Tax Working Group
Te Awheawhe Tāke

Tax Working Group Information Release

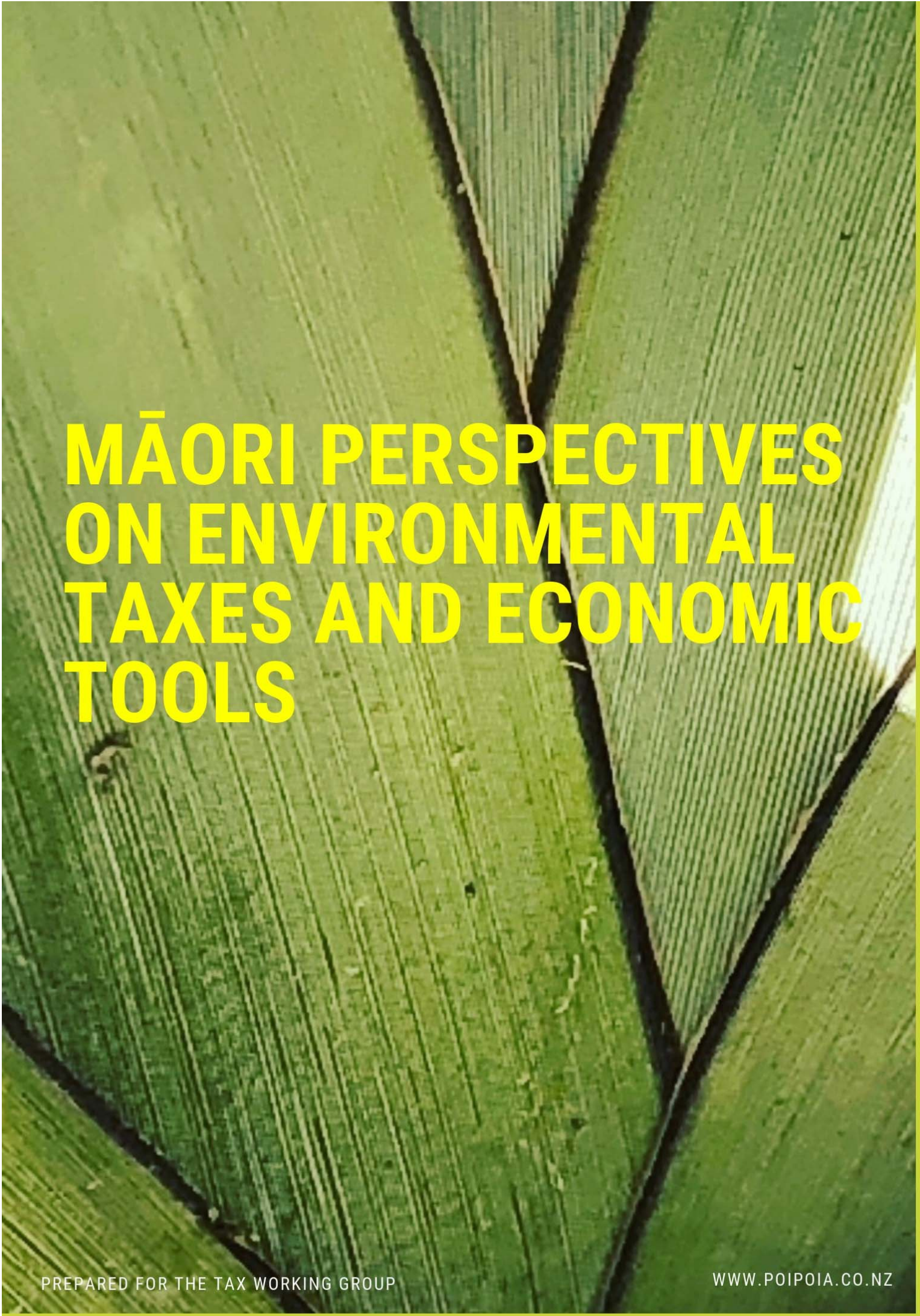
Release Document

September 2018

taxworkingroup.govt.nz/key-documents

This paper has been prepared by a person/group for consideration by the whole Tax Working Group.

The advice represents the views of the person/group who prepared the paper and does not necessarily represent the views of the Group or the Government.



MĀORI PERSPECTIVES ON ENVIRONMENTAL TAXES AND ECONOMIC TOOLS

PREPARED FOR THE TAX WORKING GROUP

WWW.POIPOIA.CO.NZ

1 Contents

2 Purpose of this paper

The Tax Working Group (TWG) has been tasked with considering environmental taxes. In particular, it is considering 'what role the taxation system can play in delivering positive environmental and ecological outcomes, especially over the longer term'. The TWG is particularly interested in understanding what this may mean for Māori.

This paper seeks to:

1. Provide the TWG with a brief outline of Kaitiakitanga perspectives within Te Ao Māori.
2. Provide the TWG with an understanding of how Māori environmental values could be enhanced and/or enabled through tax (where tax is broadly understood as economic instruments which can be revenue raising for the Government).
3. Provide the TWG with an understanding of how these models and frameworks could operate in Aotearoa New Zealand with practical examples. Where relevant, implications should be explored for the use of taxes for the following resources:
    - greenhouse gases;
    - water abstraction; and
    - water pollutants.
4. In making the above assessments, recommendations over short-, medium-, and long-term time horizons should be identified.

When considering the types of incentives or deterrents that can be used to enable environmental outcomes, this paper looks at current initiatives that could be extended or more widely used to enable Māori values in managing Māori land and other taonga.

None of these options by themselves are going to solve the problem. However, there are very urgent calls from many sectors of Māori communities to encourage the adoption of innovative options to begin to turn back the degradation on the Taiao. With the growing socio-economic challenges that face many Māori organisations for their whānau, they also cannot ignore the income producing opportunities that could be created through a Kaitiakitanga lens. These opportunities could shape an environmental industry, including a considered approach to eco-tourism, which can build jobs and entrepreneurial prospects.

The paper begins by introducing key Māori concepts and explaining the two main Māori organisational structures which deliver the management of collective assets for Iwi and hapū – Māori economic authorities and Iwi settlement bodies.

The discussion outlined in the paper looks at Payment for Environmental Services (PES), focusing on ecosystems services and how this could work through a Māori lens. It also provides a working example of the Emissions Trading Scheme (ETS) and how it has, in this instance, supported the aspirations of Māori landowners. It then moves to look at an extension of that scheme to consider including other ecosystem services, in this case carbon sequestration of wetlands and their subsequent biodiversity and water quality outcomes.

Water discharge incentives are then discussed through the example of the Lake Taupō Nitrates scheme and its impacts on Ngāti Tūwharetoa. It specifically discusses the challenges of a grandparenting system as the allocation method for nitrate trading and how Ngāti Tūwharetoa believed this 'one size fits all' approach disadvantaged them.

Water allocation is then examined looking at potential legislative changes that could improve the allocation system in Aotearoa New Zealand and how these could give effect to Māori rights and interests in freshwater. This section also considers the economic opportunities this could create and positive impacts on water quality and quantity in the Aotearoa New Zealand water management system.

Finally, the paper provides some recommendations on further work required to enable these economic tools which may give effect to Māori values.

3 Te Ao Māori and Te Taiao

This paper does not seek to give an in-depth explanation of all key components of Te Ao Māori. It is, however, important to understand how the concept of Kaitiakitanga and other core Māori environmental values and principles may influence investment choices and governance decisions over Māori land.

Whakapapa, Mauri, Kaitiakitanga, Mātauranga Māori, and Tapu/Noa are all key to the organisational culture that underpins many Māori trusts, incorporations, and settlement entities. When looking at these organisations' current strategic documents (i.e. their strategic plans, their communications with their owners, and their business plans), it is uncommon to find any that do not refer to core values led by these concepts.

3.1 Whakapapa

Kei raro I nga tarutarunga tarutaru

Ko nga tuhinga o nga tupuna

Beneath the herbs and plants

Are the writings of the ancestors

Whakataukī (often translated as proverbs) play a large role within Te Ao Māori. They are used as a reference point in speeches and as guidelines to guide the way in which whānau could live their lives. It is a poetic form of the Māori language often merging historical events, or holistic perspectives, with underlying messages which are extremely influential in Māori society.

The Whakataukī that opens this section is an apt description of the deep connection that tangata whenua have with the natural environment. This connection defines the mutually beneficial and mutually dependant relationship that hapū and Iwi have with taonga ecosystems.

Whakapapa is the physical connector between all indigenous natural ecosystems. Inclusive within this genealogical connection is tangata whenua (people of the land), not being seen as separate or in dominion over nature, but part of, and no less valuable or important than any other in the genealogical web.

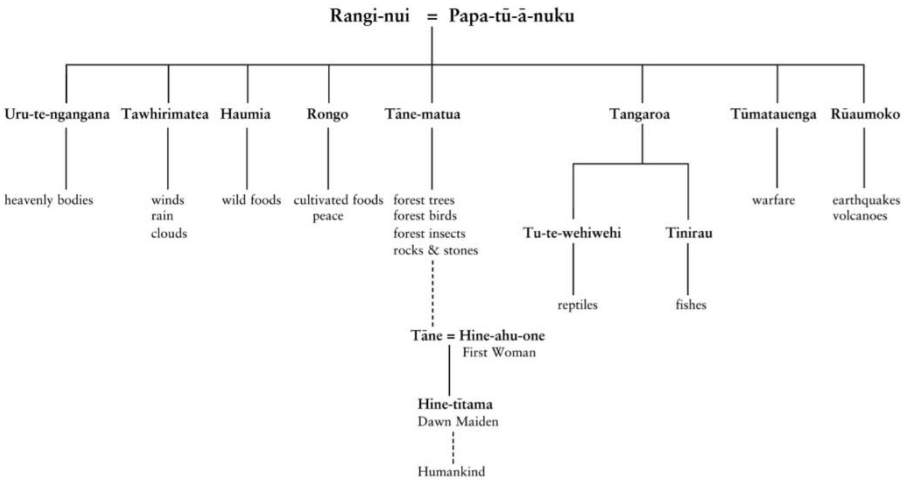
As Rawiri Taonui states:[1]

Whakapapa is genealogy, a line of descent from ancestors down to the present day. Whakapapa links people to all other living things, and to the earth and the sky, and it traces the universe back to its origins.

, "*Whakapapa is genealogy, a line of descent from ancestors down to the present day. Whakapapa links people to all other living things, and to the earth and the sky, and it traces the universe back to its origins*."

[1] https://teara.govt.nz/en/whakapapa-genealogy

When looking at the whakapapa of all things through creation from a tangata whenua paradigm, we can see the links. The following diagram,[2] adapted and abbreviated from Best (1982; 1995), demonstrates where tangata whenua fall in the hierarchy:



Whakapapa therefore creates a clear line of connection, one that is recited through oral history, sung about in tribal songs, and etched in the lines of whakairo (carving) on ancestral meeting houses.

Whakapapa is the seed of whanaungatanga, or the action and responsibilities of being whānau (families) with one another. It is taught to Māori children in their homes through their parents, their kura kaupapa and kōhanga reo, and builds a culture of Kaitiakitanga and manaakitanga. Whakapapa is core to the responsibilities that tangata whenua feel for the indigenous ecosystems and, from this, the practical operationalisation of that whakapapa through Kaitiakitanga and a wider recognition of Mauri as the core life essence which all children of Rangi and Papa carry.

It reaches to the central identity of tangata whenua, as they express who they are in each of their pepeha, for example:

Ko Hikurangi te maunga, ko Waiapu te awa, ko Ngāti Porou te iwi

Hikurangi is my mountain, Waiapu is my river, and Ngāti Porou is my tribe

---

There is a hierarchy and the personification of tribal landmarks demonstrates how important the geography which shape people is given in their personal and collective identity.

[2] http://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.424.5124&rep=rep1&type=pdf

3.2 Mauri

Hirini Moko Mead, in his work, "Tikanga Māori: Living By Māori Values" has this to say of Mauri:

> *Every living thing has a mauri and, in fact we go one step further and say a forest is a living thing, so is a meeting house, and even a rock.*

Mauri is the inherent life force in anything within the Taiao. This Mauri can be degraded, and it can be enhanced, it is impacted by changes within its environment and is a fundamental principle of tikanga Māori. In recent times, the measurement of Mauri by tangata whenua has been necessary as a result of the perceived failures of western science to adequately protect our natural environment. Mauri is an important measure of taonga ecosystem health and wellbeing, a measure which is holistic and looks at the relationships between land, water, and living specie. Mauri does not have a siloed representation of ecosystem health, but one that is fluid and alive.

Manuka Henare describes Mauri: [3]

> *Mauri is a concentration of life itself, like the centre of an energy source and, because of its power and energy, its purpose is to make it 'possible for everything to move and live in accordance with the conditions and limits of its existence'. Everything has its own mauri, its own nature – people, tribe, land, mountains, stones, fish, animals, birds, trees, rivers, lakes, oceans, thoughts, words, houses, factories – that permits these living things to exist within their own realm and sphere. All mauri may be violated, abused, or diminished through neglect or attack. Thus, trees and plants, rivers, lakes, and oceans may not produce in limitless abundance. Fruits would be scarce, there would be fewer birds, animals, or fish. From a Māori perspective, forests, rivers, and oceans can have their mauri restored through rituals of conservation accompanied by appropriate ritual prayer forms and ceremonies. The restored mauri would ensure that depleted food supplies, such as fish, shell fish, or birds, would be abundant again.*

[3] https://s3.amazonaws.com/academia.edu.documents/32588902/Manuka_Henare_Maori_Philosophy_Vitalism_Harvard_2001.pdf?AWSAccessKeyId=AKIAIWOWYYGZ2Y53UL3A&Expires=1529323001&Signature=jb6p6qMQNiTn8JsGtUpeRyDFc0Y%3D&response-content-disposition=inline%3B%20filename%3DManuka_Henare_Maori_Philosophy_Vitalism.pdf

3.3 Kaitiakitanga

The Reverend Māori Marsden, in his writings on Kaitiakitanga, stated that there are three key principles that come from a distinct Māori worldview:

- humankind's contribution is to enhance and maintain the life support systems of Papa-tū-ā-nuku;
- people should treat Papa-tū-ā-nuku with love and respect in recognition of her life-supporting function, her role in the creation of the natural world, and her place in our own whakapapa; and
- we do not own Papa-tū-ā-nuku, but are recipients, and therefore stewards, of the natural environment.

These three principles are fundamental to the perspectives of this paper. As noted in the Ko Aotearoa Tēnei: Report on Wai 262, Kaitiakitanga is noted as being:[4]

> …often translated as guardianship or stewardship. Generally speaking, this is a fair approximation, although it lacks the core spiritual dimension that animates the concept. In Māori tradition the 'guardians' or 'stewards' are, as often as not, supernatural beings. Kaitiakitanga is really a product of whanaungatanga – that is, it is an intergenerational obligation that arises by virtue of the kin relationship. it is not possible to have kaitiakitanga without whanaungatanga. In the same way, whanaungatanga always creates kaitiakitanga obligations.

Kaitiakitanga forms the basis for many of the environmental perspectives that often guide Māori trusts and incorporations to have a higher regard for their natural environment than the predominant traditional western approaches that have been prevalent in Aotearoa New Zealand in the last 180 years, since colonisation.

Māori, however, do not all have the same perspectives on Kaitiakitanga and the impacts of colonisation and capitalism have created a clash of paradigms and significant compromises in an effort to provide a social and economic base for tangata whenua. It is not the purpose of this document to say that all Māori and Māori landowners think the same on these matters. In the writer's experience, however, it is still an overwhelming prevalence in Māori organisations to have Kaitiakitanga and other Māori values as the underlying foundations of their choices on land and water management, governance, and advocacy.

[4] https://forms.justice.govt.nz/search/Documents/WT/wt_DOC_68356054/KoAotearoaTeneiTT1W.pdf

3.4 Mātauranga Māori

Mātauranga Māori can be defined as 'the knowledge, comprehension, or understanding of everything visible and invisible existing in the universe' and is often used synonymously with wisdom. In the contemporary world, the definition is usually extended to include present-day, historic, local, and traditional knowledge; systems of knowledge transfer and storage; and the goals, aspirations, and issues from an indigenous perspective. This last part is key, only tangata whenua hold Mātauranga Māori, these specific ways of knowing, which are derived by lived experience.

For example, only those who have lived on the banks of the Tongariro River hold Mātauranga about that particular stretch of water. Many hapū and Iwi may hold Mātauranga that pertain to rivers and waters, but only the hapū who hold mana whenua and mana wai can understand the Mātauranga for that place. Their Mātauranga is derived from their whakapapa, their connection to the Mauri of that place, and the generations who have lived on its waters. It is based on a lived experience for hundreds of generations; an experience that has involved observation, trial, measurement, and transferral of knowledge through oral communications, only later evolving to include the written language. This science enabled tangata whenua to thrive in a land that had been unfamiliar to them and ensured a symbiotic relationship which enabled a harmonious life with their cousins, the taonga species, and waters and whenua.

Eminent Māori scholar Dr Charles Royal describes Mātauranga Māori in this way:

> *He whakaatu, he whakamārama hoki i ngā ahuatanga o te Ao. Mā reira e mōhio ai te tangata ki te Ao, e mātau ai hoki ia ki ētahi whainga, ki ētahi tikanga. He mea ako, he mea whangai.*

Dr Royal explains Mātauranga Māori as something that helps extrapolate and enlighten us about different aspects of the world around us. In that process, a person gets to know and understand some of the different purposes and meanings, some of the different ways of learning about his/her world that can be transferred from one person to another.

Mātauranga Māori provides insight into different perspectives about knowledge and knowing. The Māori epistemological penchant for trying to understand the connections and relationships between all things human and non-human asks first, 'what is its whakapapa?'. This provides a contrast to the western paradigm that tries to seek knowledge and understanding by a close and deep examination

of something or someone in isolation, which asks first, 'what does it/he/she do? what is it for?'. An initial question is, 'who or what is this thing I am seeing in this world and how do I relate to it?'

Western knowledge's initial question is, 'what is the role that this person or thing has?'. In summary, the emphasis on the human element and the impact on the human element differentiates a Mātauranga Māori approach from a Western Pākehā approach.[5]

When discussing Mātauranga Māori, for example in the approach taken by Dr Gail Tipa in her work on the Cultural Health Index, questions are asked of the river and the person collecting data. Questions such as, 'how does this river sound?' and 'how does it smell and feel?'. This can be supported by a more quantitative approach, but it is the deeper intersections of the indicators of Mauri health, like that between the person and the awa (e.g. cultural use of mahinga kai), that are measured and not merely the siloed characteristics of the awa (like PH levels, clarity, and turbidity).

These values and principles, accompanied by Tapu and Noa, rāhui, manaakitanga, whakawhanaungatanga, and a myriad of others, intersect to create a holistic understanding of the natural environment, one that is now being understood and operationalised by Māori within a contemporary context.

4 Māori structures

4.1 Māori economic authorities

Māori land ownership differs in a number of important ways when compared with non-Māori land ownership. Notably, the Māori Land Act 1993 and Te Ture Whenua Māori 1993 define different classes of Māori land and provide for a range of governance entities and processes for controlling the use and retention of Māori land. These governance entities include the commonly-used Ahu Whenua Trusts (covering 50% of Māori land area), as well as incorporations (covering a further 13% of Māori land area). The processes for controlling the use and retention of Māori land include requirements for consensus-based rather than simple majority-based asset management decision making, as well as the capacity of the Māori Land Court to intervene in asset management decisions made by Māori asset-owning trusts and incorporations.

As to the nature of Māori land itself, until recently more than half of Māori land blocks were thought to be unsurveyed and hence untitled (the Māori Land Court advises that the figure now stands at 21%). Māori land blocks are typically small (average of 57 hectares, with 68% less than 10 hectares in size),

[5] https://kep.org.nz/assets/resources/site/Voices7-16.Matauranga-Maori.pdf

non-contiguous (hence harder to rationalise), have multiple owners (average of 80 per block), and a third are landlocked. Furthermore, over 60% of such blocks have no management structure, and 81% of Māori land is non-arable (compared with 71% of all land nationally). The 2.3 million ownership interests in Māori land compare with the total number of interests represented by the other 94% of land in Aotearoa New Zealand. The implied cross-ownership interests in different Māori land-owning bodies means that for many Māori landowners, their share of returns from a given land block constitute a negligible part of their overall income, meaning they have little incentive to invest much in the governance and management of such blocks.

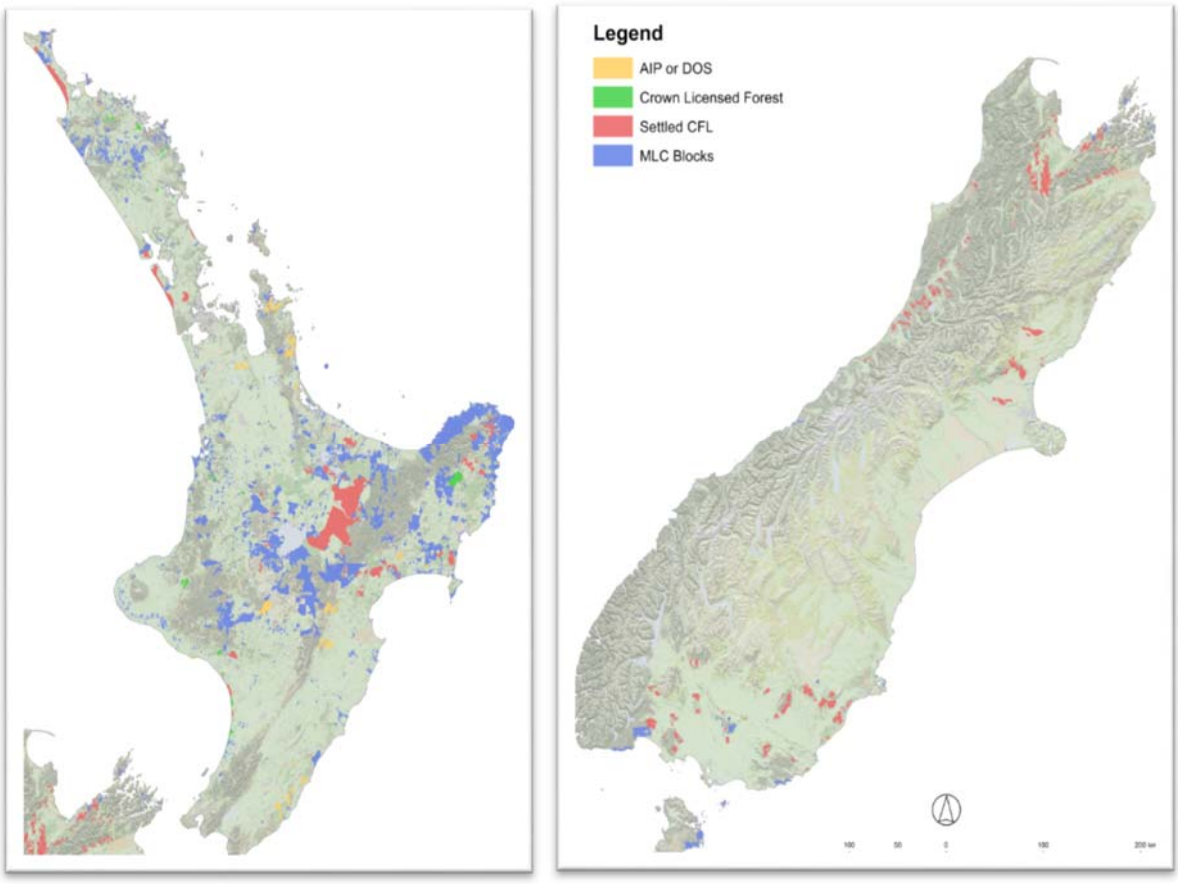
Given both the institutional peculiarities of Māori land ownership, and the specific characteristics of Māori land, much Māori land is undeveloped or relatively under-developed.[6] As a result, there is an ongoing drive to develop Māori land which often means being part of consenting processes for access to natural resources. The unlocked potential of Māori land is dependent on access to water which, within Aotearoa New Zealand's 'first come first served' system, has led to significant inequities for Māori lands – particularly in over-allocated areas. If economic tools can be used appropriately to equitably re-distribute water access, while first addressing water quality and Mauri wellbeing, the economic benefits to the country will be clear – particularly in regard to Māori lands. Many trusts and incorporations also have self-imposed layers of environmental expectations. These may cost the organisation more, but many feel their owners are demanding further environmental responsibility as natural resources are becoming more and more under pressure from overuse and pollutants.

An example of this is the Lake Taupō Forest Trust in the central north island which, to achieve compatibility with environmental, cultural, and conservation objectives, decided that significant areas of forestry lease lands were not to be planted in forests. In the Lake Rotoaira Forest, 42% of the lease lands are unplanted. In the Lake Taupō Forest, 28% of lease lands are unplanted. It is unlikely that any other Aotearoa New Zealand Forests would contain much more than 10% of unplanted reserves. These extraordinary and unprecedented measures were taken primarily to ensure the future certainty of plantation forestry within this sensitive ecosystem. This was done at a significant economic cost to the trust and its owners. The vision of the trustees at the time, however, was firmly one that was driven by Ngāti Tūwharetoa values to protect the waterways with significant riparian strips, to retain as much indigenous forests as possible, and to protect wāhi tapu areas within the forest.

Many Māori trusts and incorporations (but not all) have internalised their environmental costs. This has meant that some areas are in reserves and have not been developed. As they have had to focus

[6] http://www.mfe.govt.nz/publications/climate-change/m%C4%81ori-impacts-emissions-trading-scheme-detailed-analysis-and-conclusio-3#footnote-11

on more sustainable land uses at the demands of their owners, they may not have been able to easily use some methods of farming or pest management due to strong advocacy from their whānau. This internal culture has been, in some ways, self-regulating to work towards more Kaitiakitanga-aligned land use. However, this has also been at a socio-economic cost and the balance has been sought for some time (generations in fact) by Māori economic authorities.



4.2 Iwi authorities

Iwi groups throughout the country are currently in Treaty settlement negotiations for the comprehensive settlement of their historical Te Tiriti o Waitangi claims against the Crown. Many have now settled and hold collective assets for the benefit of their whānau.

There are an increasing number of co-management and joint management models that provide for more meaningful inclusion of a Māori voice in decision making. Mechanisms for inclusion vary. Models established under Treaty settlements and joint management agreements under the RMA (JMAs), many of which flow from Treaty settlements, are more common.

These have meant that Iwi and hapū now have much more say in the management of natural resources. This is reflected in their Iwi Management Plans, through their ongoing opposition to particular consent applications (that they view as contrary to their values) and through deeper engagement in the establishment of regional and district plans. Iwi authorities often set the standards in their rohe for Kaitiakitanga and advocate strongly (sometimes to specifically established environmental units) for these standards to be implemented in regional and district council decision making. To many Iwi authorities, environmental units are considered core business and are often resourced purely from their settlements. This extra layer of environmental cost for the organisation is seen as a requirement of their roles and responsibilities as Kaitiaki.

These two groups of legal structures are made up of the same whānau, hapū, and Iwi members and this in itself can be difficult as access to natural resources increases. The drive to support our whānau economically through economic authorities and settlement entities means that Māori must find new ways to create harmony with their natural environment and the concerns of poverty in our everyday lives. The following examples, although not perfect, could be part of that balancing act, as long as they are designed in ways that cater specifically for the uniqueness of Māori land and its whānau through Te Tiriti o Waitangi.

5 Payment for Ecosystem Services (PES)

Ecosystem services can most simply be defined as the benefits people obtain from ecosystems. Ecosystems are widely considered to provide four categories of services: supporting (e.g. nutrient cycling, soil formation, and primary production); provisioning (e.g. food, fresh water, wood, fibre, and fuel); regulating (e.g. climate regulation, flood and disease regulation, and water purification); and cultural (aesthetic, spiritual, educational, and recreational).[7]

As discussed earlier, for Māori, the widespread degradation of the taiao is manifest through the declining quality of customary resources and the increasing difficulty in accessing such resources. For Māori, there are clear links between healthy ecosystems (with greater life-supporting capacity) and people's cultural and spiritual wellbeing. There is a realisation that most ecosystems require a diversity of life forms to exist and function properly (DOC & MfE 2000), and to sustain the services provided by ecosystems. This holistic thinking, based on traditional Māori values and beliefs, has increasing parallels with late 20th century emergent concepts and practices of interdisciplinary mainstream science, sustainability, ecological economics, and integrated planning and policy. This broader worldview of values and ecosystems enables a move towards a more unified and integrated

[7] https://www.doc.govt.nz/Documents/science-and-technical/sap258entire.pdf

management framework (away from fragmented and single-focus frameworks) as is required to sustain and manage ecosystems in the future.

This view aligns with the growing critique of neoliberalism that is emerging across a wide range of scholarship. Māori scholars offer several useful frameworks that may help to address these issues. Harmsworth and Awatere emphasise that Māori wellbeing is integrally linked to the wellbeing of ecosystems and vice versa. The two cannot be separated. Through whakapapa, humans and ecosystems are interconnected and humans are significant within the ecosystem. Ecosystem-based management frameworks, therefore, need to accommodate different kinds of values for valuation and decision making, particularly cultural values of Māori and non-Māori.

Ecosystem services are increasingly becoming a useful tool in planning, policy, and decision making. Within the broader ecosystem services approach, some Māori values do not fit naturally into the ecosystem approach. Māori perspectives on ecosystem services would expect that there should be a broader consideration of other values such as non-use, cultural, intrinsic, and moral, so they are not dismissed as 'hidden externalities.' There should be the appropriate space to understand and consider these types of values.

Harmsworth and Awatere[8] recommend that a complete range of cultural values need to be fully comprehended and understood, that is, both non-use (more traditional, customary) and use values (economic, production).

An ecosystem-based management framework that recognises Mātauranga Māori must recognise that 'cultural values' range across material (e.g. provisioning, regulating, supporting) to non-material/non-monetary values (e.g. customary-cultural, spiritual, sacred). It must also consider Te Tiriti o Waitangi, the right for Māori to develop their lands and how this should be enabled within ecosystems services to ensure equity of access to natural resources for Māori where the proposed uses are consistent with Kaitiakitanga.

Ecosystem services are the flows of benefits which people gain from natural ecosystems and natural capital is the stock of natural ecosystems from which these benefits flow. For example, a forest is a component of natural capital, while climate regulation or timber might be the ecosystem service it provides; healthy soil is a component of natural capital, while food or energy production might be the ecosystem services it provides. In summary, natural capital is the stock of resources (ecosystems) that generate ecosystem services.

[8] http://sustainableseaschallenge.co.nz/sites/default/files/2016-05/Mauri%20Moana%2C%20Mauri%20Tangata%2C%20Mauri%20Ora%20-%20Documenting%20social%20values.pdf

For Māori communities, it may be that a Māori economic authority would be required to value the water that they use in the creation of their product, such as a litre of milk. A cost or price of water would be part of their balance sheet, just like a tractor or land. This can be seen practically today in the valuing of carbon credits on the balance sheet of forestry owners. In valuing the water, you would need to consider how it is used, the cost of using it and keeping it clean, and its cultural value (i.e. maintaining minimum cultural flows). All these factors would then be directly reflected in the value placed in the balance sheet, and in the internalising of those costs within the business as a whole. Therefore, all the *actual* costs of the use of water would be part of the business model. Currently, many of the costs of water quality and quantity (e.g. pollution, drinking water contamination, sedimentation caused by forestry or hydro operations), are mainly borne by the wider community, taxpayers, and ratepayers. This is the natural capital approach and expects those who produce the products which have impacts on natural resources to pay for the impacts.

As with the ETS, some balancing will be required to ensure that this model is equitable for Māori given Te Tiriti o Waitangi, the impacts of raupatu, and the impacts of Te Ture Whenua Māori Act 1993. However, this model, which aligns with a Kaupapa Māori approach, has some merit if the transition period is long enough and compensates Māori for any disadvantages based on legacy matters.

While ecosystem services can be valued, traded, incentivised, and compensated for, building the rules and infrastructure for these market-based systems to avoid inequity will be essential for their success.

5.1 How could Māori values be enabled through PES?

There are concerns regarding the valuation of essentially ‘whakapapa’ (i.e. wai, whenua, and taonga), which could lead to the reduction of the natural environment to a mere number; one that could not take into account the spiritual importance of the natural taonga, which to many Māori is priceless. However, there is some practical value in having a ‘price’ of these to ensure that in today’s contemporary environment, real costs are internalised and in doing so can be managed and cared for more effectively. There are arguments on both sides, and even within Māori communities there are, of course, diverse views.

In recent discussions amongst Iwi authorities regarding freshwater rights and responsibilities, there has been a divergence in the terminology. Many Iwi believe that ‘owning’ water is culturally incompatible, that the water actually ‘owns’ the people. Others have submitted that it is only in non-Māori terms that the battle for access to water and protecting water quality can be understood within the current water management regime; and that the use of the term ‘ownership’ is a tool to regain culturally led control. So, these two perspectives are both valid in their own ways.

5.1.1 Recommendations

In the short-term, it is recommended that further research on testing these models on Māori economic authorities be commissioned.

The purpose of the research would be to test a natural capital model to begin a process of valuing water as a core part of any sustainable user of wai within a specific Iwi rohe to better inform water allocation modelling with regional councils. Also, the testing of a circular economy would be advantageous. Tuaropaki Trust has been operating a circular economy for some years with the waste from their hydroponic operations near Taupō, in alignment with their Kaitiakitanga values.

Understanding the value of water from an Iwi and cultural economy perspective, a capitalist economic perspective, and an 'other ecosystem services' perspective allows it to be adequately factored into Māori economic authorities' business models. The research would potentially need to be specifically focused on three large Māori economic authorities within the rohe and include valuing natural inputs to enable our hapū and landowner decision makers to assess quantified trade-offs associated with alternative management choices and to identify areas where investment in natural capital can enhance human development and conservation. A key outcome of the research would be to determine a culturally appropriate tool to measure natural capital as the underlying foundation for a broader discussion on valuing water and tradability. This work could then inform further discussions on a wider project, potentially within a single catchment across Māori and non-Māori businesses.

5.2 Ngā Whenua Rāhui

The Ngā Whenua Rāhui Fund is a contestable Ministerial Fund that exists to facilitate the voluntary protection of indigenous ecosystems on Māori-owned land while honouring the rights guaranteed to Māori landowners under Te Tiriti o Waitangi. This is another form of PES currently in place in Aotearoa New Zealand and focuses specifically on Māori land.

Ngā Whenua Rāhui began in the early 1980s, when Māori owners of commercially unproductive lands in Waikare (Northland) were being pressured into felling their native forests or selling property in order to meet their management costs, such as rates, fencing, and control of weeds and pests. The original concept recommended by the then Director of Māori Affairs, Tom Parore, was that a "rental" be paid by the Crown to Māori landowners as an incentive to keep their last remnants of indigenous forests alive and available for public enjoyment, and to cover the associated management costs.[9]

[9] https://www.tandfonline.com/doi/pdf/10.1080/03014223.1993.10420338

The mission of Ngā Whenua Rāhui is to enable Māori landowners Tino Rangatiratanga associated with their land and to achieve specific biodiversity outcomes. Established in 1991, Ngā Whenua Rāhui aims to enable, facilitate, and support activities directed at the protection of indigenous ecosystems.[10]

Areas to be protected under this scheme must be Māori-owned land containing indigenous forest of high ecological value with strong spiritual and symbolic significance to Iwi/hapū/whānau (family or tribal groups), and contain traditional and important sources of food for Iwi/hapū/whānau and of cultural materials and medicines. They should be, or include, important tribal landmarks significant to tangata whenua (people of the land), or important water catchments significant to tangata whenua for sustaining physical and spiritual values. They should be areas of cultural importance lost to Māori control, or where cultural values are threatened.[11]

The Fund is administered by the Ngā Whenua Rāhui Komiti who makes recommendations to the Minister of Conservation on applications by Māori landowners to legally protect their land. Applications will be considered by the Komiti which meets up to four times per year.

Māori land authorities such as trusts and incorporations, organisations representative of whānau, hapū, or Iwi, and Māori owners of general land can apply and generally choose areas which they want to have fenced for ecological purposes.

Applications are received and assessed by Kaitakawaenga against set criteria. Kaitakawaenga may meet with landowners and visit the land block to be protected. Kaitakawaenga may also arrange for an ecological or cultural assessment to be carried out – this is at no cost to the applicant. A submission is prepared for each application and presented at a Komiti meeting for consideration. An application that is supported by the Komiti is recommended to the Minister of Conservation for approval. A legal agreement is then prepared and subsequently signed by the trustees/Committee of Management or landowner and Minister or delegated representative.

Ngā Whenua Rāhui employs three types of agreements to formalise arrangements between landowners and the Minister of Conservation. The type of agreement used will depend on the protection being sought and land status. The three agreement types are:

- Ngā Whenua Rāhui Kawenata (s77A Reserves Act 1977 or s27A Conservation Act 1987) – applies to Māori Freehold Land.
- Agreement for the Management of Land (s29 Conservation Act 1987) – applies to Māori Reservation.

[10] https://www.doc.govt.nz/get-involved/funding/nga-whenua-rahui/nga-whenua-rahui-fund/

[11] https://www.tandfonline.com/doi/pdf/10.1080/03014223.1993.10420338

- Deed to enter a Conservation Covenant (s77 Reserves Act 1977 or s27A Conservation Act 1987) – applies to General Land owned by Māori. These agreements may be subject to, or supported by, the cultural principles and practices within the NWR Tuapapa Ahurea 2017 (NWR Cultural Framework 2017).

There is a range of criteria which the landowner must achieve before their lands are accepted for Ngā Whenua Rāhui status. If successful, however, the landowner receives, in return for a 25-year non-development covenant, management assistance and advice from DOC, training opportunities, and funding for pest management and fencing.

These covenants are primarily in the North Island and have enabled the protection of large scale indigenous forestry blocks, wetland enhancement projects, and intensive site management on projects that range from sites of 2ha to 17,000ha.

The purchase of these public good benefits is at a relatively low cost. It does not provide a significant income, however, with the opportunity for ETS credits, if they were extended to existing indigenous forests and Manuka honey or other multiple income streams, it provides some economic value to the landowners. Ideally, an ecosystem service system that genuinely valued the natural resources and their contributions to Aotearoa New Zealand would enable further incentivisation of Māori landowners, who have some inherent motivation already, to conserve biodiversity and support ecosystem services. Some landowners have felt that the contributions that Māori landowners have already made to the conservation of the country's natural ecosystems have not been acknowledged and that now, when development choices over the last 180 years have advantaged other landowners economically but has resulted in a loss of environmental integrity, policies are seeking to focus on retaining these ecosystem services on the lands remaining in their natural state (often Māori land).

It will be essential to understand how Māori land contributes to Aotearoa New Zealand's natural assets. While parts of this work have already been completed, further work is needed in the land classification space to feed into a larger piece of work. This could then support programmes like Ngā Whenua Rāhui to extend and provide real recognition and support to Māori landowners who wish to retain their lands in their natural state.

5.2.1 Recommendations

In order to make these covenants more attractive, a more attractive financial package will be required and this may be supported by the internalisation of environmental costs or further PES opportunities.

The Ngā Whenua Rāhui programme does not cover the cost of rates imposed by a Territorial Local Authority (TLA) or Local Councils. However, landowners may be eligible for rates remission for land

that is protected by Ngā Whenua Rāhui agreements depending on their local TLA Policy. One opportunity to further incentivise PES's is the creation of a national system of rates remissions for all land under similar covenants.

5.3 Greenhouse gases

The ETS is the primary method used by the Government to reduce greenhouse gas (GHG) emissions. The ETS is a market-based approach which aims to reduce emissions by putting a price on GHG emitted by certain sectors of the economy (Ministry for the Environment [MfE], 2017).

Emission units (or 'carbon credits') are traded between participants in the scheme. One emissions unit represents one metric tonne of carbon dioxide or carbon dioxide equivalent for other GHGs (Environmental Protection Authority [EPA], 2018). New Zealand Unites (NZUs) can currently be earned by those that remove GHGs from the atmosphere (or from Aotearoa New Zealand). Currently, forestry is the only natural removal activity included in the Aotearoa New Zealand ETS, allowing forestry owners to earn carbon credits for the amount of carbon stock in their forest.

The experiences of Māori landowners with the ETS has primarily been for lands with forestry land cover. The delay of the inclusion of agriculture into the ETS has meant Māori farmers have not yet had the same level of engagement with the ETS.

Between 40,000–50,000 hectares of marginal Māori land is in pasture and could be suitable for reforestation or scrub regeneration such as that envisaged under the ETS in respect of post-1989 forests. Much of this land is in the Gisborne/East Coast and Northland regions.[12]

From a purely ecosystem service perspective, Māori landowners have received compensation for the carbon that their lands and the forestry on those lands have sequestered.

5.3.1 Lake Taupō Forest Trust

As a working example of opportunities enabled by carbon credits and a demonstration of how Māori values could be enabled by PES, we can consider the Lake Taupō Forest Trust. The Lake Taupō Forest Trust is an Ahu Whenua Trust based in Turangi in the central north island. The Trust manages its 68 separate Māori land titles on behalf of more than 13,000 beneficial owners who retain shares in the lands.

Because of the introduction of the ETS and subsequent increases in the carbon price, the Lake Taupō Forest Trust has been able to include 1,600,000 NZU's on their balance sheets, equating to around $33

[12] http://www.mfe.govt.nz/publications/climate-change/m%C4%81ori-impacts-emissions-trading-scheme-detailed-analysis-and-conclusio-3

million under the most current carbon price of $20.95. Because of the scale of the Trust's forests, they have a sustainable harvest and manage their liabilities to enable them to consider the use of those credits in the short-term.

The Lake Taupō Forest and its sister trust the Lake Rotoaira Forest Trust have a collective 42,000ha of lands in a mix of indigenous and (mainly) exotic forests. The incentives created by the carbon market have enabled exploration into investment opportunities that are sustainably focused and across much more diverse industries. Currently, the Trusts indirectly employ approximately 400 people, mainly of Ngāti Tūwharetoa descent. The Trusts view the increase on the balance sheet as an opportunity to create employment possibilities that would otherwise not have been possible without the incentivisation of the carbon credits.

The Lake Taupō Forest Trust has also purchased further forestry blocks because of the carbon credits and will continue to be an important contributor to both the Aotearoa New Zealand forestry industry and to the sequestration of carbon for this country's targets. The socio-economic outcomes will be felt by the 13,000 owners, the 13 marae that are supported by the Trust, and through the significant grants for health and education that the Trust provides.

Underlying this culture of sustainable commercial activity is, as mentioned earlier, the Tūwharetoa values that drive the Trust. This model of economic development (which puts whenua and whānau first) is not always the norm in the private sector, however, as discussed earlier, it is one that is prevalent within Māori organisations. By unlocking the value of ecosystem services through the ETS, combined with a social enterprise base, these economic incentives have a real opportunity to be targeted directly back into the communities supported by the lands and delivered through a manaakitanga lens. With increased social outcomes targeted amongst our Māori community (which is the most vulnerable), there can potentially be less dependency on the Government in terms of health, education, and welfare requirements, if those outcomes are transformational.

The Trust's investment opportunities have certainly expanded as the price of carbon has lifted. In addition, the carbon price has enabled the Kaitiakitanga aspects of the Trust's operations to be recognised for its contributions to sequestration. In the Lake Taupō catchment, the ecosystems service conversation is further expanded with the nitrate cap and trade system established through regional council which restricts the amount of nitrogen that goes into Lake Taupō. This will be further examined in this paper as another form of PES which had complex outcomes for Māori landowners in the district.

5.3.2 Recommendations

The economic incentives established through the ETS have enabled some gains, although it has been widely acknowledged by Māori landowners that it has not been entirely successful. Submissions made by the Iwi members of the Iwi Leaders Group focused on further changes that could support greater afforestation on Māori lands. These are outlined in this paper to inform the group on how PES could be improved to enable Māori development aspirations in line with their values.

The Climate Change Iwi Leaders Group regional hui in 2016 highlighted that the Aotearoa New Zealand domestic policy should recognise the role of indigenous forests for their sequestration capacity in addition to the water storage and biodiversity values. The exclusion of these forests was a disadvantage for Māori landowners who held land in indigenous forests. They were not able to claim carbon credits and other than Ngā Whenua Rāhui or other environmental covenants, the economic incentives to retain these indigenous forests are few and far between. Accompanied by regional and district council rules discouraging the clearance of indigenous forests, and the desire of many Māori landowners to retain their taonga species, this has meant that the socio-economic outcomes for undeveloped lands are not widely available leaving many Māori lands uneconomic, however, providing significant ecosystem services to the wider communities around them. For example, Māori own a growing proportion of Aotearoa New Zealand's land area, comprising roughly half of all remaining indigenous habitat on private land (possibly more).[13] These indigenous habitats work to create ecosystems that home our native flora, improve water quality, provide recreational value, and support subsistence economies that are prevalent in some rural Māori communities.

Another strong theme that came through from the regional hui across the country was that governments continue to take a very narrow and short-term view in terms of policy to seriously tackle the challenges of climate change. Some of these measures identified by the regional hui include:

- Strengthening new afforestation grants to fast-track new forest planting that includes the planting of indigenous forests; (these have been seen recently in the Billion Trees Programme, however, it is still in development at the time of writing this paper).

- More support for the Māori community households to offset the rising cost of energy.

- More investment in science and research in terms of impacts of climate change and enabling adaptation on Māori communities.

[13] Brown. Marie; Banking on Biodiversity 2017.

- More research into methods to reduce emissions from agriculture including the piloting of projects on the Māori community farms.

- Focus on transitioning to a low emissions economy.

- Greater investment into the serious problems of pest-control in our indigenous forests.

Māori may also have an opportunity to leverage their indigenous identity, and cultural attributes such as Kaitiakitanga to differentiate any carbon credits generated by post-1989 forestry on Māori land for additional carbon credit value. Since NZUs generated under the ETS will be traceable, it should be feasible to "brand" those units generated by Māori. To the extent international demand materialises or can be stimulated for such attributes – as well as other attributes such as enhancing water quality, etc. – this may enhance the value Māori can generate from post-1989 forestry. It may be efficient for Māori to take a coordinated approach to such differentiation and for such differentiation to be facilitated (as opposed to simply possible) under the design of registry and trading rules for NZUs under the ETS.

Important in this regard will be the certification of such indigenous attributes in some internationally-recognised manner. This might require an extension or replication of the Toi Iho model for Māori Art branding and/or liaison with appropriate international carbon certification agencies.

5.3.3 The potential extension of the ETS for other biodiversity credits

Te Kahu o Te Taiao – Iwi Science Panel (TKOTT) was established by the Iwi Leaders Group to assist the Pou Taiao work programme and to provide expertise at the interface of Mātauranga Māori, policy planning, and science. All members of TKOTT have been nominated by their Iwi authority to be members of the rōpū and is made up of Mātauranga Māori experts and practitioners from across the country.

In 2018, the TKOTT recommended to the Biodiversity Collaborative Group, who are designing a proposed National Policy Statement for Biodiversity under the Resource Management Act, that an ETS could be extended to cover a range of ecosystem services. Some of these ecosystem services were based purely on carbon sequestration, including soils and wetlands, and potentially extended to include wider wellbeing measures including cultural values, Mauri, and natural capital models. These additional measures were seen by TKOTT as an indirect measure of ecosystem health and incentives to ensure that there were economic opportunities for Māori landowners to retain and create wetlands in particular.

Marie Brown in her paper 'Banking on Biodiversity' considers key factors required to establish a pilot in biobanking, two of which are particularly relevant for addressing a potential extension of the ETS.

5.3.4 Information basis

In order to build the infrastructure, a centralised data management system would be required to include any ecosystem service, as for wetlands or equally the inclusion of biodiversity, Aotearoa New Zealand still does not have the data to create the basis for trading or offsetting. A medium-term goal will need to be the investment into data collection for specific indicators of biodiversity or wetland health.

5.3.5 Metrics

The choice of metrics for biodiversity is essential to the system of trading. Brown suggested several frameworks that are used internationally. Mātauranga Māori will be fundamental to any metrics chosen to guide an extended trading scheme.

In order to create baselines for identified biodiversity outcomes and areas, a benchmarking process would be created. Each hapū and Iwi could co-design the criteria and subsequently monitor using cultural health tools appropriately chosen and used by tangata whenua. A myriad of cultural health tools have been developed by tangata whenua. For example, the Cultural Health Indicators developed by Dr Gail Tipa, the Mauri Compass developed by Ian Ruru, and the Mauri-O-meter developed by Dr. Kepa Morgan. Further work would need to be undertaken to establish a holistic metric based on Mātauranga Māori. As suggested by Brown, however, one of the proposed systems could be modified to align with a Mauri measurement system.

5.4 Inclusion of repo (wetlands) in the ETS

The Iwi Chairs Forum completed work on potential incentives as a result of the inclusion of wetlands into the ETS and carbon stock in wetlands on Māori land. This work focused on the concerns of Iwi members regarding the draining of wetlands impacting habitat and water quality. They believed that if there was an economic incentive for not just Māori landowners, but all landowners, to retain their wetlands through an extended ETS, then this could have a considerable impact on water quality and the Governments reaching its carbon targets.

The research considered a high-level theoretical comparison between the sequestration modelling work done on peat bogs in Aotearoa New Zealand. It asked: if there was a similar rate of sequestration for wetlands, what would the inclusion of those wetlands in the ETS create in terms of an economic incentive? While the figures are very high-level, it has begun a conversation in this space.

Wetlands are defined in the Resource Management Act 1991 as 'permanently or intermittently wet areas, shallow water, and land water margins that support a natural ecosystem of plants and animals adapted to wet conditions'. Historically, wetlands covered around one tenth of Aotearoa New Zealand's land area, but today, less than 10% of this area remains. The decline in wetland area is due to factors such as agriculture conversion and urban development. This has continued in recent times, with 0.5% of wetland area completely lost between 2001 and 2016 and 5.4% partially lost over this time period (Statistics New Zealand, 2018).

Wetlands are recognised for the ecosystem services and benefits they provide, including water quality management, flood control, carbon management, key habitat services, and increasing biodiversity. In addition to these ecosystem services, wetlands are valued by Māori for their spiritual and cultural significance (Clarkson et al., 2013).

5.4.1 Carbon and wetlands

It is recognised that wetlands can provide a role in regulating the climate through their ability to sequester and store carbon. Wetlands have a high carbon density, containing 20-25% of the world's soil organic carbon (Ausseil et al., 2015). Healthy and intact wetlands can store significant amounts of carbon as peat; however, drainage and peat extraction from wetlands releases carbon into the atmosphere.

Wetlands are able to sequester carbon due to the anaerobic conditions present that enable the production and accumulation of organic matter to outweigh the decomposition of organic matter. However, wetlands can also act as a natural source of methane emissions – meaning they can act as both a source and sink of carbon.

This makes the measurement of net carbon sequestration or release a complex and contentious issue (Ausseil et al., 2015). However, research has shown that on a longer-term scale, carbon sequestration is greater than carbon release. This creates a net cooling effect and, therefore, the protection, maintenance, and restoration of wetlands can aid in mitigating climate change impacts (Whiting & Chanton, 2001).

5.4.2 Results: Carbon stock in Aotearoa New Zealand wetlands – total

The total potential carbon stock stored in the total nationwide wetlands area of 249,609ha is calculated to be between 39.94 – 134.79 Mt CO_2. This is based on a worst case of 160 t CO_2 ha-1 stored per ha of wetlands and a best case of 540 t CO_2 ha-1. On a mid-case scenario of 380 t CO_2 ha-1, it is calculated that 94.85 Mt CO_2 could be stored.

Of the 212,600ha classified as current wetlands nationwide the carbon stock is estimated to be between 34.02 – 114.80 Mt CO2 (Figure 4). On the 37,009ha of wetlands which have been partially or completely drained between 2001 and 2016, it is estimated that between 5.92– 19.98 Mt CO2 was stored (Figure 4).

5.4.2.1 Potential number and value of carbon credits if wetlands were to be included in the ETS

Current wetlands: At one carbon credit (NZU) per tonne of carbon dioxide, the number of carbon credits that could be earned if current wetlands were to be included in the ETS is between 34.0 – 114.8 million carbon credits. Based on the average market value of $19.70 over the last 12 months, the value of these credits is $670.1m – $2.26m (Table 3).

5.4.2.2 Drained wetlands

Wetlands that have been partially or completely drained could have earned between 5.9 – 20.0 million carbon credits. Based on the average market value of the last 12 months, the value of these credits would be $116.7m – $393.7m.

5.4.2.3 Change in carbon stocks

If wetlands were to be included in the ETS under a similar approach to forestry, then the above estimates of carbon credits would be received by eligible landowners on registration. Changes in carbon stock stored in wetlands over time would then need to be recognised. These changes could come from increasing or decreasing wetland area or from the additional carbon sequestered by wetlands over time.

Carbon sequestration rates vary between wetland types and locations; however, based on a sequestration rate of 0.5 t CO2 ha-1 yr-1 each hectare of wetlands could earn an additional 5 carbon credits every 10 years. On the total current wetlands area, this translates to 106,300 t CO2 sequestered per year which could add another $2.1m worth of carbon credits per year.

5.4.3 Results: carbon stock in Aotearoa New Zealand wetlands – Māori land

There is a total 10,139 ha of wetlands on Māori land nationwide, making up just 4% of total wetland area. This total consists of 8,274 ha of current wetlands and 1,865 ha of drained wetlands.

The total potential carbon stock stored in wetlands on Māori land is calculated to be between 1.62 – 5.48 Mt CO2. The carbon stock in current wetlands is estimated to be between 1.32 – 4.47 Mt CO2 and in drained wetlands could have been between 0.30 – 1.01 Mt CO2 (Figure 5).

5.4.3.1 Potential number and value of carbon credits for Māori if wetlands were to be included in the ETS

Current wetlands: The carbon stored in current wetlands on Māori land could potentially earn between 1.3 – 4.5 million carbon credits which would have a value of $26.1m – $88.0m (Table 4).

Drained wetlands: The carbon that would have been stored in drained wetlands on Māori land could have potentially earned between 298,400 to 1.0 million carbon credits worth between $5.9m – $19.8m (Table 4).

5.4.3.2 Changes in carbon stocks

Through carbon sequestration, current wetlands on Māori land could result in an additional 4,137 t CO2 stored per year which could earn landowners another $81,500 worth of carbon credits per year.

5.4.4 Summary of results

This high-level analysis has calculated the amount of carbon stock that is stored in Aotearoa New Zealand's wetlands and the potential number and value of carbon credits that could be earned if wetlands were to be included under the ETS as a removal activity. Total wetland area includes both current and drained wetlands. Current wetlands have the ability to be included in a future scheme immediately; however, any inclusion of drained wetlands would be dependent on restoration in the future.

Aotearoa New Zealand's current wetlands (212,600ha) could be storing between 34.0 to 114.8 Mt CO2. Following a similar approach to that used for forestry activity under the ETS, it was calculated that these wetlands could earn 34.0 to 114.8 million carbon credits which would be worth between $670.1m to $2.26b initially. In addition to this, wetlands have the potential to sequester or accumulate carbon over time. It is estimated that the current wetlands could sequester 106,300 t CO2 yr -1, which could earn another $2.1m worth of carbon credits per year.

Wetlands that have been partially or completely drained between 2001 and 2016 could have stored between 5.9 to 19.9 Mt CO2. Alongside the implication of releasing this carbon into the atmosphere, the drainage of these wetlands may have lost the potential to earn carbon credits worth $116.7m to $393.7m if wetlands were included in the ETS.

Māori land nationwide makes up 4% of the current wetlands area. Based on the analysis, this equates to the potential earning of 1.3 – 4.5 million carbon credits with a value of $26.1m – $88.0m.

While this analysis provides a high-level overview on the potential value if wetlands were to be included in the ETS, it is important to note that including wetlands in the ETS would be complex. Carbon stock and sequestering rates are highly variable and dependent on a number of factors such as wetland class, soil type, location, and quality. Further scientific analysis would be required to determine appropriate rates that could be used to determine carbon stock and carbon sequestration over time. Other factors, including the impact of wetland drainage and restoration and how landowners would complete emission returns, would also need to be considered.

Based on the analysis undertaken, there could be potential for wetlands to provide a return to landowners if included in the Aotearoa New Zealand ETS in the future. In addition to the economic benefits, this would also encourage the maintenance and restoration of wetland habitats across Aotearoa New Zealand, which has numerous environmental benefits.

As this work is very high-level, it would be helpful to be able to commission further research in this space to gain more detail on the sequestration rates of wetlands specifically, how they could create further credits for Aotearoa New Zealand's national targets, and how they could provide a further extension to the ETS opportunities for Māori landowners.

6 Water pollutants

6.1 Te Mana o Te Wai

The National Iwi Freshwater Summit was held on 23-24 February 2012 at Hopuhopu and led by the Iwi Leaders Group. At this Summit, a series of principles regarding freshwater were confirmed. These principles included 'Te Mana o Te Wai'. This principle is focused primarily on the quality of freshwater and how allocation decisions could impact that quality.

Simply explained, Te Mana o Te Wai ensures that the first right to water goes to the water and its natural ecosystems – excluding humans. The integrity of the water resource must be the primary consideration in any management decision. Maintaining the integrity of the water resource, and consequently all connected resources (including land), is the most important outcome for managing freshwater and must be the overriding goal. Any use of water, both extraction and discharge, is secondary to that primary purpose and can only occur where the integrity and mana of the resource is ensured.

To be truly effective, all aspects of the health of the waterway need to be integrated – including all government agencies with responsibilities related to the health and wellbeing of the waterway (including flora and fauna). The following diagram demonstrates the process that has been supported

by Iwi members and is part of their advocacy to transform the water management system in Aotearoa New Zealand. Its focus on water quality is important to any underlying economic instrument that may be considered for water management.

6.2 Nitrate cap: Taupō Moana Group

The following section provides an outline of the nitrate cap used in Taupō to address one type of pollutant as a result of farming to Lake Taupō. It has resulted in some current improvement in the quality of Lake Taupō; however, it will be generations before its ultimate success will be known.

6.2.1 Background

Regional Plan Variation 5 – Lake Taupō Catchment was established by the Waikato Regional Council to cap the amount of nitrogen entering Lake Taupō from urban and rural activities. The variation contains policies that reduce and require the formation of the Lake Taupō Protection Trust to assist in achieving the 20% reduction in the amount of nitrogen entering Lake Taupō.

Nitrogen has been identified as the major factor limiting plant growth in Lake Taupō. Scientific evidence indicates that nitrogen inputs to the lake are increasing (Vant and Smith, 2004). The implication of this trend is that lake water nitrogen concentrations and plant biomass will increase and water quality and clarity will decline. If recent development trends continue, then scenarios of future water quality conditions in Lake Taupō (Vant and Huser, 2000; Elliot and Stroud, 2001) are concerning and suggest long lag times in lake water quality response to both previous land development and possible changes in land use.

A projected trend of water quality decline in Lake Taupō is not only a regional concern but is of national interest. Lake Taupō is the largest Aotearoa New Zealand lake by area (616 km2) and its clear water and trout fishery is an important recreational and tourism asset for the nation. The need to constrain nutrient inputs to Lake Taupō suggests that the pattern of land development that has evolved in the lake catchment is not compatible with maintaining the present level of lake water quality and clarity.

A similar, but more advanced eutrophication process exists for several of the nearby Rotorua lakes. The wider implication that arises from the Lake Taupō and Rotorua lakes cases is that development and direct economic returns from land developed around lake catchments may be constrained by the need for sustainable development that balances lake water quality against land use and economic returns. An economic cost-benefit analysis for Lake Taupō has shown that the main benefit of protecting lake water quality is enhancing tourism, rather than enabling the further development of dairy farming. The benefits outweigh the costs by a ratio of c. 3 to 1 (McDermott Fairgray, 2001; MacKay and Petch, 2001; Hickman, 2002).

Environment Waikato has set a target of 20% nitrogen reduction from all manageable urban and rural nitrogen sources entering Lake Taupō, to delay and ultimately stabilise the present increases in nitrogen loads. Certain land developments that result in nitrogen inputs exceeding assigned threshold values may not be allowed. Concurrently, conversions to land uses with low nitrogen yields and implementation of specific environmental management techniques for nitrogen control will be necessary to achieve the prescribed 20% nitrogen reduction. The cost required to reduce nitrogen loads by 20% is estimated to be $81.5 million (Environment Waikato, 2004).[14]

This example was a controversial change, particularly for Ngāti Tūwharetoa who were directly impacted by the policy. On the one hand, the Iwi was highly motivated to protect Lake Taupō as Kaitiaki; however, there were clear disadvantages with the methodology that specifically affected the uniqueness of Māori land ownership in the catchment differently compared to developed land under general title.

6.3 Ngāti Tūwharetoa

As Kaitiaki, Ngāti Tūwharetoa believe they have an intrinsic duty to ensure that the Mauri and the physical and spiritual health of the environment is maintained, protected, and enhanced. The tribe takes this duty very seriously and welcomed the opportunity to work with Taupō District Council, Environment Waikato, and the Crown through the Ministry for the Environment when addressing

[14] Hamilton & Wilkins, 2004. *Review of science underpinning the 20% nitrogen target for Lake Taupō.* Centre for Biodiversity and Ecology Research, University of Waikato.

nitrates to ensure the wairua of Taupō Moana and Tūwharetoa was given the opportunity to recover and provide fulfillment for generations to come. They also believe in rangatiratanga, the right to make decisions over matters that impact their hapū and Iwi. To have control over the things that were guaranteed in Te Tiriti o Waitangi, their lands, waters, taonga, and beyond.

Ngāti Tūwharetoa hold mana whenua over the rohe. Today, they retain ownership of approximately half of the land in the Lake Taupō District (including the bed of Lake Taupō). In addition to various land sales and acquisitions by government authorities, large areas have been shared with the nation, including most famously the land forming Tongariro National Park. Consistent with their role as Kaitiaki, any development of Tūwharetoa land was done only after consideration of any wider environmental implications. This led to significant areas being set aside as Lakeshore Reserves and substantial riparian margins in forests and farms. Decisions on use must also pass the high hurdles inherent with Māori land tenure.

Consequently, the land still retained by Tūwharetoa under Māori freehold status is predominantly either undeveloped or in plantation forestry, with around 50% of pastoral farming in the catchment making up the balance. Taken as a whole, Tūwharetoa land in the district plays a major role in protecting the lake and waterways and in preserving the natural character for which the district is renowned. Tūwharetoa landowners fully expect to develop more of their land over time; though any such developments will be over a long timeframe.

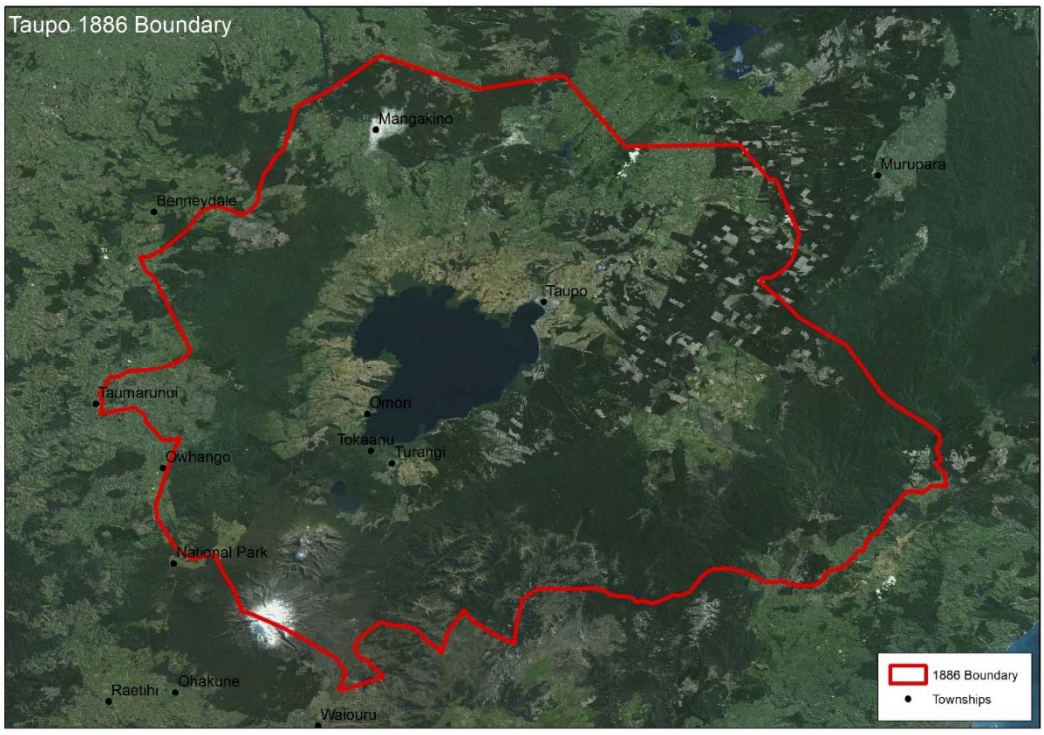


Figure 1: Ngāti Tūwharetoa 1886 Iwi Boundary

6.3.1 How does the scheme work?

The scheme comprehensively caps discharges from diffuse agricultural non-point sources of nutrients (in this case, largely farmers and foresters) and allows trading among these participants to cost-effectively achieve an environmental goal. Market-based environmental policies are increasingly being applied to deal with water quality problems (Selman et al. 2009). A key motivation is the expectation that trading can achieve environmental goals at a lower cost and with greater flexibility than traditional command and control regulation (Shortle 2012). Environmental trading markets are able to achieve this as they allow those who find it expensive to mitigate or abate their discharges to meet environmental requirements at lower cost by purchasing reductions from other participants who can reduce their discharges more cheaply. Those who can cost-effectively reduce their discharges are motivated to do so because, if they can reduce their discharges below regulatory requirements, then they can sell their excess allowances to others. As a result, trading markets will theoretically ensure the efficient distribution of mitigation. Mitigation is carried out by those who can do it most cheaply, which minimises the cost of achieving an environmental goal.[15]

The Motu Group found in their 2015 paper that "while the introduction of a cap on nitrogen has effectively limited discharges into Lake Taupō, it has also imposed various economic and social costs on those who now face a limitation on the productive capacity and development potential of their land. The reduction of options and additional costs associated with farming under a cap has driven some landowners to exit the catchment and may also have reduced the value of capped land compared to land not affected by a cap."

The policy came into effect in 2011 and consists of three key components. The first is a cap on nitrogen losses, which serves to limit nitrogen losses at historical levels and prevent further increases. The second component is the establishment of the Lake Taupō Protection Trust, a public fund with contributions from local, regional, and national communities charged with permanently reducing the cap by 20% through the purchase and conversion of land or purchase and permanent retirement of farmers' nitrogen allowances. The third part of the policy enables the establishment of a nitrogen trading system that allows farmers to trade allowances with other farmers or with the trust.

[15] http://motu-www.motu.org.nz/wpapers/15_07.pdf

6.3.2 Allocation of nitrogen credits

When the system was established, it required each landowner to be given a quantity of credits. The choice of how these credits were established had a significant impact on Ngāti Tūwharetoa and they opposed the use of grandparenting to determine the initial allocation of credits.

Under historical allocation, all landowners can continue to operate at their current chosen land use and none is required by the regulation to make costly changes or to de-intensify. By enabling landowners to continue operating at existing levels, grandparenting recognises and values earlier investments made to maintain a certain level of production, but still places a marginal cost on intensification and, in conjunction with the overall cap, limits any increase in the total nutrients entering the lake.

The system meant that if you were already operating with high discharges you were favoured in the system. Those lands previously used for low-nitrogen leaching activities, along with those farms previously facing capital constraints or other factors that historically restricted their ability to operate at a higher production levels, now face significant costs if they wish to convert their land to more nitrogen-intensive uses.

This restriction significantly affected Ngāti Tūwharetoa. In order to ease the restrictive nature of historical allocation on Tūwharetoa and other forest owners, the variation grants some costless flexibility for developing undeveloped land.

A baseline was individually set for each farm and was equivalent to the highest annual level of leaching over the period 2001–05. For this reason, many owners of forested and undeveloped land have expressed frustration that they should be disadvantaged by allocation intended to correct damage that had been largely caused by farming, whether intentionally or not.

Tūwharetoa Forest Trusts in particular felt that extensively forested areas, for example on the eastern side of the lake, had been deliberately planted in order to protect the water from the adverse impacts of land use; and that such protection should not go unrewarded in a policy meant to achieve a similar goal.

The natural character of the region was maintained by the creation of environmental reserves. Indigenous and natural vegetation was retained on riverside and streamside reserves to prevent run-off and protect trout spawning streams. In addition, a number of roadside areas were retained in native vegetation or planted in a variety of exotics to maintain aesthetic values.

The protection measures implemented for these forests exceeded any provisions contained in the regional and local planning schemes. The catchment controls at the time reflected what was being developed in the Soil Conservation and Rivers Control Act 1941, but these had been developed around agriculture and pastoral land use. Unlike the latter, forestry development uses did not attract local body incentives and subsidies. The forests contribute significantly and directly to the positive environmental, ecological, and recreational values associated with the catchment and enhance the qualities of the Taupō waters. On the other hand, pastoral and agricultural uses are the major sources of contaminants entering Lake Taupō.

6.3.3 Nitrate trading

The concession in the current policy allows Māori and non-Māori owners of undeveloped and forestry land to increase their nitrogen leaching by 2kgN/ha/year above baseline leaching rates – an increase that will have only a small impact on water quality (Vant 2008). The development allowance cannot be sold to other landowners as part of the trading system; and it should allow owners of undeveloped land to increase their nitrogen intensity without having to purchase allowances to do so. However, Ngāti Tūwharetoa believed that they had disproportionally carried the economic impacts of caring for the Taupō Catchment and that, when partnered with an ETS that effectively limited their ability to change their land use which others had previously been enabled to do, was unfair.

The policy grants farmers the flexibility to deviate from their benchmark NDA by allowing them to offset any nitrogen losses above and beyond their specified allowance by an equivalent corresponding decrease in nitrogen losses elsewhere in the catchment. This creates a nitrogen trading system where farmers facing high nitrogen reduction costs (in terms of output and profits) may choose to buy nitrogen allowances from another farmer, and vice versa.

The Taupō water quality market differs from most other existing NPS water quality trading schemes in that it is a cap and trade market, rather than an offset (or baseline and credit) scheme (Selman et al. 2009). In this manner, the Taupō scheme is similar to established emissions trading schemes such as the Acid Rain SO2 market. Cap and trade systems, such as the Taupō scheme, have a comprehensive cap on the allowable discharge of nutrients in a catchment. This cap is then divided into individual, tradeable allowances which are then distributed to market participants who must hold or remit an allowance for each unit of nutrients entering waterways from their property.

This system's participants are private farms, and Ngāti Tūwharetoa, is the largest landowner in the catchment, with significant holdings of forestry and developed and undeveloped pasture. Much of that land, however, was not considered by Ngāti Tūwharetoa to be the cause of the nitrogen issues in Lake Taupō.

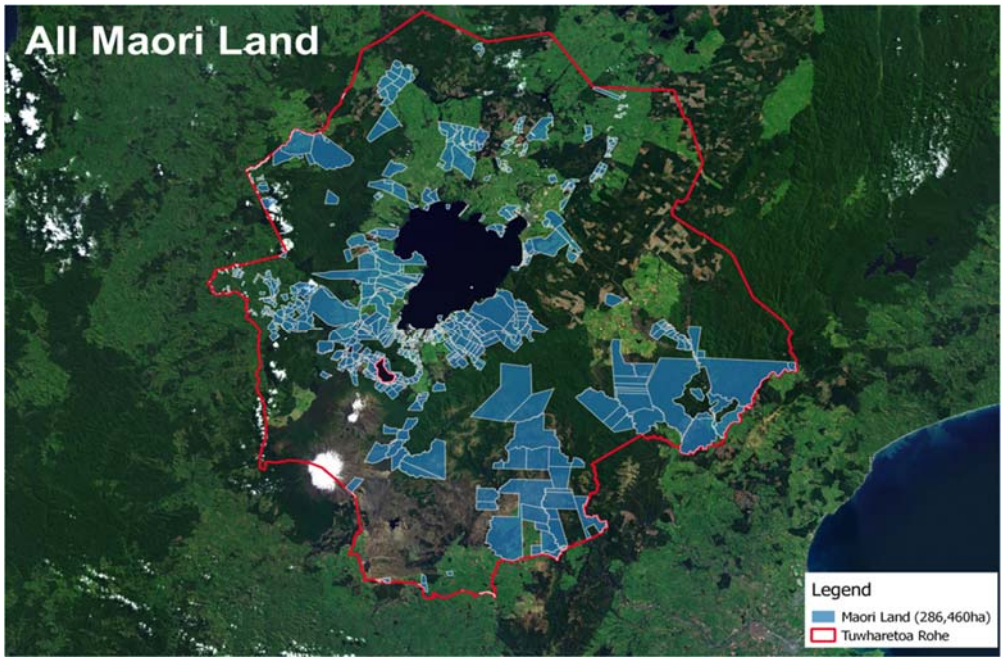


Figure 2: Māori land within the Ngāti Tūwharetoa rohe

For Ngāti Tūwharetoa, the chosen approach of nitrogen allocation and capping enforced the status quo and did not target the land uses that are responsible for high levels of nitrate leaching into the Lake. In respect of Tūwharetoa land that is undeveloped, the enforcement of the status quo will lock the current land usage situation in and deny or limit many of the owners of forestry and undeveloped lands their right to freely utilise their lands in requirement with their needs. This, in turn, will lower the value of Tūwharetoa's assets and hence the ability to create wealth for its community.[16]

George Asher noted:

> The paradox is that Tūwharetoa land owners will be penalised in the further utilisation of their lands without acknowledgement of the fact that they are not the main contributors to the problem, and indeed those who will benefit will be those who have alienated our ancestral lands and used them to create the unstable environmental conditions that are now being the focus of control and regulation.

Although the nitrate trading system has now had success in the protection of Lake Taupō, there continues to be a grievance that the system protected those early entrants of development of the area. They preferred a targeted approach that protected the right of Ngāti Tūwharetoa landowners to develop their lands consistently with their own tikanga.

[16] George Asher, 4 Aug 2005, pp.4-5.

The right to development is a recognised principle of the Te Tiriti o Waitangi, and indeed a recognised norm of international law. Article 1(1) of the United Nations Declaration on the Right to Development adopted by the General Assembly on 4 December 1986 (resolution 41/128), which was supported by Aotearoa New Zealand, states that:

The right to development is an inalienable human right by virtue of which every human person and all peoples are entitled to participate in, contribute to, and enjoy economic, social, cultural and political development, in which all human rights and fundamental freedoms can be fully realised.[17]

6.3.4 Success of the scheme

In the Motu paper, they conclude that:

> We find that while the introduction of a cap on nitrogen has worked to limit the nitrogen leaving agricultural land, it has also placed significant costs and restrictions on those affected. The cap has reduced farmers' ability to intensify production, has decreased land values, and has significantly increased administration and compliance costs. These economic costs have led to social costs: significant land-use change has resulted from the policy, which has resulted in a number of farmers leaving the catchment. This, combined with the uncertainty during the establishment of the policy, has negatively affected the social lives of farmers left in the catchment. The creation of the Lake Taupō Protection Trust to fund the decreases in nitrogen has significantly reduced the costs borne by farmers. Trading to 2012 had included 19 trades with the public trust, which are evidence of nitrogen being reduced and retired where it is cost-effective to do so. The ten private sales to 2012 are evidence of the trading scheme facilitating a shift in nitrogen leaching to the most profitable uses. The three short-term leases of allowances provide evidence for the flexibility of the policy: trading is allowing participants to upscale or downscale their activities as they see fit. All of these trades suggest that the trading scheme is working well to facilitate the achievement of the environmental goal at low cost.
>
> We find that while transaction costs are low by international standards, they are still high enough to affect trading and decrease the cost-effectiveness of the policy. The choice of a cap and trade scheme will have reduced transaction costs relative to what would have been the case under a more common baseline and credit-type system. However, the requirement for ex ante trade approval and increased monitoring for participants who trade decreases the benefits of trading. This is likely to limit trading to large or long-term trades, as the transaction costs will 41 outweigh the benefits of trading small volumes of allowances.

6.3.5 Recommendations

For Ngāti Tūwharetoa and other landowners in the catchment, the scheme has impacted land values, with many landowners retiring their land or selling out of the catchment due to the restrictions. For Ngāti Tūwharetoa, this has not been an option. In planning any other environmental and subsequent economic tool for nitrate trading in other parts of Aotearoa New Zealand, it will be essential to learn from the impacts on Ngāti Tūwharetoa and establish a more bespoke and targeted programme for the actual contributors to nitrate production rather than try to protect current users from economic impact.

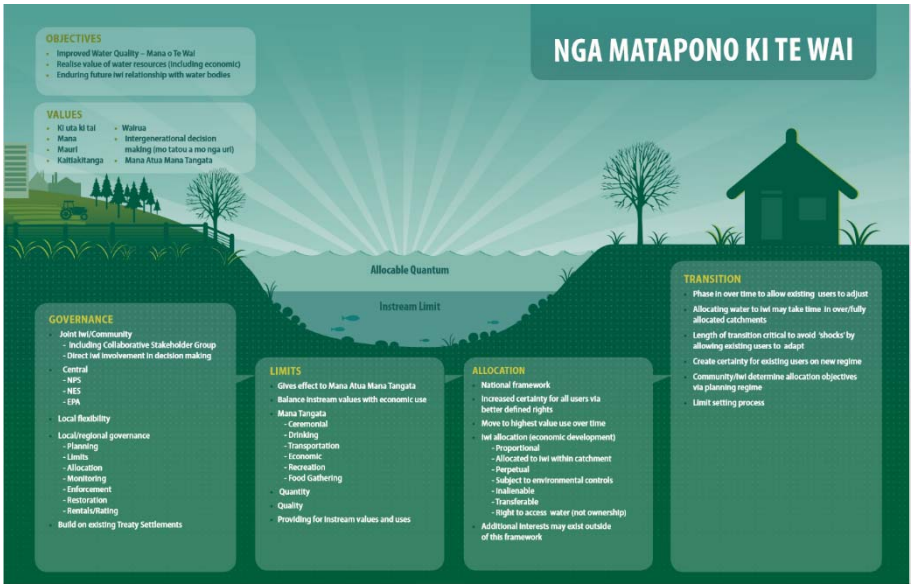
In effect, this will mean having improved data to pinpoint those land users and land uses that create the problem. Using this data to build a trading system that does not fundamentally favour those who have been creating the problem for generations and enabling development on Māori lands where those land uses are sustainable. It will require a deeper understanding of the history of Māori development and legacy issues that have created the current land structures that exist today. This same work will also need to be completed in terms of any water trading system.

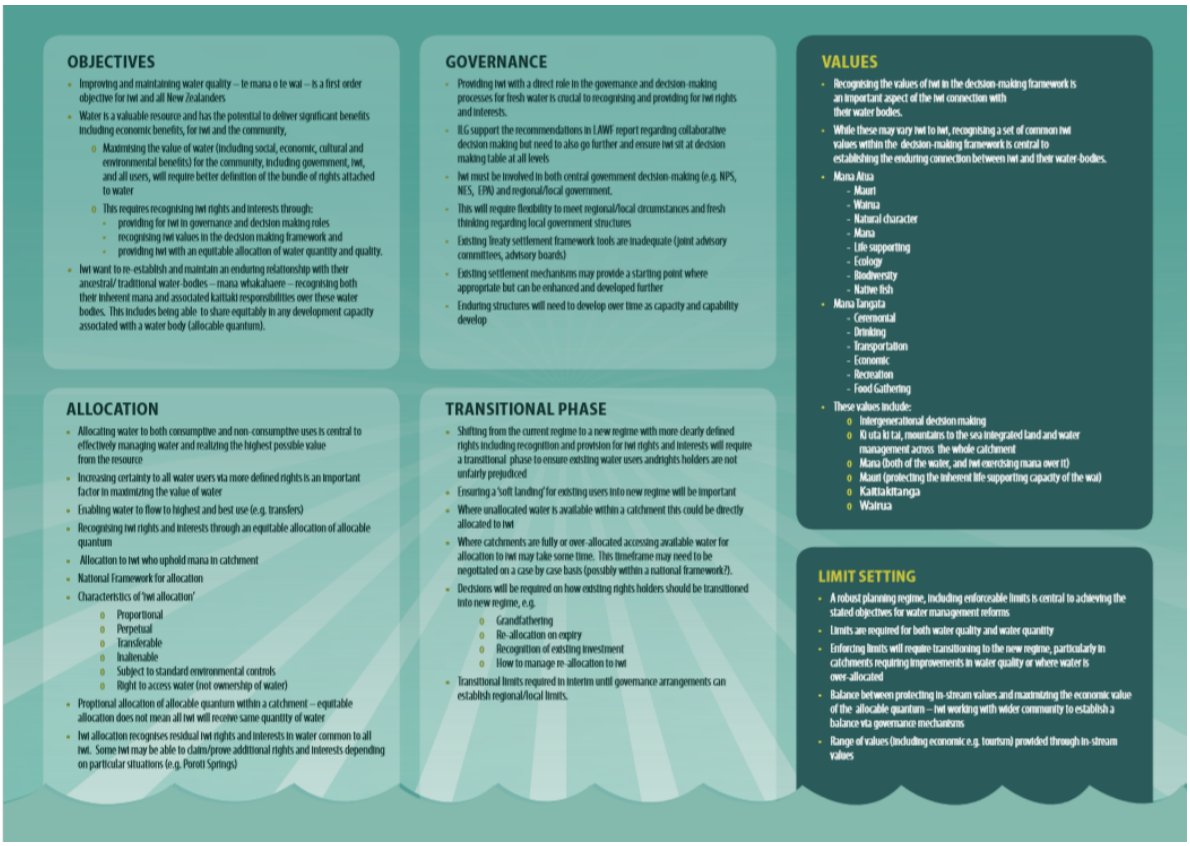
7 Water allocation

7.1 Ngā Mātāpono Ki Te Wai

Ngā Mātāpono provides a freshwater framework that provides for participation in governance and decision making at a national and regional level for Iwi, including setting and enforcing robust limits (governance) and recognising Iwi values in the decision-making framework (limits). It also provides Iwi with an equitable share of allocation (i.e. the water available for use above any set limits) for customary and commercial purposes in every rohe (allocation). While governance, limits, and allocation are identified as three separate areas within Ngā Mātāpono, each is an inseparable element of the whole. They cannot be progressed separately in isolation of each other if the rights, interests, and responsibilities of Iwi are to be adequately recognised.

Ngā Mātāpono was developed by the Iwi Leaders Group on Freshwater in 2016 to establish a key set of expectations that was tested amongst hui with Iwi over several years. These principles are outlined in this diagram. These principles determined the feasibility of any potential water allocation system by ensuring Ngā Mātāpono was core to any option.





Te Tiriti o Waitangi establishes the basis for Iwi involvement in the management of freshwater. Iwi believe the current management framework and governance arrangements are not delivering the outcomes (including water quality and quantity outcomes) Iwi or the community expect. To a large extent, Iwi are not effectively involved in the management of freshwater and mostly participate on a reactive basis to resource consent applications.

The nature and extent of Iwi rights and interests in freshwater are still to be recognised and resolved through direct negotiation (or otherwise) between the Crown and Iwi. Until the Crown and Iwi have agreed on the nature and extent of Iwi rights and interests in freshwater, the Iwi Leaders Group will continue to reiterate their position that no stronger property rights in water than those that already exist under current legislation should be created through the policy development process. In the interim, the IAG, on behalf of the ILG, continue to participate and support the development of recommendations for a future freshwater management framework, including options for new governance arrangements.

The desire of Iwi to be more effectively involved in the governance and management of freshwater has two principle drivers. First, as Kaitiaki, Iwi have an obligation to protect the Mauri of the natural environment for current and future generations.

Second, being effectively involved in the management of natural resources within their rohe reflects the tino rangatiratanga of each Iwi, as guaranteed in Te Tiriti o Waitangi, by exercising mana whakahaere (rights, authority, and control).

Iwi involvement in the management of freshwater (and other natural resource and environmental issues) needs to be improved at all levels – nationally, regionally, and locally. It is important to recognise there is unlikely to be a single 'one-size-fits-all' solution and, alongside the range of existing models, new thinking and models will also be required to meet the changing expectations of Iwi (and the wider community), as well as changing governance structures and frameworks. The ongoing review of constitutional issues regarding local government, as well as broader ongoing constitutional reviews concerning the Crown/Māori relationship will also have an impact on the future governance and management of natural resources.

Specific challenges for Iwi and the Crown in determining how to improve the effectiveness of Iwi participation in the management of natural resources include:

- Clarifying the nature of the relationship between Iwi and local government organisations.

- Ensuring sufficient compulsion/incentives to ensure Iwi are effectively involved in the governance and management of fresh water.
- Providing adequate flexibility for Iwi and governance agencies to develop solutions commensurate with the capacity of Iwi and the governance group as well as the resources being managed.

- Providing a framework that enables the Māori worldview to be reflected in the outcomes of the decision-making process. This includes an intergenerational approach to decision making and integrated and holistic management of the environment.

- Building the capacity of both Iwi and governance agencies to work together on delivering effective governance.

- Ensuring governance arrangements are sustainable (including financially) and have the flexibility to evolve over time to meet changing circumstances and in line with developing capabilities and capacity.

- Recognising the diverse range of interests that Iwi have across the four wellbeing's of economic, environmental, social, and cultural (i.e. Iwi interests are not just 'cultural').

- Developing efficient structures. Iwi, in particular, have a broad range of interests and often limited resources to respond to multiple requests for Iwi input. Any governance structures developed between central or local government and Iwi need to be as efficient as possible to maximise the use of Iwi (and government/ratepayer) resources.

There is a range of existing models that provide varying degrees of involvement for Iwi in the governance of natural resources. These include the Waikato River Authority, Rotorua Lakes Strategy Group, the Auckland Council Independent Māori Statutory Board, Te Upoko Taiao Natural Resource Planning Committee (Greater Wellington), Te Ao Marama Inc (Southland), dedicated Māori wards/seats (Bay of Plenty (existing), Waikato/Nelson (pending), as well as a wide range of advisory type committees. Other, as yet unutilised/untested, options also exist under existing legislation. These include the joint management and delegated authority provisions of the RMA, Local Government Act provisions, and the recent Marine and Coastal Areas Act.

While existing models may provide a basis for the development of future governance arrangements, consideration needs to be given to addressing the issues above. Most importantly, any proposed structure needs to be discussed and negotiated with the relevant Iwi groups to ensure it meets the needs of both parties.

Through hui held by Iwi, there have been more detailed learnings based on, and in addition to, those matters provided for in Ngā Mātāpono from Iwi Te Mana o Te Wai (the first right to the water goes to the water itself). In the context of allocation, Te Mana o Te Wai must be achieved before an allocable quantum is available. In the interim, councils in partnership with Iwi/hapū must measure out water use and only use what we need from what is available after Te Mana o Te Wai has been met.

Access: Communities should not have to pay to access water for drinking water purposes.

Equity: Iwi/hapū must have a perpetual and non-alienable right to water that is catchment based.

User assessment: Whoever uses water must prove that they have the systems and infrastructure in place to care for it responsibly. Permits should include an assessments of users and the technology they use to access water – not just the effects of the use of water.

Te Mana Motuhake o ia wai o ia wai ki te wai: Each catchment is different so a suite of tools is needed to ensure this difference is honoured. There will be no 'one-size-fits-all'.

Te Tiriti o Waitangi te tāhuhu o te Wai: Access to water for tangata whenua based on our Treaty partnership is not just related to land that we currently own, but is connected to us through whakapapa to the lands and waters.

Costs of water use and the implications of water use: These must be borne by the user – not Kaitiaki and not the ratepayer.

Certainty: Attributing value to water is expected to support efficiency and effectiveness of use as long as the value is then transferred to the river and to tangata whenua in an appropriate way.

Te kaitiakitanga o ngā hapū me ngā iwi ki te wai: A freshwater management system that is agile to address environmental shocks is required.

Equity: In over-allocated systems, all users must take a reduction in their water use to ensure the water is shared equitably and Te Mana o Te Wai is met.

Wai Tuku Kiri: Once Te Mana o Te Wai is achieved, drinking water must be the next priority.

It is helpful to further understand the issues that are relevant to Māori rights, interests, and responsibilities in respect to freshwater.

7.2 Māori values and the legal position

For Māori, water is a taonga. Water has been traditionally, and remains, an integral political, economic, cultural, and spiritual taonga for Māori. Under Aotearoa New Zealand law, it is generally presumed that water is not owned by anyone. However, Māori have rights and interests in water resources which exist regardless of whether the land adjacent to and/or underlying the water is in Māori ownership. The primary legislation applicable to water management, the Resource Management Act 1991, grants rights to use water as a resource but does not discuss ownership. The lack of legislation restricting or defining water property rights provides opportunities for Māori to assert rights and interests to water (unrelated to holding title to the bed and/or riparian land).

These rights and interests arise:

(a) as a matter of custom and customary use and as a consequence of whakapapa, tikanga, and mana whakahaere;

(b) under Article II of the Te Tiriti o Waitangi; and

(c) under the common law doctrine of aboriginal title.

7.3 Customary use

Customary rights are collective and inalienable, held under the principles of tikanga, with an emphasis on use that preserves taonga for children and grandchildren, tamariki, and mokopuna. It conveys mana, mana whakahaere, and the obligation of Kaitiakitanga. All Māori have an obligation to satisfy that duty. Those rights and obligations are tikanga or Māori law-based and are part of the whakapapa linking the land and water to the guardianship and authority of Māori.

Simply put, if it can be established that possession was exclusive at the time sovereignty passed to the Crown, and that possession has continued unabated to the present time so that evidence that traditional and customary practice and activities of the land and resources is continuing and enjoyed, the customary use right is proven.

Such rights have to be properly investigated and are generally left to the courts to determine. There are some obvious dangers and difficulties – that is, interpretation and misunderstanding of concepts. Using waterways as an example, the Māori legal construct of traditional use and access to rivers has several interrelated parts:[18]

- it flowed, as all law does, from the exercise of a constitutional and political authority, specifically the mana or tino rangatiratanga of Iwi;
- it was derived from the clear values of reciprocity, maintenance, and sustainability that are inherent in Kaitiakitanga;
- its primary purpose was the wellbeing of those bound by whakapapa, but the reach of its manaakitanga could include those not directly related;
- in some cases, specific use covenants were negotiated to ensure access on terms consistent with tikanga; and
- like whakapapa, it was a construct that could never be voluntarily given away nor denied by somebody else.

[18] Moana Jackson.

In a very real sense, the rights and obligations were values-based in Kaitiakitanga but were given expression through the political exercise of rangatiratanga. They gave meaning to tikanga, not just as a set of rituals or ethics, but as a template for legal and constitutional authority.

7.4 Te Tiriti o Waitangi issues

It is the perspective of many Iwi that the Crown has breached its duties to Māori under the Te Tiriti o Waitangi by:

(a) failing to identify the nature and extent of Māori rights and interests in water resources as a fundamental and necessary prerequisite to establishing a water allocation regime;

(b) failing to actively protect Māori in the use of their water resources to the fullest extent practicable when establishing, developing, and implementing a water allocation regime and, in particular, by:

(i) asserting that water is a publicly-owned resource that must be managed by central government and local authorities;

(ii) permitting the use and management of water resources without adequate reference to the rights of Māori under Te Tiriti o Waitangi;

(iii) asserting that Māori are simply a stakeholder or interest group for consultation purposes, with no greater interest than local authorities, industry, science agencies and providers, and rural and urban communities; and

(c) fettering the Crown's ability to remedy past breaches of Te Tiriti o Waitangi in relation to water resources by developing proposals that will encourage the transfer of water rights, with the probable effect that such rights will be unavailable for use as a remedy in Treaty settlements.

7.5 Aboriginal title

Aboriginal title is an alternative and arguably stronger basis to claim for customary rights recognition over freshwater. Until the Ngāti Apa decision, aboriginal title was underdeveloped in Aotearoa New Zealand. It has now, however, been authoritatively discussed by the Court of Appeal, whose reasoning is supported by extensive academic commentary.

As yet, there are no authorities which have specifically considered aboriginal title rights in relation to freshwater, however, there are obiter comments suggesting the permissibility of such claims:[19]

> Aboriginal title is a compendious expression to cover the rights over land and water enjoyed by the indigenous or established inhabitants of a country up to the time of its colonisation.

The principal challenge to a successful aboriginal title claim for full proprietary interests in freshwater is establishing the requisite factual matrix. Presently, at its simplest, the test is that any claimed area or resource must satisfy the following two-part test:

(a) that is was occupied exclusively as at 1840; and

(b) the right has not been extinguished.[20]

The evidential requirements will extend to the following:

(a) that Māori customary law established a presumption of exclusivity of use and management of water;

(b) detailed historical and ideally contemporary evidence of customary practices illustrating customary control and management of water; and

(c) that there is no applicable statute which clearly and plainly extinguishes those rights.

7.6 Iwi allocation via a new legislative regime

The possibility of a new legislative regime has been examined by the Iwi Leaders Group through commissioned research carried out by Sapere.[21] The new regime would be similar to the Quota Management System, which recognised the commercial value of fisheries. The Crown and existing consent holders would surrender a percentage of the allocable water under those consents which would be transferred to Iwi, with provision for compensation. Iwi rights would be inalienable, would have no time restrictions, and could be leased for commercial value.

This model would require radical change from the status quo. In 2014, the Sapere Group found strong economic advantages from an Iwi allocation on this model, including certainty for all consent holders. Their work was again commissioned by the Iwi Leaders Group to consider options. The Sapere report recommends the consideration of a permanent allocation of water to Iwi as has occurred under the

[19] Te Runanganui o Te Ika Whenua Society Inc v Attorney General [1994] 2 NZLR 20, 23 (CA) Cooke P for the Court

[20] Notably, for statutes to extinguish customary rights they must be 'crystal clear'. It is unlikely that the applicable statutes are sufficiently explicit in their terms.

[21] Sapere Reports, confidential reports to the Crown.

Quota Management System and the fisheries system in the 1990s. That system was used to recognise proprietary rights in fisheries for the benefit of Aotearoa New Zealand.

It is fair to say that the work was not unanimously supported by all Iwi as many considered that rights and interests in freshwater were far more complex than in fisheries and needed to be managed on a catchment by catchment basis. These Iwi also considered that the percentage number of allocation suggested in fisheries would not be appropriate in many Iwi rohe for a range of reasons. Many Iwi also wanted to partner any allocation system with a 'joined up' water quality management system that ensures the achievement of Te Mana o Te Wai. This would mean a significant change to the Resource Management Act in the short-term. However, it is useful to consider their thinking here as this has been continuing to inform the development of positions in Iwi since its release. Sapere outlines the following economic advantages over a consent-based regime.

Better pricing of water: The benefit of better pricing is more efficient decisions by resource owners (including Iwi) due to a far higher degree of transparency about what the water is worth and an 'easier path to market'. The Ministry for the Environment estimates that a 1% increase in the availability of water (through improved efficiency) would result in an economic benefit to Aotearoa New Zealand of $389 million per annum. For the Government, the benefit of better pricing is the potential to levy resource taxes on rent earned from the use of the resource.

Awaken sleeper consents: Sleeper consents are those that are allocated but often remain unused. Having better defined rights will mean that water allocations are more easily able to be transferred, leased, divided, or shared. They estimate a benefit of $370 million if 5% of the unused consented portion 'sleeper share' is reallocated to higher value uses.

Less costly droughts: Water transfer and trade benefits an economy in times of shortage or drought. They estimate a benefit of $500 – $630 million if a drought of the magnitude of $1.5 billion (as estimated by the Treasury in 2013) hits Aotearoa New Zealand. This estimate assumes that transfer and trade lessens the impact of a Aotearoa New Zealand drought in similar ways to that seen in the Murray Darling Basin.

Reduced costs of resolving over allocated catchments: The Australian experience illuminates that greater security of water rights and allowing trades of these rights substantially reduces the economic costs of reducing over allocations of water.

Reduced costs of conflicts: Under the status quo, there is general uncertainty regarding the definition of individual rights in relation to water. This causes many stakeholders to engage in costly disputes to settle conflicts in ownership of water rights.

Improved incentives for investment and capital formation: Existing consents for water are subject to various uncertainties and risks which can impede investment. Consent terms are not standardised, cannot be easily compared, vary from region to region and from consent to consent, and might not be renewed. Consents are, therefore, difficult to use as collateral for credit, and hence can less easily be used to produce additional value – for example, for the creation of securities which support capital raising and investment. The economic impairment resulting from the uncertainty of existing consents will be substantial as the economic value of water to Aotearoa New Zealand is estimated by the Ministry for the Environment at $34.85 billion per annum.[22]

7.7 Recommendations

At this time, the work on addressing Iwi rights and interests for freshwater is developing with the entry of the new coalition Government. For many Iwi, and certainly for the Iwi Leaders Group, it is unclear which direction it may be heading. However, Iwi continue to develop their thinking in terms of a work plan to delve into more detail to establish a working pilot of their preferred options. This work plan for allocation is outlined later in the recommendations for future work required.

7.8 Iwi allocation under the RMA[23]

Other options for Iwi allocation could be under the allocable flow/level for each water catchment in their rohe as of right under the new regional collaborative planning process for setting freshwater quality and quantity limits. The allocation would be expressed as a resource consent, subject to current restrictions (such as time limits). An allocation of water would involve a rule in a regional plan that says a certain percentage of a flow in a river is be reserved or set aside for use by one or some Iwi groups. The rule would allow Iwi to abstract a certain volume of water and use it for their own economic benefit or commercial use, whether the use will be by Iwi themselves to support their own developments, or to support developments undertaken by Iwi in partnership with someone else, or through the leasing or transfer of those water rights to others for their use.[24]

Water permits carry many of the characteristics of property rights and may create valuable rights and effective control of the use of water resources.[25] The weakness of an allocation under the RMA from

[22] Sapere, "*The costs and benefits of an allocation of freshwater to Iwi"* 2014.

[23] Hamm and Bailey, 'Enabling an Iwi allocation of freshwater: Is it a radical change?' 2016 *Resource Management Law Journal*, 22-26.

[24] Lara Burkhardt, presentation at Te Ōniao Conference. Retaining a certain amount of water in waterbodies to protect cultural values (e.g. an 'environmental flow') is a separate issue and something that the current system already provides for.

[25] *Hampton v Hampton* [2010] NZ EnvC 9.

an Iwi point of view is that this does not provide Iwi with the *proprietary* rights recognition being sought in the Wai 2358 inquiry.[26]

In any event, for the reasons summarised below, Hamm and Bailey suggest that to put the issue beyond doubt, the RMA would need to be amended to expressly provide that an Iwi allocation is an activity.

Section 14 RMA: In exploring how an Iwi allocation could be achieved under the RMA, practitioners have considered whether an Iwi allocation could be an exemption under s14 RMA(3)(b). Other exemptions include use for individual's reasonable domestic needs or an individual's animals for drinking water, if use is not likely to have an adverse effect on the environment. It is likely that only a small allocation could fit within this exemption before the adverse effects proviso would apply.

Section 33 RMA: Expressly allows a local authority to transfer any one or more of its functions, powers, or duties to an Iwi authority.

The Resource Management Act 1991 provides for local authorities to transfer their functions, powers, or duties under the Act to public bodies, including Iwi authorities. Local authorities have generally been reluctant to relinquish their powers in this manner. Nothing in the joint management agreements noted above preclude local authorities from effecting a transfer or a delegation under section 33.[27] However, the transfer is not unlimited. Section 34A prohibits a local authority from transferring the decision-making power for a resource consent application and approving a proposed policy statement or plan. The Iwi authority would, therefore, lack the necessary power to control allocation.

Section 30 RMA: The strongest case lies in the application of Section 30 of the RMA. Section 30 empowers councils to establish rules in a regional plan to allocate water. There is nothing in s 30 which expressly prohibits an allocation of water to Iwi. When making rules to allocate a natural resource in a plan, the allocation is subject to the conditions listed in s 30(4)(a) –(f). These provisions anticipate allocation for 'activities'.[28] The term 'activity' is not defined. Hamm and Bailey suggest that Iwi allocation could be made if the focus is on the activity (e.g. cultural uses, such as for marae activities or the irrigation of multiply-owned Māori land for agriculture or horticulture activities). This approach was contemplated in *Ngāti Makino Heritage Trust v Bay of Plenty Regional Council* [2014] NZEnvC 25.

[26] Resource Management Act 1991, s 122.

[27] Clause 15 WRRT and WRC.

[28] The authors discuss the *Hauraki Māori Trust Board v WRC*, and *Carter Holt Harvey v WRC* [2011] NZEnvC 380 cases, before concluding that 'the current case law does not support an allocation based on the *status* of the applicant', p24 (emphasis added).

In this case, the court could not see any reason why an allocation could not be made for cultural use, subject to the relevant Water Plan – it would need to be specific to the local circumstances.

7.8.1 Water allocation in the Waikato region

An example of how water allocation occurs in a specific catchment is that of Waikato. Variation 6 to the Proposed Waikato Regional Plan involved a significant water change to the relevant plan provisions for allocation. Initially, the Waikato Regional Council had proposed a move away from a 'first come first served' approach to allocation by introducing common expiry dates on water permits to enable all applications to be dealt with at the same time and by giving preference to particular types of water use ahead of others. Although that approach was not adopted by the Council, in the appeal, the framework of rules tested was one that gave preference to certain *types* of water use by making some easier to get consent for than others. Accordingly, water users 'jostled for the best spot in the queue under the new regime.'[29]

Iwi along the river also sought the inclusion of a rule that provided preferential access to water for 'Iwi development'. This was proposed as a controlled activity rule and applied to development undertaken by 'Waikato River Iwi' in respect of Māori land held under Te Ture Whenua Māori Act 1993 and/or land owned or leased by an Iwi authority representing any of the Waikato River Iwi for the benefits of its members.[30] Wairarapa Moana Incorporation opposed Variation 6 on the basis that it did not recognise that Māori-owned and operated farming resources and activities are Matters of National Importance under s6(e) of the RMA.[31]

The Council argued that a preferential rule was beyond their powers, relying on the *Hauraki* case.[32] The River Iwi Trusts that were involved in the appeals sought to distinguish *Hauraki* on the basis that s 30 had been amended and the Vision and Strategy[33] had since come into force.[34] The court did not agree that the Settlement Act and Vision and Strategy extended to the functions and powers of the

[29] Lara Burkhartdt, Te Oniao, referring to *Carter Holt Harvey & Others v Waikato Regional Council* [2011] NZEnvC 380.

[30] Other submissions focused on amendments that would give effect to the Vision and Strategy and the impact of transfer provisions on the health and wellbeing of the Waikato River. Iwi also gave evidence reasserting that the issue of 'ownership' of water had deliberately been left out of the co-management legislation and that Iwi have never ceded traditional ownership of their waterways under Article 2 of Te Tiriti o Waitangi.

[31] Nicola Rye, Summary of Appeals Waikato Regional Plan: Variation No. 6 – Water Allocation, p9. General Iwi issues pp 19-22.

[32] At [434].

[33] Schedule 2 to the Waikato-Tainui Raupatu Claims (Waikato River) Settlement Act 2010.

[34] At [434].

Regional Council under the RMA. This, they said, would require clear and unambiguous words to override the principal Act which creates the functions and powers of decision makers.[35]

The Environment Court considered itself bound by *Hauraki* and held that, while the rules in Variation 6 can provide a favourable status to an activity and apply to anyone who partakes in the activity, they cannot be based on a person's race.[36] It was the Environment Court ruling that allocation is to be controlled by the 'status of the activity and not the status of the applicant'.[37] It was their position that rules in the Variation create favourable activity status over favourable applicants.[38]

The Environment court also referred to the proposed definition of 'Waikato River Iwi' being confined to 'Ngāti Tūwharetoa, Raukawa, Te Arawa River Iwi, Ngāti Maniapoto, and Waikato-Tainui'. The court considered that, as a matter of fairness and equity, if such a provision were to be introduced, it should apply throughout the region and to all Iwi.

The danger of the term 'the River Iwi' used in the manner proposed in the appeals to Variation 6, and by consultants to WRC excludes iwi such as Ngāti Koroki Kahukura and Ngāti Hauā who have both negotiated extensions to the co-management arrangements in respect of the Waikato River and are both recognised by the Crown as 'River Iwi'.

7.8.1.1 Allocable flow

The Environment Court heard competing arguments regarding the allocable flow above Karāpiro. The evidence highlighted that competing users of the resource can have significant national and regional contributions that give rise to tensions as between many of the Part 2 matters.'[39] Farmers and irrigators opposed the Variation on the basis that 96.4% of water above Karapiro was reserved for 'environmental flow'. Wairarapa Moana Incorporation argued that this was, in effect, a prioritisation of the rights of power generators. This figure was amended to 95% following appeals. Given the context around demand for electricity,[40] this reservation provides an opportunity to allow an Iwi allocation. The Tūwharetoa Māori Trust Board submitted that an Iwi allocation was 'not beyond the scope of Variation 6', but that there was 'no political will' to allow an Iwi allocation.

[35] At [440].

[36] At [439].

[37] Environment Court Decision Variation 6, 127.

[38] See below for a discussion on enabling an Iwi allocation under the RMA.

[39] *Carter Holt*, p 47.

[40] See *Carter Holt*, pp 46-78.

It will continue to be a complex issue to address, however, without addressing Iwi rights and interests to freshwater. It is holding back better management of water in Aotearoa New Zealand and, in the meantime, water quality is degrading, and the potential sustainable economic development of Māori land is being restricted.

7.8.2 Recommendations

Regarding water allocation, further work to create a strong evidence base to enable appropriate tradeable rights or even at its base a right to water for tangata whenua. The following table outlines key recommendations over the short-, medium-, and long-term in regard to improving the system to enable Te Mana o Te Wai and Ngā Mātāpono ki te Wai.

It is recommended that these areas be further researched, with specific case studies completed with willing regional councils, Iwi, and private sector partners in a particular catchment to provide practical examples of the learning that can be applied to others. In effect, what has been done with nitrate management in the Taupō Catchment but at a theoretical scale.

<table>
<tr><th>Now (5 years)</th><th>Transition (10 years)</th><th>Transformational (25 years)</th></tr>
<tr><td>Technical efficiency</td><td>Buy-backs</td><td rowspan="11">ITQ / QMS type system (with appropriate amendments and a different name):
Environmentally agile
Proportional
Perpetual (for Iwi)
Right inalienable but use tradable
National framework that is catchment based (with sub-catchment focus if required)
Market that allows for trading</td></tr>
<tr><td>Increased transparency</td><td>Transition to best use</td></tr>
<tr><td>Trading</td><td>Creating head room</td></tr>
<tr><td>Limit setting</td><td>RMA changes</td></tr>
<tr><td colspan="2">Transformational system (e.g. ITQ) needs to be determined</td></tr>
<tr><td colspan="2">Rates relief and/or subsidies</td></tr>
<tr><td colspan="2">RMA enforcement / NPS-FM</td></tr>
<tr><td colspan="2">Environmental claw-backs</td></tr>
<tr><td colspan="2">Eco-system services</td></tr>
<tr><td colspan="2">Improved measurement / science</td></tr>
<tr><td colspan="2">Moratoriums on consents for water takes</td></tr>
</table>

Some of these have been discussed earlier in this paper, however, the following work plans should be considered in the next 5 years.

Technical efficiency: Explore the amount of water that could be put back into the system for re-allocation through the application of technical efficiency rules connected to the consent takes for water. What technology should be required by applicants for water takes that enable the most efficient use of the water? How could this water be reallocated for the best possible use and how should this be tested in specific catchments?

Increased transparency: Having significantly improved data and measurement of water at the take or each consent holder. What are the cost benefits of having this made nationally compulsory?

Rates relief and/or subsidies: For those water users who are operating at the best possible efficiency and are improving water quality with their activities. How could these work to incentives water users without a direct cost on water?

Environmental claw-backs: a system whereby the Government buys back surplus water for environmental outcomes, enabling higher ecosystem services for other best uses of the water (i.e. in flow values for the Aotearoa New Zealand tourism industry). These could then be transferred to Iwi for protection within Iwi rohe.

Moratoriums on consents for water takes: Exploring how councils could establish moratoriums on sensitive areas until more data is known and community engagement can take place through the NPSFW.

8 Conclusion

All of these options can be aligned with Māori values and principles; however, it will come down to being led by tikanga Māori when designing them. The following list of guiding statements is equally relevant for any economic instruments created to achieve environmental benefit and came for the Iwi Leaders Group hui for Freshwater in 2012.

8.1 Ko te Tiriti o Waitangi te tahuhu o te kaupapa o te wai

Te Tiriti o Waitangi is the framework for all matters relating to water. Te Tiriti o Waitangi is the foundation for the management of freshwater for both government (including local government agencies) and Iwi. The Treaty relationship requires an equal status for both Iwi and the Crown (including Local Government) in freshwater management.

8.2 Te Mana Motuhake o ia wai o ia iwi ki te wai

Each Iwi maintains their own mana over their waterways and that must be respected in any management system. No one can usurp the mana of an Iwi to determine their own interests and relationship with a water body and to participate in the management of that resource.

8.3 Te kaitiakitanga o ngā hapū me ngā iwi i te wai

Iwi, hapū, and whānau have responsibilities and obligations as Kaitiaki to protect and enhance the Mauri and life-sustaining properties of water bodies, ensuring the resource is able to sustain both current and future generations. To meet these obligations, Iwi need to be empowered to participate in the governance and decision-making framework and, consistent with the above principle of Te Mana o Te Wai, the health and wellbeing of the fresh water resources needs to be central to the decision-making criteria.

8.4 Te mana whakahaere o ngā iwi me ngā hapū ki te wai

The past and future relationship of Iwi, hapū, and whānau to water, including both governance and decision making as well as use rights, must be acknowledged and entrenched. Iwi involvement in governance and decision making is a reflection of our mana whakahaere (traditional decision-making authority). This includes our whakapapa connection to the resources and the rights and obligations that connection creates.

As economic tools are developed, it will be essential for Iwi to be at the table, co-designing options that see Māori, not just as the protector of the environment, but also the enabler of our people's socio-economic aspirations. These two, in the values of Māori, are not diametrically opposed. But there will need to be a willingness to ensure equity and fairness in any model that is applied.