

3 Engagement, collaboration and partnership



The role of coastal marae in natural hazard response and climate change adaptation

By Akuhata Bailey-Winiata, Shari Gallop, Daniel Hikuroa and Iain White

Significance of marae

Marae are the ancestral meeting grounds of Māori, the Indigenous peoples of Aotearoa New Zealand. Marae today generally consist of an ātea (courtyard) and a complex of buildings, including the whareniui (meeting house), wharekai (kitchen/dining quarters), wharepaku (bathrooms), and often also kōhanga reo (Māori pre-school), wharekarakia (place of prayer), and other facilities such as housing for kaumātua (elders) (see Figure 1).

But marae are much more than infrastructure, they are at the centre of Māori culture, identity, and spirituality (Tapsell, 2002). Marae connect Māori to our tipuna (ancestors), and to future generations. Marae are spiritual buildings and places, symbolising the connection between the primordial parents Papatūānuku (Earth Mother) and Ranginui (Sky Father). The foundations of whareniui are secured in Papatūānuku, and the roof ascends to Ranginui, providing a space in between where Māori can connect to our primordial parents and ancestors who now reside with the atua (see Figure 2) (Kawharu, 2010).

Marae have whakapapa (genealogy) to the environment, which includes tangata whenua (people of the land). Marae are tūrangawaewae (a place to stand), providing a sense of belonging through whakapapa, which is an integral concept to Māori identity. Marae are often adorned with carvings and other depictions or representations of significant ancestors to the associated hapū (sub-tribe) or iwi (tribe).

These artworks often illustrate pūrakau (ancestral stories) that encode the history and philosophy of the people in traditional narratives (Hikuroa et al., 2018).

Marae are also community hubs, including as a place for celebrations such as birthdays and weddings, as well as mourning life during tangi (funeral), through to hui (meetings) and wānanga (places of learning). Marae provide shelter, food, and recently hosted highly effective COVID-19 community vaccination initiatives (for example, Penetito et al., 2021; Hossein et al., 2022). Beyond COVID-19, marae are a critical emergency response infrastructure for natural hazard responses, for example as Civil Defence sites for people to evacuate to during natural disasters (Hudson and Hughes, 2007). Central to this, is that many marae have the capability to accommodate large numbers of people with facilities such as large-scale kitchens, dining rooms and sleeping areas. At marae manaakitanga (generosity/kindness) is shown to all guests, which is common, such as during hui, wānanga, tangi and celebrations. The hau kāinga (home people) rally together to support the kaupapa (agenda) to manaaki (support) people seeking refuge, providing accommodation, food, medical support, and post-disaster support such as counselling (Kenney and Phibbs, 2015).

Marae at the water's edge

Marae are often located near waterbodies including rivers/streams, estuaries, and the ocean. In Te Ao Māori (Māori world), water has mauri (life force) and is the

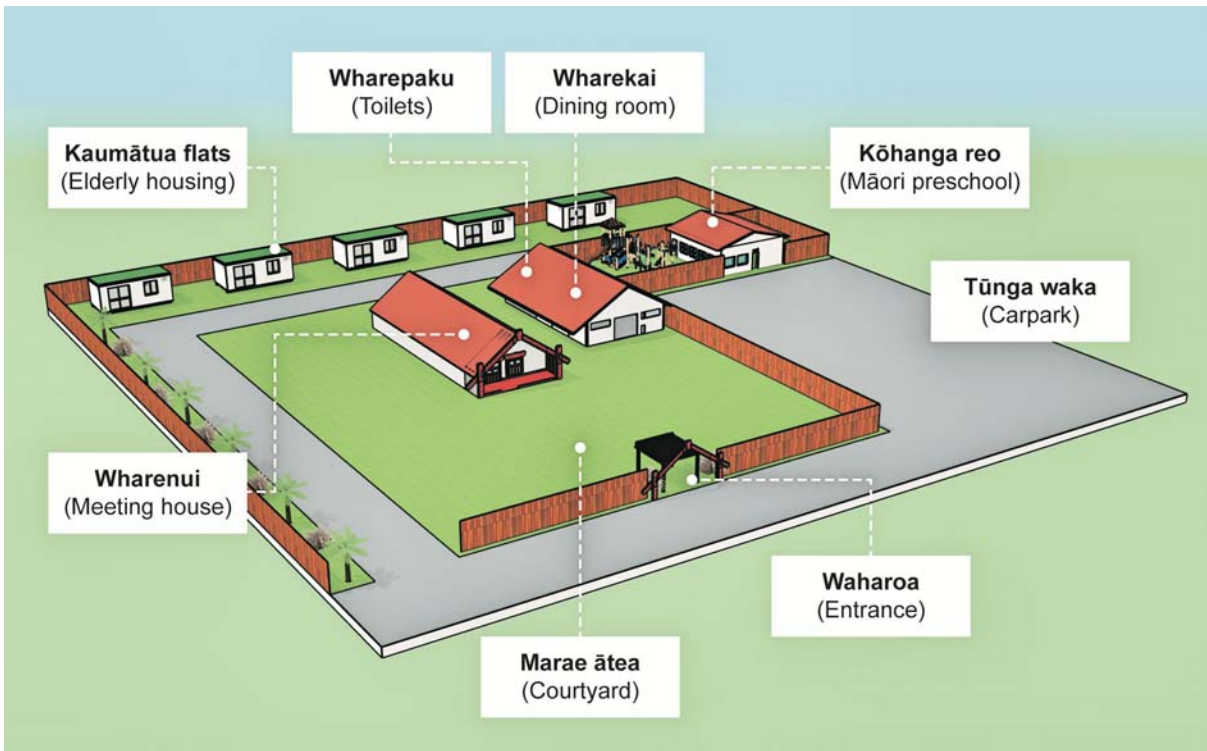


Figure 1: Generalised marae complex (graphic compiled by Gemma Conn, sourced from Bailey-Winiata, et al., in review).

originator of all things, and that it is akin to humans, giving rise to a well-known whakatauki, ‘Ko wai ko au, ko au ko wai’ – ‘I am the water, and the water is me’ (Stewart Harawira, 2020). As a resource, water sustains the most basic of human needs, and is used by Māori to irrigate māra (gardens), a source of kai awa (freshwater food) and kai moana (seafood). Water is also highly spiritual for Māori and is used in rituals and purification processes. Waterbodies, were also a dominant transport route of Māori, connecting whānau, hapū and iwi for trade and resolution of conflicts.

Marae are often positioned in places that are known to be safe based on mātauranga a whānau/hapū/iwi (often more generally referred to as mātauranga Māori – Māori knowledge). Marae were often positioned in locations that

were safe from attack, such as on headlands, or close to resources, such as within estuaries. Positioning of some marae is reflected in pūrākau, which speak of caution. For example, in Matatā there is a taniwha in the form of a lizard where the flicking tail reflects the changing course of Waitepuru stream. The four marae are positioned well clear of the flicking tail and avoided the devastating debris flows of 2005 (Hikuroa, 2017).

Although there are many advantages to living near to waterbodies, such features are prone to natural hazards such as flooding and erosion, meaning hapū/iwi have had to be adaptable and resilient in response to natural hazards (King et al., 2007). Hapū and iwi have in the past adapted to the impact of natural hazards, and continue to do so, and are now adapting to climate change through a carefully considered process informed by mātauranga Māori developed through generations of observations.

The impact of many natural hazards is being exacerbated by climate change, particularly at our coasts, including via coastal flooding and erosion due to increased storm frequency and magnitude in some places, intensified by sea-level rise (SLR). Focusing on coastal marae and climate change, King et al. (2012, 2013) found that the coastal Māori communities of Manaia, Waikato-Hauraki and Mitimiti (Hokianga, Northland) were particularly at risk to the impacts of climate change, ranging from Māori business and health to the physical impacts of damage to infrastructure and accessibility. Bailey-Winiata (2021) undertook a broad-scale national approach to understand marae exposure to SLR and found that 191 marae are within 1 km of the coastline (see Figure 3a), proximally adjacent to highly diverse coastal geomorphologies ranging from estuaries to open coast beaches. They also found that six marae are exposed to a 100-year extreme sea level event at current mean sea level, and 41 coastal marae are exposed to a 100-year extreme sea level event with 3 m SLR (see Figure 3b). These investigations highlight the extent to which coastal marae,

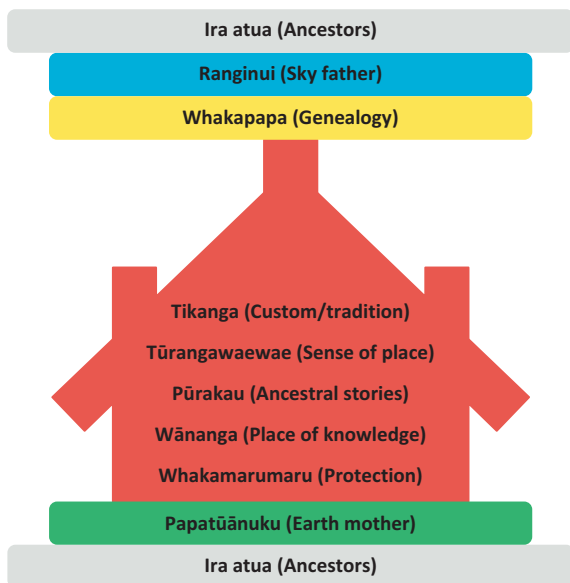


Figure 2: Schematic of marae showcasing key values contributing to their significance (adapted from Kawharu, 2000).

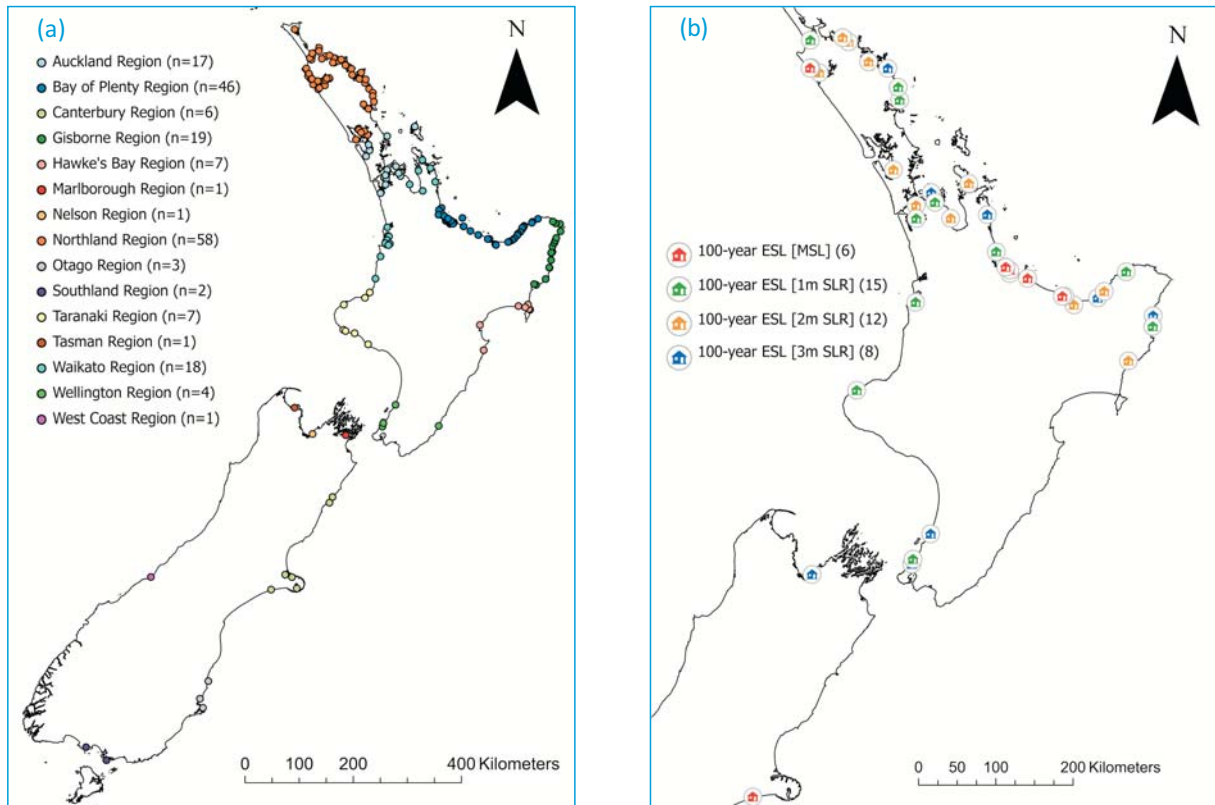


Figure 3: (a) National coastal marae categorised into Regional Government Boundaries; and (b) National coastal marae exposure to a 100-year extreme sea level event with +1 m increment of SLR (Source: Te Pōtiki National Trust, 2011 (maps) and Paulik et al., 2020 (dataset)).

and their associated wāhi tapu (sacred sites of significance, such as urupā – burial grounds, and mahinga kai – traditional food gathering sites) are at risk of coastal flooding due to SLR.

When establishing ancestral marae, careful consideration was given to the risks associated with natural hazards, based on careful and detailed observations through time. However, climate change has intensified environmental hazards and impacts, and hence many marae are now at risk. Coastal adaptation is topical around the world as coastal communities are having to adapt to the impact of sea-level rise.

To manage the risk as we head into the future with our changing climate, hapū and iwi can and are drawing on their mātauranga a hapū/iwi and are developing innovative solutions to adapt and mitigate the risk. Coastal adaptation is generally categorised into three broad types: (1) Protect, (2) Accommodate and (3) Retreat, with many coastal marae already adapting across all these responses. For example, Maketū marae in Kawhia has experienced erosion since the 1940s until the 1970s and in response the hapū, Ngāti Mahuta, constructed a seawall in 1971 and it was reinforced in 2004 (Tonkin+Taylor, 2007).

Accommodation options for sea-level rise and flooding are being considered by some marae, such as at Mirumiru marae, in the Waikato region. This marae is only accessible by boat and is situated on the Marokopa River. The hapū of Mirumiru marae, Ngāti Peehi, Te Kanawa and Kinohaku and the National Institute of Water and Atmospheric Research (NIWA) discussed potential options for adaptation in response to coastal flooding and erosion with SLR in Te Ao Maori News (Day, 2018).

Retreat is often the most controversial adaptation solution and aims to reduce risk by relocating and/or abandoning infrastructure, buildings and communities away from at risk areas (Hino et al., 2017). In the past, many marae have retreated or relocated in response to natural hazards. For instance, a landslide flowing down the Waimatai stream devastated inland Waihi village near Lake Taupō in 1846. This event killed 64 people, and another in 1910 led to one fatality (Taig et al., 2012). These events led to the relocation to its current position to the east of Waihi Bay, Lake Taupō.

At the coast, Waikari Marae in Tauranga Moana was relocated to higher ground by the hapū, Ngāti Tapu, in response to coastal flooding and erosion in the late 19th century (Tauranga Moana District Maori Council, 1989). In addition, Waipapa marae in Taranaki was relocated to higher ground in 1940 in response to river flooding, and again in 2009 (Waipapa Marae Trust, 2022). More recently, many other marae have begun the conversation of potentially relocating their marae. However, this is not always deemed a suitable option such as for Tangoio Marae on the East Coast of the North Island, which focused their attention on protection measures and sound evacuation procedures (Colliar and Blackett, 2018).

Heading into the future with climate change, marae are likely to play an increasingly important role for communities of Aotearoa New Zealand. They will continue to protect and shelter people from hazards and following disasters, and sites of community engagement about risk. Marae are also examples of mātauranga in action, such as where and how to position communities, infrastructure, and other marae to avoid hazards, if retreat is determined to be the right course of action.

Self-determination and coastal adaptation

In terms of Indigenous communities, retreat or relocation in many places around the world must be conducted carefully given the potential to perpetuate historic injustices that occurred through the process of colonisation – for example, confiscation of Indigenous land, forced removal of Indigenous peoples from traditional land, and forced assimilation into western society (Whyte, 2017). This disconnection from ancestral lands means that Indigenous peoples have sometimes been unable to fully adapt to the natural rhythms of the environment. Current issues surrounding land ownership and availability of land to relocate to, makes adaptation more difficult compared to adaptation pre-colonisation, and if relocation is deemed appropriate, for some, lack of land precludes this option entirely.

This argument emphasises that adaptation for marae needs to be cognisant of this history and ensure Māori self-determination, as outlined in both Te Tiriti o Waitangi and the United Nations Declaration on the Rights of Indigenous Peoples. Furthermore, in the context of Aotearoa New Zealand, any adaptation must uphold the principles of active protection, partnership, and participation of Māori consistent with the intent of Te Tiriti o Waitangi. This should involve Māori at every stage of the process, from knowledge collation and generation through to the selection of adaptation options. The latest Intergovernmental Panel on Climate Change Sixth Assessment report highlighted the need for Indigenous engagement and collaboration with Indigenous knowledge to the betterment of all peoples heading in to a climate changed future (IPCC, 2022). The challenge now is how to put those words into practice.

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