

# National Disaster Resilience Strategy

## Rautaki Manawaroa Aituā ā-Motu

We all have a role in a disaster resilient nation

He wāhanga tō tātau katoa i roto i te iwi manawaroa aituā



# National Disaster Resilience Strategy

Rautaki Manawaroa  
Aituā ā-Motu

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## Authority

The National Disaster Resilience Strategy is issued by the Minister of Civil Defence, pursuant to s 31 of the Civil Defence Emergency Management Act 2002. It provides an outline of the Crown's goals in relation to civil defence emergency management, including the objectives to be pursued to achieve those goals.

## Commencement

This Strategy comes into effect on 10 April 2019, pursuant to s 34(1)(a) of the CDEM Act.

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# Foreword

## Kōrero whakapuaki

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Hon Kris Faafoi  
**Minister of Civil Defence**

New Zealand faces some of the greatest natural hazard risks of any country in the world. Increasingly, we also face a range of hazards and risks from other sources, from plant and animal diseases, to human health, to technological disruptions and security threats. Many of these have the potential to be exacerbated with the increased risks posed by climate change. Other trends in our society and the broader international context means our risk landscape is increasingly complex and uncertain.

The role of this Strategy – the national civil defence emergency management strategy – is to set out our goals and objectives for civil defence emergency management over the next 10 years. The current Strategy is over 10 years old, predating the 2010 and 2011 Canterbury and 2016 Kaikōura earthquakes. This Strategy aims to incorporate lessons learned from events in New Zealand and overseas, and takes a fresh look at our priorities for the next 10 years. It has been given the title of National Disaster Resilience Strategy to reflect the inclusive approach we want to take.

The Strategy has a strong focus on wellbeing. It incorporates the Treasury's Living Standards Framework, and considers the types of resilience needed to protect and grow our wellbeing. The Strategy reflects our increased understanding of national risks, and responds to increased community expectations of our emergency management system. It also builds on the Government's work to reform the Emergency Management System to improve how New Zealand responds to natural disasters and other emergencies.

The objectives set out in this Strategy acknowledge the particular challenges faced by many New Zealand communities associated with their geographic location, their vulnerabilities, or their hazards. It seeks to enable and empower communities everywhere to take action to look after themselves and others in times of crisis, while still ensuring strong local, regional, and national leadership and support when needed.

On behalf of the Government, I acknowledge the efforts of everyone around the country who contributed to the development of this Strategy – the next step towards building a more resilient New Zealand.

# Executive Summary

## He whakarāpopototanga

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Globally, the economic cost of disasters has increased steadily over the last 40 years, in large part because of the expansion of the built environment. Damage to infrastructure and buildings pose huge costs, public and private.

However, it is the impact on wellbeing that can have the most profound effect. On 22 February 2011, New Zealand suffered one of its worst ever disasters with the Canterbury earthquake. In 2013, the Treasury estimated the capital costs to be over \$40 billion, the equivalent of 20% of gross domestic product. Beyond the tangible costs of damage and rebuild, lay a web of social and economic disruption and upheaval. There were flow-on effects to business and employment, psychological trauma, dislocation of communities, creation or exacerbation of social issues, disruption to normal lives and livelihoods, and uncertainty in the future.

We face a range of hazards and risks in New Zealand. Increasingly complex and uncertain risks that represent a threat to our way of life, and to our wellbeing and prosperity.

Many of the risks we face both now and in the future can be readily identified. However, we also need to recognise that the future is uncertain: significant, unexpected, and hard-to-predict events are inevitable. The further we probe into the future, the deeper the level of uncertainty we encounter.

Within this uncertain future environment, **resilience** is an important requirement for success. Resilience is the ability to anticipate and resist disruptive events, minimise adverse impacts, respond effectively, maintain or recover functionality, and adapt in a way that allows for learning and thriving. In essence, it's about developing a wide zone of tolerance – the ability to remain effective across a range of future conditions.

Given our risk landscape, and the uncertainty of the wider domestic and global environment, it is important for us to take deliberate steps to improve our resilience and protect the prosperity and wellbeing – of individuals, communities, businesses, our society, the economy, and the nation as a whole.

This Strategy sets three priorities to improve our nation's resilience to disasters:

- 1. Managing risks:** what we can do to minimise the risks we face and limit the impacts to be managed if hazards occur
- 2. Effective response to and recovery from emergencies:** building our capability and capacity to manage emergencies when they do happen, and
- 3. Enabling, empowering, and supporting community resilience:** building a culture of resilience in New Zealand so that everyone can participate in and contribute to communities' – and the nation's – resilience.

Each priority has six objectives to focus effort on the critical issues and drive progress (shown on the next page).

The Strategy promotes a holistic approach to resilience that connects with a range of agencies and sectors to deliver improved outcomes for New Zealanders. Disaster risk and disaster impacts reach all parts of society; so, to the greatest degree possible, disaster resilience should be integrated in to all parts of society.

Disaster resilience requires a shared approach between governments (central and local), relevant stakeholders, and the wider public – a collective approach to a collective problem. The goodwill, knowledge, experience, and commitment of all of parts of society are needed to make a difference.

### What can I do?

All readers of this Strategy are encouraged to consider what the priorities and objectives mean for them, their family/whānau, business or organisation, community/hapū, and what they can do to contribute to their own resilience or the resilience of others.

Appendix 1 takes the priorities, high-level objectives and success measures of the Strategy, and translates them into a range of recommended actions for different audiences: individuals and families/whānau, businesses and organisations, communities and hapū, cities and districts, and government and national organisations.

Resources can be found online at [www.civildefence.govt.nz](http://www.civildefence.govt.nz), including factsheets aimed at supporting specific groups in their resilience endeavours. These include pointers on how to find more information and support, and how you can participate in building our nation's resilience to disasters.

# National Disaster Resilience Strategy

Working together to manage risk and build resilience

## Our Vision

New Zealand is a disaster resilient nation that acts proactively to manage risks and build resilience in a way that contributes to the wellbeing and prosperity of all New Zealanders

## Our Goal

To strengthen the resilience of the nation by managing risks, being ready to respond to and recover from emergencies, and by enabling, empowering and supporting individuals, organisations, and communities to act for themselves and others, for the safety and wellbeing of all

## We will do this through:

### 1 Managing Risks

### 2 Effective Response to and Recovery from Emergencies

### 3 Enabling, Empowering, and Supporting Community Resilience

## OUR OBJECTIVES

1. Identify and understand risk scenarios (including the components of hazard, exposure, vulnerability, and capacity), and use this knowledge to inform decision-making
2. Put in place organisational structures and identify necessary processes – including being informed by community perspectives – to understand and act on reducing risks
3. Build risk awareness, risk literacy, and risk management capability, including the ability to assess risk
4. Address gaps in risk reduction policy (particularly in the light of climate change adaptation)
5. Ensure development and investment practices, particularly in the built and natural environments, are risk-aware, taking care not to create any unnecessary or unacceptable new risk
6. Understand the economic impact of disaster and disruption, and the need for investment in resilience; identify and develop financial mechanisms that support resilience activities

7. Ensure that the safety and wellbeing of people is at the heart of the emergency management system
8. Build the relationship between emergency management organisations and iwi/groups representing Māori, to ensure greater recognition, understanding, and integration of iwi/Māori perspectives and tikanga in emergency management
9. Strengthen the national leadership of the emergency management system to provide clearer direction and more consistent response to and recovery from emergencies
10. Ensure it is clear who is responsible for what, nationally, regionally, and locally, in response and recovery; enable and empower community-level response, and ensure it is connected into wider coordinated responses, when and where necessary
11. Build the capability and capacity of the emergency management workforce for response and recovery
12. Improve the information and intelligence system that supports decision-making in emergencies to enable informed, timely, and consistent decisions by stakeholders and the public

13. Enable and empower individuals, households, organisations, and businesses to build their resilience, paying particular attention to those people and groups who may be disproportionately affected by disaster
14. Cultivate an environment for social connectedness which promotes a culture of mutual help; embed a collective impact approach to building community resilience
15. Take a whole of city/district/region approach to resilience, including to embed strategic objectives for resilience in key plans and strategies
16. Address the capacity and adequacy of critical infrastructure systems, and upgrade them as practicable, according to risks identified
17. Embed a strategic, resilience approach to recovery planning that takes account of risks identified, recognises long-term priorities and opportunities to build back better, and ensures the needs of the affected are at the centre of recovery processes
18. Recognise the importance of culture to resilience, including to support the continuity of cultural places, institutions and activities, and to enable the participation of different cultures in resilience



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# Key terms

## Ngā kupu hira

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### Capacity<sup>1</sup>

The combination of all the strengths, attributes and resources available within an organization, community or society to manage and reduce disaster risks and strengthen resilience.

### Community<sup>2</sup>

A group of people who:

- live in a particular area or place ('geographic' or 'place-based' community)
- are similar in some way ('relational' or 'population-based' community)
- have friendships, or a sense of having something in common ('community of interest').

People can belong to more than one community, and communities can be any size. With increasing use of social media and digital technologies, communities can also be virtual.

### Disaster<sup>1</sup>

A serious disruption of the functioning of a community or a society at any scale due to hazardous events interacting with conditions of exposure, vulnerability and capacity, leading to one or more of the following: human, material, social, cultural, economic and environmental losses and impacts.

### Disaster risk<sup>1</sup>

The potential loss of life, injury, or destroyed or damaged assets which could occur to a system, society or a community in a specific period of time, determined as a function of hazard, exposure, vulnerability and capacity.

### Disaster risk management<sup>1</sup>

Disaster risk management is the application of disaster risk reduction policies and strategies to prevent new disaster risk, reduce existing disaster risk and manage residual risk, contributing to the strengthening of resilience and reduction of disaster losses.

### Disaster risk reduction<sup>1</sup>

Disaster risk reduction is aimed at preventing new and reducing existing disaster risk and managing residual risk, all of which contribute to strengthening resilience.

### Disruption<sup>2</sup>

An event that considerably interrupts normal life, business, functions, operations, or processes, whether anticipated or unanticipated.

### Emergency<sup>3</sup>

A situation that

- is the result of any happening, whether natural or otherwise, including, without limitation, any explosion, earthquake, eruption, tsunami, land movement, flood, storm, tornado, cyclone, serious fire, leakage or spillage of any dangerous gas or substance, technological failure, infestation, plague, epidemic, failure or disruption to an emergency service or lifeline utility, or actual or imminent attack or warlike act; and
- causes or may cause loss of life or injury or illness or distress or in any way endangers the safety of the public or property in New Zealand or any part of New Zealand; and
- cannot be dealt with by emergency services or otherwise requires a significant and coordinated response.

### Emergency management<sup>3</sup>

The application of knowledge, measures, and practices that are necessary or desirable for the safety of the public or property, and are designed to guard against, prevent, reduce, recover from, or overcome any hazard or harm or loss that may be associated with any emergency, including the planning, organisation, co-ordination, and implementation of those measures, knowledge, and practices.

### Exposure<sup>1</sup>

People, infrastructure, buildings, the economy, and other assets that are exposed to a hazard.

### Hazard<sup>1</sup>

A process, phenomenon or human activity that may cause loss of life, injury or other health impacts, property damage, social and economic disruption or environmental degradation.

### Prosperity<sup>2</sup>

The condition of being successful or thriving, particularly financially.

<sup>1</sup> UNISDR Report of the open-ended intergovernmental expert working group on indicators and terminology relating to disaster risk reduction (2017)

<sup>2</sup> Developed for this Strategy

<sup>3</sup> Civil Defence Emergency Management Act 2002

<sup>4</sup> National Civil Defence Emergency Management Plan Order 2015

#### **Readiness<sup>4</sup>**

Developing operational systems and capabilities before an emergency happens, including making arrangements with emergency services, lifeline utilities, and other agencies, and developing self-help and response arrangements for the general public.

#### **Reconstruction<sup>1</sup>**

The medium and long-term rebuilding and restoration of critical infrastructure, services, housing, facilities and livelihoods required for the full functioning of a community or a society affected by a disaster, aligning with the principles of sustainable development and “build back better”, to avoid or reduce future disaster risk.

#### **Recovery<sup>3</sup>**

The coordinated efforts and processes used to bring about the immediate, medium-term, and long-term holistic regeneration and enhancement of a community following an emergency.

#### **Response<sup>4</sup>**

Actions taken immediately before, during or directly after a disaster to save human and animal lives and property, and to help communities begin to recover.

#### **Residual risk<sup>2</sup>**

The risk that remains after risk treatment has been applied to reduce the potential consequences.

#### **Resilience<sup>2</sup>**

The ability to anticipate and resist the effects of a disruptive event, minimise adverse impacts, respond effectively post-event, maintain or recover functionality, and adapt in a way that allows for learning and thriving.

#### **Risk assessment<sup>1</sup>**

An assessment of the nature and extent of risk by analysing potential hazards and evaluating existing conditions of exposure and vulnerability to determine likely consequences.

#### **Risk transfer<sup>1</sup>**

The process of formally or informally shifting the financial consequences of particular risks from one party to another, e.g. via insurance.

#### **Wellbeing<sup>2</sup>**

Our quality of life, including: civic and human rights, culture and identity, housing, knowledge and skills, leisure and recreation, material standard of living, employment status and job satisfaction, the physical and natural environment, safety and security, health and social connectedness.

#### **Vulnerability<sup>1</sup>**

The conditions determined by physical, social, economic and environmental factors or processes which increase the susceptibility of an individual, a community, assets or systems to the impacts of hazards.



# Our vision and goal

## Tā mātau matakitenga me te uaratanga

Purpose of this Strategy

Protecting our wellbeing and prosperity

Risks to our wellbeing and prosperity

A resilient future



# 1. Purpose of this Strategy

## Te kaupapa o tēnei Rautaki

### 1.1 Delivering on the intent and purpose of the CDEM Act 2002

The purpose of this Strategy is to outline the vision and long-term goals for civil defence emergency management (CDEM) in New Zealand. CDEM in New Zealand is governed by the CDEM Act, which:

- promotes the sustainable management of hazards in a way that contributes to safety and wellbeing
- encourages wide participation, including communities, in the process to manage risk
- provides for planning and preparation for emergencies, and for response and recovery
- requires local authorities to co-ordinate reduction, readiness, response and recovery activities through regional groups
- provides a basis for the integration of national and local planning and activity through a national strategy and plan
- encourages coordination across a wide range of agencies, recognising that emergencies are multi-agency events affecting all parts of society.

This reflects an overarching intent for a resilient New Zealand.

This is important because New Zealanders are, and will continue to be, at risk from a broad range of hazards.

We can do much to reduce our risks, through both a risk management approach, and by building broader societal resilience. We can also ensure we have effective processes in place for responding to and recovering from emergencies and other types of disruption when they do happen.

The Strategy sets out what we as New Zealanders expect of a resilient New Zealand, and what we want to achieve over the next 10 years. It explicitly links resilience to the protection and growth of living standards for all New Zealanders, and promotes a wide, whole-of-society, participatory and inclusive approach.

The Strategy provides the vision and strategic direction, including priorities and objectives for increasing New Zealand's resilience to disasters. The detail of *how* those objectives are to be achieved sits in a roadmap of actions, alongside other related key documents including the *National CDEM Plan and Guide*, the *National Security Handbook*, CDEM Group plans, and a range of other supporting policies and plans.

### 1.2 This is the third Strategy made under the Act

The first Strategy was issued in 2003; the second in 2007. They were aimed at embedding the (then) new approach to emergency management in New Zealand, which was to take a comprehensive and integrated approach, utilising the '4Rs' of risk reduction, readiness, response, and recovery.

In 2019 we have reached a level of maturity where we are ready for the next step. A number of things have influenced our thinking on what that step should be:

- 16 years of lessons from incidents and emergencies since the CDEM Act came into effect;
- work to better understand and manage national risks, including better processes for identification, assessment, monitoring, and ownership of risks;
- global agreements such as the *Sendai Framework for Disaster Risk Reduction 2015-2030* that outlines how nations should approach their wider societal risk from disasters;
- a Ministerial Review (2017) on *Better Responses to Natural Disasters and Other Emergencies*, and the Government's decisions relating to it, and
- a two-year long strategy development process with a wide range of stakeholders to analyse our current state and determine vision, goals, and objectives.

Collectively, we have identified areas where we can do more – so we can be more effective, more capable, fit-for-purpose, have all the information we need to make the smartest choices, keep pace with changing risks, and changes in society. This Strategy details those areas, and the work we need to do to build a more resilient New Zealand.



### 1.3 Scope of this Strategy

While acknowledging broad societal resilience is desirable for achieving higher living standards and optimal prosperity and wellbeing, this Strategy is confined to the *disaster* aspects of resilience.

Furthermore, while acknowledging the vital importance of wider social and economic attributes of disaster resilience (such as high levels of health and education, reduced inequalities and social deprivation, the building of fiscal and macro-economic strength), these issues are well catered for by other policies and programmes across government and through society, and will not be duplicated here.

### 1.4 Links with other policy and practice

The Strategy is informed by policy and practice across key sectors of society and, in turn, promotes or requires resilient practices in each of these sectors.

Some work to deliver the Strategy is driven by the Strategy itself (for example, working with communities on community resilience plans). Others are driven by other legislation and policy (for example, Regional or District plans) and contribute to multiple outcomes. Particular care has been taken to ensure alignment in these areas of cross over, and ensure that policy and practice on key issues is mutually reinforcing.



Figure 1 The policy context of the National Disaster Resilience Strategy

### 1.5 Intended audience and use of the Strategy

This Strategy is for all New Zealanders, and all those who live, work or visit here.

It is intended to provide a common agenda for resilience that individual organisations, agencies, and groups can align with for collective impact.

**Central government, local government, businesses, organisations, and iwi** can use it to guide them in building resilience both for their own organisation, and for the people and communities they support or provide services for.

**Hapū and community organisations** can use it to support community wellbeing and resilience, and to understand the wider network of agencies and organisations working towards common goals.

**Individuals, families and whānau** can use it to prompt thinking on their own resilience, and what they can do to ensure they and their dependants, including animals, are prepared for disruption and emergencies. Emergency management in New Zealand is still based, first and foremost, on a principle of self-reliance; individuals and communities must be able to care for themselves and each other, as much as possible, when the normal functions of daily life are disrupted. This Strategy provides guidance for building resilience over the long term, as well as hopefully giving assurance about the wider network of organisations supporting individuals, households and whānau at a community, local, regional, and national level.

**All readers** are encouraged to consider what this Strategy means for them, their family/whānau, community or hapū, business or organisation, and what they can do to contribute to their own resilience or the resilience of others.

Some tailored recommendations are provided in Appendix 1 (pages 39-43).

### 1.6 Currency of the Strategy

This Strategy will be current for a period of 10 years from the date it comes into effect. Reporting will take place biennially, with a significant review of progress in year 4.

## 2. Protecting our wellbeing and prosperity

### Te tiaki i tō tātau oranga, whaihua hoki

National success is about more than just economic measures. It is about a healthy and happy life, a good education for our children, a healthy environment that protects our natural resources and taonga, family/whānau and communities we can rely on, a safe place to live and work, opportunities to start a business or get ahead, and the freedom to be who we want to be. This is prosperity.

New Zealand has seen much success over the past decade in global indices designed to measure wellbeing and prosperity. We hold up well in most categories of measurement, including in economic quality, business environment, and governance; for our health and education systems, our natural environment, and, in particular, for our personal freedoms and social capital.

However, while we do well, we certainly cannot afford to be complacent. New Zealand must continually adapt and evolve if it is to see prosperity grow.

For us to secure wellbeing and prosperity for all our people – in this generation and for future generations – we must think about prosperity in more than in economic terms. The New Zealand Treasury, in developing the Living Standards Framework, has initiated a shift of focus. The Living Standards Framework is based on an economic model, but puts intergenerational wellbeing as its core goal.

Wealth matters, but as a means, not an end: wealth is only useful if it translates into higher living standards for everyone. Protecting and growing those living standards is paramount for securing a prosperous future. This Strategy is centred on how it can contribute to that vision.

### 2.1 The Living Standards Framework

The Living Standards Framework (LSF) is a New Zealand-specific framework that draws on a range of national and international approaches to wellbeing. In particular, it builds on the Organisation for Economic Cooperation and Development's (OECD's) approach to wellbeing, the *How's Life?/Better Life* model.

The Framework conceives of wellbeing as being comprised of a number of aspects of life experience, such as housing, income, employment, education, community engagement, enjoyment of environmental amenity and health and safety. Measures of these aspects provide a snapshot of current wellbeing. The wellbeing of future generations is represented by four 'capital stocks' – financial/physical, social, human, and natural capital.

### The Four Capitals

Intergenerational wellbeing relies on the growth, distribution, and sustainability of the Four Capitals. The Capitals are interdependent and work together to support wellbeing. The Māori-Crown relationship is integral to all four capitals. The LSF is being continually developed and the next iteration of the framework will consider the role of culture, including Māori culture, as part of the capitals approach in more detail.



#### Natural Capital

This refers to all aspects of the natural environment needed to support life and human activity. It includes land, soil, water, plants and animals, as well as minerals and energy resources.



#### Social Capital

This describes the norms and values that underpin society. It includes things like trust, the rule of law, cultural identity, and the connections between people and communities.



#### Human Capital

This encompasses people's skills, knowledge and physical and mental health. These are the things which enable people to participate fully in work, study, recreation and in society more broadly.



#### Financial / Physical Capital

This includes things like houses, roads, buildings, hospitals, factories, equipment and vehicles. These are the things which make up the country's physical and financial assets which have a direct role in supporting incomes and material living conditions.

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The capitals are seen as 'value stocks', which jointly produce wellbeing outcomes over time. Each of the dimensions of wellbeing is the result of all of the different capital stocks. Investments in the capital stocks will result in the levels of the relevant stocks increasing, while depreciation, resource depletion, pollution or waste – or other shocks or stresses – may result in capital stock levels declining.

The four capitals in the Living Standards Framework help us to take into account the range of impacts that a policy option or practice may have on the material and non-material factors that affect New Zealanders' wellbeing, now and in the future. The underlying principle of the capitals Framework is that good public policy and practice enhances the capacity of natural, social, human and financial/physical capital to improve wellbeing for New Zealanders.



## 2.2 Risk and resilience, and our future wellbeing

Safety and security are integral to wellbeing and prosperity. People's wellbeing is dependent on having secure living conditions, personal safety, trust and confidence in authorities, and an ability to manage threats and dangers. A secure and stable environment is necessary for securing freedoms, and for attracting investment and sustaining economic growth. In short, a nation can prosper only in an environment of safety and security for its citizens.

To this end, it is imperative that we look to risk management and resilience for all four capitals.

New Zealand is relatively well placed in this regard with a comprehensive legislative framework in place for risk management, including the Civil Defence Emergency Management Act 2002, the Resource Management Act 1991, the Building Act 2004, the Local Government Act 2002, the Health and Safety at Work Act 2015, and a range of other legislation and regulatory instruments. We have a system of managing, coordinating, and overseeing national security (the National Security System) and emergency management arrangements at the local, regional, and national level.

Today, however, risk management is increasingly challenged by complexity in which multiple systems simultaneously impact on the four living standards capitals. Risk management in this setting requires a greater acknowledgement of uncertainty and a shift from reactive to proactive risk management. Decision-makers in both the public and private sectors require more comprehensive strategies that combine the active management of specific risks with a broader enhancement of resilience in society.

This Strategy combines these elements and considers ways to improve our resilience across the four capitals.

# 3. Risks to our wellbeing and prosperity

## Ngā mōrea ki tō tātau oranga, tōnuitanga hoki

From the lower North Island floods (2004), the Canterbury (2010-2011) and Kaikōura (2016) earthquakes, MV Rena grounding (2011), 1080 milk powder crisis (2015), Havelock North campylobacter outbreak (2016), Port Hills fires (2017), the Mycoplasma bovis disease outbreak (2017) – and many storms, floods, and droughts in between – New Zealand has had its fair share of disruptive events in recent years.

These events have caused loss of human and animal lives, injury, damage and disruption. Some have caused impacts in the built and natural environments; they have cost millions of dollars in repair and reconstruction. Other events have caused lost productivity, lost livelihoods, and lost income. More than that, these events have caused untold suffering and social disruption to individuals, family/whānau, communities and hapū, the effects and costs of which we might never fully know. In short, disasters, or other highly stressful events, impact all four capitals in a profound and costly way.

Disasters may seem inevitable and intractable, but there is much we can do to reduce the chance that hazards will affect us, and much we can do to lessen the impacts if and when they do.

This section explores some key concepts so that we have a common understanding about our key risks and how we can manage them.

### 3.1 What is disaster risk?

Disaster risk is the chance that a hazard could impact us in a significant way.

Disaster risk is a function of three interlinked components: hazard, exposure, and vulnerability.

**Hazard** refers to a process, phenomenon or human activity that may cause us harm, such as ground shaking induced by an earthquake, extreme winds associated with a cyclone, or a pathogen caused by a food safety issue or biological agent.

**Exposure** refers to people, infrastructure, buildings, the economy, and other assets that are exposed to a hazard.

**Vulnerability** are the conditions which increase the susceptibility of an individual, a community, assets or systems to the impacts of hazards. Vulnerability includes physical vulnerability, which refers to the level of damage sustained by built structures as a result of a hazard event. It also includes social vulnerability, which refers to damage as it relates to livelihood, social connections, gender, and other factors that influence a community's ability to respond to, cope with, and recover from a disaster.

These three components can be countered by a fourth component, **capacity**, which refers to the strengths, attributes and resources available to reduce or manage the risks associated with the combination of the other three components.

When these potential impacts are determined probabilistically, that is, are multiplied by how likely the hazardous event is to occur, we can determine our risk – the chance of significant impacts.



*These chairs – and this photo – are a tribute to the 185 lives lost in the 22 February 2011 Canterbury earthquake (Memorial created by artist Peter Majendie; Photo credit: Natalia Khalaman).*

### 3.2 Our current risks

New Zealand is exposed to a range of significant hazards and threats. Natural hazards, such as earthquakes, volcanoes, or extreme weather, are only one type. Our economy relies heavily on primary production and is vulnerable to adverse impacts from pests and diseases; the potential for an infectious disease pandemic has been highlighted in recent years through the bird and swine flu crises; heavy reliance on technology and just-in-time supply chains means we are vulnerable to disruption from a wide range of domestic and international sources; and the global geopolitical environment means threats to our security and economy are complex and often unpredictable.

In New Zealand, we classify risks in five categories: natural hazard risks, biological hazard risks, technological risks, security risks, and economic risks.

### 3.3 How our risks might change in the future

In assessing our risks, we can learn from past events and emergencies, but we also need to consider broader and longer-term societal trends. Trends such as these have the potential to be both a source of risk and opportunity, sometimes in equal measure. They include:

**Climate change and environmental degradation**, which could impact on, or accelerate, a wide range of our risks owing to their effects on sea level rise, the frequency and severity of natural hazards and extreme weather, biodiversity, biosecurity, and the availability and quality of ecosystems and their services.

**Population trends**, including that New Zealand society is becoming older and more ethnically diverse, with changing levels of income inequality, and changing geographic distribution of population. This has implications for how organisations engage inclusively, and what needs must be met.

**Global economic growth and productivity**, which have implications for both the health and resilience of our economy, and how much we can afford to invest in risk management and resilience.

**Digital connectivity and technological change**, in terms of the risks it poses (for example, cyber-crime) or opportunities it provides (for example, by enhancing our ability to collect and analyse complex data about risks).

**Challenges to international laws, agreements and arrangements**, which have the greatest effect on some of our economic and security risks, but could have further-reaching implications.

### 3.4 Cost of disasters

Disasters over the last decade or more, both in New Zealand and overseas, have shown the magnitude of costs that are involved in these events, both in terms of damage (the market value of losses), and in the response to and recovery from such events. It is important to note that the reported costs are often only direct costs. Less well defined are the flow-on, indirect costs, and, even less so, the costs of other, longer-term outcomes (also known as 'intangible costs'). A recent Australian study found that the indirect and intangible costs, when calculated, more than *doubled* the total reported cost of each of the three events studied.<sup>5</sup>

While we intuitively know that the impact of disasters is much larger than the direct economic cost, it is only when we start to consider the economic cost of these indirect and intangible impacts that we can see what these events really cost us. This multi-capital accounting – at an individual, community, or national level – shows us just how critical it is to try to minimise these costs, financial and social, as far as we possibly can.

### 3.5 Disaster risk reduction

Disaster risk reduction is the discipline concerned with reducing our risks of and from disasters.

Disaster risk reduction can be seen as a policy objective, a risk management process, or a social aspiration. Successful disaster risk reduction tends to result from the integration of institutional strategies and policies, and grassroots, local and community-based approaches.

Historically, dealing with disasters focused on emergency response. Towards the end of the 20th century, it was increasingly recognised that disasters are not 'inevitable' and by reducing and managing conditions of hazard, exposure and vulnerability – and building capacity – we can prevent losses and alleviate the impacts of disasters.

Since we cannot usually reduce the likelihood of hazards occurring, the main opportunity for reducing risk lies in reducing exposure and vulnerability, and building capacity. Addressing these components of risk requires us to identify the underlying drivers of risk, which can include: economic factors, urban and rural development choices and practices, degradation of the environment, poverty and inequality, and climate change. These, and a myriad of other factors, all create and exacerbate conditions of hazard, exposure and vulnerability. Addressing these underlying risk drivers, and building our capacity to manage them, will reduce disaster risk, lessen impacts if they do happen, and, consequently, maintain development and growth.

<sup>5</sup> *The Economic Cost of the Social Impact of Natural Disasters (2016) Australian Business Roundtable.*

### 3.6 Reducing vulnerability and pursuing equitable outcomes

The impact of hazards and threats is likely to exacerbate existing inequities across New Zealand. This means that some populations are disproportionately affected by many of the social and economic impacts of risks. This includes Māori, as well as Pasifika, and any people for whom English is not their first language, those living with high levels of social and economic deprivation, or those who face challenges associated with disability, ill health, or social or geographic isolation.

Obligations under the Treaty of Waitangi as well as commitments to improving wellbeing (including in existing strategies and action plans, such as the New Zealand Disability Strategy), mean we need to ensure that any action toward reducing risk is cognisant of different types of vulnerability, and the disproportionate effect disasters can have. Policy, plans, and practices should be aimed at pursuing equitable outcomes, as well as planning for, and taking opportunities to build back better in recovery in order to reduce vulnerability and improve living standards.

### 3.7 Sendai Framework for Disaster Risk Reduction 2015-2030

In 2015 New Zealand signalled commitment to the *Sendai Framework for Disaster Risk Reduction 2015-2030* (the 'Sendai Framework'). The Sendai Framework is one of three global agreements developed as part of the 'post-2015 sustainable development agenda'. Together with the Sustainable Development Goals and the *Paris Agreement on Climate Change*, the Sendai Framework aims to be a blueprint for how nations should approach risks to their development – in this case, from disasters.

Three key ideas are central to the Framework:

1. A greater effort to **understand risk** (in all its dimensions), so that we can prioritise investment, make better risk-informed decisions, and build resilience into everyday processes.
2. A shift of focus **from managing disasters to managing risk**, including to reduce the underlying drivers of risk (exposure and vulnerability).
3. A broader **'whole-of-society' approach** to risk – everyone has a role in reducing and managing risk.

The Framework has four priorities, and a series of recommended actions at the global, regional, national, and local levels.

It sets seven global targets for improved disaster risk reduction, which nations are asked to report on annually. The targets are:

1	Substantially reduce disaster mortality by 2030, aiming to lower average per 100,000 mortality between 2020-2030 compared with 2005-2015.
2	Substantially reduce the number of affected people by 2030, aiming to lower the average figure per 100,000 between 2020-2030 compared with 2005-2015.
3	Reduce disaster economic loss in relation to gross domestic product (GDP) between 2020-2030 compared with 2005-2015.
4	Substantially reduce disaster damage to critical infrastructure and disruption of basic services, among them health and educational facilities, including through developing their resilience by 2030.
5	Substantially increase the number of countries with national/local disaster risk reduction strategies by 2020.
6	Substantially enhance international cooperation to developing countries through adequate and sustainable support to complement their national actions for implementation of [the] framework by 2030.
7	Substantially increase the availability of and access to multi-hazard early warning systems and disaster risk information and assessments to the people by 2030.

The Sendai Framework has been a key influence in the development of this Strategy. The principles and priorities of the Sendai Framework have been incorporated into it; many of the national and local recommended actions have been instrumental in developing the Strategy objectives.



# 4. A resilient future

## He anamata manawaroa

In an effort to address our current known risks, manage uncertainty, and be ready for any events that may occur in the future, it is generally agreed that the overarching goal is resilience. But what does resilience mean to New Zealanders? How do we define it, what are the attributes of resilience, and how do we improve it?

### 4.1 Vision of a resilient nation

Resilience can mean a lot of different things to different people. In a series of workshops around the country, participants were asked to describe what a resilient nation meant to them and the aspirations they have for New Zealand in respect of its disaster resilience. The result is a description of our desired 'future state' – the end goal, 'what success looks like' for this Strategy. This is shown on pages 24-25.

### 4.1.1 Guiding principles for this Strategy

Within this vision of a resilient nation, participants specifically looked at what principles and values are important to us in pursuing a resilience goal. We agreed that it is desirable to act with the following in mind:

<b>Manaakitanga</b>	<p><b>We respect and care for others</b></p> <ul style="list-style-type: none"> <li>• Wellbeing, health and safety</li> <li>• Hospitality, kindness, goodwill</li> </ul>
<b>Whanaungatanga, kotahitanga</b>	<p><b>We nurture positive relationships and partnerships</b></p> <ul style="list-style-type: none"> <li>• Engagement, communication, and shared experiences</li> <li>• Acting inclusively, including to incorporate and recognise Treaty of Waitangi principles</li> <li>• Collaboration and collective action</li> </ul>
<b>Kaitiakitanga, tūrangawaewae</b>	<p><b>We guard and protect the places that are special to us</b></p> <ul style="list-style-type: none"> <li>• Protecting and enhancing our cultural, historic, and natural environment</li> <li>• Intergenerational equity</li> <li>• Stewarding our place in the world</li> <li>• Feeling enabled and connected</li> </ul>
<b>Matauranga</b>	<p><b>We value knowledge and understanding</b></p> <ul style="list-style-type: none"> <li>• Using scientific, historic, local, and traditional knowledge</li> <li>• Striving for a common understanding</li> </ul>
<b>Tikanga</b>	<p><b>Our customs and cultural practices are central to who we are</b></p> <ul style="list-style-type: none"> <li>• Cultural identity and expression</li> <li>• Ethical and values-based</li> <li>• Accountability and transparency</li> </ul>
<b>Rangatiratanga</b>	<p><b>We lead by example</b></p> <ul style="list-style-type: none"> <li>• Values-based leadership</li> <li>• Self-determination, principle of subsidiarity</li> </ul>

## 4.2 Resilience: a working definition

In the wake of significant disasters in recent years, resilience has become a popular buzzword across a wide range of disciplines, with each discipline applying its own definition to the term. A definition that has long been used in engineering is that resilience is the capacity for bouncing back faster after stress, enduring greater stresses, and being disturbed less by a given amount of stress. This definition is commonly applied to objects, such as bridges or buildings. However, most risks are systemic in nature, and a system – unlike an object – may show resilience not by returning exactly to its previous state, but instead by finding different ways to carry out essential functions; that is, by adapting and transforming to meet challenges.

In terms of disaster resilience, an important quality is also to anticipate and minimise risks as far as possible, such that any impacts are manageable and recoverable.

The definition of resilience for this Strategy is therefore: *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.*

Below are two additional explanations: one, a more technical explanation, and one, a simplified approach.

### 4.2.1 Getting more technical...

While risks tend to focus on the negative consequences from uncertainty, the concept of resilience encourages us to build capacity to help protect us from vulnerability, and to be able to better deal with the impact from shocks and stresses as they occur. The degree of vulnerability we have then depends on the nature, magnitude and duration of the shocks or stresses that are experienced as well as the level of resilience to these shocks.

Under this interpretation, resilience has two dimensions:

- an **absorption** dimension, which comprises resistance and buffers that can reduce the depth of impact, and
- an **adaptability** dimension, which focuses on elements of adaptability and innovation that maximise the speed of recovery.



Figure 2 below illustrates this idea. When a system is subject to a shock or stress, the level of functioning declines, and can fall rapidly. The depth of the fall in functioning can be thought of as the absorption capacity of the system. A system with a high absorption capacity experiences only a small loss in functioning (because it has sufficient buffers to resist the shock or stress to ensure it continues to achieve desired outcomes). The speed of recovery dimension is captured by the time lag between the shock or stress and when functioning returns to a steady-state level. Systems that have high adaptability are able to recover faster than systems with low adaptability. The two dimensions together acknowledge that the total impact of a shock is a function of both the depth of the impact and the time it takes to recover.

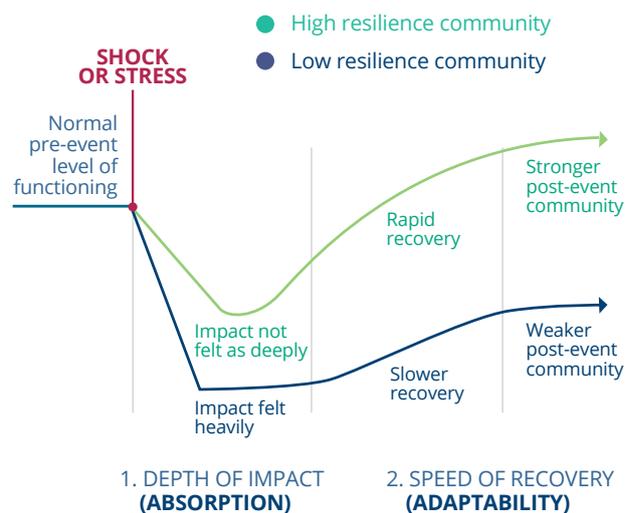


Figure 2 Two dimensions of resilience: absorption and adaptability

#### 4.2.2 Simplifying resilience...

A simpler way of thinking about resilience is our *tolerance for disruption* – how much disruption, in the form of hazards, that we, or the system, can cope with before it negatively impacts on our wellbeing.

This implies that as we are able to remove, avoid, or minimise more risk factors, and build our people, assets, and systems to be responsive and adaptable, so our tolerance for disruption grows. We can deal with a wider range and size of shocks and stresses, without them becoming an emergency, and recover fast – and well – without significantly affecting our quality of life. The greater our range of tolerance for disruption, the better off we are.

#### 4.2.3 Types of resilience

Resilience as a concept has wide applicability to a range of disciplines, and has become a popular area of academic study and organisational pursuit over recent years. As a result, it is routine to hear about many different types of resilience, for example ecological, environmental, institutional, infrastructural, organisational, economic, social, community, family, and individual resilience – to name just a few.

Within this context, it is particularly important to be clear about our goals and objectives; in particular:

##### *Resilience of what, to what, why, and how?*

In terms of this Strategy, we have talked about *of what, to what, and why* – to protect and grow our capitals, including all our people, in the face of shocks, stresses, and uncertainty, in order to advance the wellbeing and prosperity of New Zealand. The remainder of this Strategy is about *how* we do that.

#### 4.2.4 Model of a resilient nation: protecting our capitals from shocks and stresses

The literature review and engagement process to develop this Strategy has identified the following types of resilience are important for protecting our capitals – our future wellbeing – from shocks and stresses:

**Social resilience:** this includes promoting social connectedness and cohesion, and the effective operation of key social support functions, such as health, education, welfare, and justice, for the protection and strengthening of our social and human capital.

**Cultural resilience:** including aspects such as cultural values, places, institutions, and practices; our identity as New Zealanders, and our history and heritage.

**Economic resilience:** the protection and continuity of the macroeconomic environment, businesses, livelihoods, financial markets, financial management practices (including through insurance), thereby protecting our financial capital.

**Resilience of the built environment:** the resilience of critical infrastructure (namely communications, energy, transport, and water), buildings and housing, effective urban design and planning, and the engineering and construction disciplines, for the protection of our physical capital.

**Resilience of the natural environment:** including the sustainable use of natural resources, land-use, and the ecological system; managing long-term climate resilience, and improving understanding of both how hazards impact the environment and how the environment can protect society from hazards.

**Governance of risk and resilience:** including leadership, policy, strategy, security, and the rule of law, for effective oversight, coordination, collaboration, and coherence of resilience activity.

**Underpinning knowledge:** including indigenous and scientific knowledge, and up-to-date information on risks and effective resilience practices.

These are shown in the diagram on the next page.



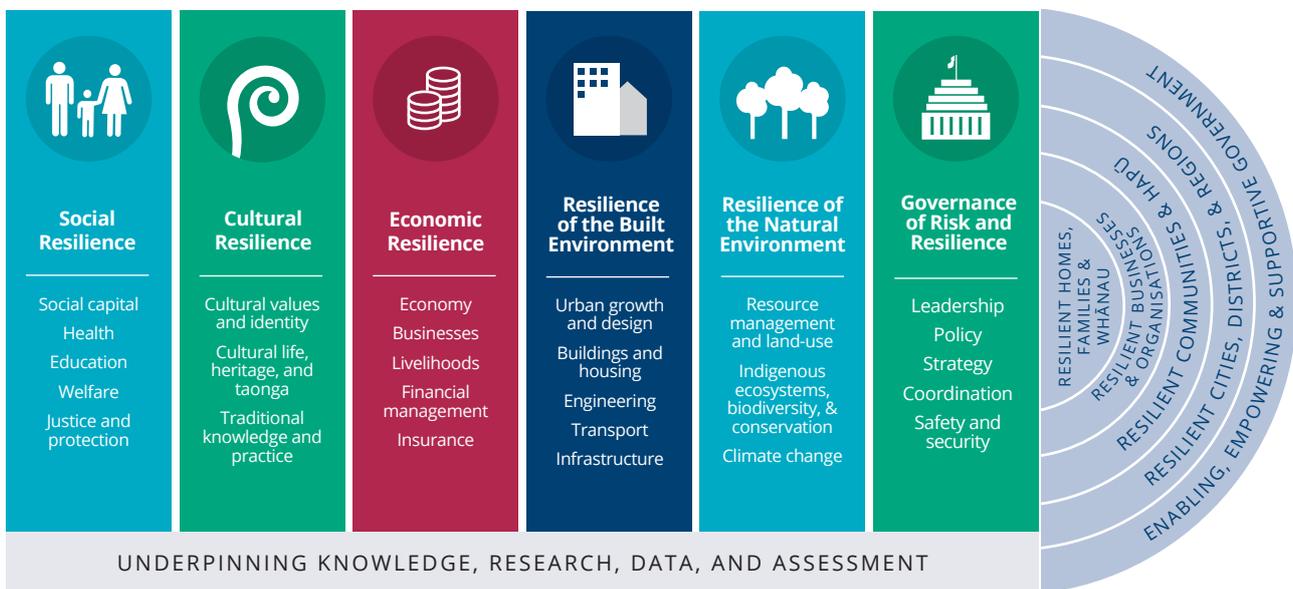


Figure 3 Model of a Resilient Nation

These types of resilience can operate, in some form, at a range of levels, from individuals and families/whānau, to businesses and organisations, communities and hapū, cities and districts, and at a national level.

For example, at a community level, the attributes of a safe and resilient community are that it:

... **is connected**: it has relationships within its network, and with external actors such as central and local governments or businesses who provide a wider supportive environment, and supply goods and services when needed.

... **is healthy**: it has a good level of individual and population health, access to medical treatment, education, and a range of other social welfare support, when needed.

... **has cultural norms**: it has a strong identity, attachment to place, and sense of civic responsibility. It is inclusive, and looks to cultural norms and values to sustain it in times of upheaval.

... **has economic opportunities**: it has a diverse range of employment opportunities, income, and financial services. It is flexible, resourceful, and has the capacity to accept uncertainty and respond to change.

... **has infrastructure, services, and safe buildings**: it has strong housing, transport, power, telecommunications, water, and sanitation systems. It also has the ability to maintain, repair, and renovate them.

... **can manage its natural assets**: it recognises the value of natural resources and indigenous ecosystems, and has the ability to protect, enhance, and maintain them.

... **is organised**: it has the capacity to identify problems, establish priorities, coordinate, collaborate, and act.

... **is knowledgeable**: it has the ability to assess, manage, and monitor its risks. It can learn new skills, build on past experiences, and plan for its future.

*Adapted from: Characteristics of a Safe and Resilient Community, International Federation of the Red Cross (2011)*

This Strategy asserts that broad attention to resilient practices within and across each of these areas – and enabling individuals, families/whānau, businesses/organisations, and communities/hapū to do the same – is critical to the overall resilience of the nation, and protection of our capitals and future wellbeing.

The model is not a strategy itself, but a checklist to ensure we pay attention to the range of things that are important. It can also operate as a basis for assessment, or as a decision-making tool, for example, to evaluate whether options or investment are meeting, or are sensitive to, multiple needs.

### 4.3 Resilience and Te Ao Māori

The effective response and significant community support facilitated by Māori in the aftermath of the Canterbury and Kaikōura earthquakes, the floods in Edgecumbe, as well as in other emergencies, has generated considerable interest in Māori disaster resilience.

Māori moral and relational attributes applied to creating community resilience promote a collaborative response to disaster response and recovery, commitment to environmental restoration, and the extension of hospitality to others experiencing adversity. Māori also have assets and places, which have often, and will again be mobilised to secure community wellbeing in the aftermath of disasters<sup>6</sup>.

These strengths are highly relevant to developing a resilient New Zealand, and partnering with Māori to build disaster resilience is essential to ensuring that outcome.

#### 4.3.1 Tangata whenua and disaster risk reduction

Māori share a holistic and community perspective on resilience, which can be characterised as the social, physical, familial, spiritual and environmental wellbeing of whānau, the unit of cultural capital in Te Ao Māori.

When a disaster occurs, the responsibility of caring for others and Te Ao Tūroa (the natural world), falls to whānau, hapū and iwi with historical ties to the areas impacted by the disaster. Whakapapa creates a kinship-based form of capital understood by Māori as whanaungatanga (close relationships), that will be drawn on to aid whānau, hapū, and wider communities during times of adversity. Whānau, hapū and iwi respond quickly and collectively to provide support and address the immediate needs of their communities as well as to institute practices that will aid the recovery, and the development of disaster resilience in affected regions.

This process is considered whakaoranga<sup>7</sup> – the rescue, recovery and restoration of sustainable wellbeing and may be applied to whānau, hapū, and iwi, tribal homelands as well as all communities and parts of New Zealand impacted by disasters. The whakaoranga process is underpinned by kaupapa Māori (cultural values), informed by mātauranga Māori (cultural knowledge and science) and carried out as tikanga Māori (cultural practices). These cultural attributes interact to co-create community and environmental resilience in the context of disasters.

<sup>6</sup> It is important to note that while many Māori may share a similar worldview, there is still a need to recognise different dynamics both within and between iwi, hapū, and marae, and to engage with each on an individual basis. There is also a need to recognise that different iwi, hapū, and marae have different resource constraints and asset bases and their ability to respond is dependent on this; not all iwi, hapū, and marae will have the same resilience or capacity to respond.

<sup>7</sup> Acknowledgement: The concept and application of the term whakaoranga to disaster resilience were developed in the National Science Challenge Resilience to Nature's Challenges' research project: Whakaoranga marae, led by Associate Professor Christine Kenney.

Key values that shape Māori inter-generational practices for facilitating whakaoranga include kotahitanga (unity), whānau (family), whakapapa (genealogy), marae (communal and sacred meeting grounds), whakawhanaungatanga (building/maintaining relationships), manaakitanga (respect/support/hospitality), and kaitiakitanga (guardianship). From a Māori perspective, such values link with a set of practices that must be learnt and enacted through giving time and support for the collective good rather than the wellbeing of oneself.

#### 4.3.2 Tangata whenua and a resilient nation

This Strategy recognises the importance of whakaoranga, the Māori-Crown relationship, and Māori worldviews generally. It is committed to an inclusive, community approach to resilience. It is focussed on putting people at the centre of resilience, including an emphasis on manaakitanga and wellbeing. It aims to build the relationship between iwi and agencies with roles in the emergency management system (*before* emergencies happen). It also seeks to build recognition of the role culture – including kaupapa Māori and tikanga Māori – plays in our wider resilience.

### 4.4 Resilience and people disproportionately affected by disaster

Building resilience across all parts of society requires broad engagement and partnerships. It also requires empowerment, and inclusive, accessible and non-discriminatory participation, paying special attention to people disproportionately affected by disasters.

Understanding different vulnerabilities is important for reducing risks and ensuring particular needs are met in response and recovery. However, it is also important to recognise that many people and groups who face hardship or challenges in their everyday lives, also have tremendous capacity and capability. A strengths-based approach identifying different protective and adaptive factors and opportunities, can enable, empower, and give agency to groups who might otherwise be disproportionately affected. It can also significantly add to the richness and effectiveness of emergency management planning, and ensure the outcomes from disasters are as equitable as possible.

#### 4.4.1 Resilience and disabled people

Disabled people can face particular challenges during and after disasters. These include lack of access to information and communications, inaccessible facilities and services, lack of access to needed support resources, disintegration of social connections, degradation of the environment, and lack of inclusive and responsive policy frameworks.

Internationally, there is an increasing drive to design and implement disability-inclusive disaster risk reduction and resilience practices.

The New Zealand Disability Strategy promotes a twin-track approach to inclusion: ensuring that all mainstream services are inclusive of, and accessible to, disabled people, and ensuring that there are disability-specific specialised support or services for those who need them.

Several factors have been identified that support the resilience of disabled people. These include:

**Preparedness:** supporting the design and implementation of resilience-focused emergency preparedness that includes disabled people, their family/whānau, caregivers and key people and/or groups in their community.

**Participation and inclusion:** sustainable solutions that benefit everyone in communities emerge if people with disabilities are included in emergency management planning and implementation.

**Diversity within disability:** effective disability-inclusive emergency management strategies require recognition of the needs and capabilities of the diverse range of lived experiences of people with disabilities.

**Collaboration:** following disasters, disability-inclusive response, recovery and regeneration activities require the contributions of a diverse range of stakeholders for collective impact and effective recovery.

**Build back better:** using disasters as an opportunity to enhance the social, economic, environmental and physical conditions of communities, including to incorporate universal design.

In addition to these, it is important that emergency managers, emergency responders, and those supporting communities generally, are aware of and competent in disability-inclusive planning, response, and recovery, so that disabled people can participate in resilience, response, and recovery on the same basis as others.

#### 4.4.2 Resilience and children and youth

The effects of disasters are amplified for children and can have a lasting impact on their development. For example, rates of post-traumatic stress disorder among children more than doubled after the 2011 Canterbury earthquakes.

There are opportunities to build our young people's resilience to disasters through participation in appropriate readiness, response, and recovery activities. Furthermore, children and youth can be agents of change and their participation in the design of resilience initiatives can add new perspectives, creativity, and innovation.

#### 4.4.3 Resilience and CALD communities

Culturally and linguistically diverse communities (or 'CALD' communities) make up a significant and growing proportion of New Zealand's population. There are 213 ethnicities in New Zealand as at Census 2013, and New Zealand is now home to 160 languages. In addition to people who have migrated to New Zealand, or who are living here temporarily, New Zealand also has a thriving tourist economy, that brings around 5 million short-term visitors to the country annually.

This diversity brings richness, innovation, knowledge and experience, and a wider, and more diverse customer and employee base (the 'diversity dividend'). It also brings some challenges; notably, a large number of new migrants or visitors in New Zealand, some of whom come from very different linguistic and cultural backgrounds.

It is imperative that the vulnerability – and resilience – of CALD communities are considered across all 4Rs.

#### 4.4.4 Resilience and rural communities

Rural environments differ significantly from their urban counterparts in ways that directly impact emergency management. Populations are usually dispersed across less accessible landscapes, which can leave them more exposed to the impacts of hazards, and isolated for prolonged periods of time as a result of infrastructure damage.

At the same time, rural populations are often presumed to be more resilient than urban communities, despite current statistics that indicate higher levels of mental illness and suicide in rural areas.

Acknowledgement of these differences in managing risks, responding to and recovering from emergencies, and in strengthening resilience will help to ensure that activities and messaging are rural-appropriate.

#### 4.5 A resilient nation: how are we doing?

The process to develop this Strategy included a collective<sup>8</sup> evaluation of New Zealand's current state of resilience, including our strengths, barriers to, and opportunities for building resilience. Appendix 2 details the main conclusions, and can be seen as the 'baseline' for the Strategy, as well as the main evidence base on which many of the priorities and objectives are based.

#### 4.6 Conclusion: co-creating a resilient society

Today's world is turbulent and is likely to be so in the future. However, it is also dynamic, with huge opportunities for leadership and innovation. A critical question for the next 10 years will be how to enable those opportunities to effectively build resilience and address the many challenges that will continue to confront us.

We know from our experience over the last few years that we need to look to our communities for the leadership we know is there, and we don't need to wait for a disaster to happen for that leadership to come to the fore. Building capacity is one of the key strands of disaster risk reduction, which makes the resilience journey absolutely embedded in the community. Researcher Robert Bach, in summing up the experience of the Canterbury earthquakes, said:

*"Resilient communities adapt through creating innovative approaches to collective governance, seizing unexpected opportunities to decide for themselves how to respond, organising to work with government agencies in new ways, and accepting both the promise and responsibility of joint decision-making."*

One of the key messages is that we need to look to a range of sources for inspiration and relevance as we adapt to a shifting, and increasingly challenging environment. These include exploring new opportunities for engagement and action through technology, new sources of inspiration and activity driven by younger generations, and new methods for measuring and demonstrating impact.

We need to embody agility and flexibility, enabling others to act according to their need. We need to adopt a learning, growth mindset, and adapt and transform our organisations and ourselves as necessary.

We need to work out how we build our resilience in a smart, cost-effective way, so that it's realistic and affordable, and so it isn't a 'sunk' cost, like stockpiles for a bad day – but rather enables better living standards today.

Above all, we need to work together – as communities, and as organisations that support communities. Building resilience as siloed sectors is not enough – government, the private, and not-for-profit sectors need to be better joined up. More effective ways of tackling challenges are required, which, by necessity, will transcend traditional sector barriers. This includes employing new business models that combine the resources and expertise of multiple sectors of society to address common challenges, as well as creating opportunities that enable leaders across all sectors and within communities, to participate effectively in decision-making.

It is in this cross-sectoral space that we have the opportunity and ability to underpin the resilience dynamism that we need, by engaging in ways that inspire, support and shape a change agenda that is needed for improved resilience at both the local and national levels. By developing these cross-sectoral opportunities, we can build powerful networks built on trust, commitment, and a focus on the collective good, which can be translated into positive outcomes for society.



<sup>8</sup> Including representatives from over 300 organisations from local and central government, iwi, social, community, voluntary, and not-for-profit sector groups, emergency services, and the private sector including the business, lifelines and infrastructure sectors.

# Vision of a resilient New Zealand

## He matakitenga o te Aotearoa manawaroa

A future resilient New Zealand is a nation where resilience thinking is integrated into all aspects of life as a matter of course. There is a deep, shared understanding of a wide range of risks and the nature of the action that each of them requires. From an individual level, to families and whānau, communities and hapū, cities and districts, and at a national level, everyone understands their own share of responsibility for reducing risk and strengthening resilience. A strong understanding of risk and resilience is also an integral part of business culture. The integration of these parts builds a risk-savvy, resilient nation.

Strong leadership has created a coherent, joined-up approach to resilience that connects with a range of government departments and organisational mandates. Communities are empowered to problem solve and adapt. At a national level, a long-term resilience strategy and the associated capacities and governance structures are in place. There is a constant flow of up-to-date, evidence-based information on best practice. This supports the capacity for local, site-specific, and innovative responses. Rich information flows make it possible for communities to identify and connect resources and use them where they are most needed.

New Zealand communities and neighbourhoods are well connected both by face-to-face interaction and digital networks. There are shared values and social norms in relation to resilience that support a 'whole of society' approach. At the same time, resilience thinking connects with, draws on and permeates all cultures within New Zealand. People make the connection between resilience and their own culture, values, traditions, and sense of identity and place.



New Zealand takes a proactive, anticipatory, smart approach to limit impacts before they happen, understanding that action up-front limits costs later. This includes taking steps both to mitigate the risks of climate change, and to adapt to the change that is already taking place. Tough issues are tackled through collective conversation and action.

Resilience is integrated into urban and rural design principles as a matter of course and supported by quality information on safe building materials and design. Rich data and modelling of hazard and risk are enabling the transition to smart land-use, where permanent dwellings and key infrastructure are not built on the highest risk ground.

Response to emergencies is characterised by an end-to-end system that supports cooperative and coordinated emergency management, and timely, accurate, and relevant information that enables the public to understand the situation and take action to protect themselves and others, and limit damaging and costly flow-on effects.

New Zealand as a whole is able to have informed debate about the optimal level of resource to invest to ensure that all aspects of recovery, including economic recovery, are smooth and swift. Recovery from emergencies is comprehensive, participatory, and inclusive of all peoples and organisations, having had discussions about priorities, processes, and desired outcomes before emergencies happen.



In summary, as a nation, we understand that we live in a country exposed to hazards, but we also understand the range of actions to take to limit impacts and ensure the hazards, crises, and emergencies we will inevitably face do not become disasters that threaten our prosperity and wellbeing.

# Our priorities for improved resilience:

## Ā mātau kaupapa matua mō te whakapakari i te manawaroa

Managing risks

Effective response to and recovery from emergencies

Enabling, empowering, and supporting community resilience



# 5. Managing risks

## Te whakahaere mōrea

**What we want to see:** New Zealand is a risk savvy nation that takes all practicable steps to identify, prioritise, and manage risks that could impact the wellbeing and prosperity of New Zealanders, and all who live, work, or visit here.

This priority is concerned with identifying and monitoring risks to our wellbeing, taking action to reduce our existing levels of risk ('corrective risk management'), minimise the amount of new risk we create ('prospective risk management'), and ensuring that everyone has the information and tools they need to be able to make informed decisions about resilience.

We have seen how we already have a considerable amount of risk in our society through the hazards we face, the assets we have exposed to those hazards, and the vulnerability of people, assets, and services to impacts. It is important for us to try and reduce existing risk so that the chances of disaster are reduced, and/or the impacts are reduced if or when hazardous events occur.

At the same time, it is critical to recognise how we inadvertently add to that risk through poor development choices, including land-use and building choices. Planning for resilience at the outset of new projects is by far the cheapest and easiest time to minimise risk and has the potential to significantly reduce disaster costs in the future.

Risk information provides a critical foundation for managing disaster risk across all sectors. At the community level, an understanding of hazard events, whether from living memory or oral and written histories, can inform and influence decisions on preparedness, including life-saving evacuation procedures and the location of important facilities.

In the construction sector, quantifying the potential risk expected in the lifetime of a building, bridge, or other critical infrastructure drives the creation and modification of building codes. In the land-use and urban planning sectors, robust analysis of flood (and other) risk likewise drives investment in flood protection and possibly affects changes in insurance as well. In the insurance sector, the quantification of disaster risk is essential, given that the solvency capital of most insurance companies is strongly influenced by their exposure to risk.

A critical part of understanding and managing risk is understanding the full range of costs involved in disasters, both the direct costs from damage and the more indirect and intangible costs resulting from flow-on effects and social impact. We also need to identify the range of financial instruments that may be available to support the activities designed to reduce our risk and build our resilience, including those promoted in this Strategy.



The six objectives designed to progress the priority of managing risks are, at all levels:

Objective	What success looks like; by 2030:
<p><b>1 Identify and understand risk scenarios (including the components of hazard, exposure, vulnerability, and capacity), and use this knowledge to inform decision-making</b></p>	<p>There is an agreed, standardised, and widely-used methodology for assessing disaster risks at a local government, large organisation, and central government level. This includes making use of scientific, indigenous, and local knowledge. Risks can be aggregated and viewed at a national or sub-national level, and the results inform the risk assessment efforts of others. Businesses and small organisations can make use of a simplified version to assess their own risks, and make decisions about courses of action. Particular attention is paid to assessing the vulnerability of people, groups, and communities including to understand risk, protective and adaptive factors.</p>
<p><b>2 Put in place organisational structures and identify necessary processes - including being informed by community perspectives - to understand and act on reducing risks</b></p>	<p>The governance of risk and resilience in New Zealand is informed by multi-sectoral views and participation including the private sector, not-for-profit, and other community representatives. Progress on risk management and towards increased resilience is publicly tracked, and interventions evaluated for effectiveness.</p>
<p><b>3 Build risk awareness, risk literacy, and risk management capability, including the ability to assess risk</b></p>	<p>There is an agreed ‘plain English’ lexicon for risk, including better visual products for describing the risk of any situation, hazard, product, or process. Government agencies and science organisations regularly communicate with the public about risks in a timely and transparent manner, and in a way that is understandable and judged effective by the public. This transparency of risk information leads to more inclusive conversations on the acceptability of risk, and better decisions on risk management options.</p>
<p><b>4 Address gaps in risk reduction policy (particularly in the light of climate change adaptation)</b></p>	<p>We have had a national conversation – including with affected and potentially-affected communities – about how to approach high hazard areas, and we have a system level-response (including central and local government) with aligned regulatory and funding/financing policies in place.</p>
<p><b>5 Ensure development and investment practices, particularly in the built and natural environments, are risk-aware, taking care not to create any unnecessary or unacceptable new risk</b></p>	<p>Communities value and accept having resilience as a core goal for all development, recognising that this may involve higher upfront costs though greater net benefits in the long term. Plans, policies and regulations are fit for purpose, flexible enough to enable resilient development under a variety of circumstances, and can be easily adapted as risks become better understood. Developers aim to exceed required standards for new development, including greater uptake on low damage design, and may receive appropriate recognition for doing so. Earthquake prone building remediation is completed on time and a greater proportion exceeds minimum standards.</p>
<p><b>6 Understand the economic impact of disaster and disruption, and the need for investment in resilience; identify and develop financial mechanisms that support resilience activities</b></p>	<p>There is an improved understanding of the cost of disasters and disruption, including the economic cost of social impact. We are routinely collecting data on disruption, and using it to inform decision-making and investment in resilience. There is a clear mix of funding and incentives in place to advance New Zealand’s disaster risk management priorities and build resilience to disasters.</p>

## 6. Effective response to and recovery from emergencies

### Te urupare tōkita me te whakaora mai i ngā ohotata

**What we want to see:** New Zealand has a seamless end-to-end emergency management system that supports effective response to and recovery from emergencies, reducing impacts, caring for individuals, and protecting the long-term wellbeing of New Zealanders.

Responding to, and recovering from, disasters remains – and may always remain – our toughest challenge. This is when we have most at risk, when human suffering is potentially at its greatest, and when there is most threat to our property, assets, and economic wellbeing.

The response phase can involve frenetic pace, confusion, pressure, and has the highest requirement for good decision-making and effective communications. Recovery can be the most complex, requiring inclusive and participatory approaches, and reflection and careful planning, but needs to be balanced with a need for momentum and progress.

Both hold the opportunity to minimise impacts, limit the suffering of individuals, families/whānau, communities and hapū, manage risk, and build in resilience for an improved future.

There are many strengths in New Zealand's emergency management system. Our system is set up to deal with 'all hazards and risks', organisations work across the '4Rs', and communities engage in emergency management. There is passion and commitment from all those who respond to emergencies, paid staff, volunteers, and communities alike.

In recent years, significant global and local events have changed how we think about emergency management. As a nation, the Canterbury earthquakes are still fresh in our minds. A changing climate means we could get more frequent and more extreme storms and floods. Globally, we see the impact of tsunamis, pandemics, industrial accidents, terrorism incidents and other hazards that cause serious harm to people, environments, and economies. Our risks are changing. Our emergency management system must change too to ensure it works when we need it.

This priority aims to build on the advancements we have made in responding to and supporting recovery from emergencies over the last 16 years since the CDEM Act came into effect. It recognises individuals and communities as first responders, and how they are enabled and empowered to respond in a way that makes sense to them. It also seeks to improve the functioning of the *emergency management system*, the range of agencies and organisations involved in the 'official' response. It incorporates the Government's decisions on the Review into *Better Responses to Natural Disasters and Other Emergencies (2017)*, and looks at the next generation of capability and capacity we require. In particular, it aims to modernise the discipline of emergency management and ensure that, locally, regionally, and nationally, we are 'fit-for-purpose', including to address some of the emerging issues of maintaining pace with media and social media, responding to new and complex emergencies, and the type of command, control, and leadership required to ensure rapid, effective, inclusive, and compassionate response and recovery.



The six objectives designed to progress the priority of effective response to and recovery from emergencies are:

Objective	What success looks like; by 2030:
<b>7</b> Ensure that the safety and wellbeing of people is at the heart of the emergency management system	There is trust and confidence in the emergency management system. In emergencies, the safety, needs, and wellbeing of affected people are the highest priority. The public know what is going on, what to expect, and what to do: hazard warnings are timely and effective, and incorporate new technology and social science; strategic information is shared with stakeholders, spokespeople, and the media, so they get the right advice at the right time; and public information management is resourced to communicate effectively with the public, through a variety of channels, in formats that are sensitive to the needs of the most vulnerable.
<b>8</b> Build the relationship between emergency management organisations and iwi/groups representing Māori, to ensure greater recognition, understanding, and integration of iwi/ Māori perspectives and tikanga in emergency management	There is good collaboration and coordination between iwi and emergency management agencies in relation to emergency management, across the 4Rs. Iwi are represented on Coordinating Executive Groups and provide advice in relation to governance and planning. CDEM Groups work with hapū, rūnanga, and marae in their region that want to have a role in response and recovery, to understand their tikanga, support planning and development of protocols, and establish clear arrangements for reimbursement of welfare-related expenses.
<b>9</b> Strengthen the national leadership of the emergency management system to provide clearer direction and more consistent response to and recovery from emergencies	There is more directive leadership of the emergency management system, including setting national standards for emergency management, so there is a consistent standard of care across the country. There is strengthened stewardship of the system, including a clear understanding of, and arrangements for, lead and support roles for the full range of national risks.
<b>10</b> Ensure it is clear who is responsible for what, nationally, regionally, and locally, in response and recovery; enable and empower community-level response, and ensure it is connected into wider coordinated responses, when and where necessary	Legislative and policy settings support plans at all levels that are clearer about how agencies will work together and who will do what. Updated incident management doctrine provides clarity about roles and functions, and is used by all agencies to manage all events. At a regional level, shared service arrangements are clear about local and regional roles, and mean better use of resources and better holistic service delivery to communities. Communities, including the private and not-for-profit sectors, are empowered to respond and recover as they see fit, while having connections into official channels to source support and resources where needed.
<b>11</b> Build the capability and capacity of the emergency management workforce for response and recovery	All Controllers and Recovery Managers are trained and accredited. People fulfilling incident management roles have the appropriate training, skills, experience and aptitude, and volunteers are appropriately trained, recognised, and kept safe. Supplementary expert teams undertake rapid deployments in emergency response and recovery situations to support local capability and capacity. The broader emergency management workforce has increased competency in matters of diversity and inclusiveness, including cultural competence, and disability-inclusive approaches.
<b>12</b> Improve the information and intelligence system that supports decision-making in emergencies to enable informed, timely, and consistent decisions by stakeholders and the public	All stakeholders in the emergency management system have access to the same operational and technical information, which provides greater awareness of the situation at hand, allows timely and effective decision-making, and better information to the public.

# 7. Enabling, empowering, and supporting community resilience

## Te whakaahei, whakamana me te tautoko i te pakari o te hapori

**What we want to see:** New Zealand has a culture of resilience that means individuals and families/whānau, businesses and organisations, communities and hapū are empowered to take action to reduce their risks, connect with others, and build resilience to shocks and stresses.

Preparedness and resilience both depend on identifying and strengthening the people, processes, and organisations that work in, and for, communities under normal conditions, before a crisis or emergency happens.

The foundation of all resilience efforts, therefore, involves action by the different parts that make up communities: neighbourhood associations, businesses, schools, faith-based groups, trade groups, ethnic centres, and other civic-minded organisations that have routine, direct ties to local communities. Collective action, by, with and for the individuals, families/whānau, and groups who live in local areas, becomes the leading edge of efforts to protect and sustain society – and the nation – as a whole.

Engaging with, and considering the needs of, any people or groups who have specific needs, or who are likely to be disproportionately affected by disasters is critical. Not all New Zealanders, or those who work, live, or visit here, will have the same capacity to engage, prepare, or build resilience. It is important that the needs of all people are accounted for, including how to best enable, empower, and support people to achieve good outcomes.

Inclusive and participatory governance of disaster resilience at all levels is an important objective. This includes the co-development of clear vision and plans, building capability and capacity, and ensuring coordination. Partnerships, networks, and coalition approaches are crucial.

Infrastructure, including physical infrastructure (for example: roads, bridges, airports, rail, water supply, telecommunications and energy services), and social infrastructure (for example: health care, education, culture and heritage facilities, banking and finance services, emergency services and the justice system), is recognised as a critical element for healthy economies and stable communities. It enables commerce, movement of people, goods and information, and facilitates society's daily economic and social wellbeing.

The ability of infrastructure systems to function during adverse conditions and quickly recover to acceptable levels of service after an event is fundamental to the wellbeing of communities. This Strategy supports other key policy and programmes in emphasising the importance of infrastructure resilience, in particular for its role in supporting wider community resilience. This includes assessing the adequacy and capacity of current infrastructure assets and networks, identifying key interdependencies and cascading effects, progressively upgrading assets as practicable, and identifying opportunities to 'build back better' in recovery and reconstruction.

How culture sustains us in times of upheaval is officially recognised in this Strategy, and is a key area for consideration for communities and emergency management organisations alike. Cultural life, including cultural practices and events, institutions, heritage buildings and taonga are important to our wellbeing, and for maintaining a sense of normality and comfort during and following emergencies. We must do what we can to ensure its continuity.



The six objectives designed to progress the priority of enabling, empowering, and supporting community resilience are, at all levels:

Objective	What success looks like; by 2030:
<p><b>13 Enable and empower individuals, households, organisations, and businesses to build their resilience, paying particular attention to those people and groups who may be disproportionately affected by disaster</b></p>	<p>Emergency preparedness is part of everyday life in New Zealand. More people are able to thrive through periods of crisis and change because they have adaptable plans (including for their animals) to get through different emergency scenarios, access to regularly maintained resources to draw on in an emergency, and established networks of information and support. Public, private, and not-for-profit organisations are able to thrive through periods of crisis and change because they understand what they can do to improve their resilience, and are investing in improving it. People and groups who have particular needs, or who are likely to be disproportionately affected by disasters, are included in planning and preparedness, and supported to build their resilience.</p>
<p><b>14 Cultivate an environment for social connectedness which promotes a culture of mutual help; embed a collective impact approach to building community resilience</b></p>	<p>New methodologies and approaches mean that communities are more knowledgeable about risks, are empowered to problem-solve, and participate in decision-making about their future. Capabilities, capacity, and connectedness are key ideas. Organisations that support communities work together to coordinate activities, ensure their efforts are aligned and mutually reinforcing (where possible), and track progress.</p>
<p><b>15 Take a whole of city/district/region approach to resilience, including to embed strategic objectives for resilience in key plans and strategies</b></p>	<p>Local authorities and their partners have adopted strategic objectives aimed at building resilience in their city/district, and work collaboratively with a broad range of stakeholders to steward the wellbeing and prosperity of the city/district.</p>
<p><b>16 Address the capacity and adequacy of critical infrastructure systems, and upgrade them as practicable, according to risks identified</b></p>	<p>We more fully understand infrastructure vulnerabilities, including interdependencies, cascading effects and impacts on society. There are clarified and agreed expectations about levels of service during and after emergencies, and infrastructure providers work to meet those levels (including through planning and investment). There is improved planning for response to and recovery from infrastructure failure.</p>
<p><b>17 Embed a strategic, resilience approach to recovery planning that takes account of risks identified, recognises long-term priorities and opportunities to build back better, and ensures people and communities are at the centre of recovery processes</b></p>	<p>There is significantly increased understanding of recovery principles and practice by decision-makers. Readiness for recovery is based on a strong understanding of communities and their desired outcomes and values, as well as the consequences local hazards might have on these communities. In particular, our approach to recovery focuses on long-term resilience by linking recovery to risk reduction, readiness, and response through actions designed to reduce consequences on communities.</p>
<p><b>18 Recognise the importance of culture to resilience, including to support the continuity of cultural places, institutions and activities, and to enable the participation of different cultures in resilience</b></p>	<p>There is an increased understanding and recognition of the role culture plays in resilience; there are improved multi-cultural partnership approaches to disaster planning and preparedness; and there is substantially increased resilience to disasters including the protection of cultural and historic heritage places, assets, and taonga (including marae).</p>

# Our commitment to action

## E paiherea ana mātau ki te mahi

What happens next?

Transparency and social accountability

Governance

Measuring and monitoring progress



## 8. Our commitment to action

### E paiherea ana mātau ki te mahi

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#### Producing a strategy is not the end of thinking about resilience – it's the beginning.

Ehara te whakairo rautaki i te whakamutunga o te whakaaro mō te manawaroa – he tīmatanga kē.

##### 8.1 What happens next?

The job of the Strategy is to show what we want to achieve over the next ten years. It is deliberately high level, with objectives broadly described.

During 2019, the Ministry of Civil Defence & Emergency Management will coordinate the preparation of a roadmap of actions setting out how the Strategy objectives will be achieved. Its emphasis will be on work to be done over the next 3-5 years (and will be updated over time).

The roadmap will set out the range of initiatives that contribute to the Strategy's objectives. Examples of these are:

- The implementation of the Emergency Management System Reforms to improve how New Zealand responds to natural disasters and emergencies
- Revised CDEM Group plans and the National CDEM Plan
- Local government planning, including long term plans, annual plans, and asset management plans
- Review and reform of key legislation that contributes to risk management and resilience, and any guidance on its implementation
- Climate change adaptation initiatives

The roadmap will include work about how best to give effect to the Strategy's aim of a whole-of-society, inclusive, and collective approach to building resilience.

Holding ourselves to account is paramount.

It is envisaged that this can be achieved in three main ways: a principle of transparency and social accountability, formal governance mechanisms, and measuring and monitoring progress.

##### 8.2 Transparency and social accountability

It is critical that, collectively, we are transparent about both our risks and our capacity to manage them. It is only by exposing the issues and having open conversations that we will make progress on overcoming barriers, and build on strengths and opportunities.

Efforts to tackle the challenge of accountability have traditionally tended to concentrate on improving the 'supply side' of governance, including methods such as political checks and balances, administrative rules and procedures, auditing, and formal enforcement processes.

These are still critical, and will be built into the process to monitor this Strategy. However, in keeping with the inclusive theme of this Strategy, it is also important to pay attention to the 'demand side' of good governance: strengthening the voice and capacity of all stakeholders (including the public, and any groups disproportionately affected by disasters), to demand greater accountability and responsiveness from authorities and service providers.

Enhancing the ability of the public to engage in policy, planning, and practice is key.

We must find effective and practical ways to do this.

This could include activities such as: representation on governance or planning groups, deliberate efforts to engage different stakeholder groups on specific challenges, citizen or civil society-led action, or utilising the whole new generation of engagement offered by social media.

##### 8.3 Governance of this Strategy

The Strategy will have formal governance mechanisms to oversee progress and drive action.

The Strategy will be owned and managed by existing governance mechanisms, including those through the National Security System, and at a regional level by CDEM Groups. Additional, wider input and advice will be incorporated where practical.

## 8.4 Measuring and monitoring progress

The monitoring and evaluation of resilience building initiatives in New Zealand must capture progress at several points along the pathway to lasting change. A theory of change logic model (Figure 4) helps us think about how to assess the process of social change, beginning by defining the desired impacts on society and working backward to programme design and required inputs. The desired *impact* of government policy in New Zealand is to enhance the intergenerational wellbeing of New Zealanders. Through a resilience lens that must include the continuity and enhancement of wellbeing in the face of acute and chronic shocks.

The decisive measure of the disaster risk reduction and resilience programmes that we implement in New Zealand will be the extent to which it can be associated with reductions in the negative effects of shocks and stresses (*outcomes*). In most cases, however, we will need to evaluate changes to resilience in the absence of shocks and we will need to assess the actions that have been shown through research and practice to contribute to disaster risk reduction and resilience (*outputs*). Finally, to assess our capacity to achieve outputs, we must consider the required resources or *inputs* across the systems supporting resilience building initiatives.

Each step will require a different monitoring and evaluation focus, will fall within the remit of different agencies and organisations, and will be guided by separate, but overlapping policy frameworks. The diagram in Figure 5 gives an overview of the logical linkages between each step in the theory of change model to the guidance and indicators needed for monitoring<sup>9</sup>.

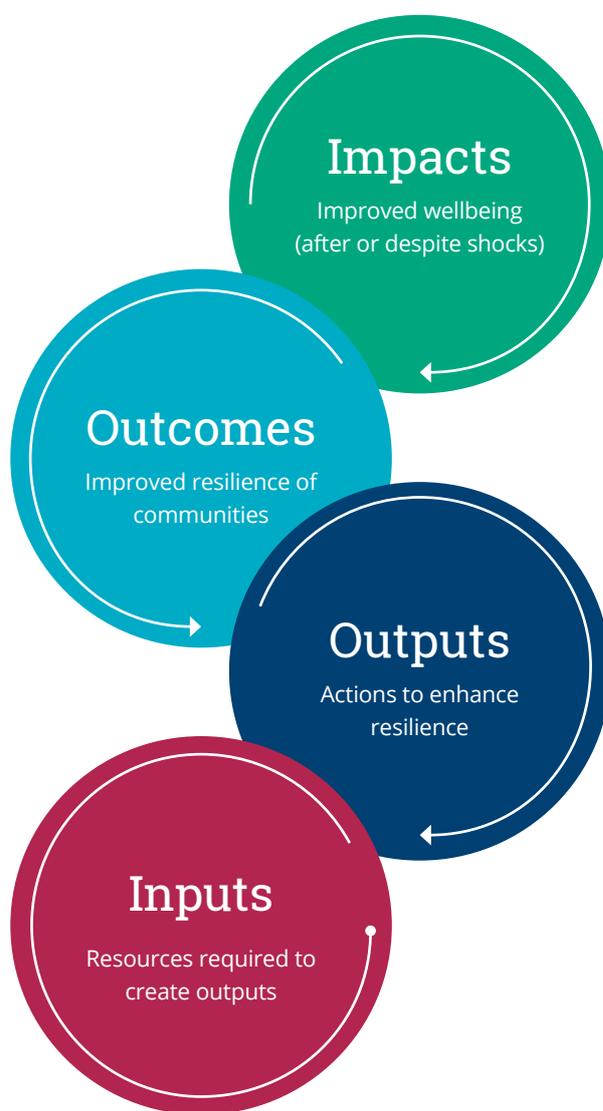


Figure 4 Theory of change for resilience



<sup>9</sup> Acknowledgement: the measuring and monitoring regime for this Strategy was developed in association with the National Science Challenge Resilience to Nature's Challenges' Trajectories workstream, led by Dr Joanne Stevenson.

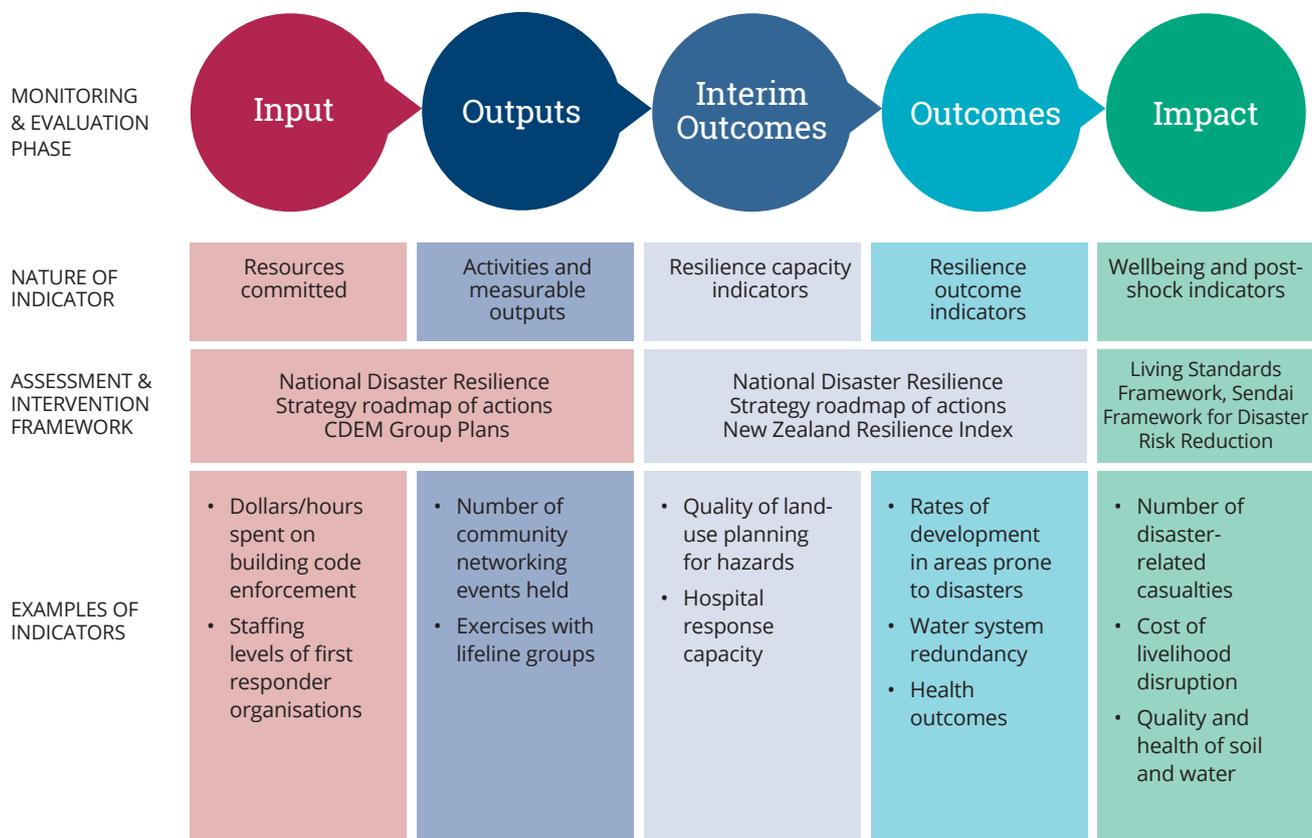


Figure 5 Logframe for resilience monitoring and evaluation

#### 8.4.1 Measuring inputs and outputs: progress on our goals and objectives

*Inputs* and *outputs* will be guided by the roadmap of actions that will accompany the National Disaster Resilience Strategy, at a regional level by CDEM Group Plans, and at a local level by those designing and implementing resilience outreach and enhancement programmes in communities across New Zealand.

#### 8.4.2 Measuring outcomes: progress on resilience

*Interim outcomes*, in the context of resilience measurement, refers to the capacity to absorb the negative effects of shocks and adapt and transform in dynamic environments. This could apply to any people, assets or systems. *Outcomes* are results that can directly confirm that those systems are able to absorb, respond, recover, adapt, or transform in the face of hazards and disasters.

Progress towards the desired outcomes and interim outcomes will be measured against a series of indicators, including a resilience index developed as part of the National Science Challenge: Resilience to Nature's Challenges.

#### 8.4.3 Measuring impact: progress on reduced losses from disasters

Our progress towards the desired *impact* we want to have will be measured by tracking losses from emergencies on an annual basis, compared against baseline data collected for 2005-2015. This reflects Sendai Framework reporting requirements.

Definitions, scope, and baseline data for these monitoring mechanisms will be produced in a separate, supporting document.

#### 8.4.4 Formal reporting

Progress on this Strategy will be reported biennially by the Ministry of Civil Defence & Emergency Management, for the duration of its term, and will include:

- Progress on goals and objectives
- Progress on resilience, and
- Progress on impacts

A significant review of progress will take place in year 4. These reports will be publicly available.

# Appendices

## Ngā āpitihanga

What can I do?

Analysis of our current state as a baseline for this Strategy

Two key opportunities



# Appendix 1: What can I do?

## Ngā āpitihanga 1: He aha he mahi māku?

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### Individuals and families/whānau

Te tangata me ngā whānau

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### Businesses and organisations

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# Individuals and families/whānau

## Te tangata me ngā whānau



### Understand your risk

Be aware of the the hazards or disruptions you could experience, your exposure – the things you have that are at risk from those disruptions, and your vulnerability – how you and your things might be adversely affected.

### Reduce your risk factors

Think about the range of ways you could reduce your exposure or vulnerability, and invest in doing so where possible.

### Future proof where possible

When making new purchases, think about how to future-proof yourself and build in resilience.

### Prepare yourself and your household

Think about the range of impacts that could occur from emergencies (for example, power, water, or communications outages, access or transport issues, the need to stay in or out of your home for an extended period). Think about the things you would want or need to have available to you during that time. Remember to include animals in your emergency preparedness.

### Plan for disruption

Plan for disruption; consider how you would meet up with family/whānau and friends if there was a communications outage or access issues.

### Stay informed

Find out more; talk to others about risk and resilience; find out the different ways you can stay informed during an emergency and how to receive alerts and warnings.

### Know your neighbours

Get to know your neighbours and participate in your community – you are each other's front line.

# Businesses and organisations

## Ngā pakihi me ngā whakahaere



### Understand your risk

Be aware of the hazards or disruptions you could experience, how your assets (people and capital) might be impacted and the strengths and resources available to manage those disruptions.

### Make resilience a strategic objective and embed it in appropriate actions, plans and strategies

The continuity of your business (and the wellbeing of the people that rely on your products/services) depends on it.

### Invest in organisational resilience

By reducing and managing the factors that are contributing to your risk, ensuring comprehensive business continuity planning, and considering and building your ability to respond to the unexpected.

### Seek assurances about supply chain resilience

Seek specific advice and assurances from suppliers as to their business continuity plans, stock carrying policies, exposure to non-supply and supply chain alert processes.

### Benefit today, benefit tomorrow

Try to find crisis/disaster preparedness solutions that have everyday benefits for your organisation.

### Consider your social impact

Consider how you can contribute to the resilience of your community, city or district. As well as helping your community, you will also be reducing the risks to your organisation of being disrupted.

### Keep the long term in mind

Consider the longer-term changes in your environment, for example the impact of climate change, and how you can position your organisation to see these changes as an opportunity.

### Collaborate with others and build your network

Find others with similar objectives in respect of risk and resilience, and collaborate with them – we are stronger together, and you have much to contribute and gain.

### Learn about response and recovery

Understand how response and recovery will work in your district or area of interest, and build your own capacity to respond to and recover from disruption.

# Communities and hapū

## Ngā hapori me ngā hapū



### Understand your risk

Seek to build a collective understanding of your risks: the hazards or disruptions you could face, your collective exposure in terms of people, animals, property, and assets, and your vulnerabilities – how these could be adversely affected.

### Reduce your risk factors

Consider whether there are ways to reduce your community's exposure or vulnerabilities – it needn't cost money, but there may be options if it does.

### Keep the long-term in mind

Consider the longer term changes in your environment, for example, the impact of climate change, and what you could do about them.

### Benefit today, benefit tomorrow

Try to find risk reduction, readiness, and resilience, solutions that have an everyday benefit to your community. As well as being prepared for tomorrow, you will have a richer community today.

### Learn about response and recovery

Understand how response to and recovery from emergencies will work in your city or district.

### Understand your collective resources

Think about what resources you have, now or in an emergency, and how you could put them to work.

### Make a plan and practice it

Community response and recovery planning helps communities understand how they can help each other after a disaster. Ask your local emergency management office for help if you need it, and practice any plans, as practicable.

### Organise community events

Communities who know each other are stronger communities – in good times and in bad.

# Cities and districts

## Ngā tāonenui me ngā takiwā



### Understand your risk

Identify and understand hazards and disruptions you could face, and the willingness and ability of your community to cope with disruption.

### Organise for resilience

Consider whether your governance of risk and resilience is fit for purpose. Engage all interested parties and take a whole-of-city/district approach.

### Make resilience a strategic objective

Make resilience a core strategic objective: the economic prosperity of your city/district, and the wellbeing of your communities depend on it.

### Lead, promote, and champion

Lead, promote, and champion city/district-wide investment in resilience. Ensure resilience objectives are embedded in economic development plans and initiatives.

### Tackle gaps in hazard risk management policy

Tackle gaps in hazard risk management policy, including matters of retreat or relocation from high risk areas, and adaptation to climate change.

### Pursue resilient urban development

Pursue resilient urban development including risk-aware land-use decisions, and urban design and growth that incorporates resilience.

### Increase infrastructure resilience

Assess risk, and ensure the resilience of critical assets and continuity of essential services.

### Safeguard natural buffers

Utilise the protective functions offered by natural ecosystems wherever practicable.

### Strengthen financial capacity

Understand the economic impact of disasters in your area, and the need for investment in resilience. Identify and develop financial mechanisms that can support resilience activities.

### Strengthen societal capacity

Cultivate an environment for social connectedness which promotes a culture of mutual help. Support and enable grassroots efforts and organisations. Support diversity and promote inclusion.

### Invest in organisational resilience

Ensure you have comprehensive business continuity planning in place, and consider and build your ability to respond to the unexpected.

### Build capability and capacity for response and recovery

Ensure your capability and capacity is not just fit-for-purpose, but future-ready and adaptable.

# Government and national organisations Kāwanatanga me ngā whakahaere ā-motu



## Organise for resilience

Participate in mechanisms for the coordination of risk and resilience activity, and the implementation of this Strategy.

## Monitor, assess and publicly report

Regularly report on:

1. risks and risk management,
2. economic loss from disasters,
3. resilience, and
4. progress on this Strategy.

## Champion resilience

Promote the importance of resilience, including whole-of-society approaches, and the key values and principles of the National Disaster Resilience Strategy.

## Make resilience easy

Create policies and legislation that enable and encourage resilient behaviours. Make it easy, affordable, and common sense for clients, stakeholders, partners, decision-makers, and the public.

## Work together

Find others with similar objectives in respect of risk and resilience, and align policy and practice.

## Invest in organisational resilience

By understanding risk scenarios, including what is driving high risk ratings for your organisation and/or clients; reducing and managing the factors that are causing your risk; ensuring comprehensive business continuity planning; and considering and building your ability to respond to the unexpected.

## Invest in societal resilience

Consider societal needs and values, before, during, and after emergencies. Ensure investments are multi-purpose, for stronger communities today and in case of emergency.

## Tackle our complex risks

Tackle and progress some of the most complex risks facing society, including approaches for addressing risk in the highest hazard communities, and adapting to climate change.

## Build capability and capacity for response and recovery

Ensure emergency management capability and capacity is not just fit-for-purpose, but future-ready and adaptable.

# Appendix 2: Analysis of our current state as a baseline for this Strategy

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In order to form an effective strategy for the future and move towards a state of enhanced resilience, it is useful to look at our current state – our strengths, barriers, and opportunities – and how we capitalise on areas of strength and opportunity, overcome obstacles to progress, and make the smartest possible choices about actions and investment. Furthermore, in the quest to be ‘future ready’, it is useful to consider what other environmental and societal trends are occurring around us, and how we can use them to build our resilience.

## Strengths

New Zealand already has a number of strengths in respect of disaster resilience.

1. We have good social capital in our communities. New Zealand communities are aware, knowledgeable, passionate, and well-connected. In general, they have a strong sense of local identity and belonging to their environment, a belief in manaakitanga and concern for their fellow citizens, and a sense of civic duty.
2. We are a developed country that has comprehensive education, health, and social welfare systems, which build our people and look after the most vulnerable in society.
3. We have a strong cultural identity, including the special relationship between Māori and the Crown provided through the Treaty of Waitangi. New Zealand is also one of a handful of culturally and linguistically ‘super-diverse’ countries, which brings a number of economic and social benefits, and expanded knowledge and experience (the ‘diversity dividend’). We value our culture, our kaupapa and tikanga. We celebrate and foster a rich and diverse cultural life.
4. We have a high-performing and relatively stable economy. The New Zealand economy made a solid recovery after the 2008-09 recession, which was shallow compared to other advanced economies. Annual growth has averaged 2.1% since March 2010, emphasising the economy’s resilience.
5. We have very high insurance penetration across residential property. Most countries struggle to get their ratio of insured to non-insured up to an acceptable level. Because of the Earthquake Commission, New Zealand’s residential insurance penetration is 98%. This means that a good proportion of the economic costs of most natural hazard events are covered by re-insurance.
6. We have a stable political system, low levels of corruption, and freedom of speech.
7. We have a good range of policy in place for disaster risk management, including the CDEM Act 2002, the Resource Management Act 1991, the Building Act 2004, the Local Government Act 2002, the Health and Safety at Work Act 2015, and a range of other legislation and regulatory instruments. This includes regulation for land-use and building standards – critical factors in building more resilient futures.
8. We have an effective national security coordination system that takes an all-hazards approach and has governance at the political, executive, and operational levels.
9. At the regional level consortia of local authorities, emergency services, lifeline utilities, and social welfare agencies (government and non-government) form CDEM Groups that coordinate across agencies and steward emergency management in their regions.
10. We have an engaged and well connected science community, including a number of platforms specifically targeting the advancement of knowledge and understanding about natural hazards and resilience. In general, there are good links between scientists, policy makers and practitioners. Scientists practice an increasing level of community outreach, engage in a co-creation approach, and are focussed on outcomes.
11. Organisations and agencies work well together. While there’s always room for improvement, a multi-agency approach is the ‘norm’, which means better coordination of activities, more efficient use of resources, and better outcomes.
12. We are a small country, which makes us well-connected, uncomplicated, and agile. We can ‘get things done’ in relatively short order.
13. We are experienced. We have seemingly had more than our fair share of crises, emergencies, and disasters over the last ten years. This has brought some bad times, but the silver lining is the awareness that it has built in everyone, the knowledge about ‘what works’ and what is needed, and the willingness to act.

## Barriers to resilience

While we have a lot going for us, we also have some things that limit our resilience. The process to develop this Strategy identified a number of barriers to resilience, and barriers to our pursuit of resilience.

### *What is limiting our resilience?*

1. Some of our people still suffer considerable poverty, social deprivation, and/or health issues that limit wellbeing, quality of life, and resilience.
2. Our level of individual and household preparedness for emergencies (including preparedness for our animals) is not as high as it should be, given our risks.
3. Our businesses and organisations (including those involving animals) are not as prepared as they could be, leading to loss of service and losses in the economy when severe disruption strikes.
4. Some of our critical assets and services are ageing and vulnerable. These are in most places being addressed by asset management plans and asset renewal programmes, (including strengthening, conservation and restoration), but these will take time (and resources) to implement.
5. We live in some high-risk areas, and are continuing to build in high-risk areas – particularly around the coast, on steep slopes, fault lines, reclaimed land, and flood plains. We live and build there because they are nice places to live, and because sometimes there is no other choice. However, insurance in these areas may some day become unaffordable. At some point we need to consider – for ourselves, our communities, and for future generations – how much risk is too much?
6. We are only just starting to tackle some of the ‘truly hard’ issues around existing levels of risk, such as how to adapt to or retreat from the highest risk areas, including to adapt to the impacts of climate change. There is likely high cost around many of these options.
7. We have gaps in our response capability and capacity, as outlined in a recent Ministerial Review into better responses to emergencies in New Zealand (Technical Advisory Group report, 2017). These are predominantly around capability of individuals, capacity of response organisations, and powers and authorities of those individuals and organisations to act. The review also identified issues with communication and technology, in particular, the challenges of response intelligence and communications staying apace with social media.

### *What is limiting our pursuit of resilience?*

1. Not enough people and organisations are taking action to prepare or build their resilience for disasters. This is generally either because it is seen as too expensive or difficult, because of other priorities, because it ‘might never happen’, or because of an expectation of a rapid and comprehensive institutional response.
2. Building community resilience – even where playing a facilitative role – is resource intensive. It also requires a high level of skill and understanding to navigate diverse communities and complex issues.
3. Emergency management issues tend to require immediate corrective action. This is understandable, and needed, but means we often focus more on fixing the problems of the day, and addressing issues from the last event, than forecasting the future and taking action for the long-term.
4. Risk reduction and resilience are often perceived as ‘expensive’, and limiting of economic development and business growth.
5. At the same time, the full cost of disasters often isn’t visible (particularly the cost of indirect and intangible impacts, including social and cultural impacts), meaning it isn’t factored into investment decision-making.
6. Perverse incentives don’t encourage resilience – too often, as a society, we are aiming for the ‘minimum’ standard or ‘lowest cost’. This can deter people from aiming higher or for the ‘most resilient’ solution.
7. Recovery is often underestimated. The Canterbury earthquake recovery and many other smaller events have shown us just how complex, multi-faceted, difficult, expensive, and long-term recovery is. Other parts of the country need to consider how they would manage recovery in their city or district, and give priority to resourcing capability and capacity improvements.
8. We have had difficulty translating resilience theory into action. There is an abundance of academic theory on resilience, but turning that theory into practical action has, until recently anyway, been difficult to come by.

## Opportunities

As well as strengths and barriers, it is important to consider what opportunities we have or may have on the horizon. The opportunities the strategy development process has identified are:

1. Awareness and understanding of disasters, disaster impacts and disaster risk, is at an all-time high following a series of domestic events over the last 5-10 years, including the Canterbury and Kaikōura earthquakes. This includes a willingness to act on lessons and to do so in a smart, coordinated, and collaborative way.
2. Our hazards are obvious and manifest. This is both a curse and an opportunity: we have high risk, but we also have an awareness, understanding, and willingness to do something about them, in a way that countries with less tangible risks might not. If we address risk and build resilience to our 'expected' hazards, we will hopefully be better prepared for when the 'less expected' hazards occur.
3. We have an incredible wealth of resilience-related research currently underway, including several multi-sectoral research platforms that aim to bring increased knowledge to and improved resilience outcomes for New Zealanders. Over the next few years there will be a steady stream of information about 'what works', and tried and tested methodologies we can employ in all parts of society.
4. We also have a lot of other work – in terms of resilience-related policy and practice – underway in organisations at all levels and across the country. Connecting the pieces of the jigsaw, sharing knowledge, and working together should enable even more improved outcomes.
5. There is a particular opportunity for building processes that support collective impact. Collective Impact is a way of organising a range of stakeholders around a common agenda, goals, measurement, activity, and communications to make progress on complex societal challenges (see page 50).
6. The introduction of the three post-2015 development agendas (Sendai Framework, Sustainable Development Goals, and Paris Agreement for Climate Change) brings an additional impetus and drive for action, as well as practical recommendations that we can implement. They also bring a strong message about integration, collaboration, and a whole-of-society approach.
7. The Government has a strong focus on wellbeing, particularly intergenerational wellbeing, and improved living standards for all. Simultaneously, local government has a renewed interest in the 'four wellbeings' with those concepts being re-introduced to the Local Government Act as a key role of local government. These priorities are entirely harmonious, and lead swiftly into a conversation with both levels of government on how to protect and enhance living standards through a risk management and resilience approach.
8. We have only just begun to scratch the surface of best resilience practice, including how to make the most of investment in resilience. There is much to learn from the Triple Dividend of Resilience (see page 51) – ensuring our investments provide multiple benefits or meet multiple needs, and are the smartest possible use of limited resources. The Triple Dividend also supports better business cases, allowing us to better position our case for resilience and convince decision-makers of the benefits of investment.
9. We are a small agile nation. We are ambitious, innovative, motivated, and informed: we can lead the world in our approach to resilience.

## 'Wild cards'

The world is changing at an unprecedented rate driven by technical innovation and new ways of thinking that will fundamentally transform the way we live. As we move away from the old structures and processes that shaped our past, a new world of challenges and opportunities awaits us. While there might be uncertainty about how some of these factors might shape our risk and our capacity to manage that risk, there are some common implications that are critical to take account of as we work to build resilience.

1. The revolution in technology and communication is a key feature of today's world. Regardless of the issue, technology is reshaping how individuals relate to one another. It shifts power to individuals and common interest groups, and enables new roles to be played with greater impact. Organisations and groups that can anticipate and harness changing social uses of technology for meaningful engagement with societal challenges will be more resilient in the future.
2. Local organisations and grassroots engagement is an important component. This is driven in part by shifts in technology and communication that give local groups more influence and lower their costs for organising and accessing funding, but also the rising power of populations in driving actions and outcomes.
3. Populations currently under the age of 30 will be a dominant force in the coming two decades – both virtually, in terms of their levels of online engagement, and physically, by being a critical source of activity. Younger generations possess significant energy and global perspectives that need to be harnessed for positive change.
4. The role of culture as a major driver in society, and one that desperately needs to be better understood by leaders across governments, the private and not-for-profit sectors. Culture is a powerful force that can play a significant role (both positive and negative, if it is not handled sensitively), and is therefore a force with which stakeholders should prepare to constructively engage.
5. High levels of trust across organisations, sectors and generations will become increasingly important as a precondition for influence and engagement. This trust will need to be based on more than just the existence of regulations and incentives that encourage compliance. Organisations can build trust among stakeholders through a combination of “radical transparency” and by demonstrating a set of social values that drive behaviour that demonstrates an acknowledgement of the common good.
6. The possibility of new and innovative partnerships between government, the private and not-for-profit sectors, may provide new platforms for positive change. The challenge of disaster risk can no longer be the domain of government alone. A collective approach is needed, including to utilise all resources, public and private, available to us, and to consider innovative approaches to managing and reducing risk. This requires active participation on the part of the private sector, and transparency, openness, and responsiveness on the part of politicians and public officials.
7. The need for higher levels of accountability, transparency, and measurement. More work is required to ensure that those tackling societal challenges have the appropriate means of measuring impact. These mechanisms will need to be technology-enabled, customised to the challenge at hand, and transparent.

# Appendix 3: Two key opportunities

## Working together: making Collective Impact

Collective Impact is a framework to tackle complex social problems. It is a structured approach to making collaboration work across government, business, non-profit organisations and communities to achieve significant and lasting social change.

The Collective Impact approach is premised on the belief that no single policy, government department, organisation or program can tackle or solve the increasingly complex social problems we face as a society. The approach calls for multiple organisations or entities from different sectors to set aside their own, specific agendas in favour of a common agenda, shared measurement and alignment of effort. Unlike collaboration or partnership, Collective Impact initiatives have centralised infrastructure – known as a backbone organisation – with dedicated resources to help participating organisations shift from acting alone to acting in concert.

Collective Impact was first written about in the Stanford Social Innovation Review in 2011. Five key elements were identified:

- 1. A common agenda**  
This means coming together to collectively define the problem and create a shared vision to solve it.
- 2. Shared measurement**  
This means agreeing to track progress in the same way, which allows for continuous improvement.
- 3. Mutually reinforcing activities**  
This means coordinating collective efforts to maximize the end result.
- 4. Continuous communication**  
This means building trust and relationships among all participants.
- 5. A backbone organisation**  
This means having a team dedicated to orchestrating the work of the group.

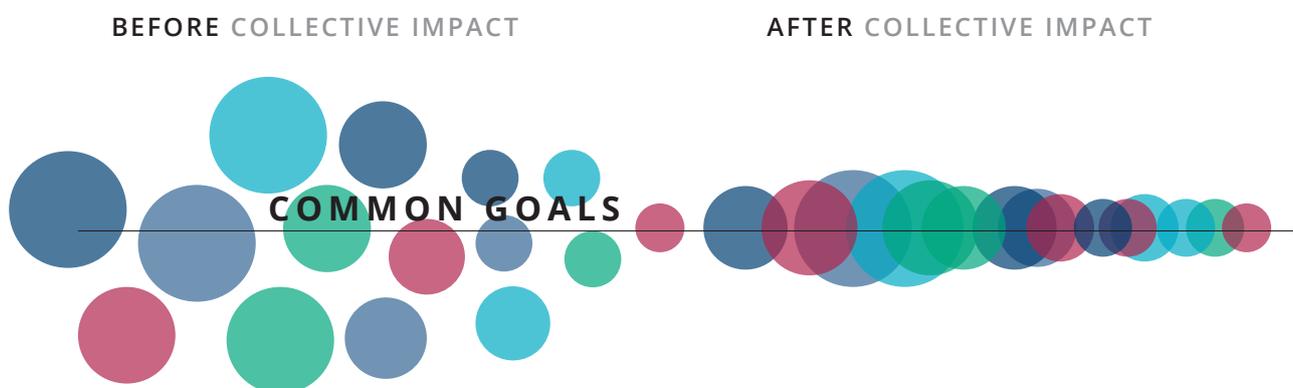


Figure 6 Common goals, before and after Collective Impact

This Strategy aims to emulate the intent and conditions of Collective Impact:

- the process to develop this Strategy – a common agenda for resilience – was based on a series of workshops around the country over two years;
- a measurement and monitoring regime will track achievement of objectives and ensure we are making progress towards outcomes;
- the objectives of the Strategy detail focus areas in which we can undertake a series of mutually-reinforcing activities at all levels;
- the Strategy advocates strongly for relationship and partnership building to improve communication and collaboration, and
- the emergency management sector, through the National CDEM Plan, and regional CDEM Group Plans, act as backbone organisations, driving the agenda and coordinating activity.

## Changing the narrative: the Triple Dividend of Resilience

In New Zealand we have first-hand, recent examples of how much disasters can cost. The direct costs alone can be significant; as we start to consider methodologies for counting the economic cost of social impact, the total cost of disasters and disruptive events will be significantly more – maybe even double the reported ‘direct’ costs.

Even so, it is often difficult to make a case for investment in disaster risk management and resilience, even as we cite research on benefit-cost ratios – how upfront investment in risk management can save millions in future costs. We know these ratios to be true, we have seen examples of it, even here in New Zealand, so why is it such a hard case to make?

Other than short-term political and management cycles, it is generally due to how we calculate ‘value’. Traditional methods of appraising investments in disaster risk management undervalue the benefits associated with resilience. This is linked to the perception that investing in disaster resilience will only yield benefits once disaster strikes, leading decision-makers to view disaster risk management investments as a gamble that only pays off in the event of a disaster – a ‘sunk’ cost, that gives them no short-term benefit.

However, there is increasing evidence that building resilience yields significant and tangible benefits, even if a disaster does not happen for many years – or ever.

A 2015 report outlines the ‘Triple Dividend of Resilience’, or the three types of benefits that investments in disaster risk management can yield. They are:

1. Avoiding losses when disasters strike
2. Stimulating economic activity thanks to reduced disaster risk, and
3. Generating societal co-benefits.

While the first dividend is the most common motivation for investing in resilience, the second and third dividends are typically overlooked. The report presents evidence that by actively addressing risk, there can be immediate and significant economic benefits to households, the private sector, and, more broadly, at the macro-economic level. Moreover, integrating multi-purpose designs into resilience investments can both save costs, and provide community and other social benefits (for example, strengthened flood protections works that act as pedestrian walkways, parks or roads).

New Zealand needs to learn from this concept and ensure that our investments in resilience are providing multiple benefits to both make smart use of our limited resources, and to assure decision-makers that their investment is worthwhile, and will pay dividends – in the short and long term.



Figure 7 The Triple Dividend of Resilience Investment – Adapted from: *The Triple Dividend of Resilience – Realising development goals through the multiple benefits of disaster risk management* (Global Facility for Disaster Reduction and Recovery, the World Bank, Overseas Development Institute, 2015).

