2023

KO PAPA, KO RANGI:

UP OR DOWN? THOUGHTS ON RECIPROCITY, RISK, AND VALUE IN CLIMATE ADAPTATION

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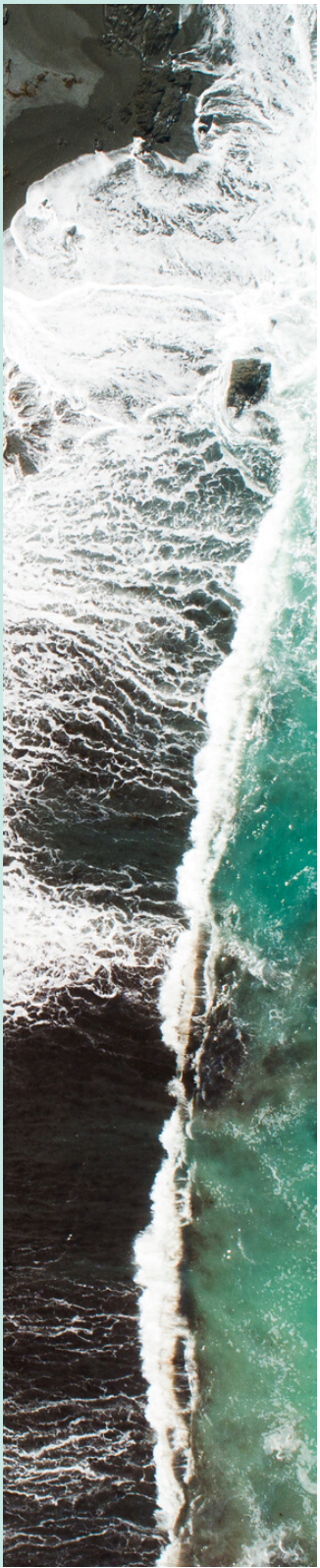
EXECUTIVE SUMMARY



Climate change adaptation is often reduced to a question of monetary-based questions. Why did we let development happen in a risky area in the first place? How much would it cost to protect communities in place now, versus thinking in a longer-term way about where communities might feel and be safest?

But what happens when the most important things to us don't have a price tag? How do we make sure the things we value most, our connections to whenua and tipuna, are properly factored into the decisions of governments and businesses?

With so much emphasis on the fiscal costs of adapting to climate change, or not adapting, we are losing important elements that should be included in that conversation.

"We keep doing the same knee jerk reactions. We need to learn from the past in order to prioritise the efficient and equitable. After the Christchurch earthquake we repaired roads and houses where they will flood... We need to say no to stupid and yes to the no brainers, and this means densifying housing where it's safe and not building on flood plains."
Shamubeel Eaqub

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INTRODUCTION

With so much emphasis on the fiscal costs of adapting to climate change, we are losing important elements that should be included in both discussing and planning for Aotearoa's future.

In 2006, The Stern Review tried to quantify globally what climate change would cost. It highlighted the scale and magnitude of what was at stake. Many at the time said Stern overestimated the cost, yet he has since been proven conservative in his predictions. Treasury's Ngā Kōrero Āhurangi Me Te Ōhanga: Climate Economic and Fiscal Assessment 2023 aims to quantify the cost of climate change in Aotearoa, but according to Ko Papa Ko Rangi panellist Dr Ilan Noy (Te Herenga Waka, Victoria University of Wellington) severely underestimates the impact. We already know our costs are accelerating faster than the modelling predicted. For insured damages, 2023 is already three times higher than modelled. This modelling also only quantifies some of the effects of climate change and ignores the impacts of uninsured costs, mental health challenges, and a slow or ongoing recovery.

> *"There is a need to think creatively about how to measure difficult things. For example, recovery from the Christchurch earthquake is still in the budget 12 years later and this long-term impact is not included in most models." Ilan Noy*

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The 2023 Budget mentions climate change 81 times. However, the cost of climate change is still seen primarily as involving the cost of units in the Emissions Trading Scheme, or the money involved in building a bigger stop bank in Westport. If instead we turn and frame the 'cost' as the impact of the counterfactual, of what inaction will cost us economically, socially, and environmentally, then we can make a clearer comparison with the costs and benefits of adapting.

"The underlying whakaaro that's informed a lot of our economic thinking is this notion of efficiency. ...producing lots of mostly low value stuff, at high volume. The model says... in order to achieve wellbeing, you need to keep growing and growing. What that notion means is that as the rich get richer, the poor remain the same or get poorer. That's not a socially optimal outcome. But from an economics point of view, that is an efficient outcome. That's something I think we need to change." Shaun Awatere

02

SYMPOSIUM PURPOSE:

Ko Papa Ko Rangi was designed to deepen the conversation around the costs of climate change. In particular, the purpose was to provide a creative intervention in a nationally critical conversation about climate change adaptation.

Four preliminary podcasts led into a subsequent all-day event, which generated evidence-based conversation around the economics of adapting to climate change.

We know climate change is already affecting our country in many ways. The plainly visible impacts include extreme weather events, but also encompass more complex effects such as the cost of food, or employment disruption.

This report is not offered as a final guidance document on economic policy for climate change adaptation, but rather, an exploration of the themes discussed by those who presented at and attended the Ko Papa Ko Rangi rolling symposium.

In a post-Symposium survey, attendees were asked about the value they had gained from the events, and comments indicate it was useful for a variety of reasons. For example:

"This symposium has changed the way I view progress in the climate change sphere. I have a renewed sense of hope and faith in our ability to implement the necessary changes."

"Really made me notice my individualistic bias in my policy work."

"...we need to think about how current frameworks are used and if they're the right ones."

"Need to think more about [the] counterfactual. Maladaptive infrastructure [framework is] also useful."

"The urgency of mana motuhake as a solution to localized strategies to climate response."

"Like Maui, you can't slow the pace of the sun, you can only use your time more deliberately"

"I think... that we can account for te ao Māori values and if we plan for the worst we will still end up in a better position if we don't plan at all."

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FLIPPING THE CLIMATE CHANGE NARRATIVE

WITH SO MUCH EMPHASIS ON THE FISCAL COSTS OF ADAPTING TO CLIMATE CHANGE, OR NOT ADAPTING, WE ARE LOSING IMPORTANT ELEMENTS THAT SHOULD BE INCLUDED IN THAT CONVERSATION. IF A TE TIRITI SPIRIT OF RECIPROCITY WAS AT THE HEART OF OUR CLIMATE CHANGE ADAPTATION THERE WOULD BE:

- longer-term planning frames
- better data access
- collaborative and reciprocal relationships
- better connections between communities and the environment
- equity in decision making with input from diverse voices.

"We do a lot of taking in terms of natural resources. But... if we have a look at the fisheries, how much do they give back to Tangaroa? Very little. How much in the forestry do they give back to the whenua? Very little. How much do the dairy companies give back to the whenua? Very little... through our own inability to accept personal responsibility, we create our own problems and that goes for industries and economic models. We can become very powerful entrepreneurial people when we are grounded [in Papatūānuku] creating wealth that that doesn't rob life from life." Ruia Aperihama

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The insights and themes of this report are based on presentations and discussions across five events – four podcasts and an in-person full day workshop. This report is intended to be a learning resource for a variety of users, including researchers, mana whenua, industry bodies, and local and central government, particularly those working in economics and public policy.

Three broad themes provide context for subsequent discussion around how different groups within Aotearoa New Zealand can contribute to climate change adaptation. These are:

- Political and paradigm shifts
- Economic and financial system change
- Improving engagement and access to information

"... if we're not really thinking in the long term, and thinking about the consequences of climate change on our businesses or our sectors, then we don't understand the consequences of inaction... At what point is the trigger or the tipping point that makes you make the decision to invest in something?"
Anita Wreford

Each is only one constituent part of a total response, and while none can succeed on its own, ignoring any of these themes would make any adaptation approach insufficient. We acknowledge that these themes do not exclude the addition of other useful ideas.
Our changing climate will bring about challenges that mean we in Aotearoa New Zealand need to look for original and innovative avenues for action. Armed with information from Ko Papa Ko Rangi, we offer a number of ideas for how Aotearoa New Zealand can move forward together to make systemic economic changes that allow us to adapt to climate change with urgency. The path we are taking started long ago but is never straightforward. Our decisions now will allow us to better choose the correct forks in the road that will lead to an equitable future full of agency and hope.

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POLITICAL AND PARADIGM SHIFTS

The name of the rolling symposium 'Ko Papa Ko Rangi' came about because in the western science-focused world, we tend to look at climate change and focus on Ranginui, the sky father.

Science discusses the atmosphere warming and extreme events in terms of uncertainties and cost benefit analysis. In this western paradigm we are standing upright, looking up at the sky. This symposium asked what happens if, in contrast, we go back to the separation of Rangi and Papa by Tāne-mahuta? Tāne put his brain and heart to the ground and his heart close to Papatūānuku to make things change. If we take this as the basis of our relationship with the world, this requires a change in focus to what grounds us, and the ground under us. What does our mother Earth need from us to come back into balance?

The symposium took an historical perspective and expressed the need to change the paradigm across the economic system, particularly in relation to planning and governance.

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THE CONCEPT OF UTU AND RECIPROCITY

"...utu is reciprocity. In other words, if I take something from you, I have to give something back of equal value, if not more... I must honour it by obligation, and this is the obligation that can go on beyond me now, that can go on to my children and my grandchildren... we're not taking from our ancestors, we're actually borrowing from the future generations." Ruia Aperahama

"Tauutuutu involves giving more back in return, this is the case not just between people but with the land as well." John Reid

Weather events are happening with more and more severity and more often. Ko Papa Ko Rangi invited our participants to stop for a moment to pause, and to reflect on what is motivating them. It asked what the end goals of our economic decisions, policy and legislative plans are in the current fast-moving context. It asked whether Aotearoa New Zealand has the courage to pause and consider what's driving us in the choices we make about our future and our definition of 'cost'.

The definition of utu as balance means when we extract resources, we are not taking from our ancestors, we are borrowing from future generations in an unsustainable way. If we don't change the way we do things, we can't be good ancestors.

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GRAPPLING WITH OUR PAST AND RECONSIDERING OUR PRESENT

Colonisation and illegal land annexation is a defining piece of historical context when considering modern climate change in Aotearoa.

"The current system is built on dispossession of Maori, give back what was taken and allow us to be resilient as we are connected to Te Taiao. Need to actively support Maori to rebuild communities." Workshop participant

As an example, soon after the New Zealand Company brought Pākehā to Aotearoa, the Colonial Office investigated the Wakefield brothers' actions, and declared the land sales and deeds to be invalid. Then, in the early 1850s, one of the Colonial Government's first actions was to bail the New Zealand Company out for about 200,000 pounds (NZ$70 million in today's money). They also took over the interests that the New Zealand Company had in over a million acres of Māori land.

However, we also have a history of national courage for bold structural change. Aotearoa New Zealand was the first country to enfranchise women, we remain nuclear free, and we invented ACC. In addition we have changed our fundamental social and economic paradigm twice in the last century – once with the launch of social welfare in the 1930s and the other radical economic restructuring of Rogernomics in the 1980s.

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"...through our own inability to accept personal responsibility, we create our own problems and that goes for industries and economic models. We can become very powerful entrepreneurial people when we are grounded, while creating wealth that that doesn't rob life from life, which is why the reciprocity again." Ruia Aperihama

A question that arose constantly during the symposium was whether Aotearoa New Zealand is reaching the tipping point for a new paradigm. Climate change and the associated stressors, rising inequity, and an aging population, the shift to a wellbeing economy, changing technologies, and a greater acknowledgement of mātauranga Māori are all contributing to a reaching for an alternative to the current economic and policy system.

"...we are two to six degrees removed from one another. So we can find the dance partners that we need to affect the change that we hope for. And we've done it before, we can do it again, fuelled by the inspiration of our tamariki and the everyday hero, who tipped our understanding of what was possible on its head." Sacha McMeeking

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> *"We need to create a consensus view of what climate change means. To try to understand the ideal state through different lenses because at the moment we're not driving to the same destination. If we can gain a mutual understanding, we can flip from the perspective of the individual to the collective. We are shaped by the weight of history, pushed by the current and pulled by the future."*
> *Shamubeel Eaqub*

CHANGING THE PARADIGM

Over the next few pages this report examines how a change in paradigm could work for planning and governance. This shift in systemic thinking is echoed throughout the rest of the report.

One of the most popular elements of the symposium was a slide from Shamubeel Eaqub, designed as part of work on wellbeing in concert with Tuhoe. This shows the 'ideal state' through two different lenses and was seen as a useful way of explaining the contrast between the Living Standards Framework and the lifestyle pillars of Te Urewera.

FIGURE 1: THE IDEAL STATE THROUGH TWO LENSES

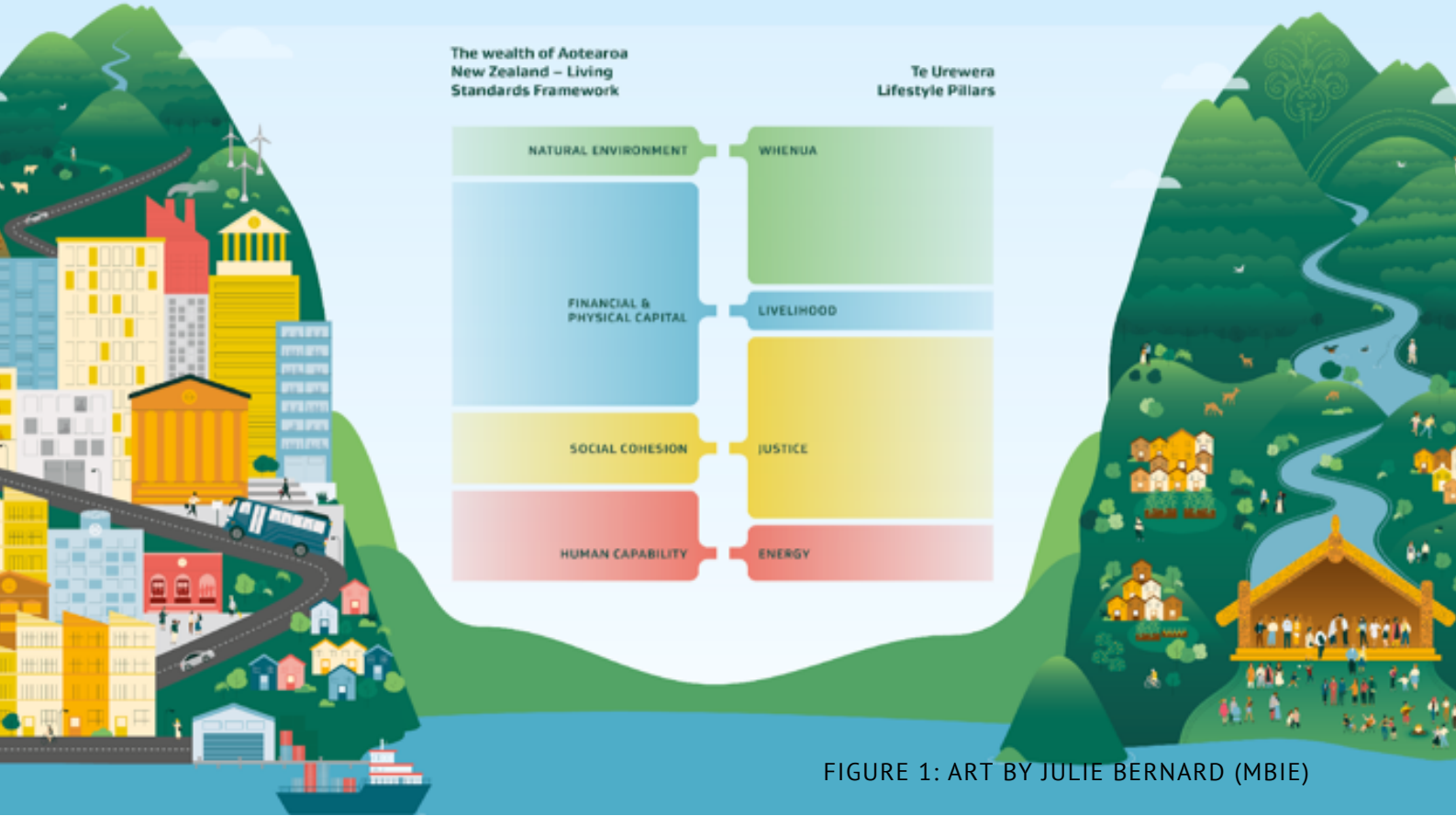

FIGURE 1: ART BY JULIE BERNARD (MBIE)

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The shift towards a Living Standards Framework includes analysing wellbeing through four key lenses: distribution, resilience, productivity, and sustainability. The appetite for an economic system that incorporates mātauranga Māori, behavioural psychology, and a shift to longer-term intergenerational planning is growing.

An economy of manahau is proposed by Jason Mika, Kiri Dell, Jamie Newth and Carla Houkamau. This is an economic system in which decisions on investment, production, consumption, and wealth distribution are influenced by the interplay of mana-enhancing interactions between people and the environment. Mana is agency and the power to act. Mana is not the responsibility of an individual but allows communities to manage themselves.

The symposium discussed that it's not one cultural paradigm versus another. For example, Judaism has the concept of tikkun olam (repairing the world). Koko Warner's presentation also discussed three pillars of sustainability that capture the value of nature and relationships: time, stewardship, and connectedness. There is an equivalent to mātauranga across many cultures. This understanding can help us reframe the recent economic system to better reflect the older traditions, morals, and ways of living.

"...we have to be able to take these big risks and go after big, bold, audacious goals together. And that's that collaboration, and that deep collaboration is going to require trust. And if we're going to really be thinking as good ancestors, we need to be delivering collaborative solutions with an intergenerational time horizon." Jodie Kuntzsch

"The paradigm comes from immersion at birth. It is painful to deconstruct and reconstruct neural pathways and change value systems. We could instead think about merging paradigms. The push factors to do this are compliance, regulation, and the law. A good example is how the introduction of the RMA dispersed a wider understanding of 'kaitiaki'. To pull people in we need to show them the benefits and opportunities." Kiri Dell

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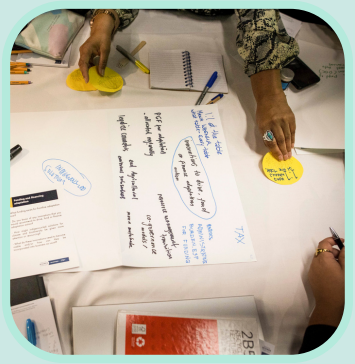

PLANNING AND GOVERNANCE

THERE WAS GENERAL AGREEMENT ACROSS ATTENDEES THAT CLIMATE CHANGE SHOULD BE CONSIDERED IN ALL DECISIONS AT ALL LEVELS OF CIVIL SOCIETY. THIS WOULD INCLUDE INCORPORATION INTO WELLBEING MEASURES, PLANNING POLICY, REGULATIONS, AND LEGISLATION. KEY IN DOING THIS IS TO MAKE ADAPTING TO CLIMATE CHANGE A KEY ELEMENT OF GOVERNMENT/LEADERSHIP/KAITIAKITANGA OF THE PEOPLE OF AOTEAROA NEW ZEALAND.

Planning and governance issues identified in the symposium include:

- Instituting a long-term planning climate change lens across all decisions across government and business
- New analysis methods for planning
- Suggestions for changes to the political landscape

"...for any policy recommendation... [ask] is this going to make people safer in the long run, is this going to result in more or less risk to life in the next 10, 20, 30 and 50 years?" Belinda Storey

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LONG-TERM PLANNING:

Currently, policy frameworks and infrastructure are set up for disaster events using Annual Exceedance Probability (AEP). A 1% AEP is something with a likelihood of occurring once in 100 years, a 2% AEP has a likelihood of approximately once in 50 years and a 5% AEP has a likelihood of occurring approximately every 20 years.

These frameworks were developed for disaster risk that did not change over time (i.e. a building could be designed to withstand an earthquake with a likelihood of occurring once every 2,500 years for hospitals, or every 500 years for bridges). However, policy makers, engineers, and insurers currently use AEP to measure flood risk. This means most infrastructure is built without acclimating for climate induced change in the frequency of events. A new method for discussing robust infrastructure is required.

"... look at different adaptations, and see how well they perform across a whole range of climate futures. And then pick the one that performs the best if that's what you want, or the one that is the cheapest." Anita Wreford

To enable consideration of climate adaptation and mitigation at all levels, it was recommended that a bold vision of a resilient and sustainable future 100 years hence be created that is acceptable to all (or nearly all) political parties. This vision document should focus on system outcomes rather than individual outcomes, so that the collective is in service to Te Taio. For ease of understanding we suggest this planning document should be extended to include provision of detailed guidance for decision making, including best practice case studies.

"Thought experiment - if we were to have 20 years warning of Cyclone Gabrielle what would we do differently? e.g. Esk Valley flooded badly in 1938. What trade-offs would we make? What investments would we make in monitoring schemes?" Workshop participant

[1] https://mro.massey.ac.nz/bitstream/handle/10179/16909/Mika%20et%20al%202022.pdf?sequence=1

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Another suggestion is to regulate for long-term planning at local and national levels. The planning cycle should extend well beyond the electoral cycle.

Because the future is uncertain, we need different knowledge and decision-making approaches to live with uncertainty in the face of climate change. Most current economic tools begin with the assumption that we can understand and quantify benefits. This has an inherent human-centric bias and has a 'return on investment' lens.

"It's ironic and painful to consider that mātauranga is only now being recognised for its potential to help us adapt to climate change after 200 years of violent suppression of that same knowledge." Workshop participant

The symposium suggested that instead of a cost-benefit analysis or similar economic tool, planning should instead start with an assessment of how we want to live, co-designed with the affected community. Once we have an understanding of how a community sees their desired future, we can look to develop adaptation targets and long-term goals. As this is achieved tools can then be brought to bear that help understand the process of reaching these goals and targets. This kind of values-based method will give us the opportunity for buy-in across the political spectrum, so we can ensure planning is not disrupted by the election cycle.

We hope this values-based system will inspire change by building no growth/degrowth options into models. These models should take an ecosystems approach to complexity, allowing us to model a more self-sufficient society so we can prepare for impacts to increase. Instituting a common and agreed framework to work within will also help when turnover of staff relationships in government is high, to ensure institutional memory is not lost.

A common question that arose among symposium participants was the boundary of 'future adaptation' and resilience building. Does this come before or after an extreme event?

"We invest heavily after the event and in building back better, but what are we doing pre-event for resilience building? E.g. in Nepal there are limited adaptation options, they instead invest in and prioritize life saving." Workshop participant

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WE NEED ROOM TO RETHINK HOW WE PLAN FINANCIALLY TO COVER THE COSTS OF CLIMATE CHANGE. THE SYMPOSIUM SUGGESTION FOR AN IDEAL FRAMEWORK IS THAT IT BE:

- specific to place and time
- more about the process
- focused on what we value
- framed against outcomes and system fitness/aptitude
- scalable
- enabling in different contexts
- narrative based with community at the centre

Participants in the symposium wanted central government to incentivise integration of adaptation thinking. This may not look like 'adaptation funding'. For example, more resilient public housing could come from the government as a seed investor. A further example, in discussing managed retreat, is to:

> *"...concentrate on the 'managed' element in a different way. Where you put money for schools is gradual mitigation over decades. The questions then become: should this be funded through development planning; how does this affect domestic property or asset value loss; is it appropriate to use public funding? This will allow us to better quantify the cost to stay." Workshop participant*

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POLITICAL SYSTEM

Because being in Government involves showing policy in action, politicians tend to favour reinstatement after disasters that leads to a 'return to normal'. This includes funding remediation and short-term barrier based solutions so that there is an 'outcome' (e.g. building or improving a stopbank). Aotearoa New Zealand needs to begin a conversation about the changes that are likely to be required under different climate change scenarios. This will involve shifting public understanding that managed retreat is acceptable and sometimes the 'best' and most viable option.

"The three-year government cycle leads to unusually short-term thinking. Give the Climate Change Commission the same level of responsibility as the Reserve Bank to call the Government to account and implement advice." Mark Baker-Jones

There was an acknowledgement that the public does not often hold politicians to account and needs to demand more.

An example of where public opinion caused a change in climate policy across partisan divides is the Zero Carbon Bill, where negotiation occurred across the house. Business pressure from the Climate Leaders Coalition was effective and came because long term certainty is vital for business. In addition, the Student Climate Strikes made politicians listen to the noise and energy. This meant pressure from the public pushed cross-party consensus in a coordinated manner. A counterexample to this was the lack of public outrage when the Government failed to take the Climate Change Commission's advice on the settings for the Emissions Trading Scheme.

"Bipartisan support is vital. We can't make mitigation and adaptation oppositional – it's got to be both... and!" David Hall

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There was a suggestion that part of every induction into the public service should involve teaching regulatory and policy-making people that agism, sexism, racism is built into political choices. Even the definition of "cost" is value dependent and changes between value systems. It is important for policy makers to be explicit about the different values inherent in decision making and make these clear and stated up front.

"I believe that if you had co-governance models at the regional councils, at city councils over 100 years ago, we would not be in this position today. In fact, our councils would be much stronger in a much stronger position and the relationships of water, water management, water quality, and also how we design business and how we occupy land." Riria Te Kanawa

Policy makers need to be able to articulate the trade-offs clearly when making policy. A clear example of where this didn't work recently was the commitment to working on climate while cutting petrol taxes. Investing in policy expertise will encourage public service independence and free and frank discussion.

"The decision to drop the ETS price from $90 to $51 per tonne is not a solution to the cost of living crisis." Ilan Noy

Once the new resource management system is in place, it may be useful to document how planning and decision-making flows between central government, local government, science funders, banks, and building and infrastructure providers.

OTHER IDEAS FLOATED IN THE SYMPOSIUM INCLUDED:

- Allocate the Provincial Growth Fund for adaptation regionally
- Tax or price negative externalities and divert funding to build social cohesion
- Devolve power: give the decision making and pūtea to communities.
- Empower youth to be decision-makers
- Use innovative hypothecated tax – ring fenced funding
- Clever infrastructure investment to guide adaptation via standards, incentives, and planning. Offset 'hazard areas' with new growth areas
- Central government to use good credit rating to raise finance for adaptation finance and pass low cost on to local government for higher resilience costs. Allow redistribution within the economy to pay off debt.

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ECONOMIC AND FINANCIAL SYSTEM CHANGE

THE SYMPOSIUM DISCUSSED HOW AOTEAROA NEW ZEALAND COULD AND SHOULD SHIFT IN HOW WE PRICE, PAY FOR AND TRANSFER CLIMATE RISK. IN THIS SECTION WE DISCUSS INSURANCE AND FUNDING.

"...if we keep continuing to use our old tools, we will probably make decisions that are going to lead us into greater vulnerability and certainly greater expense in the future." Anita Wreford

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INSURANCE

The key idea behind insurance is the concept of risk pooling.

A group of people all contribute money annually to a fund. Every year, something bad might happen to a few people and they get to take the funds to cover that loss. Another year, somebody else needs the fund. This is essentially how insurance works: you pay a premium every year and claim when you suffer a loss.

This concept works well for risks that happen to individuals or firms independently, e.g. for car insurance, when you get into a car accident, it doesn't mean all your neighbours also experienced that accident. In these independent events, the number of incidents every year is pretty stable. It's different people each year, but the losses are pretty constant. That means insurers have a really good idea about what their losses are going to be and it's easy to price.

In contrast, disaster insurance works very differently. In an extreme flood, everybody in the vicinity suffers losses at the same time. This kind of loss isn't stable year to year. In order to cover those big losses without going bankrupt, insurers can hold a lot of money in reserve, buy their own kind of insurance, or make use of other financial tools that put some of that risk in the financial markets. All of those things cost money, and the costs are passed on to customers. This means disaster insurance is fundamentally expensive and can't always be profitably offered by the private sector at a price point that people can afford.

> *"...there's an intense naivety in... assuming that the private sector, who have a timeframe, in insurance case of 12 months' policies, that the private sector are going to necessarily be able to provide the best outcomes for our communities." Belinda Storey*

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This then causes a breakdown in the insurance market and often leads to the government stepping in.
In Aotearoa, we have a very high level of insurance coverage across our population, with a history of providing an all hazards or all perils insurance through EQC. If you buy insurance for your house, chances are it's going to be for all of the hazards you're likely to experience while you live in that house. Our coverage of earthquakes has been relatively affordable, even in the face of the Canterbury Earthquakes 13 years ago.

A DIFFERENT TYPE OF HAZARD

What we're facing with climate change, however, is a different type of hazard without the current mechanism to provide that solidarity. Because we've had EQC giving us affordable disaster insurance, we've had very high levels of insurance in most locations, which has enabled us to be able to respond to those disasters in positive ways.

However, there are some communities that haven't been able to afford insurance, even with a strong public subsidy. There is no data on how many people are exposed in that way. For example, we know the insured losses from Cyclone Gabrielle, but we cannot quantify the impact of this event without understanding the costs of a slow recovery, the effect on mental health, and the loss of assets and whenua that are not insured.

"When discussing insurance we need to keep inclusiveness in mind and the risk of perverse incentives. There's a long term agony in waiting for payouts. Consider micro-insurance for certain events to help with social resilience. Particularly for marae in emergencies." David Hall

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INEQUITY IN INSURANCE

"...even if they do have a policy, Māori and Pasifika are often less likely to actually compare and switch between policies. And actually, there's a lower level of making claims for Pasifika and Māori families... there's lower levels of home ownership across Māori and Pacific communities, lower levels of car insurance, but higher levels of funeral insurance and life insurance policies." Ronji Tanielu

For many of those who do not have insurance policies, support after a disaster often comes from their community – whether this be a marae, church, NGO groups, or neighbours. In this way the community self-insures and provides its own social welfare. Because the majority of those who are uninsured are also facing other economic and social challenges, this 'self-insurance' can lead to greater ongoing inequities.

"...when there is a disaster... marae are so crucial to our disaster response. Marae open their doors and provide support to communities. And yet in most cases, in many cases, they're unable to get insurance themselves so they're so relied on by our communities, and yet they find it so difficult to transfer that risk themselves." Belinda Storey

INSURANCE INFORMATION

We have a lightly regulated insurance industry in Aotearoa New Zealand, with the regulator for insurance spread across a couple of different entities. In general, our regulators do not ask a lot of the private insurers and the information requirements made on insurers is very low. What that means is, from a policy perspective, is that we're flying blind on how to make decisions in the future, e.g. we don't know the location of buildings that are insured or that have made a claim.

"Banks, insurance, and sometimes government agencies have information on what is at risk. However, there is a tension between information and who can access it. The information used to price risk has an impact on the cost of assets. To incentivise adaptation through finance the information needs to be transparent." Jo Kelly

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INSURANCE RETREAT

We also need to consider insurance retreat. This is where insurance becomes unavailable or unaffordable in at risk locations. Under our changing climate, our risk is changing so quickly that providing a public subsidy where private insurance is no longer available would be so costly it is difficult to justify in the long run.

"Because these hazards are changing, and they're changing so fast, the costs of remaining in place are going to very quickly overwhelm any benefit that we receive from that particular location." Belinda Storey

The more important concern, however, is that by subsidising insurance in some locations, you are locking people into harm's way. They will not be encouraged or forced to leave locations where the risk is escalating, and their lives may be in danger.

"We've left planning so much to the market, that it means that when we're thinking about social housing, we're having to pick up the crumbs of poor locations, which are hazardous. And that's where we're putting in our social housing. We could choose to have much more intensification and have a much stronger role for the state when it comes to building housing. But it means that we're going to need to have more intervention in the housing market." Belinda Storey

We don't yet have an effective system for moving people out of harm's way in Aotearoa.

04

INCLUSIVE RECOVERY

OPTIONS FOR APPROACHING INSURANCE INCLUDE A PATCHWORK OF SOLUTIONS THAT SUPPORT MORE INCLUSIVE RECOVERIES. THESE INCLUDE:

- means tested assistance with disaster insurance, so everybody can access financial protection
- regulations to make sure insurance policies have a baseline of financial protection without hidden caps or higher deductibles
- micro or mezzo insurance models.

“There's [research] findings that lower income households, communities of colour, are often impacted disproportionately and have harder recoveries. And there's a lot of drivers of that. But one important one is a lack of access to the necessary funds to cover that huge shock of expenses that they face after a disaster, we see that these are households that just don't have enough liquid savings to cover the huge amounts, they all of a sudden have to pay.” Carolyn Kousky

Meso, or community-based, insurance involves local government or a community group or non-profit sitting in between the insurance and the individuals or the households to help make sure everybody has the access they need.

“Pasifika people are already pooling their money together for fa'alavelave or for events. So how do you actually encourage them to try and direct some of that thinking and pool it together as resource towards insurance?” Ronji Tanielu

04

FUNDING

"Need to think about degrowth versus financing adaptation. It would be good to have a plan looking at investment priorities, giving policy certainty for long run decision making." Riria Te Kanawa

Finance enables things to happen in the real world. It provides a source of energy to realise potential. To be sustainable we need to consider environmental, social, and governance factors in order to promote growth in the long-term.

There is a lack of bankable, investable projects and no revenue flows in adaptation. The primary purpose is to reduce loss and damages, so public funding is inevitable. However, this does not mean that if private companies are beneficiaries, they should not pay. There was general agreement that commercial entities should be charged for water and natural resource use as market drivers would precipitate change. There was also interest in further investigating "polluter pays", where those who caused environmental damage were fined, named, and shamed.

"There is room to rethink how we plan financially for costs of climate change - social discount rate, liability, charge people in advance, tradable development rights, pension-style scheme" Workshop participant

There's a $210 billion deficit in infrastructure meaning we need innovation particularly when it comes to repairing and restoring the whenua. Business should be responsible for paying in response to risk, for example paying to clean up maladaptive land use (e.g. forestry).

"Inequity is clear, the wealth generators got helped first after Cyclone Gabrielle." David Hall

04

SUSTAINABLE BUSINESS

Environmental, social, and corporate governance is helping to transition companies to a more sustainable, equitable version of finance. This is supported by assurance schemes that provide certification and trust marks.

"Legally, business should be able to drive benefits that are not just profit." Jo Kelly

There was discussion about the need for corporate organisations to move away from pure profit motivations to an understanding that benefits other than profit are also important. Corporate responsibility needs strengthening and transforming so it is essential rather than a nice to have. This involves a move to reframe wealth, so it is not extractive or competitive.

"An alternative way of practising is looking at the whole idea around social entrepreneurship or local entrepreneurship. Because if you buy into this notion that you have to export at quantity, then it's participating in the current dominant economic paradigm where you need scale, where you need to plant the whole landscape out in monocultural type species in order to meet the needs or the demands of the market." Shaun Awatere

The symposium discussed B Corp Certification, where an organisation is defined as purpose-driven and creates benefit for all stakeholders, not just shareholders. B Corp Certification is a designation that a business is meeting high standards of verified performance, accountability, and transparency on factors from employee benefits and charitable giving to supply chain practices and input materials.

"Look at changing cost to revenue protection to social license to keep on existing." Jo Kelly

This kind of structure also allows organisations the permission and capacity to find and quantify risk and to build that into their budgeting and planning long term, rather than working to hide, ignore. or ameliorate risk in ways that are unsustainable.

04

It is now a regulatory requirement for around 200 organisations in Aotearoa to report on climate change risk for financial matters. However, there is no requirement for organisations to undergo a full accounting cycle and no rules or processes requiring companies to meet the standards. The External Reporting Board also provides guidance on non-financial matters, but the landscape is very much being made up as we go along. We can cost carbon, but not transition risk. A moral behavioural change is coming with momentum from financial standards and shifts in organisations as younger more diverse folk come through Boards.

"Without connection to place, funding is likely to be misaligned." Workshop participant

The farming sector is highly exposed to extreme events and changing climate and needs to be central to adaptation. Despite negative media attention, many farmers are leading science and investigation into regenerative, sequestering farming and on-farm restoration of biodiversity. We could change the entire farming system if we look at large-scale planning – from mountains to the sea, we need to look at a full-scale approach to reconstruct the landscape. This should also use long-term planning scales of 100+ years. It's a whole-of-landscape plan for how we need to change. This generates reciprocal benefits, but the data is missing.

With new technologies we can understand more and more detailed information. Transparency of data is increasing which means that poor environmental performance will be more visible. Technology also allows us constant feedback on how to improve, giving us an iterative learning process. Ngāi Tahu farms have recently invested $2.5million in environmental monitoring. Let's bring models together to look at where we need to plant or fix the ecosystem to ameliorate extreme events.

"Not all climate funding and financing needs to be innovative. Sometimes it's just using the tools we already have, and directing money in the right places." Workshop participant

05

IMPROVING ENGAGEMENT AND ACCESS TO INFORMATION

"... if we only dance with our known dance partners, we're not gonna invent any new dance steps. I think we need to find ways of engineering connectivity in coordination amongst unusual suspects. Because those unusual suspects on the margins quite often have the answers to disruption that we are looking for." Sacha McMeeking

Communicating with the public and engaging them in decisions about climate change presents challenges involving complex science, uncertainty, invisibility, and politicization. On the one hand, we need frameworks and tools that help us analyse our adaptation decisions (and indecisions). On the other, we need to consider the paradigm driving our current thinking, and the limits of current economic tools and frameworks to help us make collectively oriented, intergenerational decisions.

HOW CAN WE BRING TOGETHER THE DIFFERENT "RS" TO ENABLE RESILIENCE?

FIVE INDIGENOUS RS	FOUR WESTERN RS
RELATIONSHIPS (WHAKAPAPA)	REDUCTION
RESPONSIBILITY (MANA)	READINESS
RECIPROCITY (MANAAKITANGA)	RESPONSE
REVERENCE (WHAKAARO TIKETIKE)	RECOVERY
RESPECT (RANGATIRATANGA)	

05

The COVID-19 pandemic showed that communities can lead themselves, if given the right tools and resources, and create strong relationships with those who advocate on their behalf. During the pandemic, community organisations, community led initiatives and government agencies moved from the usual transactional time-framed business transaction into a more fluid and relational space.

"The state is needed to protect people, but it needs to be more agile and get bureaucracy out of the way in emergencies." David Hall

The community and voluntary sector worked with creativity, kindness, innovation, and speed. The collective experience of uncertainty and urgency brought its own benefits; funding opened up without as much paperwork and service specifications got looser. Trust was high between parties, which allowed community work to be nimble and more effective. Whakawhanaungatanga and local mobilisation made the country's response to COVID-19 possible. The key question is how to find an appropriate level of accountability for how public money is spent and who bears this burden.

"How will we know we have adapted? No or low impact, less damage, no loss of life, lower insurance claims and low premiums, improved infrastructure resilience, community engagement and awareness." Workshop participant

The symposium suggested this kind of mobilisation would be made easier by reducing the barriers to accessing funding, including by removing the majority of the bureaucracy requirements.

"I think government can take advantage of some of that community resilience [so] the churches and the marae become the de facto welfare arm of the government. And you know, the community sector in New Zealand is underfunded by about $600 million every year. And so I think that's a challenge back to our government to say, well, how do you actually partner effectively with communities that are facing these events?" Ronji Tanielu

After Cyclone Gabrielle, marae were the centre of much of the emergency response in Te Tairawhiti and Wairoa. This marae-based community response was also a feature after the Canterbury earthquakes and written up in a study on Mahi Aroha by Fiona Cram.

"Māori resilience is based on interconnectedness/whakawhanaungatanga where soft infrastructure is equally or more important than hard infrastructure." Workshop participant

CO-DESIGN AND ENGAGEMENT

One of the symposium's clarion calls was a plea for communities to be involved at the start and heart of decision-making.

"How do we ensure adaptation is a choice and we are not forced to adapt?" Workshop participant

There were multiple references about how the 'Team of 5 Million' worked together to combat COVID. There was a hope that we could reframe this conversation to create a vision of a regenerative collective future. At the heart of this would be a reimagining of the risk and fear involved in being a 'victim' of climate change to a question about what communities and individuals want. The symposium considered that adaptation could be framed as a positive future that involves thinking about how we want to live in a broader sense.

"We need to ask what we have to give up (e.g. flying, culture, land) and then discuss how we value these things" Workshop participant

As discussed earlier in this report, there is a need for consensus in how to plan and drive national strategies.

Part of this planning incorporates the need for community engagement and co-design, especially at the beginning of the decision making process, rather than after decisions have been made.

04

It is vital that policy makers connect or reconnect to local communities so:

- all perspectives are incorporated in long-term planning
- we can develop trust and social cohesion in a time of climate fear and uncertainty
- these communities can become change-drivers for decision-makers at higher levels
- a clear common vision is developed

“Rangi and Papa themselves are the best communicators of climate change. So there's only so much we can do as creatives, as communicators, as policymakers, to create a picture of future climate change. If you haven't experienced it yourself, it's asking someone to step out of their current reality and imagine.” Alex Keeble

There was a plea to use early adopters working in the climate change space pilot programmes. To ensure these case studies were appropriate, the government would need to financially support innovative planning. This would then enable communities to fund the leaders doing the mahi.

“Te Arawa Climate Change Strategy was launched in 2020, but there's been no engagement to enable it. Central government comes to Te Arawa to get advice, the strategy asks for funding but we've had nothing back.” Workshop participant

05

COUNTERFACTUAL STORYTELLING

Throughout the symposium there was a strong theme around the importance of storytelling and presenting truthful "counterfactuals". When we are asking people to make "sacrifices" in adaptation or mitigation, we aren't asking them to choose between the comfortable status quo and some unknowable future. The question is about "catastrophe or a better future".

"If we start from a place of fear, we become victims. We need to flip mataku to mana because fear has no place in inspiring change. Mana is agency and the power to act. This doesn't mean we should sugar coat the effects but ask what behavioural change is needed and how can this new way of life be attractive. Mana is not individual responsibility but allows communities to manage themselves." Kiri Dell

There was a strong sense that people aren't "getting" it, whether this stems from wilfully looking the other way to deep inequities in access to information and capacity for understanding as a result of infinite externalities. A key issue with the way costs are currently framed is the assumption that if there is a fully built, rational case for change, then change will be pursued.

These rational 'business' cases do not capture the hearts and minds of voters and do not lead to effective pressure on the government of the day.

"...to create that autonomous sense of motivation, you can either scare me into acting, or inspire me into acting out of notions of love and aspiration and yearning. And if you scare me into change, I'll do it for a little while. But then it will stop. But if you inspire me through love or positivity, then that motivation is more likely to endure. So I think if we wrap all of that into a way of building a climate change movement, we've got the ingredients of something that is a sustainable imagination for our collective future." Sacha McMeeking

05

NEW DEMOCRATIC SOLUTIONS

"If engagement occurs, grass roots consensus will drive politics." Shamubeel Eaqub

Encouraging and monitoring adaptation is a two-way street – both government and science driven (top down) and community practice and belief (bottom up). There are examples of community led research and well consulted regulatory change, but this is not the norm. Many elements of the social and political system are driving alternative democratic solutions that include tikanga-driven governance, citizens' assemblies, participatory budgeting, joint management agreements, deliberative democracy, and others.

"Mana motuhake needs place and time appropriate approaches" Workshop participant

Key to any democratic solution is the ability to promote consensus-based decisions with input from diverse voices. This diversity needs to be evident in the participation, action and ideas. The benefit of this type of process is that it inspires change by embedding the community in decision making to drive that community's self-determination.

Another aspect of decision-making that is changing is that the natural environment is being given a voice with the Whanganui River and Te Urewera being given legal entity status. Many at the symposium believe this is only the beginning of legal protection and guardianship for whenua, awa, moana, and maunga.

"If Te Tiriti was at the heart of our work, there would be equity in decision making. We could create welcoming spaces for people to come together to have discussions." Workshop participant

05

INFORMATION AND DATA

Creation and storage of data has never been so easy, however, the sheer amount of data now available means disseminating the information to those who need it in a digestible format can be difficult.

The work of climate scientists and other researchers is often clear to those working in the same field, but harder to access for decision-makers and communities.

> *"Don't fail to measure, but don't [let] not having enough data stop you." Workshop participant*

Information and data issues identified in the symposium included:

- The need for metrics to identify and measure vulnerability and resilience to enable long-term planning
- Tension between need for robust data and acting with an 'acceptable' level of uncertainty
- The need for democratization of data

> *"Do we have the data infrastructure to make decisions? We need open data at local level through to national scale. Normalisation of data, integrated data infrastructure, consumable format." Workshop participant*

05

METRICS

The lack of fundamental data and consistent evidence base (and the means to apply it) was deemed a barrier to researchers and decision makers working together. In addition, the current science funding models mean most research projects have finite timelines and budgets. Data collated by the project is often then unsupported or abandoned once the project ends, which doesn't support vital monitoring or easy access to the data. Alternatively, when data is valuable, Ministers have instructed Crown Research Institutes to prioritise financial sustainability rather than democratising "their" data.

In contrast, many non-researchers at the symposium discussed that existing data was enough to make decisions, and that we should use the tools and methods we already have. However, there was an acknowledgement that we need measures of community coherence, connectivity and empowerment.

"Ongoing research should mostly be monitoring to embed resilience, there is a need to refine, but we have enough information to make decisions now." Workshop participant

Aotearoa New Zealand now has an established baseline of wellbeing measures with the Living Standards Framework (see Figure 1). It was suggested that this framework be expanded to better encompass Te Ao Māori values in a merging of paradigms. This would allow decision makers to look at vulnerable members of the community, prosperity and exposure to risk, aligning community principles with metrics. These new metrics could include shared spaces, access to homegrown/killed food, as well as volunteer hours/participation.

"Take a deeper look at perceptions of risk, uncertainty, and world-view - who is around the table and inputting into the quantitative assessment process, and then who is around the decision-making table? How do we quantify distortion?" Workshop participant

05

Several researchers pointed out that the use of different metrics caused issues in decision making. For example, climate risk disclosures and nature risk management use different metrics and these different data streams then induce a mismatch of scale for local/bigger picture information. It was suggested that working together to resolve these issues and creating a centralised data platform for monitoring the environment would be useful.

"With new technologies, like remote sensing, we can understand more and more detailed information. Transparency of data is coming so that poor environmental performance will be known. Technology also allows us constant feedback on how to improve, giving us an iterative learning process. Let's bring models together to look at where we need to plant or fix the ecosystem to ameliorate extreme events." John Reid

It was expressed that there is a need to build integrated tools to encourage and monitor adaptation. This would enable multicriteria analysis to inform discussion. For example, government could build a dashboard of adaptive measures using multi-layer GIS data showing property saved under different scenarios and using different adaptation tools, which could inspire community engagement.

UNCERTAINTY AND DECISION-MAKING

There is an underlying tension between scientific and socio-economic uncertainty and decision making. There will always be uncertainty in what our future under climate change will be and it is important that the implications of this uncertainty are understood.

"Humility is vital because data can't fill the complex, interconnected gaps. However, certainty is a danger because we can't present numbers as definite." Riria Te Kanawa

With developments in science and the dissemination of scientific research the public understanding of uncertainty has grown. However, in many cases, ongoing uncertainty is used as a delaying tactic for needed action.

05

"We need consistent, robust, long-term data for all decision-making, but we have to go ahead with inconsistent data." Riria Te Kanawa

When the vast majority of national and international climate researchers are clamouring for urgent action, pinpoint accuracy of exactly when, where, and at which temperature climate induced hazards and disasters become unavoidable is not necessary.

Suggestions from the symposium in this area include:

- when communicating with decision makers and the public don't start with the uncertainty
- use informed people with authority to talk to vulnerable communities
- clearly explain time frames
- move away from fear-based communication to opportunity-focused discussion

DEMOCRATIZATION OF DATA

Data equity is a growing movement for more responsible data work. It seeks to ensure fair treatment, equality of opportunity, and fairness in access to information and resources for all.

Scientific data with the power to affect all of Aotearoa New Zealand has a responsibility to address structural inequities using the lenses of inclusion, diversity, equity, and access.

According to the Government Data Strategy and Roadmap (2021) an inclusive data system means anyone who wants to access data to inform decision-making can do so in a way that works for them. Mana whakahaere is one of the principles in this roadmap. It is adapted from the Data Protection and Use Policy, the Mana Ōrite relationship agreement between Stats NZ and the Data Iwi Leaders Group, and the Public Service Act. This principle aims to empower people by giving them a choice and enabling their access to, and the use of, their data and information. Any data output must also follow the principle of Kaitiakitanga, a shared culture of respect, guardianship, care, and protection for data as a strategic and valued resource, recognising that for some Māori, Māori data is a taonga and iwi-Māori are kaitiaki over their taonga.

06

APPENDIX 1: RESOURCES

MFE and NZ Treasury (April 2023) Ngā Kōrero Āhuarangi Me Te Ōhanga: Climate Economic and Fiscal Assessment 2023

Newman, Rebecca, and Ilan Noy. "The Global Climate-Change-Attributed Costs of Extreme Weather." (2022).

Mika, Jason Paul, Kiri Dell, Jamie Newth, and Carla Houkamau. "Manahau: Toward an Indigenous Māori theory of value." Philosophy of Management (2022): 1-23.

Dell, K. (2022). What are the non-economic values of collective property, and how can they be measured?. Promises and Pitfalls of Collective Property for Sustainable Urban Development.

Dell, K., Spiller, C. M., & Staniland, N. (2020). Pushing and Pulling Organizations to Paradigm Shift: Taking Direction from Indigenous Imagery. In Academy of Management Proceedings (Vol. 2020, No. 1, p. 21460). Briarcliff Manor, NY 10510: Academy of Management.

Dell, K. M., Staniland, N. A., & Nicholson, A. (2018). Economy of Mana: Where to next?. MAI Journal A New Zealand Journal of Indigenous Scholarship, 7(1).

Webinar: Ilan Noy for Treasury, August 2022: https://www.treasury.govt.nz/news-and-events/our-events/wellbeing-report-seminar-series-natural-hazards-climate-change-and-risks-aotearoas-human-capital

Ian Edwards, Donovan Burton & Mark Baker-Jones (2017) Governance and climate change risk. Governance Directions - Risk management

Hall, David. (2022). Adaptation Finance: Risks and Opportunities for Aotearoa New Zealand.

Te Kanawa, Riria (2018) Māori shareholder and stakeholder relations: a nuanced approach

06

APPENDIX 1: RESOURCES

KPMG (2022) Māui Rau Lead author Riria te Kanawa

Reid, John, and Matthew Rout. "Developing sustainability indicators–The need for radical transparency." Ecological Indicators 110 (2020): 105941.

Rout, Matthew, Shaun Awatere, Jason Paul Mika, John Reid, and Matthew Roskruge. "A Māori approach to environmental economics: Te ao tūroa, te ao hurihuri, te ao mārama—The old world, a changing world, a world of light." In Oxford Research Encyclopedia of Environmental Science. 2021.

Sustainable Agricultural Finance Initiative - Centre for Sustainable Finance (Jo Kelly)

Sustainable Finance Forum's 2030 Roadmap for Action - Centre for Sustainable Finance (Jo Kelly)

06

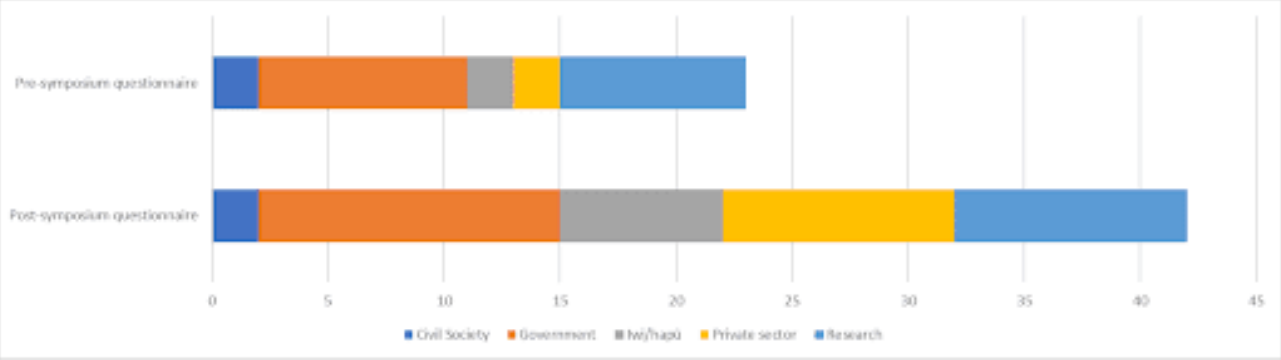
APPENDIX 2: PARTICIPANTS

ATTENDEES

Around 130 people attended the one-day symposium, although we do not have an accurate count due to some late additions on the day. We asked attendees to fill out pre and post event questionnaires - 23 people responded to the pre-event questionnaire and 45 people completed the post-event questionnaire. The breakdown of our in-person audience by sector roughly aligns with the post-symposium questionnaire, although fewer researchers filled out the questionnaire.

The Government sector (including local and central government) had the highest number of respondents to both surveys (39% pre, 31% post), while slightly fewer respondents work in the Research sector (35% pre, 24% post). There were also a significant number of respondents from the private sector (9% pre, 24% post) and iwi/hapū organisations (9% pre, 16% post). The remainder came from civil society (8% pre, 5% post). Both questionnaires were anonymous, so we cannot accurately compare changes in respondents' answers.

FIGURE 1: RESPONDENT'S SECTOR AFFILIATION (45 RESPONSES)



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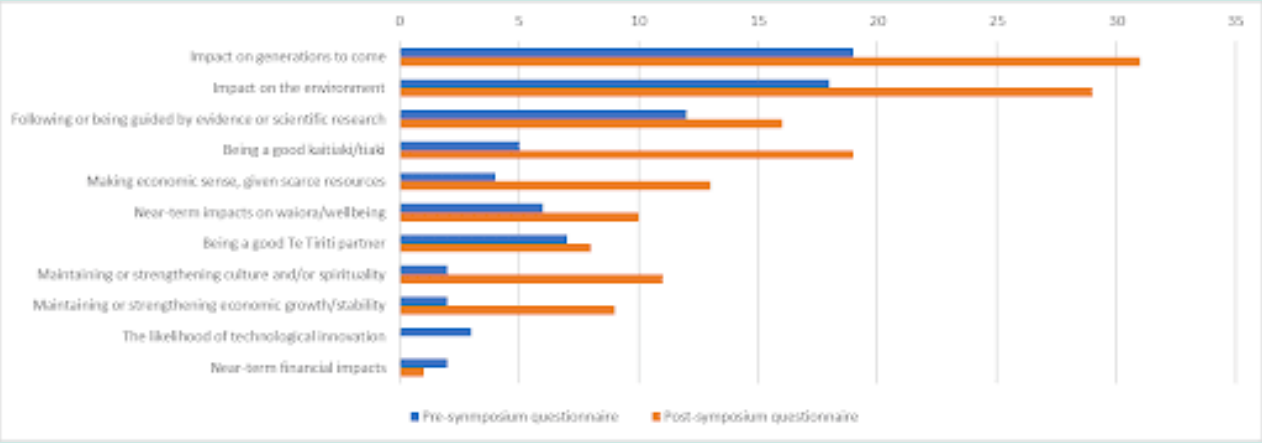
We asked respondents about the main drivers of their climate change work and decisions, allowing them to choose four drivers. In the post-event survey, it was noticeable that the two drivers chosen most often did not change significantly. Both “Impact on generations to come” (24% pre, 21% post), and “Impact on the environment” (22% pre, 20% post) decreased only slightly for respondents.

Other changes between questionnaires included that the driver “Being a good kaitiaki/tiaki” rose from 6% to 13%. Small increases were also seen in “Being a good Te Tiriti partner” (5% pre to 9% post), “Maintaining or strengthening culture and/or spirituality” (2% pre to 7% post), and “Maintaining or strengthening economic growth/stability” (3% pre to 6% post). Small decreases were seen in “Following of being guided by evidence or scientific research” (15% pre, 11% post), the “Likelihood of technological innovation” disappeared (4% pre) and “Near-term financial impacts went from 3% to 1%).

Some of the changes could be partially explained by the increase in respondents from iwi-hapū organisations and private sector organisations respectively in the post-event survey.

FIGURE 2: PERSONAL DRIVERS OF CLIMATE CHANGE WORK (45 RESPONSES)



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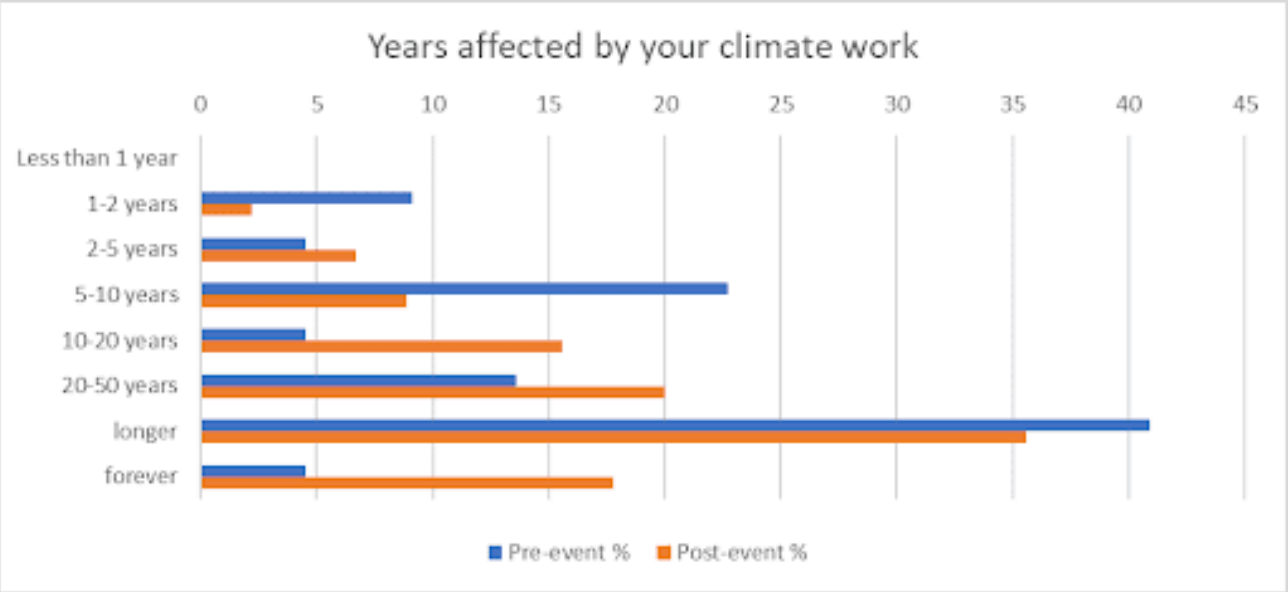
We also asked attendees to state how many years into the future would be affected by their climate change work. There was a clear movement towards a longer time frame after attendance at the symposium.

FIGURE 3: YEARS AFFECTED BY YOUR CLIMATE WORK (45 RESPONSES)



DATA GATHERING

Data collection for this report has been achieved through:

- Podcast transcripts, recordings of presentations, panels and discussion
- Event attendance
- Pre- and post-event surveys
- SLIDO question management during the Symposium
- Card-based Q&A responses and workshop notes collected during the Symposium

06

APPENDIX 3: PODCASTS AND WORKSHOP SUMMARIES

This rolling symposium consisted of four preliminary podcasts and culminated in an all-day event. The aim was to generate evidence-based conversation around the economics of adapting to climate change.

PODCAST 1: KO PAPA KO RANGI
RUIA APERAHAMA TALKING WITH MĀNI DUNLOP AND ALEX KEEBLE: LISTEN HERE.

Within mātauranga Māori, the concept of "utu" suggests that if something is taken, permission must first be requested. Once taken, something of equal or greater value must be returned. Further obligations are in this way generated, and a relationship becomes reciprocal. In the pūrākau of Papa and Rangi, for choosing to separate his parents, Tāne repays them over and again, with his heart forever to Papa and his feet always striving for Rangi – an expression of ever growing love. With this image, we see Tāne as upside down. But perhaps it is we who are the wrong way up? Are we capable of making decisions that return to Papa and Rangi value greater than what we have taken?

PODCAST 2: KA MUA KA MURI: LOOKING BACK TO MOVE FORWARD
JEN MARGARET AND SHAUN AWATERE TALKING WITH MĀNI DUNLOP: LISTEN HERE.

To understand the paradigm within which we consider concepts of value, cost and risk, we need to grapple with our past and reconsider our present. In this second podcast, senior economist Shaun Awatere and Te Tiriti educator Jen Margaret look backwards and forwards, exploring how our economy and economic frameworks have evolved and been impacted by past decision-making, and what this could mean for our future with a changing climate.

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PODCAST 3: INSURANCE FOR ADAPTATION
CAROLYN KOUSKY, BELINDA STOREY, AND RONJI TANIELU TALKING WITH KATE TURNER: LISTEN HERE.

How do we currently price, pay for and transfer “climate risk”? Are these methods reducing danger or delaying what we do about it? Insurance only works when you can afford it; who will be (or is being?) most harmed if we don’t support different ways of protecting ourselves and our communities? This third podcast, with experts from within and outside of the insurance industry, interrogate the role of insurance now, and what it might need to play an effective and equitable role in climate adaptation.

PODCAST 4: FRAMING THE COSTS OF CLIMATE CHANGE
SACHA MCMEEKING, ANITA WREFORD, AND JODIE KUNTZSCH TALKING WITH KATE TURNER: LISTEN HERE.

Everyone, from homeowners to policy makers, from marae committees to corporations, is asking, “How much will climate change cost us, and how much will it cost to adapt?” But are these the best questions?

Do we risk embedding an unbalanced future, because we’re struggling to step back and consider the full extent of what’s at stake? What would effective adaptation actually look and feel like?

This fourth and final podcast, with key thinkers in the space, examines what we know about “costing climate change”, what we don’t know, and how we can inspire momentum for change throughout our government, businesses and communities.

ALL DAY IN PERSON EVENT

Reframing the costs of climate change: How is our current economic pathway creating our climate future? How can we overcome the current barriers to investment in and funding for climate adaptation? If the “costs” of climate change include environmental, human, social, cultural, and financial costs, what innovative solutions are, or could be in play to respond equitably and effectively to this crisis? Watch here.

06

KEYNOTE: HOW IS OUR CURRENT ECONOMIC PATHWAY CREATING OUR CLIMATE FUTURE? KOKO WARNER
PANEL: HOW DO WE CONCEPTUALISE THE COSTS OF CLIMATE CHANGE
KIRI DELL, ILAN NOY, AND MARK BAKER-JONES

We know that work is getting underway across Aotearoa to quantify the costs of climate change, including the costs of adaptation or of failure to adapt. But how do we understand "cost"? Does it encompass the fullness of our environmental, human, social, cultural (and financial) worlds that are central to our experiences of and response to this crisis. Can our current economic thinking really lead to effective climate adaptation? If we can't or don't consider some costs, how can we ensure these are factored in our adaptation decisions?

WORKSHOP: SUPPORTING ATTENDEES TO UNCOVER THE DRIVERS FOR AND BARRIERS TO CLIMATE ADAPTIVE APPROACHES, AND BRAINSTORMING CREATIVE SOLUTIONS.
PANEL | FINANCING AND FUNDING THE FUTURE
RIRIA TE KANAWA, JO KELLY, JOHN REID, AND DAVID HALL

In the end, how can we overcome the current barriers to investment in and funding for climate adaptation? If we consider that the "costs" of climate change include environmental, human, social, cultural and financial costs, what innovative solutions are, or could be in play to respond equitably and effectively to this crisis? In this panel, we bring together possibilities and provocations that interrogate government policy levers, alternative business strategies, and private sector mobilisation.

KEYNOTE: | BUT WILL ANY OF THESE IDEAS WORK?
SHAMUBEEL EAQUB

Firebrand finance journalist Shamubeel Eaqub will speak off the cuff, attempting to draw in the threads, expose them to the sun and the wind, and provide his perspective on the arguments and ideas of the day.

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APPENDIX 4: FACILITATORS, SPEAKERS AND PANELLISTS

Ruia Aperahama
Ruia (Ngāti Pikiahu, Ngāti Waewae, Ngāti Tutemohuta, Turangitukua, Ngāti Kuri, Te Aupouri, Pohutiare, Ngāti Kahu, Muriwhenua, Ngāti Whatua) is an award-winning singer, songwriter, visual artist and illustrator, respected for his knowledge of Tikanga and Te Reo Māori. Ruia is also the Pou Tikanga for the Deep South Challenge.

Shaun Awatere
Shaun (Ngāti Porou) is a senior kairangahau with Manaaki Whenua Landcare Research, holds the Climate Pou with Nga Pae o te Maramatanga, and is on our Kahui Māori. In his work, Shaun incorporates Māori values into economic decision-making for collective assets, enabling Māori organisations to make kaupapa Māori attuned decisions. He is currently engaged in research and policy to help prepare iwi and hapu for climate change mitigation and adaptation planning.

Mark Baker-Jones
Mark (Ngapuhi, Ngaruahine) is a world-leader in climate change regulatory and policy risk, and Kaitohutohu Panoni Ahuarangi (Climate Advisor) with Te Whakahaere. Mark was political advisor to the Climate Change Minister during the development of NZ's climate change legislative regime. Mark has held senior legal roles in some of the world's most prestigious law firms, and has published widely on climate legal risk. He has unique insights into climate change legal risk, policy and regulation, particularly for the financial sector.

Kiri Dell
Kiri (Ngāti Porou) is a Senior Lecturer in the Business School at the University of Auckland. She is a Ngāti Porou woman living in her tribal territory of Ruatoria. Her main passion is working with whanau and activating their aspirations for whenua Māori. She holds various director, trustee and board roles across a number of organisations, and is a chair of the Indigenous Caucus of the Academy of Management. She has a lively and large whanau, which enables her to play the many roles of mum, aunty, daughter, sister, cousin and niece.

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Māni Dunlop
Māni (he uri o Ngapuhi) has been a journalist and news presenter with RNZ for more than a decade. In 2020 she was made the first Māori presenter for a weekday programme on RNZ, for Midday Report, te Purongo o te Poututanga. She is the co-chair of Kawea te Rongo, the Māori Journalists Association, and often features at conferences and other events as a speaker on panels, or as MC and facilitator.

Shamubeel Eaqub
Shamubeel is an experienced economist who makes economics easy. He is a thought leader unafraid to take a contrarian view. An engaging and knowledgeable speaker, Shamubeel is a regular and respected contributor to media, government and business sector discussions on economic and strategic matters. He holds a BCOM with honours in Economics from Lincoln University and is also a Chartered Financial Analyst (CFA). Shamubeel has authored Growing Apart: Regional Prosperity in New Zealand, and co-authored Generation Rent and The New Zealand Economy: An Introduction.

David Hall
David is Climate Policy Director at Toha with expertise in climate action, land use change, sustainable finance and just transitions. He has a DPhil in Politics from the University of Oxford and has additional roles as Adjunct Lecturer at AUT University's School of Social Sciences & Public Policy, member of the Forestry Ministerial Advisory Group, Contributing Author to IPCC AR6 WG2, and Principal Investigator for AUT's Living Laboratories Programme of nature-based solutions. Previously he has worked with a diverse range of public and private sector stakeholders on climate innovation and publishes widely in a range of academic and public-facing media, which includes the 2022 report, Adaptation Finance: Risks and Opportunities for Aotearoa New Zealand.

Alex Keeble
Alex (Pakeha) supports the Deep South Engagement Team to plan and create meaningful, whanau-friendly communications and engagement projects. Her approach to communicating about climate change and climate adaptation is informed both by research and by many years trialling tools and tactics at the flaxroots.

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Jo Kelly
Jo is Chief Executive of Toitu Tahua, the Centre for Sustainable Finance. Jo has delivered cross-continent sustainability initiatives between some of the world's best known business leaders. Jo is also on the B Lab Australia New Zealand Board and the National Advisory Board for Impact Investing. In 2011 Jo managed establishment of The B Team, which led the first calls from business for Net Zero by 2050 and an ambitious Paris Agreement. On returning home to Aotearoa NZ Jo spent four years with Deloitte New Zealand. Jo is of Ngāti Tuwharetoa, Scottish and Finnish descent.

Carolyn Kousky
Carolyn is Associate Vice President for Economics and Policy at Environmental Defense Fund in the United States. Dr. Kousky's research examines multiple aspects of climate risk management and policy approaches for increasing resilience. She has published numerous articles, reports, and book chapters on the economics and policy of climate risk and disaster finance. She is a co-editor of A Blueprint for Coastal Adaptation and author of Understanding Disaster Insurance: New Tools for a More Resilient Future. Dr. Kousky has worked with many communities on resilience strategies and developing inclusive models for insurance and disaster recovery.

Jodie Kuntzsch
Jodie is dedicated to the adaptation and creation of a blue economy for Aotearoa and has led collaborative projects from across the global seafood industry. Her career has focused on bringing together stakeholders to develop economically viable solutions to the sector's urgent environmental, social and climate related challenges. Her work spans four continents and hundreds of marine farms, fishing vessels, seafood factories and businesses.

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Jen Margaret
Jen (Pakeha, of Cornish, Scottish, Danish & German descent) is a dedicated advocate and educator for Te Tiriti o Waitangi, and is the founder of Groundwork. A recipient of Winston Churchill and Loxley Fellowships, Jen has researched the work of non-indigenous allies in North America, Australia, and Aotearoa. She is driven by the question posed by her mentor Mitzi Nairn, “How might we be the honourable people rangatira thought they were entering into relationship with in 1840?”

Sacha McMeeking
Sacha (Kai Tahu) brings a serial entrepreneur’s approach to working with and for Iwi Māori. From instigating United Nations proceedings to architecting a Māori social enterprise fund and leading commercial negotiations, she is known for solution-building that meets Iwi Māori aspirations. Recognised as an emerging New Zealand leader, Sacha won the inaugural Fulbright Harkness Fellowship in 2010. Sacha is a change agent and compliments her varied background with a desire to support and grow the next generation of Māori scholars.

Ilan Noy
Ilan has been the Chair in the Economics of Disasters and Climate Change at Victoria University of Wellington since 2013. His focus is on the economic aspects of natural hazards, disasters, and climate change, and other related topics in environmental, development, and international economics. He is also the founding Editor-in-Chief of the journal Economics of Disasters and Climate Change. He has consulted for the World Bank, the Asian Development Bank, the Inter-American Development Bank, UNDRR, the IMF and ASEAN.

John Reid
John (Ngai Tahu) leads research programmes attempting to solve complex socio-economic problems by utilising systems thinking and indigenous wisdom traditions. He has a particular interest in relationships between human and non-human beings and the role of appropriate technologies and insight in generating symbiosis between them. Currently, John leads national research programmes that bring together science, industry, and indigenous communities to address sustainability challenges related to New Zealand’s oceans, freshwater, land and biodiversity.

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Belinda Storey
Belinda's research centres on climate change risk. Her work focuses on the impact of escalating hazards on property prices and insurance availability, and the development of a new model for valuing property under climate change called "climate leases". Belinda is Managing Director of both Climate Sigma, which conducts scenario analysis and asset valuation under climate change, and the Whakahura: Extreme Events and the Emergence of Climate Change research programme.

Ronji Tanielu
Ronji is the principal policy advisor for the Social Policy and Parliamentary Unit of The Salvation Army, based in South Auckland. He is a committed Christian who works in advocacy and policy around housing, justice reform, addictions treatment, financial hardship, welfare reform, youth, and children. His approach is to be positively disruptive to advocate for change to government, corporations, and other agencies focused on meeting the needs of the people served by The Salvation Army.

Riria Te Kanawa
Riria (Ngāti Maniapoto, Ngāti Rārua, Tainui-o-Tainui, Ngāti Porou, Ngāti Koata) is a partner at KPMG, whose work focuses on simplifying the complex so clients are better placed to make clear, focused and guiding strategic choices, map the pathway to achievement, and most importantly, execute. In a world of constant change, Riria helps clients to challenge their own status-quo and bring a customer- rather than a process-centric lens to their work. Riria is passionate about working with Māori, considering how business approaches and measures of success can better reflect our Māori worldview as we pursue the perfect balance between people, planet and putea.

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Kate Turner
Kate's role as the Deep South Climate Change Knowledge Broker is to support researchers and stakeholders to navigate the often disaggregated world of climate change data, information and people. Kate is a Fulbright scholar from Otepoti (Dunedin) with a background in sea ice physics and has spent time working with local knowledge holders on the ice in Alaska, investigating the extreme changes underway in their sea ice environment. She is motivated by science as a service to our communities and society, and how scientific tools and information can be mobilised for change.

Koko Warner
Koko is a climate change expert who specialises in human migration and displacement. She has worked in the United Nations for over 16 years, directing research on climate change and migration, and climate risk management, before joining the secretariat to the UN Framework Convention on Climate Change (UNFCCC) to supervise the climate impacts, vulnerabilities and risk policy workstreams in its adaptation division. Koko is currently leading UN work to implement the IOM Migration Data Strategy 2020–25 by bringing together IOM's data expertise on data collection, analysis and sharing; migration data governance; and forecasting, among others. Koko has contributed to understanding, managing, and informing policy about adverse climate impacts, climate change and migration, and loss and damage. Koko holds a PhD in economics from the University of Vienna and in 2014, was named by the International Council for Science as one of the top 20 women making contributions to the climate change debate.

Anita Wreford
Anita works out of Lincoln University and is an economist and the leader of our Impacts & Implications programme. She's experienced across many areas of climate change, including economic evaluations of adaptation; community resilience to extreme weather events; and adaptation decision-making among various stakeholders.

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APPENDIX 5: ABOUT DEEP SOUTH TE KŌMATA O TE TONGA

The National Science Challenges were established in 2014 with the aim of tackling the biggest science-based issues and opportunities facing Aotearoa New Zealand. The Challenges bring together some of the country's top researchers to work collaboratively across disciplines, institutions and borders to achieve their objectives. The Challenges represent a new way of funding research, with five key principles making them unique within the science system: they are mission-led, focus on science quality, bring together best research teams for collaboration, invest strongly in stakeholder engagement and public participation, and prioritise Māori involvement and mātauranga.

The Deep South's mission as a National Science Challenge is to enable New Zealanders to anticipate, adapt, manage risk and thrive in a changing climate, by funding and engaging with research through four programmes: Vision Mātauranga, Impacts and Adaptation, Processes and Observations, and Earth System Modelling and Prediction. More information on the Deep South Challenge can be found at www.deepsouthchallenge.co.nz.