

TE WAIORA



Nelson Marlborough  
**Health**

# **Ministry for the Environment Draft National Adaptation Plan**

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## Submitter details

Nelson Marlborough Health (Nelson Marlborough District Health Board) (NMH) is a key organisation involved in the health and wellbeing of the people within Te Tau Ihu. NMH appreciates the opportunity to comment from a public health perspective on the Ministry for the Environment's Draft National Adaptation Plan.

NMH makes this submission in recognition of its responsibilities to improve, promote and protect the health of people and communities under the New Zealand Public Health and Disability Act 2000 and the Health Act 1956.

This submission sets out particular matters of interest and concern to NMH.

## General Questions

*Question 1: Climate change is already impacting New Zealanders. Some examples include extreme weather events such as storms, heatwaves and heavy rainfall which affects lives, livelihoods, health and wellbeing, ecosystems and species, economic, social and cultural assets, services (including ecosystem services) and infrastructure. How is climate change impacting you? This could be within your community and/or hapū and iwi, and/or your business/organisation, and/or your region.*

Exposure to heat and cold, air pollution, pollen, food safety risks, disruptions to access to and functioning of health services and facilities, emerging infections and flooding have all been examined as the key impacts of climate change influencing health outcomes. In recent years, the Nelson Marlborough region has been badly affected by extreme storm events (Cyclone Fehi and Gita), Pigeon Valley fires, 2019 drought, and 2021 floods. The key road connecting Nelson and Tasman to the Golden Bay has taken almost four years to repair fully. Roads remain unrepaired from recent flooding in Kenepuru/Havelock

Age, pre-existing medical conditions and social deprivation are found to be the key (but not only) factors that increase vulnerability to climate events and can lead them to experience more adverse health outcomes related to climate change impacts. In the future, climate change, ageing population and decreasing public spending on health and social care may aggravate inequality of health outcomes related to climate change.<sup>1</sup>

The mental health consequences of events linked to a changing climate include mild stress and distress, high-risk coping behaviour such as increased alcohol use

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<sup>1</sup> Paavola, J. Health impacts of climate change and health and social inequalities in the UK. *Environ Health* **16**, 113 (2017). <https://doi.org/10.1186/s12940-017-0328-z>

and, occasionally, mental disorders such as depression, anxiety and post-traumatic stress. Tasman and Marlborough are areas known for their horticulture, extreme events such as the Boxing Day hailstorm 2020 and July floods have impacted local growers, and the local economy considerably. Climate change-related impacts can also cause job losses as industries are forced to alter or cease activities, force people to move, or lead to a loss of social support and community resources—all of which have mental health consequences.<sup>2</sup>

*Question 2: The national adaptation plan focuses on three key areas. Please indicate which area is most important for you (tick box).*

- a. *focus area one: reform institutions to be fit for a changing climate.* This means updating the legislative settings so that those who are responsible for preparing for and reducing exposure to changing climate risk will be better equipped. It also means key institutions taking the initiative to increase their own sustainability and reduce their own carbon emissions.
- b. *focus area two: provide data, information and guidance to enable everyone to assess and reduce their own climate risks.* This means that all New Zealanders will have access to meaningful and easily understood information about the climate risks that are relevant to them. NMH can contribute to data collection and dissemination.
- c. *focus area three: embed climate resilience across government strategies and policies.* Government leadership at all levels provides direction for all agencies, this should filter down as guidance and information that communities can use to make informed decisions. The Health National Adaptation Plan is vital to ensure that population health needs are considered and improved on.
- d. other? Please explain.

These are all important areas and are co-dependent on each other. There is a great need for climate resilience to be embedded across all Government agencies

*Question 3: We all have a role to play in building resilience to climate change, but some New Zealanders may be more affected and less able to respond. There is a risk that climate change could exacerbate existing inequities for different groups in society. Appendix 3 sets out the full list of actions in this national adaptation plan.*

- a. *What are the key actions that are essential to help you adapt? Please list them.*

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<sup>2</sup> [Psychiatry.org - Climate Change and Mental Health Connections](https://www.psychiatry.org/Climate-Change-and-Mental-Health-Connections)

NMH would like to commend the Ministry for the Environment on the robust list of actions which outline transformational change across agencies and for individuals. All of which combined will result in significant change.

NMH strongly supports the following Actions outlined in Appendix 3:

- *SW1: Reform the Resource Management System* as this will provide Councils with a framework to stop increasing exposure to climate change in areas of higher risk and facilitate retreat as required.
- *SW1: Pass legislation to support managed retreat* as this is an important tool for communities to use to support adaptation.
- *SW1: Modernise the emergency management system/Implement the National Disaster Resilience Strategy/Develop the emergency management workforce* as these three actions will better enable communities and supporting services to respond in extreme weather events
- *SW1 Establish central government oversight and coordination for implementing the national adaptation plan* as this provides the mandate to coordinate change and enables accountability.
- *SW2 Design and develop an Adaptation Information Portal* as this provides every sector with information and data to inform decision making in regards to climate adaptation.
- *SW3 Produce guidance for dynamic adaptive pathways planning (DAPP):* This is an important tool that enables decision making as conditions change, in order to avoid the risk of locking-in decisions and investments into something that cannot be changed if it is no longer fit for purpose.
- *SW3 Produce guidance on using different socio-economic scenarios for adaptation planning* as this provides decision makers with a holistic framework which will encompass the different impacts of climate change adaptation.
- *SW3 Produce guidance on integrating mātauranga Māori into adaptive planning and working with mana whenua* as this enables all parties to integrate the Māori world view into decision making processes.
- *SW2 Improve how science, data and knowledge is used to inform emergency management* as it is critically important that decision making is based on the most accurate data possible.
- *SW2 Complete case study to explore co-investment for flood protection / EF2 Develop options for home flood insurance issues:* Nationally flooding is a significant issue, bringing mental stress for households. Extreme weather events are becoming more frequent and some communities in Buller, South Dunedin, and the East Cape are being affected multiple times. This action will provide

options and certainty for the affected communities and set the benchmark for future actions.

- *NE1 Implement the proposed National Policy Statement on Indigenous Biodiversity/Te Mana o te Taiao – Aotearoa New Zealand Biodiversity Strategy* as biodiversity provides the life supporting systems that enable all organisms, including humans, to survive. It becomes more important, as the climate changes, that there are the mechanisms to enhance biodiversity thus improving overall environmental health.
- *NE2 Invest in strengthening border biosecurity/Continue the Freshwater Biosecurity Partnership Programme* as there needs to be tools in place to protect our native environment and reduce the likelihood of invasive plant or animal species spreading here.
- *NE1 Reform the Environmental Reporting and Monitoring System to allow better measurement of environmental change* as climate change will result in more dynamic change affecting different areas at different rates over time. It is important that we can monitor the rate of change and use this information to inform our decision making processes.
- *NE1 Implement the National Policy Statement on Freshwater Management 2020* as it is critically important to our environmental health that we look after the integrated health and wellbeing of water (Te Mana o te Wai).
- *NE3 Establish an integrated work programme to deliver climate, biodiversity and wider environmental outcomes* as this action ties together all the environmental health actions that are fundamental to climate adaptation.
- *HBP1 Establish an initiative for resilient public housing/ Work with community housing providers to enable effective climate hazard response.* Kainga Ora and community housing providers need to identify which of its housing stock are in high risk areas, and create a plan for those people living in the homes. This provides certainty for all parties.
- *HBP1&2 Embed adaptation in funding models for housing and urban development, and Māori housing/ Ensure minimum regulatory requirements for buildings take into account future climate data.* Housing has a long lifetime so it is important that climate related risks are appropriately considered to ensure communities are not put at unnecessary risk and that investments, both for the public purse, and individuals, are protected by ensuring housing is climate-resilient.
- *HBP3&4 Support kaitiaki communities to adapt and conserve taonga/cultural assets/ Partner with Māori land owners to increase the resilience of Māori-owned*

*land, homes and cultural sites / Research how cultural heritage contributes to community well-being and climate change adaptation/ Develop a framework for assessing exposure and vulnerability of cultural assets/taonga to climate change.* It is imperative that government can provide kaitiaki communities with the tools they need to self-determine options to best conserve taonga.

- *HBP1 Design methodology for risk assessments of public buildings.* The Government has committed to leading by example in terms of emissions reduction. It is also important that both local and central government lead by example for climate adaptation and risk assessments of public buildings are undertaken especially in regards to new public buildings such as libraries or hospitals.
- *I1 Develop a methodology for assessing impacts on physical assets and the services they provide:* Like houses, infrastructure is long-lasting. It is also expensive to install, maintain and relocate. Infrastructure providers and Councils need to have tools for risk assessment on their assets to ensure they are able to provide and maintain over time the appropriate level of service to their communities, as these communities grow and change.
- *I1 Explore funding options to support the investigation and remediation of contaminated sites and landfills vulnerable to the effects of climate change* as it is important that mitigation work can occur to ensure that contamination does not occur such as it did at the Fox River landfill in 2019.
- *I3 Integrate adaptation into Waka Kotahi decision making.* Much of the State highway network especially in the South Island is coastal or across hill country that could be prone to erosion/slips. Adaptation will be required in order to prepare for more extreme weather events, and also to deliver on reduced emissions targets. to ensure connectivity for isolated communities and to maintain essential transport routes for the provision of goods and services.
- *I3 Investment in public transport and active transport* as this provides more transport choices resulting in more resilience in the network.
- *C1 Raise awareness of climate related hazards and how to prepare* as this public education strategy will provide people will information to be more self-resilient in extreme weather events.
- *C4 Develop the Health National Adaptation Plan* as this will mean that critical actions to protect population health and improve health impacts can be considered.
- *C4 Assess healthcare service resilience* as this will ensure that the services that people need in both extreme weather events and long term will be appropriate.

- *C3 Develop the Climate Migration Plan*: New Zealand must work towards improving current migration policies to account for increasing climate migration trends, particularly in the Pacific. Addressing the future needs of climate-induced migrants who come to New Zealand, and assessing their socio-economic, environmental, and cultural impacts on a broader scale is the first step that should be identified in the plan.<sup>3</sup>
- *C1 Building communities resilience through social cohesion / C3 Connect communities to wider response and recovery support* as this will be important as communities prepare for climate adaptation.
- *C2 Assess socioeconomic and climate vulnerability for Māori* as Māori have been identified as being disproportionately more affected by climate change and it is important to quantify this so adaptation measures can be assessed for effectiveness
- *EF1 Leverage government procurement for climate outcomes* as government procurement can and should be used to support wider social, economic, cultural and environmental outcomes and this should also be extended to climate adaptation.
- *EF2 Monitor residential insurance premiums* as government should have oversight of insurance prices so see whether households can continue to afford their premiums in the light of rising prices due to more extreme weather events. This has financial and mental health implications for people and is exacerbated by inflation and the pressures on costs of living.
- *EF1 Continue prioritising research and investment in climate-related science*. This action is essential to ensure that the data and resource used to inform decision making is up to date and relevant to the New Zealand context.

b. *Which actions do you consider to be most urgent? Please list them.*

It is important the right tools are in place to ensure that the implementation plan will be effective. Legislation that supports managed retreat must be expedited.

- SW1 Establish central government oversight and coordination for implementing the national adaptation plan

Actions relating to data and information are vital so that all parties can make informed decision making about climate adaptation:

- SW2 Design and develop an Adaptation Information Portal

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<sup>3</sup> Ghosh, R.C & Orchiston, C. (2020) Climate-induced Migration in the Pacific: The Role of New Zealand, NZAIA [Climate-induced Migration in the Pacific: The Role of New Zealand - NZAIAO](#)



- SW2 Improve how science, data and knowledge is used to inform emergency management
- NE1 Reform the Environmental Reporting and Monitoring System
- C1 Raise awareness of climate related hazards and how to prepare
- C1 Building communities resilience through social cohesion / C3 Connect communities to wider response and recovery support

Climate adaptation needs to occur in some areas of the country faster than others and it is vital that there are systems and processes in place now that can assist people who are being affected by extreme weather events now. Therefore the following actions are considered as urgent.

- *SW2 Complete case study to explore co-investment for flood protection*
- *EF2 Develop options for home flood insurance issues:*

Likewise with the above action, this is an area of concern now and should be addressed as such.

- *C3 Develop the Climate Migration Plan:*

Improved environmental health is of fundamental importance

- *NE3 Establish an integrated work programme to deliver climate, biodiversity and wider environmental outcomes*

Decisions made about infrastructure now will have ramifications for up to a century so work has to begin now on this issue

- *I1 Develop a methodology for assessing impacts on physical assets and the services they provide:*

Health National Adaptation Plans can build resilience within the existing health system to achieve nationally set strategic health adaptation goals across sectors for instance environmental health, communicable disease, emergency preparedness<sup>4</sup>. It is important that this is done in the onset alongside the National Adaptation Plan

- *C4 Develop the Health National Adaptation Plan*

Climate change is expected to exacerbate existing health disparities. These health disparities will compound for communities that have lower socio-economic resources and poorer access to quality to health care will increase vulnerability overall. Many communities will experience adverse mental and spiritual outcomes related to climate change, but these may be particularly exacerbated for Māori as mana whenua and kaitiaki of site of cultural significance. There is a real risk of a loss of identity and mental distress due to displacement and dispossession of lands, marae and urupā, along with adverse effects on resources such as mahinga kai and valued flora and fauna<sup>5</sup> therefore adaptation plans must assess the risk and work to reduce this risk as soon as possible.

- *C2 Assess socioeconomic and climate vulnerability for Māori*

<sup>4</sup> [Considerations-for-developing-a-Health-National-Adaptation-Plan-for-New-Zealand-report-2019.pdf \(esr.cri.nz\)](#)

<sup>5</sup> [Considerations-for-developing-a-Health-National-Adaptation-Plan-for-New-Zealand-report-2019.pdf \(esr.cri.nz\)](#)



c. *Are there any actions that would help ensure that existing inequities are not exacerbated? Please list them.*

- *C2 Assess socioeconomic and climate vulnerability for Māori*
- *C4 Develop the Health National Adaptation Plan*
- *C3 Develop the Climate Migration Plan:*
- *C1 Building communities resilience through social cohesion*
- *C3 Connect communities to wider response and recovery support*

d. *Are there any actions not included in this draft national adaptation plan that would enable you to assess your risk and help you adapt?*

Food security is one area of the plan that could be strengthened to ensure that communities have easy access to sufficient, safe nutritious food. Food insecurity is closely linked to limited household resources and poor socioeconomic status. Climate change could affect what we consider to be highly productive land. Changes in weather patterns across regions and extreme weather events will affect New Zealand soils and growing conditions. Climate change has the potential to increase erosion rates through hotter, drier conditions that make soils more susceptible to wind erosion as well as intense rainfall events triggering surficial erosion and shallow landslides.<sup>6</sup> Highly productive soils suitable for food production do have high structural stability, and less prone to water logging and erosion, flooding or salt contamination however this could change over time.

New Zealand does not have a policy for food security. As noted earlier, New Zealand's population is growing which is placing further demand on highly productive land, and given the potential effects of climate change on productive land, further consideration needs to be given to food security issues for the domestic food chain. Horticulture NZ identifies that developing a food security policy is central to addressing sustainability concerns.<sup>7</sup>

NMH recommends that the Ministry for the Environment and Ministry for Primary Industries considers including a food security policy in this Plan.

NMH recommends that further investment is given to National Public Health Service to enhance community resilience in terms of food resilience.

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<sup>6</sup> Palmer, A (undated) *The issue of Protection of Class I and Class II soils in the One Plan*, Soil and Earth Sciences. <https://www.horizons.govt.nz/HRC/media/Media/One%20Plan%20Documents/One-Plan-Versatile-SoilsStandard-Copy.pdf?ext=.pdf>

<sup>7</sup> Horticulture NZ (2017) New Zealand domestic vegetable production. <http://www.hortnz.co.nz/assets/Media-Release-Photos/HortNZ-Report-Final-A4-Single-Pages.pdf>

NMH notes that the Plan is not clear whether many of the initiatives listed in Appendix 3 apply only to central government or also to local government. It would be useful have this clarified.

*Question 5: The National Climate Change Risk Assessment recognised that there may be economic opportunities in adapting to a changing climate.*

*a. What opportunities do you think could exist for your community or sector?*

Well thought-out integrated planning between key agencies and communities could lead to greater wellbeing outcomes overall. This would have economic benefits of improved physical and mental health which reduces the cost burden on the health-care system, conversely if the adaptation plan was not well-integrated then the reverse could be true. Integrated planning offers co-benefits across sectors, for example well designed housing can integrate climate resilience and universal design criteria or promoting walkability of suburbs can both reducing climate impacts of fossil fuels and improving opportunities for healthy physical activity. There are numerous opportunities for agencies to collaborate and progress shared agendas that support sustainability alongside other aspects of a health-supporting urban and rural environment.

Any new urban development needs to avoid hazard prone land, be integrated into the existing transport network (including active and public modes) and avoid highly productive land. Energy efficiency is essential, and developments should be able to incorporate solar power. Adequate green space needs to be included in urban settings.

Within the health sector there are opportunities to improve the resilience of health care facilities in terms of the location of buildings and the transport networks to them i.e. new facilities should not be situated on vulnerable hazard prone land.

*b. What role could central government play in harnessing those opportunities?*

The NPS for Urban Development needs to commit to supporting the initiatives mentioned in the paragraph above.

The Building Code and the revised resource management Bills need to work in conjunction so that climate resilient housing which is warm, dry, and energy efficient is not built on low lying areas.

Private developers use of covenants also needs to be restricted so that a) people are able to easily relocate their houses, b) technological innovation in terms of energy efficiency methods such as solar power are not restricted.

### ***System-wide actions***

*Question 6: Do you agree with the objectives in this chapter? Yes No Partially Please explain your answer.*

Yes: NMH agrees that the following objectives are appropriate

- i. Legislation and institutional arrangements are fit for purpose and provide clear roles and responsibilities
- ii. Robust information about climate risks and adaptation solutions is accessible to all
- iii. Tools, guidance and methodologies enhance our ability to adapt
- iv. Unlocking investment in climate resilience

NMH recommends that an additional objective is added "to enhance community health resilience". This objective would then link this Plan to the Health National Adaptation Plan which can be used as a tool to strengthen policies that improve population health and reduce inequity thus improve overall community resilience.

*Question 7:* What else should guide the whole-of-government approach to help New Zealand adapt and build resilience to a changing climate?

*Achieving equitable outcomes must be the focus of the whole-of government approach. As acknowledged in the consultation documents, vulnerable people may experience adverse outcomes from climate change disproportionately, therefore all government agencies need to work collaboratively in order to build resilience, minimise disruption, and achieve equity including intergenerational equity.*

*Question 8:* Do you agree that the new tools, guidance and methodologies set out in this chapter will be useful for you, your community and/or iwi and hapū, business or organisation to assess climate risks and plan for adaptation? Yes No Partially Please explain your answer.

Yes, for the reasons given in the Actions in the first section.

NMH notes that there does not seem to be a work programme for data and information relating to wellbeing outcomes. It is expected that the Health National Adaptation Plan will cover this in-depth.

10 What actions do you think will have the most widespread and long-term benefit for New Zealand?

- *SW1: Reform the Resource Management System*
- *SW1: Pass legislation to support managed retreat*
- *SW1 Establish central government oversight and coordination for implementing the national adaptation plan*
- *SW2 Improve how science, data and knowledge is used to inform emergency management*

## ***The natural environment***

*Question 14: Do you agree with the actions set out in this chapter? Yes No Unsure Please explain your answer.*

Yes, the National Adaptation Strategy clearly understands that it is critical that the natural environment needs to be restored and enhanced and the actions set out in the Strategy reflect this.

NMH recommends that consideration is given to both the size of discrete blocks of biodiversity and the degree of interconnectedness of them. Corridors are only helpful if they are linking areas of native biodiversity that are sustainable/resilient in their own right.

*Question 15: What else should guide central government's actions to address risks to the natural environment from a changing climate?*

The National Adaptation Plan seems thorough with its holistic approach. NMH would like to see additional emphasis placed on the importance of access of and protection of clean freshwater for likes of drinking, food production, hygiene and recreational use

Jobs for Nature programmes also need a post-funding plan to ensure the gains are not lost once funding stops.

Consideration could also be given to the preservation or enhancement of soil health including the importance of preventing or mitigating soil erosion and sediment generation with the prospect of more frequent and intense storm events.

*Question 16: Are there other actions central government should consider to:*

- a. support you, your community, iwi and hapū, business and/or organisation to build the natural environment's climate resilience? Yes No Unsure Please explain your answer.*
- b. strengthen biosecurity in the face of climate change? Yes No Unsure Please explain your answer.*
- c. identify and support New Zealand's most vulnerable ecosystems and species in a changing climate? Yes No Unsure Please explain your answer.*

Partially. More could be done to research the impacts of climate change on our more vulnerable ecosystems including creating a dedicated research programme looking at all the potential threats and planning for their protection now.

*Question 17: What do you identify as the most important actions that will come from outside of central government (e.g., local government, the private sector or other asset owners, iwi, hapū and/or other Māori groupings such as: business, forestry, fisheries, tourism, urban Māori, the private sector) to build the natural environment's resilience to the impacts of climate change?*

It is assumed that the establishment of an integrated work programme to deliver climate, biodiversity and wider environmental outcomes would occur at a local, regional and national level and it is this integrated action that will be the most important. In addition the development of mātauranga Māori indicators of climate impacts on the natural environment will provide iwi and local communities with the ability to identify local strategies to improve environmental outcomes.

*Question 18: Are there additional actions that would advance the role of Māori as kaitiaki in a changing climate? Yes No Unsure Please explain your answer.*

Yes, The National Adaptation Plan seems thorough with its holistic approach and we have no other recommendations.

### ***Homes, buildings and places***

*Question 19: Do you agree with the outcome and objectives in this chapter? Yes No Partially Please explain your answer.*

Yes, NMH supports the outcomes as they focus on keeping people safe and healthy through resilience, through home improvements, minimising risk and protecting cultural heritage and environmental value. It must be noted that at times these objectives may conflict with each other and this needs to be acknowledged in the plan. Consideration may need to be given to creating an internal hierarchy within the objectives to ensure communities and government have a mutual understanding of expectations.

This will become important to ensure that intergenerational equity is maintained and that short-term measures to improve homes and buildings are not necessarily favoured over long-term measures.

*Question 20: What else should guide central government's actions to increase the resilience of our homes, buildings and places?*

It is important that the reform of the building code and review of other regulations looks specifically at the issue of designing homes to manage extreme heat amongst other climate change impacts such as flooding. Some regions of New Zealand are at higher risk of experiencing heatwaves, and this risk will change as the effects of climate change are realised<sup>8</sup>. Well-designed houses and public buildings can mitigate this impact and protect human health. The Building Act will need to have

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<sup>8</sup> <https://www.health.govt.nz/system/files/documents/publications/heat-health-plans-guidelines-dec18.docx>

a) explicit requirements to consider the effects of climate change on inundation hazards, including increasing risks over time

b) better guidance and financial incentives for innovative building solutions that are more capable of dealing with changing climate such as green roofs and living walls, pervious paving, rain tanks, re-use of water, flood-proofing buildings etc

c) higher insulation standards for cold and warm circumstances

*Question 21: Do you agree with the actions set out in this chapter? Yes No Partially  
Please explain your answer.*

Yes, As discussed in question 3, NMH is strongly supportive of the actions for this chapter especially:

*HBP1 Establish an initiative for resilient public housing/*

*HBP1 Work with community housing*

*HBP1 Design methodology for risk assessments of public buildings.*

*HBP3&4 Support kaitiaki communities to adapt and conserve taonga/cultural assets/*

*HBP3&4 Partner with Māori land owners to increase the resilience of Māori-owned land, homes and cultural sites*

*HBP3&4 Research how cultural heritage contributes to community well-being and climate change adaptation*

*HBP3&4 Develop a framework for assessing exposure and vulnerability of cultural assets/taonga to climate change.*

*Question 22: Are there other actions central government should consider to:*

a. *better promote the use of mātauranga Māori and Māori urban design principles to support adaptation of homes, buildings and places? Yes No Unsure Please explain your answer.*

NZ's Urban Design Protocol<sup>9</sup> currently makes no reference to Climate change. This is one aspect of the Protocol that could be updated, in addition the use of Māori urban design principles such as Te Aranga<sup>10</sup> could be incorporated for Councils and developers to use.

*The following questions are about existing buildings. These can include housing, communal residential (hotels, retirement village), communal non-residential (church,*

<sup>9</sup> [New Zealand Urban Design Protocol \(environment.govt.nz\)](http://environment.govt.nz)

<sup>10</sup> [Kake Paul 2018 Maori Design principles UrbanismNZ.pdf \(buildingbetter.nz\)](#)

public swimming pools), commercial (library, offices, restaurant), industrial (factory, warehouse).

*Question 23: Do you think that there is a role for government in supporting actions to make existing homes and/or buildings more resilient to future climate hazards? Yes No Unsure If yes, what type of support would be effective?*

Yes, NMH agrees there is definitely a role for government to support actions to make buildings more resilient. This support could be given by providing people with information, tools and incentives to make their properties more resilient in ways that are applicable to their geographic area.

In addition, consideration could also be given to creating tools that enable people to relocate their homes easily. The lifespan of New Zealand houses can average at 110 years.<sup>11</sup> Given the resources and material locked up in houses, and the cost to build new houses, there needs to be a set of mechanisms in place to enable people to relocate existing houses. There are significant cost benefits and this is less resource intensive. This includes pathways for houses to be relocated in new development areas. This did not occur after the Christchurch earthquake when relocated houses were forced out of the Travis Country area because they did not align with the developer's covenants<sup>12</sup>. The planning framework needs to be adjusted so it enables relocation. This provides people with more economic housing options.

Funding to retrofit insulation is an effective measure to help reduce the impact of heatwaves. In addition it has the co-benefit of reducing heating requirements during cool weather and makes homes warmer, drier and healthier.

*Question 24: From the proposed actions for buildings, what groups are likely to be most impacted and what actions or policies could help reduce these impacts?*

NMH strongly supports initiatives that will improve public and social housing in areas that are not hazard prone. Vulnerable communities who already have the worst health outcomes will be disproportionately affected by climate change impacts and should be the primary focus of adaptation interventions.

*Question 25: What are some of the current barriers you have observed or experienced to increasing buildings' resilience to climate change impacts?*

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### **Infrastructure**

*Question 26: Do you agree with the outcome and objectives in this chapter? Yes No Partially Please explain your answer.*

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<sup>11</sup> [Study report SR214 Housing life cycle and sustainability: Part one \(d39d3mj7qio96p.cloudfront.net\)](https://d39d3mj7qio96p.cloudfront.net)

<sup>12</sup> [Second-hand house riles Travis Country residents | Stuff.co.nz](https://www.stuff.co.nz)



Partially. NMH agrees with the outcome that the infrastructure protects or enhances New Zealanders' wellbeing. In addition we agree with the objectives as they related to reducing the vulnerability of assets, ensuring all new infrastructure is fit for a changing climate and use renewal programmes to improve capacity. An adaptation plan needs to be developed with respect to all infrastructure that will be impacted by climate change. Ocean discharges of sewage and stormwater disposal are issues of particular risk. Water supplies need to be considered in the context of drought and wildfire.

Consideration also needs to be given to ensuring intergenerational objectivity within the decision-making framework. Infrastructure has the potential to last for centuries, and within a century of climate change, much can occur to alter the terrain which houses the infrastructure assets. Therefore the decision making processes around renewal programmes must be cognisant of the best value for communities from an inter-generational perspective. For example, if a road run close to the coast, is it is more cost effective to spend an annual budget on raising the road every year for decades, and spending extra on emergency repairs as required or is it more cost effective to relocate the road. Management of short-term goals vis-a-vis long term goals needs to be considered within the context of the objectives section.

Further consideration needs to be given to the interdependence between infrastructure services to ensure that assets that need servicing are not abandoned. There needs to be alignment between service providers.

*Question 27: What else should guide central government's actions to prepare infrastructure for a changing climate?*

Refer to the answer in 26

*Question 28: Do you agree with the actions set out in this chapter? Yes No Partially Please explain your answer.*

As discussed in question 3, NMH is strongly supportive of the actions for this chapter especially:

*I1 Develop a methodology for assessing impacts on physical assets and the services they provide*

*I1 Explore funding options to support the investigation and remediation of contaminated sites and landfills vulnerable to the effects of climate change*

*I3 Integrate adaptation into Waka Kotahi decision making.*

*I3 Investment in public transport and active transport*

*Question 29: The national adaptation plan has identified several actions to support adaptation in all infrastructure types and all regions of Aotearoa.*

- a. Do you see potential for further aligning actions across local government, central government and private sector asset owners? Yes No Unsure Please explain your answer.

Yes, the responsibility of infrastructure provision is split between parties, climate adaptation including managed retreat will result in changes to a range of different assets at different times, this needs to have a coordinated approach in order to get the best overall outcomes for communities.

The transport networks (operated by Waka Kotahi and local councils) need to incorporate pedestrian, cycling and micro-modal infrastructure as well as space for vehicles. All new road infrastructure should be required to provide multimodal transport options. This will make the transport network more resilient to climate change impacts and will have the co-benefits of better access to transport options, reduced greenhouse gas emissions and improved population health.

- b. Do you see any further opportunities to include local mana whenua perspectives and mātauranga Māori in infrastructure adaptation decision-making? Yes No Unsure Please explain your answer.

Yes, climate adaptation needs to be done holistically and this includes obtaining local mana whenua perspectives.

- c. Do you see any further opportunities to include local community perspectives in infrastructure adaptation decision-making? Yes No Unsure Please explain your answer.

Yes, whilst infrastructure decision making processes can be complex and lengthy, it is important that local community is informed about what changes need to occur and what options are available.

- d. Do you see any further opportunities to ensure that groups who may be disproportionately impacted by climate change, or who are less able to adapt (such as those on low incomes, beneficiaries, disabled people, women, older people, youth, migrant communities) have continued and improved access to infrastructure services as we adapt? Yes No Unsure Please explain your answer.

Yes. Many infrastructure decisions are made at the local council level however Local Government New Zealand have identified that people don't really understand the importance of local government and have recently launched a campaign to ensure greater diversity on Councils. Currently only 14% of councillors are under 40 years old, with the average age being 56 - 60. The majority are men, while 41% are women. There's also a lack of ethnic diversity with 14% of

representatives Māori.<sup>13</sup> It is important that Councils are able to have diverse representation.

Moreover, voter turnout for local elections has been declining since the late 1980s with only 42% voting in 2019<sup>14</sup>, so local Councils need to engage the public vote. In addition, local councils need to find ways to actively engage with those who may be disproportionately impacted by climate change. This has started to improve in recent years with more Council information sessions done in person and online using a varied number of platforms.

In addition, all infrastructure programs should be required to assess health and health equity impacts to ensure that vulnerable communities are not unfairly impacted by climate change. This is particularly important with regard to transport and social housing infrastructure.

e. *Do you think we have prioritized the right tools and guidance to help infrastructure asset owners understand and manage climate risk? Yes No Unsure Please explain your answer.*

Yes, the Plan shows a high-level plan for infrastructure generally and a plan for Waka Kotahi. It would be good to see climate change adaptation plans for other components of infrastructure.

## **Communities**

*Question 32: Do you agree with the outcome and objectives in this chapter? Yes No Partially Please explain your answer.*

Yes, NMH supports the outcomes and the objectives of this section that relate to

- Enabling communities to provide resources and take action relevant to their unique situation;
- Understanding where the most vulnerable people are, what they need and what they value and provide them with support;
- Supporting communities facing climate-related disruption; and
- Understanding future climate-related health risks and readying the healthcare system.

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<sup>13</sup> [Diversity push ahead of local council elections \(1news.co.nz\)](https://1news.co.nz/2019/11/20/diversity-push-ahead-of-local-council-elections/)

<sup>14</sup> [Elections-Fact-sheet-19.pdf \(lgnz.co.nz\)](https://lgnz.co.nz/elections-fact-sheet-19.pdf)

*Question 33: Do you agree with the actions set out in this chapter? Yes No Partially  
Please explain your answer.*

As discussed in question 3, NMH is strongly supportive of the actions for this chapter especially:

*C1 Raise awareness of climate related hazards and how to prepare*

*C1 Building communities resilience through social cohesion /*

*C2 Assess socioeconomic and climate vulnerability for Māori*

*C3 Connect communities to wider response and recovery support*

*C3 Develop the Climate Migration Plan*

*C4 Develop the Health National Adaptation Plan*

*C4 Assess healthcare service resilience*

*Question 34: What actions will provide the greatest opportunities for you and your community to build climate resilience?*

- *C1 Raise awareness of climate related hazards and how to prepare*

It is critical that every sector of New Zealand prepare for the effects of climate change. A fundamental part of this is to improve overall understanding of the myriad of changes that will occur as a result of warming temperatures and more extreme weather events and what the short-term effects and the long-term effects are for individuals, communities and businesses. This information needs to be easily understandable because public acceptance and understanding is critical prior to preparing for climate change adaptation. Particular focus also needs to be given to assisting the more vulnerable groups in the community so that they are also able to prepare themselves or the services that they rely on are able to prepare to support them.

- *C1 Building communities resilience through social cohesion*

In order to build resilience, people must be able to meet their basic needs such as having affordable housing, food security, along with having trust in governance and acknowledgement of cultural traditions and diversity. Evidence shows that these kinds of community strengths lead to greater social cohesion and stronger social networks, which act as buffers against negative health impacts of climate disasters and help communities recover more quickly after a disaster. Socially cohesive communities in which people are engaged in social events have been shown to have increased resilience against extreme weather events. The mental health effects of climate

change include not only those directly related to the traumatic consequences of severe weather events, but also the anxiety, fear, and distress associated with slower-moving stressors, perceptions, and attempts to understand and respond appropriately to climate change and its implications<sup>15</sup>.

- *C3 Develop the Climate Migration Plan*

Pacific Island countries are acutely vulnerable to the impacts of climate change. These impacts include sea level rise, prolonged drought, increased rainfall and storm events, changes in ocean temperatures and ocean temperatures. Secondary impacts include reduced availability and quality of potable water, emergence of infectious disease, changes in wild and farmed fish-stocks, impacts on livelihoods and damage to infrastructure amongst others. New Zealand needs to assist Pacific Island countries with tools to be more resilient if people choose remain in their own country, as well as support in New Zealand if they wish to migrate, this could include assistance with housing and other social infrastructure so that any health inequities such as overcrowding and the rates of infectious disease are not increased.

#### *C4 Develop the Health National Adaptation Plan*

To be effective, NMH recommends that a Health in All Policies approach is taken to creating a flexible framework that allows health adaptation planning and consistency regionally. The Plan should include opportunities to use cross-sectoral prevention and risk management such as health impact assessments that include social vulnerability. Consideration could be given to creating a goal for the New Zealand Health National Adaptation Plan to "Ensure that health and well-being in New Zealand is resilient against the impacts of climate change." Within the Plan there should be the scope to

1. implement, monitor and report on processes
2. mainstreaming of climate and health into existing strategies, policies and programmes and creating new ones that are able to address future climate sensitive health risks based on sound evidence, and taking into account actions that are most urgent, low regret and that focus on the most vulnerable communities to avoid health inequality<sup>16</sup>
3. a policy direction to support the HNAP goals and actions, for example, new policies that recognise cross-sector interactions and promote climate-resilient health such as reducing deaths associated with poor air quality and inadequate building standards.

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<sup>15</sup> [Social resilience and climate change: findings from community listening sessions - The Lancet Planetary Health](#)

<sup>16</sup> [Considerations-for-developing-a-Health-National-Adaptation-Plan-for-New-Zealand-report-2019.pdf \(esr.cri.nz\)](#)

*Question 35: Are there additional actions central government should consider to:*

- a. support your health and wellbeing in the face of climate change? Yes No Unsure  
Please explain your answer.
- b. promote an inclusive response to climate change? Yes No Unsure Please explain your answer.
- c. target support to the most vulnerable and those disproportionately impacted? Yes No Partially Please explain your answer.

Whilst NMH are not advocating for additional actions, we would like to emphasise the importance of using the Health National Adaptation Plan (HNAP) as a tool to improve the overall social determinants of health so that people's living conditions improve especially those vulnerable groups. This HNAP needs to include a robust action plan and be fully resourced in order to have the greatest impact. This will enhance health and wellbeing.

These plans could focus on the following areas<sup>17</sup>:

- Extreme weather events, urban heat island effect
- Changes in the distribution of infectious diseases
- Air quality, food and water security
- Housing – poor quality housing may increase exposure to heat/vector-borne diseases
- Transportation – lack of choice may make evacuation difficult
- Digital divide: lack of access to information about weather events, risks and resources
- Mental health with particular attention on rural communities, youth, Maori and more vulnerable groups

*Question 36: What do you think are the most important actions that will come from outside of central government (e.g., local government, the private sector or other asset owners, iwi, hāpu, non-government organisations, community groups) to strengthen community resilience in the face of climate change?*

- Local council investment in Active and Public Transport networks will provide people with low emission transport options, and will provide a life-line in extreme weather events.
- Warmer Homes programmes that are run with the support of Councils and District Health Boards provide options for families on limited incomes to have warmer drier homes.

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<sup>17</sup> [Microsoft Word - ClimateChangeHealthEquity.docx \(climatehealthconnect.org\)](#)

- Access to Food Banks and Community Food providers provide people with food options so people can afford the essentials of daily living.
- The development of well connected, affordable, energy efficient housing areas that are not low-lying or prone to natural hazards.

*Question 37: Are there additional actions could be included in the national adaptation plan to help strengthen climate resilience for iwi, hāpu and whānau? Yes No Partially Please explain your answer.*

NMH support the enabling of the Māori Health Authority and local iwi/Māori partnership boards to be proactive in the design and implementation phase.

### ***Managed retreat***

*Question 52: Do you agree with the proposed principles and objectives for managed retreat? Please explain why or why not.*

Yes, NMH strongly supports the proposed objectives. Managed retreat is an approach that all coastal communities will need to consider to some extent in the future. It is imperative that the roles, responsibilities, tools and processes are established at a national level, along with the provision of tools, clarification of council liability, and the criteria for government intervention. This provides everybody with a basis of understanding as people and government grapple with climate change adaptation.

The proposed principles consider wellbeing across the social, environmental and cultural spheres and NMH supports these:

- a) managed retreat processes are efficient, fair, open and transparent
- b) Communities are actively engaged
- c) Social and cultural connections are maintained
- d) There is flexibility
- e) Iwi/Maori are represented and
- f) There is protection for the natural environment.

NMH supports the Objectives and Principles of funding responsibilities (Table two) in regards to ensuring fairness and equity. The funding of managed retreat needs to be spread over multiple generations to ensure that there is intergenerational



equity. Funding arrangements that bias decision-making in favour short-term structural protection over pre-emptive staged retreat must be avoided.<sup>18</sup>

Question 53: *Are there other principles and objectives you think would be useful? Please explain why.*

None identified.

Question 54: *Do you agree with the process outlined and what would be required to make it most effective?*

NMH agrees with the process identified. Managed retreat will mean different things for different locations so the actual planning and preparedness for implementing managed process needs to be clearly set out for communities to understand what options are the best for their specific area. This process requires the identification of options, the selection of adaptation actions and the identification of different pathways a retreat could take. This includes identifying thresholds, and trigger points for activating adaptation choices, planning and quick implementation of development restrictions and re-zoning to reduce legacy effects, and the development of programmes to monitor the predetermined signals and triggers to avoid intolerable adaptation thresholds defined by the community and responsible agencies.<sup>19</sup>

Acknowledgement must also be given to those who may not wish to retreat, and consideration needs to be given to managing expectations in these instances.

Question 55: *What do you think could trigger the process? What data and information would be needed?*

Ideally the government, council and community would predetermine signals and triggers to initiate managed processes. Trends in sea-level rise will mean that pro-active management approaches for low lying coastal areas can be developed and deployed now whereas as areas affected by extreme weather events such as major floods brings greater uncertainty. Further investment in improved modelling and data collection of the likes of flood risks, soil erosion, inflow and infiltration would assist with decision making processes.

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<sup>18</sup> Lawrence, J., Boston, J., Bell, R. *et al.* Implementing Pre-Emptive Managed Retreat: Constraints and Novel Insights. *Curr Clim Change Rep* **6**, 66–80 (2020). <https://doi.org/10.1007/s40641-020-00161-z>

<sup>19</sup> Ibid.

*Question 56: What other processes do you think might be needed, and in what circumstances?*

There is a need for governments to use tools that reduce the chance of over- or under- investing in actions. All options will need to be assessed under a range of different future conditions so the appropriate place based solution can be found. It is important the decision making tools adopted retain flexibility so options in the short-term do not lock in path dependencies, and there are possibility to adapt to alternative pathways if current solutions are later found unworkable. In addition it is important that the decision making processes are based on having"

- a) reliable evidence,
- b) transparent risk assessments,
- c) well-designed community engagement
- d) spatial planning with a long view
- e) logistical capacity for managing the components of retreat
- f) clear, consistently applied policy process that minimises uncertainty and disruption<sup>20</sup>

*Question 57: What roles and responsibilities do you think central government, local government, iwi/Māori, affected communities, individuals, businesses, and the wider public should have in*

- a) a managed retreat process?*
- b) sharing the costs of managed retreat?*

There is a role for all parties listed above. NMH supports the proposed activity where more clearly defined roles and responsibilities are identified in a future managed retreat system. Those with the responsibility to manage the retreat of specific areas need to be given the tools and resources to do this effectively, and also the knowledge that there is additional support mechanisms if needed. This is especially important because there will be communities who will be divided about retreat and tools will be needed to manage all parties' expectations.

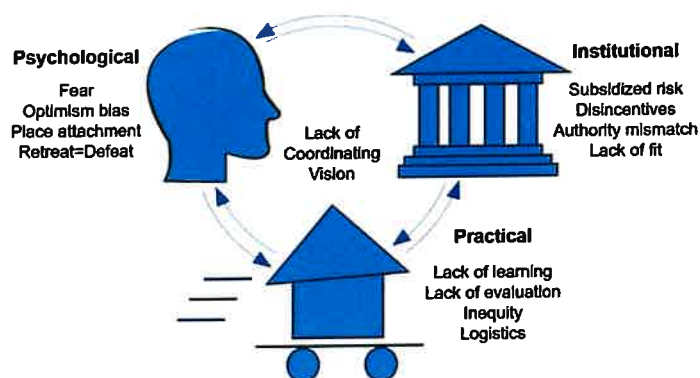
*Question 58: What support may be needed to help iwi/Māori, affected communities, individuals, businesses and the wider public participate in a managed retreat process?*

Managed retreat can be seen as a strategy that eliminates risk by moving people and assets away those risks, and it can provide an opportunity for social,

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<sup>20</sup> Ibid.

economic and ecological transformation. However there are a number of psychological, institutional and practical barriers to overcome.



Siders, A.R. 2019<sup>21</sup>

It is critically important that central and local government work with local communities to remove these barriers together. People often underestimate risk, and overestimate the effectiveness of protective measures. Repeated disasters can increase the accuracy of risk perception but people can have short memories and will overlook personal experience if they have a strong attachment to a place. People often choose to maintain the status quo rather than pursue any course of action (known as status quo bias).

An open dialogue is required with all parties so people can clearly digest all the information. During the COVID outbreak, considerable effort was put into the creation of clear and concise messaging and this approach is needed again so that communities can have dialogue on a number of different platforms.

Question 60: *What do you consider the key criteria for central government involvement in managed retreat?*

As stated in the objectives and principles, the government must

- a) Identify roles, responsibilities and processes for managed retreat
- b) Provide clarity for acquiring land, compensation and modify or extinguish existing uses of land

Question 61: *There may be fewer options for homes and community buildings (e.g., schools, churches, community halls) to move than businesses (e.g., retail and office buildings, factories, utilities) for financial, social, emotional and cultural reasons. That may suggest a different process for retreat, and different roles and responsibilities for*

<sup>21</sup> Siders, A.R. (2019) Managing Retreat in the United States, One Earth Volume 1, Issue 2, Pg. 216-225 [Managed Retreat in the United States - ScienceDirect](#)

*these actors. Should commercial properties/areas and residential properties/areas be treated differently in the managed retreat process? Please explain why.*

NMH also recommends that there is a framework to guide councils and communities on circumstances for managed retreat of infrastructure services, and the legislative mandate to enable this in a fair and equitable way.

Some examples of circumstances in which people should not be able to stay in an area after community services are withdrawn could include:

- Are unable to provide their own services (e.g. drinking water, wastewater, stormwater) without causing environmental harm
- Place property owners at risk during a natural disaster event, which in turn could place unnecessary risk to civil defence and emergency management service providers
- The identified longer term risk to the built environment warrants removal/managed retreat to ensure that the area is remediated/rehabilitated in advance of impending significant natural hazard risk.

Internationally, one area of contention has been potential conflict between relocation and redevelopment. In an area designated for retreat, consideration could be given to residents to allow people to keep the original titles to their land. This has occurred in Louisiana where people have title but they are not allowed to live on, sell or rent the land, but their property claims include mineral rights.<sup>22</sup> Consideration also could be given to climate leases<sup>23</sup> which convert freehold titles to leasehold titles where sea level rise renders properties suitable for only temporary occupation. The lease puts a time limit on the property, and once it expires, the existing use rights would be extinguished and landowner would be required to move off the property.

*Question 62: Even in areas where communities are safe, local services and infrastructure, such as roads, power lines and pipes may become damaged more frequently and be more expensive to maintain because of erosion or increases in storms and rainfall, for example. Local councils may decide to stop maintaining these services. Are there circumstances in which people shouldn't be able to stay in an area after community services are withdrawn?*

The decision making around local services and infrastructure should lie with the Councils and their communities. NMH does note that there are examples overseas where communities in the interim prior to retreat, took measures to restore their

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<sup>22</sup> [What is Needed for Fair and Equitable Managed Retreat? - Managed Retreat \(columbia.edu\)](#)

<sup>23</sup> [Climate hazard property - from freehold to leasehold | RNZ](#)

coastlines and marshes or found innovative way to protect housing and food security.<sup>24</sup>

Question 63: In what situations do you think it would be fair for you to be required to move from where you live?

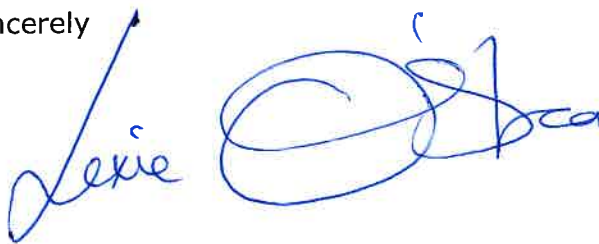
Question 64: *Many residential communities are made up of a combination of renters, owner/occupiers and people who own a property and use it as a second/holiday house. Do you think there are reasons for these groups to have different levels of involvement in a managed retreat process?*

It is important that any approach taken is equitable. Low-income and minority populations should not be left in areas known to be hazardous and government funds should not be used to rebuild in low lying hazard prone land as this also perpetuates inequity. The targeted retreat of vulnerable communities is most likely to succeed if it is an explicit goal that is done with local communities, rather than a chance happenstance.<sup>25</sup>

## Conclusion

NMH thanks the Ministry for the Environment for the opportunity to comment on the Draft National Adaptation Plan.

Yours sincerely



Lexie O'Shea  
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<sup>24</sup> [What is Needed for Fair and Equitable Managed Retreat? - Managed Retreat \(columbia.edu\)](https://columbia.edu/)

<sup>25</sup> Siders, A.R. (2018) Social justice implications of U.S. managed retreat buyout programs, Climatic Change <https://doi.org/10.1007/s10584-018-2272-5>