

## Deep South Challenge: Changing with our Climate

### Submission on Te Mahere Urutaunga ā Motu – Draft National Adaptation Plan

Introduction .....	1
Key Submission Points .....	2
Te Kōmata o Te Tonga: Our Mission and Experience .....	3
Consultation period, engagement and submission process .....	3
Te Tiriti o Waitangi.....	5
Rauora Framework.....	5
Framework setting .....	7
Vision, Purpose and goals .....	7
Key Focus Areas .....	8
Research Strategy .....	10
NAP Outcome Areas.....	14
System wide actions .....	14
Natural environment .....	17
Homes, buildings and places.....	18
Infrastructure .....	21
Communities.....	23
Economy and financial system.....	24

## Introduction

This submission is based on the Deep South Challenge: Changing with our Climate experience of funding and delivering expert climate modelling and adaptation research and science. It has been compiled by the Challenge Leadership Team and Engagement Team. We give permission to MfE to make this publicly available.

In general, our submission follows the structure of the NAP itself, with a few key differences. Rather than honing in on a single focus area, we respond to each of the three NAP focus areas, including each outcome area. However, as a matter of priority, we also respond to key documents and issues the

NAP does not cover sufficiently. These are: Te Tiriti o Waitangi; the Rauora Framework; and the criticality of consultation and engagement. We also respond to the Research Strategy much earlier in our submission than where it appears in the NAP. We believe the Research Strategy is a vital piece of the adaptation puzzle, and deserves far more visibility. We include, separately, reflections that relate specifically to Vision Mātauranga - reflections gathered through research and engagement. In most parts of our submission, we reference relevant Deep South Challenge research. In summary, the entirety of this submission is based on both our research and our engagement experience of the past eight years.

Climate change is no longer a phase we are entering but one we are firmly within. There is compelling evidence of changing climate conditions. Every day there is news of another deluge or stop bank breach. Subtler indications – like the early Pōhutukawa bloom – demonstrate our transition from a more predictable past to a more uncertain future. The pace of securing a united universal response to climate change has been widely criticised with calls to action now adopting a much more urgent tone. Aotearoa is at a crucial point in time where we as a small island nation must decide how bold, how urgent and how transformative we are going to be to address our changing climate today and how to plan and adapt for a more resilient future.

To this end, The Deep South Challenge amplifies the messages clearly stated in the Rauora Framework, 2021, which we have read alongside the Government's first draft National Adaptation Plan (NAP). This is a significant step in preparing Aotearoa for ongoing climate change and The Deep South Challenge (DSC) welcomes the opportunity to provide a submission on the draft NAP.

We recognise the significant value in having a national adaptation plan that acknowledges and supports the rich and extensive knowledges held within our communities - including tangata whenua, the research community and industry. To create meaningful, relevant and enduring solutions to the climate crisis, the NAP can take a multi-layered approach, acknowledging the impacts of climate change across our social, cultural, environmental and economic fabric, while balancing the need for efficiency and immediacy in the Government's response.

This submission canvasses the various chapters of the NAP and responds with key messages in relation to each chapter. Under each outcome area, we have also included a Vision Mātauranga section which specifically highlights the unique submission points regarding Māori. In particular, we were looking for evidence that the NAP has drawn from or is underpinned by The Rauora Framework.

## Key Submission Points

Our key submission points, below, are elaborated on in this submission document:

- Embedding Te Tiriti as an outcome area would strengthen the overarching framework of the NAP. Rangatiratanga and Kāwanatanga spheres are not evident in the NAP, and the proposed Māori foundation is a "supporting action" towards an objective rather than an objective in its own right. This falls well short of genuine partnership. Along with a reworking of the Vision, Purpose and Goals to reflect the Crown's Te Tiriti obligations and a stronger commitment to equity - this would provide a strong foundation for the NAP and a consistent reference for how partnership opportunities are framed through the various outcome areas.
- The NAP should show clearly how it has "drawn on" the Rauora Framework. There is a lack of consistency in the language between the two documents. The authority of the Rauora in relation to the NAP must be clarified and strengthened to avoid it being relegated beneath the NAP. As it stands, the relationship between the Rauora and the NAP is vague and lacking substance. The Rauora is a powerful document but under-utilised by the NAP. Failure to

genuinely incorporate the recommendations of the Rauora risks the appearance that its commissioning was merely a 'tick box' consultation exercise.

- The Research Strategy should be more foundational in the NAP. The Strategy itself requires more safeguards for research that is outside the boundary of "traditional" biophysical science. In the research strategy section of this submission we have included a number of research actions that we believe should inform the NAP, these actions include development of funding, identification of priorities to close climate adaptation knowledge gaps and investment in research that is Māori-led, with a focus on mātauranga and tikanga, community relevant and engaged research and research that also considers the socio-political and economic impacts and opportunities in climate change.
- The provision of and access to climate change data for communities must be prioritised. Alongside this, the need for targeted and appropriate engagement to share information with communities is important to create meaningful change.
- The system-wide actions should be integrated into the front-end of the framework as they respond to the three key focus areas of the NAP. This would give the system-wide actions relevance across all outcome areas.
- There should be greater alignment of the actions against the objectives (perhaps via visual representation). The current layout makes it difficult to connect the actions with the relevant objective(s). Adding context as to *how* each action works to achieve the relevant objective would also be helpful.
- The NAP should make it clear how adaptation will be embedded and integrated across policy areas in practice. In particular, adaptation-relevant policy and legislation must be developed as a suite, rather than in silos.
- Creating clear adaptation goals that are shared across key areas is important for clarity and shared understanding.
- The NAP must provide much clearer guidance to He Pou a Rangi - the Climate Change Commission on how to measure Government's performance against and implementation of the NAP. He Pou a Rangi - the Climate Change Commission must also have the ability to carry out such monitoring.
- A broader range of primary sector businesses should be supported in the NAP to consider effective adaptation.

### Te Kōmata o Te Tonga: Our Mission and Experience

The DSC's mission is to enable New Zealanders to anticipate, adapt, manage risk and thrive in a changing climate. Since 2014, DSC-funded research has improved our understanding of global and local climate change, and opportunities and barriers for climate adaptation. In early 2022, building on previous DSC Vision Mātauranga research, the DSC invested in 14 projects led by Māori for Māori. This localised research is considering climate impacts and responses by centring tangata whenua understandings of and leadership for climate-related challenges.

### Consultation period, engagement and submission process

A document of this importance should provide for input from a wide range of society - particularly those who are not resourced to interact with usual Government consultations. The creation of a national adaptation plan is no easy task and the release of the draft has been highly anticipated by the DSC and our communities and stakeholders. The timeframes for engagement with the draft NAP are concerning, given the weight of this national directive on climate adaptation and the bearing it may have on parallel and future planning processes (e.g. Climate Adaptation Act and Local Government reform).

The relationships and influencing factors between the various legislative changes are not yet clear, which has made the provision of critical, accurate feedback challenging, even with dedicated resource and priority the Challenge has afforded to the submission. These tight timeframes, and the mismatch between the NAP and highly relevant policy/law development, may disallow many important voices of Aotearoa to be heard through the submission process.

There is also no clearly described process for how feedback received will be reconciled or incorporated in the next and final iteration of the NAP. This adds extra pressure on submitters, as this appears to be the first and only opportunity to express key positions on a national plan that will have profound influence on policy and legislation into the future.

#### *Engagement with Māori communities*

Through our close working relationships with Māori communities, the DSC is very aware of the significant, varied challenges faced by Māori communities undertaking and activating climate change adaptation right now. These challenges impede the ability to actively engage with multiple and complex engagement processes and can cause fatigue. We have [compiled a list](#) of current and upcoming climate change relevant policy requiring Māori consideration during the same period as the NAP, which clearly shows the breadth and depth of responsibility that Māori communities are expected to cover, with very little or no resource to do so.

Communities have told us that the barriers to participation at the national level often result in reactive and urgent responses at the local governance level. Some iwi cut across multiple councils, which, along with inconsistencies of council planning processes, only adds to the engagement fatigue for iwi and hapū.

It also highlights missed opportunities to receive key direction from tangata whenua at a national level which the Te mana o te Wai influence on the National Policy Statement for Freshwater has shown can produce some positive commitments from local authorities due to national level directives.

We note that MfE worked with Ihirangi to develop the Rauora Framework. However, this does not discharge the Government of its obligations to engage directly with hapū and iwi. The Rauora framework clearly states that Ihirangi does not claim to speak for, or represent all iwi, and calls on the Government to engage in direct relationships with iwi and hapū. However, Māori researchers funded by the DSC consistently told us they were unaware of the NAP, nor had been invited to influence its development.

The very short time frame for the development of the Rauora Framework (seven weeks compared to 1-2 years for the NAP) is concerning. Future development of National Adaptation Plans must equitably resource and provide for genuine Māori engagement. This echoes the UN expectations that indigenous communities will be actively involved in national and local policy design/decision making which will impact upon their survival, upon the integrity of their traditional life-sustaining territories or their wellbeing (Ihirangi, 2021 17).

The DSC reached out to our Māori research teams to encourage them to submit feedback or to work collaboratively together on a submission on the NAP. While we received some considered responses from a number of teams, most did not have the time or capacity to provide input in written form to allow us to include it in this submission. A good number (around 8-9 teams) did attend the webinar hosted by Ihirangi.

We think that the Government should have prioritised consultative processes that allow for fair and reasonable time for feedback specifically from Māori communities. In addition, we understand that

this is the first and only opportunity for engagement with the final version of the NAP released on the 31<sup>st</sup> August.

As part of the DSC Te Ara Paerangi submission to MBIE, we emphasise the importance of meaningful engagement that meets Māori communities on their terms and in their ways. [This submission is linked here for your reference.](#)

### Te Tiriti o Waitangi

Te Tiriti o Waitangi must be prioritised in climate change policy, planning and legislation. The NAP should consider how it can embed Te Tiriti as an outcome area in its own right. Including Te Tiriti in the framework setting of the NAP would provide leverage to the Rauora framework and the application of an indigenous lens to adaptation planning. This would also ensure direction for how the "actions" respond to obligations of Te Tiriti in the various outcome areas. At present, provision for Rangatiratanga and Kāwanatanga spheres are not evident in the NAP, and the proposed Māori foundation is a "supporting action" towards an objective, rather than an objective in its own right. This falls well short of genuine partnership provided for under Te Tiriti o Waitangi and could result in further breaches of Te Tiriti.

From a Te Tiriti perspective, this submission reflects key themes we have heard from our researchers:

- Priority should be given to relationships and engagement with Māori communities,
- Mātauranga Māori should be invested in in its own right,
- the importance of rethinking common policy and practice to consider Te Tiriti at every level and
- transforming decision making power over Climate Change systems and processes to be equitable and to uphold Te Tiriti o Waitangi, including wider transformative change in the Public Sector

### Rauora Framework

The DSC supports the Rauora Framework developed by Ihirangi. Through our extensive engagement with Māori communities, and from our own knowledge of the climate change adaptation research landscape, we feel confident amplifying the substance of the recommendations made in the Rauora framework.

Māori communities are on the frontline, in almost every way, of climate change. The ways in which Māori consider climate change - including as a continuation of colonisation and of other kinds of environmental degradation - must be the starting place when considering ways and resources for whānau, hapū and iwi to adapt to the drastic changes ahead of us.

These impacts on Māori are not solely evidenced in the physical environment, but in all aspects and areas of society from health to education to justice. Current language in the NAP is almost silent on these less visible impacts of climate change, and must be addressed in future planning.

The Rauora Framework offers a critically important, Māori-led approach to climate change at a national level and it contains clear and unambiguous directives in relation to climate adaptation and mitigation. However, despite the Rauora being delivered to MfE on time, almost 10 months prior to the release of the NAP, we are unclear as to how it has been used to influence and shape its direction.

There is little evidence of how the NAP "draws on key concepts" of the Rauora" (NAP, p.19). Nor is there clear evidence where the Rauora has been "applied" to the NAP (Ihirangi 2021, 4).

There are significant and concerning language differences between the NAP and the Rauora Framework. For example, the NAP states that the Rauora is "a foundation from which iwi, hapū and whānau can apply their own mātauranga-a-iwi (p.19). It also states that the NAP "*acknowledges* that its Tiriti partners have a worldview that sits outside Western interpretations, and that the Government has commitments to uphold. (p.19).

However, the Rauora Framework states that there is an expectation that "An indigenous led worldview [will] *enable* the generation of a NAP that will maximise long-term cultural, social and ecological preparedness and enable targeted investment into community." It also states that the Rauora will "enable policy makers, *co-designing solutions* with hapū and iwi, to actively work towards climate policy."

Together, these statements are contradictory, inconsistent and ultimately non-binding. Without clear direction as to the relationship between the Rauora framework and the NAP, there is a risk that this incredibly valuable and rich foundational resource could be lost.

Other language differences between both documents are worth highlighting. The Rauora Framework, for example, utilises language that emphasises environmental protection, restraint, and restoration of equilibrium within te taiao. The Rauora stresses concepts of "hoki whenua mai," and the need to divest from extractive industries," and "whakapiki orange o te wai"; These principles are foundational to the Rauora. In contrast, the NAP is heavily geared towards individual sectors, policies, and structures. We consider this to be a significant and concerning misalignment.

At a high-level, there is no clear evidence how Māori will be involved in future in the National change climate change risk assessments and adaptation plans. Given that these are developed every six years, they are significant opportunities to influence overall direction of policy and legislation into the future.

In a practical sense, we see that The Rauora framework has potential to be useful for targeted actions for Māori such as "*establish a foundation to work with Māori on climate actions*" (29). Further, the Rauora framework could also be used to measure and monitor adaptation progress not just for Māori but the whole country.

Current underinvestment in the resourcing of Māori communities to undertake their own planning, and to implement their own adaptation strategies, must be significantly and urgently ramped up to ensure they have agency over their futures.

Challenging common practices embedded within decision making structures requires a commitment to equity. This commitment must be coupled with serious investment and care (time and resource), at every stage, and at all points of decision making.

#### *Summary of Key Points*

- In future iterations of the NAP, genuine effort must be made to close the distance between The Rauora and the NAP. The NAP must be more holistic in its application and understanding, and seek to consider and plan for interdependencies at its core.
- The NAP must provide much better clarity as to the role, authority and relationship between the NAP and the Rauora. The NAP must clearly and consistently show how and where it draws on and applies the Rauora.
- Funding needs to be significantly and urgently increased directly to whānau, hapū and iwi to undertake their own climate change adaptation planning. Our researchers and communities tell us they are ready, and our funding to support Māori climate research was significantly oversubscribed in 2021.

- We expect to see a significant role for Māori as Te Tiriti partners in these mechanisms - i.e. at the level of "system-wide actions," alongside legislation and institutional arrangements. Te Tiriti o Waitangi should be embedded as an outcome area in its own right.

## Framework setting

The actions included in the NAP respond to the 43 priority risks identified in the National Climate Change Risk Assessment (NCCRA) published in 2020 by the Ministry for the Environment. The NCCRA also identifies the 10 most significant risks New Zealand will face from climate change between 2020 and 2026. It is good to see the use of the NCCRA however, it is not clear how the NAP responds to this.

## Vision, Purpose and goals

The NAP should set out a clear overarching framework that sets the tone for the following chapters where clear linkages could be easily identified. The vision of a National Adaptation Plan should be set in a way that can be enduring and remain anchored despite the uncertainty or scale of change that New Zealand experiences. The vision should be ambitious and be articulated in a way that inspires hope that the Government is delivering climate change action that will include and serve our diverse communities in the face of impending climate changes.

The vision for the NAP states that *"our people, place and systems are resilient and able to adapt to the effects of unavoidable climate change in fair, low-cost and ordered manner"*.

The terms *"fair, low cost and ordered"*, should be strengthened. The draft NAP makes multiple references to equity across the outcome areas and the need for climate change adaptation not to exacerbate existing inequities. The definition of *"equity"* in the NAP is:

*"The principle of being fair and impartial, often also aligned with ideas of equality and justice. It provides a basis for understanding how the impacts of and responses to climate change, including costs and benefits, are distributed in and by society in more or less equal ways"*

Equality is not synonymous with equity. Equity in climate adaptation requires affirmative action. While the NAP recognises the importance of equity throughout the sections of the NAP, this should be strengthened in the Vision Statement. Acknowledging the diversity in our communities and how existing inequities can impact the ability to adapt, should remain centred across all discussions about climate change. Anchoring equity in the vision statement sends a strong message of commitment from the New Zealand government that actions to increase climate change resilience can be inclusive. Reducing inequities, rather than merely not exacerbating them, should remain in the forefront of policy design and implementation across the landscape of our social, cultural, environmental, economic, health and political decision making.

The cost of adaptation continues to be a key interest topic that to date, that has largely been siloed to respond to specific issues of climate change e.g., managed retreat. The draft NAP is ambiguous in terms of what *"low cost"* actually means and what trade offs or compromises may have to occur to reach this *"low cost"* threshold. In addition, how does a goal of low-cost work within a paradigm of equity?

The DSC suggests alternative wording for the Vision:

*"Our environment, people, place and systems are resilient and able to adapt to the effects of unavoidable climate change in proactive, just, and equitable ways"*.



The DSC is supportive in general of the intent of the “purpose” of the plan; *“To enable New Zealanders to prepare for and adapt to the impacts of climate change”*. The NAP includes three primary goals which focus on the reduction of vulnerability to climate change, to enhance the adaptive capacity and consider climate change in decisions at all levels and to strengthen resilience. While supportive in principle, the DSC draws attention to the importance of identifying and understanding existing vulnerabilities and how those will likely be exacerbated by climate change, and then targeting actions and resources to reduce those vulnerabilities. This involves the acknowledgment of the underlying systemic processes that perpetuate these inequities. This approach can generate many co-benefits and extends the notion of resilient communities to beyond climate resilience. It helps to shift the conversation from a focus on not exacerbating inequities to what we can do to actually *reduce* inequities.

In addition, we recommend the inclusion of “mitigation” be integrated into the goals to recognise the need for a proactive, coordinated and considered approach to adaptation and mitigation to increase resilience and adaptive capacity.

#### *Vision Mātauranga implications*

Of note is the identification of certain risks that have been identified as having disproportionate impacts on Māori. While we are supportive of the integration of the NCCRA risk identification process and the inclusion of the “top 10” as a way to guide targeted actions, we would challenge the identification of only four of these top ten risks as having *“disproportionate impacts on Māori”*. Climate change *“threatens every thread of the fabric of Māori society* (Deep South Green Paper Submission 2022) and Māori are disproportionately impacted across the scale of all the NCCRA risk areas (natural, human, economy, build and governance).

The DSC notes that people, places and systems exist within an interconnected relationship with Te Taiao (the environment), yet the environment is not included in the Vision statement. Other legislative changes have committed to transformational step change from conventional human centred rhetoric to one that acknowledges the mana and mauri of the environment itself. This can be seen in Te Mana o te Wai (National Policy Statement for Freshwater), Te Oranga o te Taiao (Natural and Built Environments Act - exposure draft) and Te Mana o te Taiao (New Zealand Biodiversity Strategy) and provides for a reframing of policy that acknowledge the innate mana of the Taiao in and of itself. The DSC recommends the Vision statement be reworded to make the interconnection between the environment, people, places and systems explicit.

#### *Summary of key points*

- Reword the Vision Statement to read: “Our environment, people, place and systems are resilient and able to adapt to the effects of unavoidable climate change in proactive, just and equitable ways”.
- The interconnectivity of Te Taiao and the life-giving properties it provides to all living things should be reflected by including “environment” in the Vision.

## Key Focus Areas

The DSC is generally supportive of the three focus areas. We support the justification for why system wide action is required and we’re pleased to see that there is direct reference to the risks identified in the NCCRA and the Climate Change Adaptation Technical Working Group. Key learnings from these two processes were the need for improved statutory and policy alignment and coordination across



government and sectors with climate information described as being “scattered”, “inconsistent” and “expensive”.

We support the first focus area around institutional reform. This is critical as communities of Aotearoa seek transformative action to improve social, cultural, environmental and health and wellbeing outcomes. It is good to see direct acknowledgement that current systems and institutions that are in place to respond to natural hazard risks and resource management were designed for a “*climate of the past*” (15) and do not adequately respond to the changing climate impacts we are experiencing now and into the future.

We support the second focus area of the NAP (*Provide data, information, tools and guidance to allow everyone to assess and reduce their own climate risks*). However, this should be extended to reflect the importance of engagement with users, co-design of wider climate services and for the delivery of key messaging that are targeted and appropriate for our various communities. The DSC is concerned that just providing information and guidance does not translate to greater access or uptake of information. A key missing link is relationships and their necessity for an effective strategic engagement plan.

“Because if you can’t tell a convincing story that hooks a person’s heart and mind, they’ll find a better one. A story that *does* make sense, and is told in a language they understand by people they trust” (Hura 2022).

Genuine relationships are needed for quality engagement and therefore uptake and participation in adaptation - particularly for Māori communities. Lessons for policy could be drawn from an evaluation of the latest DSC Vision Mātauranga funding round which reflects the barriers and opportunities for engaging in adaptation. A submission to the MBIE Te Ara Paerangi Future Pathways consultation including the results of the evaluation [is linked here for your reference](#).

The Covid-19 Vaccine roll out provides a recent example of a nationwide campaign that received early direction from iwi, hapū, marae and Māori health providers that devolvement from a centralised health campaign to a community/whānau based methodology would achieve increased rates of vaccination. This example emphasizes that just as important as the availability and accessibility of information, is the targeted delivery of that information through existing and trusted networks.

We support the aspiration of the third key focus area (*Embed climate resilience across government strategies and policies*). However, there is very little in the actions that would achieve this in practice. How will the NAP clarify how to prioritise different and potentially conflicting legislation?

Coordination will be required across Ministers and Ministries at several levels to ensure the integration of climate change adaptation across policy areas. Bodies such as the Interdepartmental Executive Board will be needed to provide oversight of climate change adaptation action and hold individual ministries accountable when adaptation has not been prioritised in their decision-making. The OECD policy coherence group (<https://www.oecd.org/gov/pcsd/>) provides some guidance for ensuring coherent policies, particularly in relation to sustainable development. A process similar to the Climate Impact Policy Assessment (CIPA) could be applied as a useful mechanism to understand what each of these actions will deliver in terms of adaptation specifically.

The NAP should transparently outline how government strategies and policies are expected to respond and report on how they embed resilience. Effective implementation of actions in a transparent and accountable way will support improved climate change responses and cross-governmental change. The two actions that are tagged to this are “public investment in climate change

initiatives" (e.g. CERF) and "ongoing regulatory stewardship". Elaborating on the mechanisms behind regulatory stewardship, and how they will manage the breadth of climate change across government policy and how they give effect to Te Tiriti would likely assist with the identification/development of measurable indicators for the Climate Change Commission to report not only on implementation of the NAP but also the effectiveness of it.

The categorisation of the actions in the NAP should be made more clear, particularly around what tips a proposed action over to a committed action. It is also unclear what role public submissions will have in this decision making, particularly given that it is these actions that have been presented as "new" actions as opposed to the committed actions where it appears that public feedback will have limited impact.

More clarity on the methodology for the time frames should be provided. While some of the "critical" and "supporting" actions are already underway and subject to other government departmental timeframe criteria, it would be useful to understand how the timeframes for the "proposed" actions were reached. In some instances, these seem ambitious and for others it appears more arbitrary with implementation of some actions delayed without clear justification.

#### *Summary of key points*

- Engagement should be included in Focus area 2 to acknowledge the importance of not just the provision of climate change information, data and tools, but also a wider climate services regime, and how to best target delivery and education of this information<sup>1</sup>. The Covid-19 response provides a good example of this.
- Reporting requirements that demonstrate how climate resilience is embedded into their respective strategies and policies are needed. This could help monitor and report on implementation and effectiveness of the NAP.
- Include context regarding the categories of actions, particularly the decision-making process for how a "proposed" action is confirmed (or otherwise) as a "committed" action.
- Provide more context in relation to how timeframes were developed.

## Research Strategy

The DSC is encouraged to see the Research Strategy highlight the under-investment in adaptation and capacity identified by the NCCRA, the Climate Change Adaptation Technical Working Group and the DSC research strategy. While supportive of the identified knowledge gaps, the Research Strategy appears to sit in relative isolation to the rest of the NAP and does not comprehensively cover research needs that emerge from earlier chapters. We have lifted our comments on the Research Strategy to this earlier point in our submission to frame our comments on each of the Outcome Areas. We provide some specific comments below and pose some key questions.

"Continue prioritising research and investment in climate-related science" is noted as a supporting action within the Economy and Financial system chapter. It is not clear to us why this is not included in the Research Strategy or as a system-wide action, as it relates to all aspects of adaptation. The mechanisms mentioned in this action are a combination of funding sources (e.g. Endeavour, the Vision

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<sup>1</sup> However, the DSC acknowledges that engagement and communication is captured to a limited extent through some of the sub-actions listed under the "critical" action entitled "rolling programme of target guidance" (p35) .

Mātauranga Capability Fund, the DSC and SSIF) and currently-funded projects (e.g. Whakahura, the Flooding Endeavour). This creates confusion and indicates a greater focus on adaptation research than is the reality. Furthermore, all of these projects will conclude in the next three years, and the ongoing funds are highly over-subscribed, covering all research areas, not only climate change.

On page 102, the NAP highlights the critical under-investment in research to support adaptation that was noted in the first National Climate Change Risk Assessment, building on the Climate Change Adaptation Technical Working Group's (CCATWG) recommendation for "strategic and coordinated investment in science and technology for supporting climate adaptation" (CCATWG, 2018; Action 10). The Deep South Challenge itself has now distributed all its contestable funding, and with the points made above, we assert that maintaining the current funding mechanisms alone will not be sufficient to closing the existing knowledge gaps for climate adaptation.

The NAP should outline the need for sustained climate adaptation research within the Te Ara Paerangi process, and make clear how the research funding gap will be covered in the intervening time. We need to ensure that the adaptation research capability and infrastructure built over recent years is not lost as current adaptation funding streams come to an end in or around 2024. The research funding system is being redesigned as a part of the MBIE's Te Ara Paerangi Future Pathways process, which will likely take some time (or may not eventuate). The reason that some critical datasets are not easily available is a symptom of an underfunded science sector coupled with the dual and sometimes conflicting goals of current science funding models, those of public-good science and the requirement of return on investment. For critical climate information and data to be developed, maintained, and tailored as needed requires sustained investment in core, Te Tiriti-led public-good science and service provision. Operationalising the research priorities for Aotearoa New Zealand's sustained and targeted adaptation response requires a more targeted and strategic response than is currently available through contestable or SSIF science funding. The Te Ara Paerangi consultation suggests targeted research foci in the form of priority areas, such as climate change.

The collation and translation of existing climate research outputs alongside that of critical datasets should be a research priority, along with a mechanism to capture future research outputs. Our own attempt in 2021 to stock-take public investment in climate change research (dubbed "landscape mapping") showed us that many government departments (as funders) and research institutions do not hold information about their research portfolio in an easily queryable way. It is clear that in order to a) collate, synthesise and communicate existing climate change research, and b) develop a Research Strategy that takes into account existing research, capability and capacity, a baseline understanding of what research has been carried out, who is doing it and what it has produced is paramount. The NZ Research Information System has been a long-awaited attempt to implement a central managed database for this information but actualisation of this appears to still be far off. Furthermore, collation, communication and platforming of existing research results will require a considerable effort to produce usable content. *We are happy to re-share the publicly available data on research projects that we collated as a part of our project.*

Our experience has shown the difficulty of gathering and centralising particular climate and infrastructure datasets. Barriers to transparency include: IP and commercial sensitivity issues; political nervousness, particularly at the local and regional level; and costs of managing and standardising these datasets.

Collating existing datasets and making them open-access is and should rightly be a short-term goal (as noted on p106). Engagement with users on what they need - and therefore how to make data and

information available, in what form, on what platform, asking what question - should follow. The Parliamentary Commissioner for the Environment has made similar suggestions for biological and environmental data sets. One of our stakeholders recently said, *“you can’t expect your tool to be everything to everyone. How it interacts with what we are already using is critical.”* Critical to this is building on and working with existing platforms and networks. Many sectors have existing platforms that their users are familiar with, which any program of data and information provision should consider. Likewise, stakeholder groups are at different points in their adaptation journeys, as are different organisations or parts of the same “stakeholder” group, and interact with data and information in different ways. Whether that be by employing consultants instead of having in-house expertise, or looking at high-level climate change risks compared to adaptation or investment planning. Data and information services need to be tailored to each of these “decision entry-points”. In the case of how national datasets can be applied at the local scale for necessarily bottom-up adaptation responses, service provision for critical local modelling and access to skilled practitioners, and interoperability of modelling infrastructure should also be considered alongside data products. Furthermore, for climate information to be relevant to communities, it must be able to resonate with their lived experience. We encourage clarity around who the target users are, and then encourage deep sector and stakeholder/community-specific engagement to be built into the design process, understanding that a single portal may not be the solution to all user needs and contexts. *We offer further comment on the related Focus Area 2, System-Wide Actions, below.*

With regards to the implementation time frames, which state that short-term actions include “complete priority datasets” and medium-term actions include “completing nationally prioritised datasets”: priority datasets are noted generally as hazards and exposure datasets within the research priorities, and nationally prioritised datasets are not mentioned elsewhere in the document. What criteria are being used to define these datasets and who will be consulted to determine them?

Though the Knowledge Gaps are broad, the Research Themes are centred around risk assessment components, Mātauranga Māori, and access to information. We note that assessments of risk are important but not sufficient to address the research gaps we know exist, and a Research Strategy that only offers risk-based research will not facilitate research that enables adaptation action in response to the risks. For example, research into climate-resilient land-use change or urban development, equitable governance arrangements, or decision-making tools and processes to support adaptation action are also critical. There would be a significant amount of DSC research that may not be funded according to the Research Themes under this strategy. Due to the historic marginalisation of social and cultural research in climate change science, it is still a risk that tikanga-based research, and wider research into cultural resilience, would not be guaranteed safety and access under this Strategy.

#### *Relevant DSC research*

- Understanding history and colonisation to support adaptive capacity <https://deepsouthchallenge.co.nz/research-project/toi-tu-ihumatao/>
- investigating the mana of marae and the role of sovereignty in protecting communities against climate impacts <https://deepsouthchallenge.co.nz/research-project/kai-ora-restoring-local-maori-food-systems-by-restoring-power-to-marae/>
- research understanding marae resiliency and tikanga for marae relocation <https://deepsouthchallenge.co.nz/research-project/ki-te-whare-tu-tonu-ki-te-whare-manawaroa/>
- social empowerment and rangatahi leadership on climate change <https://deepsouthchallenge.co.nz/research-project/mana-rangatahi/>

- action research, such as tamariki, rangatahi and elders working together to restore the environmental and legal rights of their whenua, and investigating, through kawa and hapū-based understanding of mana motuhake, the whether the current legal protections are sufficient to manage uncertainty around climate extreme <https://deepsouthchallenge.co.nz/research-project/moutoa-island-restoration/> ,
- how liability for sea-level rise falls in our current policy settings, including the Crown’s Treaty of Waitangi obligations, which is deeply relevant to the current consultation on managed retreat <https://deepsouthchallenge.co.nz/research-project/sea-level-rise-housing-and-insurance-liability-and-compensation/> , or
- investigating the ethical implications of current policies regarding climate hazards <https://deepsouthchallenge.co.nz/research-project/how-should-the-risks-of-sea-level-rise-be-shared/>

The Research Strategy should be reframed to align more clearly to the rest of the NAP, and to respond directly to the identified Knowledge Gaps, as well as an assessment of current and future research and research capability.

#### *Vision Mātauranga implications*

Based on our experiences and learnings, that power for all decisions about research on Māori must be returned to whānau, hapū and iwi. The structures and processes that are charged with enacting all parts of a reformed science system then must also account for this. Our experience has also told us that research priorities for iwi and hapū are usually on a much longer timescale with deeper and broader reach, in other words are intergenerational and holistic in nature. Defined research priorities or research agendas tend to be responding to much shorter timelines and assessed against KPIs on an annual or quarterly basis. Impact for Māori research can often be seen over generations and in ways that do not fit the conventional science measures of assessment. Often a research project might ‘end’ but the kaupapa does not.

The DSC notes that supporting mātauranga Māori is included as a research priority within the strategy. Echoing similar comments we have made throughout this submission, there is no reference to the Rauora Framework and no connection made to any of the actions that potentially support this “research priority”. In addition, the DSC holds concern for how this research priority will be equitably addressed. As noted above, we recently conducted a “landscape mapping” project to review and understand the broad split of research funding within the climate change research space. While a pilot project only, with data limitations, a key finding was that Māori climate research (defined as “by Māori for Māori”) has been and is being underfunded in comparison to other research disciplines.

*“Current underinvestment must not only be reversed, but it must also be significantly ramped up, to provide Māori with all the tools the need - mātauranga and contemporary science - to have agency over their future” (DSC Te Ara Paerangi Future Pathways green paper submission 2022 4).*

This DSC submission provides further important points regarding the transformations required to meet the needs and aspirations of Māori communities and Māori researchers. <https://deepsouthchallenge.co.nz/submission-te-ara-paerangi>

### Summary of Key Points

- Ensure that the adaptation research capability and infrastructure built, and the many learnings gained over recent years are not lost, as current adaptation funding streams come to an end around 2024.
- Develop, with urgency, new funding mechanisms to close existing knowledge gaps for climate adaptation.
- The “Continue prioritising research and investment in climate-related science” should be changed to a supporting action and possibly moved to the Economy and Financial system chapter.
- Invest in core, Te Tiriti-led public-good science and service provision to develop, maintain and tailor critical climate information and data
- To ensure climate information is relevant to communities, build deep sector and stakeholder/community-specific engagement into the design process of any data portal/s
- Guarantee the safety and resourcing of social research, including mātauranga and tikanga-based research about climate change, rather than compelling Māori and other researchers to redefine/curtail their research in the narrow terms of biophysical science.
- Align the Research Priorities directly to the identified Knowledge Gaps, and assess current and future research and research capability.

## NAP Outcome Areas

### System wide actions

The “System wide action” chapter of the NAP is the only outcome area directly linked to the three key focus areas.

The five actions in Focus Area 1 deemed “critical” (RMA reform, managed retreat, three waters, emergency management review and Local Government review) are already underway and are all significant pieces of legislation that will have far reaching changes to how Aotearoa responds to natural hazards, natural resource management and infrastructure. This surge in legislative reform makes for an intensive, fast paced and complex space for communities to engage.

It is unclear how these reforms will speak to each other to ensure that there is coordinated implementation as opposed to siloed processes.

It is important that local authorities, who are charged with interpreting and translating these central government directives into their Regional and District Plans, are supported to ensure that there is a balance between consistency of application while providing for the unique their respective environmental, cultural and social contexts.

We support the acknowledgement in Focus Area 2 to make data and information open access, including on an Adaptation Information portal. We see this as a real opportunity to make a big difference in accessibility of information *and information services* and, therefore, reduce existing barriers to effective adaptation.

We support the action to fully fund the downscaling of CMIP6 projections to ensure that the data are freely available to all stakeholders, and the acknowledgement of data availability that is present in the Research Strategy. It is also encouraging to see that guidance and tools are also being highlighted.

However, these form only part of a wider product and service provision that is required for adaptation portals to be useful, usable and used for decision-making. International experience shows that this must include both digital (web-based) and domain (people-based) climate services. These could be

data and information, sector-specific and concept-specific guidance, tools to interact with climate information, tools and frameworks to support decision-making as well as *enablers*, such as communities of practice, trusted experts, training, knowledge brokering roles, case studies, and map narratives (e.g. CoastADAPT, Dutch Climate Impact Atlas, US Climate Resilience Toolkit, Great Lakes Integrated Sciences and Assessment).

Though elements of this are present throughout the NAP, it is not clear how they will work together to form a cohesive work programme. Experience in the Deep South Challenge has shown that research on decision-making tools, and resourcing people to facilitate and enable data service provision and accessible research outputs can be critical to achieving impact. *Further comment is offered in the Research Strategy section above.*

Sustained personnel and financial support are critical in ensuring ongoing success of any platform, and many international and national attempts have become inactive or are shelved once they reach the end of their funding, or when key personnel have left and buy-in is limited from those remaining. Reviews of these international attempts note that resources need to be responsive to evolving information needs, rapidly changing information availability and legislative landscapes - and that evaluation and iteration is crucial. In our own experience with redesigning our website, re-framing the information and structure to speak to communities instead of researchers, (a relatively small project), we invested in gaining insights on language and intuitive pathways. We learnt that this work requires deep expertise in design, engagement, languaging and architecture design, and always requires more investment than expected. We recommend long-term strategic thinking when considering which entity will be responsible for this platform, and when resourcing this focus area.

Overall the actions appear piecemeal and there is little evidence of a strategic Government approach. While individual sectors must take responsibility for adaptation, there is an important role for Government in ensuring that individual approaches do not undermine each other or result in maladaptation (noting it is very important to consider temporal scales). There is also a role for Government in supporting adaptation for public good provision. These reasons are why a coherent strategy is required.

#### *Vision Mātauranga implications*

We are encouraged to see in Focus area 1 the establishment of “*a foundation to work with Māori on climate actions*” - however we would like to see this elevated to a critical action and actioned urgently. It is unclear how this interacts with the Rauora Framework.

The DSC notes the action to “*produce guidance on integrating mātauranga Māori into adaptive planning and working with mana whenua* (p35) within Focus Area 2. The term “integrate” is problematic. We recommend that this action should be reframed to invest in and support mana whenua to initiate, continue and extend current climate change resilience focused projects. These comments are also applicable to the proposed actions to “*produce new tools and guidance specific to mātauranga Māori and mātauranga indicators*”. We also recommend that new tools and guidance should be accompanied with commitments to resource and funding support.

Only two (critical) actions are stated to support Focus Area 3. To be effective this requires specific evaluative mechanisms to run across all breath of all current government strategy and policy to determine what is going to achieve adaptation and what barriers may exist to impede adaptation. The actions of “*public investment in climate change initiatives (e.g., Green Bonds)*” and “*Ongoing*



*regulatory stewardship*” alone, are not enough to bring about the change required to “embed climate resilience” in a meaningful way.

There is significant value and potential in recognising and supporting Māori ways of “doing engagement.” Though not always visible, Māori networks are powerful, long-established, and constantly working. The challenge for policy makers and central government is in ensuring its own fragmentation and tendency to dominate does not actively undermine or place pressure or competition on existing Māori networks.

#### *Summary of key points*

- The “System Wide Actions” should be integrated into the framework setting of the NAP rather than as an “outcome area”. This would highlight the relevance of the actions to all outcome areas in a more pronounced way.
- There should be stronger acknowledgement of the role of Local Government in climate change adaptation, including high level guidance about particular challenges and opportunities for local Government to assist with current and future climate change planning.
- The Adaptation Portal must be a part of a larger regime of strategic interconnected climate services, that includes both digital and human climate services.
- More direction should be provided about pathways to increase community engagement. This should include opportunities to ensure the allocation of fair and responsible resourcing and funding to maximise these pathways/initiatives/opportunities.
- Long-term strategic thinking should be used when deciding which entity will be responsible for this platform, and when resourcing this focus area.
- Clarity about the relationship between the Māori climate change foundation and the Rauora Framework.
- Reframe the critical action included under the “Programme of Adaptation Guidance” to reflect an investment in supporting mana whenua to initiate, continue and extend current climate change resilience focused projects.
- Reframe the action regarding mātauranga Māori:
  - Enabling and protecting mātauranga Māori requires the system to think, see and behave differently:
  - Systems and processes must not block or undermine (directly or unconsciously) the creation, activation, and transmission of mātauranga Māori.
  - Adaptation priorities must be led and informed by the immediate needs and work plans of hapū, iwi and/or rūpū - not by central or local government bodies or external parties or funders.

#### *Relevant DSC research*

- [Are the kina still fat when pōhutukawa bloom?](#) - For Ngāti Whakahemo, the tohu of the pōhutukawa bloom once indicated when kina were ready for harvest, however this is no longer in sync due the changing climate conditions. This project is designed to enable the intergenerational transmission of knowledge and practice, which has always enabled self-regulation and management regimes for mahinga kai and which enriches the cultural connectivity of their moana and mokopuna.
- [Forecasting weather and climate extremes](#) - Over the centuries, Māori have developed extensive knowledge about local weather and climate conditions. These learnings have formed the bases of traditional and modern practices of agriculture, fishing, medicine, education and kaitiakitanga. This project makes Māori forecasting knowledge available

through video vignettes and bi-lingual educational posters, to promote stronger and closer relationships between people and their local environments.

### Natural environment

This section of the NAP directly responds to risks identified in the NCCRA. The DSC supports the three objectives of this outcome area, particularly the alignment of connected ecosystems to achieve a healthy and thriving state.

However, there is a lack of shared understanding of what is meant by adaptation in this context. Aotearoa New Zealand's natural environment is always changing. Is the goal of adaptation to preserve the environment in its current state or accept some levels of change?

Knowledge gaps exist in key areas - there is also a lack of understanding of the baseline and a lack of monitoring to understand the impacts of climate change and the effectiveness of adaptation. Without these, it will be difficult to assess whether adaptation is effective. Furthermore, there is a lack of understanding of the value of the natural environment, which means it is effectively left out of traditional economic analyses when comparing the economic costs and benefits of projects that may threaten the natural environment.

It is encouraging to see a focus on nature-based solutions as a choice for adaptation to restore and protect indigenous ecosystems and identifying sites that may require buffering as well as its role in supporting urban and wider adaptation. The DSC has additional context in this area that we would be happy to provide on request.

As already noted in other areas it is unclear how indicators will be developed to measure the implementation and effectiveness of the actions. - and importantly how effective are they in terms of achieving the objective? The lack of clarity regarding accountability and reporting requirements as a risk that could undermine the progress of reliant or interconnected actions.

### Vision Mātauranga implications

The Rauora framework should have been applied to the proposed action under Objective 2 "*Develop mātauranga Māori indicators of climate impacts on the natural environment*" to offer insights into how best to support the development of Iwi/Māori/hapū led Mātauranga Māori initiatives/projects. The Rauora Frameworks specifically speaks to the recognition that an indigenous worldview "*operates above the baseline, at the optimal*" and that an "*indigenous worldview starts with the measurement from a markedly different point; that of abundance, or rauora*" (Ihirangi 2021 6).

This should be reframed to reflect investment in supporting mana whenua to initiate, continue and extend current climate change indicators initiatives/projects. MfE as the Lead agency for this action should ensure that creating "data baselines that centralise indigenous knowledge and values" is not top down, and is instead led by a bottom-up approach. The Rauora Frameworks specifically speaks to the recognition that an indigenous worldview "*operates above the baseline, at the optimal*" and that an "*indigenous worldview starts with the measurement from a markedly different point; that of abundance, or rauora*" (Ihirangi 2021 6).

No process is outlined (or context given) to the expectation that "*Mātauranga Māori indicators have been agreed*" by 2024 (Appendix 3), which is a very short timeframe.

Mātauranga Māori is sometimes misunderstood as being any work carried out by Māori researchers. There is also a tendency to make false equivalences between mātauranga and scientific understandings. Mātauranga Māori and Kaupapa Māori research must be prioritised and invested in,

in and of its own right, not just as something to be added-on, ‘integrated’ (or even worse, validated) by scientific research.

#### *Summary of key points*

- There is a lack of shared understanding on the goals of adaptation
- Reframe the proposed action “Develop *mātauranga Māori indicators of climate impacts on the natural environment*” to reflect an investment in supporting mana whenua to initiate, continue and extend current climate change indicators initiatives/projects.

#### *Relevant DSC research*

**Taranaki climate resilience: Te tirohanga o ngā tohu- Biodiversity in a changing climate.** This research will support the development of a taiao management framework, informed by the mātauranga of Ngāti Mutunga, Ngāti Tama and Ngāti Maru. The framework will draw on local environmental tohu and māramataka to support and enhance current kaitiakitanga approaches within the Taranaki rohe.

#### *Homes, buildings and places*

While building property resistance and understanding more about viable and practical options to increase resilience is important, the Government should seek to understand how other financial mechanisms, legislation or changes to planning provisions feed into adaptation options. For example, what is the threshold or criteria used to determine if managed retreat will be imposed or what are insurance providers signalling in terms of longevity of coverage or changing conditional arrangements?

We note a lack of acknowledgement of time scales for decision-making in this section. Housing decisions, including spatial and design considerations, should incorporate a consideration of longer time frames in their planning. Decisions made based on short term considerations alone risk increasing future exposure and maladaptive outcomes.

#### *Vision Mātauranga implications*

In specific reference to the inclusion of “Māori Housing”, it is important that the diversity of what Māori housing is, and the nuances of relationship to place that exist for Māori that is acknowledged and provided for.

The DSC is supportive of the inclusion of “*nature-based solutions into the urban environment*”. Though as mentioned earlier in this submission, nature-based solutions need to be appropriate for the level of risk faced by certain build or natural environments and their capacity for effective adaptation adequately assessed (e.g. some nature based options only provide solutions in the short to medium term, with potential to decrease in efficacy with more frequent and severe climate change impacts).

Closely aligned are the urban adaptation solutions based on Mātauranga Māori. We take the opportunity to draw attention to initiatives like Ngā Aho which is a “*network of Māori and Indigenous design professionals who come together to support each other to better service the design aspirations of our Māori and indigenous communities*” (Ngaaho 2022). Their services canvas architecture, commercial design, engineering, landscape architecture, business, planning, project and resource management and co-design. Utilising services such as Te Aho provides opportunities to strategically combine approaches to resilience building, sustainability and environment and community centred design principles.

More clarity should be provided as to how partnering with iwi and/or landowners will work within Objective 3. “Partnering” is referred to within all three actions within this objective but without any

clarity as to how that will be given effect. Again, if Te Tiriti was genuinely embedded within the NAP, there would be much better clarity around roles and responsibilities.

This section also makes specific reference to the impacts on cultural heritage and the “stresses on Māori and Iwi”. It is encouraging to see direct acknowledgement of the unique and significant impacts that hapori face from climate change. Increased climate events threaten sites and places of significance to iwi/hapū/whānau. But it's not just the sites themselves but also the disruption of the connection *between* sites and the wider cultural landscape.

The DSC is supportive of the actions that focus on the protection of cultural Heritage but seeks to make the important distinction between the cultural heritage of Aotearoa and Māori Cultural heritage. This is a critical distinction because the current legislative framework that addresses cultural heritage management (the RMA and Heritage NZ) stand as two separate decision making entities with little connectivity between the two. This does not provide adequate or active protection of Māori cultural heritage. This can be seen in the proactive granting of resource consents for activities that threaten cultural heritage sites or are allowed through complicity because the legislation is not restrictive or proactive enough to protect these sites. This draws attention to the contradictory intent of protecting cultural heritage from climate change threats while cultural heritage sites are still vulnerable from activities allowed through the current legislation. However, the DSC is encouraged though that a key action is to support kaitiaki communities to “self-determine” adaptation pathways to reduce the impacts of climate change threats.

With regards to Iwi Management Plans as a mechanism to “*assess how well climate change related hazards are considered*”, the DSC challenges whether this is the right mechanism to specially lean on in the NAP. IMPS are a specific tool provided for in the RMA however, local authorities have been challenged for their reliance of IMPs where often face to face consultation is used to backfill Councils interpretations of an IMP. This is problematic as capacity to update or incorporate iterative processes to existing IMPS varies across iwi.

The DSC supports what is seen as a key action – to improve the resilience of *Māori owned land, homes and cultural sites*”. The multitude of barriers to develop Māori land are well documented. This paired with local authority rules and regulations that restrict ability to build papakainga or utilise the land to generate an income, further limits the relationship to the whenua. This closely aligns with decisions and rulemaking around how risk is defined and the criteria for exclusion areas. The research project by the collective iwi of Te Hāpua and of Muriwhenua Incorporation highlighted how whānau want to move back to their ancestral lands but now face barriers as that land is deemed unsuitable due to climate change risk (see DSC research link below).

The DSC makes further comments about the absence of hapū in relation to all three of these actions. The focus remains at the iwi level and while they have important leadership roles, the Crown has a responsibility to acknowledge hapū. It also does not account for the varying structures that are applied to Māori land and the opportunities that these provide.

Again this reinforces the difficulty of considering the “homes, buildings, and places” as a single outcome area. The DSC is encouraged to see the acknowledgement of the interconnection and influence of other key actions of the NAP (and other relevant legislation outside of this process) will have on the resilience of homes, building and places - such as system wide reform, actions to strengthen ecosystems and the promotion of indigenous knowledges, infrastructure and social cohesion and economic influences such as insurance.

### *Summary of key points*

- The NAP should provide more clarity about the unique differences between Māori Cultural Heritage and New Zealand Cultural Heritage to highlight the inequity within current planning and legal processes.
- There should be stronger signalling as to how the NAP actually “draws on” (as stated on page 19) the Rauora Framework would provide greater clarity as to how partnership is used in the NAP might make more sense. IMPS are one mechanism that could be used as part of a suite of engagement opportunities with iwi/Māori
- The NAP should recognise the Crown has a responsibility to acknowledge hapū. This needs to be reflected in the NAP with stronger provisions for hapū across relevant actions.

### *Relevant DSC research*

**He whakaneke a te hāpori o Te Hāpua ki tētahi ara haumarū - Relocating Te Hāpua to safety as sea levels rise.** In this research, iwi are drawing on the knowledge of their living kaumātua, as well as those who have passed on, to create a proactive climate adaptation plan that examines the possibilities for, and the tikanga surrounding, relocation.

**He Pā Mataora:** Investigating four interrelated pātaka of knowledge: tikanga, reo, ako and taiao, to proliferate effective and culturally relevant examples of living, learning and working more sustainably, as Māori, within an urban, pan-Māori context.

**Exploring coastal adaptation pathways for Tangoio marae.** Lead by their community aspirations and informed by understandings of past and future climate, researchers worked with the Tangoio community to develop a range of climate adaptation options for their marae. These options were then explored by the community through a “serious game” decision-support tool, Marae-opoly.

**Flood mitigation schemes, are they working in flood-prone areas?** This research explored existing flood protection measures and looked at how they were distributed across flood-prone areas. One critical conclusion of the research was that flood protection schemes do not benefit everyone equally, as lower income neighbourhoods were less likely to have flood schemes.

**Risk-based flood insurance pricing: Consequences, adaptation and policy in a changing market** The property insurance market faces multiple stressors from increasing hazards, including floods, sea level rise and landslips. Concerns are emerging about the long-term viability of coastal insurance. It’s increasingly understood that insurers will turn to risk-based pricing to maintain coverage.

What does risk-based pricing mean for flood-prone marae communities or for iwi businesses? How will rising premiums impact house prices or trigger adaptation to climate change? A case study location in the Waiapu catchment in Te Tairāwhiti will help the team understand the specific challenges facing Māori in relation to insurance, and will also ensure that communications and engagement about risk-based insurance is fit-for-purpose.

**Climate change and the withdrawal of insurance** With insurance a prerequisite for gaining and maintaining a mortgage, understanding how the insurance system may respond to increasing climate risks is critical. This research explored how coastal housing markets may expect to experience rising premiums and eventual insurance retreat, when an insurance company will no longer insure a property for a particular risk, over the coming decades.

## Infrastructure

Ensuring the provision of reliable, safe, and resilient infrastructure is vital for the wellbeing of our communities. Some infrastructure assets are long lived. Some of the infrastructure we develop today will still be servicing people, communities and places for decades to come. Climate change presents new challenges for asset owners and involves strategic planning across several service providers, asset owners, central and local government and the private sector.

The NAP states at the outset of the chapter that the actions should be considered alongside the Homes, buildings and places section in order to gain a “*full picture of adaptation actions for the built environment*” (63). However, the ways in which we plan and provide for the social, cultural and built infrastructure, to support and sustain healthy and functioning communities, requires action across all outcome areas included in the NAP. This section does note though, that particular government work programmes such as the RMA, emergency management system and water sector reforms, climate related disclosures programme and the National Freight and Supply Chain strategy may contribute to “*building the resilience and adaptive capacity*” of new and existing infrastructure.

Many of the 13 actions target waste, transport and energy with less specific reference to actions that target social, cultural, telecommunications and water infrastructure. While it is acknowledged that some of the other actions will be widely applied, greater signposting would improve reassurance that all types of infrastructure are important and valued, especially given the emphasis that individual assets are part of an interconnected infrastructure network.

The DSC is generally supportive of the three objectives; however it is unclear how the actions will specifically “reduce vulnerability” of the assets themselves. For example, “assessing the impact” is only one step in identifying options, how this translates to practical implementation to reduce vulnerability is not specifically addressed. There is little acknowledgement of the need to move from traditional approaches around long-lived infrastructure investment and appraisal. Typically these do not account for uncertainty and risk, creating the likelihood of stranded assets.

We suggest providing guidance for decision makers in applying decision making approaches in appropriate contexts. The DSC has funded several projects that support decision-making under uncertainty and include flexibility in decision making, including Real Options Analysis, Robust Decision Making and Dynamic Adaptive Policy Pathways.

The NAP should clearly define the role of planned adaptation to climate change and emergency response. These are two very different approaches. Emergency response will always play a role and a number of emergency management related actions are included through various actions in the NAP. Adaptation requires proactive measures to increase the level of preparedness, reduce the impact and recovery of climate change impacts. Emergency responses on the other hand are a reactive mechanism which are activated after an event or impact has occurred and override other planned prevention or impact reduction processes.

### *Vision Mātauranga implications*

This chapter makes reference to “cultural infrastructure” and the need for physical and spiritual structures such as marae and urupā to be resilient to climate change. This is a limited scope and excludes opportunities for Māori to directly participate in infrastructure planning beyond an advisory or “cultural lens” approach. As can be seen around the motu, co design/partnership with regard to infrastructure (wastewater treatment or expressway design, for example), can provide solutions that centre climate change resilience in a wider prerogative of taiao management.

### *Summary of key points*

- The NAP should reflect the societal impact of infrastructure to ensure that vulnerability is decreased, not just not exacerbated, for example, communities who already have limited infrastructure provision and therefore their reduced capacity to adapt.
- More clarity is required in the NAP about the two very distinct roles of emergency response and adaptation to climate change.
- Clearer signposting between related actions to avoid similar actions sitting in isolation from each other. E.g. the National Energy Strategy and the dry year risk assessment.
- Greater signposting of how existing actions serve all key infrastructure assets.
- Taking a research informed and responsive approach to improving and planning infrastructure management should be considered an key action in the NAP. The DSC takes the opportunity to draw attention to relevant research as part of the Deep South Challenge that has particular relevance to the infrastructure objectives.

### *Relevant DSC research*

#### **Objective 1:**

- [Infrastructure disruption from coastal flooding](#). This research explores how infrastructure networks are damaged by sea level rise flooding and the impact on downstream service disruption:
- [Stormwater, wastewater and climate change](#). This research analysed how climate change-induced damage on our stormwater and wastewater infrastructure may directly or indirectly impact our economy, environment, culture and society.

#### **Objective 2:**

- [Making robust decisions about New Zealand's water utilizing Real Options Analysis](#). This project explored the incorporation of climate information into flexible long-term infrastructure decisions:
- [Simplifying Real Options Analysis for climate change planning](#). This research is developing and testing simplified ROA decision-support tools for small/medium and frequent adaptation infrastructure investments and will produce guidance for local decision-makers.
- [Drinking water, drought and climate change](#). This research projected future drought conditions and developed a methodology to assess security of supply of drinking water via reservoir and catchment yield under climate change.
- [Climate change, the cascade effect](#). This research explored how infrastructure disruption propagates through our physical and human networks, having implications for social and economic activities. This research links these cascading impacts to governance and the financial services sector (insurance and banking), and so is relevant also to the chapter on Economy and the Financial System.

#### **Objective 3:**

- [Adapting to compound flood hazards](#). This research uses Robust Decision Making to investigate the combined impact of sea level rise flooding and rising groundwater to understand options for either incremental adaptive improvement or transformation adaptation.



- [Climate changes impacts on New Zealand electricity](#). This research examines projections of electricity supply and demand due to climate change

## Communities

DSC is encouraged by the pronounced focus on the diversity of communities and the recognition of the variance in their “connections and ability to adapt” (74). This is also the first time in the NAP that Local Government is specifically mentioned and their role in enabling the communities they represent to adapt to climate change. It is also the first outcome area to speak to the Crown’s obligations under Te Tiriti.

### *Vision Mātauranga Implications*

The DSC is encouraged to see how a focus on community driven adaptation, mātauranga Māori, relationships and decision-making that supports tino rangatiratanga have helped shape the objectives of this section. We support all four objectives but expect to see clearer links to the Rauora Framework.

### *Summary of key points*

- The NAP needs to demonstrate more explicitly how it “draws on” the Rauora Framework and provides clarity as to how the two plans communicate with each other in order to effectively engage and empower communities and their own adaptation planning initiatives. This reiterates our points made earlier in the Rauora section.

### *Relevant DSC research*

- [Climate adaptation, vulnerability and community well-being](#). This research provides advice for councils and community groups on how and when to engage on climate change. The guidance recommends an enhanced Dynamic Adaptive Pathways Planning (DAPP) approach to engagement, by which pre-defined critical decision points for adaptation investments are “open” for ongoing engagement. .
- [Supporting community well-being when water is scarce](#). This research develops an engagement and decision-support tool to explore the impact of changing water security on individual and collective well-being.
- [Hei Matapihi ki te Ao: Toi te Moana, Toi te Whenua, Toitū te Mokopuna](#). This research will use wānanga to tap into sources of mātauranga-in-action to uncover Matapihi communities’ innate climate knowledge and climate leadership.
- [Kai ora: Restoring local Māori food systems by restoring power to marae](#). This research will investigate the mana of marae and the role of sovereignty in protecting communities against climate impacts, through the lens of food security.
- [Te Ara o Raukawa Moana](#) This research investigates how iwi connections with coastal landscapes, including marine landscapes, must be understood as the basis for adaptation planning.
- [Toi Tū Ihumātao](#): This research reflects on one hapu’s resilience in the face of colonisation to strengthen climate adaptive capacity.
- [Eating with my tuupuna](#) This research uses haakari to identify climate impacts and to foster an activated community of kaitiaki – kaumaatua, pakeke, and rangatahi – who are more engaged with climate issues and able to plan for and implement climate adaptations.
- [Culture & climate change](#) This combined research and engagement project engaged with a diverse range of tourism stakeholders to promote science-based climate adaptation and better prepare businesses and communities to manage risk in the future. The project drew on

rigorous public engagement methodologies such as actor-system mapping and citizen panels to construct a culture-centred framework of engagement on climate change adaptation.

- [Mana Rangatahi: Climate change decision-making](#) This research centres on growing indigenous youth participation in climate change decision making through intergenerational, 'deliberation+action' methods of storytelling to 'backcast' pathways for transformative, culturally responsive climate action in local communities.
- [Climate adaptation, vulnerability and community well-being](#) This research enriches the existing MfE Coastal Hazards and Climate Change Guidance by providing advice for councils and community groups on how and when to engage on climate change. The guidance recommends a Dynamic Adaptive Pathways Planning (DAPP) approach to engagement, by which critical decision points for adaptation investments are pre-defined.
- **Learning from innovations and rethinking governance for just and robust adaptation decision-making** (recently funded – details will soon be on our website). This project will develop a toolbox of effective governance and management approaches, drawing on the experience and innovations of three mana whenua organisations and seven local authorities in three case study areas.
- **Living with uncertainty, complexity, dynamism and contestation: Institutionalising adaptation pathways in at-risk communities in the Manawatū-Whanganui and Taranaki regions** (recently funded – details will soon be on our website). Working in partnership with mana whenua, community organisations and local authorities, this project will develop and begin to implement adaptation pathways planning with four communities.

### Economy and financial system

The DSC supports, in principle, the high-level goal of *"A high-wage and low-emission economy, which adapts and builds resilience to a changing climate"* and is encouraged by the *"range of considerations"* the Government will take into account (page 87). However, the actions are limited in scope without clear connections to relevant actions across the rest of the NAP. This is noted to a limited extent on page 98, where the NAP acknowledges the interconnection with other outcome areas within the plan; but without greater signposting, the actions are limited to certain sectors.

The NAP should take a more comprehensive, cross-sector approach, with targeted actions for a broader range of primary sector businesses. There is also significant variability in detail across scales and sectors - for example, some primary sector actions are very specific (e.g. farm plans), yet there is no mention of the financial risk that the dairy sector as a whole carries for Aotearoa.

Again, this highlights the difficulty of discrete outcome areas - it is difficult to identify clear linkages across the NAP. For example, these actions may have provided more economic context if they were included in the system wide chapter or tagged to relevant sections. For example, the action *"Continue prioritising research and investment in climate related science"* could have been integrated into the Research Strategy.

We recommend *"key export industries failing to adapt"* be reworded to *"continued challenges to effective adaptation in key export industries"*. The language of *"failure to adapt"* is not clear in the NAP and implies some accountability, but there could be many reasons why a sector *"failed"* to adapt. Is *"failure"* in the NAP's definition that these sectors attempted to adapt but that the adaptations were ineffective? Or did they reach limits of adaptation? Or was it that a sector didn't embark on any adaptation at all? In that case, what were the barriers? Lack of finance, lack of options, lack of

consensus, etc? Over what time-scale is “failure” considered? (And what is the definition of “adaptation” in the context of failure)?

More recognition should be given to the need for long-term planning and investment in key sectors, and across sectors. For example, in order to support effective adaptation in key export industries, there is a need for a long-term strategy that includes monitoring as well as funding for adaptation that may be required in the future (e.g. new crop varieties etc). While individual sectors and commercial companies may undertake this kind of research, a pan-sectoral adaptation body may be more constructive to support farmers and growers needing to transform their operations and move across sectors.

We recommend further investigation and research towards the establishment of an adaptation fund to support public sector adaptation into the future. This must be Te Tiriti compliant. Finance is a critical component of climate adaptation, and innovative mechanisms will likely be needed.

#### *Vision Mātauranga implications*

Given that Māori are heavily invested in land-based primary industries, tourism and fisheries and the inequitable financing of iwi and hapū in climate change responses we would like to see more action points that take account of the unique role of tangata whenua and make clear the resourcing to adapt in ways that also consider the socio-cultural impacts on Māori communities.

#### *Summary of Key points*

- The actions should respond to a broader range of primary sector businesses and include long term planning and investment in and across key sectors to support effective adaptation.
- “*Key export industries failing to adapt*” should be reworded to “*continued challenges to effective adaptation in key export industries*”.
- Further investigation and research towards the establishment of an adaptation fund to support public sector adaptation into the future should be included as a proposed action.
- More action should be included that take account of the unique role of tangata whenua and make clear the resourcing to adapt in ways that also consider the socio-cultural impacts on Māori communities.

#### *Relevant DSC research*

- [Higher carbon prices: impacts on farming and forestry whānau](#) This research considers how higher carbon prices are likely to lead to permanent carbon forests and a reduction of mahi on farms and in production forests. The project focuses on ensuring that hāpori understands and is prepared for the risks and opportunities posed by permanent forests.
- [Climate change and drought: the future of farms and rural communities](#) Investigating how the intensity of drought affects farm profits and debt for multiple sectors, as well as how drought impacts employment, local spending and the movement of the labour force.
- [Extreme weather, climate change & the EQC](#) Understanding the EQC’s financial liabilities into the future, given climate change projections about extreme weather.
- [Climate change and the withdrawal of insurance](#) With insurance a prerequisite for gaining and maintaining a mortgage, understanding how the insurance system may respond to increasing climate risks is critical. This research explored how coastal housing markets may expect to experience rising premiums and eventual insurance retreat, when an insurance company will no longer insure a property for a particular risk, over the coming decades.