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BRANZ submission on *Kia urutau, kia ora: Kia āhuarangi rite a Aotearoa / Adapt and thrive: Building a climate resilient New Zealand – Draft National Adaptation Plan*

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The Building Research Association of New Zealand (BRANZ) welcomes the opportunity to make a submission on *Kia urutau, kia ora: Kia āhuarangi rite a Aotearoa / Adapt and thrive: Building a climate resilient New Zealand*.

BRANZ commends the Ministry for the Environment and other agencies for their hard work in putting the Draft National Adaptation Plan (draft Plan) together.

Adapting to our changing climate and its impacts is the most significant opportunity for Aotearoa New Zealand. It is essential to support a just and equitable transition that allows us to prepare for the future and address the most pressing risks facing our country. We think there is more that can be done to effectively equip New Zealanders to respond to the risks arising from our changing climate.

BRANZ is committed to supporting the delivery of the National Adaptation Plan, once finalised, to achieve its outcomes and goals. We will use our unique perspective, which encompasses both the building and construction, and research, science and innovation (RSI) systems, to contribute to this important work.

In this submission, we provide some background on BRANZ's role. This background aims to provide the contextual lens through which we provide more detailed responses to the draft Plan. We will not respond to all questions specifically, only those where we feel we have a contribution to make or a perspective to provide. We have structured this submission to match the structure of the draft Plan for ease of analysis and make some key recommendations up front.

We look forward to continuing the productive, open, and constructive relationship with the Ministry for the Environment and other agencies involved in creating and implementing the Plan. Adapting to climate change, alongside reducing emissions, are challenges too important to leave to individual agencies to tackle alone.

ABOUT BRANZ

BRANZ¹, is a multi-faceted, science led organisation. We use independent research, systems knowledge, and our broad networks to identify practical solutions that improve Aotearoa New Zealand's building system performance. BRANZ is driven by the knowledge that to thrive as a society, New Zealanders need a built environment that is safe, healthy and performs well. Our vision is to ***Challenge Aotearoa New Zealand to create a building system that delivers better outcomes for all.***

To do this, BRANZ cultivates strong relationships with industry, government and building users through collaboration and facilitating the sharing of insights, opportunities and ideas. These relationships underpin the range and depth of BRANZ's knowledge and ability to understand the linkages and interactions that influence the building system.

BRANZ undertakes and commissions research, funded by the Building Research Levy, which is both practical and drives positive building and construction system change. This work helps improve industry practices around the performance of buildings and how we use them, through to informing policy and legislation and all points in between.

Our contribution to the knowledge base on understanding the effects of climate change

BRANZ has been at the forefront of research addressing the built environment's contribution to climate change and has been helping to drive evidence-based policy by providing expert advice. BRANZ has a history of engaging in climate change research since the year 2000 when we released the seminal *Implications of Climate Change for the Construction Sector* report.

Today BRANZ continues that legacy through both our research and sustainability action as a business. This includes the BRANZ-led multi-year research programme: Transition to a zero-carbon built environment². We contribute our research knowledge actively to the policy development process through engaging with officials and providing submissions to consultations³.

We are also creating new pathways to help support the building and construction industry to address and adapt to climate change and other environmental issues. For example, over the course of 2021, BRANZ led the Environment Workstream of the Construction Sector Accord⁴. Please refer to more detail on this work in Recommendation Two below.

¹ <https://www.branz.co.nz/>

² <https://www.branz.co.nz/environment-zero-carbon-research/transition/>

³ Relevant submissions include those on Climate Change Commission's Call for Evidence (2019); Climate Change Commission's Draft Advice (2021); Ministry of Business Innovation & Employment's (MBIE) Building for Climate Change programme – Whole-of-Life Embodied Carbon Emissions Reduction Framework; Transforming Operational Efficiency and H1 consultation (2021); Ministry for the Environment' Transitioning to a low-emissions and climate-resilient future plan (2021).

⁴ <https://www.constructionaccord.nz/transformation-plan/environment/>

BRANZ'S RESPONSE TO THE DRAFT NATIONAL ADAPTATION PLAN

We acknowledge and support the overall goal and the objectives of the proposed draft Plan.

Due to the comprehensive nature of the questions involved in this consultation, BRANZ will provide high level feedback and more detailed responses in specific areas that relate to our experience, knowledge, and expertise. We highlight some recommendations to be considered as the final plan is developed and implemented.

Our key recommendations for the Plan and its implementation are outlined below.

Recommendation One: The National Adaptation Plan will need to be placed in the broader system context

We acknowledge the draft Plan has provided links to relevant work that will contribute to achieving the Plan. However, we think it is important to review the Plan from a system lens.

System(s) transformation takes a long time and requires a range of new competencies which will need to be developed across the economy. All areas have the potential to result in inadvertent impacts elsewhere in Aotearoa New Zealand. These impacts need to be carefully considered and any resulting trade-offs will need to be carefully weighed up. The shifts will need to be guided and adapted as change is embedded and new behaviours or barriers emerge that work against the desired outcomes. Having good success measures to track the impact of the desired change will be important, as well as those that signal any unintended consequences. Equally, consideration of the impacts beyond climate change in other environmental areas need to be considered from that system lens.

Recommendation Two: Adopt the Construction Sector Environment Roadmap for Action

In 2021 the Construction Sector Accord asked BRANZ to lead a workstream on Environment. This workstream was scoped from the perspective that good work is happening across the construction sector to address some of the environmental challenges and issues caused by construction in Aotearoa New Zealand. However, what had been missing was coherency around how the sector can work together to contribute to Aotearoa New Zealand's environmental and climate change goals. We worked with specialists across the sector to develop:

- A review of the environmental challenges and opportunities for the sector, which is the paper Environmental challenges, opportunities and transitions for construction in Aotearoa New Zealand⁵. One of the seven environmental challenges/opportunities identified was climate adaptation⁶; and
- A Construction Sector Environment Roadmap for Action⁷. This Roadmap was seen as an important step to identify what actions need to happen across the construction sector to begin the steps towards the 2050 climate and environmental goals that Aotearoa New Zealand has signed up to.

⁵

https://d39d3mj7qio96p.cloudfront.net/media/documents/Environmental_Challenges_Opportunities_Transitions_Paper_June_2021.pdf

⁶ The other six challenges are greenhouse gas emissions, energy, waste, water, land use, and regenerative construction
⁷ https://d39d3mj7qio96p.cloudfront.net/media/documents/FINAL_Environment_Roadmap_for_Action.pdf

The Roadmap identifies four priority areas with a series of actions for the next 2-3 years which would support the sector to begin the much-needed transitions towards the 2050 goals⁸:

- Changing mindsets;
- Scaling up;
- Incentivising and aligning; and
- Demonstrating impact.

This work took an approach which encompassed all environmental issues / opportunities facing construction in Aotearoa New Zealand. It was cognisant of the work that was already happening and identified the actions that were needed to be taken to reach the 2050 goals.

As the Construction Sector Accord has developed its plan for the next stage of its Transformation Plan (2022-2025), it has as a matter of priority focused on the goals of reduced waste and operational and embodied carbon. Given this focus, there is a need to explore where the actions sitting outside of these priorities are taken up.

We welcome a conversation with officials on how this can be supported in the longer term to meet the Roadmap's 2030 outcomes and how the National Adaptation Plan could be a vehicle for some of this work.

Recommendation Three: Ensure the regulatory environment is coherent and enabling change

There is a need to review the regulatory environment from a sectoral system lens to ensure coherency. It was highlighted in the Construction Sector Environment Roadmap for Action (ref Roadmap Action #19) that a stock take of the full regulatory and policy spectrum is needed. This is required to support the construction sector to deliver an environmentally sustainable built environment. From this the:

- a) policy and regulatory needs and barriers / disincentives / gaps across the construction value chain that influence environmentally sustainable performance will need to be identified; and
- b) policies and regulations will need to be improved to provide better cohesion, clarity and consistency, reflect whole-of-life environmental performance and enable innovative practices.

This is a gap that still needs to happen from the perspective of the building system.

Recommendation Four: Place a greater emphasis on 1) the skills-needs of sectors making up the economy in driving change towards adaptation and 2) more focus on supporting public behavioural change

A consistent theme of our work, highlighted in previous climate change related submissions and in the Construction Sector Environment Roadmap for Action, has been the need to support the development of new skills. We think this is likely to be an issue across the economy and across other sectors too. We recommend adopting the skills actions in the Construction Sector

⁸ The 2050 goals articulated in the Construction Sector Environment Roadmap for Action are: Zero carbon construction; a circular construction economy; and regenerative construction.

Environment Roadmap for Action to assist with climate change adaptation for the Homes, Buildings and Places actions area. Without support to upskill their skills and knowledge to address climate change, the industry will be unable to implement many of the actions outlined in the document. By skills we mean both those learnt at the beginning of a career and those developed across the career.

BRANZ also encourages more engagement and work into creating greater insight into behaviour and behaviour change within the Plan. Although legislation, policy, and guidance will influence behaviours to some degree, the Plan would also benefit from more specific actions around market incentives, technological changes, and behaviour change. This includes providing actions around those incentives and changes. New Zealanders are already experiencing climate related events, and the number and impact of these is likely to increase in coming years. Therefore, the government has a clear role to play in supporting people to build their own capacity to adapt and build their resilience to these events.

Recommendation Five: A new kind of governance is needed

We understand that the Plan is government-led and will necessarily require significant coordination across government agencies. However, we are concerned that the governance model outlined on page 107 of the draft Plan is not fit for purpose to ensure wide system change focussed on delivery. Implementing the Plan will require significant effort to support delivery and should include partnership with Te Tiriti partners, the private sector and the perspectives of those impacted.

A governance model supported by a clearly articulated and communicated set of indicators and measures tracked to ensure progress towards the goals and outcomes would make the Plan's implementation have more impact.

The governance of the Plan's implementation will also need to ensure alignment with other initiatives and actions happening across the economy (both in government and in the private sector).

Recommendation Six: Greater coherency across the research and innovation system to support delivery

The draft Plan highlights the critical contribution by the research, science and innovation community and identifies the priorities for further research. We support these priorities on what research needs to be done and what knowledge gaps exist. In our response below, we highlight some gaps associated with the built environment adapting to climate change which could add to the research strategy of the Plan.

In our Te Ara Paerangi | Future Pathways Green Paper⁹ submission we highlighted the need for further consideration of the behaviours, attributes of the science system, regarding 'how' research is done. This includes better coherence, coordination, stability and scale across the research system. We recommend these aspects are considered as the research strategy is finalised, alongside the research community and users of the research.

⁹ <https://www.mbie.govt.nz/dmsdocument/20460-building-research-association-of-new-zealand-te-ara-paerangi-future-pathways-green-paper-submission-pdf>

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.

As noted above, BRANZ invests the Building Research Levy to improve building system performance by co-creating enduring solutions that make a real difference in the lives of people in Aotearoa New Zealand. Investment signals are developed through a range of means, from input by the Building Research Advisory Council¹⁰ and other stakeholders, and through our biennial industry needs survey¹¹. Industry concerns over how to prepare for climate change, in particular about how to prepare for upcoming changes to legislation, continue to grow. As an organisation we are responding by prioritising investment in research that addresses these knowledge gaps.

Our current research is broadly aligned to three multi-year research programmes which all have both a direct and indirect contribution to make in supporting Aotearoa New Zealand's adaptation to climate change:

- Transition to a zero-carbon built environment.
- Warmer, drier, healthier homes.
- Building fire-safe densified housing.

QUESTION 2

The national adaptation plan focuses on three key areas. Please indicate which area is most important for you.

All three key areas are important. However, we think that on balance if focus area three (embed climate resilience across government strategies and policies) is achieved well, the other focus areas will flow well as a result. Having government agencies prioritising climate adaptation, will incentivise other system players to take aligned action.

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.

From our perspective of the building and construction system, we see the following three areas as being most important to support the transitions required and ensure inequities do not result:

¹⁰ <https://www.branz.co.nz/about/building-research-advisory-council/>

¹¹ <https://www.branz.co.nz/investing-research/identifying-building-system-needs/>

- Ensuring there is a coherent policy environment enabling adaptation and change.
- Ensuring climate actions across the building and construction system use a systems approach to identify barriers which could be unlocked by others.
- Supporting the transitions and making sense of the policy changes for the majority of the business that make up the building and construction system, which are in general small to medium sized.

Please also refer to our recommendations at the front of this submission, as to what is needed to ensure climate adaptation goals are met.

QUESTION 4

Central government cannot bear all the risks and costs of adaptation. What role do you think asset owners, banks and insurers, the private sector, local government and central government should play in:

- a. improving resilience to the future impacts of climate change?**
- b. sharing the costs of adaptation?**

We agree that central government cannot bear all the risks and costs of climate change adaptation, but leadership at central government is essential, as it is at local government. There is a strong role for central government to support the conversation and lead action across all areas. This is because ultimately, in any response from central and local government, asset owners who provide services, and the private sector will transfer much of the cost to the consumer. Therefore, the need to support Aotearoa's New Zealand's transition to a high wage economy is even more important as well as urgent and needs to start now. It takes time to plan this and support the infrastructure needs for our economy.

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

We consider a major opportunity to pursue is to support and fund a more joined up, research science and innovation system, that has appropriate scale. BRANZ's thoughts on how this could be done are outlined in our submission on the Te Ara Paerangi | Future Pathways Green Paper.

SYSTEM-WIDE ACTIONS

QUESTION 5

Do you agree with the objectives in this chapter?

We agree that those actions are important, but we think there is a need to provide greater coherence across the whole of the system to ensure that goals of the Plan are met. The regulatory stewardship action appears weak and business as usual. There is a need for effective leadership across the sectors and the economy to support the country to make the necessary changes. With respect to resource management reform there is much that can be done to reduce complexity, clarify for the broader society who does what and how various legislation, regulation works together. In addition, coherence between the Emissions Reduction Plan actions and the National Adaptation Plan is critical.

QUESTION 6

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?

We agree that new tools, guidance and methodologies are important. However, there is also a need to consider the enabling environment to allow for the uptake of these new tools, guidance and methodologies. This will require a different kind of engagement and education on the risks and opportunities of the changing climate.

There are unique skills needed to do this work that need to be supported, targeted at both a sectoral level, business type, and for the general public. This awareness, engagement and education will need to recognise that all are at different stages of their adaptation transitions. This means that awareness, engagement and education will need to be appropriately targeted to where on the journey the audience is at.

HOMES, BUILDINGS AND PLACES

QUESTION 19

Do you agree with the outcome and objectives in this chapter?

BRANZ is supportive of the critical actions outlined in the Homes, Buildings and Places chapter as they address some of the major climate change concerns. We recommend that our recommendations in the background section of this submission are adopted in order for these actions to be successfully achieved. We also recommend that the Construction Sector Environment Roadmap for Action is reviewed carefully and aligned with planned actions of the Construction Sector Accord's, Transformation Plan out to 2025. This will ensure there is coherence across this work, MBIE's Building for Climate Change programme and the research and its outreach that is being conducted in Aotearoa New Zealand.

QUESTION 20

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

BRANZ considers there is a greater need to understand how climate risks affect people's behaviour and vice versa, taking into account different hazards, target groups, landscape types and socio-economic circumstances within the Plan.

Research undertaken on behalf of the UK Committee on Climate Change by AECOM and others¹² outlined several research questions that could support this aspect of the Plan. These include:

- What behaviours do different groups adopt in anticipation of or in response to a chronic or acute climate event? Do the behaviours vary by geographic region or land use type?
- How do these behaviours impact on risk and does that change depending on the frequency or magnitude of the event?
- What factors influence these behaviours?
- How can effective behaviours be further incentivised?
- How might data or digital innovations affect decision-making?
- What are the barriers which could prevent these interventions from being implemented or effective?

The AECOM study highlighted 86 different behaviours that could influence a response to climate change adaptation. These behaviours enable decreases in sensitivity to the impacts of climate change and in some cases increased adaptive capacity. However, some behaviours were also maladaptive to risk, such as climate risks and hazards impacting mental health and wellbeing.

The main behaviours identified in the study were grouped under the following types:

- Hazard reduction.

¹² See: AECOM (2020) Understanding how behaviours can influence climate change risks. UK Committee on Climate Change: London: HM Government: https://www.ukclimaterisk.org/wp-content/uploads/2020/07/Understanding-how-behaviours-can-influence-climate-change-risks-Main-Report_AECOM.pdf

- Vulnerability reduction.
- Preparedness for response.
- Coping during crisis.
- Preparedness for recovery.

Understanding these behaviours is useful for the public and decision-makers, so that they can be better informed about how their behaviours interrelate and influence climate risk. Similarly, decision-makers can use the insights about human behaviour to inform how larger scale policies or projects can be best designed to complement local adaptation strategies.

Greater understanding of how human behaviour can influence the success of the Plan's implementation can provide more context to understand *why* people do the things they do. Furthermore, understanding human behaviours in relation to climate change adaptation can also highlight the underlying factors that drive people to take adaptive action or not, which can be leveraged to incentivize adaptation.

The built environment and the natural environment are part of one eco-system. It is, therefore, critical that we also provide an understanding of human behaviour with the Plan. As human behaviour is flexible and adaptable, there are traits and practices the government needs to encourage and facilitate if New Zealand is to adapt successfully to climate change. BRANZ is able to assist the Ministry for the Environment and other agencies with this work via our leading social science team who have expertise in behaviour change and climate change.

QUESTION 21

Do you agree with the actions set out in this chapter?

Please refer to our Recommendation Four regarding the need for action to support the building and construction industry with the skills and knowledge to assist with climate change adaptation. This includes adopting the skills actions identified in the Construction Sector Environment Roadmap for Action.

BRANZ research from the Future of Work project¹³ has found that within the building and construction industry there is very little knowledge and experience in many areas related to sustainable/zero-carbon construction. This is despite the desire for knowledge in industry. The project has also found that the majority of those surveyed felt that the wider industry was only 'somewhat competent' when it came to addressing climate change. Industry has told us that the biggest barriers they face in relation to addressing climate change were information gaps, inertia, time and resources.

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?

¹³ <https://www.buildmagazine.org.nz/index.php/articles/show/future-of-work-in-building>

BRANZ supports the mana motuhake of Māori. We consider the integration of te ao Māori to support the adaptation of homes, buildings and places is critical to its success. There is already significant existing knowledge available on which central and local government can build, rather than necessarily creating new knowledge. For example, making use of key documents such as the Te Aranga Māori Cultural Landscape Strategy, which already has been integrated into the Auckland Design Manual¹⁴.

Research shows within urban design it is important to evaluate urban design projects, not solely from a developer or designer's point of view. This was a key finding from research undertaken through the BRANZ-hosted National Science Challenge Building Better Homes, Towns and Cities by Jade Kake and Jacqueline Paul in 2018¹⁵.

This work showed that evaluation should include mana whenua and residents' perspectives, seeking their own evaluations and measurement of success of the application of urban design principles. It also highlighted the need for urban design to be undertaken in partnership with Māori from project establishment, through the design and development phases, to post-occupancy monitoring and evaluation.

QUESTION 22

Are there other actions central government should consider to (b) ensure these actions support adaptation measures targeted to different places and respond to local social, cultural, economic and environmental characteristics?

BRANZ recommends greater user of Dynamic Adaptive Policy Pathways (DAPP) within the development of Plan's actions. This should be used in other sections such as the actions within the Homes, Buildings and Places section of the Plan.

The DAPP approach aims to support the development of an adaptive plan that is able to deal with conditions of deep uncertainties. A DAPP plan specifies actions to be taken immediately to be prepared for the near future and actions to be taken now to keep options open to adapt if needed in the future. The exploration of adaptation pathways is one of the main ingredients of an adaptive plan. A monitoring system collects information to get early warning signals (triggers) for implementation of actions or for reassessment of the plan. BRANZ acknowledges the work of the Deep South National Science Challenge in developing DAPP within the New Zealand context¹⁶.

Another area where we think there is an opportunity to strengthen the plan is through the ability to consistently evaluate climate change adaptation risks across New Zealand by different groups. Last year, an international standard was released-*ISO 14091:2021 Adaptation to climate change — Guidelines on vulnerability, impacts and risk assessment*. If New Zealand were to adopt this standard or develop an appropriate New Zealand standard, this would assist in the assessment of climate change adaptation vulnerability, impacts and risk assessment.

¹⁴ <https://www.aucklanddesignmanual.co.nz/design-subjects/maori-design>

¹⁵ Kake, J & Paul, J. (2018) Evaluating the Application of Māori Design Principles to Urban Neighbourhood Development Projects to Develop a Kaupapa Māori Design Framework and Assessment Tools. National Science challenge: Building Better Homes, Towns and Cities:
https://www.buildingbetter.nz/publications/urban_wellbeing/Kake_Paul_2018_Maori_Design_principles_UrbanismNZ.pdf

¹⁶ <https://deepsouthchallenge.co.nz/audience/homes/>

QUESTION 22

Are there other actions central government should consider to (c) understand and minimise the impacts to cultural heritage arising from climate change?

We consider more can be done to support research to understand the impacts on our cultural heritage. BRANZ has recently focused on this area through supporting a project to investigate the Climate Change Impacts on Marae. The project is being led by Professor Regan Potangaroa, Professor Suzanne Wilkinson and Kiri Maxwell from Build Back Better Aotearoa New Zealand and Massey University.

The research acknowledges that most of our marae are built adjacent to waterways for transport and kai (food), or along the coast. Unfortunately, with climate change, this has placed some marae and their whareniui at risk from inland and coastal flooding, landslides, wildfire and rising sea levels. All of these are projected to become more frequent and severe.

This research will be the first full survey of all maraes in Aotearoa New Zealand. The work is being done in partnership with BRANZ, Build Back Better Aotearoa New Zealand and iwi. It will co-develop a framework of climate change adaptation for marae, and the capability and capacity needed to address those challenges which are often being faced alone by hapū and iwi living on their marae. To find out more about this project please contact: research@branz.co.nz.

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?

We consider both central and local government have a key role to play in supporting actions to make existing buildings more resilient. We recommend that the Building Act 2004 be reformed to enable climate resilient buildings. There are a number of opportunities within the Act where reform could support more resilient buildings. This includes:

- Providing a definition of what a climate resilient building is, especially in terms of building design and performance.
- Ensuring there is greater regulation for overheating. Building Code clause H1 Energy efficiency performance requirement H1.3.3 states that "account must be taken of physical conditions likely to affect energy performance of buildings, including ...(e) the local climate; and (f) heat gains from solar radiation". However, there is no compliance pathway for these. They are only taken into account if the modelling method and building performance index are used to show compliance, but these two methods are rarely used. Overheating is not a focus area within other parts of the Building Code. However, overheating has the potential to impact clause G4 Ventilation performance requirement G4.3.1 "Spaces within buildings shall have means of ventilation with outdoor air that will provide an adequate number of air changes to maintain air purity" and clause G5 Interior environment functional requirement G5.2.1 "Buildings shall be constructed to provide: (a) an adequate, controlled interior temperature".
- Enabling the Building Act 2004 to work together with the resource management reforms to address climate change adaptation such as sea level rise. For example, section 113 of the Building Act 2004 could be revised so that the intended life of the building may be shortened on land that may be subject to future sea level rise.

- Exploring how different building typologies such as commercial buildings and future climate risk could be incorporated into section E1 Surface water (subsections E1.1, E1.2, 1.3.1, 1.3.2 and 1.3.3) of the Building Code.
- Exploring the creation of standards for greywater into section G13 Foul water.
- Strengthening the protection of buildings from wildfires. This is not directly covered within the existing Building Code. Clause C2–6 seeks to safeguard people from an unacceptable risk of injury or illness caused by fire, protect other property from damage caused by fire and facilitate firefighting and rescue operations. Increased risk of wildfires will have an impact on where people can build, which could impact the Resource management reforms (previously under the provisions of the Resource Management Act 1991 section 10B). Further, the management and attention to vegetation surrounding buildings, which is recognised in Building Code clause B1 Structure (B1.3.3 and B1.3.7), could also fall under the new Resource Management reforms. We would encourage the adoption of the standard AS 3959:2018 Construction of buildings in bushfire-prone areas in New Zealand.

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?

As previously mentioned BRANZ would like to see the adoption of a consistent approach to the assessment of vulnerability, impacts and risk assessment. For example, through the adoption of *ISO 14091:2021 Adaptation to climate change — Guidelines on vulnerability, impacts and risk assessment* or similar standard. We acknowledge many groups will be impacted by climate change. We support equitable climate justice that ensures all people, businesses and environments impacted by climate change are consulted and involved in the solutions that impact them. We acknowledge that mana whenua have a special connection to the land and insist that all actions are undertaken according to kaupapa and tikanga Māori principles. We also support the use of Dynamic Adaptive Policy Pathways as a part of policies. This will help reduce climate change's impact on the most vulnerable and allow all groups a say in the actions and policies to address climate change.

QUESTION 25

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

The following are the most important barriers we see to increasing buildings' resilience to climate change impacts.

- 1) Uncertainty over resource management reform:** The current consultation on the Draft national adaptation plan is happening at a time when the regulatory landscape is uncertain. The proposed resource management reforms will see the Resource Management Act 1991 replaced with the Natural and Built Environments Act, the Strategic Planning Act and the Climate Change Adaptation Act. Until these acts have been formalised, we consider there is lack of clarity about how the Plan will interact and relate to other key regulations proposed. We therefore urge that the Bills for these acts are developed with priority.
- 2) Ensuring the integration of actions between climate change adaptation and mitigation:** BRANZ encourages consideration be given to integrating measures for

climate change adaptation and mitigation. Siloed thinking and treating climate change adaptation and mitigation as different policy problems can lead to inefficiencies and potential for missed opportunities. For example, the UK undertook its third climate change risk assessment in 2021. This identified 11 of 15 relevant major UK Government announcements that could have included integrated plans to adapt to climate change alongside those for reducing emissions¹⁷.

The best way to address climate change and avoid unintended consequences is to ensure climate change adaptation and mitigation are considered together especially in areas such as buildings, where there is considerable overlap.

3) Address key knowledge gaps to assist with enabling climate resilient

buildings: There are several knowledge gaps that need to be addressed to ensure that climate change adaptation actions for buildings are undertaken in an evidence-based way. Some of the key knowledge gaps to key climate change risk include:

Addressing sea level rise and flooding

- Research that defines building and design solutions for future climate risk due to flooding, such as examining guidance on minimum floor levels and adjusting building life expectancy within at-risk areas.
- Information on the costs and benefits of flood-resistant building materials and their viability as an adaptation response.
- Evaluation of current flood mitigation schemes to see if they are fit for purpose and able to address future climate risk.
- Communications on future flood risk and the promotion of climate readiness for building projects in development or undergoing extensive refurbishment.
- Understanding of how climate change preparedness is impacted by longer-term planning, such as a 25-year plan at varying degrees of scale such as building level, district and city level.
- Understanding about how natural and artificial ecosystems such as wetlands across New Zealand could be used in flooding and storm surges.
- The effectiveness of various community initiatives that could be used to help create awareness and solutions to rising sea levels, such as dune restoration initiatives.

Addressing overheating in buildings

- Research into the extent and severity of overheating in New Zealand buildings. An accepted New Zealand definition of overheating or acceptable upper and lower indoor temperature thresholds in buildings (other than early childhood centres and aged care facilities) is needed.
- Specific knowledge in terms of the need to establish best-practice design and construction principles that address overheating within New Zealand's buildings. Further, a New Zealand-specific design methodology for the assessment of overheating risk in buildings is needed.

¹⁷ Climate Change Committee (2021) Independent Assessment of UK Climate Risk: Advice to Government for the UK's third Climate Change Risk Assessment (CCRA3). HM Government. <https://www.theccc.org.uk/publication/independent-assessment-of-uk-climate-risk/>

- Accepted best-practice operational principles that addresses overheating within New Zealand's buildings.
- Performance-based indoor environment settings for different building typologies to reflect overheating risk. A key part of creating a performance-based measure is to enable a greater understanding of building occupants' behaviour and choices in relation to the indoor environment. For example, this could include why homeowners do not undertake adequate ventilation.
- Information to help people prepare for more overheating into the future. Health promotion programmes are required to educate and inform building occupants, designers and builders about the dangers of overheating.

Addressing increased risk of wildfires

- Research that investigates a cost-benefit analysis and practicality of constructing fireproof houses in New Zealand in areas identified as higher risk due to climate change. To drive the market uptake of wildfire solutions or to help create evidence for consideration for changes to building regulations.

These gaps, in addition to addressing the way in which research is done in New Zealand (refer to our Recommendation Six), will support the Plan's implementation.

THE ECONOMY AND FINANCIAL SYSTEM

QUESTION 38

Do you agree with the outcome and objectives in this chapter?

To a large extent, yes. The one area that we think might require further consideration is the role of Flood Protection Insurance as a potential 'price signal' to drive changes in behaviour. Overall, the draft Plan is silent on the role of carbon taxes and other pricing mechanisms that will support behavioural change. From a potential systems transformation perspective, the interaction between the economy and the environment appears to be under-developed in the draft Plan.

QUESTION 40

Do you agree with the outcome and objectives in this chapter?

To a large extent, yes. Our rationale regarding Flood Protection Insurance outlined in our response to question 38 applies here too.

QUESTION 42

What do you think are the most important actions that will come from outside of central government (eg, local government, the private sector or other asset owners, iwi, hāpu and/or other Māori groupings such as: business, forestry, fisheries, tourism, urban Māori, the private sector) to reduce the economic and financial risk they face from climate change?

People will ultimately drive real change if they have the ability to make that change. However, whether such change is driven by force (e.g., from an event affecting their lives) or by taking pro-active action is dependant on peoples' willingness, and need to adapt or change. Providing accessible, fit-for-purpose information and creating national awareness and understanding of the risk and potential cost of not adapting to future climate challenges are critically important.

QUESTION 45

Should the Government have a role in supporting flood insurance as climate change risks cause private insurance retreat?

There is too little information or evidence included in the consultation document to determine what role, if any, flood insurance should play. There may be a key role for Government in working with a broad range of stakeholders to understand the potential impact of private insurance retreat. A particular understanding of how this may particularly impact the most vulnerable individuals and communities is required. Once this is better understood, a fit-for-purpose solution can be designed by New Zealanders, for New Zealanders.

QUESTION 46

If you think the Government should have a role in supporting flood insurance as climate change risks cause private insurance retreat, how do you envision the

Government's role, and how is this best achieved (eg, direct support and/or indirect support such as reducing underlying flood risk)?

Please see answer to question 45.

QUESTION 47

If the Government were to directly support flood insurance:

a) what is the best way to provide this direct support?

As per our response to question 45, we believe more work needs to be done to understand the risks and range of potential solutions before jumping to an insurance-based solution.

b) should the Government's focus be to support availability or affordability of insurance, or both?

Please see answer to question 45.

c) how should the costs of that support be funded, and by whom?

Please see answer to question 45.

d) what are the benefits and downsides of this approach?

Please see answer to question 45.

g) what would the risks or benefits be of also including non-residential property, such as commercial property?

Please see answer to question 45.

QUESTION 49

In your view, should a scheme similar to Flood Re in New Zealand be used to address current and future access and affordability issues for flood insurance? Why or why not?

We wonder whether more work is needed to be done to understand the drivers and motivators, problem and opportunities in Aotearoa New Zealand first before designing a specific intervention such as Flood Re. Care ought to be taken in assuming that the success of an intervention in one jurisdiction will by default apply to the climate challenges and flood risks in another. Likewise, climate related risk profiles and outlooks also vary between jurisdictions – and over time. As such, it would be unwise to assume that the observed outcomes of the Flood Re initiative are attributable to the initiative exclusively. Other flood mitigation or adaptation measures such as the Thames Barrier may also have influenced the willingness of the insurance industry to participate in the Flood Re initiative.

QUESTION 50

How do you think a scheme similar to Flood Re in New Zealand could support or hinder climate change adaptation initiatives in New Zealand?

The Flood Re initiative provides a good framework for considering the feasibility of a similar but bespoke flood insurance solution for Aotearoa New Zealand. Consideration, however, ought to be

given to capping the value of properties. This will provide protection for low-income, rural etc. population groups while avoiding a system where the average taxpayer or low-income homeowner is subsidising owners of coastal-fronting properties at the higher end of the market. Further consideration could be given to the positioning of any scheme such as Flood Re within an overall adaptation intervention strategy that includes the use of price mechanisms and signals.

RESEARCH STRATEGY

As per our Recommendation Six we support the need for a future focused research strategy. We have also identified some specific gaps related to the built environment and climate adaptation in our responses to the questions outlined in the Homes, Buildings and Places section. The final Plan's research strategy will need to not only identify gaps in knowledge, but it should also address how the research is done. It must be collaborative, aligned to the goals of the Plan, funded at scale and consider the users of the research. These users must also be involved in the design of the research at the beginning. Please refer to BRANZ submission on Te Ara Paerangi | Future Pathways for our perspectives on this.

FURTHER INFORMATION

If you have any questions about this submission or wish to seek further advice, please do not hesitate to get in touch with BRANZ. We welcome the opportunity to continue to partner with Government to achieve Aotearoa New Zealand's environmental, sustainability and climate goals and aspirations.