Chapter 6: Perspectives from Tangata Whenua: Considering impacts of emissions reductions and removals for iwi/Māori.

Emissions reduction options and associated impacts for iwi and Māori will vary across the motu. Supporting the Crown to be a good Treaty Partner and promoting intergenerationally equitable outcomes for iwi/Māori requires an understanding of the issues and opportunities through a Te Ao Māori lens, from the perspectives of Tangata Whenua.

This chapter draws on He Ara Waiora – A Pathway towards Wellbeing and insights gathered though engagement with Māori to explore potential impacts for iwi/Māori of different emissions reductions options.

We saw many examples where iwi/Māori demonstrate climate positive leadership in their decision making by exercising rangatiratanga and kaitiakitanga and identify key considerations that Aotearoa should factor into climate positive decisions and actions.

Contents

Emissions reduction options and associated impacts for iwi and Māori will vary across the motu. Supporting the Crown to be a good Treaty Partner and promoting intergenerationally equitable outcomes for iwi/Māori requires an understanding of the issues and opportunities through a Te Ao Māori lens, from the perspectives of Tangata Whenua.

This chapter draws on He Ara Waiora – A Pathway towards Wellbeing and insights gathered though engagement with Māori to explore potential impacts for iwi/Māori of different emissions reductions options.

We saw many examples where iwi/Māori demonstrate climate positive leadership in their decision making by exercising rangatiratanga and kaitiakitanga and identify key considerations that Aotearoa should factor into climate positive decisions and actions.

6.1 Introduction

The Climate Change Response Act 2002 (the Act)[1] requires that the Commission considers the Crown-Māori relationship, Te Ao Māori, and specific effects on iwi and Māori in all the advice it gives to the Government (section 5M(f)). The Act requires that when the Government acts on our advice, it explicitly includes strategies to recognise and mitigate the impacts on iwi and Māori of reducing emissions and increasing removals (section 3A(ad)), and that it considers economic, social, health, environmental, ecological and cultural effects of climate change for iwi and Māori. Both the Climate Change Commission and the Government must also adequately consult with iwi and Māori on their advice and plans. (section 5N for the Commission and section 3A(ad) and section 5ZS(6) for the Minister).

Recognising relevant reduction options and potential impacts requires an understanding of what matters to iwi and Māori from a Māori perspective, or a Te Ao Māori view. This chapter sets out our key findings and insights that enable the development of an appropriate strategy to meet our legislative obligations.

Te Ao Māori view is a distinct way of understanding and being in the world unique to tangata whenua of Aotearoa. Within Te Ao Māori, societal constructs are comprised of iwi, hapū and whānau who occupy different takiwā (tribal regions). Between iwi, hapū and their respective takiwā, expressions of tikanga and mātauranga are diverse and there is also dialectal variation within te reo Māori.

Given the diversity across iwi/Māori, we understand that iwi/Māori across the motu will be affected differently due to their unique histories and the characteristics of their tribal takiwā. Our approach to gathering insights included building an understanding of the historic and contemporary context to frame what we heard.

[1] (Climate Change Response Act 2002 (as at 01 December 2020))

6.1.1 Purpose

While impacts for iwi and Māori are considered throughout the report, the purpose of this chapter is to provide an overview of the insights we gathered from tangata whenua. This was achieved through engagement and literature, to provide the appropriate context, supporting evidence and the rationale underpinning our impacts analysis specific to iwi and Māori.

This chapter is intended to set the foundations of our work to understand impacts for iwi and Māori, to enable iwi and Māori to test our understanding and analysis of impacts and provide feedback. While this section is written to ensure iwi and Māori are able to participate in the process in a focused and efficient way, we hope that the content may be useful to other audiences.

6.1.2 How we engaged with iwi/Māori and gathered insights

Climate change emissions reduction options and associated impacts for iwi and Māori will vary across the motu. As an indication of diversity across iwi and Māori, there are approximately 95 iwi, each with affiliated hapū and associated marae. Of the larger iwi Ngapuhi has 110 affiliated hapū, Ngāti Porou has 58 affiliated hapū, Ngāi Tahu have 5 primary hapū (although there were over 100 hapū pre-settlement), Waikato-Tainui have 33 affiliated hapū and Ngāti Tūwharetoa have 26 affiliated hapū. There are also 8,406[2] entities managing 27,456 Māori freehold land titles and several pan-iwi and pan-Māori organisations.

Considering the vastness of iwi and Māori perspectives within Aotearoa we acknowledge we are not able to represent perspectives on behalf of all Māori. However, we applied a range of methods to reach out and connect with iwi and Māori between February and October 2020, as an initial approach to gather a broad range of insights for our first consultation round. These included:

1) Building on the insights gathered through the Interim Climate Change Committee's submissions process and their engagement with Iwi and Māori.
2) Undertaking an assessment of Iwi Management Plans to understand iwi aspirations for resources within their takiwā.
3) Undertaking a review of literature pertaining to Māori perspectives on climate change and/or protecting te ao tūroa/te taiao.
4) Drawing on He Ara Waiora[3], a high-level Māori wellbeing framework sourced in mātauranga Māori. This approach enabled us to draw on insights Māori thought leaders have already provided to the Crown while trying not to exacerbate engagement fatigue.
5) Ensuring Māori with the relevant expertise were members of the Technical Reference Groups.
6) Conducting Zoom sessions with Māori thought leaders, iwi representatives, Māori business leaders and Māori scientists.
7) Engaging with Māori who connected with us.

[2] (Ministry of Justice & Te Kooti Whenua Māori (Māori Land Court), 2019)
[3] (McMeeking et al., 2019)

8) Development of case studies with representatives of Māori-collectives.[4]

The insights we heard through engagement with iwi/Māori inform this chapter and are summarised in Part 2 under barriers, opportunities/benefits and key considerations in alignment with the Treaty principles. Going forward we will expand our engagement with iwi/Māori to ensure we are understanding Māori perspectives more broadly across the motu.

This chapter is comprised of two parts:

- **Part 1: Context** – this part contains foundational context which provides the basis of our analysis for impacts on iwi and Māori to support the development of the reports for this consultation period and set up a base level of knowledge for our work going forward.
- **Part 2: Impacts** – this part identifies potential impacts for iwi and Māori based on our findings in relation to the context and the sector reduction options and pathways.

Further work will be undertaken to address impacts for iwi and Māori with regard to adaptation, however, the focus of our work to date has been to capture the potential impacts for iwi and Māori of proposed options to reduce and remove emissions.

6.2 Part 1: Context

6.2.1 Iwi and Māori constructs

Impacts on iwi and Māori can only be considered through a Te Ao Māori view and with an understanding of traditional and contemporary Māori societal and economic frameworks.

Traditionally Māori societal frameworks consisted of whānau, hapū and iwi connected through whakapapa to a common ancestor and an area/territory (e.g., maunga, awa, moana, whenua) based on rights established by their tipuna.

Today, following years of colonial disruption, in addition to traditional societal frameworks, iwi, hapū and whānau Māori maintain aspects of their cultural, social, environmental and economic functions through a range of organisational constructs. For the purposes of this report we have referred to all Māori traditional and contemporary constructs where members are connected through whakapapa as Māori-collectives. We refer to pan-iwi or pan-Māori organisations by their names. Where we use the phrase 'iwi and Māori' throughout the report this is specifically referring to and aligning with the Act and 'iwi/Māori' when we are speaking more generally given that culturally Māori as individuals, whānau and hapū are components of iwi.

6.2.2 Māori-collectives

For the purposes of this chapter, Māori-collectives include:

[4] We invited Māori-collectives from different takiwā to participate in case studies, however, only a small number of entities were able or willing to engage. Reasons for not engaging included timing/capacity constraints, no perceived reciprocation of value, lack of trust in the Crown's desire to do right by Māori, or potential misrepresentation or lack of capability to understand and relay the information appropriately.

- **Iwi** – tribe or extended kinship group comprised of several hapū within a takiwā (tribal boundary). Iwi is largely recognized by Crown due to the large natural grouping policy prioritized under the Treaty Settlement process. Today iwi operate through a range of entities including Post-Settlement Governance Entities (PSGEs), charitable trusts, companies, or partnerships to undertake their duties and carry out operations.
- **Māori Trust Boards** – some iwi/Māori entities are constituted under the Māori Trust Boards Act 1955. This legal framework was initially established to enable iwi to manage compensation payments (prior to PSGEs). They typically hold collectively-owned tribal assets and their main objectives are political, social and cultural. Being a Crown construct there are ongoing tensions due to Crown control versus iwi/Māori autonomy.
- **Post-Settlement Government Entities (PSGEs)** – are typically iwi entities set up to receive and sometimes administer and manage redress assets on behalf of their members. Due to the government's large natural grouping policy, PSGEs are often tasked with transferring redress assets back to the hapū/collective of hapū with the mana whenua status.
- **Hapū** – Kinship group or subtribe (subgroups referred to as hapori), some of the participants we engaged with considered their perspectives on climate change from a whānau and hapū perspective, with regard to how they could experience impacts. Note: whānau form the base unit of Māori societal constructs, however, we have not focused in on whānau in this chapter, as many of the impacts for Māori as individuals and whānau will be covered in other chapters.
- **Marae** – usually run by a board or committee and typically represent the centre for culture for whānau and hapū where they uphold cultural practices such as tangihanga, wānanga, hui-a-hapū.
- **Te Ture Whenua Māori Entities** – entities created under the Te Ture Whenua Māori Act 1993 to hold and manage Māori customary or freehold land. A large number of Māori entities operating in forestry and farming are Ahu Whenua Trusts and Māori Incorporations.

6.2.3 Traditional Māori social and economic constructs

Kainga/Pā

Traditionally the kāinga was the base economic unit of Māori society. The kāinga (also referred to as the Pā) was home to several whānau within a hapū and comprised of a small number of whare, sometimes a marae and had proximity to areas suitable for gathering food, rongoā and other resources essential for carrying out subsistence or customary practices within the established hapū boundaries. Within the kāinga, tikanga such as aroha, manaakitanga, utu and koha ensured the wellbeing of the resident whānau and supported intra-hapū and pan-iwi trading of resources.

Haukāinga

The haukāinga (home people/ whānau from the Pā), sometimes referred to as the ahi kā, provide a significant contribution to the sustainability and vitality of Māori culture due to their role in carrying

on the kawa and tikanga of their marae, kāinga and hapū, as well as retaining local mātauranga and managing stocks of natural resources.

In addition to upholding culture, the haukāinga also help maintain cohesive and resilient communities. Māori we engaged with who were raised on the pa and/or are active members of their haukāinga, described the Pa lifestyle as having a high degree of community connectivity and a strong sense of self-identity and belonging which enhanced resilience within their communities.

We were told that the high level of connectedness within the haukāinga enhanced community resilience during the COVID-19 lockdown period and similarly climate change initiatives should consider the role and the effectiveness of the haukāinga (or ahi kaa) for their ability to build community cohesion and resilience particularly in times of crisis. Participants discussed how Māori communities are often viewed by Crown from a deficit perspective, however, following COVID-19 lockdown, these communities demonstrated their strength and prosperity in ways that should not be discounted when considering options to address climate change.

Whānau

Whānau encapsulates the extended family or family group and (within the kāinga) represents a key component of the primary economic unit of traditional Māori society. Within Māori social constructs, wellbeing can be enhanced with initiatives driven from within the whānau unit.

Hapū

Hapū, a larger kinship group consisting of several whānau who share a common ancestry. Hapū traditionally form the primary political unit, exercising rangatiratanga, mana motuhake, kaitiakitanga, ahi kā and other cultural related practices where they have mana whenua within their takiwā. While whānau form the base unit of Māori social constructs, whānau will collaborate as hapū to take on shared kaupapa that requires collective action.

Iwi

Iwi, an extended kinship group who share a common ancestor with established tribal boundaries or takiwā. Similar to whānau collectivising as hapū, hapū typically align as iwi to take on shared kaupapa and often iwi will work in collaboration with other iwi. In contemporary times, iwi is not just a genealogy-based construct, but has taken on a constitutional role subsequent to the Treaty Settlement process. Now, through Settlement legislation, the Crown must uphold obligations specific to individual iwi which climate change policy would need to give consideration to.

6.2.4 Te Ao Māori values

Throughout engagement we heard from a range of Māori individuals and representatives from Māori-collectives who expressed how Māori concepts of whakapapa, whenua, whanaungatanga and tikanga such as kaitiakitanga, manaakitanga, kotahitanga shaped the way Māori live as tangata whenua in Aotearoa and how these values contribute to decision making.

We also heard that mātauranga Māori and tikanga vary across iwi/hapū and different regions. However, at a high-level there are consistent themes that resonate broadly with iwi/Māori which

have guided a Māori way of being in the world for many generations (e.g., societal frameworks, community responsibilities, resource management).

There was not sufficient time to take soundings across a broad spectrum of Māori-collectives. However, based on these common themes, we have drawn on the framework *He Ara Waiora – A Pathway towards Wellbeing* (version 2)[5] to inform our understanding of a Te Ao Māori view and underpin our analysis regarding impacts for iwi/Māori. He Ara Waiora[6] presents a mātauranga Māori approach to wellbeing and provides appropriate framing to assess impacts of emissions reductions and increased removals for iwi and Māori.

6.2.5 He Ara Waiora – A pathway towards wellbeing

He Ara Waiora aims to provide a potential "*model for measuring and analysing wellbeing, sourced in mātauranga Māori*"[7] and is a useful framework to apply our analysis as it provides a high-level interpretation of how Māori view the world holistically, which is consistent with the perspectives we heard through engagement with Māori. It also helps us think about how tikanga could be applied to our advice on climate change policy, which should consider the broader wellbeing of people and the environment for current and future generations.

Through engagement with Māori we heard that all things are interconnected through wairua and whakapapa. Through whakapapa, Māori acknowledge their relationship to the environment (being the descendants of Io and of Ranginui and Papatūānuku). The ira tangata (the human realm) positions humans as the pōtiki (the youngest) in the whakapapa, therefore Māori inherit responsibilities to the other domains (e.g., Ranginui and Papatūānuku, Tangaroa - the sea, Tāne Mahuta – the forest and Tāne's offspring the flora/fauna etc.) who preceded the emergence of humanity into Te Ao Marama (the light of the world/the world of knowledge).

Accordingly, through whakapapa Māori inherit responsibilities to consider the wellbeing of the broader system and tikanga provides guidelines that enables a holistic way of living. An understanding of a Te Ao Māori view and how tikanga is applied could extend to the way we consider climate change related decisions.

This relationality is presented in the He Ara Waiora framework (Figure 6.1) which is anchored in wairua as a source of wellbeing. The taiao at the centre (incorporating the ira atua: Ranginui, Papatūanuku, Tāne mahuta, Tangaroa etc.) iterates a Māori perspective that environmental wellbeing is a precursor to human wellbeing and wellbeing within the ira tangata (the human realm) is premised on an interdependence between individual and collective wellbeing. Māori who contributed to the development of the framework identified four dimensions of wellbeing within the ira tangata which include:

[5] (McMeeking et al., 2019)
[6] He Ara Waiora was initiated by the Tax Working Group, co-designed with Māori thought leaders and iwi representatives and is currently under the stewardship of the Treasury.
[7] (McMeeking et al., 2019, p. 5)

- Mana tuku iho – Identity and belonging
- Mana tauutuutu – Individual and community rights and responsibilities
- Mana āheinga – Aspiration and capability
- Mana whanake – Sustainable prosperity

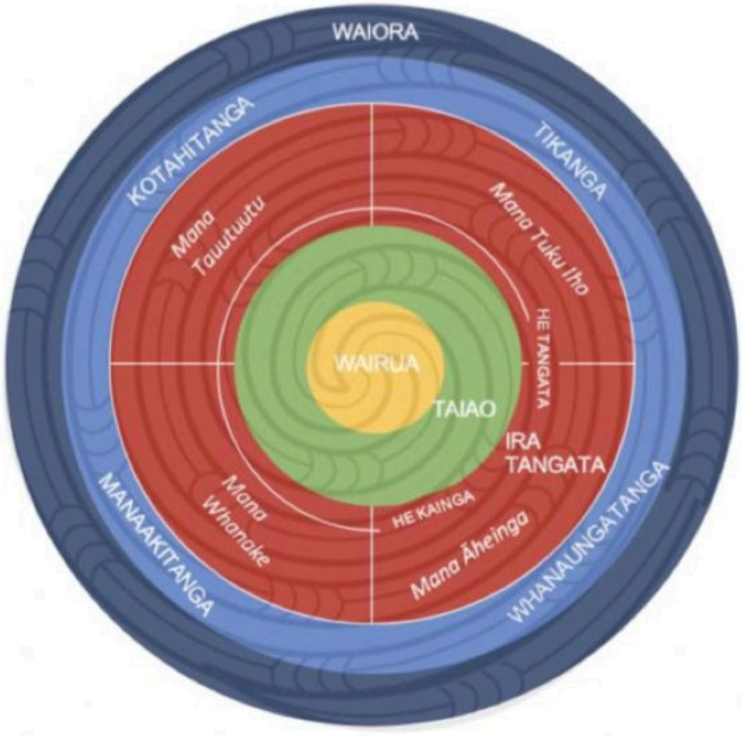

Figure 6.1: He Ara Waiora Framework Version 2.0.

We heard through engagement that many cultural and commercial Māori-collectives operate in accordance with the tikanga values that are relevant to them. Within the He Ara Waiora framework, tikanga is considered as a 'means' which combined with the 'ends' can achieve waiora or wellbeing. This was consistent with how Māori described the way tikanga applies to decision-making on their whenua, for example applying values of kaitiaki on Ōpepe Farm Trust meant that they had already reduced their nitrate discharge output before the Lake Taupō nitrate discharge allowance (NDA) grandparenting rules[8] were introduced (which then penalized them for being early movers and doing good).

Māori we engaged with often talked about their kaitiaki obligations to their whenua. Comparatively the Commission serves in more of a tiaki capacity, as we transition to a thriving, climate-resilient low emissions Aotearoa, however, we can identify with the stewardship aspects of our respective responsibilities.

He Ara Waiora indicates tikanga values that have high-frequency use within Māori organisations and were considered appropriate as a 'means' to achieving wellbeing. The most commonly applied tikanga by Māori organisations included kaitiakitanga, manaakitanga, tikanga, whanaungatanga and

[8] (Duhon et al., 2015)

kotahitanga. Drawing on these tikanga, we have adopted their application to help interpret the insights we gained through engagement and to consider potential impacts on iwi/Māori communities. From a tiakitanga perspective we will apply the tikanga as follows:

1. **Manaakitanga** – having a deep ethic of care towards people and whenua, acknowledging their role in the eco-system and how they could be impacted through this work.
2. **Tikanga** – ensuring the right decision makers are involved in the process and the right decision-making process is implemented.
3. **Whanaungatanga**[9] – being mindful of the relationality between all things, our connections to each other and how we connect to our whenua.
4. **Kotahitanga** – taking an inclusive approach and working collaboratively with other agencies/organisations, communities and people, to access the best ideas and information while uplifting our collective efforts to transition to a low emissions Aotearoa.

While the Māori-collectives we engaged with identified as actively operating in accordance with their cultural values, some Māori who engaged with us from an individual perspective commented that there are Māori-collectives which do not operate in accordance with Māori cultural values. For the purposes of our work we have simply reflected the views of participants.[10] Our engagement process also included individuals, whose views are also reflected in this report.

In addition to the tikanga reflected in He Ara Waiora, rangatiratanga, as guaranteed under the Treaty of Waitangi, was another key focus throughout engagement for Māori.

6.2.6 The Māori economy

The Māori economy is a key aspect of Māori development and intergenerational sustainability and prosperity. It is also a contributor to emissions outputs and an enabler for emissions reductions and removals.

Māori economic development tends to have a long-term outlook and is typically progressed alongside Māori cultural, social and environmental development strategies as a holistic approach to intergenerational wellbeing.

In the early nineteenth century, Māori were progressive business owners and entrepreneurs, quickly adapting to new technologies and trading a range of products domestically and internationally (initially around Australia and the Pacific). Early Māori business models were fully integrated along the value chain and Māori operated with autonomy.

[9] He Ara Waiora development discussions did not fully explore the application of whanaungatanga to policy. We have summarised this tikanga based on what we heard through engagement.

[10] Our view is that the self-determined application of cultural values is subjective and unique to the practitioner. A Māori-collective's context, history and level of resourcing contribute to their activities and opportunities and individual perspectives vary according to their knowledge, exposure and/or experience. It is not our role to define cultural drivers, so we have simply reflected the views of participants.

Māori commercial activity has always been a key enabler for the sustained physical, mental and spiritual wellbeing of the people. "*The mana of a rangatira, and associated whānau, hapū and iwi, was measured by the ability of the group to produce, manage and profit from resources in a way that ensured the wellbeing, health, and prosperity of all*".[11] Accordingly, protecting and building the resource base was a central tenet of Māori economic development.

The unjust acquisition and confiscation of Māori land, restrictive land management legislation, intervention by Crown officials or Crown appointed Trustees and a significantly reduced population due to introduced diseases left Māori alienated and disenfranchised. By the mid-twentieth century land that remained in Māori ownership was typically unproductive or the original owners had lost control (e.g., locked into perpetual leases or under management). Many Māori, unable to continue traditional subsistence lifestyles, migrated from their tūrangawaewae (place of belonging), leaving their communities and cultural base for unskilled or semi-skilled employment in urban centres.

In recent decades, we have seen a resurgence in Māori economic development, due in part to the redress of historic injustices through the Treaty settlements process. Today Māori-collectives own a significant proportion of assets in the primary sectors (50% of the fishing quota, 40% of forestry, 30% in lamb production, 30% in sheep and beef production, 10% in dairy production and 10% in kiwifruit production).[12] Other asset classes include property, private equity, financial assets, tourism, geothermal and technology and innovation.[13] Driven by cultural values, some Māori-collectives are already identifying and/or moving into innovative low emissions industries (e.g., hemp, medicinal cannabis and koura, or investing in technology to drive innovations in nutraceuticals, fashion and tourism).

The Māori asset base (estimated at $50 billion) is approximately 6% of our country's total asset base. Only in the last 30 to 50 years, partly due to the Treaty Settlement process, the expiry of some perpetual leases and legislative review, have Māori-collectives really been able to reassert their mana motuhake and direct the use of their cultural and collectively-owned assets for economic progression. Accordingly, the Māori economy is like a developing economy within a developed economy. However, the rate of growth is exceeding our country's economy (5% compared with 2.7% in 2016).[14] It is "*expected that Māori will invest $1.5 billion per year over the next ten years*" (ibid). This model of integrated and sustainable growth makes Māori-collectives well placed to demonstrate an alternative model of leadership and invest in emissions reducing initiatives over the coming emissions budget periods.

6.2.7 The Māori emissions profile

In discussions with Māori representatives on Ahu Whenua Trusts we learnt that a range of incentives/disincentives lead Māori to make climate positive choices on their land (e.g., values of kaitiakitanga and a desire to do good for the taiao, regulations and compliance costs, a desire to support our country's contribution to the Paris Agreement).

[11] (Ministry of Education & Te Kete Ipurangi, 2016)
[12] (Ministry of Foreign Affairs and Trade (MFAT), 2017)
[13] (TBD Advisory, 2019)
[14] (New Zealand Trade and Enterprise (NZTE) et al., 2017)

A clear theme that emerged, however, was the view that a disproportionate amount of Māori ancestral land has been retained by the Crown and reserved for conservation that as a carbon sink or reservoir contributes to our country's emissions baseline.

A significant amount of Māori collectively-owned land is locked up in production forestry e.g., Central North Island Forest, Lake Taupō Forest Trust, Lake Rotoaira Forest Trust, (in part due to settlement redress). Some Māori land trusts supply geothermal energy and culturally significant lakes and rivers contribute to the production of hydro-energy. In addition, some Māori-collectives have historically opted not to develop land (e.g., conversions to farming or production forestry, housing, food production) where it could conflict with kaitiaki values and compromise the preservation of indigenous biodiversity or cultural practices.

On this basis, it was viewed that collectively Māori have already contributed significantly to the country's emissions reductions, either through carbon sequestration, culturally significant lakes and rivers being utilized to produce renewable energy, or the opportunity cost of not converting and developing natural environments. This raised the question of how our country's emissions budgets and efforts to reduce emissions would be equitable without a clear understanding of the current state of a Māori emissions profile.

It was suggested by representatives of Māori Land Trusts that a Māori emissions baseline was key to ensuring equity and upholding the treaty principles of partnership, participation and protection for Iwi/Māori as we progress emissions reductions objectives in Aotearoa. A Māori emissions baseline would also indicate carbon risk exposure for Māori-collectives and help identify potential impacts on Māori cultural prosperity and Māori economic development.

A Māori emissions profile would enable Māori-collectives to manage emissions collaboratively across their takiwā. This is consistent with balancing traditional concepts of rangatiratanga and traditional practices i.e., resource preservation and management alongside the cultural, social and economic wellbeing of iwi, hapū and whānau.

Through our research, we have identified that a crude attempt at developing a Māori emissions profile could be achieved by Crown agencies (including Te Puni Kōkiri, Ministry for the Environment, Ministry for Primary Industries, Manaaki Whenua, Te Tumu Paeroa and possibly other Crown Research Institutes) and local government, working collaboratively to improve the capability of Te Puni Kōkiri's Toku Whenua platform (supporting tupu.nz[15]), to include data on stocking rates, plantation site coverage data and iwi takiwā boundaries. Alternatively, Crown and local government could fund Māori-collectives to stand up a platform to determine their own emissions profile within their respective takiwā.

[15] (Te Puni Kokiri, 2020)

6.3 Part 2: Impacts

6.3.1 Overview

Prior to the 1840s, all land in Aotearoa was Māori land. Māori established territorial rights over land through customary law concepts such as tino rangatiratanga, asserting mana whenua, taonga tuku iho and ahi kā. Māori ways of living acknowledged existing relationships and interconnections, emphasizing integration within an ecosystem.

Since the 1840s colonial action dispossessed Māori of their whenua, diminished rangatiratanga and the ability for iwi, hapū and whānau to live in accordance with their traditional values. The Native Schools Act 1867 supressed te reo Māori, having a devastating intergenerational effect. The Tohunga Supression Act 1907 contributed to the loss of traditional medicinal knowledge. From the 1930s[16] Māori communities were relocated from their pa/kāinga and many eventually relocated to urban centres.

The culmination of historic events have fragmented and disrupted Māori social, cultural and economic practices and today many Māori experience compounded disadvantage and inequity. Māori often feature in low-sociodemographics for health, employment, education, experience substandard housing, lower home ownership and lower household income.

The Māori population is expected to expand over the next 20 years from about 776,000 now, to approximately 1-1.16 million. In 20 years, Māori could account for almost 20% of total national projected population and one third of all children. [17,18]

It is important to acknowledge our history so that climate change policies promote intergenerational equity. To avoid compounding historic grievances for iwi and Māori, strategies to reduce emissions and increase removals should incorporate a deep understanding of Te Ao Māori and of the relevant historic and contemporary context.

Simultaneously, it is important that climate change policy is not constrained by focusing on a Māori deficit narrative, as outcomes for Māori have been improving over the past few decades, partly due to the Treaty Settlements process. Further, Māori communities have demonstrated significant resilience and cohesion in times of crisis and in many instances (the Canterbury earthquakes and COVID-19) are better positioned to respond. Therefore, they contain examples of leadership and organisation that could help inform climate change policy.

Throughout part 2 we examine the reductions and removals options set out in *Chapter 4: Reducing emissions - opportunities and challenges across sectors* and *Chapter 9: Which path could we take?* to identify barriers or other impacts for iwi and Māori. We explore considerations which would inform a strategy to reduce these impacts through the Treaty principles of partnership, participation

[16] (Derby, 2011)
[17] (Te Puni Kōkiri, 2017)
[18] (Stats NZ, 2019)

and protection. Key considerations aligned with the He Ara Waiora framework are also summarised at the end of this section.

6.3.2 Land use

Traditionally within a Te Ao Māori view, occupation awarded hapū authority over an area and the right to carry out cultural, social and economic activity within that takiwā, which included a relationship with and the use of the whenua and associated resources. Occupation also incurred obligations and responsibilities to protect, nurture and preserve life and the ecosystem for current and future generations. These duties were captured in tikanga, the knowledge of which is preserved in whakapapa, mātauranga and other cultural knowledge and practices.

Māori identify their connection to hapū and whenua (translated as both 'land' and 'umbilical cord') through whakapapa and it is through whakapapa that practices and obligations such as taonga tuku iho and kaitiakitanga are bestowed.[19] There is an increasing trend among organisations to incorporate 'systems thinking' in their strategies and decision making. In Te Ao Māori this is referred to as whakapapa, an ancient knowledge system passed down over generations that has provided a blueprint for Māori to always be aware of the connectivity between all things.

After signing the Treaty of Waitangi in 1840, the Crown aggressively sought to obtain Māori land. This was achieved through two methods in particular, acquisition and raupatu (confiscation).[20] By 1862, the Crown had acquired approximately two-thirds of all land in Aotearoa. Subsequent legislation enabled the Crown to further acquire Māori land for settlement. Together, these methods effectively dispossessed Māori of most of their ancestral lands.[21] Today all that remains of Māori ancestral land (still owned by the descendants of the original owners) is approximately 1.4 million hectares (approximately 5% of Aotearoa).[22]

With the land acquired from Māori, British settler society sought to replicate the lifestyles of their homeland, draining wetlands and converting landscapes to fit within the British farming models they were accustomed to.[23] Today, Aotearoa is highly dependent economically on the historic conversions of natural landscapes to highly productive farmland. As a consequence, our current distribution of land use is a key contributor to our country's greenhouse gas emissions. This combined with the mass clearing of indigenous forestry, by Māori and Pākehā, reducing total forest cover over time from 80% pre-human settlement to approximately 23% by 2000[24], draining of

[19] (McMeeking et al., 2019)

[20] The New Zealand Settlement Act 1863 allowed for the confiscation (raupatu) of land without compensation. (Audit Office, 2004)

[21] The Public Works Act 1928, Maori Reserve Lands Act 1955 and the Reserves Act 1977 allowed the Crown to further alienate and displace Māori from their ancestral lands. Māori Affairs Amendment Act 1967 introduced compulsory conversion of Māori freehold land with four or fewer owners into general land making it easier to acquire e.g., when rates were in arrears (often owners did not know rates were accruing) or surveying costs could not be met, it also increased the powers of the Māori Trustee to compulsorily acquire and sell so-called uneconomic interests in Māori land.

[22] (Ministry of Justice & Te Kooti Whenua Māori (Māori Land Court), 2019)

[23] (McLeod et al., 2006)

[24] (McSaveney, 2015)

wetlands and loss of associated indigenous biodiversity, have led to an imbalance in our management of greenhouse gas emissions.[25]

Of the remaining 1.4 million hectares still in customary ownership (Māori freehold land title), land blocks are highly fragmented with over 27,456 land titles. Of these land titles 42% (representing 82% of land mass) have some form of governance structure with 8,406 governance structures in total. It is estimated that a considerable portion is underutilised or underproductive. A large percentage of Māori freehold land is located in Māori Land Court regions Aotea (~29%), Waiariki (~22%) and Tairawhiti (~20%).[26]

Māori freehold land governance structures are provided for under the Te Ture Whenua Māori Act 1993. The most common structures are Ahu Whenua Trusts and Māori Incorporations. Governed land blocks have an average size of 100 hectares and an average of 211 owners.[27] Due to issues regarding succession, legislative constraints, diverse governance and management capability, access to capital and challenges identifying owners, progressing initiatives on many Māori freehold land blocks can pose a significant barrier to development.

In addition to Māori freehold land title, Māori-collectives also own general title land such as redress land or tenths reserves.

6.3.4 Forestry

Background

Māori own approximately 40% of forestry in Aotearoa.[28] Crown acquisition prioritised high quality land or strategic locations, the land retained by Māori was generally of lower quality but suitable for forestry. Some iwi retained areas of native forestry and through Treaty Settlement some iwi have had forestry and/or forest land, returned through redress.

According to a 2016 Agriculture Production Survey of Māori land (based on Māori authorities'[29] activity base), areas of forest plantation on farmland, between 2006 and 2016, increased by 67.6% (from 65,864 hectares) and bush and scrub decreased by 32.5% (from 111,710 hectares)[30].

Chapter 9: Which path could we take? indicates that a significant reduction in atmospheric carbon can be achieved through removals by either exotic or indigenous afforestation. While there are opportunities to encourage or incentivise afforestation on marginal and underutilised land across Aotearoa, is not without its practical challenges particularly where private landowners have other aspirations or face various challenges or barriers to transition land use.

[25] (Dawson, 2007)
[26] (Ministry of Justice & Te Kooti Whenua Māori (Māori Land Court), 2019)
[27] (Ministry of Justice & Te Kooti Whenua Māori (Māori Land Court), 2019)
[28] (Ministry of Foreign Affairs and Trade (MFAT), 2017)
[29] Certain Māori-collectives who meet Inland Revenue's eligibility criteria (e.g. Te Ture Whenua entities) can elect to have Māori Authority status for income tax purposes.
[30] (Stats NZ & Ministry for the Environment, 2018)

The four largest privately owned land parcels in Aotearoa are foreign-owned forestry companies[31]. The 50 largest privately owned land parcels amount to just over one million hectares (~4% of total land) and ranged from 9,000 hectares to 102,000 hectares. Land parcels had an average size of 22,000 hectares and median of 14,000 hectares. Approximately 25% of privately owned land parcels were foreign-owned.

The five largest Māori-collective and pan-iwi land holdings totalled approximately 630,000 hectares (Table 6.1).

Table 6.1. Landholding from the five largest Māori-collective/Pan-Iwi holdings

Māori-collective/Pan-Iwi holdings	**Landholding (ha)**
Ngāi Tuhoe	243,495
CNI Holdings Limited	126,147
Ngāti Tūwharetoa	113,414
Ngāi Tahu	102,136
Proprietors of Mangatu Blocks	44,663
Total	**629,855**

Source: Newton (2019)

In addition to the Māori-collective/Pan-iwi holdings outlined in the article, the Māori Land Court data set indicates at least nine Māori freehold land management structures, managing amalgamated land blocks of contiguous land, or land blocks in close proximity of over 14,000 hectares in size, with a collective value of 253,000 hectares.[32] The size of land holdings do not indicate availability of land for afforestation. It is merely an indication of effort versus potential required to implement afforestation strategies.

Barriers

Strategically, the Crown working in partnership with Iwi/Māori could increase afforestation in the short to medium term, on the basis that Māori-collectives own reasonably large areas of land with the potential for afforestation, provided there is an appetite from Māori-collectives.

Working with Māori-collectives would require acknowledgement of rangatiratanga, a deep understanding of whānau/hapū/iwi aspirations for the whenua and an approach that applies the tikanga set out in He Ara Waiora.

There are a range of known barriers to afforestation for iwi and Māori. These would need to be addressed to ensure iwi and Māori have equitable opportunities for increasing afforestation. Associated barriers and/or considerations for increasing afforestation on Māori land include:

- **Constraints and challenges associated with the management of collectively-owned Māori land under Te Ture Whenua Māori Act 1993.** While the Te Ture Whenua Māori (Succession,

[31] (Newton, 2019)

[32] Data from Māori Land Court Māori Freehold Land dataset (Māori Land Court, 2020). The dataset includes collectives of management structures over neighbouring blocks with shared whakapapa.

Dispute Resolution and Related Matters) Amendment Act 2020 should go some way to ameliorate challenges for Māori landowners, there are still practical challenges for management structures to identify owners and achieve consensus on large issues.

- **Capital outlay – costs for conversion or development.** The cost of changing land use is high, particularly for Māori-collectives that may be asset rich but cash poor. Land conversion costs and other capital outlay costs such as nursery stock, planting, pest control, or wind protection. This can be a barrier to entry for Māori-collectives with low revenue streams, or unproductive and/or underutilised land. Economies of scale are also difficult to achieve in plantation forestry with smaller or fragmented land blocks. This occurs particularly where there is poor roading or landlocked land and would not be viable.
- **A short fall of capability and/or resourcing to uptake afforestation funding options.** This is particularly an issue on smaller land trusts where the level of resourcing (time, funding, staff) capability, or specialisation is not sufficient to complete funding applications, feasibility analysis, or manage the implementation projects.
- **Access to regular revenue streams to cover Council rates and other costs.** Some Māori-collectives with inherited commercial forestry combined with a low proportion of liquid assets and commitments to the Emissions Trading Scheme (NZ ETS) are effectively locked in. On smaller land blocks commercial forestry does not return annual or regular revenue streams or other cultural and social co-benefits for owners, ongoing commitment to forestry may not align with their intergenerational aspirations. Insurance, forestry management, pest control also require regular cashflow streams.
- **Proximity to ports and roading infrastructure for viable commercial forestry.** Limited roading and rail infrastructure and proximity to ports can mean commercial forestry is not a viable option for Māori-collectives in remote areas wanting to participate in profitable forestry opportunities.
- **Access to nursery stock.** We heard from some Māori-collectives that they had faced challenges accessing nursery stock with the appropriate genetics to endure the conditions.

There are also negative impacts of forestry, particularly commercial forestry, for Māori-collectives, including:

- The opportunity costs of utilising land for papakāinga development and maara/mahinga kai to meet the needs and aspirations of owners.
- The impact of harvesting on the environment. There are negative impacts on waterways when exotic production forests are harvested through clear-fell. The overall impact over the full cycle (~28 years) is positive in terms of erosion prevention.[33]

Opportunities

Some key opportunities associated with forestry, particularly indigenous forestry for Māori-collectives include:

- Riparian planting can contribute to protecting water bodies from nitrate run-off and erosion.

[33] (Baillie & Neary, 2015)

- Potential to work with Māori-collectives who are already considering long-term strategies to replace exotics with natives, particularly species with longer growth cycles, for example, kauri, rātā, tōtara.
- Increased NZ ETS price could make afforestation a more viable option for Māori-collectives where previous barriers would have precluded afforestation as a land use option
- Improved and increased hunting grounds to support the haukāinga/ahi kā and the marae (provided access is enabled and whānau are not locked off the whenua).
- Increased cover of indigenous forestry to support revitalization and preservation of indigenous biodiversity, mahinga kai species and rongoā. Exotic afforestation also provides biodiversity benefits but not as large as indigenous forests. [34,35]

Alignment with Treaty Principles

Key considerations in alignment with the Treaty principles of partnership, participation and protection include (Table 6.2):

Table 6.2: Key considerations on forestry in alignment with Treaty principles

Requirement		Consideration
Partnership	1.	The Crown's approach to afforestation should take measures to emphasise rangatiratanga and collaboration through a genuine partnership with iwi and Māori. Genuine partnership will ensure iwi/Māori aspirations and the appropriate mātauranga are incorporated into afforestation solutions and opportunities
	2.	Māori-collectives with large land holdings should be considered for private/public investments which should incorporate kaitiaki and/or tikanga values and provide opportunities for Māori-collectives to participate in ownership further along the value chain.
	3.	Consideration should be given to how Māori-collectives could manage their emissions by takiwā in accordance with whakapapa and traditional kaitiaki management practices.
Participation	4.	Consideration should be given to investments that enable Māori-collectives to participate across the supply chain and support local economies. For example, jobs - we heard from participants who represented Trusts operating in forestry that traditional labouring jobs in forestry are being replaced with automation in modern day production.
	5.	Consideration should be given to ensure Māori-collectives are not further disadvantaged if transitioning land use for competing strategies such as food sovereignty and papakāinga development, or when remaining Crown forest licenced land is returned through settlement.

[34] (Bremer & Farley, 2010)
[35] (Brockerhoff et al., 2008)

Requirement		Consideration
	6.	Forestry is a key employment sector for Māori, consideration should be given to potential job loss/volatility due to increased automation and opportunities to upskill/transition into specialized wood products.
	7.	Consideration should be given to the unintended consequences of policies that incentivise afforestation and the opportunity cost of commercial forestry for some Māori-collectives.
	8.	Consideration should be given to the availability of access to Māori-collectives for training on the NZ ETS.
Protection	9.	Consideration should be given to climate change policy and associated regulations and how they should enhance the ability for iwi and Māori to exercise rangatiratanga and kaitiakitanga within their takiwā.
	10.	Consideration should be given to the need for flexibility in the NZ ETS to enable Māori-collectives to change land use where it could support other social, cultural, environmental or economic priorities for the intergenerational wellbeing of their members such as food sovereignty and papakāinga development. Being locked in to a particular land use does not enable the flexible management required for intergenerational organisations.
	11.	Consideration should be given to mechanisms to incentivise increased afforestation not constraining Māori-collectives from producing food. We heard that food sovereignty has become more of a focus post COVID-19.
	12.	Consideration should be given to species diversification e.g., natives (e.g., kānuka/mānuka for short term and by products, or long-term species such as kauri, tōtara and rātā), or exotics (e.g., pine, douglas fir, beech, eucalyptus, etc.)
	13.	Consideration should be given to deeper exploration of the mātauranga relating to the realm of Tāne Mahuta with respect to sustainability, biodiversity, rongoā and traditional practices.

6.3.5 Agriculture

Background

Māori-collectives operate in agriculture, with the output percentage of total production estimated at 30% in lamb production, 30% in sheep and beef production, 10% in dairy production [36].

According to a 2016 Agriculture Production Survey 450,593 hectares (ha) of Māori land (based on Māori authorities' activity base) identified as farms used for primary production. Nearly half the total was in grassland or pasture (217,933 ha), followed by forest plantation (110,393 ha), bush and scrub (75,351 ha) and horticulture (2,668 ha). Agriculture is estimated to account for around 1 in 5

[36] (Ministry of Foreign Affairs and Trade (MFAT), 2017)

Māori authority enterprises.[37] Livestock recorded in the survey included farmed beef and dairy cattle, sheep and deer.

Barriers

Māori-collectives and individuals we engaged with relayed diverse views on managing emissions from agriculture. Some Māori-collectives are already exploring regenerative farming models as a means of balancing their cultural, social, environmental and economic outcomes. Others are looking to transition out of dairy or farming altogether (noting these farms were not on highly productive land). However, for some Māori-collectives the cost to transition would be too high given the heavy investment they had already made to improve productivity. Individuals we talked to explained that farming had become a tradition which they were proud of and it provided economic returns to their owners. While there was an openness to plant up marginal and un-productive areas, practicality, resourcing and cost were raised as barriers.

In general, we heard from some Māori-collectives that they are actively developing strategies and making decisions in alignment with their tikanga values particularly kaitiakitanga. Sometimes they are penalised for 'doing good' ahead of others[38] in their efforts to balance cultural, social, environmental and economic outcomes.

Almost 85% of Māori freehold land has a Land Use Capability (LUC) of 4-8[39]. This is not highly productive land and could explain the higher rates of Māori authorities operating in lamb, sheep and beef production (30%) compared to Māori authorities in dairy production (10%). Some Māori-collectives, particularly in the case of Ahu Whenua Trusts, are not able to sell the land or make it available as collateral due to its status as taonga tuku iho and legislative constraints under Te Ture Whenua Māori Act (1993). Accordingly, these entities operate with a low debt to equity ratio and can have challenges raising equity, which presents barriers to transitioning land use and portfolio diversification or expansion.

Based on engagement discussions with Māori-collectives some of the barriers to changing behaviours and/or reducing emissions included:

- The introduction of new regulations should determine what Māori are already doing by way of better waste management and environmental protection practices. Māori-collectives we heard from who were early adopters prior to the introduction of new legislation/regulations effectively had to 'pay twice' (e.g., NDAs).
- Often smaller Māori-collectives do not have the capability or capacity required to know what is out there or complete the application demands or keep up with changes in regulations.
- Farming provides a means for Māori-collectives to support their whānau, hapū and marae through the provision of kai for tangi and other cultural events. Consideration should be given to the need for flexibility in the NZ ETS to enable Māori-collectives to change land use where it could support other social, cultural, environmental or economic priorities for the

[37] (Stats NZ & Ministry for the Environment, 2018)
[38] Such as those who moved early to reduce NDAs were locked in at a lower rate than neighbouring farmers who can operate more intensively.
[39] (Māori Land Court, 2020)

intergenerational wellbeing of their members (e.g., food sovereignty and papakāinga development). Being locked into a particular land use does not enable the flexible management required for intergenerational organisations.

- There were concerns raised that more effort was needed to understand how technologies such as methane vaccines and methane inhibitors align with or contradict Māori cultural and spiritual practices.
- There is also potential that Māori, given their tikanga based management approach, could demonstrate leadership in the transition to a low emissions Aotearoa.
- Historically, under Crown management, some Māori-collective landowners were locked into perpetual leases (often peppercorn leases for 100 years). Where these leases are still active, Māori landowners are not able to exercise rangatiratanga or kaitiakitanga.
- We heard that often Māori-collectives looking to improve on-farm practice are limited by the capability and knowledge of their farm advisors. If they are not able to access the right advisors, the flow-on effects compromise improvements monitoring, measuring, on-farm practice, management and governance oversight.

Opportunities

Some key opportunities associated with agriculture for Māori-collectives include:

- Māori we talked to are already exploring options to improve on-farm practice, plant up marginal land, transition to regenerative farming, or diversify land use, including to manuka/kanuka honey.
- Some Māori-collectives are actively planting up waterways and boundaries in alignment with kaitiaki values. Support for these initiatives could help build skills and nursery stock amongst whānau and hapū for larger or ongoing initiatives.
- More research into the efficiency and profitability of regenerative farming would assist Māori landowners in understanding how to maximise productivity while maintaining the right balance across their social, cultural, economic and environmental outcomes.
- Māori-collectives who were early adopters of better waste management and environmental protection practices should be recognised in pricing policies.
- Māori-collectives should be able to manage their emissions by takiwā in accordance with whakapapa and traditional kaitiaki management practices.
- Improved monitoring and measuring tools for on-farm inputs and run off. Efficiency metrics/ratios that are supported by the External Reporting Board (XRB) and audit processes.

Alignment with Treaty Principles

Key considerations in alignment with the Treaty principles of partnership, participation and protection include (Table 6.3):

Table 6.3: Key considerations on agriculture in alignment with Treaty principles

Requirement		Consideration
Partnership	1.	An emphasis on rangatiratanga and a genuine partnership with iwi/Māori would enable a kaitiaki approach to resource management.
	2.	Partnership is essential to progressing viable options and removing barriers to progress transitional land use.
Participation	3.	Consideration should be given to ensure Māori collective landowners are not further disadvantaged when perpetual leases expire.
	4.	Consideration should be given to how monitoring and measuring tools for on-farm inputs and run off can be improved. Also the introduction of efficiency metrics/ratios that are supported by the External Reporting Board (XRB) and audit processes.
	5.	Consideration should be given to ensure Māori-collectives have access to farm advisors with the appropriate level of capability and expertise to provide suitable advice.
	6.	Consideration should be given to the nature of support available to smaller Māori-collectives and if it is fit-for-purpose, to increase uptake of education and funding initiatives to support optimal land use or the skills/knowledge required to support transitioning land use.
	7.	Consideration should be given to the availability of access to Māori-collectives for training on the NZ ETS to promote equitable participation.
	8.	Consideration should be given to climate change policy and associated regulations and how they should enhance the ability for iwi and Māori to exercise rangatiratanga and kaitiakitanga within their takiwā.
Protection	9.	Consideration should be given to Māori-collectives' ability to produce kai for their whānau, hapū and iwi in accordance with cultural practice (e.g., manaakitanga) and food sovereignty strategies.
	10.	Consideration should be given to species diversification e.g., natives (e.g., kanuka/manuka for short term and by products, or long-term species such as kauri, tōtara and rātā), or exotics (e.g., pine, douglas fir, beech, eucalyptus).

6.3.6 Other land use

In addition to forestry and agriculture, Māori-collectives are also exploring a range of other land use options which align with their social, cultural, environmental and economic drivers. These options include:

- **Wetland restoration** – We heard from Māori-collectives that from around the 1950s Crown initiatives encouraged the draining of wetlands for conversion to farming. This disrupted the preservation of endemic species in the rohe and associated cultural practices. Restoring drained organic soils to wetlands can help prevent the loss of soil carbon stocks[40],[41]. Some

[40] While wetlands store large amounts of carbon, wetland restoration in Aotearoa have modest and highly uncertain carbon sequestration rates. (Burrows et al., 2018)
[41] See 'Wetland drainage and rewetting' defined in (UNFCCC, 2012, p. 13).

Māori-collectives see wetland restoration as an important contribution to balancing land use and enhancing biodiversity.

- **Eco-sanctuary development** – consistent with kaitiaki drivers, Māori-collectives discussed plans to develop eco-sanctuaries on their ancestral māunga, such is the case with Tauhara Mountain Trust (approximately 1,165 hectares). Working alongside Māori-collectives (e.g., relevant iwi, hapū, or ahu whenua trusts) could create opportunities to increase carbon stocks on ancestral mountains. Some of the barriers include resources (costs, time, biological stock, fencing), knowledge and capability.
- **Papakāinga development** – with the increased demand for quality affordable housing, some Māori-collectives are looking to utilise collectively-owned land for papakāinga development. Māori-collectives we engaged with discussed that they are even considering reducing forestry stocks to accommodate the needs of their people. There is an opportunity to work alongside Māori-collectives to explore options for papakāinga development projects with a low carbon footprint. While we did not engage widely on papakāinga development, there are examples of leadership in low carbon development on Māori collectively-owned land.
- **Land use diversification** – Many Māori-collectives we engaged with or reviewed practice a range of land use diversification options including planting up marginal areas of farmland, replanting areas with kanuka and manuka expanding into honey, growing ginseng in pine forests, identifying areas of land suitable for horticulture, hemp, medicinal cannabis and exploring land based koura (freshwater crayfish) farming. Part of the rationale is to spread risk, but also to reduce emissions, or look for land use options which are better aligned with the broader social, cultural, environmental and economic outcomes. Further investigation into some of these diversification models could provide exemplars for other landowners wanting to take a more holistic approach to land use.

In general, we heard from some Māori-collectives that managing emissions and achieving positive environmental outcomes can be challenging given the insufficiency of tools to effectively capture all of the inputs which are relevant to kaitiaki-based resource management.

6.3.7 Energy and Electrification

Background

In this section we identify areas where iwi and Māori could be impacted by emissions reduction options outlined in the Evidence report. For a more thorough exploration of reductions relevant to energy use and generation refer to *Chapter 4a: Reducing emissions, opportunities and challenges across sectors - Heat, industry and power* and *Chapter 4b: Reducing emissions, opportunities and challenges across sectors - Transport and buildings*.

Key considerations for iwi and Māori include:

1. **Energy equality** - Māori engage in many aspects of the energy supply chain as owners and kaitiaki of natural resources used in energy production, as producers and consumers. Many Māori-collectives own forestry, lake beds and geothermal assets they operate these in various arrangements, including with power companies. As consumers, tangata whenua comprise 16.5% of the population, projected to increase to 20% by 2038. Given the income gap for

Māori compared to the rest of Aotearoa (estimated at $140 less per person per week) and the proportion of multi-family households in areas such as Auckland, Gisborne, Hawkes Bay and Bay of Plenty, increased electricity consumption associated with increased electrification could exacerbate inequitable outcomes for Māori.

2. **Transport** – about 25% of Māori in Aotearoa reside in Auckland with whakapapa connections outside of Auckland, this is similar to Māori residing in other urban centres across the motu. Advancing electrification of transport requires proactive, targeted support to ensure that lower income and rural households could also benefit from EVs. Urban Māori who travel long distances to return to their marae/whenua to practice ahi kā regularly may also be impacted. There are also opportunities to support Māori-collectives already investigating options to provide access to electrified transportation for whānau (including bikes and community-based car share options).
3. **Māori Economic Development** - since the Treaty Settlement process began to acknowledge historic grievances with redress packages, there has been a resurgence of Māori economic development over the last few decades. The effect has been a developing economy within a developed economy. Transitioning to a low-emissions Aotearoa could create inequitable outcomes for Māori-collectives, particularly iwi/PSGEs, who are just starting to generate returns from their recently returned assets. Then there are Māori collective landowners with perpetual leases coming up for termination who have yet to start operating in accordance with their own aspirations.
4. **Geothermal** - several Māori-collectives, particularly iwi, hapū and Māori land trusts between Whakaari Island (White Island) and Tongariro, have strong associations with geothermal energy, which, in these areas, is a taonga brought to Aotearoa by Ngatoroirangi (note: iwi and hapū from other rohe or takiwā will have their own stories). Iwi and hapū from these areas have many customary practices associated with the use of geothermal energy. Some Māori-collectives utilise geothermal as a direct energy source for food production and other industrial processes, a few are also exploring carbon capture storage and hydrogen fuel cell technology. In the main, majority of energy generated from geothermal power plants have relatively low life-cycle emissions, however, there are some geothermal fields that emit high levels of carbon dioxide.
5. **Hydropower** - currently iwi/Māori rights and interests in freshwater are unresolved, some Māori-collectives are still working to have their rangatiratanga acknowledged, other Māori-collectives are recognized as the rangatira of lake beds, but not the water bodies within them. Accordingly, some Māori-collectives work in partnership with power companies operating hydropower generation. We heard these schemes impact on the biodiversity within and surrounding lakes. We also heard stories about lakeside erosion, possibly caused by movement on top of the water level, Māori we talked with believe this activity has caused their lakes to change over time.
6. **Building** - The shortfall in housing stock and the desire for some Māori to return to their turangawaewae, presents an opportunity for new papakāinga developments to incorporate low carbon materials and energy efficient buildings.
7. **Off-grid for community resilience** - we also had discussions with representatives of hapū with aspirations for their communities to go off-grid to enhance the resilience of whānau and

promote self-sufficient communities to future proof against unforeseen shocks and uncertainties. One of the major barriers to realising these sorts of aspirations is cost and access to capital.

8. **Renewable energy** - given Māori-collectives' participation in forestry and ownership of large contiguous or amalgamated land holdings, there are opportunities to further explore bioenergy as well as solar and wind generation.

Barriers

Based on engagement discussions with Māori-collectives some of the barriers to changing behaviours and/or reducing emissions or up taking opportunities included:

A key disadvantage raised through engagement was the disruption of iwi and Māori integration along the value chain, which was prevalent in early Māori economic models. Aside from the enduring social, cultural and economic disadvantages consequent of colonial history, iwi and Māori continue to experience the time dimension of these impacts. This is particularly evident economically where iwi and Māori were denied opportunities to benefit from the use of their resources and capital appreciation of assets acquired or confiscated, revenue generation from the asset base over time, or time value of money.

We heard that there are a lot of whānau experiencing energy poverty, while in some cases iwi or Māori-collectives responsible for managing the resources that are used in energy production, have no direct means to provide alternative products or services to these whānau.

Mātauranga is localised knowledge, retained and maintained in different ways to standard Western pedagogies, or methods of knowledge capture and dissemination. To ensure the preservation and vitality of endemic species and unforeseen future impacts of natural resource utilisation for energy use, there needs to be a deeper exploration of mātauranga associated with the realms of atua, including, Tāne-mahuta, Tangaroa, Rūaumoko, in different takiwā. Drivers that would trigger further exploration include feasibility and viability of tidal-energy production, extraction of minerals used as an input for energy storage, such as lithium, as well as the impacts of hydro-energy on indigenous biodiversity and their natural habitats.

As for other emissions reduction options, acknowledgement of rangatiratanga and a genuine partnership with iwi/Māori is essential to ensure future energy requirements take a kaitiaki approach to resource management and trade-offs between sufficient energy supply and protecting our natural environment. Going forward consideration should be given to strategic partnerships between Crown and Māori where there is an opportunity to advance research and development in carbon capture storages and hydrogen fuel cell technology.

Alignment with Treaty Principles

Key considerations in alignment with the Treaty principles of partnership, participation and protection include (Table 6.4):

Table 6.4: Key considerations on electricity and electrification in alignment with Treaty principles

Requirement		Consideration
Partnership	1.	Emphasis on rangatiratanga and a genuine partnership with iwi/Māori is essential to ensure future energy requirements take a kaitiaki approach to resource management and trade-offs between sufficient energy supply and protecting our natural environment.
	2.	Consideration should be given to opportunities for Māori-collectives within a takiwā to partner with Crown in future local/regional energy production and distribution investments where benefits can flow through to whānau (particularly low-income households) and businesses.
	3.	Consideration should be given to strategic partnerships between Crown and Māori where there is an opportunity to advance research and development in carbon capture storages and hydrogen fuel cell technology.
Participation	4.	Māori-collectives, particularly iwi and hapū, should be able to effectively exercise their rangatira and kaitiaki roles within their takiwā and participate in resource and asset management.
	5.	Consideration should be given to the energy requirements of the Māori economy being a developing economy, particularly in remote/rural communities.
	6.	Consideration should be given to potential inequitable impacts on iwi and Māori of increased electrification, particularly Māori living in low-income households.
	7.	Consideration should be given to support self-sufficient energy infrastructure in papakāinga development projects or projects which enable remote Māori communities to go off-grid, particularly where it enables whānau to live out their cultural and social aspirations in a low emissions way.
Protection	8.	A genuine acknowledgement of rangatiratanga is essential to ensure Māori can exercise their kaitiaki roles and manage and protect natural resources within their takiwā.
	9.	Further exploration of mātauranga Māori should be prioritised to identify potential future impacts of natural resource utilisation for energy use.

6.3.8 Fisheries

Background

To date, our work programme has not focused on impacts for iwi/Māori fisheries, however, on the basis that Māori-collectives hold 50% of quota, further work will be required. The connection Māori have with fishing and harvesting kai moana is embedded in whakapapa that links Māori to Tangaroa (the ocean) through space, place and time. Kai moana has an extensive history of sustaining Māori nutritionally, socially, culturally, spiritually and economically. Prior to European colonisation, this connection to kai moana saw Māori coastal communities flourishing, with a strong economic base dependent on fishing.[42]

[42] (Memon & Cullen, 1992)

Low market demand and virtually no European competition enabled Māori fishing practices to continue as they did prior to colonisation for about thirty years after the Treaty was signed.[43] By the 1870s certain fish laws were introduced which severely restricted Māori fishing interests with respect to where they could fish and what they could fish. These limits were based on a European assumption of what Māori required to satisfy their personal needs. [44] These limits and Crown imposed actions had an ongoing negative effect on tikanga, mātauranga, cultural rights and access to fishing grounds and disrupted whakapapa connections to the moana.[45]

Over time Māori cultural, social, economic and environmental connections to fisheries were further disrupted through stock depletion, habitat degradation and government-imposed fisheries policies.[46,47] The introduction of the Exclusive Economic Zone Act (1977) almost eliminated the Māori economy dependant on fishing activities and excluded Māori fishing practices and associated kaitiakitanga and mātauranga.[48] The fishing industry restructure in the 1980s, which removed commercial fishing rights for part-time fishers (many who were Māori) and the introduction of the Individual Transferable Quotas (ITQ) (which later became the Quota Management System (QMS))[49] raised concerns that Māori rights to fisheries, guaranteed under the Treaty of Waitangi, were being alienated by the Crown.

These series of events led to the Muriwhenua claim in 1986[50] and the subsequent Muriwhenua Fishing Report (1988)[51] which was instrumental in the 1992 Māori fishing claims to offshore fishing. [52] The Muriwhenua Fishing Report found that the Crown was in breach of Treaty obligations, which revealed that the allocation of rights had not recognised Māori interests. In 1989 the Māori Fisheries Commission was set up to aid Māori entry into the fishing industry, by 1992 Māori gained control over one third of our country's commercial fisheries.[53] Through settlement Māori acquired 50% of Sealord (the largest fishing company in Aotearoa) utilising redress assets and were awarded a further 20% of the commercial quota shares of any new species brought into the QMS.[54]

The Māori Fisheries Act was passed in 2004 and Te Ohu Kaimoana was established to oversee the settlement of all Māori commercial fishing assets.[55] Half of the settlement redress (quota) was allocated to iwi. The assets of the Treaty of Waitangi Fisheries Commission (cash) was allocated to a new company, Aotearoa Fisheries Limited, the custodian of commercial fisheries assets returned to Māori through the Treaty of Waitangi Fisheries Settlement with the Crown.[56]

[43] (Waitangi Tribunal, 1989, p. 78)
[44] (Waitangi Tribunal, 1989, p. 78)
[45] (Wehi et al., 2013)
[46] (Memon & Cullen, 1992)
[47] (Hale & Rude, 2017)
[48] (Memon & Cullen, 1992, p. 158,162)
[49] (Hale & Rude, 2017)
[50] (Waitangi Tribunal, 1989, p. 5)
[51] (Waitangi Tribunal, 1989)
[52] (Taonui, 2017)
[53] (Ellison, 2010)
[54] (Waitangi Tribunal, 1989)
[55] (Science Learning Hub, 2009)
[56] (Glaysher et al., 2014)

In 2018, Aotearoa Fisheries Limited rebranded as Moana New Zealand (Moana) and is the largest Māori-owned seafood company and operate across four divisions of the seafood industry including inshore fishing, oyster farming, deep sea fishing and processing. Moana's inshore vessels are made up of a fleet of contract fishers, mainly small whānau owned business that have been harvesting seafood for generations.[57] Sealord fleet is comprised of eight deep-sea vessels. Both fleets are made up of vessels that vary in size, age, species targeted, fish hold capacity, number of employees and on-board production methods.[58] Ngāi Tahu is another major stakeholder in the Māori fisheries sector. Ngāi Tahu Seafood Group is one of the leading seafood companies in Aotearoa [59,60] and a niche supplier of high-quality seafood to international and domestic markets. Ngāi Tahu quota is predominantly caught by Ngāi Tahu fishers; many are whānau who have been fishing for generations.[61]

In 2018, emissions from fuel use on fishing boats was around 0.08 Mt CO_2.[62] Refrigeration systems on boats also use hydrofluorocarbons (HFCs) which can also leak.[63] Accordingly, it's possible that the Māori fisheries sector will be impacted again as we transition to a low emissions Aotearoa. While emissions associated with fisheries, or the impacts of ocean acidification on kaimoana was not a key focus of our work programme for the first emissions budget period, our next phase of work will explore how emissions reductions in Māori fisheries could impact on iwi and Māori going forward.

[57] (Moana New Zealand, 2017)
[58] (Sealord, 2016)
[59] (Meridith, 2006)
[60] (Ngāi Tahu Seafood Limited, 2018)
[61] (Ngāi Tahu Seafood Limited, 2018)
[62] (Ministry for the Environment, 2020)
[63] (Ministry for the Environment, 2018)

6.4 Summary: He Ara Waiora wellbeing domains

To summarise, we have drawn on the wellbeing domains identified in He Ara Waiora v.2 as a useful categorization framework[64] to reiterate what we heard in respect of what 'good' would look for iwi and Māori (Table 6.5).

Table 6.5: What we heard in the context of He Ara Waiora wellbeing domains

Wairuatanga Source of wellbeing	**Taiao** Environmental wellbeing	**Mana Tuku Iho** Identity and belonging (individual and communities)
Note: further work to be done in this domain**.** Suggestions included **enhanced mauri** within our natural environment as co-benefits will flow through to individuals and communities.	A healthy environment, clean water and air, managed through recognised measures. The presence and abundance of indigenous species and mahinga kai species in particular. Management and restoration of sites of significance, native restoration and/or remnant vegetation. Ability of taiao and mahinga kai sites to sustain traditional Māori values and practices.	Strong in cultural identity, social connectedness, social capital, te reo and culture. Confident resilient communities following their aspiration. Thriving communities that have access to services, food, etc. Sustainable use of quality traditional food and other cultural resources. Activities within a low environmental footprint, including being carbon neutral. Full participation in communities, particularly in a future with increased electrification.
Mana Tau utuutu Interdependent rights and responsibilities	**Mana Āheinga** Aspirations and capabilities	**Mana Whanake** Sustainable prosperity
A genuine expression of Treaty Partnership and acknowledgement of Rangatiratanga. Rangatiratanga and kaitiaki roles are exercised. Māori emissions profile of each takiwā enables iwi and hapū to actively manage emissions and provide full disclosure. Māori are not further affected by the compounding of historic grievances.	Resources e.g., knowledge, skills, education, healthy homes, time use, living healthy lifestyles, connectivity, etc. Sustainable jobs which are fit for purpose in the future. Food sovereignty, access to education and employment opportunities which enable whānau to have high quality employment in the regions proximate to their communities.	Sustainable prosperity, jobs, employment and earnings, income and consumption, economic resilience within whānau, Kāinga and broader community. Wages/koha in return for services to the kāinga recognising opportunity cost for time and ensuring tikanga is upheld and retained over generations. Intergenerational prosperity.

[64] A Māori wellbeing framework (developed through a collaboration between the Treasury and a group of Māori thought leaders) identifying wellbeing outcomes from a Māori perspective.

6.5 References

Audit Office. (2004). *Māori land administration: Client service performance of the Māori Land Court Unit and the Māori Trustee*. Audit Office.

Baillie, B. R., & Neary, D. G. (2015). Water quality in New Zealand's planted forests: A review. *New Zealand Journal of Forestry Science*, *45*(1), 7. https://doi.org/10.1186/s40490-015-0040-0

Bremer, L. L., & Farley, K. A. (2010). Does plantation forestry restore biodiversity or create green deserts? A synthesis of the effects of land-use transitions on plant species richness. *Biodiversity and Conservation*, *19*(14), 3893–3915. https://doi.org/10.1007/s10531-010-9936-4

Brockerhoff, E. G., Jactel, H., Parrotta, J. A., Quine, C. P., & Sayer, J. (2008). Plantation forests and biodiversity: Oxymoron or opportunity? *Biodiversity and Conservation*, *17*(5), 925–951. https://doi.org/10.1007/s10531-008-9380-x

Burrows, L., Easdale, T., Wakelin, S., Quinn, J., Graham, E., & Mackay, A. (2018). *Carbon sequestration potential of non-ETS land on farms* (Report Prepared for the Ministry of Primary Industries No. LC3161). https://www.mpi.govt.nz/dmsdocument/32134/direct

Climate Change Response Act 2002 (as at 01 December 2020), Public Act 2002 No 40, Public Act Contents – New Zealand Legislation, Date of assent 18 November 2002, Commencement see section 2 (2020). http://www.legislation.govt.nz/act/public/2002/0040/latest/DLM158584.html#LMS282029

Dawson, J. (2007). *Conifer–broadleaf forests—Loss of conifer–broadleaf forests*. Te Ara - the Encyclopaedia of New Zealand; Ministry for Culture and Heritage Te Manatu Taonga. http://www.TeAra.govt.nz/en/interactive/11674/deforestation-of-new-zealand

Derby, M. (2011). *Māori–Pākehā relations—Māori urban migration* [Web page]. Te Ara - the Encyclopedia of New Zealand; Ministry for Culture and Heritage Te Manatu Taonga. https://teara.govt.nz/en/maori-pakeha-relations/page-5

Duhon, M., McDonald, H., & Kerr, S. (2015). *Nitrogen Trading in Lake Taupo: An Analysis and Evaluation of an Innovative Water Management Policy* (Motu Working Paper 15-07). Motu

Economic and Public Policy Research. https://www.motu.nz/our-expertise/environment-and-resources/nutrient-trading-and-water-quality/nitrogen-trading-in-lake-taupo-an-analysis-and-evaluation-of-an-innovative-water-management-policy/

Ellison, E. (2010). *Ngā haumi a iwi – Māori investment—Fisheries and Treaty settlements* [Web page]. Te Ara - the Encyclopaedia of New Zealand; Ministry for Culture and Heritage Te Manatu Taonga. https://teara.govt.nz/en/nga-haumi-a-iwi-maori-investment/page-3

Glaysher, A., Craig, T., & Short, K. (2014). *New Zealand Pilot of the corporate ecosytem services case study: Aotearoa Fisheries Ltd. Corporate ecosystem services review*. Corporate ecosystem services review. https://www.sbc.org.nz/__data/assets/pdf_file/0019/103078/Aotearoa-Fisheries-Ltd.pdf

Hale, L. Z., & Rude, J. (2017). *Learning from New Zealand's 30 Years of Experience Managing Fisheries Under a Quota Management System*. The Nature Conservancy.

Māori Land Court. (2020). *Māori Freehold Land dataset*.

McLeod, C., Hunt, L. M., Rosin, C., Fairweather, J. R., Cook, A. J., & Campbell, H. (2006). *New Zealand farmers and wetlands* [Report]. Agriculture Research Group on Sustainability. https://hdl.handle.net/10182/65

McMeeking, S., Kahi, H., & Kururangi, G. (2019). *He Ara Waiora: Background paper on the development and content of He Ara Waiora*. The Treasury. https://ir.canterbury.ac.nz/bitstream/handle/10092/17576/FNL%20%20He%20Ara%20Waiora%20Background%20Paper.pdf?sequence=2&isAllowed=y

McSaveney, E. (2015). *Vegetation – the green mantle*. Te Ara - the Encyclopedia of New Zealand; Ministry for Culture and Heritage Te Manatu Taonga. https://teara.govt.nz/en/landscapes-overview/page-2

Memon, P., & Cullen, R. (1992). Fishery policies and their impact on Māori. *Marine Resources Economics*, *7*, 153–167. https://doi.org/10.1086/mre.7.3.42629031

Meridith, P. (2006). *Fisheries management and practice—Story: Te hī ika – Māori fishing*. Te Ara - the Encyclopedia of New Zealand; Ministry for Culture and Heritage Te Manatu Taonga. https://teara.govt.nz/en/te-hi-ika-maori-fishing/page-6

Ministry for the Environment. (2018). *Hydroflourocarbon Consumption in New Zealand* [Prepared by Expert Group]. Ministry for the Environment. https://www.mfe.govt.nz/publications/climate-change/hydrofluorocarbon-consumption-new-zealand

Ministry for the Environment. (2020). *NZ's Interactive Emissions Tracker*. https://emissionstracker.mfe.govt.nz

Ministry of Education, & Te Kete Ipurangi. (2016, February). *Māori Business: Historical context* [MoE - Government]. New Zealand Curriculum Guide. https://seniorsecondary.tki.org.nz/Social-sciences/Business-studies/Maori-business/Historical-contextt

Ministry of Foreign Affairs and Trade (MFAT). (2017). *The Māori economy*. https://www.mfat.govt.nz/assets/Trade-agreements/UK-NZ-FTA/The-Maori-Economy_2.pdf

Ministry of Justice, & Te Kooti Whenua Māori (Māori Land Court). (2019). *Māori Land Update – Ngā Āhuatanga o te whenua June 2019 Pipiri 2019*. Ministry of Justice. https://maorilandcourt.govt.nz/assets/Documents/Publications/MLU-2019.pdf

Moana New Zealand. (2017). *Fin Fish*. https://moana.co.nz/seafood/fin-fish/

New Zealand Trade and Enterprise (NZTE), Ministry of Business, Innovation and Employment (MBIE), & KPMG New Zealand. (2017). *Māori economy investor guide*. https://www.mbie.govt.nz/dmsdocument/1051-maori-economy-investor-guide-pdf

Newton, K. (2019). New Zealand's biggest 50 landowners revealed. *Stuff.Co.Nz, 17 October 2019*. https://www.stuff.co.nz/business/farming/116661441/new-zealands-biggest-50-landowners-revealed

Ngāi Tahu Seafood Limited. (2018). *Ngāi Tahu Seafood*. https://www.ngaitahuseafood.com/operations/

Science Learning Hub. (2009). *Fisheries in New Zealand – timeline*. Science Learning Hub. https://www.sciencelearn.org.nz/resources/1865-fisheries-in-new-zealand-timeline

Sealord. (2016). *Fleet Guide*. https://www.sealord.com/media/2148/sealord-fleet-guide.pdf

Stats NZ. (2019). *New Zealand's population reflects growing diversity*. https://www.stats.govt.nz/news/new-zealands-population-reflects-growing-diversity

Stats NZ, & Ministry for the Environment. (2018). *Change in use of Māori land for primary production*. Stats NZ and MfE. http://www.stats.govt.nz

Taonui, R. (2017). *Muriwhenua tribes—European contact*. Te Ara - the Encyclopedia of New Zealand; Ministry for Culture and Heritage Te Manatu Taonga. https://teara.govt.nz/en/muriwhenua-tribes/page-4

TBD Advisory. (2019). *Iwi investment report 2018*. https://www.tdb.co.nz/wp-content/uploads/2019/02/TDB-2018-Iwi-Investment-Report.pdf

Te Puni Kōkiri. (2017). *Tātai tāngata ki te whenua. Wāhanga tuatahi: Te maha, te whakatupu, me te pakeketanga o te Ira Taupori. Future demographic trends for Māori. Part one, Population size, growth and age structure*. Te Puni Kōkiri. https://www.tpk.govt.nz/documents/download/2849/tpk-futuredemographictrends-part1-2017(1).pdf

Te Puni Kokiri. (2020). *About Tupu.nz*. /en/about-us/about-tupu-nz/

Waitangi Tribunal. (1989). *Report of the Waitangi Tribunal on the Muriwhenua Fishing Claim (WAI 22)* (p. 395) [Waitangi Tribunal Calim]. Ministry of Justice. https://forms.justice.govt.nz/search/Documents/WT/wt_DOC_68478237/Muriwhenua%20Fishing%20Report%201988.compressed.pdf

Wehi, P., Cox, M., Roa, T., & Whaanga, H. (2013). Marine resources in Māori oral tradition: He kai moana, he kai mā te hinengaro. *Journal of Marine and Island Cultures*, *2*(2), 59–68. https://doi.org/10.1016/j.imic.2013.11.006

Appendix 1: He Ara Waiora v.2

VERSION 2.0 HE ARA WAIORA MODEL

The principal point of evolution in Version 2.0 is that it incorporates and delineates between both ends and means, whereas Version 1.0 was less clear on the relationship between ends and means.

The ends and means relationship in He Ara Waiora is as depicted below:

Ends—the objectives, values or 'inherent good' dimensions of wellbeing. Including: wairua as the source of wellbeing, environmental wellbeing as a precursor to human wellbeing, and wellbeing in the realm of Ira Tangata. The Ira Tangata realm is premised on an inter-dependence between individual and collective wellbeing, and includes four dimensions:

- Mana Tuku Iho—identity
- Mana Āheinga—aspiration and capability
- Mana Tauutuutu—community belonging and cohesion
- Mana Whanake-- prosperity

Means—the values that should underpin how government acts responsibly, including four 'instrumental' values:

- Kotahitanga—alignment across government
- Manaakitanga—having a deep ethic of care for the people affected;
- Tikanga—that the right decision maker and decision making processes are identified;
- Whānaungatanga—requires further discussion.

Waiora (Wellbeing) = Ends + Means

Key contributors over the course of the development of this framework included[65]:

Key Contributors	**Other Contributors**
Sacha McMeeking (UoC – Facilitator) Hinerangi Raumati – PKW/TWG Trevor Moeke, The Treasury Dr Manuka Henare, UoA Dr Piri Sciascia Rikirangi Gage – Leader Te Whānau-a-Apanui Rangimarie Huni – CE Whai Maia (Ngāti Whātua Ōrākei) Dame Naida Glavish Temuera Hall – CNI, Ōpepe Paula McKenzie, Te Wānanga o Raukawa	Dr Charlotte Severne – Te Tumu Paeroa Mavis Mullins – Poutama Trust Donna Flavell – CE Waikato-Tainui Rukumoana Shaafhausen – Waikato-Tainui Kerensa Johnston – Whakatu Incorporation

[65] (McMeeking et al., 2019)