

Snapshot of Adaptation Preparedness

For Reporting Organisations in Te Upoko-o-Te Ika

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Wellington
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Background

In 2024 a call for adaptation data was made under section 5ZW of the Climate Change Response Act 2002 (see Figure 1 for relevant extract of Act). This is the second such call, the first call was made in 2020 and resulted in the following report - <https://environment.govt.nz/assets/publications/FINAL-PDF-Adaptation-Preparedness-2020-21-Baseline-report.pdf>.

The request for information was made by the Minister for Climate Change in a letter seeking information around four key areas:

1. An organisation's **governance** processes relating to risks of, and opportunities arising from, climate change
2. your organisation's general **awareness and understanding** of the actual and potential effects of the risks and opportunities on the organisation's ability to carry out its functions and deliver services
3. **strategies or plans** your organisation may have in place to address these risks, improve resilience and/or adapt to the impacts of climate change
4. any support or resources your organisation might need to better prepare for the impacts of climate change.

The Minister sought responses by 12 April 2024.

A national summary for 2024 is available from the Ministry for the Environment website: <https://environment.govt.nz/publications/adaptation-preparedness-2024-update/>

Power to request provision of information

Heading: inserted, on 14 November 2019, by section 8 of the Climate Change Response (Zero Carbon) Amendment Act 2019 (2019 No 61).

5ZW Minister or Commission may request certain organisations to provide information on climate change adaptation

- (1) The Minister or the Commission may, in writing, request that a reporting organisation provide all or any of the following information:
 - (a) a description of the organisation's governance in relation to the risks of, and opportunities arising from, climate change:
 - (b) a description of the actual and potential effects of the risks and opportunities on the organisation's business, strategy, and financial planning:
 - (c) a description of the processes that the organisation uses to identify, assess, and manage the risks:
 - (d) a description of the metrics and targets used to assess and manage the risks and opportunities, including, if relevant, time frames and progress:
 - (e) any matters specified in regulations.
- (2) The reporting organisation must comply with a request made under subsection (1).
- (3) The Minister must, as soon as practicable, provide the Commission with a copy of any information received in response to a request made by the Minister.
- (4) The Commission must, as soon as practicable, provide the Minister with a copy of any information received in response to a request made by the Commission.
- (5) The Minister and the Commission must not publicly disclose any information received in response to a request, unless disclosure of the information is necessary to enable the Minister or the Commission to perform a function or duty imposed by this Part.
- (6) Subsection (5) does not apply in respect of information that is already in the public domain.
- (7) Before publicly disclosing any information received in response to a request, the Minister or Commission must consult with the person to whom the information relates.
- (8) For the purposes of this section and section 5ZX, the following are **reporting organisations**:
 - (a) the public service, as defined in section 10 of the Public Service Act 2020:
 - (b) local authorities, as defined in section 5(1) of the Local Government Act 2002:
 - (c) council-controlled organisations, as defined in section 6(1) of the Local Government Act 2002:
 - (ca) *[Repealed]*
 - (d) Crown entities, as defined in section 7(1) of the Crown Entities Act 2004, but excluding school boards:
 - (e) companies listed in Schedule 4A of the Public Finance Act 1989:
 - (f) organisations listed in Schedule 1 of the State-Owned Enterprises Act 1986:
 - (g) lifeline utilities listed in Schedule 1 of the Civil Defence Emergency Management Act 2002:
 - (h) the New Zealand Police:
 - (i) the New Zealand Defence Force.

Figure 1 Section 5ZW of the Climate Change Response Act (2002) illustrating the broad-based reporting powers held by the Minister and Climate Change Commission

Method

To inform the snapshot, survey responses were gathered from each of the invited organisations within the Te Upoko o Te Ika a Māui takiwa (the Wellington region – including Horowhenua and Horizons). A total of 12 responses have been included in this analysis.

Responses have been cleaned and checked for private or commercially sensitive information and anonymised to enable a generic analysis for key themes.

Responses have been collated and summarised using moderated Large Language Models (LLM - ChatGPT and Gemini). Verbatim responses from each organisation were pasted into one ChatGPT prompt with instructions to summarise into 3-5 bullet points. Results were moderated against a selection of individual responses to ensure accuracy. Multi-choice answers have been captured in table format with organisational names removed, and key themes from long-form answers summarised.

The following Questions 1-6 were ignored in survey analysis:

1. What is your name?
2. What organisation do you work for?
3. What is your role?
4. Please provide contact email.
5. Please indicate if you are happy for the Ministry for the Environment to use the contact details provided above for broader climate change-related communications.
6. If this response includes information related to subsidiary organisations, please name these organisations below.

The analysis covers Questions 7-51 and is categorised into four sections: risks and impacts; national climate change risk assessment; strategy, governance and metrics and support and resources.

A - Risks and Impacts

Questions 7 and 8 – Organisational awareness

For each multi-choice answer note that organisations are listed horizontally across the top, their selections are marked with ticks. Where a square is blank, that means it has not been selected.

Question 7 – Is your organisation aware of the impacts that climate change may have on its ability to carry out functions and deliver services? For example, impacts from increased flooding, sea-level rise, more heat waves, more intense storms, more droughts and wildfires.

	Organisation										
	1	2	3	4	5	6	7	8	9	10	11
a. Climate change impacts are well understood and documented	✓	✓						✓		✓	
b. Climate change impacts are acknowledged but only partially understood or documented	✓		✓	✓	✓	✓	✓		✓		✓
c. Climate change impacts are poorly understood and not documented or considered											
d. We have not considered climate change impacts to date											
e. Unsure.											

Question 8 sought further information:

- **Climate Change Risk Assessments:** Many councils have conducted or are in the process of conducting detailed climate change risk assessments and impact studies, focusing on flooding, coastal hazards, and other climate-related risks. These assessments are intended to inform long-term planning, infrastructure strategies, and adaptation measures.
- **Regional Collaboration and Data Usage:** Councils are collaborating regionally through committees and using shared data from entities like NIWA and IPCC reports. This collaboration is helping them understand and manage the impacts of climate change on assets, services, and communities, with ongoing updates as new data becomes available.
- **Gaps in Understanding and Future Planning:** While some councils have a good understanding of certain risks (e.g., flooding, coastal erosion), there are gaps in understanding the full range of climate impacts, particularly in areas like heat, wind, and cascading risks. Efforts are ongoing to close these gaps through future assessments, updated models, and regional strategies.

Questions 9 and 10 – Data access

Question 9 – Does your organisation have access to data related to the impacts from climate change?

	Organisation											
	1	2	3	4	5	6	7	8	9	10	11	
a. Yes - at a regional, local and asset level	✓											
b. Yes - at a regional and local level	✓		✓	✓	✓	✓	✓	✓		✓		
c. Yes - at a regional level		✓							✓		✓	
d. No												
e. Unsure.												

Question 10 sought further information on data gaps:

- **Inconsistent Data Quality and Coverage:** There are significant variations in data availability and confidence across the region and across impact variables, leading to gaps in understanding climate change impacts at local and regional levels, particularly for groundwater, coastal erosion, and ecosystem vulnerabilities.
- **Lack of Detailed Data on Infrastructure and Ecosystems:** Critical gaps exist in data on how climate change will impact infrastructure, public spaces, and ecosystems, with insufficient information on the vulnerability of key assets, human health, and specific environmental impacts like marine and coastal ecosystems.
- **Need for Improved Data Integration and Strategic Planning:** There is a need for better integration of data across regions and sectors, along with the development of high-resolution models and national frameworks to support more effective climate risk assessment and adaptation planning.

Questions 11 and 12 – Organisational exposure

Question 11 – Specifically, has your organisation assessed its exposure to climate change impacts, in terms of its ability to continue to carry out functions and deliver services? Note: this includes the exposure of the communities to which these services are provided.

	Organisation											
	1	2	3	4	5	6	7	8	9	10	11	
a. Yes, accurate (quantitative) exposure data is held for all relevant climate change impacts												
b. Accurate exposure data is held for some climate change impacts	✓	✓		✓	✓	✓						
c. No accurate exposure data, but climate change impacts relevant to our organisation are documented	✓		✓				✓	✓	✓	✓	✓	
d. Limited or no understanding and assessment of exposure to relevant climate change impacts												
e. Unsure.												

Question 12 sought further information:

- **Limited Accurate Exposure Data:** Many organisations lack accurate, comprehensive exposure data for climate change impacts. While some climate impacts are documented, there is a need for more detailed assessments, especially regarding infrastructure and service delivery.
- **Regional and Sectoral Variations:** Accurate exposure data is available for certain climate impacts, such as sea level rise and severe weather events, but there are significant variations in data quality and coverage across regions and sectors, leading to uneven assessments of risk.
- **Ongoing Assessments and Planning:** Some organisations are actively conducting detailed assessments to better understand their exposure to climate change impacts. These assessments are often part of broader climate risk management and adaptation programs, which aim to improve resilience and service delivery under future climate scenarios.
- **Challenges in Assessing Community Impacts:** While some exposure data considers community impacts, there are gaps in understanding how climate change will affect the ability of communities to access and benefit from services, particularly in relation to cascading and indirect impacts.
- **Integration with Regional and National Efforts:** Organisations are collaborating with regional and national bodies to improve their understanding of climate risks. However, there is a recognized need for better integration of data and strategic planning to address the full scope of potential climate change impacts.

Questions 13 and 14 – Organisational vulnerability (including communities)

Question 13 – Specifically, has your organisation assessed its vulnerability to climate change impacts, in terms of its ability to continue to carry out functions and deliver services? Note: this includes the vulnerability of the communities to which these services are provided.

	Organisation											
	1	2	3	4	5	6	7	8	9	10	11	
a. Yes, vulnerability to climate change impacts is well understood and integrated into decision-making processes.												
b. Some assessment of vulnerability to climate change impacts has been done, but this is not well embedded in organisational	✓	✓	✓	✓	✓	✓	✓			✓	✓	
c. Yes - at a regional level	✓							✓	✓			
d. Limited or no assessment or understanding of vulnerability to climate change impacts												
e. Unsure.												

Question 14 sought further information:

- **Partial and Inconsistent Assessments:** Most organisations have conducted some assessment of their vulnerability to climate change impacts, but these assessments are often incomplete, not well-embedded in organisational processes, and vary significantly across different sectors and districts.
- **Focus on Specific Areas:** Vulnerability assessments have primarily focused on specific areas such as public transport, infrastructure services, and coastal regions, with less emphasis on the broader impacts on communities and social vulnerabilities.
- **Challenges in Comprehensive Understanding:** There is a recognised gap in understanding the full extent of vulnerabilities, particularly concerning social, cultural, and transitional risks. Many organisations lack the internal capacity or data to assess these aspects comprehensively.
- **Efforts to Integrate Vulnerability into Planning:** Some organisations are working towards better integrating vulnerability assessments into strategic planning and asset management processes, with ongoing projects aimed at understanding and mitigating climate-related risks.
- **Limited Assessment of Community Impacts:** While some vulnerability assessments have been conducted, they often do not adequately address the specific vulnerabilities of the communities that rely on the services provided by these organisations.

B - National Climate Change Risk Assessment

Questions 15 and 16 – Coastal ecosystems

Question 15 – Risks to coastal ecosystems, including the intertidal zone, estuaries, dunes, coastal lakes and wetlands, due to ongoing sea-level rise and extreme weather events.

	Organisation										
	1	2	3	4	5	6	7	8	9	10	11
a. Potential for significant impacts	✓	✓		✓	✓		✓	✓			✓
b. Potential for minor to moderate impacts	✓		✓							✓	
c. Unlikely to impact my organisation or the services it delivers						✓			✓		
d. Unsure.											

Question 16 sought further information:

- **Significant Long-Term Impacts:** Coastal ecosystems are expected to face significant impacts from climate change, particularly due to sea-level rise, storm surges, and severe weather events. These effects may worsen over time, leading to the loss of habitats, increased sedimentation, and challenges in maintaining the integrity of these ecosystems.
- **Coastal Squeeze and Migration Barriers:** Coastal ecosystems, including wetlands, dunes, and estuaries, are at risk of being squeezed between rising sea levels and human-made barriers like seawalls and roads. This phenomenon, known as “coastal squeeze,” may prevent natural inland migration of these ecosystems, leading to habitat loss and a decline in biodiversity.
- **Economic and Infrastructure Challenges:** Managing and protecting coastal ecosystems may require significant financial investment, including the potential purchase of land to allow for the landward migration of habitats. Additionally, the need to adapt infrastructure, such as installing fish-friendly tide gates, presents further economic and logistical challenges.
- **Vulnerability of Unique Ecosystems:** Certain regions, particularly those with unique or threatened ecosystems, are at heightened risk. These areas may experience changes in vegetation distribution due to saline intrusion, shifts in groundwater levels, and the failure of restoration planting efforts due to changing climate conditions.

- ***Cascading Effects on Communities and Biodiversity:*** Impacts on coastal ecosystems can have cascading effects on local communities, including those of cultural significance, and on biodiversity. The degradation of these ecosystems may lead to loss of species, compromised ecosystem services, and reduced resilience of both human and natural systems.

Questions 17 and 18 – Indigenous ecosystems

Question 17 – Risks to indigenous ecosystems and species from the enhanced spread, survival and establishment of invasive species due to climate change.

	Organisation										
	1	2	3	4	5	6	7	8	9	10	11
a. Potential for significant impacts	✓	✓		✓	✓		✓	✓		✓	
b. Potential for minor to moderate impacts	✓		✓						✓		
c. Unlikely to impact my organisation or the services it delivers						✓					
d. Unsure.											✓

Question 18 sought further information:

- **Significant Impacts on Biodiversity and Ecosystem Services:** Many organisations expect significant impacts on indigenous ecosystems and species due to the spread and establishment of invasive species. These impacts will challenge the ability of these organisations to protect biodiversity and deliver services related to ecosystem management, particularly in protected areas and biodiversity hotspots.
- **Increased Strain on Pest Management Resources:** The spread of invasive species due to climate change is expected to increase the demand for pest control resources and strain existing pest management programs. Organisations may struggle to maintain current service levels, which could lead to degraded ecosystems and reduced effectiveness of nature-based solutions, with cascading effects on communities relying on these ecosystems.
- **Infrastructure and Capital Investment Risks:** Invasive species could directly impact infrastructure, such as flood management systems, navigational aids, and other critical assets. The costs associated with maintaining and adapting infrastructure in the face of invasive species incursions could be significant, particularly if these species compromise the effectiveness of natural flood defences or other protective measures.
- **Indirect Community Impacts:** The degradation of ecosystems due to invasive species will have indirect impacts on communities, such as increased flood risks, loss of biodiversity, and the degradation of recreational and cultural assets. This could affect the quality of life and the sustainability of local economies, particularly in regions that rely heavily on natural resources.
- **Uncertainty and Need for Further Research:** Several organisations highlight the lack of specific data on the impacts of climate change on invasive species in their regions, which complicates planning and risk management. There is a call for more research and central government support to better understand and mitigate these risks, which are currently difficult to quantify and address effectively.

Questions 19 and 20 – Social cohesion

Question 19 – Risks to social cohesion and community wellbeing from displacement of individuals, families and communities due to climate change impacts.

	Organisation										
	1	2	3	4	5	6	7	8	9	10	11
a. Potential for significant impacts	✓	✓	✓	✓	✓		✓	✓		✓	✓
b. Potential for minor to moderate impacts	✓					✓			✓		
c. Unlikely to impact my organisation or the services it delivers											
d. Unsure.											

Question 20 sought further information:

- **Direct Impacts on Social Cohesion and Community Wellbeing:**
 - Displacement due to Acute Events: Catastrophic impacts on social cohesion if large-scale events (e.g., floods, landslides) lead to community displacement, causing injury, loss of life, and significant economic and social disruption.
 - Gradual Displacement from Chronic Hazards: Long-term threats from chronic hazards like sea-level rise and coastal erosion/inundation can lead to significant social and economic challenges, including insurance retreat, property loss, and declining quality of life in affected areas.
- **Impact on Community Services:**
 - Loss of Social Infrastructure: Communities already vulnerable or fragmented may lose essential services (schools, medical facilities, supermarkets), exacerbating existing inequalities and leading to further erosion of social cohesion.
 - Potential Isolation: Damage to single access roads can isolate communities, impacting service delivery (e.g., emergency services, healthcare), and leading to a decline in social infrastructure and community engagement.
- **Infrastructure Vulnerabilities:**
 - Risk to Key Transport Networks: Flooding, landslides, and erosion can disrupt or destroy transport infrastructure, especially in areas with single acc1
 - Economic Decline in Vulnerable Areas: Decreasing property values in high-risk areas may lead to economic decline, as these properties become increasingly occupied by those unable to afford alternatives, further straining social services and infrastructure.

- *Cultural Impacts on Mana Whenua:*
 - Cultural Sites at Risk: Coastal erosion and sea-level rise threaten significant cultural sites (e.g., marae, urupā), leading to potential cultural dislocation and loss, particularly affecting mana whenua communities.

Questions 21 and 22 - Inequities

Question 21 – Risks of exacerbating existing inequities and creating new and additional inequities due to differential distribution of climate change impacts.

	Organisation										
	1	2	3	4	5	6	7	8	9	10	11
a. Potential for significant impacts	✓	✓	✓	✓	✓		✓	✓	✓		
b. Potential for minor to moderate impacts	✓					✓				✓	
c. Unlikely to impact my organisation or the services it delivers											
d. Unsure.											✓

Question 22 sought further information:

- ***Disproportionate Impact on Vulnerable Communities:***

- Severe weather events, such as flooding and landslides, pose significant risks to isolated and lower socio-economic communities with limited access points, such as Stokes Valley, Wainuiomata, and Castlepoint and surrounds.
- Vulnerable communities may face exacerbated inequities due to their lower adaptive capacity, higher exposure to climate hazards, and greater sensitivity to these hazards. This could result in increased damage to properties, loss of access to services, and difficulties in recovery, further deepening existing disparities.

- ***Housing and Financial Inequities:***

- Communities with higher levels of socio-economic deprivation, such as those in Porirua and the Hutt Valley, are at increased risk of housing-related inequities. For instance, the high cost of housing relative to income in areas like Porirua and Kāpiti Coast may lead to inadequate property maintenance, worsening living conditions (e.g., dampness and mould) in the face of climate change-induced extreme weather.
- Lower-income groups may be concentrated in more affordable yet hazard-prone areas, resulting in a greater likelihood of facing climate-induced financial burdens, such as unaffordable insurance and potential displacement from homes.

- ***Health and Social Vulnerability:***
 - Climate change is expected to exacerbate health inequalities, particularly in high-deprivation areas with poor access to healthcare services. For instance, respiratory illnesses, already a leading cause of hospital admissions for children in Porirua, may worsen due to damp and cold living conditions caused by increased severe weather events.
 - The elderly, those with disabilities, and workers in vulnerable industries may face heightened risks due to their higher sensitivity and lower capacity to adapt to heatwaves, droughts, and other climate hazards, further increasing social vulnerabilities.
- ***Infrastructure and Public Services Challenges:***
 - Public transport infrastructure, critical for those without private vehicles, is vulnerable to climate-induced damage, potentially isolating communities with low levels of service provision and creating significant equity issues. In regions like Kāpiti, where gaps in public transport already exist, disruptions could severely impact access to essential services and social connections.
 - Rural and remote areas may struggle with maintaining water supply, wastewater, and stormwater services, particularly where historical infrastructure decisions have created existing disparities. The failure to invest in climate-resilient infrastructure may further entrench these inequities, affecting the quality of life and service reliability for lower-income communities.
- ***Long-Term and Cascading Risks:***
 - The differential distribution of climate impacts may lead to cascading risks that are difficult to predict, such as the long-term social and economic consequences of repeated severe weather events. These risks could strain the capacity of local governments to support vulnerable populations, potentially leading to a widening gap between communities that can afford to adapt and those that cannot.

Questions 23 and 24 – Risks to Government

Question 23 – Risks to governments from economic costs associated with lost productivity, disaster relief expenditure and unfunded contingent liabilities due to extreme events and ongoing, gradual changes.

	Organisation										
	1	2	3	4	5	6	7	8	9	10	11
a. Potential for significant impacts	✓	✓		✓	✓		✓	✓	✓	✓	✓
b. Potential for minor to moderate impacts	✓		✓								
c. Unlikely to impact my organisation or the services it delivers											
d. Unsure.						✓					

Question 24 sought further information:

- **Significant Financial Risks:** Severe weather events (e.g. Cyclones Gabrielle and Hale) lead to significant economic costs, including the need for increased disaster relief expenditure. These events strain government budgets, increase debt levels, and place pressure on insurance premiums.
- **Impact on Infrastructure and Services:** Climate change exacerbates risks to critical infrastructure, particularly flood protection and transport networks. Increased frequency of severe weather events demands more robust infrastructure, leading to higher costs and potential disruptions to public services.
- **Emergency Management Challenges:** As severe weather events become more common, there is a greater demand on civil defence and emergency management services. This increased demand could stretch resources, impacting the ability to maintain regular services during and after disasters.
- **Capital Investment Strain:** Large-scale adaptation projects are needed to address ongoing climate change impacts. However, these projects are challenging to fund, especially if competing needs arise or if the impacts of climate change occur faster than anticipated.
- **Community and Economic Vulnerability:** The economic costs of climate change, including impacts on local communities and businesses, may reduce the affordability of rates and affect councils' ability to fund necessary activities. Disruptions to transportation networks due to climate change pose risks to regional economies reliant on these connections.

Questions 25 and 26 – Financial Risks

Question 25 – Risks to the financial system from instability due to extreme weather events and ongoing, gradual changes.

	Organisation										
	1	2	3	4	5	6	7	8	9	10	11
a. Potential for significant impacts	✓	✓		✓	✓		✓	✓	✓	✓	
b. Potential for minor to moderate impacts	✓		✓								✓
c. Unlikely to impact my organisation or the services it delivers											
d. Unsure.						✓					

Question 26 sought further information:

- **Impact on Insurance and Borrowing:** Rising insurance costs and potential insurance retreat in high-risk areas could severely affect councils' ability to insure assets and maintain infrastructure. Financial institutions may also become more stringent in granting loans, affecting councils' ability to finance critical projects.
- **Risks to Local Economies and Services:** Climate change, especially severe weather events, threatens the stability of key economic sectors like agriculture and primary production.
- **Vulnerability of Infrastructure:** Key infrastructure, particularly in areas vulnerable to flooding, sea level rise, and extreme weather, faces significant risks. Damage to infrastructure, such as transport networks, could disrupt access to services, employment, and economic activities, with long-term consequences for local communities.
- **Potential Financial Instability:** Climate-induced financial instability could lead to increased debt levels for councils, reduced service levels, and reallocation of resources. This instability may also impact residents' ability to pay rates, further affecting councils' financial health.
- **Cascading Impacts:** The disruption to financial systems, infrastructure, and services could lead to a decline in property values, increased inequality, and greater financial burdens on vulnerable communities, exacerbating social and economic disparities.

Questions 27 and 28 – Potable water

Question 27 – Risk to potable water supplies (availability and quality) due to changes in rainfall, temperature, drought, extreme weather events and ongoing sea-level rise.

	Organisation										
	1	2	3	4	5	6	7	8	9	10	11
a. Potential for significant impacts		✓			✓	✓	✓		✓	✓	✓
b. Potential for minor to moderate impacts	✓		✓	✓				✓			
c. Unlikely to impact my organisation or the services it delivers											
d. Unsure.											

Question 28 sought further information:

- **Significant Risks to Water Availability and Quality:** Climate change, including droughts, changing rainfall patterns, and rising sea levels, poses significant risks to water availability and quality. Vulnerable areas, such as Wellington’s Waiwhetū aquifer and the Wairarapa, may face severe water shortages and saline intrusion, impacting both urban and rural water supplies.
- **Pressure from Population Growth and Demand:** Population growth and increased demand for water will exacerbate the existing challenges posed by climate change, putting further strain on potable water supplies across the region.
- **Infrastructure and Treatment Challenges:** Maintaining and upgrading water infrastructure to meet the increasing risks is costly and complex. Many regions are already experiencing water loss due to leakage, and the need for enhanced water treatment is critical to prevent contamination and ensure public health, especially during severe weather events.
- **Potential for Compounding Risks:** Water quality is at risk from events such as toxic algae blooms, major catchment fires, and aquifer contamination, which could severely compromise the water supply network and require long-term interventions.
- **Adaptive Measures and Investments:** Councils are implementing various measures, such as water metering, increased storage capacity, and resilient infrastructure investments, to manage these risks. However, these adaptations require significant capital investments and long-term planning to ensure water security for communities.

Questions 29 and 30 - Buildings

Question 29 – Risks to buildings due to extreme weather events, drought, increased fire weather and ongoing sea-level rise.

	Organisation										
	1	2	3	4	5	6	7	8	9	10	11
a. Potential for significant impacts	✓	✓	✓	✓		✓	✓	✓	✓		
b. Potential for minor to moderate impacts	✓				✓					✓	✓
c. Unlikely to impact my organisation or the services it delivers											
d. Unsure.											

Question 30 sought further information:

- **Significant Impact on Built Assets:** Key concerns expressed around public infrastructure such as flood protection systems, public transport networks, and bulk water supply, all of which face heightened risks from sea-level rise, increased rainfall, and landslides. Coastal erosion and severe weather events further exacerbate these risks, especially in areas with significant vertical land movement (especially subsidence), potentially affecting building foundations, stormwater systems, and overall building integrity.
- **Increased Risks from Coastal and Inland Flooding:** Regional assessments highlight that inland and coastal flooding are significant threats to buildings, with risks increasing towards over time. Communities in coastal areas, including small rural communities and older buildings, face heightened exposure. In urban areas, fluvial and pluvial flooding poses the most pressing risk, with many properties already at risk, a situation expected to worsen.
- **Vulnerability of Infrastructure and Critical Services:** Transport and energy networks are increasingly vulnerable to climate impacts. Rail systems, for instance, are already experiencing disruptions due to temperature extremes. Coastal infrastructure, such as wastewater treatment plants and pump stations, are also at risk, with significant potential impacts on service delivery and public health.
- **Fire Risk and Drought:** Increased drought conditions and forestry expansion for carbon farming raise the risk of wildfires, particularly in rural and hill country settlements. This risk is compounded by the proximity of some communities to plantation forests, which could result in significant damage to buildings and infrastructure.
- **Adaptation and Mitigation Efforts:** Councils are actively engaged in climate adaptation strategies, including flood resilience initiatives, building shoreline defences, and community-led adaptation processes. However, the scale and cost of necessary infrastructure upgrades present significant challenges, particularly in areas with vulnerable populations and older buildings.

Questions 31 and 32 - Maladaptation

Question 31 – Risk of maladaptation across all domains due to practices, processes and tools that do not account for uncertainty and change over long timeframes.

	Organisation										
	1	2	3	4	5	6	7	8	9	10	11
a. Potential for significant impacts	✓	✓			✓			✓	✓	✓	✓
b. Potential for minor to moderate impacts	✓		✓				✓				
c. Unlikely to impact my organisation or the services it delivers											
d. Unsure.				✓		✓					

Please provide further details on why you selected the option you did. Here are the main points summarized from the responses:

- **Significant Impact on Services and Infrastructure:** The lack of adequate and consistent data, governance challenges, and short-term political cycles are creating substantial risks of maladaptation. This can lead to inappropriate investment in infrastructure and capital projects, exposing communities to greater risks from climate change.
- **Limited Resources and Funding:** Small councils and local governments face financial constraints, often relying on limited funding and ratepayer support. This restricts their ability to implement effective long-term adaptation strategies, leading to potential maladaptation and increased burdens on communities.
- **Reactive vs. Strategic Approaches:** The tendency to favour short-term solutions, driven by political or immediate needs, increases the risk of maladaptation. Without a clear and consistent long-term approach, reactive measures can exacerbate climate change impacts, particularly in vulnerable areas.
- **Challenges in Governance and Coordination:** Misalignment between central and local government, inconsistent legislation, and poor coordination among agencies hinder effective adaptation planning. This results in delayed or poorly executed adaptation measures, potentially leading to maladaptation and negative consequences for communities.
- **Impact of Maladaptation on Vulnerable Communities:** There is a risk that maladaptation disproportionately affects vulnerable communities, leading to unintended consequences. This includes increased exposure to hazards, economic burdens, and reduced resilience to climate change impacts.

Questions 33 and 34 – Institutional arrangements

Question 33 – Risk of maladaptation across all domains due to practices, processes and tools that do not account for uncertainty and change over long timeframes.

	Organisation										
	1	2	3	4	5	6	7	8	9	10	11
a. Potential for significant impacts	✓	✓			✓			✓	✓	✓	✓
b. Potential for minor to moderate impacts	✓		✓				✓				
c. Unlikely to impact my organisation or the services it delivers											
d. Unsure.				✓		✓					

Question 34 sought further information around risks from governance:

- **Significant Funding and Resource Constraints:** Many councils face substantial challenges due to inadequate funding mechanisms, which hinder effective adaptation planning. The high costs of necessary infrastructure upgrades, particularly in areas like water networks and coastal hazard management, are beyond what traditional funding models can support, placing a heavy burden on local communities.
- **Inadequate and Uncoordinated Institutional Arrangements:** The current legislative and decision-making frameworks, along with a lack of coordination between central and local governments, are not well-suited to handle the complexities of climate change adaptation. This misalignment can lead to delayed or ineffective responses, increasing the risk of exacerbated climate impacts on services, infrastructure, and capital investments.
- **Challenges in Governance and Implementation:** Local governments struggle with the ambiguity in national policy direction and the lag in regulatory systems, such as district planning, which are not agile enough to respond to the evolving climate risks. This can result in costly and protracted legal battles, further delaying necessary adaptation measures and diverting resources from other critical areas.
- **Risk of Maladaptation Due to Uncertainty and Lack of Data:** The lack of clear direction, practical tools, and consistent data exacerbates uncertainty, making it difficult for councils to make informed decisions. This uncertainty can lead to maladaptation, where short-term solutions fail to address long-term risks, potentially locking communities into vulnerable positions.
- **Need for Central Government Leadership and Support:** There is a critical need for central government to provide clear mandate and guidance, consistent policies, and adequate funding to support local governments in their adaptation efforts. Without this support, local councils may continue to face significant challenges in managing climate risks effectively, leading to increased vulnerability for communities and infrastructure.

Question 35 - Urgency

What are the most immediate / urgent climate change risks to be managed from your organisation's perspective?

- **Water Supply and Infrastructure Risks:** Limited water availability is a critical risk, affecting the ability to provide adequate services to communities and support key industries. This includes risks to drinking water, wastewater networks, and the impact on roading infrastructure due to severe weather events like flooding and landslides.
- **Flooding and Coastal Erosion:** Flooding from increased rainfall intensity and sea level rise are urgent concerns, especially for low-lying and coastal areas. These risks threaten infrastructure, increase the demand for flood protection services, and can lead to significant damage to assets, with some councils already facing challenges in maintaining and upgrading flood protection infrastructure.
- **Increased Pressure on Services and Budget:** Climate change is expected to increase demands on council services, including emergency responses and infrastructure maintenance. This puts additional pressure on staff, budgets, and could potentially lead to a decrease in service levels, particularly if adaptation strategies are not adequately funded and implemented.
- **Socio-economic and Insurance Vulnerabilities:** The transition to a low-emissions economy and the increasing severity of climate impacts raise concerns about exacerbating existing socio-economic inequalities. Additionally, changes in the insurance market could make it difficult for vulnerable communities to afford protection, further deepening inequities.
- **Need for Improved Governance and Coordination:** Effective climate risk management requires improved governance structures, clear communication of science, and better political buy-in. The absence of adequate funding, coordination, and leadership from central government exacerbates these risks, making it challenging for local councils to implement necessary adaptation measures and ensure the resilience of their communities and infrastructure.

Question 36 – Other risks

Please list any other risks identified in the National Climate Change Risk Assessment that are significant for your organisation. Here are the main points summarized from the responses:

- **Impact on Infrastructure and Services:** Risks to wastewater and stormwater systems due to severe weather events and ongoing sea-level rise are significant. These could lead to disruptions in service delivery, increased costs, and potential environmental impacts, especially in freshwater environments.
- **Ecosystem Vulnerabilities:** The health of lake, riverine, and wetland ecosystems is at risk from climate change, with potential impacts on water temperature, flow, and species survival. This includes risks to the Wairarapa Moana and other critical habitats due to changing weather patterns and reduced moisture levels.
- **Litigation and Insurability Concerns:** Climate change-related litigation against governments and businesses is a growing risk, particularly if adaptation efforts are inadequate or poorly timed. Additionally, the insurability of assets is at risk due to the increasing frequency of severe weather events and sea-level rise, potentially leaving communities and infrastructure vulnerable.
- **Emergency Management Challenges:** The ability of emergency management systems to respond effectively to more frequent and severe climate impacts is a concern. This includes the need for better coordination and resources to handle compounding and cascading events that affect both New Zealand and the wider Pacific region.
- **Transition and Reputation Risks:** As councils implement climate adaptation and mitigation strategies, they face transitional risks related to market, policy, legal, and technological changes. These include potential public backlash, financial strain, and reputational damage if initiatives are perceived as too early, too late, or inadequate. Additionally, councils may face challenges with skilled labour shortages and potential stranded assets from over-investment in specific technologies.

C - Strategy, Governance and Metrics

Questions 37 and 38 – Plans and strategies

Question 37 – Does your organisation have a plan or strategy to improve its resilience and/or the resilience of the community it serves to climate change impacts?

	Organisation										
	1	2	3	4	5	6	7	8	9	10	11
a. Yes, specifically for resilience to climate change impacts		✓			✓		✓			✓	
b. Yes, but it is not focused exclusively on climate change (eg, risk and resilience strategy)	✓		✓						✓		✓
c. A plan/strategy is in development	✓			✓				✓			
d. No						✓					
e. Unsure.											

Question 38 sought further information on the effectiveness of plans and strategies:

- **Climate Strategies:** Several organisations have developed or are updating specific climate action or resilience strategies, including adaptation plans, action plans, or frameworks aimed at addressing climate impacts. These documents often focus on both mitigation and adaptation, and include detailed objectives and actions.
- **Ongoing Development:** Some organisations are in the process of developing or finalizing their climate adaptation or resilience strategies. These are intended to be integrated into broader regional or organisational strategies and often involve cross-sectoral collaboration.
- **Embedded Climate Considerations:** Many organisations are integrating climate change considerations into existing strategic documents, such as infrastructure plans, land transport plans, natural hazards strategies, and long-term organisational plans. This approach aims to mainstream climate resilience across various sectors and operational activities.
- **Collaborative Regional Approaches:** There is a strong emphasis on regional collaboration, with several organisations working together on joint regional plans or strategies to align climate actions across different councils and regions. This includes shared frameworks for adaptation and resilience, and joint committees or working groups to coordinate efforts.

- ***Challenges and Resource Limitations:*** Some organisations highlight challenges related to resource limitations, which impact the full implementation and embedding of climate strategies. These challenges include insufficient funding, limited staffing, and the long timelines required for planning and execution.

Question 39 – Barriers to plan development

What are the barriers to developing a plan?

- **Funding and Resources:** A lack of sufficient funding and resources, including personnel, is a major barrier. Some organisations struggle with limited staff dedicated to climate change, and the high costs associated with implementing long-term solutions.
- **Coordination and Integration Challenges:** Developing a coordinated regional response is difficult due to differing priorities, accountabilities, and levels of political support across various institutions. Achieving alignment among stakeholders is a significant bureaucratic and political challenge.
- **Governmental Support and Policy Frameworks:** Many organisations cite the need for clearer direction and support from central government, including consistent policies, technical assistance, and funding for climate adaptation initiatives. The lack of a robust legislative framework for adaptation also hinders progress.
- **Competing Priorities and Community Engagement:** Organisations face challenges in balancing climate resilience planning with other pressing issues, such as financial constraints and infrastructure needs. Additionally, community engagement is complex, with varying levels of understanding and support for climate action.
- **Technical and Methodological Barriers:** The need for robust tools and methods to assess and quantify climate risks at different scales is another barrier. Organisations require better data, tools, and training to effectively develop and implement climate adaptation strategies.

Questions 40 and 41 – Indicators and monitoring

Question 40 – Does your organisation have any indicators or measures to help it monitor and manage its risks from climate change impacts? For example, from increased flooding, sea-level rise, more heat waves, more intense storms, more droughts and wildfires. Note: this question includes risks affecting the communities to which these services are provided.

	Organisation										
	1	2	3	4	5	6	7	8	9	10	11
a. Yes	✓		✓	✓		✓					
b. These are in development	✓	✓			✓		✓				
c. No								✓	✓	✓	✓
d. Unsure.											

Question 41 sought further information:

- **Development of Indicators:** Several organisations are in the process of developing climate change indicators and monitoring programs. These efforts include environmental monitoring for temperature, rainfall, sea levels, water quality, and coastal ecosystems. However, many of these programs are still in the early stages or lack comprehensive data.
- **Existing Monitoring Systems:** Some organisations have existing monitoring systems for immediate risks such as flooding, droughts, and storms. These systems help manage emergency responses and inform community safety measures. However, integration into broader risk management frameworks is often incomplete.
- **Long-Term Planning and Measures:** A few councils use long-term planning mechanisms, such as the Long Term Plan (LTP), to develop impact measures for service delivery risks, including stormwater, flood protection, and coastal management. These measures help assess and mitigate the impacts of climate change on infrastructure and community services.
- **Reliance on External Data:** Some organisations rely on external scientific data from regional, national, or international sources to understand climate change risks. They have not yet developed their own specific indicators but plan to incorporate such data into future adaptation strategies.
- **Gaps and Delays:** Several organisations acknowledged gaps in their monitoring efforts, such as delays in producing State of the Environment reports or the need to develop more comprehensive climate change indicators. These gaps highlight the challenges in fully integrating climate risk management into organisational practices.

Questions 42 and 43 – Organisational reporting

Question 42 – Are risks to your organisation’s ability to carry out functions and deliver services from the impacts of climate change reported to your organisation’s governance board?

	Organisation										
	1	2	3	4	5	6	7	8	9	10	11
a. Yes, more often than annually	✓			✓	✓		✓	✓		✓	✓
b. Yes, annually	✓		✓								
c. Yes, less often than annually	✓										
d. Not at all						✓					
e. Unsure.		✓							✓		

Below is a summary of additional comments:

- **Regular Reporting:** Many organisations report climate change risks to their governance boards more frequently than annually. This often includes updates through specific committees such as Audit and Risk, Climate Committees, or Environment and Infrastructure Committees.
- **Incorporation in Risk Management:** Climate change risks are often integrated into broader risk management processes. Some organisations identify climate change as a top organisational risk, with regular updates provided to governance boards, typically on a quarterly basis.
- **Strategic and Operational Reporting:** Climate change risks are often included in strategic risk registers and reported to executive leadership teams or councils. In some cases, climate change considerations are embedded in decision-making processes for service delivery, infrastructure resilience, and emissions reduction strategies.
- **Uncertainty and Gaps:** A few organisations expressed uncertainty about whether climate change risks are consistently or formally reported to governance boards. In some cases, climate change risks are considered in operational decisions, but there is a lack of transparency or formal reporting at the governance level.
- **Comprehensive Approaches:** Some organisations have developed comprehensive approaches to climate risk reporting, including detailed dashboards, one-pagers for identified uncertainties, and alignment with strategic objectives. These are regularly reviewed and updated by governance bodies.

Question 44 – Roles of management

Please briefly describe the role that management plays within your organisation in responding to risks from climate change. Responses are summarised below:

- **Leadership and Oversight:** Management teams, including Executive Leadership Teams (ELTs) and Chief Executives, play a critical role in providing oversight, developing strategies, and prioritising work plans that address climate change risks. They are often responsible for ensuring that climate-related work is communicated effectively across teams and to elected members.
- **Integration into Operations:** Management integrates climate change considerations into various operational processes, including risk management, infrastructure planning, asset management, and district planning. Some organisations have specific groups or committees, such as Climate Champions or cross-council teams, that support these efforts.
- **Resource Allocation and Prioritisation:** Management is involved in allocating resources and prioritising initiatives that address climate risks. This includes determining the necessary evidence for risk assessments and making decisions on funding and implementation of climate-related projects.
- **Adaptive and Collaborative Approach:** Management teams in smaller councils may adopt a highly adaptive, flexible approach to climate change, quickly responding to emerging risks. Collaboration across different departments and with external experts is necessary to achieve effective climate adaptation and risk management outcomes.
- **Accountability and Reporting:** Management is accountable for implementing climate strategies and action plans. They often report on progress to governance bodies and are involved in developing policies to mitigate climate risks. Some management teams also participate in regional leadership committees that oversee broader climate initiatives.

Questions 45 and 46 – Climate considerations

Question 45 – Does your organisation require the impacts of climate change, and adaptation options to address these impacts, to be assessed and considered in decision-making? For example, will climate change be considered before planning to invest in a physical asset.

Note: this does not refer to requirements for mitigation/carbon emissions reduction.

	Organisation										
	1	2	3	4	5	6	7	8	9	10	11
a. Yes	✓		✓	✓	✓					✓	
b. For some projects	✓	✓					✓	✓	✓		✓
c. Not yet, but this is in development											
d. No						✓					
e. Unsure.											

Question 46 sought further information:

- **Mandatory Climate Consideration:** Several organisations have made it mandatory to consider climate change impacts in decision-making, particularly for infrastructure projects, asset management plans, and business cases. This is often integrated into standard reporting templates and approval processes.
- **Variable Effectiveness:** While climate change assessments are required for some projects, the quality and thoroughness of these assessments can vary. In some cases, there is a need for improvement in how these considerations are applied and reported.
- **Climate Checklists and Training:** Some organisations have introduced climate checklists, training programs, and internal resources to ensure staff can effectively incorporate climate considerations into their work and decision-making processes.
- **Integration into Policies:** Climate change impacts are being increasingly integrated into procurement policies, project management templates, and long-term planning processes. This ensures that climate risks are considered in the planning and execution of projects.
- **Inconsistent Application:** Not all organisations have formalised climate change considerations across all decision-making processes. In some cases, climate impacts are considered on a case-by-case basis, with plans to establish more cohesive approaches in the future.

D - Support and Resources

Questions 47 and 48 – Support required

Question 47 – Which actions or resources would help your organisation to better prepare for the impacts of climate change?

Tick as many as apply:

	Organisation										
	1	2	3	4	5	6	7	8	9	10	11
a. More information about how climate change is projected to impact a region or a district		✓	✓	✓	✓		✓		✓	✓	✓
b. Guidance on how to assess and consider the impacts of climate change on your organisation	✓	✓	✓	✓	✓				✓	✓	✓
c. Tools to help quantify impacts from climate change on your organisation.	✓	✓	✓	✓	✓	✓	✓	✓		✓	✓
d. Methodology for assessing and quantifying climate change risks	✓	✓		✓	✓		✓	✓	✓	✓	✓
e. Legislative requirements to consider/plan for the effects of climate change	✓	✓	✓	✓	✓		✓		✓	✓	✓
f. Legislative requirements to publicly report on your organisation’s climate risks and adaptation plans		✓		✓	✓		✓		✓	✓	✓
g. Opportunities to engage and learn from others			✓	✓	✓		✓			✓	✓
h. Training to develop skills/capabilities	✓	✓	✓	✓	✓		✓			✓	✓
i. Improved and centralised data repository eg, flooding	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
j. Good practice guides, benchmarking and assessment tools	✓	✓	✓	✓	✓		✓		✓	✓	✓
k. Funding to implement a strategy and deliver on-the-ground adaptation actions	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓

Question 48 inquired as to the need for any other actions or resources. A summary is provided below:

- **Information and Tools:** Organisations need more detailed information on regional or district-level climate projections, as well as tools and methodologies for assessing and quantifying climate change impacts and risks.

- **Legislative and Policy Guidance:** Clear legislative requirements for planning, considering, and publicly reporting on climate risks and adaptation strategies are essential to guide and prioritize efforts.
- **Training and Skills Development:** There is a strong demand for training to build the skills and capabilities needed to effectively use climate risk assessment tools and implement adaptation strategies.
- **Centralised Data Repositories:** Improved and centralized data repositories, particularly for critical information like flooding data, are necessary to support consistent and effective climate adaptation planning.
- **Funding and Resources:** Adequate funding is crucial to implement on-the-ground adaptation actions and to support the development of strategies, community engagement, and collaboration between local and central government.

Questions 49 and 50 – Barriers to action

Question 49 – What are the barriers to an effective adaptation response that are faced by your organisation? Tick as many as apply:

	Organisation										
	1	2	3	4	5	6	7	8	9	10	11
a. Lack of awareness/education regarding the impacts of climate change by decisionmakers/the wider community	✓	✓	✓	✓	✓	✓			✓	✓	✓
b. Lack of political will or desire from the community for change	✓	✓		✓							✓
c. Lack of tools/methods by which to engage decision-makers/the community	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
d. Inflexibility of current legislation	✓	✓			✓		✓			✓	
e. None of the above											

Question 50 sought further information:

- **Lack of Awareness and Education:** There is a significant gap in awareness and education about the impacts of climate change among decision-makers and the wider community, hindering informed decision-making and community engagement.
- **Funding and Affordability Issues:** Limited funding, driven by economic constraints and competing priorities, is a major barrier. Many organisations struggle to allocate sufficient resources for long-term climate adaptation amidst other urgent issues like infrastructure maintenance.
- **Legislation and Policy Uncertainty:** Current legislation is often seen as inflexible and lacking clear direction, especially regarding community adaptation. Frequent changes in national direction and the absence of legislative certainty contribute to the challenge.
- **Lack of Tools and Methods for Engagement:** Organisations report a shortage of effective tools and methods to engage both decision-makers and the community in climate adaptation planning, making it difficult to build consensus and drive action.
- **Political and Social Challenges:** A lack of political will, coupled with the community's resistance to change or lack of desire for action, further complicates efforts to implement effective adaptation measures.

Question 51 – Further information

Is there any further information you would like to provide about your organisation's response to the risks and impacts of climate change? Responses are summarised below:

- ***Need for Central Government Support:*** Organisations emphasised the need for central government to provide additional economic investment, particularly in data gathering, hazard mapping, and infrastructure. This support would help local authorities make informed decisions and manage natural hazards effectively.
- ***Challenges with Data and Resources:*** Accurate data and science are critical for making informed planning decisions, especially in hazard-prone areas. The lack of sufficient data increases the risk of cumulative impacts and legal liabilities for territorial authorities.
- ***Financial Constraints:*** Affordability is a significant challenge, particularly for smaller councils. Limited funding restricts their ability to plan for and implement climate adaptation and mitigation actions, making central government support crucial for resilience-building efforts.

