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Indigenous Sustainability Indicators for Māori Farming and Fishing Enterprises

A Theoretical Framework

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Introduction

In developing the NZ Sustainability Dashboard, it is necessary to take into account the specific Māori enterprises operating in the biological industries. Consequently, there is an impetus within the programme to develop a dashboard that is culturally matched to the circumstances of Māori or, in other words, a dashboard that is useful and functional to Māori enterprise owners. In order to establish a dashboard that can determine the sustainability 'status' of a particular enterprise, it is necessary to identify a set of indicators from which the sustainability of an enterprise can be assessed. The purpose of this report is to provide a theoretical and practical foundation from which a preliminary set of sustainability indicators may be developed.

This report argues that to establish a set of Indigenous sustainability indicators for Māori enterprise, it is crucial to understand what Māori want to sustain. To understand this, it is necessary to develop some insight into the Indigenous worldview and, in particular, the unique view of Māori. The first section of this report reveals that the Māori worldview encourages the building of *mauri* (life and well-being sustaining capacity) within environment and society. This worldview puts premium on relational values. The report then demonstrates how various Māori scholars focusing in the field of development have sought to isolate and define processes and mechanisms for achieving Māori-defined development outcomes within society, as well as in *hapū*, *iwi*, and communities.

Following this theoretical discussion, the report focuses on case studies that illustrate the 'key success factors' that have been identified in ensuring the commercial success of Māori enterprises in the primary industries. The purpose is to ensure that key attributes considered essential, or necessary, to the successful functioning of Māori enterprises are identified. The report then moves on to provide an outline of the sustainability strategies of Te Rūnanga o Ngāi Tahu, including its subsidiary companies, as a means of identifying key sustainability principles and values that this *iwi* seeks to adhere to in its enterprise initiatives.

Through this discussion, it is determined that a way to approach sustainability from a Māori perspective is through relational values. It is argued that relational values are used to shape and guide practices designed to maintain and enhance the *mauri* (the life sustaining capacity) of environment and society. It is also shown that a number of the key practices for fulfilling relational values have been identified through various studies and can provide a basis for indicators that can determine the sustainability of a Māori enterprise or institution. However, measuring the outcomes of practices on *mauri* is also important for ensuring that practices are actually fulfilling relational values. The report ends by providing examples of how a values-based sustainability dashboard might look for Māori enterprises and institutions.

The Place of Indigenous Knowledge

Indigenous knowledge emanates from the amassed experiences of the original inhabitants of territories and resides in those communities still able to draw on truly ancient practices and philosophies (Morrison, Geraghty, & Crowl, 1994, p. vii). While the validity of Indigenous knowledge has been challenged and marginalised through colonisation, a growing number of academic disciplines such as ethnoscience and human ecology accept a growing role for Indigenous thinking and thinkers[1].

There are many commonalities between Western science and Indigenous methodologies. Both rely on observations and experiences of the world, and they accumulate this information over time; meaning, it is systematised, stored and transmitted.[2] Attempts at communicating between these two – the Western and the Indigenous – have taken place but have often foundered on differences of a political and/or epistemological nature. Scholars have suggested that such differences cannot be fully excluded from any debate on knowledge and its uses. Perhaps the primary distinction between contemporary Western philosophy and modern Indigenous philosophy is that Indigenous People refuse to remove the spiritual from their lives or the environment. Indeed, the interconnections between people and place rests at the heart of Indigenous sustainability discourse.

At its core, the Indigenous experience of the world is one of connectivity and, in particular, the experience of 'Being' as a community of interconnected living personas, only some of whom are human. This understanding is described well by Spiller et al. (2010) below:

> *'Indigenous perspectives offer important insights into a multi-dimensional 'woven universe' (Marsden, 2003), which has not broken tradition with the 'living web of the world' and kinship with all of creation (Cajete, 2000; Marsden, 2003; Royal, 2002).'*

The field of anthropology refers to this experience of the world as animism, whereby the entire world reveals itself as spiritually 'animated' by kin-connected human and non-human persons.[3] Generally speaking, the scientific community, including the field of anthropology, has been limited in its grasp of animism, given that it is a form of knowledge that cannot be validated merely through empirical observation (Willerslev 2011; Ingold 2001). Instead, it is a form of knowledge best approached from a phenomenological perspective, which means that it can only be revealed through the experience of participating in the lives, practices and rituals of Indigenous Peoples.

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[1] Other disciplines are medicine and education, and there is a small but dynamic niche in others such as geography (Coombes, Johnson, & Howitt, 2012), participatory development (Sillitoe et al., 1998) and tourism (McIntosh, Zygadlo, & Matunga, 2004). The gradual and often grudging acceptance of Indigenous knowledge and institutions has also been a feature of creative conservation policy in the developed world (De Lacy 1994).

[2] The commensurability of these collections of empirical data has been explicitly noted in biology, particularly taxonomy (Roberts, 1998).

[3] A non-human person is a being that is not a person. For example a river, a tree, a mountain, the sky, or the earth.

Anthropologists attempting to study Indigenous perspectives through empirical observation will tend to interpret animist narratives as metaphors and myths used by Indigenous Peoples to categorise and explain their world. In some worse case scenarios, animistic narratives have been considered literally and have been thought to express the hallucinations of peoples that are psychologically unsound. However, with the increasing influence of phenomenology within the field of anthropology and sociology, excellent studies are now being offered from researchers that have spent many years engaging in the common practices of Indigenous communities (Willerslev, 2011). The studies have provided such researchers with very clear and vivid animistic experiences that support the commonly conveyed narratives of Indigenous Peoples.

Despite Indigenous knowledge having been largely discredited within Western institutions, some credit and validity is now being attributed to the animistic awareness of Indigenous Peoples. In particular, there has been strong interest in forms of Indigenous knowledge that are able to meet an immediate need or provide some sort of utility. This includes, for example, knowledge of medicinal plants for pharmaceutical development, and detailed ecological knowledge of places that can assist with environmental management and planning. While no longer necessarily continuous or as comprehensive as it once was, these 'utility' forms of Indigenous knowledge have provided invaluable sources of data for 'accredited' researchers who are in a position, given their scientific credentials, to make empirically valid statements, while the Indigenous providers of knowledge are often sidelined.

Māori Worldview, Wellbeing, and Sustainability

The Indigenous experience of the world as animated and consisting of interrelated kin is given expression in its own unique way by Māori. This experience is outlined by Wolfgramm (2007, p.80) below. He explains that:

> *'Māori continue to see themselves as agents in an evolving cosmological community, and use **whakapapa** [genealogies] to actively interpret relationships in order to bring the sacred to the centre of being'. This is a relational view of the world, where we are called into being through our relationships, through the interaction with **kin**, genealogies, and events. Rocks, rivers, birds, plants, mountains, animals and oceans, all possess a genealogy, and the divine genealogical order of whakapapa extends through aeons to a common genealogical origin which is Io, the Creator of the Cosmos (Barlow, 1991; Henare, 2001, 2003; Marsden, 2003).*

Key terms for understanding this worldview include *whakapapa* and *mauri*. *Whakapapa* means that everything is connected genealogically. Each entity (a being) that together forms Everythingness (Being) is considered animated by what is termed *mauri*, which can be translated to mean 'life essence.' This is a vitality that is emanated through a being (e.g., a person) continually growing and unfolding. However, the *mauri* of a being can be affected by the way in which it is

engaged with or treated. For example, the level of *mauri* contained by a river can be determined by its capacity to maintain and support life. Through ill-treatment (e.g., pollution), the *mauri* of the river can decline, which will in turn mean that its capacity to support life will decline.

From the Māori perspective, well-being may be considered to emerge from the development and maintenance of mauri-enhancing relationships not only between humans, but also between human and non-human kin. For example, a positive relationship between humans and a river would be evidenced by human land management practices that enable a river to maintain and enhance its *mauri*, which would result in its life-generating capacities being maintained. In this way, the *mauri* of the river is grown or maintained through ensuring that its life-generating vibrancy is not diminished. Simultaneously, the *mauri* of people is maintained through the provision of food and other resources to the humans from the river. Through maintaining the *mauri* of the river, the *mana* or dignity of the river is seen to be maintained, while the *mana* or dignity of the people is maintained through being provided for by the river.

It is for this reason that Spiller et al. (2010) argue that Māori values are primarily relationship- and reciprocity-centered, given that generating well-being is dependent on positive mana-enhancing relationships within human communities, and between human communities and non-human communities (i.e., 'the environment'). Spiller et al. (2010) outline the core set of Māori values to demonstrate the emphasis on building positive relationships as a means of maintaining and building *mauri*. These values include:

- *Kaitiakitanga* - to steward, guard and protect;
- *Kotahitanga* - a respect for the individual in combination with consensual decision-making;
- *Manaakitanga* - the obligations of hospitality and care; and,
- *Whanaungatanga* - acknowledgement of the bonds of kinship.

These relational values are central and crucial to guiding human actions and practices that aim to generate well-being through positive relationships. When these values are used to guide human behavior, the *mauri* of both human and non-human people are more likely to be maintained and, in turn, the life-generating capacity of these entities ensured. This is the foundation of sustainability from a Māori cosmological perspective.

However, to put relational values into practice, *tino rangatiratanga*, is required. This entails having the power to give effect to these values within a place -- for example, having the power to guide land management practices according to relational values that maintain or enhance the *mauri* of the land, rivers, and coastal areas affected by those practices. Leaders that have the power to give effect to these values within a place, and act to do so, ultimately build the *mana* and dignity of all those that form part of the human and non-human community in a place. Unfortunately, the process of colonization has limited the ability of Māori and, in particular, their leadership, to give effect to their relational values.

Also, care needs to be taken not to assume that all Māori experience, retain, or hold, a view of the world that obligates humans to maintain mana-building relationships with the non-human entities of their kin. There are many examples of Māori engaging in practices and economic activity that may be deemed to be detrimental in this regard. This emphasizes the requirement to recognize that not all individuals and groups necessarily adhere to the values of their society, and/or that certain values may cease to be held, or may evolve in response to exposure to different worldviews and changing circumstances. It is clear, however, that the Māori renaissance has focused political efforts on regaining a level of control over the environmental management of lands and water bodies. In particular, there has been emphasis placed on maintaining or enhancing the *mauri* of particularly important forests, lands, rivers, lakes, coastal areas, and estuaries with whom historical relationships have been strong. This represents the need to maintain and continue healthy reciprocal mana-building relationships with non-human communities.

In addition, it is also important not to romanticize the relationship between humans and non-human members of a community in a particular place. Although there is certainly the potential to mutually build the *mauri* and, therefore, *mana* between humans and non-humans in a reciprocal manner, this does not mean that this relationship needs be understood in a sentimental manner. Harvesting food from rivers, the sea, or any other entity, entails the taking of life, and therefore what might be considered a degree of violence. As such, mythology regarding *whakapapa* also tends to express hierarchies and what might be considered 'food chain' type relationships between kin, which assign roles to different entities. For example, mythology defines relationships between *tangaroa* (*atua* of fish) and *tāne* (*atua* of the forest), determining human consumption of their fish kin.

Māori Models of Sustainable Development

From the discussion above, it is apparent that the world from a Māori point of view encompasses an interconnected whole of kin, where actions from one part of the cosmic family have effects on other parts. In particular, the actions of people have effects on the *mauri* of the human and non-human communities. Ethical guidelines in the form of values should be followed to encourage behaviours that enhance *mauri* and *mana* within the human-non-human community, thus maintaining the community's life-sustaining capacity. This values-centered concept of sustainable development can be identified throughout the models of development designed by Māori scholars.

To begin with, Manuka Henare (2001; 2005) identifies what he considers the key moral or ethical system of Māori for guiding self-determined development. Henare (2001; 2005) summarises this interconnected system as a core set of cardinal ethics, which are outlined in Table One, below. In this system, we can identify the key themes of kinship, reverence for life, reciprocity, connectivity, ethics, and values common to the Māori worldview.

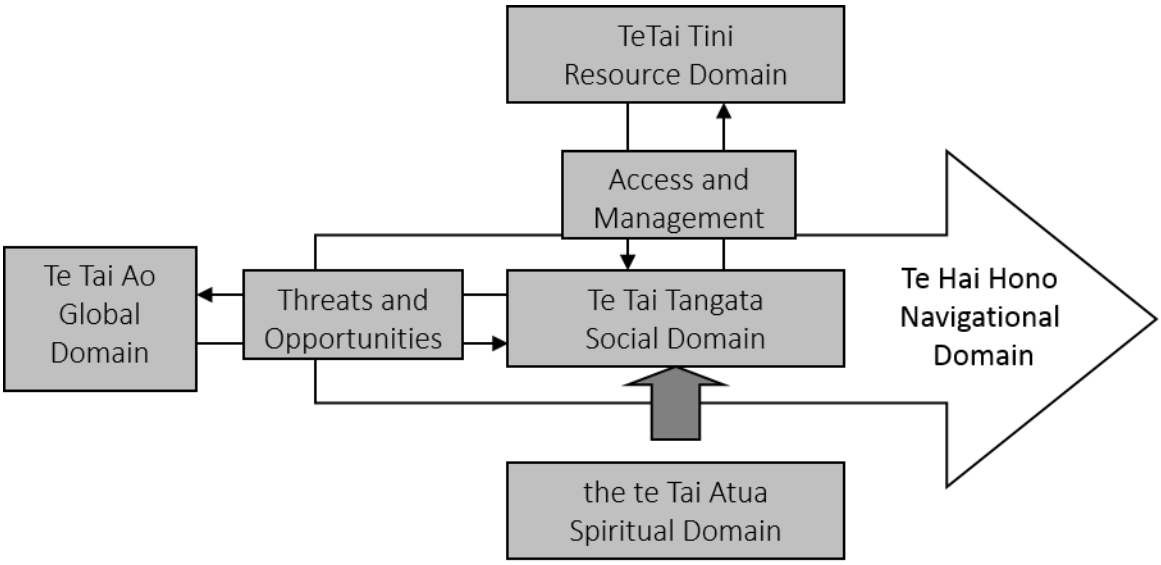
Table One: Cardinal Ethics (Henare 2005)	
Ethic	**Definition**
Tikanga Te Ao Mārama	Ethic of wholeness, cosmos
Tikanga Te Ao Huri Huri	Ethic of change and tradition
Tikanga Mauri	Ethic of life essences, vitalism, and reverence for life
Tikanga Tapu	Ethic of being and potentiality, the sacred
Tikanga Mana	Ethic of power, authority and common good actualisation of tapu
Tikanga Hau	Ethic of spiritual power of obligatory reciprocity in relationships with nature; life force; breath of life
Tikanga Wairua	Ethic of spirit and spirituality
Tikanga Tika	Ethic of the right way and quest for justice
Tikanga Manaakitanga	Ethic of care and support, reverence for humanity
Tikanga Whānau – Whanaungatanga	Ethic of belonging, reverence for the human person
Tikanga Kotahitanga	Ethic of solidarity with people and the natural world and affirmation of the common good

Similarly, Davis (2006) identifies interconnected dimensions of *te ao Māori* (the world of Māori) that are relevant to Māori wealth creation and economic sustainability, which are outlined in Table Two, below. Davis (2006) centers the development models in Māori spiritual wealth and, in particular, in the creative force of life emanating from the uncreated (*Te Kore*) into the created (*Te Ao Mārama*). For him, this is the origin of development manifested as life itself unfolding as *mauri*. This unfolding is continually revealing in the world of light (*Te Ao Mārama*) that exists as a vital physical environment (*Mana taiao*), an interdependent whole that all living beings make-up. He considers that understanding and respecting this whole is crucial to environmental sustainability. Human beings also have special responsibilities toward one another and follow 'the original law' of unconditional care and regard for one another, or what might be termed, 'relational values'. This, he argues, is the key for the building of social wealth. Finally, maintaining and revitalising the *tikanga*, language and *mātauranga* of Māori is considered a priority, as without this knowledge and philosophical footing, the ancient understanding of the aforementioned domains will not be maintained.

Table Two: Dimensions of Te Ao Māori (Davis 2006)	
Mana Tupuna – Ancestral Wisdom	Ancestral wisdom as a guide for future development
Mana ātua – Spiritual Wealth (whakapono, wairua)	All life is created and guided from Te Kore (the starting place/energy source) to Te Po (the confusion), from Te Po to Te Ao Mārama (the world of light).
Mana taiao – environmental wealth (kaitiakitanga, tikanga)	The domains between Ranginui (Sky father) and Papatūānuku (Earth mother); The physical environment is an integrated whole requiring understanding and respect.
Mana tangata – social wealth (whakapapa, whānaungatanga)	Rooted in the original law of the people – aroha tetehi ki tetehi – to acknowledge unconditional care and regard from one to another. Enabling strong interrelationships.
Mana reo – cultural wealth (nga taonga tuku iho, te reo)	Resurgence and revitalisation of traditional knowledge, language, arts

Davis's (2006) model is dynamic in that it shows a similar set of ethics and values spiraling out from spiritual sources into an interconnected creative whole wherein humans have certain roles and obligations. The notion that Māori development should be fundamentally rooted in spirituality is also emphasised by Durie (2005). Durie's (2005) model, like that of Davis (2006), is likewise dynamic in that it prescribes movement emerging from spiritual sources into the world. However, it is not predominantly rooted in a Māori ethical framework. Rather, it pragmatically looks at Māori access to resources and opportunities offered by three different domains -- the social domain, the global domain, and the resource domain. Further, he focuses on the threats to accessing these necessary components. In this manner, Durie (2005) picks up on many of the key elements required to fulfil Māori development aspirations, whereas Davis (2006) and Henare (2001; 2005) do not. Additionally, Durie (2005) also highlights the exceptionally important element of vision and leadership in the navigational domain for guiding and identifying opportunities.

Figure One: The Five Development Domains (Durie, 2005)



Durie's (2005) model further focuses on the notion of '**endurance',** which he considers to be founded on time and resilience. The temporal dimension "…lends a sense of durability to endurance and confers perspective on these seemingly important but transient events that so often dominate the business of a single day" (Durie 2005, p.1). Durie's (2005) use of the term 'resilience' echoes that of Berkes (2001) and others, reflecting "…both a capacity for adaptation and a propensity for turning adversity into accomplishment" (ibid., p. 1; see also Irwin & Ruru, 2002). Endurance is, of course, common to global humanity, but aspects specific to Māori can be identified and understood as Māori culture. In particular, traditions, including contemporary constructions of 'what it means to be Indigenous … what it means to be Māori' (C. Royal, 2006), draw attention to the adoption and refinement of policy, technology and institutions structured by the configurations of economic, environmental, social and cultural resiliencies.

Winiata's (2000) *hapu* and *iwi* development model picks up strongly on the theme of *mana*. Winiata (2000) contends that *mana* is something that is conferred upon an *iwi* or *hapu* based on their ability to provide. This notion is outlined in the previous Māori worldview section, where it is explained that *mana* is built through maintaining and enhancing the *mauri* of people and that of the environment. Winiata (2000) believes that enhancement through *mana* is a concept that Māori can understand and should be the primary motivating force behind development. Winiata (2000) refers to this development approach as *Mana-a-hapū* or *Mana-a-iwi*.

Winiata (2000) considers that being able to provide is dependent upon having strength and capacity in four key component areas: The first concerns building the capacity of the people; the second is maintaining and developing Māori language; the third is maintaining *marae* as the hub of Māori

culture and social life; and, the fourth is self-determination. These values are described below in more eloquent terms by Winiata (2000, p. 135):

> *'Our people are our wealth: Develop and retain*
>
> *The reo is a taonga: Halt the decline and revive*
>
> *The marae is our principal home: Maintain and respect*
>
> *Self-determination'*

To measure progress in expanding the *mana* of *hapu*, Winiata (2000) developed a set of indicators which highlight the key areas considered important in building and growing *mana*. These are shown in Table Three, below. It may be noted that many of these key areas are values and show similarities to the model offered by Henare (2001; 2005).

Table Three: Hapū Development Indicators (Winiata, 2000)	
Indicator	Measure
Membership	Number of active members of the hapū or iwi
Whakapapa (Genealogy)	The number of members who have an extensive knowledge of the whakapapa of the hapū or iwi and can produce it instantaneously
Wairuatanga	The depth and strength of wairuatanga of the hapū or iwi
Whanaungatanga	The depth and strength of the whanaungatanga within the hapū or iwi
Tikanga and Kawa	The ability of the hapū or iwi to explain and defend their kawa and tikanga
Te Reo Māori	The strength of reo within the hapū or iwi
Kaumātua	The number of active and effective kaumātua within the hapū or iwi
Health	The state of health of hapū and iwi members
Education	The level of educational achievements of hapū and iwi members
Records	The breadth and depth and the general state of the 'books' or manuscripts of the hapū or iwi
Marae	The condition of the marae facilities of the hapū or iwi
Taonga	The number and significance of taonga owned and controlled by the hapū or iwi
Land	The amount of land owned collectively by the hapū or iwi
Fisheries	The size and state of the fishery assets of the hapū or iwi
Finance	The size and state of the financial assets of the hapū or iwi
Radio	The value of any radio spectrum parts owned or vested in the hapū or iwi

In sum, all four of the models outlined fundamentally draw upon concepts that underpin the Māori worldview, which includes *mana*, *mauri*, *whakapapa*, and *wairua*. Excluding Durie's (2005) model, all other models identify and emphasise the need to structure development on relational values that determine ethical behaviour toward people and non-human kin (i.e., the natural environment). Additionally, the model offered by Durie (2005), also pragmatically highlights the ongoing persistence required by Māori to open access to the opportunities and resources needed to realize their aspirations. Furthermore, both Durie (2005) and Winiata (2000) identify some of the key practices required to meet development aspirations. These include building capability (i.e., knowledge and skill acquisition), leadership (i.e., *kaumatua* presence, and 'navigators'), access to natural resources (i.e., land and fisheries), language maintenance and acquisition, and maintaining *marae*.

In reviewing these models, we find that there is a consistent Māori worldview conveyed. These models contain key concepts which provide a description of the way the world is. There is also a

consistent set of relational values that are harmonious with the Māori worldview and that establish ethical codes which define how a person ought to behave. Finally, each of the models identifies practices, such as building leadership and capability that are needed for Māori to achieve development aspirations that are consistent with relational values. Consequently, there is a logical consistency between worldview, values, and practices. This consistency is outlined in Table Four, below, which draws the key concepts and terminology out of the different models explored above, to demonstrate this logical consistency.

Table Four: Logical Consistency between Māori Worldview, Values, and Practices to Achieve Aspirations

Māori Worldview	Relational Values Consistent with Worldview	Practices to Achieve Development Aspirations that are Consistent with Values
• Whakapapa • Mauri • Wairua • Mana	• Katiakitanga • Manaakitanga • Kotahitanga • Whanaungatanga • Tikanga tika • Whakapono	• Leadership/Navigation • Skill development and knowledge acquisition • Emotional care and regard • Resource access and management • Language retention and development • Maintenance and protection of taonga

Key Success Factors for Māori Land Enterprises

Each of the above models may be considered largely theoretical works, conceptualising development models that may be applied to Māori, or that may be used to interpret and critique Māori development approaches. However, there have also been a series of studies focused on Māori enterprise development that have identified practices central to Māori achieving their development aspirations. In this section, these 'grounded' studies are reviewed and then critically explored to identify areas of alignment, or difference, with the theoretical models developed by Māori theorists.

Thorpe (1976), in his study of successful Māori incorporations, found that there were four key practices that determined success in Māori-owned land incorporations. First, landowners needed

to be able to express and exercise control over their lands without interference from external bodies. Second, capable and accountable governance was required to make decisions on behalf of all owners. Third, there was a prerequisite that strong and able management be in place with sufficient expertise. Fourth, access to financial capital was essential for investing in land development. These key practices are shown in Table Five, below.

Table Five: Key Practices for Māori Land Development
1. Landowners can express full control over their lands without interference from external bodies.
2. Accountable and capable governance is required -- capable of making decisions on behalf of all owners.
3. Strong and able management with sufficient expertise.
4. Access to financial capital to invest in land development.

Since 1976, the findings of Thorpe's study have been reaffirmed by further studies. A manual written by Baynham (2009) outlines similar key practices for success based upon the anecdotal experiences of a team of experienced and successful consultants, rural professionals, scientists, Māori land trustees, and board chairs. In Baynham's (2009) manual, there is also emphasis placed on strong leadership within Māori land governing bodies. The key practices for success include the following:

- A strong chair and accountable governance team to undertake strategic planning, manage relationships, and establish clear objectives and direction for the management team; and,
- An accountable management team separated from governance and reinforced by a committed team of rural professionals that bring in skills and expertise.

However, the two factors outlined by Thorpe (1976) – that landowners have full control over their lands and access to financial capital – are not highlighted in Baynham's (2009) manual. This may be a product of social transformations since Thorpe's study in 1976, given that changes in government policy have led to less government control over Māori land ownership. Further, financial capital has been easier for Māori to access due to a decline in prejudice against Māori within financial institutions, and the institutional structures under *Te Ture Whenua Māori Act* which have reduced lending risk (Wedderburn, Pikia et al. 2004).

Another paper by Steele and Kanawa (2009) on *Realising the Productive Capacity of Māori Land* also identifies a set of key development practices for Māori land development similar to Baynham's (2009) which are outlined below:

- Strong Governance – a governance structure is in place with individual trustees/ directors that bring a range of business and technical expertise and experience, combined with independent directors with specific agricultural knowledge;
- Planning and Strategy – effective planning and monitoring practices that bring a strategic outlook for management as well as evaluative measures for assessing management performance;
- Skills Development and Training – access of directors/trustees, managers, and farm staff to continuing professional development and training course work opportunities that further develop the depth of agriculture and agribusiness skills; and,
- Collective Action – forming joint venture opportunities between Māori businesses and non-Māori businesses.

Thus, in a similar manner to Baynham (2009) and Thorpe (1976), Steele and Kanawa (2009) identify the need for strong governance, effective management with good strategic direction, and an excellent set of skills and knowledge both internal and external to the Māori business.

Steele and Kanawa (2009) also note opportunities associated with collective action. Many Māori land blocks are too small to be managed as commercial farming enterprises. It is suggested that this issue can be addressed through collaboration and networking between Māori and non-Māori landowners to amalgamate land units (Barr 2000; Vallance 2003; Wedderburn, Pikia et al. 2004, p.4). Further, some authors have also suggested that the pathway for development for small land blocks is through innovation and, in particular, the production of high-value niche products for select markets, such as organic crops that have relatively low capital start-up requirements and high returns (Peters 2001; Wedderburn, Pikia et al. 2004, p. 4).

If we combine all of the key practices for successful development on Māori land from the different research studies, we arrive at a list of seven practices that underpin Māori land development. These include the following: control, governance, management, leadership, skills building, collective action, innovation, and legislation conducive to development. Each practice and a definition are provided in Table Six, below.

Table Six: Seven Practices for Māori Land Development	
Practice	**Definition**
1. Control	Landowners command full control over lands
2. Governance	A strong, confident and accountable governance team with capable directors/trustees both internal and external to the institution to direct land development
3. Management	Capable management that has strong strategic direction, access to a team of rural professionals, and is accountable to governance
4. Leadership	A strong chair within the governance team
5. Skill Development	Skills development and training is in place and specialist support is available
6. Collective Action	Collective action through joint ventures, collaboration and networks
7. Innovation	Identifying unique and innovative development options
8. Conducive Legislation and Policy	A legislative and policy environment conducive to development

By contrast, White (1997) is critical of the type of approach that each of the above studies has taken when assessing the success or failure of Māori land development. Each study has had a narrow idea of what success is – essentially equating success with the degree to which the land is efficiently utilised and its ability to generate financial surpluses. Essentially, the studies equate success with the level to which Māori landowners have developed business acumen. This interpretation of success derives from a Western value system. White (1997) wished to investigate whether the actual owners of Māori incorporations shared these values and wanted to explore what these owners considered success to be.

White (1997) found that the owners of Māori land did expect the land to be effectively utilised and to generate good financial surpluses through operating efficiently and in a financially prudent manner. These were considered by the landowners to be important indicators of success. However, White (1997) also found that landowners also expected their incorporations to succeed in four further areas, identified as follows:

- Cultural Importance – guarding, protecting and retaining the land in the continuous ownership and control of the *hapū*[4];
- Physical Considerations – striking a balance between development, conservation and restoration of natural areas;
- Political Involvement – representing and protecting the interests of the *hapū* within external political settings to guard against external threats; and,
- Social Contribution – providing employment and funding community projects.

White (1997) argues that for Māori land to be managed successfully, a careful balance of all factors is required. In particular, there is a need to develop an equilibrium allowing for all factors of success to be addressed, which White (1997) suggests is achieved through capable leadership. Further, White (1997) found that these indicators of success are not hierarchical; rather, each indicator is of equal importance. The consequence of this is that successful management of Māori land is much broader than generating utility and financial surpluses. In fact, it is likely to be crucial that governors of Māori land achieve the other factors of success for an incorporation to function effectively, as failing to do so would cause political instability which then undermines the incorporation's ability to generate utility and financial surpluses in the first place. In this way, Thorpe (1976), Baynham (2009), Steele and Kanawa (2009), through viewing success from a different cultural perspective, may have failed to identify a number of key elements of Māori land governance required to achieve commercial success -- namely, cultural, environmental, political and social success.

If this form of successful development is to be achieved, it is clear that the goals of Māori land governance and management institutions should match cultural expectations. White's (1997) works suggest that these cultural expectations require that a number of social and environmental values need to be taken into account. This insight supports the contention of the Indigenous scholars outlined in previous sections -- that development practices need to be guided by relational values. In very practical terms, these values are given effect by ensuring that the land stays in *whānau* or *hapū* control (*tino rangatiratanga*), ensuring balance between production and environmental imperatives (*Kaitiakitanga*), and providing employment and community contributions (*manaakitanga*).

In line with this perspective, Harmsworth (1997; 2002a; 2002b) has worked over a number of years with governors operating on behalf of landowner 'beneficiaries', to help create development strategies that are matched to cultural expectations. Using participatory methodologies, Harmsworth (1997; 2002a; 2002b) assisted the organisations to articulate their values as a guide

[4] Annual General Meetings of the Incorporation provided a chance for individual and *whānau* shareholders to get back together as a *hapū* from their various homes around New Zealand and overseas.

for determining their development goals and indicators of success. Harmsworth (2002a; 2002b) found a common set of values emerging through this process across different organisations. These values are outlined in Table Seven, below. Again, these values align directly with the sets of values identified by Māori development scholars discussed in the previous section. In summary, they represent strong relational values demonstrating a common commitment to guarding and protecting natural resources for future generations, concern for the well-being of others, self-determination and control over resources, as well as recognition of spiritual beliefs and identity.

Table Seven: Māori values underpinning development strategies for sustainable development in Māori organisations (summarised from Harmsworth 2002a, p. 4)	
Māori Values	**Meaning**
Iwitanga	Uniqueness of iwi (tribe)
Whakapapa	Structured lineage to all things
Tino rangatiratanga	Acts of self-determination
Manawhenua	Legitimacy to control resources
Arohatanga	Care, love, respect
Äwhinatanga	Give assistance to others
Whanaungatanga	Bonds of kinship – togetherness
Whakakotahitanga	Respect for individuals – desire for consensus
Kōhā, whakakōhā	Acts of giving
Tau utuutu	Reciprocity
Whakapono	Faith and trust
Wehi	Reverence
Tūrangawaewae	Place of standing and security
Kaitiakitanga	Guardianship
Kōkiri	Going forward
Te Aotūroa	Interdependence with the natural environment
Taonga tuku iho	Holding protected treasures passed on – including natural resources
Wairuatanga	The spiritual dimension

Finally, in addition to the work of Harmsworth (1997; 2002a; 2002b), Reid (2012) undertook a detailed study of Māori land development over ten years to identify key constraints to development, as well as key factors for success. The research findings support the findings of previous studies but goes into significantly more detail. Reid (2012) found that leadership was exceptionally important to achieve development outcomes on Māori land; however, only a certain type of leadership tended to achieve success – the orthodox traditional leader. This was someone that tended to be guided by relational values, and was open to working with 'outsiders' with required expertise. In addition, he found that these leaders needed to have very good and consistent communication skills and conflict resolution abilities to combat unrest within communities of owners.

Reid (2012) also found that the likelihood of success was also improved through forming partnerships with teams of experienced professionals and technical specialists that could support landowners in decision-making, and through engagement with external government and corporate institutions in commercial, sustainable land management and community development areas. Furthermore, Reid (2012) identified structural constraints to development. First, this included poor access to types of education that fitted the cultural and social contexts of landowners. Practical, hands-on, and on-farm courses in the following areas were required: agriculture; horticulture; and, business administration. Second, he found that courses in 'culturally matched' governance were required, as well as programmes explaining the logic and discourse of government agencies. Third, he discovered the need for social financing and venture capital that were adequately designed for the unique circumstances of Māori landowners. Finally and most importantly, Reid (2012) found that the primary constraint on Māori land development was a social psychology that had its roots in historical trauma. This psychology caused landowners to either take too much risk, or too little risk. Furthermore, it led to intense conflict and division among landowners that often resulted in indecision. He found that identity development and cultural revitalization, driven by orthodox leaders, was central to combating this psychology and forming the unity required for decision-making.

In sum, these various studies which focused on Māori land-based enterprises have identified what might be termed as the 'key practices' relevant to Māori achieving their development aspirations. The first three studies primarily identified mutually similar success factors. The later studies (Harmsworth 1997, 2002a, 2002b, Reid 2012, and White 1997) also noted the same factors, but further identified additional factors. The research findings from these works suggest that successful development is likely to be values-driven, and that these values are relational in nature. In this manner, these 'grounded' studies are aligned with the theoretical models of Māori development explored in the first section.

In addition, we find that the key practices for achieving value-driven development goals, explored in the theoretical models, are similar to the practices identified in the enterprise studies. Consequently, we find logical consistency between the theoretical models and the enterprise

models, both in regard to relational values and the practices required to fulfil relational values. Table Eight, below, amalgamates the models in a logical consistency between the Māori worldview, relational values, and practices.

Table Eight: Logical Consistency between Māori Worldview, Values, and Practices to Achieve Aspirations on Māori Land		
Māori Worldview	**Relational Values Consistent with**	**Practices to Achieve Development Aspirations that are Consistent with Values**
• Whakapapa • Mauri • Wairua • Mana	• Kaitiakitanga • Manaakitanga • Kotahitanga • Whanaungatanga • Tikanga tika • Whakapono • Tino rangatiratanga • Manawhenua • Arohatanga • Äwhinatanga • Whakakōhā • Tau utuutu • Wehi • Tūrangawaewae • Kōkiri • Te Aotūroa • Taonga tuku iho • Wairuatanga	• Leadership/Navigation • Values-driven (Orthodox Traditional Leadership). • Skilled in conflict management and communication to build unity. • Embodies care and respect. • Processes are in place in key areas for skill development and knowledge acquisition by land workers, and/or managers. • Partnerships, networks and joint ventures with skilled professionals are in place to compensate for areas where there are deficits in human, social, and financial capital. • Taonga tuku iho are maintained and protected. • Undisturbed sensitive ecological areas on land are protected. • Restoration of sensitive ecological areas. • Support to local community and whānau is provided where possible and feasible. • A strong, confident and accountable governance team with capable directors/trustees both internal and external to the institution are in place to direct land development. • Capable management that has strong strategic direction, is open to engaging with a team of

		professionals, and is accountable to governance. • Identifying unique and innovative development options • Strong emphasis on cultural revitalization and identity.

As outlined previously, it is considered that from a Māori worldview, relational values underpin sustainable development through mana-enhancing relationships between non-human and human persons. It is these mana-enhancing relationships that enable the maintenance of the *mauri* or life-supporting capacity of communities and the environment. From a review of both theoretical models and enterprise studies, a set of key land management practices that give effect to these values have been outlined. Consequently, it can be logically argued that if these practices are fully embraced and appropriately enacted, then sustainability may be achieved. It is therefore further argued that the New Zealand Sustainability Dashboard for Māori enterprise should be constructed based on the identification and measurement of the uptake of practices that give effect to relational values.

Policy and Strategy Review of Te Rūnanga o Ngāi Tahu

The NZ Sustainability Dashboard programme aims to be practical and easily adopted and used within Māori enterprises. Consequently, Te Rūnanga o Ngāi Tahu (TRoNT) is participating as a case study to iteratively test and develop a dashboard that is culturally matched. To achieve this, it is necessary to review the sustainability strategies and polices of Te Rūnanga o Ngāi Tahu, including its subsidiary companies, as a means of identifying core cultural values and approaches to sustainable development. Through undertaking this work, a dashboard can be developed that is aligned to Ngāi Tahu needs and aspirations.

This section first explores Ngāi Tahu strategy and policy documents related to tribal development, particularly in relation to the sustainability related themes of *mahinga kai* (traditional practices of food procurement) and environmental management. These are considered as the two key platforms for Ngāi Tahu development, given that sustainable *mahinga kai* is central to Ngāi Tahu identity, while sound and sustainable environmental management is a strong value-driver within the *iwi*. The second part identifies Te Rūnanga o Ngāi Tahu subsidiary companies with sustainability policies and summarizes what their key environmental philosophies and practices are, and the current environmental certification services they utilize.

Ngāi Tahu 2025

The main policy document endorsed by TRoNT that sets out its strategies for achieving aspirations can be found in the Ngāi Tahu 2025 vision document. This document outlines the vision that sets the goals for how Ngāi Tahu would like individuals, *whānau*, *hapu*, *Papatipu Rūnanga* and the *iwi* to be empowered by the year 2025. Guiding values (i.e., assertions on how one ought to behave) are only mentioned sporadically and remain implicit within the document. Some key Māori worldview concepts (i.e., assertions about what the world is) are however mentioned explicitly within Ngāi Tahu 2025. Overall, the document primarily identifies key actions or practices, designed to rebuild Ngāi Tahu self-determination.

Table Nine, below, reveals that the worldview and values conveyed through 2025 are common to the development models identified in previous sections. However, with regard to practices, Ngāi Tahu 2025 is similar to the enterprise models also mentioned previously, in that it emphasises building unique structures for governance and management that can provide a platform for development, as well as skill and capability building through education (*mātauranga*). In addition, it introduces the concept of 'mountains to the sea' as an environmental management methodology, which is a unique insight not offered by previous development models or approaches.

Table Nine: Worldview, Guiding Values and Practices Identified within Ngāi Tahu 2025

Worldview Concepts Explicitly Mentioned	Values Explicitly Mentioned	Practices to Achieve Tribal Values
• Whakapapa - defines the Ngāi Tahu identity through the generations from the atua (god) to the whenua (land) of Te Waipounamu. Whakapapa is based on the Ngāi Tahu census of 1848 (the Blue Book). The relationship with mahinga kai resources anchors the Ngāi Tahu whakapapa to the landscape and is a connection to the tipuna	• Tino Rangatiratanga – Acting with independent authority and self-determination is encapsulated in the mission statement of 2025: Hold fast and firm, To my inherited authority, To my right to this land, To my freedom and right to self determination.	• Te Ao Türoa – Planning and engagement with environmental regulators to maintain the mauri and wairua of all mahinga kai and natural resources through 'Ki Uta Ki Tai' (Understanding environmental management through the concept of 'mountains to the sea,' or the management of interconnected biomes). • Maintaining wähi tapu & wähi taonga - Protection of

and constantly re-affirms türangawaewae and ahi kä. As such, whakapapa is the primary institutional mechanism that represents and conveys the Ngāi Tahu relationship between natural ecology and humans. In addition, whakapapa is the basis and centre of Ngāi Tahu identity and cultural revitalization. • Mauri and Wairua - the spiritual energy and essence of mahinga kai, people, and the natural environment, are mentioned regularly.	• Kaitiakitanga – Operating as a steward to protect the mauri and wairua of the natural environment. • Whānaungatanga – Supporting whānau to engage in activities that enhance their physical, emotional, mental, and spiritual health.	culturally important sites and taonga species. • Ko Ngä Whakapäpätanga – Effective communications that allow whānau to participate in tribal activities. • Tö Tätou Ngäi Tahutanga – Continuing to build and vitalise Ngāi Tahu language, culture, and leadership. • Te Tāhuhu – Building iwi organizational development structures that support a young and growing tribal entity. • Te Whakatipu – Putting in place structures for the self-determined economic and social development at local levels within Ngāi Tahu communities. • Te Whakaariki – Influencing external decision-making processes in the governmental and business arenas to achieve the mission statement of 2025. • Mātauranga – supporting the Ngäi Tahu whänui to be leaders and strong in their Ngäi Tahutanga and accessing quality education and training to provide choices and give whänau the opportunity to create their own destiny.

The Ngāi Tahu 2025 document also refers to the development of a generic Ki Uta Ki Tai Natural Resource Plan, State of the Takiwā (tribal area) reports and a GIS database inventory to give an overall understanding of the state of the natural environment and the *mahinga kai* resources within the Ngāi Tahu *takiwā*. The key values underpinning the State of the Takiwa are a reiteration of the previous discussion, with the values of *Kaitiakitanga* and *Manaakitanga* dominating. In addition, the key Māori worldview concepts of *whakapapa* and *mauri* underpin the reporting system. However, the State of the Takiwā reporting system also identifies sets of performance indicators for determining the health of *mahinga kai* resources, which is, in default, also assessing the current performance of land-management practices affecting *mahinga kai*. These performance indicators are developed from both traditional knowledge gained through long-term experience, observation, and trial and error. These KPIs are identified in Table Ten, below:

Table Ten: Key Performance Indicators	
KPIs based on Customary Knowledge	**KPIs based on Empirical Science**
• Personal assessment of the overall health/state of a site based upon experience. • Levels of modification/change observed at a site. • Suitability of the site for harvesting mahinga kai. • Access issues in relation to the site. • Amount of pressure from external factors. • Presence, abundance and diversity counts for taonga (valued) bird, plant, and fish species, other culturally significant resources as well as pest and weed species. • Willingness to return to the site for harvesting mahinga kai.	• Application of Stream Health Monitoring and Assessment (SHMAK). • Water quality test for the level of nitrates and the presence of E.coli, including levels of anti-biotic resistance. • GIS mapping of the results for ease of understanding.

TRoNT Freshwater Policy

TRoNT and Papatipu Rūnanga have also put a lot of effort into local government Resource Management Act (RMA) processes to try and protect fresh water resources, which are seen as a

taonga passed on from the *tipuna* (ancestors). The protection of fresh water resources provides a sound basis for protecting *mahinga kai* resources. Therefore, it is not surprising that the first environmental policy created by TRoNT was the Fresh Water Policy in 1999 and that this is designated as an iwi management plan for the purposes of the RMA planning process. This policy document sets out key Ngāi Tahu values and its expectations regarding water protection measures it would like to see implemented through RMA planning processes. The key value identified from the plan is *kaitiakitanga* and is described as the process by which the integrity of the *mauri*, or life giving properties of water and the life within it, are maintained and enhanced.

One of the keys to achieving this is by TRoNT and Papatipu Rūnanga participating in the RMA planning process to actively protect fresh water resources. As well as carry out research for the development of a sound cultural and scientific assessment of water resources, efforts can be made to promote the protection of water resources through the RMA process. This value of *kaitiakitanga* also recognises the need for resource management to embrace water from *Ki Uta Ki Tai* – from the mountains to the sea - in that all resources are inter-connected. The freshwater policy identifies key indicators for assessing the *mauri* of water bodies. Like the State of the Takiwā, these indicators are also default Performance Indicators assessing the impacts of land-management activities. These indicators are outlined below:

- Aesthetic qualities
- Life supporting capacity
- Quantity and speed of water flow
- Continuity of flow from mountains to the sea
- Health of *mahinga kai* resources for human consumption
- Productive capacity of the ecosystem

In addition to these indicators, the fresh water policy also outlines an environmental practice, or management tool, that has not been covered in this report. This is the practice of setting *rāhui*, which involves the temporary closure of specific natural areas to allow the areas to recover and regenerate. In addition to *rāhui*, the protection of *wāhi tapu* is also mentioned.

Hazardous Substances and New Organisms Policy

The purpose of the TRoNT Hazardous Substances and New Organisms (HSNO) policy from 2008 is to provide a tikanga-based framework that highlights the Ngāi Tahu cultural values that will be used to assess risks to Ngāi Tahu from hazardous substances, new plants, animals, insects and genetically modified organisms (GMOs) introduced into the New Zealand environment. Applications for these come via the Environmental Risk Management Authority (ERMA) which has a statutory requirement to consult with Māori. As such, Ngāi Tahu *mātauranga* (using traditional values) are applied to the assessment of modern technologies and their potential impacts

on resources of concern to the Ngāi Tahu *whānui*. There are two core values used to provide an assessment:

- *Kaitiakitanga* is used to assess the cultural acceptability of a proposed HSNO activity; particularly, its impact on the environment and future generations.
- *Rangatiratanga* is about the ability of TRoNT to communicate its values in the decision-making processes and have them respected.

These values determine the ethics of particular actions regarding the introduction of new organisms, whilst the framework of *whakapapa* is overlaid to decide whether an activity is natural or unnatural, appropriate or inappropriate. This holistic view recognizes the interconnectedness of all living things in the world and the connection to future generations.

These values incorporate consideration of the Ngāi Tahu concepts and experiences of *mauri, wairua, tapu, mana, taonga tuku iho* and *mahinga kai* resources. The guiding *whakatauki* in this policy is once again - *Mö tätou, ä, mö kä uri ä muri ake nei*. The potential threat of hazardous substances to the environment and *mahinga kai* resources is recognized along with the need to balance out any considerations of potential benefits, if such a substance was used in an appropriate manner. The introduction of new species to the New Zealand environment has a problematic history, but has not been without its benefits. The policy attempts to identify the positive and negative factors any new species brought into New Zealand might bring, and provides an assessment on this basis. The prospect of GMOs being unconditionally released into the environment is not supported by TRoNT, but TRoNT is willing to consider other applications on a case by case basis according to the values listed above.

Through this policy, TRoNT is demonstrating that it is possible to use traditional *mätauranga* cultural knowledge and *tikanga* values to address the technology issues of the future. The risks these technological developments pose to the environment and *mahinga kai* resources will have to be directly assessed in the development of *mahinga kai* standards, as well as from the point of view of what consumers would want and what they would be willing to pay the most for, in order to maximise economic returns for Ngāi Tahu brand holders. The next section summarizes what can be learnt from key values expressed in resource management plans.

Pounamu Plans

Pounamu is a highly valued *taonga* to Ngāi Tahu and its ownership was returned to TRoNT in 1997 as a part of the Te Kereme claims settlement process. After long consultation with the Ngāi Tahu Whānui in 2002, TRoNT published its Pounamu Resource Management Plan which established the framework for the delegation of roles and responsibilities between TRoNT and the Kaitiaki Rūnanga in protecting, managing and extracting *pounamu* as a commercial and customary

resource. Two Papatipu Rūnanga have fully developed their own Kaitiakitaka Pounamu Resource Management Plans that have been ratified by TRoNT.

These plans grapple with the fact that, in the short term, *pounamu* is a finite mineral resource. That is, once it is used up, it will only be renewed in the environment to any significant degree on a geological time scale that dwarfs human life spans. In this context, these plans are constructed on the framework and concept of *whakapapa*, which forms the basis for deciding who has the right to the ownership, customary, and commercial use of the *pounamu* resource. In similar fashion to Ngāi Tahu policies, the plans are principally based on two values:

- *Rangatiratanga* – the exercise of the power of ownership over the *pounamu* resource by TRoNT and the basis for their Pounamu Resource Management Plan devolving *kaitiaki* management rights to individual Papatipu Rūnanga to the *pounamu* in their *takiwa*.

- *Kaitiakitanga* – the principle of the right given to Papatipu Rūnanga to manage *pounamu* resources within particular *takiwa*. Also, the foundation of the concept of sustainability which is based on the tribal *whakatauki*, "Mö tätou, ä, mö kä uri ä muri ake nei." The two key aspects to the sustainable management of a finite mineral resource are based on developing a scientific understanding of the nature and extent of the resource and balancing its extraction with the need to leave behind a fair share for future generations.

The framework of *whakapapa* is interconnected with each value to form a complete whole pounamu management system. Both plans recognize that the RMA and Conservation Act place obligations on them to act in a manner that protects the natural environment and supports conservation values. The plans endorse these legislative requirements for environmental protection; and, any extraction activities will be carried out in a manner that has no long-term detrimental effects on the environment and is in line with the Tribal Access Agreement agreed to with the DOC.

Resource Management Plans

This section presents a quick summary of key values and principles gleaned from some key resource management plans that have been ratified by TRoNT. These have been developed within the "Ki Uta Ki Tai" values framework that recognizes the interconnectivity of all natural ecosystems, including the presence of people within them, and are an affirmation of the holistic nature of this resource management principle used by Ngāi Tahu. The plans used for this assessment include:

1. The Ngāi Tahu Murihiku Natural Resource and Environmental Iwi Management Plan – 'Te Tangi a Tauira – The Cry of the People' (2008).

2. Te Rūnanga o Kaikoura Environmental Management Plan – "Te Poha o Tohu Raumati' (2007).
3. Kai Tahu ki Otago Natural Resource Management Plan (2005).
4. Te Waihora Joint Management Plan - 'Mahere Tukutahi o Te Waihora' (2005).

The first three of these are RMA-based plans designed to be used in consultation with local government councils as they develop their own plans and process resource consents in line with their obligations under the RMA. These resource management plans are bolstered by the RMA itself, requiring councils to take into account:

- Section 6 (e), the relationship of Māori and their culture and traditions with their ancestral lands, water, sites, *wāhi tapu*, and other *taonga*; and (g), the protection of recognized customary activities.
- Section 7 (a), the need to have particular regard to *Kaitiakitanga*.
- Section 8, the need to take into account the Treaty of Waitangi (Te Tiriti Waitangi).
- Sections 61(2A), 66(2A) and 74(2A), where iwi management plans are required to be taken into account (like the ones listed above).

The fourth plan was developed as a result of the Ngāi Tahu Settlement Act in partnership between TRoNT, the Waihora Management Board consisting of representatives of the Papatipu Rūnanga in Canterbury, and the Department of Conservation. Collectively, they contain a representative sample of the key values and principles that Ngāi Tahu use to protect and promote the utilization of *mahinga kai* resources from Lake Waihora. Once again, the framework of *whakapapa* is combined with the values of *rangatiratanga* and *kaitiakitanga*. In addition, the concepts of *mauri* and *wairua* are also prevalent in the document, as well as an emphasis on *mātauranga*, or customary knowledge.

Ngāi Tahu Holdings Corporation

The Ngāi Tahu Holdings Corporation (NTHC) manages a wide range of businesses on behalf of TRoNT. There are four main subsidiary companies to NTHC that encompass investments in property, capital markets, tourism and seafood. Neither the capital nor the property business directly mentions any environmental values on their websites; however, the NTHC website does list some overarching core values that relate to their business methods and brand. NTHC writes that it has three main values:

- *Rangatirataka* – to uphold the *mana* of Ngāi Tahu at all times.
- *Manaakitaka* and *Whānaukataka* - to promote an environment of respect and maintain important relationships to all people in line with *tikanga* Māori.
- *Kaitiakitaka* - to protect the environment, culture and resources important to Ngāi Tahu for future generations.

There are some similarities to the TRoNT policies already mentioned above so there is some connection between the development arm of the *iwi* and its Holdings entity.

Ngāi Tahu Seafood Group

The area in which it has been deemed necessary so far to be more explicit on environmental standards has been in the seafood and tourism businesses. The Ngāi Tahu Seafood Group is a subsidiary of the NTHC and manages the main fish quota and, as such, it is bound by the sustainability rules of the QMS. This is a summary of how they express their commitment to the environment on their website:

- Respect - for the sea, the wider environment and its sustainability.
- Sustainability - only harvesting fish to a level that is less than the net productivity of the resource so that natural breeding renewal will replenish the stock to the same level as before harvest.
- Environmental responsibility - to ensure fishing industry codes of good practice are complied with.

Ngāi Tahu Tourism Businesses

The Ngāi Tahu tourism website does not directly state what its guiding values are. However, some of the individual company websites do mention their environmental values and certification credentials to prove it. For example, the Rainbow Springs tourist facility has 33 acres of parkland and has the only purpose-built kiwi conservation centre open to the public in the world. As such, its main environmental claim is that it is helping preserve New Zealand's national icon, the endangered kiwi, through having a breeding program for them. The main website has a sustainability area where it lists its main areas of environmental action, such as the following:

- Carbon Emissions currently being calculated each month;
- Educational lectures are held regularly on-site, at universities, polytechnics, schools, and around the country at various institutions;
- Selection of energy efficient appliances and energy efficient lighting;
- Committed waste recyclers with an extensive paper, cardboard, plastic, tins and cans recycling programme;
- Biodegradable and environmentally friendly cleaning products used where possible;
- Creation of a new role of full-time 'Organic Gardener' to run an organic vegetable and herb garden, including a worm farm to turn café waste into natural fertilizer; and,
- Always purchasing renewable resource products where possible.

They are members of the Rotorua Sustainable Tourism Charter which was set up to promote sustainable tourism and subscribe to its annual goals. However, in order to back up their claims,

they have also sought confirmation of their environmental values and practices through third party certification. They are independently certified by the international tourism certification agency, Green Globe, to their bronze standard. Green Globe was founded in 1993 after the Rio de Janeiro Earth Summit and it claims to be the leading green certification for the travel and tourism industry around the world.

The Hukafalls jet boat tourism operation in Taupo also lists sustainability as a key criterion for its business. They also have the Green Globe Bronze certification, with the following:

- Supporting and encouraging the Green Globe sustainability principles and the implementation of them;
- Making significant improvements in water consumption per customer;
- Only using the most environmentally friendly cleaning products on the market;
- Maintaining the level of 'best practice' in terms of the quantity of waste sent to the landfill, and commitment to recycling wherever possible; and,
- Ensuring that its Jet Boat fleet is running at its most efficient at all times to keep carbon emissions at the lowest practicable level.

This commitment to sustainability through the Green Globe system identifies the need for on-going improvements in efficiency and in efforts to achieve sustainability by the company.

The Abel Tasman Aqua Taxi business ferries people on boats into and out of the Abel Tasman National Park and subscribes to the Nelson Tasman Sustainable Charter that is based on the same principles as the business in Rotorua mentioned above, which was the first in the country. The aqua taxi business also has a sustainability policy and recognizes that its tourism activities can pose a threat to the environment. The company commits itself to work towards avoiding and/or mitigating any negative effects that its daily operations may have on the environment, through the following:

- Proactively being involved in projects to protect and restore the biodiversity of the area;
- Identifying both short- and long-term effects of operations and, in response, reduce any negative effects to a minimum;
- Commitment to use local and sustainable products;
- Continual reviews of current business practices to identify areas for improvement and to create plans to meet commitments toward a more sustainable future for tourism in the Abel Tasman;
- Use of boats with super quiet four-stroke motors that have a three-star ultra-low emissions rating and are also the cleanest marine motors available on the market; and,
- Commitment to reduce, re-use and recycle products where possible (e.g., oil, plastics, tins and paper).

The company has also sought third party certification of their environmental credentials through Qualmark and has obtained a Silver rating. This means they have not only met the minimum requirements but have also done a little extra and are actively working to improve energy efficiency, support conservation initiatives, and improve waste management.

Whale Watch Kaikoura

The local Kati Kuri people of Ngāi Tahu started Whale Watch Kaikoura in the mid-1980's and has led it into becoming one of New Zealand's premier tourism activities that is world renowned. TRoNT has had a minority shareholding in the company since the 1990's and, together with Kati Kuri, the business has flourished. Traditionally, whales are embedded in the mythology of Ngāi Tahu and they were utilised as a *mahinga kai* resource for their bones and occasionally their meat, though not normally through hunting activities before the arrival of Europeans.

From the early 1800's, Ngāi Tahu actively encouraged Europeans to set up whale hunting stations in their areas as a source of trade and for acquiring the benefits of new technology. Ngāi Tahu also gained employment in the hunting and processing of whales for a brief period in the early to mid 1800's when the whale stations flourished, until whale numbers were drastically reduced (Evison, 1993). This was one of many lessons Ngāi Tahu have learnt along the way that has contributed to the development of *mātauranga taiao* and the practice of sustainability through *kaitiakitanga*.

The moral of this story is that Ngāi Tahu and Kati Kuri have since then developed a new way to relate to an old *mahinga kai* resource that does not involve exploitation through the harvesting of them; but instead, involves sustainable co-existence through the activity of taking tourists to view the whales. The company's operational conservation philosophy includes the following:

- Respecting the fact that they are visitors in the whale's world;
- Reverence for the natural world that embraces people, the land, the sea and all living things as one, where the word 'sustainable' has both a physical and spiritual meaning;
- Not harming the ecosystem that keeps the whales close to Kaikoura;
- Using modern catamaran boats that are powered by propulsion units that minimise underwater noise;
- Having on-board toilets that are self contained and never pollute the sea;
- Keeping detailed records of each trip, covering personalised identification of every whale seen, its location and any unusual whale behaviour to contribute to the scientific understanding and the conservation of whales; and,
- Being a staunch ally of the general marine conservation movement and opposing any attempts to allow commercial whaling through the International Whaling Commission.

As the premier Ngāi Tahu tourism business, it is not surprising that it has achieved the highest Qualmark standard and has been awarded the right to display the Enviro-gold logo in association

with their business. The Qualmark environmental standard identifies five key areas in which it rates the activities of businesses:

- Energy efficiency
- Conservation initiatives
- Waste management
- Community activities
- Water conservation

Having achieved the gold rating, this would currently make Whale Watch the most sustainable of all Ngāi Tahu businesses, as certified and verified by a third party organisation. This rating, achieved through the independent verification by Qualmark, shows that Whale Watch's sustainability philosophy has been carried out in all the activities and operations of the business.

Discussion

In sum, the Ngāi Tahu worldview and relational value system can be directly seen in the iwi's organisational and business practices. As demonstrated in the preceding discussion, distinctive values that are Ngāi Tahu and at the same time also Māori and Indigenous, give impetus to, and guide, practices. Table Eleven, below, provides a comprehensive summary of Ngāi Tahu's worldview and values, and how these guide *iwi* policy, strategy and practices.

Table Eleven: Summary of Ngāi Tahu Worldview, Values, and Practices					
Ngāi Tahu Worldview: Whakapapa, Mauri, Wairua					
Ngāi Tahu Values: Tino Rangatiratanga, Kaitiakitanga, Whānaungatanga, Manaakitanga					
Practices Guided by Values					
Te Ao Tūroa	**Tö Tätou Ngäi Tahutanga**	**Te Tāhuhu**	**Te Whakatipu**	**Mātauranga**	**Te Whakaariki**
Planning and engagement with environmental regulators to maintain the mauri and wairua of all mahinga kai, taonga and natural resources through 'Ki Uta Ki Tai' Adoption of third party environmental assurance systems within commercial tourism entities.	Continuing to build and vitalise Ngāi Tahu language, culture, and leadership.	Building iwi organizational development structures (i.e., governance and management) that support a young and growing tribal entity.	Putting in place structures (i.e., governance and management) for the self-determined economic and social development at local levels within Ngāi Tahu communities.	Supporting the Ngäi Tahu whänui to be leaders and strong in their Ngäi Tahutanga, and accessing quality education and training to provide choices and give whänau the opportunity to create their own destiny.	Influencing external decision-making processes in the governmental and business arenas to achieve the mission statement of 2025.

There are significant similarities between the Ngāi Tahu worldview, values, and practices outlined in the table above and those outlined in Table Eight, which highlights the key practices required

to ensure the successful development and operation of sustainable Māori agribusiness. However, the primary difference between the two models is in terms of scale. The Ngāi Tahu development approach is focused at an *iwi* or tribal scale, and is looking to support development across multiple sub-tribes, *whanau*, and communities. Conversely, the sustainable Māori agribusiness approach is focused at a single enterprise scale. Overall, both approaches focus on a series of key practices for achieving sustainable development goals that apply across both scales. These practices are summarised in Table Twelve, below:

Table Twelve: Key practices for achieving sustainable development goals in Māori enterprises and institutions

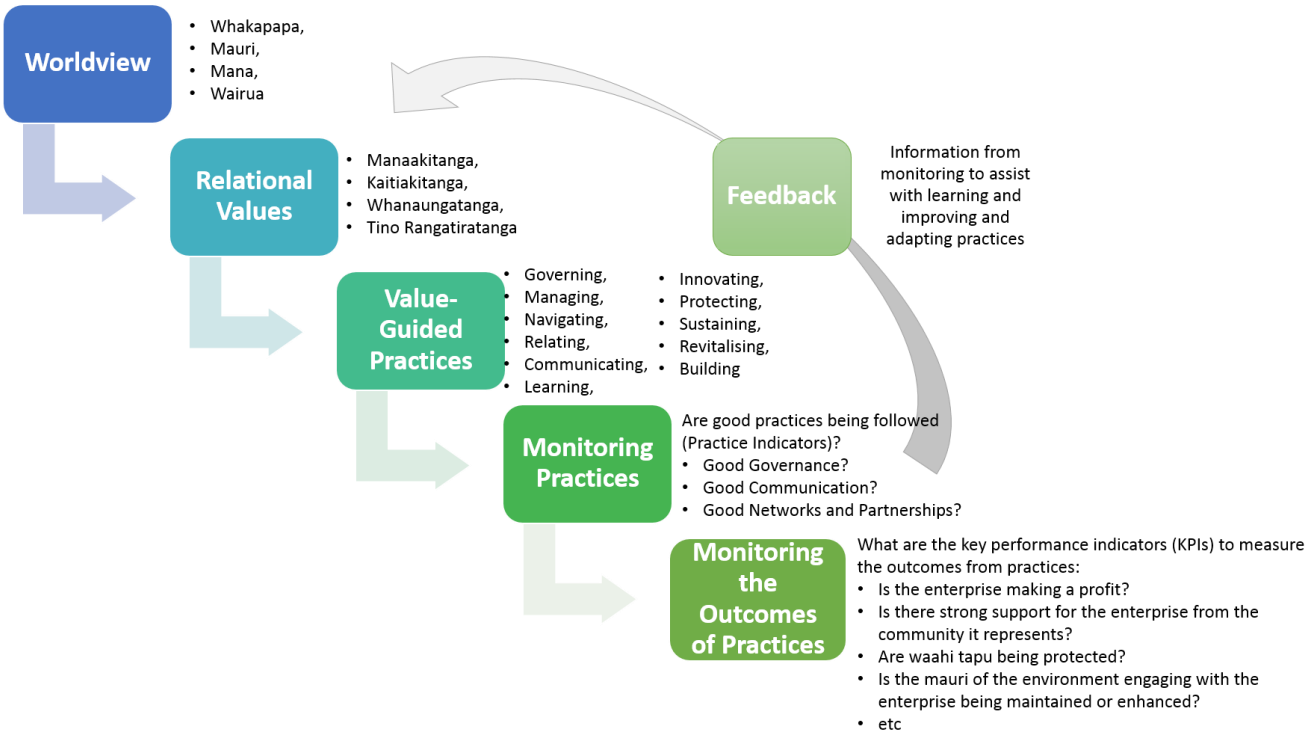
Practice	Definition
Governing	Building and maintaining culturally-matched, competent, strong, diverse, and capable governance
Managing	Building and maintaining capable management that is accountable to governance
Navigating	Inclusive and decisive decision-making
Relating	Strategic partnerships, networks, and joint ventures between a business, or tribal entity, and 'outsiders' with needed skills and strengths
Communicating	Good communication processes between leadership and owners/tribal members
Learning	Good processes for continual skill development and knowledge acquisition
Innovating	Identifying unique and innovative development options
Sustaining	Ensuring actions maintain or build the mauri of non-human kin
Protecting	Protecting taonga tuku iho
Building	Enhancing the mana of whanau, hapu, iwi and community
Revitalizing	Supporting and building a contemporary Māori culture and identity

It may be noted that the majority of the practices outlined above are focused strongly on social goals concerning sound and decisive decision-making enabled through good communication, learning, partnerships, and innovation. Such practices enable continual adaptation through learning, thus building resilience into Māori enterprises or tribal institutions. They are, in effect, practices for continually learning new practices. Conversely, a number of the other practices outlined are focused on maintaining or enhancing the *mauri* of the human (social) and non-human (environment) communities.

Overall, the literature reviewed in this report, and the above discussion, outlines that there is an Indigenous experience of the world that gives rise to a worldview. For Māori, this world is framed by *whakapapa*, where all entities in creation are interconnected kin. Sustainability is the result of actions that build *mauri*, or the life-sustaining capacity, of both human and non-human communities. Consequently, relational values are central to the Māori worldview, given that they encourage mana-enhancing relationships between entities. The key practices identified for giving effect to these values are outlined above. These practices focus on informed decision-making through continual learning processes, as well as practice measures for maintaining or enhancing the *mauri* of the human (social) and non-human (environment) communities.

Through this discussion, we arrive at a series of practices that give effect to sustainability values. In sum, the sustainability of an enterprise can be assessed according to the presence or absence of practices that give effect to values. This is outlined in Figure Two, below.

Figure Two: Practices that give effect to sustainability values



It is important to ensure that the outcomes of practices are also monitored to determine the extent to which *mauri* is being maintained or enhanced as a 'cross check' for continual improvement in practices. However, the extent to which practices are measured by KPIs will be largely dependent upon the ability of an enterprise, or institution, to actually undertake monitoring. For example, undertaking measures such as water quality, or calculating carbon emissions, to determine the impact of the

enterprise on *mauri* can be very costly and beyond the scope of a small enterprise. As such, it seems that at small-scales, simply putting in place measures for determining the level of engagement in particular practices may be the most appropriate. Nonetheless, in large-scale enterprises – for example, large Māori incorporations – KPIs should be in place for measuring the outcomes of practices. Lessons regarding best practice from large-scale farms can then be communicated to those operating on smaller-scales to continually promote best practice.

Conclusion

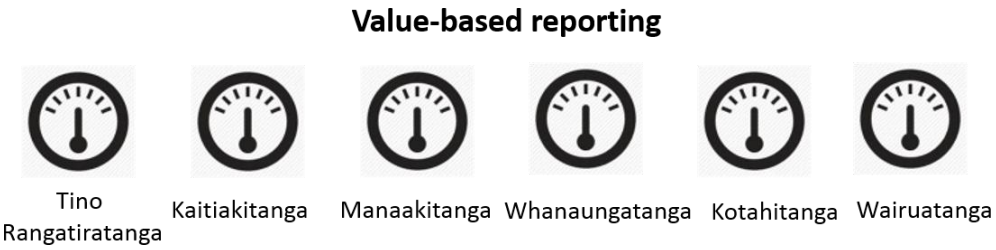
Through the above literature review and theoretical discussion, we arrive at a practice-based model for determining the sustainability of a Māori enterprise or institution. The extent to which best practice is embraced across indicators is indicative of the extent to which the enterprise is sustainable. However, it needs to be noted that it is important to measure the outcomes of practices, through KPIs, in circumstances where such measurements can be afforded.

With regard to translating this model into a dashboard that can be used by Māori enterprises in the biological industries, it is concluded that a relatively straight-forward process could be put in place for determining the level to which certain best practices are present within an enterprise. This would involve developing a series of questions that act as an assessment tool. Such as system could be placed online, and open for use by enterprise owners who would be guided through the questions that, when answered, determine their current status and areas where work is needed. An example of how a report on practices might look is outlined below.

Figure Three: Practice-based reporting

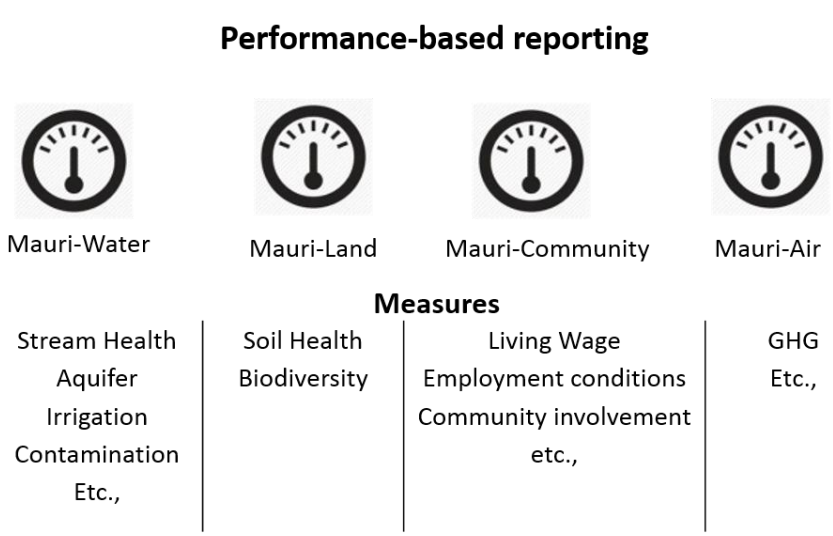
However, once an assessment of practices has been completed, it is concluded that it will also be possible to provide a report on the extent to which values have been fulfilled. This is because practices are a reflection of values. For example, failure to take actions to protect and sustain *wahi tapu* would mean that the value of *Kaitiakitanga* was not being fulfilled. Consequently, a dashboard reporting system for values could also be created. An example of how a report on values might look is illustrated below.

Figure Four: Values-based reporting



In addition to these two methods of sustainability reporting, it is concluded that a third form of sustainability reporting should also be provided. It has been outlined previously that measuring the outcomes of practices should be undertaken in circumstances where it can be afforded. Such measures will determine the levels of *mauri* expressed by different entities (for example, the *mauri* of land, water, and community), and provide an evidence base for the adoption or rejection of particular practices. Tools such as the State of Takiwa reporting system discussed previously could be used to determine levels of *mauri*. An example of how this might look in a dashboard is outlined below.

Figure Five: Performance-based reporting



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APPENDICES

Appendix A: Overview - Defining an Indicator

An indicator is something that helps you understand where you and where your community are, what trends are evident, and how far you are from where you want to be. A good indicator alerts you to a problem before it gets too bad and helps you recognize what needs to be done to fix the problem. A good indicator will also have relevancy, use reliable data, and be applicable to the appropriate spatial and temporal scale (Farrell & Hart, 1998). Significance, quantifiability, data availability, comprehensibility and policy relevance dominate selection criteria for indices. Figure 1, below, shows that the collation of an environmental index in a 'total measurement system' that involves several interrelated processes (Daniel, 1976, p. 33).

Assessing and monitoring environmental quality has several purposes. It can suggest or clarify policy, provide insight into the effectiveness of environmental or development programmes, gauge the impacts of public or private projects, and communicate trends in the state of the environment to officials, the public and decision makers (Bell & Morse, 1999). In this it follows on from similar work on human development indices, the development of which has been called a 'powerful tool' in the promotion of human rights (UNDP, 2000). For Māori and other Indigenous Peoples, implementing culturally relevant and appropriate indicators for broad and/or targeted sustainability has become an obligation and comprises a significant component of answering the responsibilities of, in the case of Māori, *kaitiakitanga* in caring for lands, waters, biodiversity and ecosystems within their traditional territories and possibly beyond.

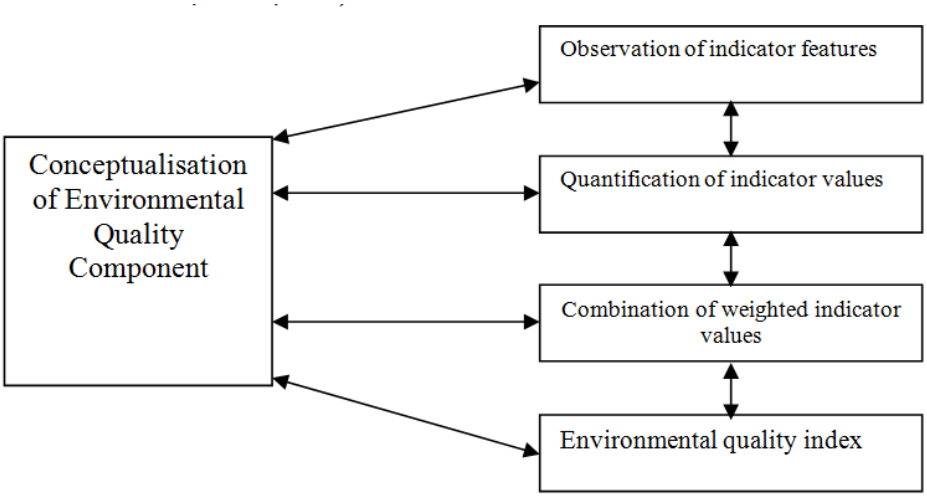

Figure 1: Designing an environmental quality system (from Daniel, 1976, 33).

While the selection of any indicator is governed by relevance and the availability of data, an official index will have a research history which may be politically controversial (Martinez-Allier, 2000, p. 150). Usefully for Māori and others wishing to learn from Māori experiences, the *korero* associated with various cultural indices is relatively well-published, their development regularly presented and discussed and their ongoing development and expansion into new landscapes has established if not a secure position in sustainability discourse, at least something more than a toehold (Gibson & Ngati Konihi, 2006; Tipa & Teirney, 2003; Walker, 2012).

Modelling environmental processes of any type is difficult. Many changes in the environment are non-linear and discontinuous, a feature not atypical of human-nature interactions. Further, the scale of analysis will depend on the type of problem being addressed, and the particular issue. A considerable quantity of relevant environmental data is still only available in analogue form (Gunther, 1998). While this is primarily historical data, it also includes more recent maps, images and documents. Rapid advances in scanning technologies, as well as the emergence of a market for digitising historical data, is changing this situation, and new data are almost exclusively stored in digital formats and availability is often a question of logistics and funding.

The concept of 'ecological integrity' is now subject to a wide range of modelling and monitoring efforts (Ulanowicz, 2000). Some models focus on a limited range of issues, informed by public, scientific or political concern. The OECD compiled indicators for eight environmental issues, acknowledging that the importance of any single issue would vary by region or country (Hammond, Adriaanse, Rodenburg, Bryant, & Woodward, 1995). Described as a 'Pressure-State-Response' model, indicators were collated for each issue within a 'cause-effect-social response' framework[5]. Other responses have focused on purely physical components. Haberl (1997) argued that ecological functioning was vulnerable to the appropriation of energy (in the form of biomass) by human systems and analysed this at the community level in Austria. Biomarkers and biomonitors (of which the canary in a coal mine is not an analogy but an example) have been proposed as cost-effective and reliable indicators of environmental change (Butterworth, Corkum, & Guzman-Rincon, 1995).

As the number of indices has multiplied, enthusiasm has grown for simplifying and aggregating attempts. These methods are subject to a range of criticisms based on technical and interpretational factors: results can be manipulated, particularly if they are subject to partisan political use, and inconsistent cultural interpretations are possible as are inconsistencies between indicators that attempted to communicate similar phenomena (Drakakis-Smith, 1997). However, extending this type of modelling to vulnerability issues is problematic. Simplifying the 'causes' of vulnerability

[5] Originating as a Canadian government initiative, this model has been adopted by other organisations, including the World Bank.

to exceptional events that exceed individual or group abilities to cope is to gloss over the complexities of the social arena. Research is advancing into the incorporation of 'livelihood' as a key component of vulnerability, and now attempts to describe access and entitlement to resources (Blaikie, Cannon, Davis, & Wisner, 1994; Sen, 1997, 2000; Watts & Bohle, 1993).

The aim of environmental indicators is to improve knowledge and aid communication on the state of the environment and the progress of environmental policy, and they must be able to reflect changes over time. Despite all these difficulties, the collaboration of environmental science and Indigenous methodologies in the mitigation of environmental vulnerability, pursuit of well-being, and sustainable development is increasingly accepted as a means to better inform the decision and policy making process.

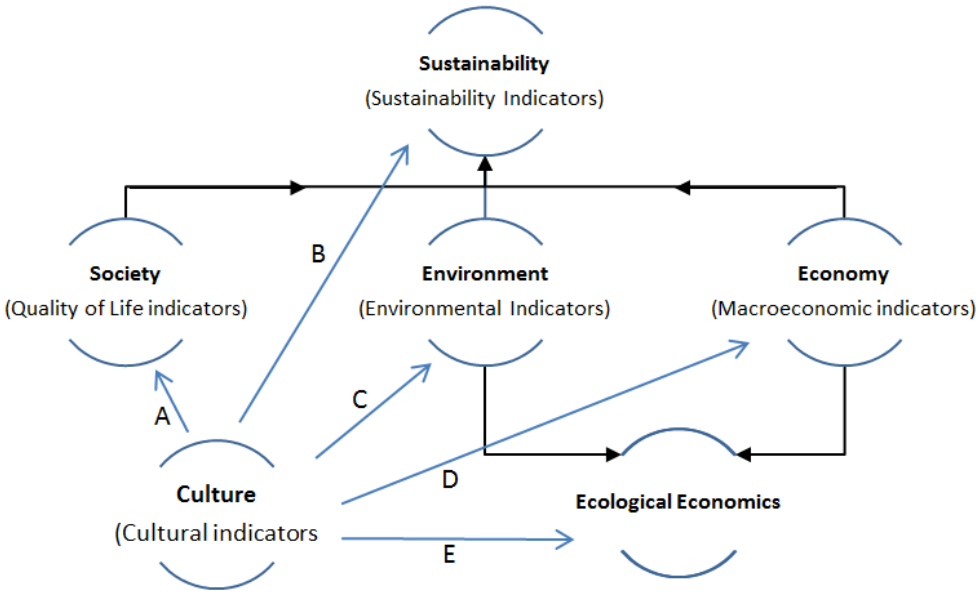

Figure 2: Conceptualising the role of cultural indicators

Key

A = For some, culture sits completely within society and can best contribute to sustainability as a component of 'Quality of Life' indicators.

B = For an increasing number of any commentators, culture sits separate from the standard Triple-Bottom-Line approach, comprising a 'Quadruple Top-Line' or Fourth Pillar (Dunphy, 2007; Eames, 2004; Hawkes, 2001).

C= There is a strong discourse that sees local communities in general, and Indigenous Peoples in particular as contributing to sustainability through their traditional

ecological knowledge (TEK) and its potential role in environmental sustainability (see, e.g., Berkes, 2001).

D = A new and potentially empowering contribution from some Indigenous communities is via macro-economic indicators recording Indigenous businesses and corporate ventures (Nana, Stokes, & Molano, 2011).

E = Ecological economics, while not exactly a new discipline, is yet to have any significant contribution from Indigenous Peoples but does have potential to better illustrate the role of Indigenous cultures in sustainability discourse (Jollands & Harmsworth, 2007).

At their most basic, indicators are signals that are used to measure, simplify and communicate complex events. It is increasingly apparent that for societies such as Indigenous Peoples, cultural filters or layers exist in the processes of constructing, implementing, improving and communicating sustainability indicators.

Māori have occupied the islands of Aotearoa/New Zealand for perhaps a millennium but in that comparatively short time have developed intricate practices built on the histories of settlement across the Pacific and their accumulated insight into the unique environment at the southernmost extent of Polynesia (Anderson, 2002; Waitangi Tribunal, 2011). Genealogical interconnections – *whakapapa* - were recognised and ascribed between Māori society and the natural world which was imbued with a life principle *mauri* and spirituality, *wairua*, as Māori sought sustenance without disturbing the evident balance of their world (Charles Royal, 2003). Such an approach does not exclude change, indeed the rapidity with which Māori assimilated and adopted European innovations Post-contact was remarkable (Lambert, 2010; Petrie, 2006). But even throughout the often brutal processes of colonisation, many environmental practices were maintained and the obligations of environmental guardianship - encapsulated as *kaitiakitanga* - saw local Māori communities accept the responsibilities of caring for their environment, its resources and particular species for which their territory was renowned (Mihinui, 2002; Moon, 2003, pp. 131-132; Charles Royal, 2003).

Successful projects always emphasise that the processes for collaborating with Indigenous communities are vital to the ultimate success of any programme (Harmsworth, 2002). Walker (2012) reiterates that indicators "need to be designed to have the flexibility to acknowledge, respect and accommodate differences in understanding". In Walker's forestry indicator tool, four 'traits' of culturally-based indicators have been identified. These are:

- **Measureability** to determine trends in the cultural and environmental health of the forest. This allows categorisation and ranking for understanding within the science tradition;

- **Korero** to enable the retelling of traditional narratives in a contemporary light;
- **Experience** built on encouraging *iwi* members to visit a variety of forests under a variety of management regimes to learn and pass on knowledge;
- **Community engagement** that acknowledges the potential of tribal organisations to effect change through councils, the general public and other resource users.

Walker's collaborative approach is represented below. Such an approach relies on relationships and it is perhaps this reflective maintenance of relationships that lies at the heart of the development, refinement, and continuation a successful indicator programme.