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HE PĀ ANAMATA

A marae-based tikanga framework for the future

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Abstract

In response to the global climate crisis, Te Herenga Waka—Victoria University of Wellington embarked on an ambitious Living Pā building project to construct a 3,000-square-metre three-storey learning, teaching, research and engagement space as part of Te Herenga Waka Marae on its Kelburn Campus. While preparing to move into the new building, a research team investigated how the International Living Future Institute's Living Building Challenge™ sustainability principles that underpin the Living Pā project could complement the tikanga Māori that regulate the marae community. This article shares a tikanga framework developed to bring the philosophies of te ao Māori and living buildings together, explaining the key components of the framework and providing case study examples of how it applies in practice. Ultimately, this research sought to support a marae community into more climate-adaptive and resilient practices that could mitigate climate change without compromising on tikanga to achieve he pā anamata, a marae for the future.

Keywords

tikanga, marae, sustainability, Living Building Challenge™

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Introduction

Since 1980, Te Herenga Waka—Victoria University of Wellington has had a marae on its Kelburn Campus. In 1986, that cultural space grew to include an ornate whare whakairo where staff and students have been able to learn about and practise being Māori ever since (Higgins & Hall, 2011). Victoria University of Wellington was the first university with such a space. Today Te Herenga Waka Marae is home to the Māori Studies curriculum and research and engagement activities, and is a place where tikanga Māori prevails. Even in the 1980s, the long-term vision of Te Herenga Waka Marae was to continue to grow and adapt alongside the changing scale and interests of Māoridom, to serve the Māori population and support Māori students to confidently face the future as Māori.

By 2021, that future was being increasingly affected by changes to the climate, brought on through pollution and human exploitation of the world's resources. Indigenous peoples worldwide were looking for ways to reverse the impact of climate change (Gray et al., 2022). Against that backdrop, the university's marae community sought ways to continue to develop and stay fit-for-purpose, while being more conscious of the strain being placed on Papatūānuku. Led by Professor Rawinia Higgins, a proposal was developed for Victoria University of Wellington to embark on an ambitious Living Pā building project to construct a 3,000 square-metre three-storey learning, teaching, research and engagement space as part of Te Herenga Waka Marae. The Living Pā project was designed to meet the International Living Future Institute (ILFI)'s Living Building Challenge™ (LBC)—a performance-based certification framework that sets the highest standards for sustainability in the built environment (Victoria University of Wellington, n.d.).

As part of the preparation to move into the new building, a research team investigated how the sustainability principles that underpin the Living Pā project and the LBC could complement the mātauranga and tikanga Māori that regulate the marae community. This article focuses on how the Te Herenga Waka university-based marae community is adapting to climate change and learning to live and work in a more connected and sustainable way. It shares the tikanga framework developed by the He Pā Mataora: Learning to Live with the Living Pā project to bring the philosophies of te ao Māori and LBC together, explaining the key components of the framework and providing case study examples of how it applies in practice. Ultimately, this article is about sharing the learning as the marae community moves into more climate-adaptive and resilient practices without compromising on tikanga.

Background context

To date, only five universities in Aotearoa New Zealand have a fully functioning marae on-site. As pan-tribal, urban marae operate in an unusual context. They are managed by Māori but ultimately report to non-Māori vice-chancellors. They also do not have the tribal infrastructure of community marae, instead being structurally part of the university, with all of the policy and practice that comes with it. In the case of Te Herenga Waka Marae, its very existence is intertwined with the origins of Victoria University of Wellington.

The 1868 University Endowment Act set aside land to be used for the establishment of a colonial university, including 10,000 acres of land in Taranaki confiscated under the New Zealand Settlements Act 1863. This led to the New Zealand University Act 1870, which established the University of New Zealand, an examining "colonial university" (Barrowman, 1999, p. 11) that received land endowments from the Crown. Later, the Victoria College Act 1897 established a Victoria College in association with the University of New Zealand, which received an endowment of 4,000 acres in Blocks I and V of the Nukumaru Survey District administered by the Crown under the Land Act 1892.

It took until 1908 before two Māori politicians and scholars, Sir Apirana Ngata and Te Rangihiroa Peter Buck, were able to raise the idea of teaching Māori subjects at university. This was eventually approved by the University of New Zealand Senate in 1928 (S.M.Mead, 1983; Sorrenson, 1986), but it was another 48 years before Professor Sir Hirini Moko Mead was appointed as the first professor of Māori Studies at Victoria University of Wellington in 1975. Mead set about establishing an independent Māori Studies unit (the subject had previously been taught as part of the Anthropology programme), which became the basis for the current School of Māori Studies, known as Te Kawa a Māui. He also worked with colleagues to develop the unit's groundbreaking curriculum (which is still the basis of the programme offered today) and initiate a project to build a marae on campus.

In a letter to the Rt Hon. Mr Justice Richardson, Professor Whatarangi Winiata describes Te Herenga Waka as being a "multi-tribal marae (or widely considered as such)" (Winiata, personal communication, 1984). Initially housed at 36

Kelburn Parade, the venue for the marae shifted to 46 Kelburn Parade in 1985 and the clearing of a site for a whare whakairo began. In January 1986, the mauri was buried, after which construction continued at pace, culminating in the whare whakairo Te Tumu Herenga Waka being opened on 6 December 1986. In the programme for the opening pōwhiri, it states that the first thing done was "lifting the tapu" and "ko Taranaki kei te taa i te kawa" [this was done by Taranaki iwi].

It was envisaged by Mead and others that the marae would "belong to the students" even though it was geographically located in the rohe of Te Āti Awa. The idea of the marae as a laboratory and classroom for learning about te ao Māori is strong in early letters and reports, as is the idea of the marae as a bastion or stronghold of Māori culture and identity for both Māori and non-Māori students and teachers within the university. There is also mention of the university's hope that the marae would help to attract and retain Māori students.

Te Herenga Waka Marae became the centre of Māori activity at the university. Whether hosting lectures or seminars, events like hui or conferences, or welcoming graduates and their whānau to Te Hui Whakapūmau each year, the marae has been a tikanga-led sanctuary for Māori staff and students. Affordable lunches are provided daily, and space is available for students to study, socialise and be Māori. This function was paused for a time—a whakamoe ceremony was held in April 2021 to close the marae to enable the building of the Living Pā structure. However, the marae community was able to celebrate the reopening of Te Herenga Waka Marae with its new, cutting-edge Living Pā building named Ngā Mokopuna, in December 2024.

Living Pā aspiration and context

At its original opening in 1986, the wharenui was described as "the most important part of the marae complex" with its "uniquely Māori" structure and links to the ancestors, but it was also noted that there were still parts of the complex yet to be completed (H.M.Mead, as cited in Higgins & Hall, 2011, p. 11). Today, the Ngā Mokopuna building created through the Living Pā project is seen as the next phase in the development of the marae complex, built on this strong base.

At its most basic, the Living Pā project was the redevelopment of 42–50 Kelburn Parade—five villas that used to sit in front of Te Tumu Herenga Waka. However, the project's vision, much like the vision for the wharenui, was to draw together mātauranga Māori and sustainability practices as an incubator for innovation and a place for multiple communities and disciplines to come together to discuss how to build a more equitable, fair and sustainable society.

The Living Pā project worked to the LBC specifications and sustainable development principles, as articulated by the ILFI. The LBC philosophy is to actively "do good" rather than "less harm" through the advancement of seven design principles (outlined in more detail later in this article). The climate-mitigation measures required by the LBC include, for example, materials use that reduces the extraction of natural resources, and technology that reduces energy consumption and increases energy efficiency in buildings. The ILFI has set an extremely high standard to achieve, meaning that there are currently very few Living Buildings in Aotearoa, especially in dense urban environments.

Learning to live with the Living Pā

The core of the research project He Pā Mataora: Learning to Live with the Living Pā was to blend traditional and contemporary mātauranga Māori with the most climate-resilient practices available for living and working in the Living Pā. The project explored the ways that tikanga, te reo Māori, ako and taiao can be applied to the Living Pā and contribute to reversing climate change. The project takes its name from the Living Pā Mission Statement: "He pā mataora—a thriving community, he pā kaiao—a living lab, he pā anamata—a bright future." The research team used the rare opportunity afforded in the lead-up to the opening of the Living Pā building to explore the needs and challenges of moving an entire Māori community into more climate-adaptive and resilient practices. He Pā Mataora was a chance to rethink, as a Māori community committed to living more sustainably, about the whenua. It provided an ideal context to learn about and practise adapting to and mitigating climate change *as Māori* and then share those learnings with others.

One dimension of the project, known as the Pātaka Tikanga—that is, a system or framework of customary practices—was particularly focused on developing a tikanga Māori guide to support living, learning and working in the Living Pā. Even before anyone stepped foot in the new building, the research team looked for a way to guide the marae community's decision-making towards critical adaptations and transitioning to a less carbon-intensive lifestyle. Thus, the development of a bespoke tikanga framework was deemed appropriate as a way to articulate the various

"conceptual regulators" (E. Durie, 1994, p. 4) of tikanga Māori and the LBC that needed to remain at the forefront, informing policy and practices once Te Herenga Waka Marae reopened.

Building the tikanga framework

Tikanga is a living and evolving Māori system designed to maintain social order and avert problems or dangers and their consequences, while also aiming to sustain or improve wellbeing (Joseph et al., 2019). The challenge for the He Pā Mataora research team was to figure out how to blend the mātauranga that informs the established cultural practices of Te Herenga Waka Marae with the design principles of the LBC, so as to maximise the potential of both. The development of a tikanga framework was settled on as a conceptual way to represent key components of this intersection in a way that was clear and concise.

What is a tikanga framework?

The first step for the research team was to determine what a tikanga framework was, and what it needed to be, for the purposes of this project. We were not seeking to develop a theoretical framework, which is generally understood to be a basic conceptual structure underlying a system or study. A theoretical framework sets out the organising ideas to either establish or better understand the way a system works. However, while they describe the elements of the structure that enable a system, concept or text to occur, such frameworks need to be tested before they can be considered the basis of an empirical model.

The research team also had to settle on an agreed meaning of *tikanga*. A general understanding of the term is that tikanga are "correct procedure, custom, habit, lore, method, manner, rule, way, code, meaning, plan, practice, convention, protocol–the customary system of values and practices that have developed over time and are deeply embedded in the social context" (Moorefield, n.d.). In other words, tikanga can also be understood as "the Māori way of doing things". The term derives from the word *tika* meaning "to be correct", and the idea behind tikanga is that they are the "right" ways to behave to maintain Māori cultural standards and expectations. Tikanga are both values based and process orientated—that is, they are about doing the right thing in the right way. The values must remain consistent over time, while the processes—established through precedents—have a flexibility to respond to challenges of the day. Tikanga also tends to be well understood and consistent across Māoridom, so that while tribal contexts—historical and environmental—may differ across the country, collective Māori commitment to tikanga values does not (H.M.Mead, 2003).

Frameworks already exist for several related topics. For example, a values framework has been created to explain how human values underpin everyday life practices and decisions and provide "an underlying structure of the concept of human values that presents the concept with categories and clarifies their interrelations to facilitate understanding and working with them" (Kheirandish et al., 2020). However, while comprehensive, this framework is not focused on Māori practices or beliefs, so is not sufficient for the context of Te Herenga Waka Marae.

Another example is the tikanga framework that was developed for Māori cultural and intellectual property rights. Created by a Māori scholar, the tikanga framework for Matauranga Maori me o ratou Taonga Katoa (Solomon, n.d.) has some of the qualities relevant for the context of Te Herenga Waka Marae. Designed to protect and promote the use of Māori knowledge and things of value, the framework is described as "flexible enough to take account of issues that affect Maori" while ensuring the "protection and promotion of rights and obligations to control, manage, protect, utilize, and develop resources in accordance with Maori cultural values, protocols and tikanga" (Solomon, n.d.). It expressly acknowledges te Tiriti o Waitangi, tikanga, customary laws and values, and international customary laws and conventions, and also incorporates the New Zealand legal system, government policy and regulations, and relevant national and international codes of ethics and research guidelines. However, despite being firmly based on Māori cultural practices and principles, the focus of the framework is too niche to apply to broad marae operations.

Other examples of existing tikanga frameworks include Ngā Tikanga Paihere (Stats NZ, 2020), which sets out 10 tikanga to help establish goals, boundaries and principles that guide and inform data practice, and Te Ara Tika: Guidelines for Maori Research Ethics (Hudson et al., 2010), a Māori ethics framework established by a group of Māori scholars to guide research activity. Despite being focused on the upholding of tikanga Māori, neither of these frameworks have the necessary breadth or relevance to sustainability and climate change to meet the needs of the community of Te Herenga Waka Marae.

Mead's tikanga list

While other existing tikanga frameworks aligned with the principles underpinning our He Pā Mataora research, the research team determined that a source of guidance around the tikanga that should and do inform Te Herenga Waka Marae had already been set out by Mead. As part of his book, *Tikanga Māori: Living by Māori Values* (2003), Mead provided a helpful introduction to tikanga Māori, highlighting how Māori ways of being and doing continue to evolve from the past into practices in the present, and offer adaptability for the future. In the book, he explored a range of tikanga elements underpinning te ao Māori, listing seven he thought played a key role:

- manaakitanga (hospitality)
- mana (prestige)
- tapu (the state of being set apart)
- noa (neutrality)
- *take* (cause)
- utu (reciprocation)
- ea (satisfaction). (H.M.Mead, 2003, p.13)

While not an exhaustive list, the He Pā Mataora research team considered this a relevant and appropriate set of fundamental tikanga Māori for the operations of Te Herenga Waka Marae and a starting point to develop a unique tikanga framework for the university marae. Each tikanga concept, in turn, could be applied to the marae environment and community, and used as a guide for blending marae practice with sustainability actions that mitigate climate change.

The tikanga of manaakitanga is the notion of being generous, hospitable, and caring for others. H.M.Mead (2003) says that "all tikanga are underpinned by the high value placed on manaakitanga–nurturing relationships, looking after people, and being very careful about how others are treated"(p. 29). For a marae community, the ability to welcome and host visitors not only is a cultural obligation but can also determine the regard in which you are held by the broader community. In that sense, it is a common measure of marae performance and a direct determinant of the degree of mana that the marae and its members enjoy. This tikanga concept seemed particularly relevant for Te Herenga Waka Marae given that the official values of the university, as articulated in its Strategic Plan, include manaakitanga (Victoria University of Wellington, 2024).

If showing manaakitanga is a measure of mana, then mana itself can be understood as authority and control (M. H. Durie, 1998; Marsden, 2003) based on a history of consistent performance and authenticated use of power (Kruger, 2020, as cited in Coates & Irwin-Easthope, 2023). While mana is often ascribed in relation to an individual, who can acquire or lose mana through their deeds and talents, mana can also be applied to groups, places or even objects. Thus, the community and facility of Te Herenga Waka Marae can be considered to have mana, and an interest in preserving and increasing that degree of mana, through the ability to show hospitality and maintain the cultural rituals and standards expected of a traditional marae.

The tikanga concepts of tapu and noa are distinct, yet related, and are pervasive components of Māori life and thought (Benton et al., 2013, p. 404). As Vivian Tāmati Kruger (2020, as cited in Coates & Irwin-Easthope, 2023) explains, "Every aspect of the physical and spiritual world holds elements of tapu and noa and people can transition between them"(p. 69). Tapu is understood as the use of restrictions to keep people and kaupapa safe. In certain rituals or periods, people and things are considered to be in a higher state of tapu to protect and guide them to safety, caution and warn them of danger, and protect their mauri (Temara, 2020, as cited in Coates & Irwin-Easthope, 2023). As Professor Tā Pou Temara (2020, as cited in Coates & Irwin-Easthope, 2023) explains, it is also a mechanism to govern the behaviour of communities (p.70). In contrast, the concept of noa relates to the state of being ordinary or free from restrictions (Benton et al., 2013). It is in this state that Māori people consider they can go about their everyday activities, in relative safety and freedom. Certain processes can remove or neutralise tapu and bring on a noa state, such as eating food or washing with water. At Te Herenga Waka Marae, there are certain areas that are considered more tapu than others, and the state of tapu can fluctuate during pōwhiri, tangihanga and other important occasions.

A breach of tapu is considered a serious matter and can give rise to a *take*. Traditionally, *take* could erupt into debates or disagreements (Benton et al., 2013) and even fights or battles, or manifest in ailments or afflictions to people or the environment. Today, as Te Herenga Waka Marae is located on a campus of Victoria University of Wellington, there are a range of formal and informal processes for conflict resolution, which are outlined in university policy and procedures, including an official tikanga Māori process that is overseen by the deputy vice-chancellor Māori (Victoria University of Wellington, 2022).

Part of the goal in sorting out concerns or issues was to return the individuals involved to a place of balance through the process of utu. In general terms, utu is about reciprocity and seeking to find balance, although the concept can apply to a range of contexts, including between parties in a dispute or finding balance between humans and nature (Ahu et al., 2011). At Te Herenga Waka Marae, this maintenance of balance can be extended to the university's core function of teaching, research and service; its duties to students, staff and the surrounding community; and its operations and relationships with the whenua.

Ultimately, if a matter is resolved and balance is restored in a Māori context, it is believed to lead to a state of harmony, often referred to as ea. This harmonious state can relate to the restoration of relationships or the restoring of environmental norms.

While Mead's seven tikanga concepts each play a key role in ordering and guiding Māori society, together they provide a framework for understanding what matters most to Māori and how that state of balance and harmony can be achieved.

The Living Pā petals

While separately having clear and important meanings and applications, the seven tikanga Māori outlined in the previous section were identified by Mead as working together to articulate a Māori way of being, understanding and relating to the world around us. On their own, they provide a guide or indeed a framework for Māori actions and processes to keep Te Herenga Waka Marae safe and functioning. However, they do not explicitly take account of climate change and the challenges facing communities across the globe, including at Te Herenga Waka Marae. Thus, the He Pā Mataora research team explored the potential of incorporating some of the philosophies of the ILFI's LBC into a tikanga-based framework.

The research team were immediately drawn to the design principles, known as "petals" of the LBC (see Neumann Monson Architects, 2024). Work had already been done to translate the petals into te reo Māori to better blend mātauranga Māori and apply Māori understandings to the concepts underpinning the LBC. In summary, in te reo the petals are:

1. Tauranga. This design principle guides the site selection of Living Buildings and ensures that places are restored and protected once developed. It covers such matters as location, the protection of plants and animals, community engagement, and food production.
2. Pūngao. Considered one of the "hard" or most challenging petals, this design principle requires the completed Living Building to produce 105% of its energy on-site using renewable, non-combustible resources.
3. Rauemi. This petal sets requirements around the chemicals to avoid based on an extensive "Red List" (ILFI, n.d.), the need to source local products, and ensure sustainable waste disposal. It also encourages those involved in Living Building processes to engage in industry-level advocacy.
4. Wai. The water design principle is concerned with water capture, treatment and management processes. Ultimately, the goal of this petal is to reduce water use and the use of energy and chemicals for transporting, purifying and pumping water.
5. Hauora. Described as one of the "soft" petals, this design principle is focused on connecting building residents with nature, and ensuring they have access to healthy air, light, ventilation and clean facilities.
6. Tōkeke. The petal is focused on the building's properties and on ensuring the building is designed and used to provide accessibility, inclusion, potential, opportunity and prosperity.
7. Ātaahua. Finally, this design principle recognises that beautiful buildings can enhance public spaces, celebrate culture and nature, and educate people about the need to build and behave in more sustainable ways.

Together, these petals make up the performance criteria of the LBC. To achieve full certification, a building and its community need to fulfil all seven. But the question remained whether the philosophical underpinnings of the petals resonated with tikanga Māori.

Alignment and confirmation

The research team became interested in the idea that Mead's tikanga list could be overlaid with the seven performance criteria of the LBC. Members of the team held wānanga to talk through possible alignments, tease out meanings and interpretations, and began to surface the interconnections with mātauranga Māori, particularly in relation

to the taiao. The team also drew on the advice and experience of Tāmati Kruger and Kirsty Luke, who had led their own Living Building process in Tāneatua with Te Kura Whare (Ngāi Tūhoe, n.d.) and remained focused on how to give effect to living/being Māori through tikanga while applying the North American framing of the LBC petals.

As part of the methodology for exploring this alignment, the research team looked at key compositions that were important to members of the marae community. The first, a waiata ōhākī, was "Kāore Taku Raru" , composed by tohunga Te Rangiahuta Alan Herewini Ruka Broughton (1986) to mark the creation of the whare whakairo Te Tumu Herenga Waka. In it, Broughton references the environment, and the expectations he had for the future of the marae and its community members. The research team also examined a more recent tauparapara composed for the Living Pā project (see Red Stag Timber Lab, n.d.) to, again, test the alignment with the proposed tikanga framework approach. The ideas and phrasings from both compositions were found to support a tikanga framework based on Mead's list matched with the LBC petals, as outlined below. Through this process, the research team was able to make the following connections and a bespoke tikanga framework for Te Herenga Waka Marae began to evolve:

- Manaakitanga and tauranga. The tauparapara features the line "Tōia mai rā ngā waka i te au a Tāne" [Drag forth the canoes on the currents], referencing both the local currents and the idea of drawing visitors (metaphorically described as waka) to the marae to be welcomed and find place.
- Mana and pūngao. The waiata is full of phrasing that conjures up a sense of energy, movement and power, such as "Kei te aukume/Kei te aurona/Kei te aukaha/Te tau a Whiro" [And creates a whirlpool/An ever deepening whirlpool/That gathers strength/And causes Whiro to sing].
- Tapu and rauemi. The waiata includes reference to "E hūhū rā he hiku taniwha pea ngē", a warning to avoid danger (whether that be a heightened state of tapu or exposure to dangerous chemicals) akin to the "tail of the taniwha" and for the marae community to "Kia toka ia nei/Te paepae tapu" [Make strong/ The sacred benches/ Of the speakers of Tāne].
- Noa and wai. The tauparapara includes several phrases about water, such as welcoming people to "ngā waikarekare, pareārohirohi o Te Whanganui a Tara" [the choppy, shimmering waters of Wellington] and to the base of Ahumairangi, the ridge near where the marae is located. Ahumairangi literally means "originating from Rangi", indicating a source of water.
- Take and hauora. The tauparapara includes the lines "He pā kaiao. Ka takina Te Kawa a Māui, te iho o te whakaaro ahumainuku, i Ahumairangi", which describes the "living lab" aspect of the marae complex as having Te Kawa a Māui's leadership at its core, to guide the community in all aspects of its development and operation. It later refers to "Tihei mauri ora!"—the ultimate expression of life and health and the goal of the Living Pā, to connect to the origins of humankind and to the ongoing need for fresh air, and relationships with nature.
- Utu and tōkeke. Both the waiata and the tauparapara call for all members of the marae community to stand up for what they believe in and uphold the principles of the marae ("E tū e hine mā, e tama mā" [Stand up, one and all]).
- Ea and ātaahua. Finally, the waiata describes the marae as "Ko te pātaka kai iringa hoki/O te kupu o te kōrero/A te kāhui kāhika o ngā rā ki tua" [The storehouse from which suspends/The words and history/Of past times]. This echoed in the tauparapara: "Te pātaka kai iringa o te kupu o te kōrero" [The storehouse of words and knowledge]. In other words, Te Herenga Waka is a storehouse of knowledge that can be used to educate students—just as the Living Pā is more than just a building, it is an educator, a model and a guide.

Application of the tikanga framework

To test out the tikanga framework, two case studies were developed to provide examples of how it relates to common activities at the marae. The first case study relates to the pōwhiri process for new university students and the second focuses on kai. Both case studies step through the tikanga concepts in turn and identify relevant considerations and connections to the LBC petals.

Case Study 1: Pōwhiri process for new tauira

At the start of each academic year, Te Herenga Waka Marae hosts a new-student pōwhiri to welcome them all to campus in a distinctly Māori

way. The ritual includes karanga, whaikōrero and waiata and finishes with shared kai. Outside of graduation ceremonies, this is one of the biggest events of the year for the marae, so it is important that the tikanga framework applies and is relevant to this process.

The practice of manaakitanga and the principle of tauranga fundamentally underpin the pōwhiri process. They also explicitly extend to the metaphor in the name of the marae—"herenga waka" means "place where a canoe is moored", suggesting a community that shares the same tūrangawaewae while they are enrolled in the university. It is a completely Māori tauranga—the architecture, carvings, language and formality of moving into the space is physically, socially and spiritually distinct. The site is also located at the headwaters of the Kumutoto Stream, a significant waterway for local mana whenua, Te Āti Awa. It was culverted in 1866 but, through the Living Pā project, the stream's waters have been opened up and made visible, reinforcing the important message of regeneration and sustainability.

As part of the pōwhiri process, the new students are welcomed onto the marae complex, and its mana and the principle of pūngao are both represented through the quality and efficiency of the facilities provided. The Ngā Mokopuna building uses stack ventilation processes, and has a rooftop covered in photovoltaic panels to generate the energy required to meet 105% (including resilience) of the building's needs, which eliminates reliance on grid power.

Both tapu and the principle of rauemi are heightened by the pōwhiri process, with the physical movement through the waharoa to the marae ātea indicating that the marae becomes a sacred place as part of the ritual of encounter. The surrounding buildings are clad with a timber façade and use planter boxes to provide shading where required and help connect the building and occupants to the external environment. Participants enter the domain of Tūmatauenga where debate and emotions are displayed. The safety of the new students, their whānau and the haukāinga is maintained through this tapu state and the safety measures taken on-site; agreements are made to offer and receive manaakitanga, an exchange of energy to bring to life the relationship, and participants are protected and guided throughout the pōwhiri process.

The removal of tapu and return to noa begins towards the end of the ritual with the hongi process. This creates space to form new relationships with people in the present but also connect to tupuna and the obligation to manaaki whenua mana wai. Kai is also used to whakanoa participants in the pōwhiri. Within Ngā Mokopuna, an intricate water system collects water from the roof, uses evapotranspiration from the planters, and a complex tank wastewater treatment plant including a membrane bioreactor system, to produce clean, healthy and sustainably sourced water for occupants of the marae to drink.

The practice of *take* and the principle of hauora are expressed through groups of people coming together in a safe way where a shared set of rules and guidelines are understood and practised by all to ensure everyone is catered for and looked after. The pōwhiri is also a place to raise issues on the marae ātea, to analyse and critique, and to establish expectations of the incoming students' academic journeys.

Utu and the principle of tōkeke are expressed in the pōwhiri process as diverse communities with people with diverse abilities and interests come together. It is the beginning of a reciprocal relationship with students, forming an agreement to support them during their time at Te Herenga Waka and hopefully beyond, forming sustainable relationships. The pōwhiri focuses attention on the need for equitable Māori student outcomes and increasing the number of Māori graduates, but it is also an opportunity to introduce students to the sustainable and climate-mitigation practices of Ngā Mokopuna.

Ultimately, ea and the principle of ātaahua are achieved when the new students are settled into the physical, cultural and sustainable features of the marae. Their experiences of being and learning in the space are enhanced through the whakairo depicting ancestors, and the sharing of knowledge about climate change and sustainability guides both students and staff.

Case study 2: Kai

The second case study focuses on kai, the provision of which is a key component of Māori cultural practice—and, on the global scale, a significant contributor to climate change. By considering the food-related practices of the marae in relation to the tikanga framework, the research team was able to articulate a culture of mindful consumption that helps individuals and the marae community as a whole to decrease our carbon footprint and help mitigate our climate impact.

Providing delicious kai at a marae complex is a fundamental part of manaakitanga and honouring visitors. However, when matched with the principle of tauranga, another layer of expectation is added.

The menus served at Ngā Mokopuna are based on seasonal foods that have been sourced locally and are designed to leave minimal waste, which minimises the extraction of natural resources and contributes to climate change mitigation. Marae community members are learning more about the local environment, partnering with local growers and producers and paying closer attention to how the marae food is grown, presented and valued.

Both mana and the principle of pūngao are connected through kai—the reputation of the marae is dependent on its ability to provide kai for its people and guests, and the building's ability to generate more energy than it needs directly affects that kai production. Members of the marae community are closely monitoring energy consumption and have modified their usage accordingly. They also share their knowledge and skills about sustainable kai and catering processes and thereby engage with the energy of diverse groups of students, staff and members of the community.

In relation to kai, the notion of tapu and the principle of rauemi are connected through a focus on the management of resources, food processing and packaging. Exploration of low-carbon products and appropriate conservation and regeneration of food sources are a priority when planning hosted events and daily functions at the marae complex. Also, close scrutiny of the way foods are prepared off-site and how they are handled on-site, as well as the sustainability of packaging, are key considerations of the procurement process.

The element of noa, aligned with the principle of wai, ensures reflection on how the Ngā Mokopuna collects water, and how it is used by marae community members. Water is necessary to sustain the marae complex over different daily activities and diverse functions. Processes that involve wai are both physical and spiritual, and close monitoring of water use ensures there is sufficient supply for the production and preparation of kai.

If any *take* arise in relation to kai, they are likely to involve hauora. Kai is fundamental for both physical and spiritual wellbeing, and it would not be appropriate for Te Herenga Waka Marae to serve poor-quality, unhealthy or unsustainable kai. This heralds a new era in which traditional and contemporary practices in kai preparation are fused together, and new technologies are experimented with. Wellbeing considerations guide kai choices, and the pricing and serving portion size of kai for students and staff have been carefully set and monitored to be both affordable and sustaining physically.

If issues around food are raised at the marae, the process of utu and the principle of tōkeke apply, and a resolution that balances the community members' needs with the limits of nature will be sought. Job opportunities have been created by the marae, including preparing and serving kai, and the marae community hosts regular engagement events that highlight eating together as a way for people from diverse backgrounds to gather for a common purpose.

Ultimately, ea and the principle of ātaahua are achieved when carefully prepared and beautifully presented kai is served to visitors on attractive, sustainable table settings, furniture and decor. The labour of sourcing and preparing the kai is secondary to the manaaki and aroha shown to manuhiri and others in the creation of a beautiful, communal meal experience.

Conclusion

The He Pā Mataora project began with a simple premise: to learn about living in the Living Pā so that the marae community could adapt and progress to meet the expectations of the LBC. As it turned out, tikanga Māori led us to develop a detailed response to climate change centred on Te Herenga Waka Marae. By blending tikanga concepts with LBC design principles, a tikanga framework has been developed that can be applied to all dimensions of marae operations. It can also be the basis for policy development and processes for working through future climate adaptation and change. The tikanga framework will need more testing to become more embedded in marae and broader university processes, but the two case studies presented here show the potential and agility of the framework.

The research team hopes that these findings will encourage other Māori-led LBC projects or versions of them. There are hundreds of marae across Aotearoa that are facing challenges related to climate change, and the tikanga framework may be useful in decision-making and designing a process to achieve ea. If nothing else, sharing this framework supports Te Herenga Waka Marae's responsibility to achieve the ātaahua design principle around public education, encouraging others to take up the cause of living more sustainably and building "he pā anamata".

Glossary

ako	learning; teaching
anamata	time to come, hereafter, future
Aotearoa	Māori name for New Zealand
aroha	love
ātaahua	beauty
ātea	forecourt
ea	state of harmony
haukāinga	local people of a marae
hauora	health, wellness
hongi	pressing of noses representing the sharing of breath and coming together
hui	meetings
iwi	tribe
kai	food
karanga	calls of welcome
mana	prestige, status, authority, influence, integrity, honour, respect
manaaki	showing of respect
manaakitanga	respect; hospitality, kindness; mutual
manaaki whenua, mana wai	look after the land and waters
mana whenua	tribal authority over the land
manuhiri	guests
Māori	Indigenous peoples of New Zealand
marae	Māori cultural space
mātauranga (Māori)	(Māori) knowledge
mauri	life force; sacred offering
mokopuna	grandchildren
noa	not sacrosanct, having no restrictions/prohibitions; free from tapu
pā	village
Papatūānuku	Earth Mother
pōwhiri	ritual of encounter
pūngao	energy
rauemi	materials
rohe	territory
taiao	environment
take	issue, concern, cause
Tāneatua	small town in the Bay of Plenty region of the North Island
tangihana	funeral, rites for the dead
taniwha	water spirit, monster, dangerous water creature
tapu	sacrosanct, prohibited, protected, restricted
Taranaki	iwi based on the western cape of the North Island
tauparapara	formulaic chant
tauranga	place
te ao Māori	the Māori world
Te Āti Awa	iwi with traditional lands in the Taranaki, Wellington and northern South Island regions
Te Hui Whakapūmau	marae graduation
te reo Māori	the Māori language
te Tiriti o Waitangi	the Treaty of Waitangi, founding document of New Zealand
tikanga (Māori)	(Māori) protocols and practices
tohunga	priest
tōkeke	equity
Tūmatauenga	deity of conflict and resolution
tupuna	ancestors
tūrangawaewae	place to stand
utu	revenge; reciprocity
waharoa	entrance to a pā, gateway, main entrance
wai	water
waiata	song
waiata ōhākī	death-bed song of lament
waka	canoe(s)
wānanga	discussions
whaikōrero	formal speeches
whakairo	carvings
whakamoe	to put to sleep
whakanoa	to remove tapu
whānau	families
wharenui	meeting house
whare whakairo	carved meeting house
whenua	land
Whiro	deity of things associated with evil, darkness and death

References

Ahu, T., Hoare, R., & Stephens, M. (2011). Utu: Finding a balance for the legal Maori dictionary. *Victoria University of Wellington Law Review*, *42*(2), 201–219. https://doi.org/ppq5

Barrowman, R. (1999). *Victoria University of Wellington, 1899–1999: A history*. Victoria University Press.

Benton, R., Frame, A., & Meredith, P. (Eds.). (2013). *Te mātāpunenga: A compendium of references to the concepts and institutions of Māori customary law*. Victoria University Press.

Broughton, R. A. H. R. (1986). *Kāore taku raru*. https://www.victoria.ac.nz/__data/assets/pdf_file/0020/1112456/kaaore-taku-raru-with-translation.pdf

Coates, N., & Irwin-Easthope, H. (2023). *Appendix 2: Kei raro i ngā tarutaru, ko ngā tuhinga o ngā tupuna—Beneath the herbs and plants are the writings of the ancestors. Tikanga as expressed in evidence presented in legal proceedings*. Pūrongo Rangahau | Study Paper 24, Te Aka Matua o te Ture | Law Commission. https://www.lawcom.govt.nz/assets/Publications/StudyPapers/NZLC-SP24-Appendix-2.pdf

Durie, E. (1994). *Custom law*. https://www.wgtn.ac.nz/stout-centre/research-and-publications2/research-units/towru/publications/Custom-Law.pdf

Durie, M. H. (1998). *Te mana, Te kāwanatanga: The politics of self determination*. Oxford University Press.

Gray, N. H., Athy, A. E., & Milfont, T. L. (2022). Climate crisis as a catalyst to advance Indigenous rights. *MAI Journal*, *11*(2), 104–116. https://doi.org/ppq6

Higgins, R., & Hall, M. (Eds.). (2011). *Te whakatuwheratanga o Te Tumu Herenga Waka* (Rev. ed.). Te Kawa a Māui, Victoria University of Wellington.

Hudson, M., Milne, M., Reynolds, P., Russell, K., & Smith, B. (2010). *Te Ara Tika: Guidelines for Māori research ethics: A framework for researchers and ethics committee members*. Health Research Council of New Zealand.

International Living Futures Institute. (n.d.). *About the Red List*. https://living-future.org/red-list/

Joseph, R., Rakena, M., Jones, M. T. K., Sterling, R., & Rakena, C. (2019). *The Treaty, tikanga Māori, ecosystem-based management, mainstream law and power sharing for environmental integrity in Aotearoa New Zealand–possible ways forward*. Sustainable Seas National Science Challenge.

Kheirandish, S., Funk, M., Wensveen, S., Verkerk, M., & Rauterberg, M. (2020). A comprehensive value framework for design. *Technology in Society*, *62*, Article 101302. https://doi.org/ppq8

Marsden, M. (2003). *The woven universe: Selected writings of Rev. Māori Marsden* (T. C. Royal, Ed.). Estate of Rev Māori Marsden.

Mead, H. M. (2003). *Tikanga Maori: Living by Maori values*. Huia.

Mead, S.M. (1983). Te toi mātauranga Māori mo ngā rā kei mua: Māori Studies Tomorrow. *The Journal of the Polynesian Society, 92(3), 333-351.*

Moorefield, J. C. (n.d.). Tikanga. In *Te aka Māori dictionary*. https://maoridictionary.co.nz/search?idiom=&phrase=&proverb=&loan=&histLoanWords=&keywords=tikanga

Neumann Monson Architects. (2024, August 14). *7 petals of the Living Building Challenge*. https://neumannmonson.com/blog/7-petals-living-building-challenge

Ngāi Tūhoe. (n.d.). *Te Kura Whare*. https://www.ngaituhoe.iwi.nz/te-kura-whare

Red Stag Timber Lab. (n.d.). *Living Pā case study*. https://redstagtimberlab.co.nz/living-pa-case-study/

Solomon, M. (n.d.). *Tikanga Māori framework*. https://wai262.weebly.com/tikanga-maori-framework.html

Sorrenson, K. (Ed.). (1986). *Na to hoa aroha, from your dear friend: The correspondence of Sir Apirana Ngata and Sir Peter Buck, 1925–50*, Vol. 1, *1925–29*. Auckland University Press.

Stats NZ. (2020). *Ngā tikanga paihere: A framework guiding ethical and culturally appropriate data use*. https://data.govt.nz/toolkit/data-ethics/nga-tikanga-paihere/

Victoria University of Wellington. (n.d.). *Ngā Mokopuna/The Living Building*. https://www.wgtn.ac.nz/living-pa

Victoria University of Wellington. (2022, July 25). *General misconduct procedure*. https://www.wgtn.ac.nz/documents/policy/student-policy/general-misconduct-procedure.pdf

Victoria University of Wellington. (2024). *Mahere rautaki/Strategic plan*. https://www.wgtn.ac.nz/about/governance/strategic-plan