become isolated due to coastal flooding even if they are not directly affected, as vital transport routes are cut off affecting access to essential services.
- Some districts have high levels of exposure to climate-related hazards, combined with significant numbers of people who may be likely to experience harm – for example because of age, health conditions, economic insecurity or other factors.

Isolation

Climate impacts can affect people even when they are not directly in a hazard zone, because flooding can cut off roads and access to essential services.

- Coastal flooding can isolate communities, businesses and households by damaging transport routes.
- Isolation means being cut off from important services like healthcare, education, jobs, supplies and emergency services.
 - Under current conditions, over 140,000 people could be isolated by coastal flooding (2.9% of the population).
 - 0.2m of sea-level rise could see over 180,000 people become isolated.
 - More than 15,500 businesses could become isolated by coastal flooding (3.2% of all business across Aotearoa New Zealand).
- The risk is not evenly spread. In Thames-Coromandel, around half of the population could become isolated by coastal flooding.
- Flooding does not only impact those people, communities and businesses that are directly exposed. It can also damage and disrupt transport networks, which affects people's ability to access essential services and participate in daily life. This can also disrupt business activity, and cause flow-on effects for communities and the country as a whole – e.g., through loss of income, reduced access to goods and services.
 - In Hauraki district with only 20cm of sea-level rise, 39% of businesses in the agricultural, forestry, and fishing sector could become isolated.

Extreme heat

Extreme heat is expected to become much more common across the country, increasing risks for people, infrastructure and the economy.

- Extreme hot days are projected to increase significantly across the country under all climate scenarios (low, medium, and high).
- Days that are currently considered rare (occurring 2% of the time) are projected to occur more frequently in coming decades.
 - By 2020-2040, these extreme hot days are projected to occur on 4-6% of days across most of the North Island, and 3-5% of days across most of the South Island.
 - By 2040-2060, this increases to 6-11% across most of the North Island, and 4-9% across much of the South Island.
- More frequent extreme heat can affect the health and wellbeing of people, communities, ecosystems, infrastructure and economic activity.
- These findings reinforce risks identified in the 2026 national climate change risk assessment relating to health, infrastructure resilience, and economic disruption from increasing temperatures.

Social vulnerability

Climate change will not affect everyone equally, with some communities facing both higher hazard exposure and greater vulnerability to harm.

- Some districts have high levels of exposure to climate-related hazards, combined with significant numbers of people who may be likely to experience harm. This points to hot spots where climate-related hazards may cause disproportionate harm, and where populations may have limited capacity to adapt.
- Currently, approximately 7600 people exposed to coastal flooding nationally are defined as having high levels of social vulnerability. This increases to approximately 13,000 people with just 0.2 metres of sea level rise.
- Napier and Buller are areas with the highest proportions of their populations that are both exposed to coastal flooding and have high levels of social vulnerability.
- These findings support the Commission's advice that additional funding, financing and targeted support measures will be needed to help communities that need it most.

Notes:

1. The social vulnerability metric we have developed/customised focuses on areas where physical risk (coastal flooding) and social vulnerability combine. 'High socioeconomic deprivation' refers to areas in deciles 9 and 10 of the New Zealand index of socioeconomic deprivation.
2. The extent of people, homes and infrastructure assessed for exposure is based on current population, number of buildings and amount of infrastructure. ESI have not considered future changes to these elements in this analysis.

Insurance availability

Approximately 4% of properties located within flood zones are unable to obtain online quotes from two or more insurance underwriters.

The number of affected properties is not evenly distributed across regions. There are multiple locations where households exposed to flooding are already facing difficulty obtaining competitive quotes.

Suburbs with signs of limited insurance availability include:

Kaeo (Far North)

Avondale and Milford (Auckland)

Thames (Thames–Coromandel)

Paraparaumu (Kapiti)

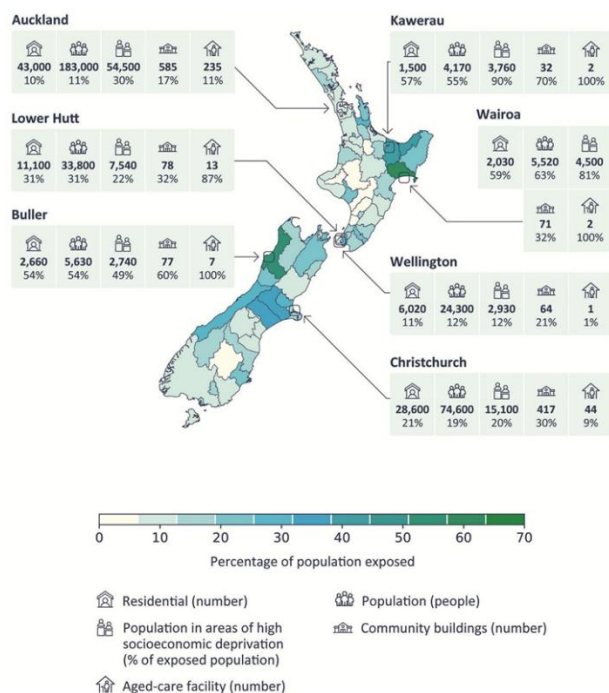
Island Bay (Wellington)

Westport (Buller)

Kaipoi (Waimakariri)

Woolston and Christchurch CBD (Christchurch)

Maps: People, buildings, and infrastructure exposure to climate hazards



The national insights report contains several maps highlighting some districts that are most exposed to current and future climate-related hazards.

This example map shows people, homes and community buildings exposed to inland flooding with a 1% annual exceedance probability at 1°C of warming.

How do I read the maps?

There are two types of maps for most hazards: one highlighting **population and community** exposure, the other highlighting **infrastructure** exposure.

The shading represents the share of the population exposed, or the average share of infrastructure exposed.

What information underpins these hazard maps?

The underlying exposure information was provided by Earth Sciences New Zealand.

This assessment only focuses on exposure and does not assess potential for an asset to be damaged. For example, an asset might be exposed but sufficiently robust to withstand that level of exposure.

Buildings are considered exposed to flooding if there is more than 5 cm of water around 50% of the perimeter. For other linear infrastructure, such as roads and pipelines, any part that overlaps with the hazard and is within 5 cm of water is considered exposed. For landslides, any part of an element that overlaps with the hazard is considered exposed.

For both inland flooding and rainfall-induced landslides, the baseline period is 1986–2005, centred on 1995. This baseline period is already approximately 1°C warmer than pre-industrial (1850–1900) conditions. Therefore, the 1°C threshold has already passed. Today's climate is already 1.4°C above pre-industrial levels. For clarity and consistency with international norms, we have chosen to express the baseline centred on 1995 as 1°C pre-industrial.

Also note that sea-level rise has already occurred, and the use of a 0.0 m 2005 baseline obscures approximately 0.2 m of sea-level rise that has already happened since pre-industrial times.

What is the key information from the maps?

Inland flooding

Inland flooding is one of the most frequent and widespread natural hazards in many parts of New Zealand.

Population

- At 1°C of warming, 15.1% of the population is already exposed to inland flooding
- At 2°C of warming, it increases to 16.2% of the population
- At 3°C of warming, it increases to 17.2% of the population

Infrastructure

- At 1°C of warming, 18.8% of roads are exposed to inland flooding
- At 2°C of warming, this increases to 19.8% of roads
- At 3°C of warming, this increases to 20.7%

Rainfall-induced landslides

Landslides have been described as New Zealand's deadliest natural hazard because they cause more fatalities and drive more insurance claims than earthquakes, flooding, tsunamis, or eruptions.

Population

- At 1°C of warming, 1.6% of the population are exposed to rainfall-induced landslides
- At 2°C of warming, this increases to 2.2% of the population
- At 3°C of warming, this increases to 3.0%

Infrastructure

- At 1°C of warming, 7.1% of roads are exposed to rainfall-induced landslides
- At 2°C of warming, this increases to 9.0% of roads
- At 3°C of warming, this increases to 10.8% of all roads

Coastal flooding

New Zealand's large coastal population makes coastal flooding an important hazard for New Zealand, particularly in the context of rising sea levels.

Population

- Currently, 0.6% of the population are currently exposed to coastal flooding.
- At 0.5m sea level rise, this increases to 1.8% of the population
- At 1m sea level rise, this increases to 3.3% of the population

Infrastructure

- Currently, 2.0% of waste and stormwater pipelines are exposed to coastal flooding.
- At 0.5m sea level rise, this increases to 4.1%
- At 1m sea level rise, this increases to 6.7%

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