



# Resilience Strategy for Natural Hazard Risk Reduction

2024-2029



# RESILIENCE STRATEGY FOR NATURAL HAZARD RISK REDUCTION 2024-2029



Our Vision is that natural hazards resilience becomes embedded in all aspects of decision-making for our homes, communities, towns and cities.

Our Goal is to inform, enable and influence the choices and decisions that reduce vulnerability and the exposure of New Zealand's built environment to natural hazards.

## WE WILL DO THIS THROUGH:

Building knowledge, data and insights on natural hazard impacts and ways to reduce them

Enabling, influencing and advocating for natural hazards resilience

### RESEARCH

Objective: Invest in research and capability targeted to reducing the risk of impacts from natural hazards on people, property, and the community

### LOSS MODELLING

Objective: Provide an authoritative, insightful, and internationally respected view of New Zealand's natural hazard risk

### RISK REDUCTION

Objective: Inform, enable, and influence evidence-based risk reduction decision-making and action

### PUBLIC EDUCATION

Objective: Empower individuals, households and communities with information and actions they can take to manage risk and strengthen resilience

RESEARCH STRATEGY

LOSS MODELLING STRATEGY

RISK REDUCTION STRATEGY

PUBLIC EDUCATION STRATEGY

## SIGNATURE INITIATIVE: THE NATURAL HAZARDS PORTAL

Develop the Natural Hazards Portal into centralised natural hazard risk and risk management information site. Over time we want the Portal to offer a comprehensive view of New Zealand's natural hazard risks, at an individual property, community, local, regional, and national level, so that it can support decision-making at all levels.

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# What is resilience?

**Resilience is the ability to anticipate and resist the effects of a disruptive event, minimise adverse impacts, respond effectively, maintain or recover functionality, and adapt in a way that allows for learning and thriving (National Disaster Resilience Strategy, 2019).**

The concept of resilience has become popular over recent years, used in a variety of disciplinary settings. It is generally intended to describe an emergent quality that is displayed in times of uncertainty, shock, or stress.

Part of this popularity seems to be due to the positive connotations of resilience – that resilience is a proactive attribute or action that is taken to protect, survive, and adapt in the face of adversity.

When it comes to natural hazards, we often think in terms of negative consequences of uncertainty – hazard, exposure, vulnerability, risk, impact. Natural hazards resilience, instead, encourages us to take action – both to reduce our risks, and to build capacities to better deal with the impacts of hazards when they occur.

Using this interpretation, resilience has two dimensions: the ability to absorb impact, and the ability to adapt and recover from impact.

The graphic on the next page illustrates this. When a community or system is subject to a natural hazard, the level of functioning declines, and can fall rapidly. The **severity of impact**, or fall in functioning, can be thought of as the absorption capacity of the system. A community or system with a high-absorption capacity experiences only a small loss in functioning because it has removed the worst of the exposure and vulnerability. Moreover, it has sufficient buffers to resist impacts and ensure it continues to support essential services.

The **speed of recovery** is the time between the natural hazard event and functioning returning to a steady-state level. Communities or systems with high adaptability can recover faster than those with low adaptability, and can even reach a new, higher level of steady-state functionality.

**These two dimensions together acknowledge the total impact of a hazard is a function of both the severity of the impact and the time it takes to recover.** Understanding this helps us identify where to take action to improve outcomes for communities.

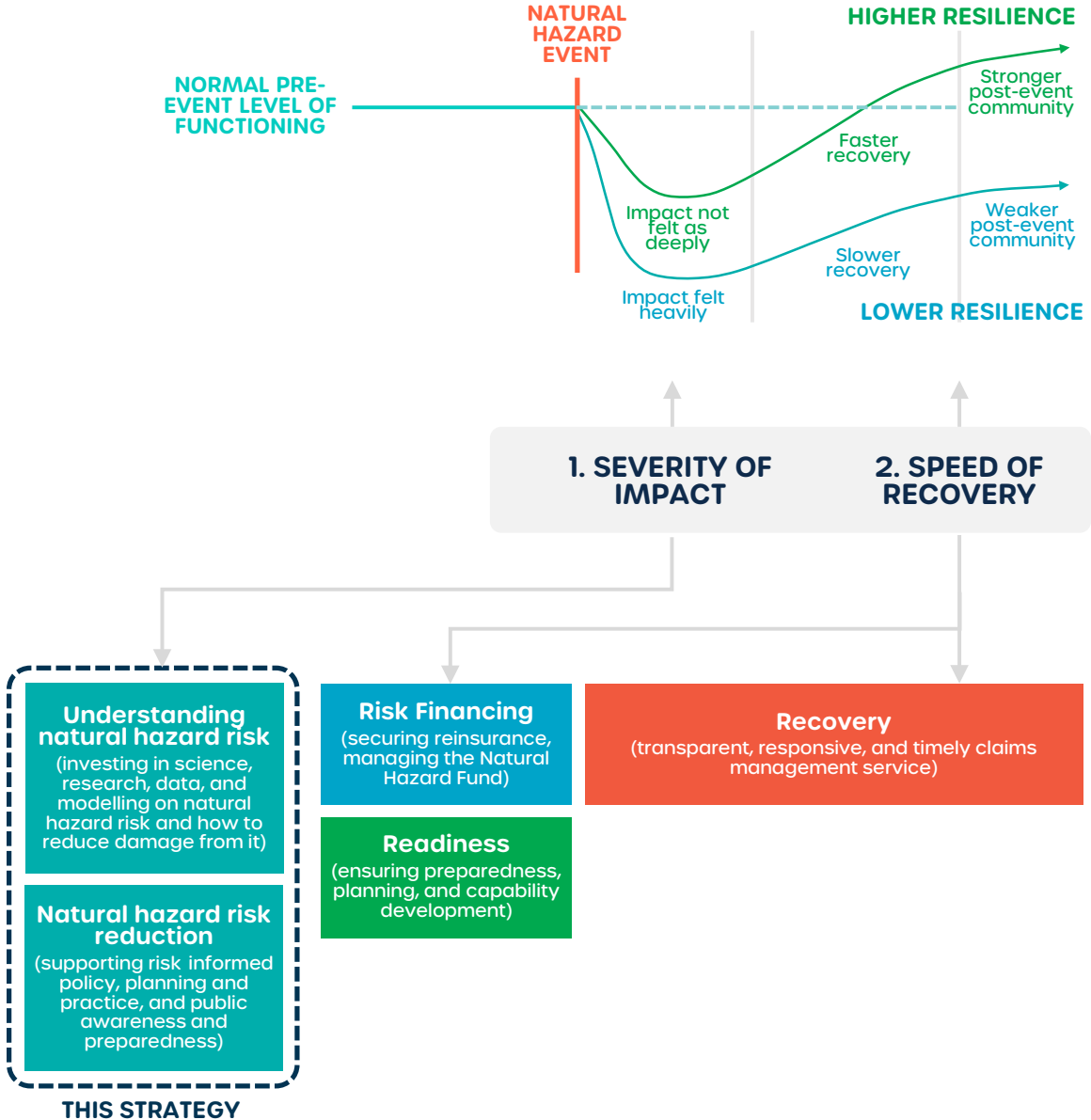


The Natural Hazards Commission was established in 1945 (then named the Earthquake and War Damages Commission) to support communities' financial resilience to, and recovery from, catastrophic events (i.e., addressing 'speed of recovery'). This is primarily achieved through **natural hazards insurance cover**. The Earthquake Commission Act 1993 recognised that **natural hazard risk reduction** is also needed to support the other dimension of natural hazards

resilience (i.e., addressing 'severity of impact'). This function is expanded in the Natural Hazards Insurance Act 2023, giving the Natural Hazards Commission an explicit resilience role, function, and objective.

This Strategy supports that objective.

## How the Natural Hazards Commission contributes to natural hazards resilience



# Our mission

**The primary objective of the Natural Hazards Commission is to reduce the impact of natural hazards on people, property, and the community.**

We do this through our main legislative functions, including to:

- Administer insurance cover against natural hazard damage ('natural hazard cover');
- Collect the levy for the insurance provided for in the NHI Act, and manage the Natural Hazard Fund;
- Arrange reinsurance or other risk transfer products in respect of natural hazard cover;
- Facilitate research and education, and contribute to the sharing of information, knowledge, and expertise in relation to:
  - Natural hazards and their impacts
  - Damage to residential buildings, residential land, and other property because of natural hazards, including how to prevent or reduce such damage
  - Community resilience to natural hazards

- Natural hazards risk management
- Planning for, and recovering from, natural hazards
- Natural hazards cover and the operation of the NHI Act

The Natural Hazards Commission Statement of Intent 2024-2027 outlines the organisation's priorities, which are to:

- Strengthen resilience by building knowledge and understanding of natural hazard risk to improve decision-making (in policy, planning, practice, and by homeowners and communities)
- Continuously enhance our readiness for natural hazard events
- Use our risk financing expertise to manage the fiscal risks of providing natural hazard insurance cover, and
- Support homeowner and community recovery by working with our partners to deliver a transparent, fair, high-quality, and responsive system for natural hazard insurance.

## Assessing the ‘benefit’ of resilience activities

The NHI Act requires the Natural Hazards Commission to show the benefit of any resilience-focussed activities we undertake, including whether the activity has the potential to:

- provide a benefit to insured persons, and/or
- reduce the future cost of providing natural hazard cover.

This requirement is to ensure the funds the Commission receives through levy contributions are used in a way that benefits levy payers and/or the Scheme itself. The reasons why we invest in resilience is described more in the next section, and further evidence provided in **Appendix 1**.

## Why resilience is important to the Natural Hazards Commission

**As a Crown Entity, the Natural Hazards Commission has a critical financial and social interest in better managing natural hazard risks to reduce harm and protect the wellbeing and prosperity of people living in New Zealand.**

There are four main reasons why this is important:

### **To support the wellbeing of communities**

Natural hazards insurance is a critical tool in the risk management toolbox. It increases financial resilience and helps the financial recovery of homeowners and communities. But it doesn’t solve everything.

Insurance only contributes to **direct costs** (the cost of damage); it rarely stretches to **indirect costs** (flow-on effects to the economy) and doesn’t cover **intangible costs** (the economic cost of social impact). In short, insurance doesn’t remove the physical impact, or the social impact on people and communities. Rather, its role is to support recovery.

Natural hazard risk reduction is needed to reduce the impacts on people, property, and the community.



## **To reduce financial exposure**

Our financial exposure is directly related to our natural hazard risk. If we reduce risk and build resilience, we reduce our financial exposure. This applies at every level, from homeowners to communities, to local and central Government.

The Natural Hazards Commission is the guardian of the Natural Hazard Fund. Reducing natural hazard risk – particularly foreseeable, unnecessary risk – means the Natural Hazard Fund is preserved for when New Zealanders really need it.

## **To help secure reinsurance for New Zealand**

Reinsurance allows New Zealand to smooth the financial impact of natural hazards by transferring some of the financial risk offshore. The international reinsurance market observes New Zealand’s natural hazard risk and natural hazard risk management activities closely. Their confidence in how we understand and manage our risk can directly translate to the premium the Natural Hazards Commission and private insurers are charged for reinsurance.

## **To ensure the effective management of Crown risk exposure**

If the Natural Hazard Fund (and reinsurance) is exhausted, the financial impacts of natural hazards will revert to the Crown, through the Crown Guarantee in the Natural Hazards Insurance Act.

By investing in and promoting resilience, including efforts to ensure better risk-informed policy and planning, the Natural Hazards Commission contributes to better management of natural hazard risks across government, which should translate to reduced financial exposure for the Crown Balance Sheet.









**“Natural hazards are inevitable. Natural disasters are not.”**

John Filson, USGS





# Resilience Strategy for Natural Hazard Risk Reduction 2024-2029

The Resilience Strategy for Natural Hazard Risk Reduction (the Resilience Strategy) sets out the Natural Hazards Commission’s ambition to play a key role in addressing New Zealand’s current and future natural hazards resilience challenges, through a focus on risk reduction actions, driven by our research, education, and information-sharing mandate.

## The Resilience Strategy:

### Defines the resilience objectives the Natural Hazards Commission wants to achieve

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**High exposure  
to natural hazard  
risks**

**Climate  
change will  
exacerbate  
natural hazard  
risks, impacts,  
and costs**

**Built assets  
are vulnerable  
to damage by  
natural hazards**

## **New Zealand's natural hazards resilience challenges**

**Sustaining  
the social and  
financial cost of  
ongoing events**

**Natural  
hazard  
management  
system needs  
greater  
coordination**

**Attitudes  
and biases  
about natural  
hazard risk limits  
effective action**

**Data and  
information  
about risk is often  
dispersed and  
inaccessible**

## **New Zealand's natural hazards resilience challenges**

New Zealand has several challenges when it comes to building and maintaining natural hazards resilience:

### **High exposure to natural hazard risks**

New Zealand straddles the boundary of two active tectonic plates and is highly exposed to natural hazards such as earthquakes, tsunami, volcanic and hydrothermal activity, landslides and flooding.

### **Climate change will exacerbate natural hazard risks, impacts and costs**

New Zealand's natural hazard risk profile is becoming more complex as the effects of climate change become apparent. As a country, we are now exposed to more frequent and more severe weather events because of changing weather patterns and rising sea levels. Managing the impacts of climate change and natural hazard risk can, and should, be complementary – reducing the impacts of one can improve outcomes for both.

### **Built assets are vulnerable to damage by natural hazards**

Natural hazards frequently cause damage to land and buildings, as well as to essential infrastructure serving communities, including power and communication networks, roads, and water systems. For some events, the combination or scale of damage may be such that significant numbers of people are unable to return to their homes either temporarily or permanently. The social cost of displacement and associated economic disruption can be many times greater than the direct cost of repairing the physical damage.

### **Sustaining the social and financial cost of ongoing events**

The financial impact of either very large natural hazard events (like an earthquake in an urban centre), or repeated low frequency but moderate impact events (like severe weather and flooding), is hard for New Zealand's relatively small economy to accommodate. While insurance is an essential part of supporting financial resilience and disaster recovery, it cannot reduce physical damage or fully address the resulting social disruption.



## **Attitudes and biases about natural hazard risk limits effective action**

Research shows that humans are not naturally inclined towards planning for events that occur infrequently – such as natural hazards – even when we know the consequences can be catastrophic.

## **Data and information about risk is often dispersed and inaccessible**

While there is good science, research, and data about our natural hazard risks available, as a nation we often struggle to operationalise, translate, and use it. This is because the information is fragmented, held by a range of organisations, in a range of formats, sometimes hard to find, and rarely available on-demand. Even where available, a good proportion of it is unlikely to be understood by non-specialists, nor presented in a context that leads to informed decision-making and consequent action. Moreover, reluctance in sharing hazard risk information by some organisations can prevent action necessary to reduce, plan, and prepare for natural hazards.

## **The natural hazard management system needs greater coordination**

Disasters affect whole communities but decisions on risk and resilience are often taken by individuals and agencies in a fragmented way that can result in poor allocation of resources and sometimes unintended consequences.

Collaboration at all levels – central government, local government, at an individual community level – is needed to develop a shared view of risk, an understanding of tolerance to that risk, and so that risk management actions are considered, prioritised, and implemented.







# Our resilience vision for New Zealand

**Our vision is that natural hazards resilience is embedded in all aspects of decision-making for our homes, communities, towns, and cities.**

A future resilient New Zealand community is one in which the potential consequences of social and economic disruption by natural hazards are consciously considered, quantified, and included in everyday development decisions.

**Homeowners and communities** are risk-aware and understand the choices they can make about the buildings and locations that are more resilient to natural hazards.

**Engineers, architects, developers, and builders** understand the value of incorporating damage-limiting design in buildings and other infrastructure, which means New Zealand's building stock becomes more resilient with time.

**Local government** actively considers natural hazards in their short-term and long-term planning and understands the trade-offs that need to be made between investment in natural hazards risk reduction (such as avoiding the worst land, retrofitting buildings, and upgrading buried pipes) and other priorities.

**Land-use planners** incorporate resilience planning principles and options for avoiding the worst hazard risks in urban and land-use plans, so that exposure is reduced over time.

**Central government** assesses risks of national significance, coordinates and governs risk management of national risks (including to set risk tolerances), and establishes and monitors performance objectives for the built and natural environments that seek to minimise damage and disruption from natural hazards at reasonable cost.

**Insurers and reinsurers** have confidence in the New Zealand market as a result of the Natural Hazards Commission's and others' investment in understanding natural hazard risk, and because of the effective integrated approach to risk mitigation through building and land-use policies.

**Financial organisations** understand natural hazard risk and potential losses, display financial responsibility in respect of natural hazard risk, and support homeowners and communities to make risk-informed decisions.

**Researchers** are driven by knowledge requirements, creating needs-led data and information that builds natural hazards resilience; and that this data and information is widely available to stakeholders and the public, in forms they can use and understand.

# Our resilience goal

Our resilience goal is to inform, enable, and influence the choices and decisions that reduce the vulnerability and exposure of New Zealand's built environment to natural hazard events.

In simple terms the result we want to see is stronger homes, built on better land.



**Stronger homes:**  
More resilient buildings reduces damage and impacts



**Better land:**  
Smart land use avoids the worst risks



The vulnerability and exposure of New Zealand's built environment to natural hazards events is reduced



# **We aim to be a leader in natural hazard risk reduction...**

**‘Leading’ in natural hazard risk reduction does not mean the Natural Hazards Commission ‘owns’ or is ‘lead agency’ for any particular function. Leading, to us, means leading by example, leading the way, showing thought leadership and proactive action; being a supportive and valuable partner, being constructive and solving problems, and, above all, making progress on key issues and challenges that make a difference to New Zealanders.**





## What we have done so far (2019-2024)

### The Resilience Strategy for Natural Hazard Risk Reduction 2024-2029 builds on the first iteration of this strategy, the Resilience Strategy for Natural Hazard Risk Reduction 2019-2024.

Over the last five years we have built a resilience function at the Commission that has become a core part of our business.

This included building the Commission’s profile across government and with Ministers as a centre of natural hazards knowledge, data, and natural hazard risk management expertise. We also built key strategic relationships with a range of government departments and organisations, including the policy agencies for buildings and land (Ministry of Business Innovation and Employment, MBIE, and Ministry for the Environment, MfE).

We also completed the below achievements across a range of our functions:

#### RESEARCH

- **In research**, we refocused our investment to more strategically target the areas of research that support the outcomes we seek, including focus areas: resilient buildings, smarter land use, empowering people, economics and governance of disasters, and quantifying hazard and risk.
- We have also focussed on supporting researchers and the research community with professional development in related skills, such as science communication, science-to-policy pathways, and mātauranga māori, with a goal that researchers we fund include these elements in their research as standard.
- We undertook a range of science communication and media activities, and issued annual ‘Research and Resilience Highlights’ reports that illustrated the benefit of the Commission’s investment in research and resilience. This made for a steady stream of positive media stories on researchers and research projects, ensuring new knowledge was shared widely.
- Finally, we developed a Research Benefits Management Framework, to better track the impact of research we invest in.

## Loss Modelling

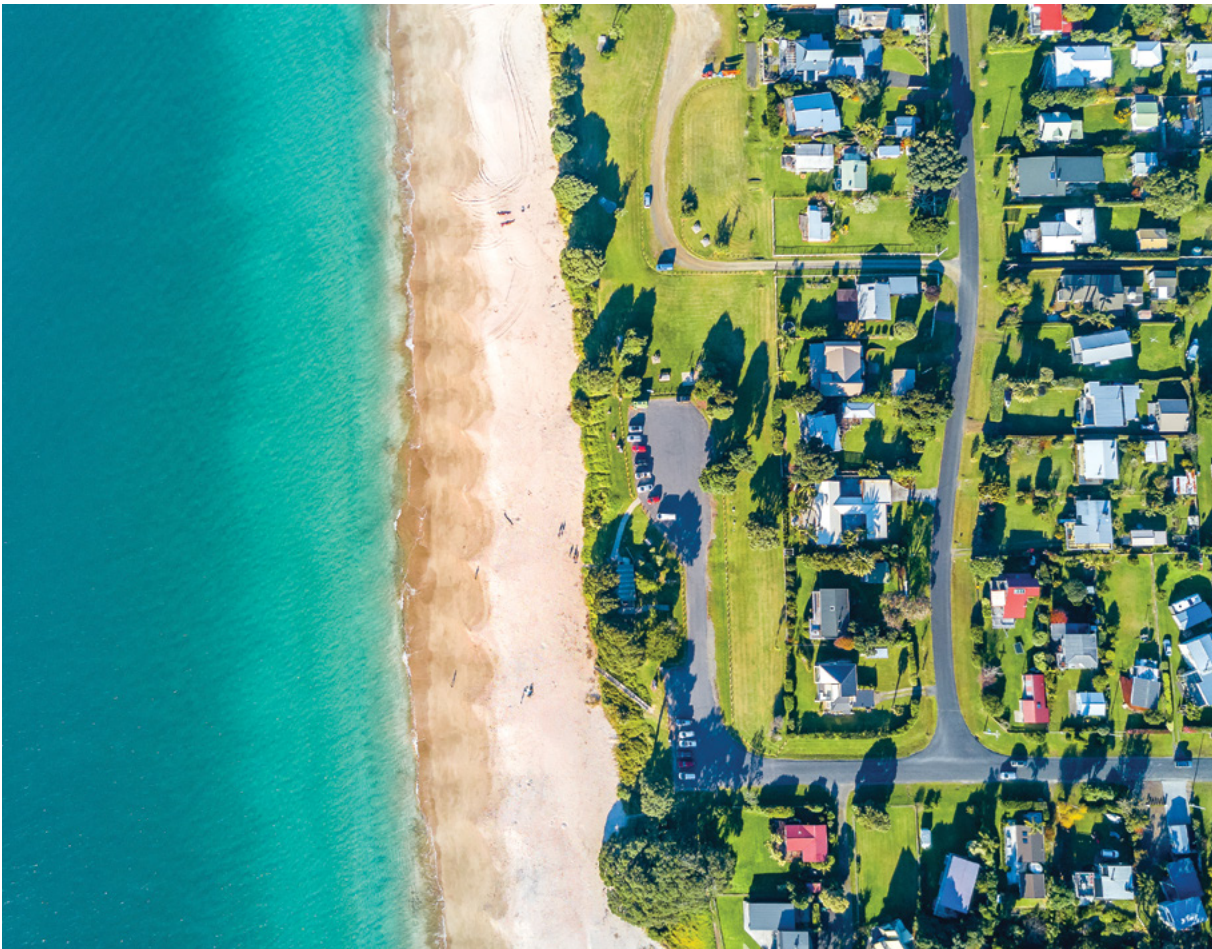
- **In loss modelling**, we enhanced our core modelling platform, 'PRUE', to be our next generation loss modelling solution.
- This included the development of long-term investment roadmaps for future platform development, loss modelling science, and internal capability development.
- We invested in a wide range of loss modelling science, including the new National Seismic Hazard Model.
- We disaggregated earthquake loss modelling into its constituent sub-hazards, so they can be more accurately applied, we invested in fragility functions, and, we progressed loss modelling for hazards other than earthquake, including volcano, tsunami, and landslide.

## Risk Reduction

- **In influencing for risk reduction**, we built capability to 'translate and transform' the research and data we fund or have access to, and use it to inform, influence and advocate for natural hazard risk-informed policy, planning and practice.
- We developed targeted action plans on key areas of our Strategy goals, including 'Resilient Homes and Buildings', and 'Smarter Land Use'.
- We participated in a range of government policy processes including for climate adaptation, resource management reform, and building performance, and partnered key government departments on critical areas of work. This included with MBIE on a range of research and science-to-policy and practice projects, as well as establishing a joint MBIE-NHC Chief Engineer role to focus on resilience of the built environment.
- At a local government level, we made a series of formal submissions on a range of local government plans. In later years, we also focussed on supporting councils during the planning process, rather than purely submitting on final plans. This in part led to the development of a Risk Tolerance Assessment Framework to support better natural hazard risk management. This methodology can be applied more broadly to a range of government and non-government settings.
- We created the Natural Hazards Portal to share more of our risk information with New Zealanders.
- We produced a series of natural hazard scenarios that can be used for Readiness planning, moving towards a National Hazard Scenario Database.
- We developed a plan to build our next generation of data analytics and insights capability, to take our evidence base to the next level.

## Public Education

- **In public education**, we created new advertising campaigns ‘After Quake’ (post-earthquake preparedness), ‘Homebuyers’ (natural hazard awareness), ‘Renovators’ (risk reduction action) and ‘Know Your Cover’ (insurance information). We also produced a series of ‘how-to videos’ for risk reduction in the home, and re-signed sponsorship agreements with Te Papa, Auckland Museum, and Canterbury Museum, and added the Hawkes Bay Museum (‘MTG’).
- We have seen positive tracking in public awareness, preparedness, and recognition in our quarterly Nielsen surveys, with 39% of homeowners surveyed in August 2019 saying they have taken some risk reduction action, to 60% in March 2024.
- At a community level, we entered into partnership and/or sponsorship agreements and undertook joint activities with a range of community-focussed education programmes, including: AF8, East Coast Lab, QuakeCentre, QuakeCore, CrisisLab, and Plunket.
- We continued to work closely with the National Emergency Management Agency on preparedness campaigns including ‘What’s the Plan Stan’ (schools programme) and ‘Shakeout’ (national earthquake drill).





# What we will do (2024-2029)

**In pursuing the goal of reducing New Zealand's vulnerability and exposure to natural hazards, we will build on the work completed in 2019-2024, and invest in further supporting, creating, integrating and translating information, data, and knowledge to promote risk reduction actions that improve resilience.**

Convincing decision-makers to devote limited time and resources to natural hazard risk reduction – among many pressing and competing priorities – is no easy feat. Robust evidence is essential for persuading decision-makers that action is needed, cost-effective, and likely to make a meaningful difference.

The Natural Hazards Commission aims to build that evidence base, to increase knowledge, data, and insights on natural hazard risk and impacts, and to understand how to reduce those risks and build capacities that strengthen resilience.

We also aim to build knowledge about the essential prerequisites to effective natural hazard risk management, including

to understand how people perceive and manage risk, and the economics and governance of risk.

We then translate and transform that evidence into formats that are easy for a variety of audiences to use and understand, and support it getting into the hands of people who can make a difference.

This science-to-practice ‘value chain’ involves the development of tools, resources, and other outputs that can be used to understand, assess, and manage risk. It requires partnerships and engagement with policy-makers, planners, and key practitioners such as engineers or asset managers, and effective communication with homeowners and communities.



To deliver this Strategy, the Natural Hazards Commission will:

### **Build knowledge, data, and insights on natural hazard impacts and ways to reduce them**

#### **Including to:**

- Invest directly and influence the national research agenda to:
  - Build understanding of New Zealand’s hazard risk profile.
  - Build understanding of the physical, social, and economic impacts of disasters, and individual, community, and organisational responses to risk.
  - Support innovative, cost-effective, and resilient engineering and land-use solutions.
- Ensure support for key research capabilities and disciplines for New Zealand.
- Build further risk and loss modelling, and other data analytics and ‘insights’ capabilities.
- Aggregate science, data, and insights within and across disciplines relevant to hazard risk management.
- Work in partnership with end-users to ensure that decision-making requirements are prioritised.

### **Enable, influence, and advocate for natural hazards resilience**

#### **To create useful, useable, and used products, we will:**

- Interpret, translate, and transform science, research, data, and modelling into insights that encourage and spur action.
- Accelerate new qualitative and quantitative outputs and approaches to hazard risk management, such as:
  - Risk assessment tools, resources, and guidance.
  - Risk communication tools, guidance, and policy advice.
  - Improved analytics and modelling of hazard risk exposure, including estimating potential financial, economic and social impacts.
  - Other decision support tools and products for risk reduction and resilience.
- Identify and develop pragmatic solutions that have reasonable and achievable actions.

#### **To create the risk reduction impacts we seek, we will:**

- Influence risk reduction action with key policy, planning, and practice audiences.
- Advocate for natural hazard resilience as a national priority requiring improved coordination, leadership, and governance across the natural hazard management system.
- Support understanding, key capabilities, and skills for hazard risk management.
- Enable improved awareness and preparedness of homeowners and the public, including the risk reduction and resilience actions they can take to improve the safety of their home and protect their whānau.

# Our priorities

The Natural Hazards Commission supports improved resilience outcomes for New Zealanders in several different ways. There are four main areas that drive our efforts in respect of this Strategy.

To build knowledge, data and insights on natural hazard impacts, we undertake:



\* Found on the NHC website, at [www.naturalhazards.govt.nz](http://www.naturalhazards.govt.nz)

To enable, influence, and advocate for resilience, we undertake:

### Risk Reduction

Inform, enable and influence evidence-based risk reduction decision-making and action

**Including objectives to:**

- Translate and share hazard risk data and information to reduce current, and prevent future, risk.
- Contribute to stronger hazard risk management leadership, policy, and governance.
- Lead and support risk reduction decision-making and action.
- Encourage New Zealand's approach to risk reduction to be innovative and world class.

### Public Education

Empower individuals, households, and communities with information and actions they can take to reduce risk and strengthen resilience

**Including objectives to:**

- Build the awareness of the public about natural hazards and the potential impacts of natural hazards on New Zealand homes.
- Increase the level of risk reduction actions taken in New Zealand homes.
- Increase the understanding of natural hazard insurance, its application to the home, and its role in recovery.

**Risk Reduction Strategy\***

**Public Education Strategy\***



\* Found on the NHC website, at [www.naturalhazards.govt.nz](http://www.naturalhazards.govt.nz)



## Special focus area: our changing natural hazard risk

**The Auckland Anniversary Floods and Cyclone Gabrielle in early 2023 demonstrated the potential impact of a changing climate on New Zealand: more intense storms, widespread community impact, and greater costs at all levels. These two events also raised critical questions about the future availability and affordability of insurance, as insurers and reinsurers consider the price of increased natural hazard risk resulting from climate change.**

2023 was a wake-up-call for action. It is imperative that we better manage our natural hazard risk – reducing current risk and preventing the creation of new risk – as a matter of urgency due to the demonstrated impact climate change can have on the severity and frequency of natural hazards.

Over the next five years of this Strategy, we intend to put a special emphasis on this issue as part of our wider efforts to build the evidence base for good natural hazard risk management, and to get relevant information into people’s hands where it can make a difference. We will prioritise the five actions outlined below, which are targeted at understanding how our natural hazard risk is changing, and how New Zealand can best position itself to manage that risk – for improved outcomes for current and future generations.

- 1** Invest in research that enables an improved understanding of how our natural hazard risk is evolving, and will evolve further, in the face of climate change.
- 2** Grow our risk and loss modelling capability to be able to model changing natural hazard risk over multiple time horizons.
- 3** Develop and implement an internally focussed Climate Action Plan that details the ways the Natural Hazards Commission will contribute to emissions reduction, position the Scheme to adapt to the impacts of climate change on natural hazard risk, and drive and support climate-conscious natural hazard risk reduction.
- 4** Enable and support homeowners and homebuyers to understand changing risk, and the actions they can take to reduce risk to their property.
- 5** Drive a national conversation on natural hazard risk and risk management in the context of the increasing risk posed by climate change.

## Special focus area: the Natural Hazards Portal

**In 2023, we created the Natural Hazards Portal, to share more of the data and information we hold on New Zealand's natural hazard risks. The goal of the Portal is that people and communities have all the information they need to make more informed decisions on property and land.**

The first phase of the Portal included basic information about historic natural hazard insurance claims (going back to 1997), as well as information on natural hazards risks, and links to regional and local sites.

Our goal over the next five years is to develop the Natural Hazards Portal into a centralised natural hazard risk and risk management information site. Over time we want the Portal to offer a comprehensive view of New Zealand's natural hazard risks, at an individual property, community, local, regional, and national level, so that it can support risk-informed decision-making at all levels.





# Our guiding principles

**In pursuing our vision of a resilient New Zealand, seven principles guide our actions, behaviour, and implementation of this Strategy.**

In delivering this Strategy, we are:

1. Purposeful in what we do and how we do it
2. Collaborative, including to partner for greater impact
3. Positive, enabling, and supportive
4. Focussed on benefit and impact
5. Holistic in our approach
6. Ambitious for our agenda but pragmatic about solutions
7. Driven by better outcomes for communities

Each of these principles is underpinned by Te Ao Māori values, consistent with the Natural Hazards Commission's Te Ao Māori Strategy. These include whakawhanaungatanga (trusting and enduring relationships), rangatiratanga (sharing and gathering information to support informed decisions), tika (to do what is right, just, fair), pono (authentic, genuine, sincere), and aroha (considerate and caring, compassionate).



## Vision Mātauranga and Mātauranga Māori

The Natural Hazards Commission is committed to upholding the policy themes and outcomes of Vision Mātauranga, and the recognition and respect of Mātauranga Māori.

Vision Mātauranga is the New Zealand government science policy framework that seeks to unlock the innovative potential of Māori, including their knowledge, people, and resources. Themes relevant to risk reduction and resilience are:

- **Indigenous innovation:** Contributing to natural hazard resilience and risk reduction through distinctive research and development.

- **Taiao/environment:** Achieving natural hazard resilience through iwi and hapū relationships with land and sea.
- **Hauora/health:** Improving health and social wellbeing aspects linked to natural hazard resilience.
- **Mātauranga:** Exploring indigenous knowledge and science and innovation, regarding hazard risk management.

Vision Mātauranga is important for our research portfolio. The Natural Hazards Commission has developed a Māori Research Strategy, which supports research that seeks to understand and draw on Mātauranga Māori, and that could support improved outcomes for Māori in relation to resilience to natural hazards.







The strategy also supports Māori-led research and Kaupapa Māori research. When Māori become the researchers of their communities and territories, and not merely the researched, the activity of research is transformed; questions are framed differently, priorities are ranked differently, problems are defined differently, and people participate on different terms.

In addition to Vision Mātauranga, the recognition and consideration of Mātauranga Māori – Māori traditional knowledge, language, practices, and culture – is also supported and encouraged in delivering the Resilience Strategy.

Examples of activities that put Vision Mātauranga and Mātauranga Māori into practice include:

- supporting Māori and iwi-led research
- supporting the resilience aspirations of iwi, rūnanga, or hapū in iwi management plans
- encouraging the use of Mātauranga Māori to shape policy
- ensuring the inclusion of Māori in policy development
- ensuring Māori worldviews and perspectives inform our strategies and action plans.

## Who we will work with

**The essence of this Strategy is enhancing the uptake and implementation of risk-informed policy, planning, and practice – especially those aimed at resilient buildings and smarter land-use.**

Our choice of what to do and who to work with is driven by where we think the greatest value can be gained for national resilience balanced against the ease of implementation.

Our current understanding of risk is a key starting point and leads to opportunities to leverage existing strong partnerships and channels.

The Natural Hazards Commission sits in a unique position between central government, the science and research community, private sector insurers and reinsurers, and homeowners and communities. Leveraging these relationships, as well as working across them, and making connections between them, is our point of difference, and key to driving this Strategy.






The table below summaries who we will work with, what we aim to provide to support them, and examples of the resources or channels we use:

WHO	WHAT	HOW
<b>Homeowners and communities</b>	Hazard risk information Technical solutions Insurance information	Public information and education; formal partnerships with central government and other education providers on risk communication; Natural Hazards Portal
<b>Iwi / Māori</b>	Hazard risk information Technical solutions Insurance information	Build relationships; formal partnerships with key organisations; hui and wānanga; tailored public information and education
<b>Engineers, architects, developers, builders</b>	Hazard risk information Guidance on resilient solutions Capability development	Relationships with key sector organisations; industry partnerships to develop guidance; courses, webinars, seminars, conferences; sector training and education
<b>Local government, including land-use planners</b>	Hazard risk information Guidance and support for improved risk assessment Advice on hazard risk management best practice to support policy development	Research grants for hazard data collection; Sharing of data and loss modelling outputs; Leverage research relationships; Formal submissions on statutory plans; Partnership with NZ Planning Institute; courses, webinars, seminars, conferences; training and education
<b>Central government</b>	Hazard risk information Realistic scenarios Advice on hazard risk management best practice to support policy development	Mapping and sharing of open data sources and loss modelling outputs; Relationship with key policy agencies; Participation in policy development; Formal submissions on policy proposals
<b>Insurers and reinsurers</b>	Realistic scenarios Coordinated messaging on natural hazards resilience	Natural Disaster Response Agreement with private insurers; Direct engagement with reinsurers
<b>Financial organisations</b>	Hazard risk information Realistic scenarios	Build new partnerships and relationships
<b>Researchers</b>	Coordination and connections Capability development (e.g. risk communication)	Connecting researchers with policy, planning, and practice stakeholders; courses, webinars, seminars, conferences; training and education



An aerial photograph of a coastal town. The town is built on a flat area adjacent to a sandy beach and the ocean. The houses are mostly single-story with various roof colors. A road winds through the town. In the background, there are lush green hills covered in dense forest. The ocean is a vibrant turquoise color with white waves breaking on the shore.

**Manāki whenua,  
manāki tangata,  
manāki whakamua**

If we take care of the earth and  
take care of the people, we will  
take care of the future



## How we measure our progress

### We measure our performance in delivering this Strategy in four main ways.

The annual **Natural Hazards Commission Statement of Performance Expectations** provides a series of measures and targets that aim to be indicative of progress in:

- Ensuring our research investment is targeted, has a pathway to impact, and has the potential to provide benefit to insured persons, the wider public and stakeholders.
- Growing our loss modelling capabilities, including that we have more data and models necessary to move towards a New Zealand-wide view of (multi-hazard) risk.
- Informing, enabling, and influencing risk-informed policy, planning, and practice through quality outputs (including the uptake of our formal submissions and guidance material).
- Supporting the awareness and preparedness of homeowners and communities of natural hazard risk, including through action on property risk reduction.

In addition to our performance measures, we also undertake an annual **survey of key stakeholders** to qualitatively gauge the extent to which:

- Our advice, research findings, and analysis are perceived to be of high quality and well targeted.
- Our science has been used as an evidence base for risk reduction decisions.
- Our facilitation and engagement are effective and add value.

Stakeholder surveys help us understand how our research and education outputs have been used for risk reduction policy and action, and how useful the Natural Hazards Commission outputs have been – including within the organisation – to enhance our event-readiness and ability to access reinsurance.

We also conduct quarterly **surveys of homeowners** to monitor whether our public messages resonate with people and encourage them to take action to prepare their homes for natural hazard events. These surveys include questions about:

- Natural hazard risk awareness, and attitudes towards hazard risk and preparedness.
- Whether natural hazard awareness has been a factor in decision-making on buying new property.
- Actions taken to prevent damage to their home, land, or possessions.

These surveys have been in operation for twenty years and provide a good longitudinal record of changes in attitudes to natural hazards. They also provide intelligence that allows us to shape and refine our messaging and ensure they are reaching the intended audience and having the intended effect.

Finally, we also track and **measure the benefits derived from research** we invest in, through a Benefits Management Framework.

This Framework give us greater visibility of how our funds are improving the resilience of current and future generations of New Zealanders, and enable us to:

- Have confidence that our investments are worthwhile.

- Ensure that proposed benefits are realistic and achievable.
- Demonstrate the impact and value of our investments.
- Embed lessons learned to continually improve our investment processes.

Many of our funded research programmes and projects are working to deliver benefits that will accrue years or decades after their funding finishes. The benefit management framework provides us with the means to identify and measure these longer-term benefits.

## Appendix: Funding conditions of the Natural Hazards Insurance Act

**The Natural Hazards Insurance Act requires the Natural Hazards Commission to show the benefit of any resilience-focussed activities we undertake, including whether the activity has the potential to a) provide a benefit to insured persons, and/or b) reduce the future cost of providing natural hazard cover.**

This requirement is to ensure the funds the Commission receives through levy contributions are used in a way that benefits levy payers and/or the Scheme itself. The requirement supports the new financial governance elements of the Act.

We will assess any new resilience activity or expenditure by answering the questions in the diagram below. We will assess this requirement at a strategy level – through this Strategy and supporting strategies – and at an individual activity level.



## The resilience ‘benefit test’ criteria



## **Assessing the high-level benefit of our resilience activities (this Strategy)**

### **Does the activity align with the objectives (section 128) and functions (section 129) of the Natural Hazards Insurance Act?**

This Strategy is designed to align with the objectives in section 128 and the functions in section 129 of the Natural Hazards Insurance Act. Specifically, it is designed to deliver on section 129(e), to facilitate research and education, and to contribute to the sharing of information, knowledge, and expertise (with the Crown, public and private entities, and the public generally).

### **Does the Commission believe, on reasonable grounds, there is potential that insured persons will benefit from funding the activity?**

We know New Zealand is highly exposed to natural hazard risk: our experience of disasters over the last 15 years is unfortunate evidence of that. We have learnt a lot through these events – in research, data, and lived experience – so our knowledge about the dominant factors that cause impact and loss, the factors that drive risk, and importantly, what achieves risk reduction, is significant.

The Canterbury Earthquake Sequence claims dataset, in particular, is unparalleled in its type and detail, and has provided countless insights into the conditions of hazard, exposure, and vulnerability that caused the greatest losses.

We aim to apply those lessons, improve on them, fill gaps in the knowledge base, and influence action that reduces the risk of impacts. The impacts of the Canterbury Earthquake Sequence – and other events – are central to our goal of reducing vulnerability and exposure of New Zealand's built environment to natural hazard events and our desired outcome of stronger homes on better land: we want to see better outcomes for homeowners and communities.

While lived experience informs and motivates us to strive for better outcomes in the future, it can't (and shouldn't) be relied upon as the sole evidence base for decision-making. We also need a shared understanding of risk, informed by strong science, research, data and modelling. This type of information provides the cost-benefit case for action and other objective evidence needed to inform action.

Our efforts to improve the evidence base for good natural hazard risk management in New Zealand is squarely aimed at encouraging the action that will provide benefit to insured (and other) persons.



## Does the Commission believe, on reasonable grounds, that there is the potential to reduce the future cost of natural hazard cover?

While the desired outcome of stronger homes on better land has its roots in reducing the types of damage and impact on wellbeing we saw in the Canterbury Earthquake Sequence (and other events), there is also no doubt that the events of the last 15 years have had a significant cost to homeowners, communities, local government, to insurers and reinsurers, the Natural Hazards Fund, and the Crown. The 2010-11 Canterbury Earthquake Sequence is estimated to have a total cost of around \$50-60 billion (of which \$21 billion was insured); the 2016 Kaikōura Earthquake cost around \$3 billion, flooding in Westport in 2021 cost \$150 million, a storm in Nelson Tasman in 2022 cost \$57 million, and the 2023 Auckland Anniversary flooding and Cyclone Gabrielle cost is currently estimated at around \$14.5 billion.

If we can reduce the conditions of hazard, exposure, and vulnerability, we reduce impact and losses when a hazard occurs. While we often cannot predict or prevent the hazard itself, we can influence our risk exposure through better land use planning – by moving property out of harm's way, or ensuring new property is built in lower hazard areas. We can also reduce vulnerability – the rate at which a property or asset is damaged by a hazard – by strengthening and retrofitting buildings, and by ensuring new buildings are built to a standard that can withstand the expected hazard.

The diagram on the right illustrates this. Reducing disaster risk is possible by changing exposure to the hazard (b) or by minimising vulnerability (c).

Development of our evidence base is targeted to demonstrate why and how we can reduce the conditions of exposure and vulnerability. If we are successful in doing so, we reduce risk, and therefore, the contingent liability associated with the risk – and the future cost of natural hazard cover.

What is the evidence of the potential benefit or reduced cost to the Scheme?

There is an extensive academic literature on the concept and benefits of resilience. Over the past 20 years more than 30,000 articles with the term 'resilience' in the title or keywords have been indexed in the SCOPUS (abstract and citation) database. In addition, the concept has been adopted by a range of global and domestic agencies as a framework for how to reduce and manage disaster risk. Below are a few key examples that provide the basis of our evidence for the benefit of investment in resilience.

### **Disaster risk resilience: conceptual evolution, key issues, and opportunities**

Graveline, M-H., and Germain. D. (2022) International Journal of Disaster Risk Science – a seminal review of 20 years of scientific literature.

### **Sendai Framework for Disaster Risk Reduction 2015-2030 (United Nations)<sup>1</sup>**

– a global framework for how nations should prevent new and reduce existing disaster risks.

<sup>1</sup> <https://www.undrr.org/publication/sendai-framework-disaster-risk-reduction-2015-2030>

It has 4 priorities: 1) Understanding disaster risk, 2) Strengthening disaster risk governance to manage disaster risk, 3) Investing in disaster risk reduction for resilience, 4) Enhancing disaster preparedness for effective response, and to 'Build Back Better' in recovery.

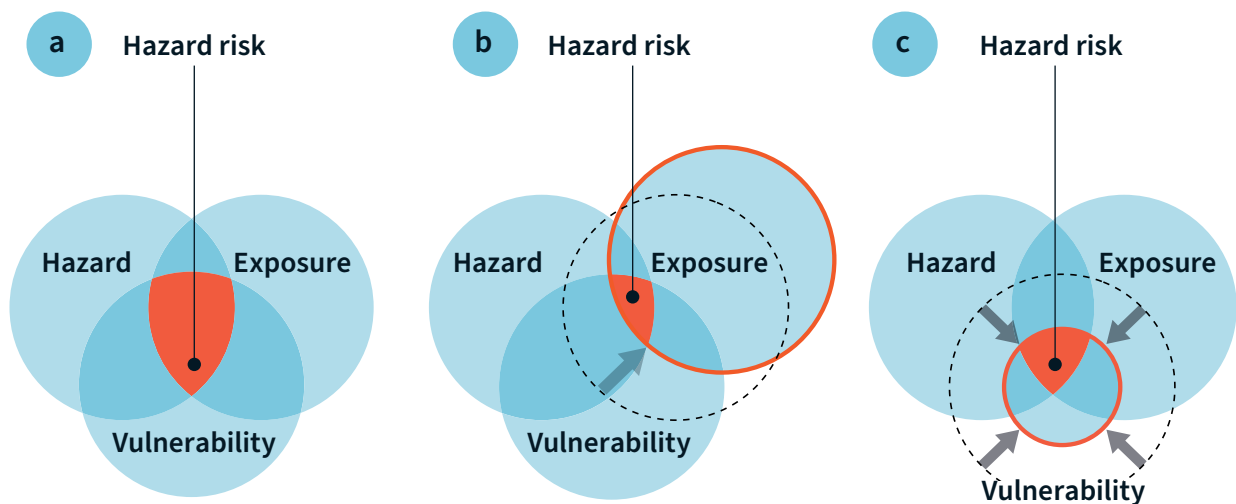
**Unlocking the Triple Dividend of Resilience: Why investing in disaster risk management pays off (Global Facility for Disaster Reduction and Recovery, 2015)<sup>2</sup>**

– provides evidence for how investing in resilience can yield a 'triple dividend' by 1) avoiding losses when disasters strike, 2) unlocking development potential by stimulating innovation and economic activity, 3) the social, environment and

economic co-benefits of disaster risk management investments even if a disaster does not happen for many years.

**National Disaster Resilience Strategy (MCDEM, 2019)<sup>3</sup>** – provides the national framework for disaster resilience, including the three objectives of 1) Managing risks, 2) Effective response to and recovery from emergencies, 3) Enabling, empowering and supporting community resilience.

All reports, assessments, reviews, science, research, data, and community perspectives related to the Canterbury Earthquake Sequence, all stored in the **Canterbury Earthquakes Digital Archive.<sup>4</sup>**



Source: Cost-benefit analysis of disaster risk reduction, Aktion Deutschland Hilft, 2016

2 <https://www.gfdrr.org/en/knowledge-hub>

3 <https://www.civildefence.govt.nz/cdem-sector/plans-and-strategies/national-disaster-resilience-strategy>

4 <https://www.ceismic.org.nz/>



