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Supporting Justice in Local Government Climate Response in Aotearoa New Zealand

Abstract

While climate justice concerns are increasingly incorporated into policy at international scales, there is less research on climate justice and policy at local scales. Recognising how structural inequalities intersect with climate change influences how rights, responsibilities, distribution of resources and procedures for adaptation are understood and implemented. We describe how some local governments in Aotearoa New Zealand are using recognition practices to improve their understanding of the impacts of climate change, and re-allocating resourcing so mana whenua and communities are better able to participate in climate adaptation procedures. We suggest national policy and legislative changes that could support local governments' climate justice recognition practices.

Keywords climate justice, climate change adaptation, local government, decision making, te Tiriti o Waitangi

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Calls for greater emphasis on justice in climate change response have gained traction in recent years. Given the significant and uneven impacts of climate change, indigenous peoples, activists, researchers and others have raised concerns about the differences in communities' exposure to climate change, how costs and benefits will be distributed, who will pay and be compensated, and how those most affected will participate in policy and decision making (Bargh and Tapsell, 2021; Bray, Stephenson and Bond, 2023; Ellis, 2019; Pollex, 2024; Bulkeley, Edwards and Fuller, 2014; Tombs and France-Hudson, 2018). As a result, there is established literature applying theories of justice to adaptation, especially the rights and responsibilities of nation states and communities. Climate justice concerns are increasingly recognised in international policy such as the Paris Agreement (Pollex, 2024; United Nations, 2016). However, there is less research on how climate justice is incorporated into local adaptation policy and practice (Brousseau et al., 2024;

Bulkeley, Edwards and Fuller, 2014; Pollex, 2024; Swanson, 2023). This gap is important to address because local climate change responses may end up perpetuating existing inequalities and negative outcomes, including community opposition (Brousseau, 2024; Bulkeley, Edwards and Fuller, 2014; Klinsky et al., 2017).

To reduce these risks, Bulkeley, Edwards and Fuller (2014) suggest exploring local practices of recognition that make visible how climate change intersects with existing structural inequalities. They argue that recognition practices highlighting structural inequalities provide a useful entry point for understanding how rights, responsibilities, distributions and procedures are framed. In this article we explore selected practices of recognition that some local governments (regional, district and city councils) in Aotearoa New Zealand are using as they work with communities (including Māori) to adapt to climate change. These practices are beginning to reflect understandings of responsibility and good process in proactive climate adaptation.¹ Focusing on councils' recognition practices in relation to climate adaptation is important for two reasons. First, responding to climate change poses unprecedented challenges for councils' decision making and governance in Aotearoa New Zealand (Iorns, 2022; Lawrence, Wreford and Allan, 2022; Stephenson et al., 2020). Second, councils play a vital role in climate adaptation due to their responsibilities for environmental planning and regulation, infrastructure and natural hazards management, and emergency response (which is becoming increasingly frequent and costly).²

We draw from our research with territorial local authorities, regional councils and mana whenua organisations in three regions over 2022–24.³ We tracked organisational changes and practices relating to proactive climate adaptation. This article draws primarily from three rounds of interviews with council staff over two years with participants from Bay of Plenty Regional Council, Western Bay of Plenty District Council, South Taranaki District Council, New Plymouth District Council, Taranaki Regional Council, Dunedin City Council and Otago Regional Council. We also carried out interviews at

Waikato Regional Council and Whanganui District Council. In addition, we draw from interviews with members of mana whenua organisations in the three regions.

Climate justice

The concept of climate justice emerged from environmental justice discourses which drew attention to how poor and minority communities tend to experience greater pollution, poorer environmental conditions, and associated adverse social and health impacts. Schlosberg and Collins (2014) describe how climate justice research increased following Hurricane Katrina,

fail to give adequate recognition to certain groups (such as women, the working class, or particular racial or ethnic groups)' (Bulkeley, Edwards and Fuller, 2014, p.33). Practicing such recognition means exploring who bears the burdens of climate change impacts, who benefits from adaptation actions, whether adaptation perpetuates inequalities or fosters more equitable outcomes, and whether adaptation processes include those most affected (especially if they have been historically marginalised). Recognition is therefore an important first step in understanding the 'types of

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particularly in the United States, where scholars and activists noted that the uneven impacts of climate change resembled other long documented environmental injustices. Bulkeley, Edwards and Fuller (2014) and Pollex (2024) suggest that most climate justice research has focused on four considerations, often from a normative or idealist position in relation to nation states: the rights and the responsibilities of different actors, whether resources are distributed fairly, and whether procedures (decision-making processes) are fair and transparent, reflecting key dimensions of justice theory. In more pragmatic terms, community activists and grassroots organisations have argued that climate justice must focus on the local level: how impacts are experienced unevenly depending on existing inequities, and the importance of local voice and autonomy in response (Schlosberg and Collins, 2014). To address these local concerns, Bulkeley, Edwards and Fuller suggest climate justice also needs to include '*recognition*, which views socio-economic (i.e. distributive) injustices as fundamentally linked to "cultural or symbolic injustices" which

rights, responsibilities, distributions and procedures required to respond justly to climate change' (ibid., p.31).

Drawing on Awatere et al. (2021), Bulkeley, Edwards and Fuller (2014), Bargh and Tapsell (2021), Schlosberg (2012) and Juhola et al. (2022), we understand just climate adaptation recognition practices as those that:

- make visible existing inequalities that may be exacerbated by climate change or adaptation responses, for a deep engagement with the way impacts are distributed;
- include people and communities' knowledge relevant to climate change adaptation that may have been historically marginalised in local (council) decision-making processes. In the context of settler colonial states, this requires finding processes that recognise indigenous sovereignty and knowledge systems;
- attempt to resource and include those people and communities who will be affected most by climate change, but have historically been marginalised in local (council) decision-making

processes. This enables procedural justice, through recognising structural processes that perpetuate inequalities and affect communities' ability to engage.

Recognising structural injustice means acknowledging that historical legacies affect people's capacity to respond to climate impacts and recover from disruption. In Aotearoa New Zealand this includes recognising that colonisation and urbanisation resulted in severe resource losses for mana whenua, with ongoing adverse intergenerational impacts on

Climate adaptation and councils in Aotearoa New Zealand

While there is some national guidance and legislation to support councils' climate adaptation⁴ in Aotearoa New Zealand, researchers, expert panels and others have argued that existing legislation and institutional arrangements limit councils' mandate and ability to respond to climate change proactively and equitably (Boston and Lawrence, 2017, 2018; Ellis, 2019; Expert Working Group on Managed Retreat, 2023; Grace, France-Hudson and Kilvington, 2019; Iorns and Watts, 2019;

To address these problems, practitioners, researchers and others have called for changes to the resource management system and a new climate change adaptation act to provide procedural tools and consistency across Aotearoa New Zealand that address the complex matters of managed relocation, in particular (e.g., funding, land acquisition, compensation, liability and insurance) (Resource Management Review Panel, 2020; Peart, 2024). While these calls do not explicitly refer to climate justice, it is reflected through arguments for clarity on how rights, responsibilities, procedures and distribution of costs and benefits will be addressed.

Compounding these problems, the recent political seesaw of resource management reform efforts have led to further delays and uncertainties for councils. These include the repeal of the recently developed Natural and Built Environment Act 2023 and Spatial Planning Act 2023 in late 2023 by the new National-led government (thereby returning to the previous Resource Management Act 1991 as the primary environmental and land use planning statute), the introduction of the 'fast-track' consenting bill in early 2024, and indications of further reform. These reforms and repeals have increased workloads for councils and mana whenua, caused delays, and increased uncertainty exactly when the opposite is needed.

Despite these delays and challenges, many councils in Aotearoa New Zealand, including those we interviewed, have started proactive climate change adaptation (Bond and Barth, 2020; Bond et al., 2024; Diprose et al., 2024; Hanna, White and Glavovic, 2017). We recognise that climate justice recognition practices are challenging and difficult to operationalise in the messy and often conflictual resource-constrained spaces of councils and their spheres of responsibility. Consequently, in what follows we highlight the everyday recognition practices that help to introduce justice concerns (even if imperfectly) into the complex processes councils operate within.

Council practices of recognition

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Māori wellbeing and on the health of their lands, forests and waterways (Kawharu, Tapsell and Tane, 2023; Moewaka Barnes and McCreanor, 2019). Māori economic wealth is also heavily tied up in the primary sector (fishing, forestry and farming). Consequently, Māori, their assets and livelihoods are at great risk from climate change (Awatere et al., 2021; Haimona-Riki, 2024). In Aotearoa New Zealand recognition also involves ensuring that climate response decisions reflect obligations and responsibilities under te Tiriti o Waitangi, the Māori text of the Treaty of Waitangi, in particular. While the Local Government Act 2002 refers to the Treaty of Waitangi in directing councils to provide 'opportunities for Māori to contribute to its decision-making processes', this does not go as far as specifying partnership. What 'opportunities' means in relation to climate adaptation and addressing historical inequalities for Māori remains ambiguous and an omission. There is a risk that councils' climate responses may exacerbate existing inequalities, particularly for those people least able to respond to climate change, and in the process cause new Treaty breaches if specific duties are not clarified.

James et al., 2019; Lawrence, Wreford and Allan, 2022; Peart, 2024; Productivity Commission, 2019; Resource Management Review Panel, 2020; Review into the Future for Local Government, 2023; Climate Change Adaptation Technical Working Group, 2018; Tombs and France-Hudson, 2018). Drawing on much of this literature, Iorns (2022) identifies seven particular problems with the existing system for climate adaptation:

- a lack of national guidance from central government;
- uncertainties relating to science and hazard planning that have led to local government experiencing litigation and being paralysed by fears of it;
- a lack of clarity about roles and responsibilities between regional councils and territorial authorities;
- inability to reduce risks due to protection of existing uses under the Resource Management Act 1991;
- the need to better protect Māori interests and partner with Māori;
- poor integration across the resource management system and institutions; and
- inadequate funding for councils to implement adaptation responses.

various stages of climate response, and have varying relationships with mana whenua. Despite these differences, all council participants described significant internal organisational shifts to support climate response. Across these shifts we identified recognition practices that help to highlight structural inequalities related to two main themes: improving understanding of the uneven impacts of climate change, and improving collaboration and partnership with mana whenua and communities. In what follows we describe first these recognition practices in their context, then the perceived benefits these have for more just climate response, and, finally, what is needed to further support these practices.

Recognition practices for understanding uneven impacts of climate change

All councils in our case studies were seeking robust data to inform their climate response decision making, initially through regional climate change risk assessments. This typically involved the regional council commissioning a high-level risk assessment using down-scaled climate projections to inform understandings of changes in, for example, sea level rise and inundation, climatic change and associated hydrology, and increased risks of erosion, floods and wildfires.⁵ From these, the impacts for territorial local authorities (e.g., infrastructure, land use) could then be explored. The risk assessment process partially prompted creation of regional climate change working groups in each region that include staff from the regional council and relevant territorial authorities. Participants observed that these risk assessments showed how climate change impacts cut across existing council 'silos', work programmes and jurisdictions. This recognition had helped to redistribute understanding of, and responsibility for, climate response within and between councils, rather than relying on one staff member or a small team.⁶

The completed regional risk assessments for Bay of Plenty and Otago explicitly recognise that climate change is likely to exacerbate existing socio-economic inequalities. The reports include some vulnerability and exposure mapping using socio-economic deprivation indexes, population age and ethnic composition to

highlight how the anticipated impacts of climate change will unevenly affect different groups – particularly those most vulnerable, with least resources to adapt. Participants noted that the risk assessment processes aimed to include social science, local knowledge and mātauranga as well as biophysical science data to help inform understanding of uneven climate change impacts. However, this was not always achieved in every case. For example, a very localised risk assessment was undertaken in one region but the process did not allow enough time to include mana whenua perspectives. The absence of a mana

increase in risk-based insurance pricing and associated flow-on effects for the community such as mortgage defaults and devaluation of assets) and prompt costly litigation and community backlash. Participants suggested that where standardised risk assessment processes are used, national legislation and compensation frameworks are needed to reduce community backlash and litigation when councils try to reduce risk through such plan changes, and not exacerbate existing inequalities for vulnerable groups.

Finally, while participants saw value in risk assessments, they cautioned that much

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whenua perspective was explicitly acknowledged in the final report, and to some extent was addressed later, but the example reflects three issues: first, a lack of resourcing for mana whenua to engage with council processes and time frames; second, that risk assessments that prioritise Western methodologies do not always align with te ao Māori perspectives on risk, what is at risk and how to identify risk (Awatere et al., 2021; Pirini and Morar, 2021); and third, how Tiriti partnership is not always understood or implemented.

In some regions the biophysical science data from the risk assessments was beginning to inform district and regional plan changes: for example, new rules about land use, building and development to reduce exposure to hazards, and new rules related to fresh water and land use to take account of predicted climatic changes. However, participants were concerned that changes to regional and district/city plans may have significant impacts on communities (e.g., insurance retreat,

of the work to date has only focused on gathering information to understand impacts, rather than prioritising and funding actual adaptation. Many noted that the hard work such as re-negotiating existing use rights under the Resource Management Act, and identifying which adaptation projects should be undertaken and how they will be prioritised and funded, had not begun. They were concerned about uncertainties such as who will pay for future adaptation investments that exceed council budgets, and what national framework and procedures will support decision making for contentious issues like managed relocation. As one participant noted:

[O]ne of the huge elephants in the room at the moment is who funds adaptation work ... The National Adaptation Plan ... says we need to share the funding between local and central government and others. But there's no detail about how that's

actually financed, or funded. And so local government is funded by rates pretty much ... We are never going to have enough money to keep the lights on and do huge multigenerational scale work that needs to be done on climate change adaptation. (District council participant)

Participants cautioned that until these questions relating to rights, responsibilities (including in relation to te Tiriti o Waitangi), distribution of costs and

working with a council can be 'fraught' because 'a partnership approach is quite easy to say and hard to do in practice'. For many Māori this continues to be an ongoing frustration and was evident in our case studies. However, we also observed some shifts within councils that demonstrate recognition of the need for better relationships with mana whenua, if not yet achieving partnership. These included: increasing the cultural acumen of all council staff through courses in te reo and tikanga; employing dedicated Māori

process, Aukaha and Otago Regional Council agreed that the council would fund full-time equivalent positions for Aukaha staff to work on the plan. This approach has had significant benefits for both Māori and the council in terms of improved relationships and better outcomes and could be applied to climate adaptation.

A second example lies in recognition of senior leaders in councils and mana whenua working together. Aukaha has a variety of formalised relationships and resourcing requirements with local government in Otago and Southland. They have suggested that this works best where there is a formalised 'mana to mana' relationship, with senior leaders of both rūnaka and council who meet regularly, and effective operational-level working relationships on specific projects for staff. While this terminology might not work for other contexts, the principle of maintaining relationships at both levels is crucial to ensuring transparency, trust, understanding and mutual respect. There can be no one-size-fits-all when it comes to relationships between mana whenua and councils, and there is some way to go in most instances to achieve Tiriti-based partnership. Nevertheless, in some councils we worked with, there was a clear improvement in their relationships with mana whenua, which provides good foundations for future climate adaptation and for implementing Tiriti rights and responsibilities.

The examples and practices described reflect increasing recognition of the colonial history and associated impacts in Aotearoa New Zealand by supporting capacity for both council staff and mana whenua to better engage with each other. These recognition practices within councils mean they are better able to understand how historical and existing inequalities affect mana whenua, and develop procedures that enable mana whenua to more easily participate. In this sense, recognition practices are reframing responsibility and partially (if still imperfectly) redistributing resources to help address some historical inequalities.

While participants (both council staff and mana whenua) described positive outcomes from these practices, they also noted that further clarification of councils'

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procedures were clarified nationally, councils' ability to progress just adaptation is limited.

Recognition practices for greater collaboration and partnership

Council participants described examples of how they are developing collaborations and partnerships with mana whenua and communities that are exposed to climate risks. These included improving relationships with mana whenua, developing and sharing relevant information, and distributing resources differently to enable mana whenua and communities to participate in adaptation processes.

Working with mana whenua

Mana whenua we interviewed rarely spoke solely about climate adaptation. In their own actions, and in seeking to partner with councils, their approaches were holistic and underpinned by rangatiratanga (Stephenson et al., 2024). In practice, achieving this is not straightforward. As one mana whenua participant said,

staff at senior strategic levels to improve institutional and operational relationships with mana whenua; and resourcing or partially supporting the work that mana whenua do in statutory planning processes and everyday operations (rather than assuming mana whenua will engage in mahi aroha as volunteers).

For example, in Otago, Aukaha is a Ngāi Tahu consultancy, originally established as Kai Tahu ki Otago in 1995 to represent the five papatipu rūnaka in the statutory consultation requirements of the Resource Management Act. This work has expanded over the years and, following rebranding in 2017, Aukaha's role is 'to strengthen the relationships between mana whenua on one hand and local government and businesses on the other' (Aukaha, n.d.). Changes to the National Policy Statement for Freshwater Management in 2020, which included the requirement to give effect to te mana o te wai, coincided with the renewal of Otago Regional Council's land and water regional plan. Recognising the significant resource needed by Aukaha to support a more co-developed planning

responsibility and distribution of resourcing is required. For example, are councils required to partner with mana whenua? If not, then recognition practices like those described can only be achieved where elected members and senior council staff prioritise and resource them, leading to inconsistency across Aotearoa New Zealand. If councils are required to partner with mana whenua, further justice-related questions then arise about how to resource mana whenua groups to participate in councils' climate adaptation procedures.

Working with communities

In Aotearoa New Zealand, researchers have identified the need for ongoing relationships between communities and councils in climate adaptation (Barth, Bond and Stephenson, 2023; Bond and Barth, 2020; Stephenson et al., 2020). While it is commonly understood that procedural justice can be enabled through inclusive participation of those affected by decisions, Barth, Bond and Vincent (2019) found that many councils were reluctant to engage with communities until they had adaptation proposals ready to present for feedback. Our participants echoed these concerns, describing how lack of clarity in councils' mandated role in adaptation creates challenges for proactive engagement with communities. Participants also described balancing the need to manage expectations (e.g., what might be legally, economically and socially realistic) and the need for openness (e.g., not going to communities with a set of predetermined actions).

To manage these challenges, some participants emphasised the role of community adaptation grants that support community-led action. For example, Whanganui District Council and the Bay of Plenty Regional Council are using contestable community grants of up to \$20,000 per project, funded through long-term plans, to support community and mana whenua groups to start adaptation planning, fund mitigation projects and/or initiate projects that build climate resilience. One participant summarised the benefits of these approaches as follows:

I'm most excited about the community led stuff in terms of once communities are actually given some tools and

support and seeing how they respond, and then how we [council] can support that. Because they're great integrators because they don't care about jurisdictional boundaries ... So they kind of integrate it in the place and what's coming to this place and what they need to do in this place, and it kind of brings everything together. That's really useful. (Regional council participant)

Dunedin Future programme, jointly run through the Dunedin City Council and Otago Regional Council (Dunedin City Council, n.d.). South Dunedin is a large urban area on low-lying, reclaimed land, with a diverse population of 13,000 people, a high proportion of poor-quality housing, and lower socio-economic demographics. There are also extensive assets in the area that are key resources for the whole city, including schools, beaches, sports fields, stadiums and retail. As reported by Bond

Over several years, a combination of active community members and committed staff at the Dunedin City Council have undertaken innovative actions to improve the council–community relationship.

While some may criticise these approaches as councils 'opting out' of leading adaptation, the funds are framed as complementary to councils' wider regional/district adaptation work. Participants emphasised that these funds provided a pragmatic starting point for building relationships with affected communities who were ready to take action and supporting them through (albeit limited) resourcing. Participants described how recognition practices helped to shape the design of funding criteria. For example, Bay of Plenty Regional Council designed their fund eligibility criteria to support 'existing place-based community organisations, iwi, hapū or marae in the Bay of Plenty region', in recognition that such groups are 'deeply connected to place and changes in that place' (Bay of Plenty Regional Council, n.d.). These criteria also recognise that place-based community groups (such as mana whenua and marae in particular) are most likely to be affected by climate change, but often have limited resources to adapt (Kawharu, Tapsell and Tane, 2023).

An example where relationships with a larger community have been prioritised through recognition practices is the South

and Barth (2020), a different approach to the relationship between the councils and the community followed significant floods in South Dunedin in 2015, which became a catalyst for action. The floods highlighted the historically poor relationship between councils and the community, as well as the exposure to climate impacts in the area. Over several years, a combination of active community members and committed staff at the Dunedin City Council have undertaken innovative actions to improve the council–community relationship. These initiatives have been based on a community development approach and have enabled extensive and ongoing community engagement (Bond and Barth, 2020; Stephenson et al., 2020). Within the community, two initiatives were significant – the establishment of the South Dunedin Stakeholders group and the South Dunedin Community Network. The latter run regular community hui (twice a year) which provide a forum for community members to meet, share food, discuss issues facing the area (including, but not exclusively, climate-related), and hear and engage with relevant experts in a space purposefully created to ensure local people are prioritised. The South Dunedin

Community Network has become an important point of contact for the South Dunedin Future team and people from both organisations are in regular contact.

In addition, the Dunedin City Council has embarked on a community engagement model premised on meeting community members where they are at. They have employed dedicated engagement staff and provided resourcing for staff to go to community groups across South Dunedin to reach as many community members as possible, rather than relying only on those

engagement (Climate Change Commission, 2024).

The South Dunedin Future programme illustrates a number of recognition practices: first, in recognising that South Dunedin is one of the areas in the city that already is, and will be, most affected by climate change; second, recognition that the area has poorer-quality housing and lower socio-economic demographics and that climate change could exacerbate existing inequalities; and third, given the socio-economic characteristics of the

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able or willing to come to a public meeting, or submit on proposals. This has involved staff attending meetings at over 200 sports clubs, religious organisations and community groups over two years. The South Dunedin Future team also provide updates in *The Lowdown*, a community newsletter started in 2017 after the floods, which is published eight times a year. This approach generated important information and enabled community members to learn more about the likely implications of climate change for their place, and how they could become involved in its future and build a relationship with staff at the councils. More recent community engagement has involved an expo and public meetings. While these might reflect more conventional forms of community engagement, they still build on past activities. The approach is founded on an understanding that community engagement is not a one-off event to garner feedback on a particular adaptation project, but is ongoing, builds from past activities, and requires good relationships of trust and shared information, diverse opportunities and good resourcing. The South Dunedin Future project is recognised as an exemplar of positive community adaptation

community, recognising that they are less likely to engage in conventional council procedures. In recognising these factors, the South Dunedin Future programme has sought to distribute resources differently to help more community members engage in council-led adaptation processes. The example highlights how recognition practices can shape the distribution of resources and procedural practices for decision making.

While this is a promising example of effective community engagement, as participants noted, councils can only go so far and are waiting on central government to establish a procedure for managed relocation, including how this will be funded and whether and how landowners will be compensated. Dunedin City Council has pitched for central government funding to help its plan for managed relocation in South Dunedin, as it cannot afford to entirely fund this, nor the expensive litigation that may ensue if it tries to implement it without national clarity.

Conclusion

We have described how some councils are using recognition practices to inform

proactive climate adaptation despite national legislative uncertainties and delays. These recognition practices are helping councils to better understand the impacts of climate change by including diverse knowledges in their risk assessments, and building capacity to better engage with mana whenua and affected communities. The recognition practices are also shifting responsibility for climate response from single staff or small teams within a council to across and between councils, and shifting the distribution of resources to support mana whenua and community groups who will be significantly affected by climate change, but have been historically marginalised or are less likely to participate in council procedures. While imperfect and limited, these recognition practices provide practical examples that can be built on to further embed climate justice in local adaptation.

However, echoing our participants' and others' concerns, a national legislative framework is urgently needed to clarify rights, responsibilities and distribution of costs and ensure just procedures for climate adaptation. Drawing from our research participants' concerns, we suggest three key areas that need national clarity to support councils' recognition practices and enable more just climate response.

- Amend the Local Government Act 2002 so that it acknowledges 'the significance and importance of local governments' te Tiriti obligations that accompany roles and responsibilities that have been devolved to them from central government'⁷ (Bargh and Tapsell, 2021, p.16; see also Review into the Future for Local Government, 2023). This change could build on existing recognition practices and include the provision of resourcing for iwi, hapū and mana whenua to partner in shared decision-making procedures.
- Introduce legislation that specifies that where robust climate risk assessments that include mana whenua input from the outset, per recognition of Tiriti rights and obligations of partners, inform district and regional plan changes, they cannot be litigated. Without addressing the paralysing risks of litigation that currently occur whenever risk assessments are

translated into plan changes, local government will be unable to effectively reduce risk, making costly maladaptation more likely (Iorns, 2022).

- Introduce legislation that addresses the complex issues of funding adaptation, and revenue and funding models underpinned by just principles. As our participants (and others) caution, actual adaptation has barely begun and the costs of this will far exceed what councils can currently afford (Resource Management Review Panel, 2020). There is existing work that could be drawn on to inform just funding mechanisms to provide greater clarity on the inevitable changes coming and

to help reduce the chances that adaptation will worsen existing inequalities (see Bargh and Tapsell, 2021; Boston and Lawrence, 2018; Boston, 2019; 2023; Peart et al., 2023).

- 1 We follow the IPCC understanding of adaptation as the 'process of adjustment to actual or expected climate and its effects' (IPCC, 2019, p.118). We understand proactive adaptation as actions that take place before the impacts of climate change are fully experienced.
- 2 Extreme weather events in 2023 set records for the costliest events in Aotearoa New Zealand history (Libatique, 2024) and extreme weather events are predicted to become worse (Ministry for the Environment and Statistics New Zealand, 2023).
- 3 The research project, Innovations for Climate Adaptation, was funded by the Deep South National Science Challenge.
- 4 For example, the Ministry for the Environment's *Preparing for Coastal Change guidance* (2017), *A Guide to Local Climate Change Risk Assessments* (2021), *Coastal Hazards and Climate Change Guidance* (2024), *National Adaptation Plan and Emissions Reduction Plan: Resource Management Act 1991 guidance note, Aotearoa New Zealand's First National Adaptation Plan (2022)* and *The National Climate Change Risk Assessment for New Zealand (2020)*.

- 5 The process has differed depending on region. For example, in Otago, localised assessments had already been completed for priority at-risk assets (e.g., in South Dunedin). For the next Otago regional risk assessment, the intention is to support the development of district-level assessments to underpin the regional assessment, thus providing more granular information and avoiding duplication.
- 6 Examples included new requirements that maintenance plans and infrastructure requests in long-term and annual plan processes consider climate change impacts, and collaborative investment across councils and industry in waste infrastructure to reduce emissions.
- 7 As Bargh and Tapsell (2021) note, this change could be done while working towards deeper constitutional transformation (Charters et al., 2019; Jones, 2016; Matike Mai Aotearoa, 2016).

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