Climatic Change (2023) 176:58
https://doi.org/10.1007/s10584-023-03534-z

Haumanu Hauora: refining public health institution policy to include Māori and climate change

Bridgette Masters-Awatere[1] · **Darelle Howard**[1] · **Patricia Young**[1]

Received: 17 August 2022 / Accepted: 15 April 2023

Abstract
The deepening climate crisis generates specific impacts that will exacerbate the already disproportionately negative health outcomes experienced by Indigenous people. Disparate health outcomes have not spontaneously emerged, but rather have been foreshadowed by existing inequities. This article summarizes a sample of the work from a two-year research project in Aotearoa New Zealand to understand existing policy processes and ascertain the extent to which health institutions give serious consideration to climate change impacts on Māori (Indigenous people) with health vulnerabilities. Speaking to tāngata whenua (Indigenous Māori), District Health Board (DHB) employees, and subject matter experts (SMEs), it was clear that policy processes were ad hoc and problematically silenced consistent Māori input. While research participants expressed their experiences of, and aspirations for, dealing with climate change, their voices were not evident in DHB policy development processes. The deficit within existing policy process reflects a lack of preparedness in the face of climate change. Despite clear resilience and adaptation strategies, structural change is needed to address identified disadvantages. Through a co-designed policy framework ("Haumanu Hauora"), we guide policy formation to mitigate climate change risk to Māori (and others). Central to the revised policy framework is the creation of space for both internal and external Māori voices to ensure consistent Māori input throughout the policy process. We also introduce a commissioning, refining, and monitoring stage (that includes evaluation). Haumanu Hauora considers whānau-centered healthcare knowledge, needs, resources, and aspirations, to contribute to a transformed and responsive health system. Above all, we believe that strengthening health institution responsiveness to Māori health needs is essential.

Keywords Māori health · Climate change · Health institution policy

✉ Bridgette Masters-Awatere
Bridgette.Masters-Awatere@waikato.ac.nz

[1] School of Psychology, University of Waikato, Private Bag 3105, Hamilton 3240, New Zealand

Published online: 05 May 2023

1 Introduction

Climate change is identified as the biggest global threat to humanity through compounding ecological disasters such as extreme weather events, rising sea levels, ocean acidification, along with increases in non-communicable diseases, and the spread of vector-borne diseases (Bolton et al. 2019; IPCC 2019, 2021; Jones et al. 2014; Royal Society of New Zealand/Te Apārangi 2017).

Political marginalization, discrimination, and racist practices (Lewis et al. 2020) maintain health disparities (Ministry of Health 2019) and compound the known biophysical risks of climate change (Holder 2020; O'Neill et al. 2012). When examining climate change impacts, a focus on global averages tends to mask disparities. As climate change continues, adverse health impacts are expected to be more severe and borne disproportionately by Indigenous people and groups already suffering health inequities (Abate and Kronk 2013; Begay and Gursoz 2018; Jones et al. 2014; Royal Society of New Zealand/Te Apārangi 2017; Nursey-Bray et al. 2020).

Despite a limited pool of public health-related climate change research in New Zealand, there is emerging evidence about the threat of changing climatic conditions on Māori health and examples of Māori-led initiatives to address these risks (Jones et al. 2014). Despite the clear need for studies examining climate change health impacts on Indigenous or Māori people, Lewis, Williams, and Jones (2020) observed only a few studies in this space. Even more recently, Masters-Awatere et al. (2022) identified that when Indigenous people were included, their perspectives and voices were ignored.

A range of factors, with roots in historic and ongoing forms of marginalization, manifest as disproportionate risks to Māori health in the context of climate change. These factors include existing Māori health disparities (Ministry of Health 2019), poorer access to and quality of health care (Graham and Masters-Awatere 2020), socioeconomic deprivation (Halligate and Rozenberg, 2017; Jones et al. 2014; Jones 2019), and political marginalization (Lewis et al. 2020).

Māori views of health are holistic and recognize the relational and kin-centric connection between people, the land, and ecosystems (Harmsworth and Awatere 2013; Panelli and Tipa 2007). However, Eurocentric views, based on universalistic approaches, have been prioritized in public health and climate change policy while the values fundamental to Māori views of health remain underappreciated and marginalized (Harmsworth and Awatere 2013; Harris and Tipene 2006; Lewis et al. 2020).

The complex vulnerabilities experienced by Māori intersect to create a multi-faceted and enduring health crisis that will be exacerbated by climate change. To improve the health system, radical, meaningful, and multi-scalar change is required (Masters-Awatere 2017; New Zealand College of Public Health Medicine, 2013). This is especially so with regard to institutional responses to climate adaptation.

This paper presents a sample of the work undertaken as part of a two-year research project working with Waikato, Lakes, and Bay of Plenty District Health Boards (DHBs). These three DHBs contained a large proportion of Māori within their populations as well as capturing a mix of both urban and rural Māori groupings. The aim of this project was to facilitate consideration of climate change impacts within health institution policies. Through collaborative partnership, a co-designed policy framework ("Haumanu Hauora") was developed to assist health institutions (DHBs) prepare for the scale and pace of climate change impacts on Māori.

2 Methods

Indigenous epistemology, theory, and practice (Pihama 2010; Smith 2012), namely, Kaupapa Māori (Curtis 2016), guides this research. Indigenous accounts communicate important cultural and social principles, teach valuable lessons, and preserve the cosmologies that underpin Kaupapa Māori practice (Jackson 2011; Rangiwai 2018). In recognition of the importance that Māori cosmologies play in conveying important cultural concepts and historical knowledge regarding the state's impact on Māori health (Pihama et al. 2015; Ware et al. 2017), we are obliged to ensure that our research is committed to transformative action for positive Māori health outcomes (Reid et al. 2017). Two of the three authors are Māori who whakapapa to iwi within the research-focused locality boundaries. That whakapapa connection recreates a layer of accountability that does not transfer to Pākehā, but rather places an additional expectation upon the shoulders of Māori researchers (Hodgetts et al. 2022; Smith 2012). Grounded in Māori values, this project prioritizes Māori perspectives, health aspirations, and autonomy.

As a Kaupapa Māori project, the project was designed to incorporate collaboration across different agencies (Universities, and DHBs) and several iwi across the central North Island. As such, the research prioritized relational engagements (Mahuika and Mahuika 2020; Hodgetts et al. 2022; Hodgetts and Stolte 2017). Culturally specific processes of relationship building (Cram et al. 2006) and appropriate tikanga (cultural practices) were present throughout engagements. Aware that Māori continue to experience low-quality health services that are known lead to poorer health outcomes (Graham and Masters-Awatere 2020; Wepa and Wilson 2019), the two Māori researchers have an obligation to ensure appropriate inclusion of Māori throughout. As researchers in Aotearoa, we are also obligated to challenge deficit-oriented models that prioritize individual medical needs (Tribunal 2021) and highlight health research approaches that prioritize Māori accessibility as a key issue for inclusion (Reid et al. 2019).

2.1 Participants

A total of 31 participant interviews contributed to this research. Nearly two thirds of participants were Māori ($N = 19$). Tāngata whenua perspectives were supplemented by those of DHB staff (comprising both Māori and Pākehā). Their collective perspectives were supported by subject matter experts (SMEs) and community collaborator interviews.

Tāngata whenua perspectives were represented by ten pakeke (Māori adults; over the age of 25 years) who were recruited through a combination of community collaborator contacts and snowballing techniques. Pakeke worked for Māori organizations ($N = 5$), health agencies ($N = 4$), and a regional council ($N = 1$). All tāngata whenua participants were involved in their whānau (immediate family), hapū (extended family), and marae (culturally significant community buildings that identify to an eponymous ancestor).

DHB participants were employees at one of the three DHBs (Waikato, Lakes, and Bay of Plenty) and were primarily recruited through community collaborators using internal notices. As employees, they worked across a range of departments (public health; policy; Māori Equity; clinical lead, and sustainability) contributing different perspectives.

The two SMEs were both public health physicians who also hold continuing academic positions at two different universities that are situated outside the research-focused localities. Both SMEs contributed their expertise on the potential impacts of climate change for Māori and public health organizations. One SME was Māori and the other was Pākehā (New Zealander of primarily European descent).

The two community collaborators were senior staff within two DHBs at the research-focused localities who provided functional links between the research project, DHB staff, and in some instances community tāngata whenua contacts.

2.2 Interviews

All interviews were conducted over a 6-month period between June and December 2021. Interviews were initially conducted kanohi-ki-te-kanohi (face-to-face). In response to the threat of Omicron, Hamilton city (including large parts of the Waikato region) was placed under level 3 restrictions limiting movement and resulting in interviews being conducted via video conference tools (e.g., Zoom and Teams). Eight individual interviews were conducted kanohi-ki-te-kanohi and ten individual interviews were conducted via zoom. Three group interviews were conducted kanohi-ki-te-kanohi (group 1, $N = 4$; group 2, $N = 5$; group 3, $N = 4$).

Interviews were intended to capture diverse perspectives that could contribute to the co-design of an Indigenous-centered climate change policy framework. Tāngata whenua provided our team with an opportunity to explore their experiences, views, and aspirations for their communities when considering experiences of climate change. Our discussions also covered the participants' expectations for health policy in relation to climate change. Together, we planned ways in which improvements could happen through planning, strategies, and interventions that could inform our policy framework.

Interviews with DHB staff were principally intended for those who were involved in, or aware of, policy development and implementation processes. Our team wanted to identify the strengths and weaknesses in the existing DHB policy process to meet the health needs of Māori. Staff were asked to suggest improvements to the policy process to better meet Māori health needs considering the growing risk of climate change. We also wanted to understand the existing process for incorporating Māori health considerations in any future climate change relevant policies.

Strategic knowledge was provided by the SMEs and community collaborators whose roles allowed for more of a systemic view when it came to public health policy, Māori health, and climate change.

2.3 Analysis

During the interviews, our team heard the frustration of participants (both Māori and non-Māori alike) regarding the various ways that Māori were excluded from the DHB policy process. Through the process of āta whakarongo (listening carefully with intention; Smith 2012), we incorporated analysis processes that would ensure inclusion and confirmation of Māori perspectives.

Several check-in mechanisms were followed to ensure understanding, and interpretation was reflective of the comments shared by participants. In addition to returning transcripts as an opportunity to edit their contribution, participants were invited to contribute to thematic analysis (Clarke and Braun 2016), and comment on draft writing, frameworks, images, and designs. Despite regional lockdowns, wānanga (Mahuika and Mahuika 2020) involving members from different participant groups were hosted online. These wānanga provided further opportunity for participants to share their experiential learning (Rangiwai 2018) and collectively guide policy framework development.

Producing a framework that would avoid replicating ostracized research requires more than Māori data (as interview participants). Our process of repeated engagements (Mbuzi et al. 2017), member checking, and re-checking (Birt et al. 2016) allowed confirmation of interpretation and representation. As such, our team is confident that the framework presents the experiences of those who contributed their valuable knowledge. The framework, while guided by the researchers, reflects a co-design process that has whānau-centered healthcare knowledge, needs, resources, and aspirations at its core.

3 Results

Our analysis of the interviews identified two core themes; strategies of excluding Māori input that were perceived as weaknesses in current policy development practices, and opportunities for comprehensive and resourced Māori contributions into future climate change policy development. Referred to below as the "current policy process and its weaknesses," the first theme speaks to a collectively perceived weakness that health policy can be developed with or without Māori input. Here, tensions are presented that arise from ad hoc invitations and small teams of Māori staff being overburdened with requests to review multiple drafts. The second theme referred to as "co-designing policy with Māori" emerged as a result of reflection and cross-examination of current practices while looking for solutions-based opportunities for Māori aspirations and experiences to be included in climate change policy processes.

3.1 Current policy process and its weaknesses

The current policy formulation process in DHBs generally has six phases of development: internal design, specialist input, Māori input, committee oversight, approval, and delivery. Each of these phases challenges Māori experience, whether through unclear processes, inconsistent consideration of Māori equity or the added burden placed upon Māori staff, highlighting how a more nuanced understanding of policy development is required. A visual representation of the six phases of the policy process is presented in Fig. 1. The six phases and their observed weaknesses are explained below.

1. Internal design is generally when the need for a policy is determined. While there was general agreement among DHB staff that the flexibility for policies to be developed as and when needed (within the different departments, units, or work areas) was useful, there was frustration that prioritization processes were not consistent with their priorities and the final approval decision was out of their control

> *Our plan or policy is signed off each year by the Commissioner, and then ultimately by … the Minister of Health because he is the person who has the authority to sign it off if he's happy. If he's not happy, he won't, and that's happened for DHBs including ourselves, where we don't get sign off, usually for financial reasons (DHB-5D)*

Those generally charged with writing policies were DHB staff with little or no prior knowledge and experience of policy. The absence of a clear policy process was further complicated by staff with little of the knowledge or skills needed to write policy being given the responsibility to produce and then evaluate policy.

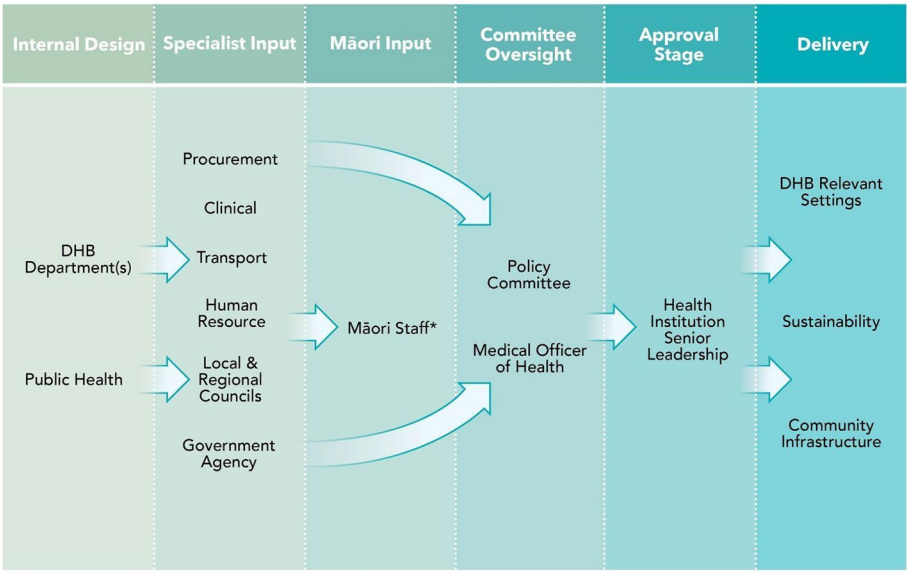

Fig. 1 Six phases of DHB policy process

Tensions due to different cultural and fiscal priorities, compounded by a lack of opportunity for Māori contribution, caused concern at the level of policy design. Despite the absence of input at this early stage, participants noted that there were several stages to policy development; each of these provided an opportunity to ensure Māori involvement.

2. Specialist input: Policies can be developed by different departments, units, and work teams, preferably with input from people with specialist knowledge. While technical and specialist knowledge and expertise are recognized as important for policy, inclusion of equity as a specialist knowledge was tempered by the need to balance work demands placed upon Māori staff

The inclusion of Māori equity was not consistently recognized as a specialist knowledge. Sometimes, as a result of conversations further along the approval process, Māori policy staff were retrospectively included at later phases of development when time allotted to complete the task was minimal.

3. Māori input was recognized as an important step in the policy development process that could demonstrate commitment to equity and Te Tiriti o Waitangi (treaty between Māori and the British that was signed by over 500 Māori chiefs). Tensions regarding health institution's partnership obligations under Te Tiriti o Waitangi were discussed among participants. Those working in health were advised the legislation of relevance was the Health and Disability Act (2000) that enabled the formation of DHBs

There is no mandate under any legislation other than the Health and Disability Act that states that we promote, protect and improve the health of our populations. But it's a pretty broad and overarching legislative requirement for us to do that. (DHB-6B)

As raised in the latter part of the comment, there is flexibility in the broad interpretation of the Act. Recognition and inclusion of Te Tiriti informed frameworks was highlighted as an area of growing development in both health and iwi spaces.

[Within the DHB,] we use a Te Tiriti framework, the four manas. And some people are getting better, I don't think it's actually … to be honest, I haven't done the policy writing course so I don't know if it actually gets taught, but there are some policies that a little bit comes through on. But we certainly review it in Te Tiriti framework (DHB-5B)

[An iwi representative] went down [to DHB], she said she was sitting in a room of over 100 people and then she saw that they've actually put a Treaty of Waitangi clause in it. She said she nearly jumped on the table for joy. (TW-1)

The quotes presented here reflect a strong desire, commonly expressed across the participant groups, for consistent Māori input in the formation of policy whether at local, regional, or national level.

4. Committee oversight: Within DHBs, a Policy Committee will oversee and support policy development by providing feedback and guidance in order to improve the quality of the final policy. Once policy documentation is submitted, Policy Committee members determine the robustness of evidence and research supporting the draft policy and the measures and/or tools for monitoring. Any changes, improvements, and additions made are reviewed before proceeding to the approval phase

However, the opportunity to consider the policy's appropriateness for improving Māori health outcomes was not being recognized.

The key thing is not having policies for the sake of policies or things that are core policies that are not policies and how to action them and make them sustainable and people know about them and all that kind of thing and get [Māori equity officer]'s work in there (DHB-6D)

… without any disrespect to my colleagues that have a clinical background … I personally think that not having a clinical background is an asset because I ask questions that wouldn't be asked if I did because I wouldn't be making assumptions. So I quite often ask, "Why not? Well, why do you have to do that? Well, I don't understand. Well, hang on a minute." (DHB-3)

5. Approval: All DHB policies, or revised policies, are reviewed and must be formally approved. Once approved policies are disseminated through internal DHB systems for implementation. However, staff noticed that Māori were sometimes not given the chance to review, edit, or comment on policies before they were presented for approval

It can be done at a more individual level … the iwi engagement is actually embedded, say in our project process, it's there. Whether it's being done, we'll just put that aside … no initiative should be coming through if you can't say that you've done … the four mana's. One of the mana's is iwi engagement, have you done this – Yes? No? and that should come to us [Māori] for review if there's a high equity impact. (DHB-5B)

6. Delivery: DHBs encourage staff to take responsibility for acquainting themselves with policies once available through the intranet and to utilize policies as needed. By relying upon staff, their availability, motivation, and desire to make the effort to learn policies, participants acknowledged vulnerability when approaching a new issue such as climate change

There is no specific policy around climate change adaptation. There is a policy around environmental sustainability and management … wastewater have policy statements and guidance and we have standards that relate to those. But climate change itself, other than what's in the framework, does not have a policy statement (DHB-3).

The absence of Māori voices within policy processes is a major weakness within DHBs. Throughout the six phases of policy development, there are multiple opportunities for Māori to be meaningfully engaged. During the interviews, as clarity was sought regarding policy development, participants discussed the ad hoc ways that Māori were included. In some examples, Māori input was by-passed and policies were presented directly to the Policy Committee (presented as arched arrows in Fig. 1 that go around Māori staff).

3.2 Co-designing DHB policy with Māori

With opportunities to share understanding of the general policy process across multiple DHBs, it became clear that the aspirations and experiences of Māori were problematically silenced through inconsistent input throughout policy development. Participants were eager for these problems to be removed when it came to developing climate change policy. While DHB employees were unhappy with the infrequency and inconsistency of their engagement in policy processes, tāngata whenua were even less involved. Tāngata whenua awareness of climate change and policy was primarily through involvement with iwi, marae, and hapū. Their involvement in DHB policy development could be better utilized, as discussed below.

1. Māori input throughout the entire policy process: Participants had clear ideas on the use of mātauranga Māori (Indigenous, Māori knowledge) to help address climate change issues. Solutions for addressing climate change were already being worked on by whānau, hapū, and iwi. Tāngata whenua referred to iwi climate change strategic plans, grounded in their own cultural context, knowledge, and history. They expressed how this type of strategic thinking was already in action

… nobody would know [the landscape], significant places, waters, better than the home people. So, there would be a huge expectation that anything to do with that area, that the iwi/hapū not only be a part of, but even lead with their own particular knowledge as well, and intergenerationally. So that kaitiaki role [is] restored and activated. (TW-2A)

… our work program has been focused our land and our water settlement, which intertwines with climate change. One of the key pieces of work that my team along with our taiao team, we've gone probably two, three years ago, was around [our iwi]'s position around climate change. (TW-4)

Tāngata whenua have been observing the impacts of climate change on their people, waterways, and lands. In light of their experiences, people felt they had plenty to offer DHBs and want to engage before a crisis occurs. They want to develop appropriate plans and policies that will help communities to be proactive in their climate change preparations.

It's an unchallenged fact that Indigenous across the world, including Māori, will be most impacted by climate change … And yet, [Iwi Leader] was the only Māori in that room. And that is the reality of what's happening in climate change in New Zealand. [Iwi Leader was asking] "Where the hell are we? We're not part of this." And yet, our people will be most impacted and our people didn't cause this. But we're not sitting in [the decision-making room]. (TW-1)

Responding to health needs during a crisis contributed unnecessary additional stress for Māori DHB staff and Māori community health service providers. As such, it was agreed that Māori staff, health providers, and iwi groups working together could strengthen DHB efforts to prepare for climate change impacts on health.

2. Three clear phases of policy process: Having different people involved throughout the policy process means that the workload can be shared. While a high level of input is required at the commissioning phase, from the internal design to specialist and Māori input, the inclusion of Māori as tāngata whenua, as employees, and as clinical directors means that the workload can be shared consistently throughout. Consistent Māori input offers the opportunity for partnerships and relationships to grow. DHBs have access to technical information, and tāngata whenua have access to local knowledge. Both groups will benefit from this engagement

… that opportunity to access … those partnerships and/or relationships to get some of that information. There's some robust information or technology that the likes of the DHB have access to. How can we get that? And, how can we have it translated in a way that is palatable, because you know some of the information you get from DHB is very high-level, very technical, and you have to be a very technical person to interpret it. (TW-4)

Our proposed introduction of one exit point, as policies transition through the three phases, ensures Māori inclusion is secured (Fig. 2). Each phase presented at the top of the framework (commissioning, refining, and monitoring) encompasses two stages. Above all, we emphasize the need for internal and external Māori input into the entire policy development process. Although Māori input (at stage 3) is acknowledged within the existing policy process, inclusion of Māori perspectives is ad hoc and sometimes excluded altogether. Occasionally, there is a retrospective addition of Māori input. However, such inconsistencies within health policy are not conducive to equitable and effective health outcomes for Māori.

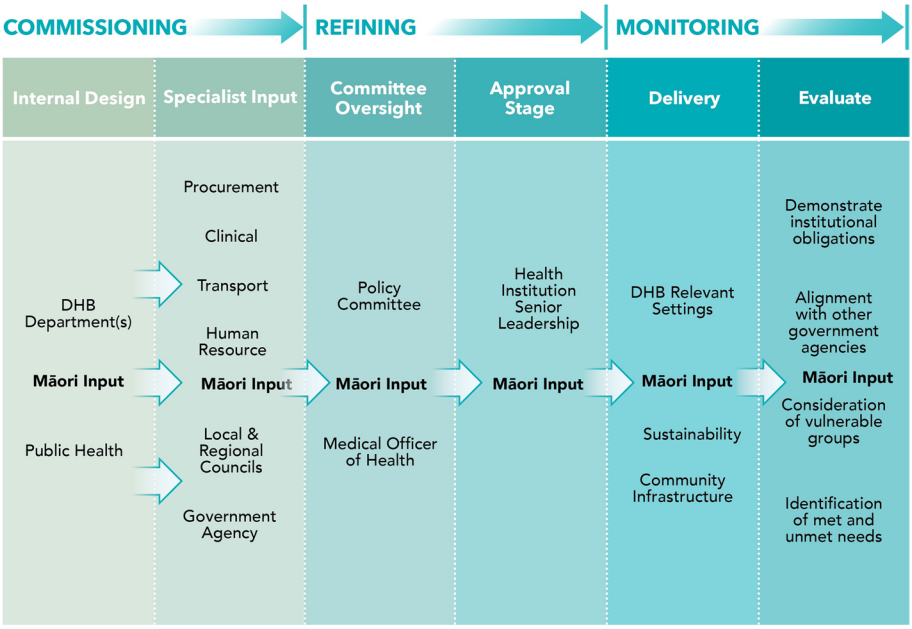

Fig. 2 Proposed co-designed policy process

3. Regularly evaluate the effectiveness and appropriateness of policy: Within health institutions there are teams and roles wherein Māori staff can nominate appropriate representatives to review policies. Within the Monitoring stage of the policy process, we highlight the necessary addition of an evaluation phase

> *… we know there's an equity issue, so we said the audit measures, you need to tell us how many Māori are getting this treatment in [rural township] … we know that there's that postcode privilege that depending on where you live you get better healthcare, so is it yes you've got a policy but does that policy actually … is it detrimental? Does it make the health outcomes worse for a person in [rural township] It may not be, but we still wanted to see that rural versus urban, Māori versus [Pākehā] (DHB-5B)*

> *The climate impact will be felt, and is being felt, across the world. And so, our aspiration is around protection first and foremost. How do we protect our whakapapa? How do we future-proof for future generations, and what is our response as of here and now? (TW-4)*

As a result of conversations with DHB employees, tāngata whenua, and subject matter experts, a co-designed policy process emerged within the context of considering the potential impacts of climate change on health. Each phase assumes the need for internal and external Māori input into the policy process. The intention of a clarified process is to reduce processes that are not conducive to equitable and effective health outcomes for Māori.

4 Discussion

The ways in which Indigenous voices are ignored or silenced were recognized as a weakness of the current policy development process within DHBs. Examples from all participants highlight that Māori are keenly interested in environment and climate change issues. Our findings about the existing DHB policy process highlights observed failures regarding the incorporation of Māori health considerations into climate change policy and proposes a revised policy framework (Fig. 2).

The Policy Project (Department of the Prime Minister and Cabinet 2021) identified commissioning conversations as essential to good policy development. Introducing Māori responsive climate health adaptation to the DHB policy process will involve consideration of decision-making factors, climate adaptation, Māori health delivery, and outcomes, as well as the social determinants of health. Including Māori input in this early commissioning phase will be central to such inclusions.

The challenge of incorporating Māori experiences and aspirations into policy will take time and continuous effort to achieve. DHB staff, tāngata whenua, and our subject matter experts all spoke to their aspirations of including Māori voices. Recognizing that success will not be obtained in the first or possibly fourth attempt, means recognizing that refinements will need to be part of the ongoing implementation of a policy. While the first step in policy formation is the commissioning stage, in alignment with the need to modify, adapt and edit policies before "approval," we support the need for a refining stage that occurs after commissioning and before monitoring. Central to this refinement is the co-partnership with Māori, including both internal and external voices (see Fig. 2). Within the refining stage, it is essential that efforts to ensure processes are responsive to contemporary agenda are also cognisant of both historical influences and future contexts.

Monitoring and evaluation are critical to achieving better outcomes. The monitoring stage provides the opportunity to reflect on decisions in a timely manner and to target evaluations specifically to areas in need of attention. Thorough monitoring may result in further policy refinement. For Indigenous communities, the inputs need to be grounded in an Indigenous worldview to ensure that the outputs and outcomes achieved reflect the particular health and wellbeing of that community. The need for policy processes to move away from a linear model is imperative.

The iterative policy process we are proposing harks back to Lindblom (1959) "muddling through" approach to policy development. This recognizes that "Policy is not made once and for all; it is made and re-made endlessly. Policy-making is a process of successive approximation to some desired objectives in which what is desired itself continues to change under reconsideration" (p. 86). However, through these many iterations, the inclusion of Māori input at every stage of policy development is essential, and presently absent, or inconsistent at best.

According to the Ministry of Health (2020), achieving Pae Ora (healthy futures for Māori) includes Mauri Ora (healthy individuals), Whānau Ora (healthy families), and Wai Ora (healthy environments). Participant comments highlight that there is no "one-size fits all" approach to working with Māori. It is clear that Māori community health climate adaptation needs will vary as the situation for each community reflects their history, circumstance, location, and economic base. This diversity needs to be considered in climate policy responses. A key mechanism identified by participants to achieve change is to include, in addition to internal staff, tāngata whenua input (Māori external to the organization) at all stages of the policy process to provide the locally relevant and environmentally situated knowledge.

4.1 Implications for Aotearoa New Zealand's new health system

Our suggested policy framework "Haumanu Hauora" should be regarded as an amenable and living framework that can be readily applied to a shifting health context in Aotearoa. That is, the essence of a robust commissioning, refining, and monitoring stage of policy development that ensures substantive Māori input at all stages can be applied to a changing governance structure, as seen with the introduction of Te Whatu Ora (Health New Zealand) and Te Aka Whai Ora (the Māori Health Authority).

In order to deliver on the potential of the refined policy framework, it is necessary to increase the awareness of and knowledge about climate change and the impacts on Māori health within health institutions. DHB staff had limited understanding about climate change and the impacts of climate change on health and wellbeing for Māori.

DHB staff acknowledged that it was important to understand climate change but also described experiences where members of staff were resistant to change within their jobs. Introducing climate change impacts was seen to be an area of new learning that would likely be resisted or ignored which could negate any steps to include climate mitigation and adaptation into policies and/or procedures. Ensuring there is a foundational alignment of Māori responsive climate health adaptation will strengthen any policy that emerges.

DHBs are part of the larger health system that have responsibility for maintaining health delivery, funding, and service provision in New Zealand. The Waitangi Tribunal (2021) recently found that health services had not met the health needs of Māori. Work needs to be done to improve equity in health outcomes for Māori. Enhancing access to care involves improving the health system to reduce unmet health needs, ideally through better planning to prepare for the impacts of climate change.

Legislative attention on climate change such as the Climate Change Response Act 2002 and the Climate Change Response (Zero Carbon) Amendment Act 2019 has started encouraging the public sector to work toward reducing carbon emissions. Both the national climate change framework (Ministry for the Environment 2019) and emerging risk assessments (Awatere et al. 2021; Ministry for the Environment 2020) highlight a need to understand present and future impacts of climate change to be able to plan for the changes that will continue to occur. While the public health system adapts to incorporate climate change as core business across health services, emphasis will need to be placed on building the capacity and capability of health institution staff.

For the last 21 years, relationships with Māori communities have been facilitated through the Iwi-Māori Governance Boards within the DHBs, with little to no direct relationship between the health institutions and Iwi-Māori communities. There are profound disparities between Māori and non-Māori health access, experiences, and outcomes in New Zealand. Māori are overrepresented as patients and underrepresented as professionals in the health system (Ratima et al. 2007; Reid et al. 2016) and continue to experience disadvantage in the publicly funded health care system (Bennett et al. 2014; Graham and Masters-Awatere 2020). New opportunities within the latest health reforms may build relationships while giving greater voice to Māori, and vulnerable, communities to address climate adaptation health needs. These wider structural considerations emphasize the need for responsive policy that is robust and involves partnered input from Māori at all stages.

5 Conclusion

Weaknesses in the existing policy process of DHBs means that these types of health institutions will fail to prepare for the intersecting health crises that vulnerable Māori will experience in the face of climate change. Recognition of an ad hoc approach to policy development and disregard for Māori input despite obligations under Te Tiriti o Waitangi contributed to frustrations by all interviewed. Participants expressed their experiences of, and aspirations about, dealing with climate change. Within the research, we heard a notable desire for health system structural change, and the recent health reform has provided an opportunity for change. While the newly formed partnership of the three main health institutions (Te Whatu Ora, Te Aka Whai Ora and Manatū Hauora) has only recently begun, expectations that they will address identified inequity and disadvantage are high. A refined policy framework and the intervention points noted within this paper provide guidance to the newly developed health institutions. The weaknesses observed in existing DHB policy processes and the wider structural changes required of the health system reflects the substantial work that is needed to develop Māori responsive policy in anticipation of climate change impacts on Māori health.

Acknowledgements The authors would like to acknowledge the following people who assisted with the Haumanu Hauora research project: Renae Dixon, Rhys Jones, Alex Macmillan, Nina Scott, Phyllis Tangitu, Megan Tunks, Rebekah Graham, Elisha Powell, Areta Ranginui Charlton, Kendon Bell, and Bill Cochrane. We would also like to thank our research participants who willingly gave their time to attend the interviews and then joined us a second time to review and provide feedback on the policy framework and intervention points.

Author contribution All authors listed have contributed sufficiently to the project to be included as authors, and all those who are qualified to be authors are listed as authors. Material preparation, data collection, and analysis were performed by Bridgette Masters-Awatere, Darelle Howard, and Patricia Young. The first draft of the manuscript was written by Bridgette Masters-Awatere and all authors commented on versions of the manuscript and contributed to revisions. All authors read and approved the final manuscript.

Funding Open Access funding enabled and organized by CAUL and its Member Institutions This project was funded by the Vision Mātauranga programme within the Deep South National Science Challenge. We thank them for their funding and administrative support. In particular, we acknowledge the support of Sandy Morrison (Vision Mātauranga Lead) and Shaun Awatere (Kāhui member) throughout, and more recently received support from Naomi Simmonds (Partnerships Director, Māori).

Data availability The datasets generated during and/or analysed during the current study are not publicly available due to confidentiality clauses with the research funder but are available from the corresponding author on reasonable request.

Declarations

Ethical approval Appropriate ethical approvals for the research were obtained from the University of Waikato Human Research Ethics Committee (Health) (Ref: 2020#61). Locality approvals were obtained from the appropriate health institutions between September and October 2020 (prior to commencement of interviews).

Competing interests The authors declare no competing interests.

References

Abate RS, Kronk EA (2013) Commonality among unique indigenous communities: an introduction to climate change and its impacts on indigenous peoples. In: Abate RS, Kronk EA (eds) *Climate Change and Indigenous Peoples: The search for Legal Remedies*. Edward Elgar Publishing, Massachusetts, USA, pp 3–18

Awatere S, King DN, Reid J, Wiliams L, Masters-Awatere B, Harris P, Tassell-Matamua N, Jones R, Eastwood K, Pirker J, & Jackson A-M. (2021) He huringa āhuatanga, he huringa ao: A changing climate, a changing world. Report prepared for Ngā Pae o te Māramatanga. Manaaki Whenua Landcare Research. Hamilton, New Zealand. https://www.maramatanga.ac.nz/project/he-huringa-huarangi-he-huringa-ao-changing-climatechanging-world

Begay J, Gursoz A (2018) Why defending Indigenous rights is integral to fighting climate change. Rainforest Action Network. https://www.ecowatch.com/defending-indigenous-rights-climate-change-2602221014.html

Bennett H, Jones R, Keating G, Woodward A, Hales S, Metcalfe S (2014) Health and equity impacts of climate change in Aotearoa-New Zealand, and health gains from climate action. *N Z Med J* 3:12–16

Birt L, Scott S, Cavers D, Campbell C, Walter F (2016) Member checking: a tool to enhance trustworthiness or merely a nod to validation? *Qual Health Res* 26(13):1802–1811. https://doi.org/10.1177/1049732316654870

Bolton A, Hepi M, Khatri K, Billings C (2019) *Considerations for developing a Health National Adaptation Plan for New Zealand*. Wellington, New Zealand, Ministry of Health

Cram F, McCreanor T, Tuhiwai Smith L, Nairn R, Johnstone W (2006) Kaupapa Māori research and Pākehā social science: epistemological tensions in a study of Māori health. *Hūlili Multidisciplinary Research on Hawaiian Well-Being* 3(1):41–68. www.hawaiidigitallibrary.org

Clarke V, Braun V (2016) Thematic analysis. *J Posit Psychol* 12(3):297–298. https://doi.org/10.1080/17439760.2016.1262613

Curtis E (2016) Indigenous positioning in health research: the importance of Kaupapa Māori theory-informed practice. *AlterNative* 12(4):396–410

Department of the Prime Minister and Cabinet (2021) *Policy Project, start right guide: guidance on how to get policy projects off to a great start*. https://dpmc.govt.nz/sites/default/files/2019-08/start-right-guide-may21.pdf

Graham R, Masters-Awatere B (2020) Experiences of Māori of Aotearoa New Zealand's public health system: a systematic review of two decades of published qualitative research. *Aust N Z J Public Health* 44(3):193–200. https://doi.org/10.1111/1753-6405.12971

Hallegatte S, Rozenberg J (2017) Climate change through a poverty lens. *Nature Climate Change* 7:250

Harmsworth G, Awatere S (2013) Indigenous Māori knowledge and perspectives of ecosystems. In: Dymond J, Ausseil AG (eds) *Ecosystem services: conditions and trends*. Manaaki Whenua Press, Lincoln, New Zealand, pp 274–286

Harris, GF, Tipene P (2006) Māori land development. In, *State of the Māori nation: Twenty-first century issues in Aotearoa*. By M. Mullholland (ed). Auckland; Reed publishers. Chapter 5.

Hodgetts D, Stolte O (2017) *Urban poverty and health inequalities: a relational approach*. Routledge. https://www.routledge.com/Urban-Poverty-and-Health-Inequalities-A-Relational-Approach/Hodgetts-Stolte/p/book/9781138124363

Hodgetts D, Rua M, Groot S, Hopner V, Drew N, King P, Blake D (2022) Relational ethics meets principled practice in community research engagements to understand and address homelessness. *J Community Psychol* 50(4):1980–1992

Holder C (2020) The link between climate change, health and poverty. https://www.youtube.com/watch?v=jQTykJbN8yI

IPCC (2019) Special Report on climate change, desertification, land degradation, sustainable land management, food security, and greenhouse gas fluxes in terrestrial ecosystems. Final Government Distribution. Intergovernmental Panel on Climate Change, Geneva. https://www.ipcc.ch/srccl/

IPCC (2021) *Climate change 2021: the physical science basis. Contribution of Working Group I to the Sixth Assessment Report*. Intergovernmental Panel on Climate Change, Geneva. https://www.ipcc.ch/report/sixth-assessment-report-working-group-i/

Jackson M (2011) Hui reflections: research and the consolation of bravery. In: Marae P (ed) Kei tua o te pae hui: The Challenges of Kaupapa Māori research in the 21st Century [Internet]. Pipitea Marae, Wellington, pp 71–78. https://www.nzcer.org.nz/system/files/Hui_Procedings_v3_Web_1_2.pdf

Jones R (2019) Climate change and indigenous health promotion. *Glob Health Promot* 26(3_suppl):73–81

Jones R, Bennett H, Keating G, Blaiklock A (2014) Climate change and the right to health for Māori in Aotearoa/New Zealand. *Health and Human Rights Journal* 16(1):54–68

Lewis D, Williams L, Jones R (2020) A radical revision of the public health response to environmental crisis in a warming world: contributions of Indigenous knowledges and Indigenous feminist perspectives. *Can J Public Health* 111:897–900

Mahuika N, Mahuika R (2020) Wānanga as a research methodology. *AlterNative* 16(4):369–377. https://doi.org/10.1177/1177180120968580
Masters-Awatere B (2017) A game of slides and ladders: Māori health providers and funders. In: Groot S, van Ommen C, Masters-Awatere B, Tassell-Matamua N (eds) P*recarity: Uncertain, Insecure and Unequal Lives in Aotearoa New Zealand*. Massey University Press, Auckland, New Zealand, pp 146–160
Masters-Awatere B, Young P, Graham R (2022) State agencies and researchers engaging with Indigenous communities on climate change adaptation planning: a systematic review. *MAI Journal* 11(1):294–308
Mbuzi V, Fulbrook P, Jessup M (2017) Indigenous peoples' experiences and perceptions of hospitalisation for acute care: a metasynthesis of qualitative studies. *Int J Nurs Stud* 71:39–49
Lindblom C (1959) The science of "muddling through". *Public Adm Rev* 19(2):79–88
Ministry of Health (2019) *WAI 2575 Māori Health Trends Report.*. https://www.health.govt.nz/publication/wai-2575-maori-health-trends-report
Ministry of Health (2020) *Whakamaua: Māori Health Action Plan 2020-2025*. https://www.health.govt.nz/our-work/populations/maori-health/whakamaua-maori-health-action-plan-2020-2025
Ministry for the Environment (2019) *Arotakenga Huringa Āhuarangi: a framework for the national climate change risk assessment for Aotearoa New Zealand.* https://environment.govt.nz/assets/Publications/Files/arotakenga-huringa-ahuarangi-framework-for-national-climate-change-risk-assessment-for-aotearoa-FINAL.pdf
Ministry for the Environment (2020) National climate change risk assessment for New Zealand – Arotakenga Tūraru mō te Huringa Āhuarangi o Aotearoa: method report – Pūrongo whakararangi. Ministry for the Environment, Wellington
New Zealand College of Public Health Medicine (2013) *Policy statement on climate change*. New Zealand College of Public Health Medicine, Wellington
Nursey-Bray M, Palmer R, Stuart A, Arbon V, Rigney LI (2020) Scale, colonisation and adapting to climate change: insights from the Arabana people, South Australia. *Geoforum* 114:138–150
O'Neill C, Green D, Liu W (2012) How to make climate change research relevant for Indigenous communities in Torres Strait, Australia. *Local Environment* 17(10):1104–1120
Panelli R, Tipa G (2007) Placing well-being: a Maori case study of cultural and environmental specificity. *EcoHealth* 4(4):445–460
Pihama L (2010) Kaupapa Māori theory: transforming theory in Aotearoa. *He Pukenga* 9(2):5–15
Pihama L, Southey K, Tiakiwai S (2015) Kaupapa rangahau: a reader. A collection of readings from the Kaupapa rangahau workshop series, 2nd edn. Te Matenga Punenga o Te Kotahi, Te Whare Wānanga o Waikato, Kirikiriroa
Rangiwai B (2018) "Stories are knowledge, and knowledge is literature": viewing and re-viewing sites/cites of mātauranga Māori as an alternative to traditional Western literature reviews. *Te Kaharoa* 11:489–493. https://www.tekaharoa.com/index.php/tekaharoa/article/view/229
Ratima MM, Brown RM, Garrett NK, Wikaire EI, Ngawati RM, Aspin CS, Potaka UK (2007) Strengthening Maori participation in the New Zealand health and disability workforce. *Medical Journal of Australia* 186(10):541
Reid J, Cormack D, Crowe M (2016) The significance of socially-assigned ethnicity for self-identified Māori accessing and engaging with primary healthcare in New Zealand. *Health* 20(2):143–160. https://doi.org/10.1177/1363459315568918
Reid P, Cormack D, Paine S-J (2019) Colonial histories, racism and health—the experience of Māori and Indigenous peoples. *Public Health* 1(172):119–124
Reid P, Paine S-J, Curtis E, Jones R, Anderson A, Willing E (2017) Achieving health equity in Aotearoa: strengthening responsiveness to Māori in health research. *N Z Med J* 130(1465):96–103
Royal Society of New Zealand/Te Apārangi (2017) Human health impacts of climate change for New Zealand: evidence summary.
Smith LT (2012) *Decolonizing methodologies: research and indigenous peoples*, 2nd edn. Zed Books, New York
Ware F, Breheny M, Forster M (2017) Kaupapa Kōrero: a Māori cultural approach to narrative inquiry. *AlterNative* 14(1):45–53. https://doi.org/10.1177/1177180117744810
Waitangi Tribunal (2021) Hauora: report on stage one of the health services and outcomes kaupapa inquiry (Chapter 10, Pre-publication version) (WAI 2575). https://waitangitribunal.govt.nz/assets/Documents/Publications/Hauora-Chapt10W.pdf
Wepa D, Wilson D (2019) Struggling to be involved: an interprofessional approach to examine Māori whānau engagement with healthcare services. *Journal of Nursing Research and Practice* 03(03):1–5 http://orapp.aut.ac.nz/handle/10292/13495