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TOI TU TE WHENUA, TOI TU TE TANGATA
A holistic Māori approach to flood management in
Pawarenga

A thesis
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By

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Abstract

This thesis is a study of how tikanga Māori principles could be used in practice in the management of natural hazards and in particular flooding in a rural area, Pawarenga. The aim was to investigate and document Te Uri O Tai Hapū preferred strategies for reducing flood risk in Pawarenga and to consider opportunities to use tikanga Māori principles and values in emergency response. The identification of key concepts and principles of tikanga Māori customs and their connections to whānau and hapū of Te Uri O Tai is key to this study.

I used kaupapa Māori research methodologies as a guiding framework since researching in my own community required me to manage accountability both to its members and to the university. In particular it was important to obtain permission from the community before beginning, to ensure my research processes were acceptable, and to return my findings to the community. Qualitative data was gathered from a series of hui and interviews with local community members. Data was analysed inductively and organised into thematic networks.

Two major organising themes were identified: resilience and vulnerability. Participants described a broad range of strengths inherent in the community that enabled them to respond to crises such as flood events. A number of cultural, social, physical, economic and political vulnerabilities were also identified; most of these were fundamental aspects of people's daily lives and did not prevent them from responding positively when floods occurred, but may have limited the scope of their responses. Tikanga was not a subject that participants felt comfortable talking about, but from the descriptions of how people actually responded during floods I was able to see examples of how tikanga was used.

The resilience of the Pawarenga community is taken for granted by residents. When disasters such as floods occur, their resiliencies and strengths are brought into play to ensure the safety of all in the community. Tikanga Māori is an inherent part of this resiliency, and marae structures and protocols already in place provide a vital framework for flood response. I conclude that tikanga already has enormous value in flood response, and for Māori communities is an obvious choice as a foundation for a flood emergency management strategy. Furthermore,

the value of tikanga as a flood emergency management strategy should be more explicitly recognised and supported by all authorities involved in disaster response and management.

It was also clear that multiple dimensions of vulnerability (physical, cultural, social, economic and political) affect the Pawarenga community, and to some extent limit their capacity to respond. In particular political processes that exclude them from participating in decision-making and planning around environmental management generally have left people feeling marginalised, since they are unable to fulfil their kaitiaki role. With civil defence emergency management policies explicitly focused around resilience, participation of Te Uri O Tai Hapū in planning for emergency management should allow for their existing resilience, which stems from the upholding of tikanga, to be recognised and strengthened. However, this will only happen if relationships with the various authorities involved in emergency and natural hazard response are fostered, full participation in decision-making and in responding to natural hazard events is facilitated, and resources are available to support the community with their endeavours.

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Me mihi kai tika kia koutou kua awhina ki a mai i ahau. E kore a mihi kia koutou e mutu.

I dedicate this thesis to my grandparents and parents, mother Nellie Proctor
(Lunjevich) and father Leckie Proctor.

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Mihi

*Te mihi tuatahi ki te atua timatatanga me te whakaotinga o ngā mea katoa
Ka mihi hoki ki ngā mātua tūpuna e noho mai ra i tua o te arai
e tono aroha ana ki a ratou ki a whakawātea mai he huarahi a marama mo ngā
reanga mokopuna hoki
Tihewa Mauriora*

*Ko Taiao Makora te maunga
Ko Awaroa ko Rotokakahi ngā awa
Ko Ngātoki-mata-whaorua te waka
Ko Kahi ko Mataatua ngā whare tupuna
Ko Taiao, Ohaki, Morehu ngā marae
Ko Te Uri-o-Tai te hapū
Ko Te Rarawa, ko Te Aupouri ngā iwi*

Chapter One: Introduction

A culture that sets aside its pool of tikanga is depriving itself of a valuable segment of knowledge and is limiting its cultural options

(Mead, 2003, p13)

This thesis is an attempt to develop a Māori framework to deal with the challenges of flooding. The aim of this study was to investigate and document Te Uri O Tai Hapū preferred strategies for reducing flood risk in the small Māori community of Pawarenga and to consider opportunities for using tikanga Māori values and principles pertaining to my own whānau hapū/ iwi as described by them.

I grew up in the remote rural Māori community of Pawarenga located in a narrow river valley around the Whangape harbour in the North Hokianga. Over my lifetime, this community has experienced frequent flooding that has affected both the environment and the people. Two of the marae and many of the houses are positioned on low-lying ground at the harbour edge and are thus exposed to floods.

In this chapter I will begin by providing a brief history of Te Uri O Tai and the community of Pawarenga and explaining my own connections to Pawarenga through whakapapa. I include both social history and an account of land-use practices during the second half of the twentieth century, including history of the most recent flood events. I will also describe the current situation in Pawarenga and the recent development of environmental management plans and a flood management strategy.

Te Uri O Tai Hapū in Pawarenga

Te Uri O Tai Hapū derives its name from the founding ancestor Ngataiawa (Te Uri O Tai, 2008). In early times, Ngati Ruanui had a fortified pa at Makora, on the south side of the Whangape Harbour (Cloher, 2002). One of the stories claimed by other writers describes that after a fierce battle Ngati Ruanui were forced to leave their pa. First they buried their taonga, gathered brushwood and lit a fire that destroyed their village and burned with a thick black smoke (Cloher, 2002; Keene, 1986). While the fires burned, the tribe left the harbour in their canoes, hidden by smoke. It was through this event they renamed themselves Te

Aupouri. This story can be found in several books (e.g. Cloher, 2002; Keene, 1986), but is only one of a number of stories told about Pawarenga.

A memorial stone to Te Aupouri stands on the site of Makora Pa above the Whangape Harbour. This memorial refers to the relationship between the people living in the Far North and those living at Whangape, acknowledging that even though they are separated by distance, they are no further apart than the teeth of the kekeno (sea lion) which can only separate so far (Hoeft, 1968). I remember the occasion when this monument was unveiled, and was ten years old at the time.

Descendants of Ngataiawa resettled the Whangape area following his death and set up three papakainga in Pawarenga, each with its own marae. Each papakainga was established under the mana of a tupuna of Ngataiawa (Te Uri O Tai, 2008). Land titles were later formally created through the Native Land Court. “Each marae symbolises the collective ‘mana’ of kaitiaki whānau descending from tupuna within the respective papakainga” (Te Uri O Tai, 2008, p6). Today, these three marae remain, and most people in Pawarenga have whakapapa links to all three marae.

The names of the three marae in Pawarenga are Morehu, Ohaki and Taiao. I am linked through my paternal grandmother to Taiao Marae which is located at Taiao Makora, situated within the Pakinga papakainga. The location of the three marae can be seen on the map of Pawarenga on page 7 below (Figure 2).

Te Uri O Tai Hapū is associated with Te Runanga O Te Rarawa, the iwi body that represents 23 marae on the West Coast of Te Tai Tokerau. The Runanga was set up as a charitable trust in the 1980s, and since then has developed a broad range of services such as funded health contracts, social services, housing and iwi development (Te Rarawa Iwi Research & Development Group, 2010). At a political level it is involved in resolution of Treaty of Waitangi claims and resource management.

The primary goals of Te Runanga O Te Rarawa are sustaining Te Rarawa identity, hapū development, growing a sustainable economic base, kaitiakitanga, mātauranga (education and training), oranga (health and social wellbeing) and to ensure that the iwi voice is heard in the political sphere regarding relevant issues

(<http://terarawa.co.nz/organization.html>, retrieved 19th August, 2010). Below is a map showing Te Rarawa tribal boundaries (Figure 1).

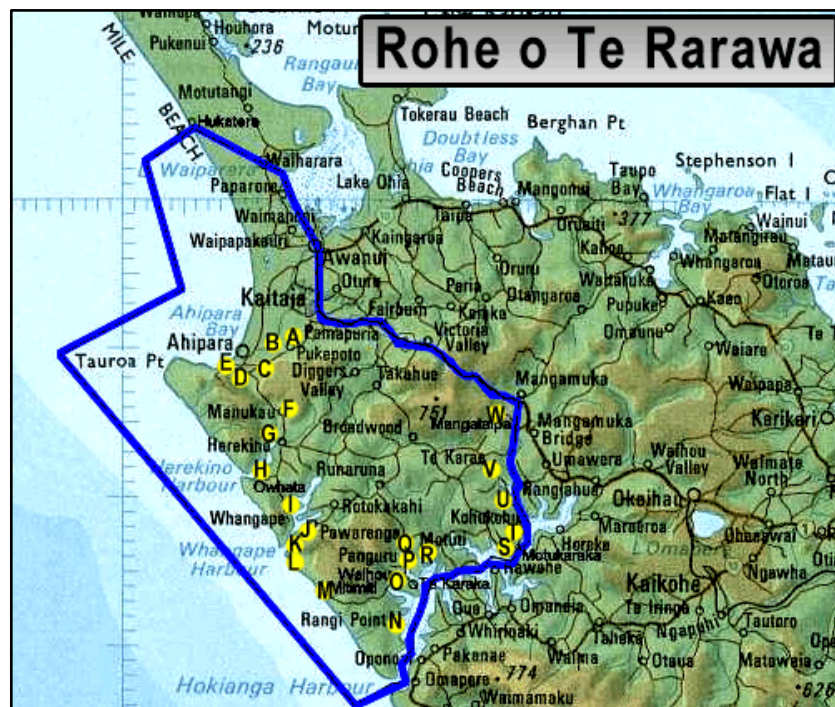


Figure 1: Map of Te Rohe O Te Rarawa.

Pawarenga

Pawarenga is located on the west coast north of Hokianga on the shores of the tidal Whangape Harbour. It is characterised by two rivers which flow into the Whangape Harbour. The Awaroa River flows into the northern arm of the harbour and the Rotokakahi River winds down the valley from high in the surrounding hills into the southern arm of the harbour. It is the Rotokakahi River and a number of other streams flowing from the steep hills to the south and east of the harbour that flow through the settlement of Pawarenga itself. The places referred to and the geography of Whangape Harbour and the two rivers are shown below in Figure 2.



Figure 2: Whangape Harbour showing Awaroa and Rotokakahi Rivers

Old stories of Pawarenga record the importance of the Rotokakahi River and its contributing streams. Matire Kereama (Hoeft) described the return of Te Aupouri descendants to the Pawarenga area after they had been working the gumfields further north (Hoeft, 1968). She noted that at that time, the streams were “teeming with eels”, with karaka trees growing beside them; she also reported that children were bathed in the stream before sleeping (Hoeft, 1968, p45).

The men who returned from the gumfields in the early 1900s divided up the large block of flat land known as the Rotokakahi block using the river as a natural boundary and staked their claims to portions of this land by cutting boundary lines together. At night, the young men walked up the stream with flaming torches to spear flounder which were also plentiful in the tidal reaches of the river (Hoeft, 1968).

From Matire’s account, it would seem that the streams and rivers provided an abundance of fish, as can be seen from the following passage:

...They would watch the ebb and flow of the water in the small rivers and creeks and study the habits of the fish swimming up and down them. To catch the fish, they made flax nets which they stretched across creek and river bed... When the tide was nearly in they would raise the net on one edge, leaving the other pegged to the bottom to make a dam in which the fish were stranded as the tide went out. The fun we had picking up the stranded fish... (Hoeft, 1968, p52).

She describes in some detail methods used for catching eels and smaller fish in baskets (hinaki), or by hand. The streams were also used for washing clothes, particularly during times when the rainwater tanks were running low. On occasion, young babies were ceremonially bathed in the waters of the rivers, and they were also used for baptism.

Accounts such as this attest to the importance of the Rotokakahi and its contributing streams to the people of Pawarenga. The rivers and streams were a source of both water and food, and also of spiritual significance to those living close by.

My connection to Pawarenga

I am the middle child in a large family of 17. I have ten sisters and six brothers. My mother was of Yugoslav and Māori descent and my father was English/Scottish and Māori. My mother and father both worked very hard to ensure we

were brought up the “right” way, to respect our elders and to always help others. They instilled in us the values of humility, respect, forgiveness, honesty, generosity and discipline. Some were religious ethics and values from our Catholic upbringing alongside our own tikanga Māori values. My father was a farmer and my mother took good care of us and provided everything possible we needed in the home. We were brought up on a large farm on the edge of the Rotokakahi River. It was a great life being brought up on the farm even though we did not think so at the time. Our routine was to wake up at five in the morning, jump on the back of our Massey Ferguson tractor, and ride four kilometres down the road, bring in and milk 80 cows, and then jump on our horses, double-up sometimes, and ride back to the house. There we would quickly get dressed for school and then ride another four kilometres to our primary school at Hata Maria where we were taught by the Sisters of Mercy.

Every Saturday our chores were divided up into house cleaning like scrubbing the verandah and concrete, polishing the lounge floor and bedrooms and washing and hanging out clothes which we washed in a copper heated by firewood from ti-tree or puriri stumps. My job was to help my mother make eight loaves of bread in a coal range oven.

Māoritanga played an important part in the lives of our people in the Pawarenga community. We grew up around our elders who often spoke Māori in such a beautiful melodic way followed by lots of laughing (katakata). They had a great sense of humour. Unfortunately I rarely understood them. We were often told we needed to have a Pākehā education. I found out recently my father was a scholar at St Peters Māori Boys College in Auckland. I attended St Dominic’s College in Auckland and learned French. My older brother went to St Pauls, and my older sister attended St Mary’s college also in Auckland.

Our elders were humble, caring and knowledgeable. Whānau and manaaki were two fundamental values I observed. This was demonstrated through communal gardens, where I was taught a lot about the tikanga. I watched and learned the value of sharing (manaaki). For example, I was to give the first bags of produce to the old people or people who were sick. I remember I saw the opportunity to earn some wages for my hard work and told one of the kuia that her sack of kumaras

was now eight shillings. When my father found out what I had done, I was corrected and had to return the money. It was at that moment I got to understand the importance of manaaki. I vowed I would never do that again. I grew up with many such examples of tikanga in action.

Other examples were looking after the whenua and kaimoana that enabled us to care for manuhiri through the action of sharing of food. It was a happy community looking back: riding horses, fishing, gathering seafood like mussels, pipi, and oysters, and netting on the beach. The mass was always in Māori and the hymns were also in the reo. Our kaumātua and kuia were always to be respected. Often after mass there would be hui about important issues that may be on the table. Finally, rituals of baptism, confirmation, birthdays, weddings, school functions, family reunions and tangihanga provided opportunities where tikanga principles and values of hapū and iwi were expressed.

Land use since European settlement

In the second half of the nineteenth century, kauri trees were milled from the surrounding forests and the rivers used to transport logs to the mill situated on the northern side of the Whangape Harbour. From there, kauri spars were exported to Australia and elsewhere. In the 1870s when Crown agents were travelling throughout the north and buying up large tracts of forests, the Crown purchased what is now Warawara State Forest and the Rotokakahi lands, which stretched right out to Paponga, Manganuiowae (Broadwood) and back to Awaroa. Pawarenga valley and the hillside lands that bordered Warawara State Forest remained in Māori ownership (Te Uri o Tai, 2008).

In those earlier days, the timber mill provided employment to the community and schools were opened to cater for the education of families employed there. However this mill closed down in the 1920s. In the 1930s, the Ngata Land Development Schemes led to the development of many small dairy units and pastoral farming became the major land use in Pawarenga. Of approximately fifty families living there in the sixties and seventies, 20 per cent were milking cows. The farms were not big by today's standards, 70-90 stock, and most families also grew crops, fruit and vegetables. The sea was also a rich source of food. Other

income was available through farming tasks such as clearing scrubland, haymaking, and fencing.

In the fifties and sixties farming was operated and managed by the dairy companies which provided farmers with loans to develop their farms. Before that time, farm management was provided by Māori Affairs who also gave educational and financial assistance to farmers to develop their farms to increase output.

Restructuring in the nineteen-eighties sent the farming industry on a downward spiral. Farmers in Pawarenga could only continue to farm under certain conditions and most could not afford the upgrades needed. Therefore by the nineteen-eighties there was a drastic downturn in farming in the valley (Te Waka Pupuri Putea Ltd, 2009). People were financially unable to continue to farm or maintain their land. The decline in the farming industry reduced the availability of other farm employment. This downturn affected the economic base of the local people in Pawarenga.

Another spin-off was the closing down of local services. People were forced to travel to Kaitaia, 60 kilometres away, to draw money from their banks, and to put petrol in their cars. Doctors visited Pawarenga only once a month.

In the 1920s Whina Cooper was known as the most forceful Māori leader in the Hokianga. She followed behind the new settler farmers filling in drains as they were being opened up for drainage to create more farmland during the so-called drainage schemes that converted Māori land to farmland. In 1975 she was well known for having led the Māori land march “... not one more acre!” from Te Hapua to Wellington with the Mana Motuhake group. Changing urban leadership styles in the 1970s -1980’s started with the Tu Tangata programme where additional funding was made available for promotion of Māori culture.

It was at this time that the Pawarenga Community Trust was set up to provide training for people returning home from the cities. The intention was to increase educational incentives for Pawarenga whānau that would assist them back into employment. One of the community leaders of that time reported “The migration from Pawarenga was large and not only sons left the district, but fathers as well were leaving their wives and younger children in the valley to cope on their own”

(Herbert, cited in Hawkins, 1988, p16). A furniture factory building tables was highly successful until the funding was cut back. This developed into a sole business operation producing furniture on a large scale. The Pawarenga Trust also ran a screen printing course, and then progressed to building waka ama canoes and paddles for the 1990 world canoe racing competitions. This led to paddling in the Whangape Harbour which then prepared the local youth and parents to compete internationally, where many are participating successfully today.

Demographic Information

In this section I provide brief demographic information about Northland generally, and about Hokianga North meshblock, including information about income levels and employment rates. I also provide information about access to telecommunications, since this access is vital in emergency situations.

The Far North District has a total population of almost 56,000 people, 43 per cent of whom identify as Māori (Far North District Council, 2006). The Deprivation Index is 10 meaning that Northland is one of the most economically deprived areas in New Zealand. Census information from the 2006 Census reported that the Hokianga North Meshblock (which includes Pawarenga) had a total population of 1962 people. The data for this area indicates that its socio-economic status is significantly lower than the average for the District as a whole. The unemployment rate in Hokianga North was 10.8 percent for people aged 15 years and over, compared with 6.5 percent for all of Northland Region (<http://www.stats.govt.nz/Census/2006CensusHomePage/QuickStats/AboutAPlace/SnapShot.aspx?type=au&ParentID=1000001&ss=y&tab=Phones,netfax&id=3500801>, retrieved 21st July, 2010).

In the 2006 Census, the median income for people aged 15 years and over in Hokianga North was \$14,200, compared with a median of \$20,900 for all of Northland region. Sixty-eight percent of people aged 15 years and over have an annual income of \$20,000 or less, compared with 48.4 percent of people for Northland region as a whole. Only five percent of people in Hokianga North have an income of \$50,000 or more.

The table below shows access to telecommunication in Hokianga North. Compared with other parts of Northland, Hokianga North has relatively low access. In Pawarenga there is no cell phone coverage and no access to high speed broadband.

Table 1: Household access to phones, internet and fax machines in Hokianga North and Northland Region, 2006 Census.

	Hokianga North (%)	Northland Region (%)
No access	11.5	3.5
Cellphone	42.5	70.8
Telephone	77.0	87.1
Fax machine	21.0	27.6
Internet	32.0	51.8

The above statistics demonstrate that Pawarenga is a poor community in economic terms, with low income levels compared to Northland generally, and high unemployment rates. Many residents own land, but these days much of the land is not in production (Te Waka Pupuri Putea Ltd., 2009).

In a case study analysing land in Pawarenga, Te Waka Pupuri Putea Ltd (2009) reported that 75 of 113 blocks of Māori land were between four and 210 hectares, and in total comprised about 2330 hectares. Only a small number of these blocks were owned by single families, the average number of owners of each block was nearly 50. The average block size was around 32 hectares. Very few people were making a living off their land and there were few formal management structures in place. Residents reported that since the downturn in farming during the nineteen-eighties, not much had changed.

Much of the land in Pawarenga is good quality land that has previously been used for farming or cultivation, but absentee ownership coupled with issues of managing land in multiple ownership are obstacles to development. Te Waka Pupuri Putea Ltd. (an asset company of Te Runanga O Te Rarawa) has formulated an iwi farming strategy with the goal of assisting communities to establish a better rural economic base through farming their land. Such a strategy would help overcome barriers of lack of capital and could help to turn around some of the negative employment and income statistics in future. An investigation is currently taking place to review Te Ture Whenua Māori Act (1993) and the Northern

Regional Council plans and processes that restrict development on Maori land blocks so provision can be made for future development.

History of flooding in Pawarenga

The lower reaches of the Rotokakahi River and other streams on the south side of the Whangape Harbour are prone to flooding. An investigation of the river fans following one flood event showed that many layers of silt, logs and debris had been washed down over successive floods, significantly raising river and stream bed levels (Northland Regional Council, 2006). Over the years, homes and marae have been badly affected by the floods; residents have needed compensation and assistance with housing and replacement of certain buildings.

Major floods took place on January 4th and 5th, 1986 in Whangape and Pawarenga (Cathcart, 2003) and more recently in Pawarenga on January 20th 1999, with several streams that flow down from the steep hills on the south side dumping tonnes of logs and debris onto the fans of the lower reaches of the Rotokakahi River.

During this latter event, the heaviest rain fell along a five kilometre wide band moving south from Pawarenga to Whirinaki (Cathcart, 1999b). Residents of Pawarenga reported that most of the rain fell at a high altitude in the Warawara and Panguru ranges where the hills rise steeply from sea level to over 400 metres, with peaks rising to over 700 metres (Cathcart, 1999b). Estimates based on rainfall readings in the area at the time suggest that more than 400mm of rain fell in a two hour period (Cathcart, 1999b).

As a result of this rain, extensive slipping occurred in the steep bush-clad catchments of the Ngaue, Waitemaire and Wharerimu Streams, all tributaries of the Rotokakahi River. Floodwaters two metres or more deep brought down debris, logs and boulders that were deposited on the alluvial fans and along stream banks. Fine silt was deposited to a depth of 0.5 metres on the river flats. Six houses in Pawarenga were inundated with silt and water; two of these houses were completely destroyed by logs and boulders. Bob Cathcart, Land Operations Manager for the Northland Regional Council, inspected the Pawarenga area by helicopter after this flood, and noted that although the damage was serious, it was not exceptional and that because of the local topography which meant the area

was susceptible to high intensity rainstorms, further similar storms were to be expected in the future (Cathcart, 1999b).

The inspection team ascertained which areas continued to be unstable, and assessed the risk to houses in both Pawarenga and Panguru (Cathcart, 1999a). Their report identified several matters needing attention, recommending that logs on the banks of the river be pushed above flood level and salvaged as much as possible for timber. They noted that contractors had subsequently cleared some of the blocked river channels, but that these channels needed to be maintained regularly. They recommended that no more houses be built on the river fans in areas most prone to further flooding (Cathcart, 1999a). Several existing houses deemed most at risk subsequently had their floor levels raised (Bob Cathcart, 19th July, 2006, personal communication).

The photo below (Figure 3) was taken shortly after the 1999 flood and shows how heavy rain had caused bush-clad slopes to slip away in some steep areas, leaving the bare rock exposed. Many of these scars can still be seen in Pawarenga today.



**Figure 3: Pawarenga hillside after heavy rainfall, January 1999
(Photo supplied by Bob Cathcart, Northland Regional Council)**

What's happening now

Flooding has changed the shape of Pawarenga rivers. They have become wider and silt has washed down from the hills to the extent that many locals talk about the high levels of siltation that discolour the river regularly. They also claim the Rotokakahi River is so shallow that short rainfalls fill the river so quickly that it frequently overflows its banks. This overflow subsequently affects farmland and causes further erosion of the river banks so that loss of land is occurring at a fast rate. The river is also clogged with logs still sitting on the riverbed, interrupting the flow. It is important to recall that the Rotokakahi River held great significance in the past as described earlier. Today people still rely on the river for fishing and recreational activities such as waka ama and swimming. However, the risk to the community is high due to the number of logs and jagged sticks lodged on the beaches and in the rivers. Some of these hazards have resulted from eroding banks, possibly caused by past flooding events, causing trees to fall into the riverbeds; these trees have not been removed over the years.

Research in Pawarenga

In this section I briefly describe my own previous research in Pawarenga (Proctor, 2002, 2006), and more recent research (Iwi Research & Development Group, 2010) that looked more specifically at flood response.

I have previously conducted two small-scale research projects in Pawarenga. The first of these looked at developing leadership and tikanga in Pawarenga (Proctor, 2002), the second was a small-scale study of water quality, in which I also interviewed people about their experiences of previous floods (Proctor, 2006). In this section I briefly summarise my findings from these two studies.

In 2002 when I asked my kuia “[h]ow are things going in Pawarenga?” she told me: “Oh, there are only 25 widows left here now, and no kaumātua”. This statement prompted me to interview several key people in Pawarenga, asking them what they thought were the future directions for Pawarenga, particularly with regard to Māori development and leadership. I was concerned about how our language and tikanga would be passed on to our rangatahi and who would be the future leaders.

Two main points identified were the importance of identifying the collective and redefining tikanga, mainly due to the loss of kaumātua and kuia. Participants thought that in order to move forward, we needed to think about what we had inherited from the past, define our tradition and redefine our kawa. There was concern about defining who we were as a collective to make decisions, with a preference for whānau and hapū leadership. It was very clear that whānau first and hapū second was the social system that they felt was a platform for moving forward (Proctor, 2002).

At the same time that I was carrying out my study, Te Runanga O Te Rarawa was proposing their new direction for working with whānau and hapū that included marae representation on the Runanga. The Runanga was set up in response to government needs to have a body to negotiate and work with. The model also gave the people a base for development. The proposed changes at the time were to restructure the executive of the Runanga to ensure full representation of all marae.

In 2006, I conducted a small scale study of water quality in two Pawarenga streams (Proctor, 2006). My goals were to assess their health and water quality and to make recommendations for improving stream health. After obtaining permission from the Morehu Marae Committee for my study I organised for a Biodiversity Officer from Northland Regional Council to assist me in observing and measuring water quality in Pawarenga and Ngaue streams.

Water flow in the streams was low at the time of testing and conductivity measures showed that the water was moderately enriched, probably from faecal matter. Strong evidence of stream modification was also apparent, with eroded margins and inadequate or no fencing allowing stock to access the stream beds. Land adjacent to the testing sites was pasture with little or no shade along stream margins, allowing the water to heat up, detrimental to invertebrate life. Periphytons (algae) present indicated poor to moderate water quality in Pawarenga Stream and moderate to good water quality in Ngaue Stream (Proctor, 2006). Examination of the river and stream banks suggested that much could be done to minimize stock damage and erosion.

The people that I interviewed reported that flood prevention was a high priority, and had good ideas about projects to advance environmental management in Pawarenga, but were still suffering emotionally from the effects of the flood in 1999 (Proctor, 2006). They reported that some of the damage from the flood seven years previously still remains and is in need of repair; particularly they noted a need to remove debris and silt from the river.

I concluded that there was a need to foster relationships between Pawarenga residents and Northland Regional Council, so that both parties routinely shared information with each other. I also recommended a holistic management strategy for the Rotokakahi River be prepared, that significant cultural and physical resources be identified and preserved or restored, and that full assessment of the cultural health of the rivers and streams be carried out using the Cultural Health Index (Tipa & Tierney, 2006a). Subsequent to my report, the Te Uri O Tai Hapū Plan has identified some significant cultural sites, but none of the other recommendations have been carried through.

Research on Community Responses to Flooding

More recently, the Te Runanga O Te Rarawa Iwi Research and Development team has carried out a study of the experiences of communities and individuals in four communities affected by the 1999 flooding (Iwi Research & Development Group, 2010). Pawarenga was one of the communities that participated in this research. Participants reported that these communities had no emergency warning systems or emergency response plans, and people had only limited knowledge of civil defence services. However, when floods occurred they carried big responsibilities and needed to be self-reliant. Marae infrastructure and tikanga Māori played an important role when emergencies occurred. However, it was also reported that many people took risks during emergencies, because of their sense of duty to community and whānau; these community “heroes” were never formally recognized by authorities. These researchers found that not having adequate plans in place for emergency response and recovery caused unnecessary stress in these communities that added to the trauma that people were experiencing. Decisions made by local authorities and insurance companies following the flood were considered harsh and added further stress for both individuals and communities.

These researchers drew attention to the ways in which communities rallied round to provide support in responding to the 1999 flood, and suggested that people needed further training and support to assist them in future emergency response. They noted that the issues arising in the communities are similar across different kinds of local emergencies, not only flooding. They recommended collaboration between communities and government agencies to ensure people had good support and the skills and knowledge needed to develop and implement emergency plans, emphasizing the importance of holistic collaboration that is meaningful and appropriate for communities. They also called for greater recognition of local knowledge that comes out of people's lived experiences when planning, prioritizing and implementing solutions, including mitigation (Iwi Research & Development Group, 2010).

One clear theme that emerged from both my earlier research and the more recent iwi research on community responses to flooding was the importance of a community-driven approach to flood mitigation, response and recovery grounded in real collaboration with government agencies. There was a clear call for respectful collaboration that recognises the knowledge, strengths and skills inherent in local communities, provides the education and training needed for community people to develop and lead their own strategies, and ensures that resources are available to support communities in emergency management and planning.

Summary of Chapter One

In this chapter I have described my own whakapapa and connections to the small rural community of Pawarenga, and the early history of Māori occupation. I have also described some of my own experiences of growing up in Pawarenga, with a particular focus on how tikanga Māori was embedded into the daily life of the community. A brief overview of land use and economic development in the valley since European settlement was followed by a description of life in Pawarenga in the 21st century.

Because of the geography of the valley, Pawarenga is prone to flooding. I have given an account of two recent major flood events that devastated the community. Finally I have briefly described research that has documented water quality in

Pawarenga and investigated the experiences and responses of Pawarenga residents to recent flooding. This chapter demonstrates how tikanga, although not usually talked about, was the basis for daily life in the Pawarenga community, and was also the basis for successful flood response.

The second chapter contains a review of the literature. I begin by reviewing international literature about vulnerability, adaptive capacity and resilience, including indigenous participation in environmental management. I then describe the New Zealand environmental management framework, including civil defence policies and policies and planning frameworks specific to the Northland region.

In chapter three I explore definitions of tikanga and provide some explanation of Māori values and principles related to environmental management, and describe some existing Māori models formulated for use in resource and environmental management. I make a contrast between local government agencies, national legislation, and the impact of crown management of our taonga.

Chapter four provides information about the Kaupapa Māori research methodologies, methods, ethics and principles that have guided this study, and gives information about the methods I have used to collect and analyse my research data.

Chapter five contains my research findings and a preliminary discussion of these findings.

In chapter six I provide an overall discussion of the findings and compare them with with previous studies, both international and from Aotearoa New Zealand. I then outline a proposed framework for flood management and explain how this model fits with other hapū and iwi plans and strategies.

My conclusion in chapter seven contains recommendations for further implementation by the Te Uri O Tai community in collaboration with the regional and district council. I identify limitations of this study and suggestions for future research.

Chapter Two: Vulnerability, Resilience and Flood Management in Aotearoa New Zealand

The second chapter contains a review of the literature. I begin by reviewing international literature about vulnerability, resilience and adaptive capacity, and the relationships between these concepts. For each, I also make reference to how these concepts affect Māori. I then look at the importance of community participation, including indigenous involvement in environmental management and the utilisation of indigenous knowledge. I then describe the New Zealand resource management framework, including civil defence policies and policies and planning frameworks specific to the Northland region. As part of this, I look at flood management policies and plans, particularly those of relevance in Northland, and discuss findings of some New Zealand research that has documented community experiences in recent flood events.

Vulnerability, Resilience and Adaptive Capacity

Many writers across a number of different disciplines have researched and written about vulnerability, resilience and related topics. In this section I review some of the literature that has discussed these topic areas in relation to environmental hazards. Within the literature on vulnerability to environmental hazards, a number of writers refer to the social-ecological system, which Gallopin (2006, p294) defines as “... a system that includes societal (human) and ecological (biophysical) subsystems in mutual interaction”, claiming that this is the most useful way to conceptualise interrelationships between people and the natural environment (Adger, 2006; Gallopin, 2006). Adger (2006) notes there are different ways of conceptualising the social-ecological link, and boundaries between social and ecological worlds are artificial and arbitrary. I found this linking of social and ecological worlds useful for my research, since it is similar to a Māori worldview that describes close relationships between people and the environment, based on whakapapa (Marsden, 2003; Mead, 2003).

Vulnerability

Different disciplines define vulnerability in different ways (Cutter, 1996) and consequently there is no consensus (Gallopin, 2006). Smit and Wandel (2006, p286) claim that “...the vulnerability of any system (at any scale) is reflective of

(or a function of) the exposure and sensitivity of that system to hazardous conditions and the ability or capacity or resilience of the system to cope, adapt or recover from the effects of those conditions”. Others define the concept more simply as the susceptibility to be harmed (Adger, 2006) or “the potential for loss” (Cutter, 1996, p529).

Opinions differ as to whether vulnerability is a start point or end point (Smit & Wandel, 2006) and some writers make distinctions between outcomes and processes of vulnerability (Adger, 2006).

Different writers describe various components of vulnerability. Pelling (1999) identifies these components as exposure, resilience and resistance; Gallopin (2006) and Adger (2006) both include exposure to disturbances, sensitivity to these and capacity to adapt; however these components are also seen as linked in various ways. For example, Smit and Wandel (2006) link sensitivity to exposure, Luers (2005, cited in Gallopin, 2006) and Gallopin (2006) similarly define sensitivity as the degree to which a system responds to disturbance. Adger (2006) defines sensitivity as the extent to which a system can absorb impacts without suffering long-term harm. Sensitivity, then, can be seen as an attribute of the system (Gallopin, 2006).

Exposure to pressures or disturbances varies in degree, duration and extent, and a system can be vulnerable to some disturbances and not to others (Gallopin, 2006). Vulnerability is also considered a function of proximity to the source of risk (Cutter, 1996).

Wisner and his colleagues (2004) use the term “vulnerability” to refer to people and prefer to use the word “unsafe” or “hazardous” when describing buildings, locations or other conditions. They have defined social vulnerability as “the characteristics of a person or group and their situation that influence their capacity to anticipate, cope with, resist and recover from the impact of a natural hazard” (Wisner et al., 2004, p11). Social vulnerability is a constructed concept dependent on a number of factors such as usage and access rights to natural and social resources, access to political power and representation and cultural dimensions (<http://www.climate-transitions.org/climate/poverty>, retrieved 18th April, 2010).

A number of writers have viewed vulnerability as a product of socio-political structures and individual capacity (Pelling, 1999; Wisner et al., 2004) and differentiate between individual, social and biophysical vulnerability (e.g Cutter, 1996). Susan Cutter has highlighted the social construction of vulnerability, “...rooted in cultural, social, historical and economic processes that impinge on individuals’ or society’s ability to cope with disasters and adequately respond to them” (p533), and concluded that social and biophysical factors interact to create what she called “hazards of place”. The influence of social dynamics on vulnerability was also noted by Adger (2006) who reported that vulnerability was a “... powerful analytical tool for describing states of susceptibility to harm, powerlessness, and marginality of both physical and social systems” (p268).

Those at the lowest levels of society are often seen as responsible for degradation of the environment, sometimes seen in the “blaming” of popular, informal social institutions (cultures, norms and practices) for local, though widespread, environmental degradation (Pelling, 1999). In attributing blame in this way, structural inequalities may be overlooked and “proximate causes of vulnerability and risk too easily become the core concern of management discourse” (Pelling, 1999, p259).

Several writers have reported that political power shapes vulnerabilities, and discussed the political ecology of hazard (Pelling, 1999), where vulnerability is produced through differential access to resources, institutional structures and decision-making (Adger, 2006; Cutter, 1996; Pelling, 1999; Wisner et al., 2004). “Developing” or “under-developed” peoples and countries are often portrayed as being most vulnerable (Adger, 2006; Pelling, 1999). However, Adger also notes that there is plenty of evidence that “... communities and countries themselves have significant capacity to adapt latent in local knowledge and experience of coping with variability” (Adger, 2006, p274).

Poverty is linked to vulnerability, since reducing livelihood options narrows the scope for communities to respond to external economic pressures and thereby increases vulnerability (Cutter, 1996; Pelling, 1999). However, vulnerability is not the same as thing as poverty, since it refers to a community’s defencelessness or insecurity rather than simply lack or want (Chambers, 1989). Chambers (1989)

reports that failing to distinguish between poverty and vulnerability may sustain stereotypes of poor communities and invite a simplistic categorisation.

Wisner et al (2004) claim that economic, demographic and political processes are root causes of vulnerability, since they affect the allocation and distribution of resources. They report that “(p)eople who are economically marginal... or who live in environmentally ‘marginal’ environments... tend also to be of marginal importance to those who hold economic and political power” (Wisner et al, 2004, p53). They developed a “progression of vulnerability” model to explain how unsafe conditions, such as living in “fragile” locations and marginal livelihoods, expose people to hazard events (Mitchell et al., 2010).

The vulnerability of rural communities lies in their lack of services, infrastructure and economic resources (Pelling, 1999). Pawarenga could be considered vulnerable and “marginal”, both economically and environmentally, since very little of the land is economically productive, and much of it is flood-prone. Because of its small population, geographical isolation and lack of representation on local government bodies, Pawarenga is frequently left out when it comes to planning and allocating of resources. One example of this is the Warawara Forest, which is Crown-owned land administered and managed by the Department of Conservation. Although Te Uri O Tai claim mana whenua over the Warawara, they have no say at present over the management of this forest.

Once people become marginalised, they are likely to lose confidence in their own knowledge and self protection methods, or lack access to resources: “[Lack of]... governance can disrupt social memory or remove mechanisms for creative, adaptive response by people, in ways that lead to breakdown of social-ecological systems” (Folke et al., 2002, p8). Addressing vulnerability is vital in order to reverse the poverty, depopulation, lack of development and environmental degradation downwards spiral (Cutter, 1996); providing vulnerable populations with better access to decision-making, power and resources should reduce vulnerability and promote resilience, but because such strategies challenge the status quo of many agencies and institutions, they are frequently resisted by those with political power (Adger, 2006).

A variety of both quantitative and qualitative research methods have been employed in investigating vulnerability, including the use of vulnerability indicators, narratives, contextual analyses, case studies, mapping, and statistical analyses (Adger, 2006; Cutter, 1996). Adger (2006) describes two different strands in vulnerability research: one around the lack of entitlements that relates vulnerability to poverty, and the other around vulnerability to natural hazards. The research literature emphasises multiple stressors and multiple pathways of vulnerability (Adger, 2006). Some research is action-oriented and identifies what can be done in a practical sense and by whom to moderate vulnerability (Klein, Nicholls, & Thomalla, 2003; Smit & Wandel, 2006).

Using vulnerability as a factor that is related to people rather than the environment ensures that they are central to the focus, since it is people who are affected by disasters and natural hazards. From the above discussion, it can be seen that there is a range of perspectives on vulnerability, and that multiple dimensions of vulnerability have been described in the literature. Physical, social, political and economic dimensions all have relevance for my study. In the next section I will briefly explore how the social and political history of Aotearoa New Zealand has affected the vulnerability of Māori communities in particular, before going on to describe other related concepts such as resilience, risk and adaptive capacity.

Vulnerability of Māori Communities

In Aotearoa New Zealand, colonisation has created conditions that have increased vulnerability for Māori. From the beginning of Pākehā settlement vast amounts of Māori land have been alienated, much through confiscation and illegal purchase, eroding the Māori economic base (Durie, 1998). Māori also lacked political power, with few participating in government processes at either central or local government levels (Walker, 2004). Many Māori in rural areas lived in poor conditions, without adequate access to housing, employment or education. The relocation of Māori populations that began with the second world war effort opened up a diversity of labour and manufacturing jobs and by 1980, 90 per cent of Māori had become urban dwellers (Metge, 2004). Urbanisation brought to light aspects of Māori vulnerability in relation to non-Māori.

For rural Māori communities, loss of land, physical isolation, depleted population due to urbanisation and lack of political voice increased vulnerability (Metge,

2004). Secondary effects of urbanisation such as the closing of a range of services and schools in rural areas contributed to this increase. Few people were left to hold the fort and this put pressure on *ahi kaa* (those people at home) to maintain *tikanga*.

Statistics on a range of social and economic indicators demonstrated that Māori were more likely to be in lower socio-economic groups, had lower levels of educational achievement, lived in poorer housing and were less healthy and over-represented in crime statistics than the rest of the population (Howden-Chapman & Cram, 1998; Howden-Chapman & Martin, 2000). Racism was evident within institutions where Māori were systematically disadvantaged (Berridge et al., 1985; Ministerial Advisory Committee on a Māori perspective for the Department of Social Welfare, 1988) all this at the same time as New Zealand politicians were touting the myth that New Zealand had the “best race relations in the world” (Ford, 2004). The largely invisible nature of racist policies (at least to Pākehā New Zealanders) further contributed to the marginalisation of Māori (Ormond, Cram & Carter, 2006; Smith, 2006). The systematic oppression of Māori communities through policies and practices of colonisation and assimilation have been fully described elsewhere by other writers (e.g. Byrnes, 2001; Northcott & Ofner, 1996; Smith, 1999); suffice it to say that through these measures Māori suffered from multiple and growing social, economic, cultural and political vulnerabilities. Several writers have noted that marginalisation of Māori and their knowledge and practices through colonisation led to loss of resilience (Durie, 1998; King, Goff & Skipper, 2007).

Resilience

Resilience is reported by many writers to have a close relationship to vulnerability, with some suggesting that resilience is the flip side of vulnerability (Folke et al, 2002; Klein, Nicholls & Thomalla, 2003). However, according to Gallopin (2006) this relationship is by no means clear, since resilience is related to capacity of response, which he claims is only one component of vulnerability. In this section I will discuss the varying definitions and dimensions of resilience I have found in the literature, and leave further consideration of the relationships between vulnerability, resilience and adaptive capacity for a later section.

Gallopín cites Holling's (1973) definition of resilience as "...a measure of the persistence of systems and of their ability to absorb change and disturbance and still maintain the same relationships between populations or state variables" (2006, p298). Adger (2000) describes social resilience as the ability of groups to cope with external stresses, while Gallopín defines ecological resilience in a similar fashion as "...the capacity of the system to remain within the same domain of attraction" (2006, p299).

These definitions tend to focus only on the capacity of a system to return to its usual state following stress or disturbance. However, other writers contend that resilience is dynamic, and also includes the ability to adapt to changing circumstances. Folke et al. (2002, p7) propose a three factor definition:

Resilience, for social-ecological systems, is related to (a) the magnitude of shock that the system can absorb and remain within a given state, (b) the degree to which the system is capable of self-organization, and (c) the degree to which the system can build capacity for learning and adaptation.

Other theorists agree that the three factors described above are all important in defining resilience (Adger, 2006; Klein, Nicholls & Thomalla, 2003) so that resilience can be regarded as both sustaining and developing (Folke, 2006). Responding to shocks can also provide new trajectories or opportunities, so in this sense resilience provides adaptive capacity (Folke, 2006). Resilience can, then, be either reactive, where the focus is on strengthening the status quo in order to resist change, or proactive, where change is accepted as inevitable and the goal is to create a system capable of adapting to it (Klein, Nicholls & Thomalla, 2003).

In summary, there seems to be widespread agreement that there are three dimensions to resilience. Firstly, resilience includes the capacity of a system to absorb shocks or stresses; secondly its capacity to self-organise; and thirdly its capacity to adapt to changing circumstances.

Resilience is also considered to be something that can be developed within a community or system, since resilient systems are those which are dynamic and evolving rather than being completely stable (Klein, Nicholls & Thomalla, 2003). Building resilience requires good management and an understanding of the

interrelationships between people and the natural environment in order to incorporate the knowledge of local communities (Folke et al., 2002).

A focus on community resilience lies at the heart of the Civil Defence Emergency Management Act in New Zealand, and the goal of civil defence initiatives is to build community resilience (Mitchell et al., 2010). Mitchell et al. note:

A resilient community is well informed about the hazards that they face and the consequences of these hazards. They have ownership over local hazard risks and their planned response to them. They are self-determining and prepared to manage and learn from the demands and challenges encountered during an emergency (Mitchell et al., 2010, para 41).

Community involvement in planning for potential hazards and events such as floods addresses the self-organising aspects of resilience described above, and also possibly assists in increasing capacity to respond to stress. Indeed, Pelling (1999) has argued that resilience is a product of the degree of preparation undertaken prior to the occurrence of potential hazard events. This point has relevance for my research since I am looking at local governance initiatives as part of a flood emergency management strategy in Pawarenga.

Adger (2006, p278) has described a close interdependence between environmental risk, politics and resilience, noting that “[p]olicies and strategies which reduce vulnerability and promote resilience change the status quo for many agencies and institutions and are frequently resisted”. He then asserts that policy makers and decision makers need to recognise the plurality of knowledge and governance systems used to manage risks and promote resilience. In Pawarenga, Māori knowledge may contribute alongside Western scientific knowledge to flood management strategies in ways that are empowering for local residents.

My final point regarding resilience is the part it plays in contributing to sustainability and reducing vulnerability. Ecologists have argued that “... resilience is the key to sustainable ecosystem management and that diversity enhances resilience, stability, and ecosystem functioning” (Klein, Nicholls & Thomalla, 2003, p39). This notion of diversity may be important to consider when planning for pro-active response to hazards and risks. A diversity of strengths and abilities within a community may contribute to its resilience, so long as that community recognises the value of such diversity. Tikanga Māori is one

of those diverse strengths that underpins life in Māori communities, and may prove a valuable tool for enhancing resilience.

Resilience in Te Ao Māori

Sir Mason Durie (2005, p235) has described an endurance framework that has important similarities to the notion of resilience described above. He defines endurance as founded on two dimensions: time and resilience, and notes that endurance “... represents the outcome of innate strengths, resilience, the availability and utilisation of resources, environmental synergies, and the impacts of global and societal change”. Resilience, according to Durie (2005, p1), “...recognises both adversity and triumph, and celebrates strength of purpose, determination, and a capacity to survive”. Durie has also argued that Māori capacity can be clearly seen in the various collectives that exist in Māori communities, including businesses, schools, and sporting and cultural clubs, although he points out these have not been given attention as markers of Māori resilience.

Ranginui Walker (2004) has similarly described Māori endurance as a “struggle without end” – for social justice, equality and self-determination. In these views, resilience is an important aspect of Māori endurance, containing an inner force that never gives up (Durie, 2005). The capacity for self-organisation is clearly outlined in Durie’s work, as is the capacity to adapt to dynamic change, while at the same time preserving cultural and physical resources that can be used to respond to the various challenges they have already faced, and which will no doubt continue to present themselves in the future. Walker (2004) describes Māori responses to the seabed and foreshore debate as a demonstration of both Māori adaptability and resistance; this issue was also the catalyst for some important developments such as the founding of the Māori Party which today represents a strong Māori voice in government – perhaps a good example of Māori resilience that demonstrates all three of the dimensions described above.

The notion of Māori resistance has been further explored by other writers. Since the beginnings of colonisation, Māori have resisted attempts to rob them of their land and taonga, and to remove their rangatiratanga (Bargh, 2007, Smith, 1999). According to Maria Bargh (2007, p16), decolonisation is “ongoing resistance”. Many of the processes of resistance occur through everyday practices in which

people reshape experience and actively participate in power relationships. Activities in which indigenous peoples reassert their authority and culture can be viewed as acts of resistance. Resistance, then, can be defined broadly to include both overt activism and everyday cultural practice (Bargh, 2007; Sykes, 2007).

Adaptive Capacity

A number of writers have described adaptive capacity, or adaptability, as another concept related to both vulnerability and resilience (Folke; 2006; Gallopin, 2006; Smit & Wandel, 2006). For human systems, this concept has been defined as the collective ability to plan, prepare, facilitate and implement adaptation options in order to ensure quality of life in a range of environments, which may be changing (Gallopin, 2006; Klein, Nicholls & Thomalla, 2003). Adaptation is described as a process, action or outcome in order to adjust to or manage changing conditions, stress, hazard and risk (Smit & Wandel, 2006). Adger (2006) suggests that coping and adapting are very similar.

As with vulnerability and resilience, adaptive capacity is shaped by social, cultural, political and economic forces, both locally and globally (Smit & Wandel, 2006). Klein, Nicholls and Thomalla (2003) see it as similar to resilience in its relationship to vulnerability, but with greater potential in application, especially when planning for disaster prevention and preparedness. Increasing adaptive capacity should decrease exposure-sensitivity (Smit & Wandel, 2006).

Folke (2006) differentiates between adaptability as a capacity to build resilience in dealing with existing conditions, and transformability, where people create a new social and ecological system. At a governance level, he suggests that in order for transformation to occur, adaptive management is needed to build knowledge, incentives, and learning capabilities in organisations, and that this relies on collaboration of stakeholders operating at different levels. He also notes the need to shift thinking to take a “human-in-the-environment” perspective and design policies and incentives that are adaptive to ensure social-ecological resilience. Smit and Wandel (2006) recommend that initiatives should be evident at the community level, while Adger (2006) claims that there is plenty of evidence internationally that even vulnerable communities have the capacity to utilise latent local knowledge to adapt to disturbance and change. The importance of

community participation and the use of local knowledge will be discussed further in the next section.

In many respects, the definitions of adaptive capacity are similar to definitions of resilience described above, although most writers have applied the term adaptive capacity to human communities and systems rather than including environmental systems. For some, the notion of adaptive capacity is seen as a broader notion that encompasses resilience (Klein, Nicholls & Thomalla, 2006). The relationship between these concepts is further explored below.

Adaptive Capacity of Māori Communities

Since they first arrived in Aotearoa, Māori have been required to adapt to changing circumstances (King, Skipper & Tawhai, 2008). Coming from the tropical Pacific to a land with a more temperate climate necessitated adaptation to a new climate and surrounding environment. Over many hundreds of years of occupation of Aotearoa, this capacity to adapt meant that tribes learned about local conditions – plants, birds, kaimoana – that sustained them and adapted a way of life that fitted with these quite different circumstances.

The colonisation and subsequent settlement of Aotearoa by the British who imposed their way of life and an alien system of governance on Māori created another situation that required Māori to demonstrate their adaptability (Durie, 2005). Again Māori showed enormous capacity to adapt to changing circumstances, although it is well documented that making these adjustments put enormous strain on Māori communities. In the twentieth century, one of the goals of successive governments was to assimilate Māori into the mainstream; throughout this time Māori continuously demonstrated both an ability to adapt as necessary while at the same time resisting change that meant losing their Māori identity and language (Walker, 2004). This capacity to adapt to change may well be related to resilience for Māori communities. In the following section I will further explore the relationship between these concepts.

Relationships among Vulnerability, Resilience and Adaptive Capacity

In the social-ecological field, different writers propose a range of relationships among the concepts of vulnerability, resilience and adaptive capacity. For

example, Adger (2006) noted that vulnerability and resilience research have common elements of interest. As I stated earlier (p26), some writers consider that resilience is the flip side of vulnerability (Folke et al., 2002). Folke (2006) reports that a vulnerable system is one that has lost resilience, while Adger (2006) proposes that vulnerability is influenced by either the build up or erosion of the elements of social-ecological resilience. According to this proposal, reducing resilience will increase vulnerability, but increasing resilience should similarly reduce vulnerability.

Most writers report a more complex relationship between the concepts of resilience and vulnerability. For example, Gallopín (2006) asserts that resilience is less than the flip side of vulnerability, since vulnerability refers to transformations that may go beyond a single domain, with resilience more likely to be related to capacity of response, which is only one component of vulnerability. He concludes that vulnerability, resilience and adaptive capacity are “...different manifestations of more general processes of response to changes in the relationship between open dynamical systems and their external environment” (2006, p302).

Folke et al. (2002) describe a close relationship between resilience, diversity and sustainability, with resilience often associated with diversity that maintains and encourages adaptation and learning. For these authors, resilience includes adaptation, learning and self-organisation (Folke, 2006; Folke et al, 2002). These authors also note that reducing resilience increases vulnerability, and that this is a cumulative process. After each flood or hazard event, the same families tend to lose their homes, possessions and livelihoods, increasing their vulnerability to the next disaster event (Few, 2003).

A relationship between resilience and adaptive capacity is similarly noted by other writers (Klein, Nicholls & Thomalla, 2003; Smit & Wandel, 2006). Folke (2006) argues that resilience provides adaptive capacity. Klein, Nicholls and Thomalla (2003) propose adaptive capacity as an umbrella concept and resilience as one of the contributing factors, with resilience having two dimensions: the amount of disturbance a system can absorb and still return to more or less the same state; and the degree to which it is capable of self organisation. They claim that adaptive

capacity has great potential as a tool that can be applied to disaster prevention and preparedness, not just recovery. Smit and Wandel (2006) also note that adaptations, which they define as manifestations of adaptive capacity, are ways of reducing vulnerability. They describe an interrelationship between exposure to hazards, sensitivity and adaptive capacity and also conclude that adaptive capacity is related to resilience.

Writers who demonstrate preference for the notion of adaptive capacity rather than resilience propose a similar relationship between adaptive capacity and vulnerability to the relationship that Folke and his colleagues proposed between resilience and vulnerability. Smit and Wandel (2006) claim that exposure and sensitivity to hazards make systems more vulnerable, while systems with greater adaptive capacity are less vulnerable. Gallopin (2006) makes a distinction between vulnerability and resilience in claiming that vulnerability refers to the lack of capacity to preserve a system's structure while resilience refers to its capacity to recover from non-structural change.

In comparing these arguments about the relationships among adaptive capacity, resilience and vulnerability, it is important to consider to what degree the different relationships described among these concepts depended on the different ways they were defined. In particular Folke et al (2002) gave a comprehensive, three-factor definition of resilience, whereas Klein, Nicholls and Thomalla (2006) viewed adaptive capacity as the broader concept in which resilience was a factor. By comparison, all writers seemed to agree that vulnerability was a broad concept which was made up of a number of different dimensions. For the purposes of my thesis I decided to use the notion of resilience in its broadest sense as defined by Folke et al. (2002). At the same time, I decided to consider resilience and vulnerability as related concepts while reserving judgement about the degree to which one might be the "flip side" of the other. I came to this decision based on literature that documents many examples of both Māori resilience and vulnerability; both appear to exist simultaneously and although they may be related, this relationship does not look straightforward or linear.

Community Participation

Many of those writing about emergency planning have noted the importance of engaging local communities in planning processes as a way of building community capacity (Fraser, Dougill, Mabee, Reed, & McAlpine, 2006; Mitchell et al., 2010; Smit & Wandel, 2006; Vogel, Moser, Kaspersen, & Dabelko, 2007). This recognition appears to be a recent development that may have resulted from the shift from focusing on emergency response to pre-event planning (Few, 2003; Mitchell et al., 2010). In order to engage communities, the issues need to be relevant to them (Vogel et al., 2007) and processes need to be inclusive and flexible (Mitchell et al., 2010).

A number of mechanisms for engaging communities have been proposed. Several authors have suggested that community input and involvement needs to be valued equally alongside the expertise of planners and policy makers (Fiorino, 1990; Fraser et al., 2006; Vogel et al., 2007) and that it should feed directly into formal environmental planning processes. Giordano et al. (2010) consider that local communities are well placed to observe and assess environmental resources and monitor changes. Rather than merely consulting with communities, these authors have suggested there is a need for involving experts and lay people equally, so that these groups come together to define problems and solutions (Vogel et al., 2007). Participatory processes that allow communities to have a “real say” in decision-making are recommended (Mitchell et al., 2010), although these authors acknowledge that achieving full participation may be difficult, time-consuming and expensive. Ward, Becker and Johnston (2008) in a case study of flooding in Ohura found that although there had been a rhetoric of community empowerment, in practice consultation seemed to be the primary form of engagement with the community, rather than true participatory processes. In recommending community participation as a preferred approach to recovery planning, they also recognised limitations due to statutory timeframes, community capacity and availability of resources.

When participatory processes do occur, they are learning experiences for both parties (Fraser et al., 2006). Through their involvement, community members become empowered and their capacity to be involved in environmental management increases (Fraser et al., 2006). Vogel et al. (2007, p355) claim that

“... communication with non-scientists can be viewed as a form of adaptive capacity building that enhances resiliency”.

The inclusion and valuing of local knowledge is important when working with communities. Fraser et al. (2006) in a study of indigenous farmers in rural Botswana found that community knowledge had more depth since it was based on understanding of environmental variability over many years, while expert-led analyses were usually more simplistic. Giordano et al. (2010) are of the view that local and technical knowledge should be seen as complementary, and local knowledge fully integrated into traditional institutions and structured so that it is meaningful and relevant for decision makers.

Vogel et al. (2007, p354) reported that scientists and practitioners often have very different ideas of what constitutes “legitimate knowledge”, but these needed to be brought together to enhance understanding. In the Aotearoa New Zealand context, a number of writers (e.g. King, Goff & Skipper, 2007; King, Skipper & Tawhai, 2008) have investigated both traditional and contemporary Māori knowledge including environmental indicators used to predict natural hazards. These writers report that planning for natural hazards should involve Māori people, and their knowledge and expertise.

The ability to engage in participatory processes and include local and indigenous knowledge in planning for natural hazards depends very much on political configurations (Fraser et al., 2006). The illusion of local control, they suggest, may in some cases mask continued exploitation of fragile ecosystems. In investigating community participation in coastal Guyana, Pelling (1999) found that a history of colonisation meant that indigenous people felt excluded from decision-making, and therefore resisted getting involved. The inclusion of such vulnerable groups in decision-making processes has been noted as “...an important and highly under-researched area” (Adger, 2006, p277).

Local communities, as part of their daily living, collect a wealth of valuable information about their environment that can be effectively used for local decision-making (Giordano et al., 2010). A “bottom up” participatory approach to assessing vulnerability in communities will be better able to identify multiple contributing factors (Smit & Wandel, 2006). Locally focused and community

owned plans are also more likely to be successfully implemented (Mitchell et al., 2010).

Local communities are more likely to participate in implementing environmental indicators and measures when they have also been able to participate in developing them; top-down processes are more likely to alienate them (Fraser et al., 2006). Community-owned measures are also more likely to capture locally important factors. Indicators need to be relevant and simple, and using traditional methods as much as possible (Giordano et al., 2010). Some important social and cultural indicators may be difficult to measure, but these should nonetheless be included (Fraser et al., 2006). Information gathered by local communities should be used for local-decision making (Giordano et al., 2010).

In order to ensure sustainable, hazard-resilient communities Antoinette Mitchell and her colleagues (2010) write that communities need more meaningful opportunities to be involved. Indeed, it is community-based groups that will be required to provide the first response when floods strike (Few, 2003). Mitchell et al. (2010) suggest that community involvement needs to be purpose driven, inclusive, voluntary, self-designed and flexible. All people should have the opportunity to participate and their diverse values, interests and knowledge need to be respected. In order for community-driven plans to be successful, they need to be able to be implemented, with realistic deadlines and appropriate accountabilities (Mitchell et al., 2010).

In Aotearoa New Zealand, Māori have had a long association with land and resources, and have developed a detailed knowledge of the environment that is both traditional and contemporary (King, Goff & Skipper, 2007). However, since colonisation Māori have been for the most part excluded from participation in local government planning, even though tikanga and Māori values have more recently been acknowledged in resource management and local government legislation (Jefferies & Kennedy, 2009b). Furthermore, the values and knowledge most commonly used in environmental planning in Aotearoa have been based on Western science (Jefferies & Kennedy, 2009b; Kelsey, 2002; King, Goff & Skipper, 2007; Williams, 2002).

Many Māori groups and individuals have worked for inclusion of Māori values in mainstream environmental management. For example the Planning Under Cooperative Mandates (PUCM) project that has been implemented over 15 years by the International Global Change Institute at the University of Waikato has aimed to develop indicators to measure environmental outcomes for Māori from statutory planning processes (Jefferies & Kennedy, 2009a, 2009b; Kennedy & Jefferies, 2008, 2009). Similarly, Māori communities and groups around the country have continuously lobbied for better mechanisms to be put in place for them to participate in planning processes (e.g. King, Goff & Skipper, 2007; Mutu, 2002; Williams, 2002).

In spite of these efforts, no discernible change seems to have occurred since the Resource Management Act was passed in 1991. Morris Te Whiti Love (2001), commenting on progress made in 10 years of the RMA, noted that although the Act promised much for Māori many were still disappointed. A report published by Te Puni Kōkiri (2006) that included several case studies reported that Māori were participating to some extent in RMA processes. However, levels of participation varied, with 11 of the 18 groups studied reporting no involvement in the writing of council plans and policies. Participants reported that good relationships were usually developed primarily through informal processes, but formal agreements and participation structures were nevertheless considered important. It was reported that councils need to appreciate "... both the role of tangata whenua in their community, and the value their extensive local knowledge can add to achieving positive community outcomes" (Te Puni Kōkiri, 2006, p8). Barriers to Māori participation included lack of funding and resources, lack of understanding by councils of the importance of Māori participation, a low value placed on mātauranga Māori and lack of Māori capacity for involvement.

In enquiring into civil defence processes and planning, I found that Civil Defence Officers do not appear to engage with Māori communities specifically when developing community plans (B. Hutchinson, 2010, personal communication). So-called "community" plans may even be developed without engagement with the community, but with only one or two people. I concluded that here in Aotearoa New Zealand there is still much to be done to encourage Māori to be

involved in hazard management planning, and there are still considerable barriers to widespread acceptance of Māori local knowledge as legitimate and useful.

Flood Management in Aotearoa New Zealand

I begin this section by providing a brief overview of legislation relevant to flood management in Aotearoa New Zealand, in particular the Resource Management Act 1991 and its subsequent amendments, the Local Government Act, 2002 and the Civil Defence Emergency Management Act, 2002. Then I describe several policies and plans specific to Northland that affect the Pawarenga community. In addition, I review a number of publications that describe flood responses in other parts of the country.

The legislative framework

Environmental planning in Aotearoa New Zealand is underpinned by the Resource Management Act (RMA), which in 1991 replaced a raft of more specific statutes, combining all environmental management into a single overarching act. The RMA defines the responsibilities of councils and provides for a hierarchy of policies and plans. Another important piece of legislation, the Local Government Act (LGA) 2002 gave specific direction to the processes through which councils were to carry out their work. The Civil Defence Emergency Management Act 2002 (CDEM) has guided response to emergency events such as floods. In this section I briefly describe these pieces of legislation and some of the policies and plans operating in Northland which have particular relevance for my study.

Resource Management Act 1991

The Resource Management Act (1991) is the overarching legislation pertaining to environmental management in New Zealand and provides the framework for environmental decision-making. The importance of the environment for New Zealanders' continued social, cultural and economic welfare is explicitly recognised in this legislation, which also sets out the functions and duties of regional and district councils (also referred to as territorial authorities). Regional councils oversee management of natural and physical resources within their region (s30); territorial local authorities prepare and implement plans to control the use, development and protection of land and associated resources (s31).

The intention of the law reform that led to the RMA was "...to create a more streamlined, integrated and comprehensive approach to environmental management" (Ministry for the Environment, 2004, p1). It replaced more than 20 major statutes and over 50 other laws that related to the environment, including the Town and Country Planning Act and the Water and Soil Conservation Act (King, 2003; Ministry for the Environment, 2004).

Under the umbrella of the RMA, a hierarchy of policies and plans are provided for. At the broadest level, national policy describes the direction for the country as a whole. At a regional level, regional councils prepare regional policy statements that set out priorities for their region; these must include "the resource management issues of significance to iwi authorities in the region" (Resource Management Amendment Act, 2003, s25). More specific plans are prepared by both regional and district councils that set out objectives, policies and methods for ensuring that natural resources are used, developed or protected in ways that promote the sustainable management of natural resources.

Several sections of the RMA refer to matters of particular interest to Māori. Section 6 describes *Matters of national importance*, several of which are relevant to Māori communities; particular mention is made in section 6(e) of "the relationship of Maori and their culture and traditions with their ancestral lands, water, sites, waahi tapu, and other taonga". Section 7 *Other matters* requires "all persons exercising functions and powers under (the RMA)... to have particular regard to – (a) kaitiakitanga and (aa) the ethic of stewardship". Kaitiakitanga is defined in the Interpretation section of the Resource Management Amendment Act (1997) as "the exercise of guardianship by the tangata whenua of an area in accordance with tikanga Māori in relation to natural and physical resources; and includes the ethic of stewardship" (Resource Management Amendment Act, 1997, s2 (4)). Section 8 *Treaty of Waitangi* states:

In achieving the purpose of this Act, all persons exercising functions and powers under it, in relation to managing the use, development, and protection of natural and physical resources, shall take into account the principles of the Treaty of Waitangi (Te Tiriti o Waitangi) ("Resource Management Act," 1991, s8).

The RMA was heralded as a “new beginning” for Māori and local government (Hayward, 2003a). However, a number of writers have noted that local government agencies have generally been slow to engage in meaningful consultation with Māori around resource management issues or take up the challenge to engage with the Treaty and its principles as an integral part of their business (Kawharu, 2002; Love, 2001; Te Puni Kōkiri, 2006).

The publication *Local government and the Treaty of Waitangi* (Hayward, 2003b) documents Māori responses and concerns in the decade since the passing of the RMA (1991). Most contributors report that little progress had been made, although some authorities had made a start on building relationships with tangata whenua (e.g. Maguire, 2003). The stories in this book demonstrate that the path to establishing productive relationships between local authorities and tangata whenua can be slow and at times tortuous, limited mostly by Pākehā reluctance and racist and/or monocultural attitudes. Much of the implementation of the RMA is the responsibility of local authorities, who historically have not been involved in Māori affairs or in considering the Treaty of Waitangi as a regular part of their business (Durie, 1998; Walker, 2004).

Local Government Act, 2002

The work of district and regional councils is governed by the Local Government Act (2002) which provides for effective and democratic local government through setting out a framework for their activities. This act provides for councils to play a broad role in promoting community well-being and promotes accountability to local communities (s3). Communities thus have scope to identify their own priorities and visions, with councils becoming responsive, collaborative facilitators of community outcomes rather than their previous role as autonomous and discrete deliverers of services.

The Treaty of Waitangi is included in the LGA as follows:

Treaty of Waitangi— In order to recognise and respect the Crown's responsibility to take appropriate account of the principles of the Treaty of Waitangi and to maintain and improve opportunities for Maori to contribute to local government decision-making processes, Parts 2 and 6 provide principles and requirements for local authorities that are intended to facilitate participation by Māori in local authority decision-making processes. (Local Government Act, 2002, s4).

Principles are also set out in Parts 2 and 6 of the LGA that provide for participation by Māori in local government decision-making processes. For example “...a local authority should provide opportunities for Maori to contribute to its decision-making processes” (Local Government Act, 2002, s14 (1) (d)). Extensive consultation principles are set out that include a statement that “...A local authority must ensure that it has in place processes for consulting with Maori in accordance with subsection (1)” (Local Government Act, 2002, s82 (2)).

Civil Defence Emergency Management Act, 2002

The Civil Defence Emergency Management Act (CDEM) sets out structures and processes that aim to ensure hazards are managed sustainably and safely, communities achieve acceptable levels of risk, and plans are in place for emergency response and recovery. Local authorities have responsibility for co-ordinating civil defence emergency management across agencies and organisations and integrating local planning with national strategies. These functions are fully described in the Act.

National civil defence policy under the CDEM is intended to create an enabling environment for community participation and governance. However, Ward, Becker and Johnston (2008) noted that authorities had not moved into full community participation, but seemed to favour a consultation model. Mitchell et al. (2010) set out important principles for engaging communities under the CDEM model (see page 36 of this thesis for further information about these principles).

National policy for managing floods

In 2005, almost 15 years after the Resource Management Act was passed, a group called the Flood Risk Management Governance Group released two documents on managing flood risk. One of these (Centre for Advanced Engineering, 2005a) set out a rationale for improving flood risk management in New Zealand, based on current best practice and likely related issues. A companion document (Centre for Advanced Engineering, 2005b) contained a draft protocol intended as a framework for councils to use in managing their flood risk responsibilities. Following on from these consultation documents, the Flood Risk Management Governance Group developed a national standard: NZS 9401:2008 *Managing flood risk – A process Standard*

<http://www.standards.co.nz/touchstone/Issue+02/Local+Government/default.htm> retrieved 24th July, 2010). This Standard presents a best practice approach to managing flood risk, and has been designed to be used as the standard, nationwide approach to guide decision-making when considering flood risk. Steve Ruru, in describing this standard, noted that the Governance Group had to balance the views of “the pure risk management experts, saying that the Standard should be more risk based, and the flood management fraternity, saying it is too risk based and they want more practical advice” (Retrieved 7th August, 2010 from <http://www.standards.co.nz/touchstone/Issue+02/Local+Government/Managing+flood+risk.htm?print=true>).

The Northland Planning Framework

In this section I describe some of the main planning documents prepared by or on behalf of Northland Regional Council, with a particular focus on the sections of those documents that refer specifically to either management of flooding and flood risk or to the participation of Māori in resource management processes. Figure 4 below shows the Northland Regional Council boundaries plus the boundaries of the territorial local authorities nested within the region.

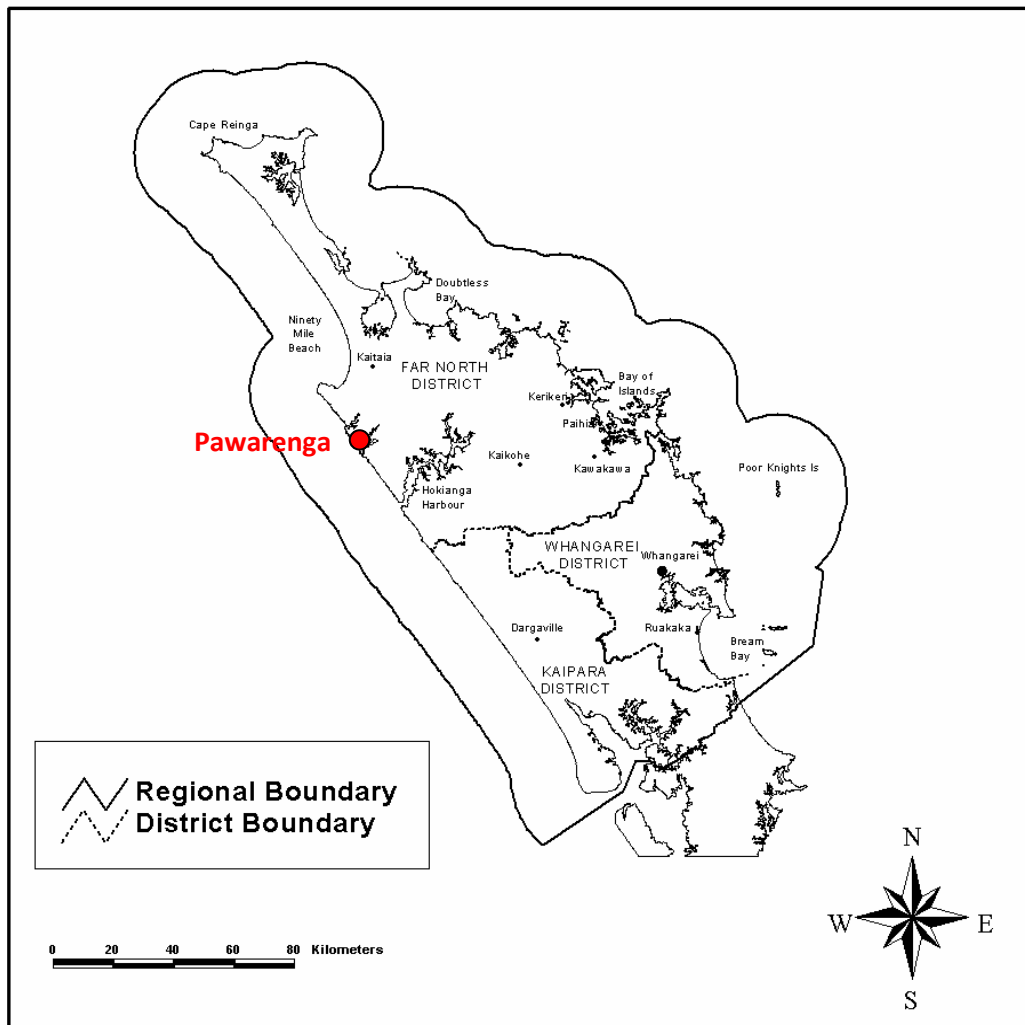


Figure 4: Northland Region showing council boundaries
 (Northland Regional Council, 2002, p6)

The overarching document relevant to environmental management in Northland is the Regional Policy Statement (RPS) (Northland Regional Council, 2002). In 2010, this policy statement is in the process of being revised, with consultation being undertaken from July to November. The RPS notes that Northland is subject to both droughts and high intensity rains which can cause severe flooding, and at times flash floods, and sets out a policy of co-operative management by councils and community. It also notes that subsidies for assisting communities with flood protection have been reduced. Under an overall principle of “avoidance and mitigation”, strategies for managing flood risk in the RPS include

monitoring, flood hazard mapping, making information available to communities, natural flood control and willow clearance.

Reports commissioned by the Northland Regional Council describe coastal, natural and weather hazards. Of these, the NIWA report on weather hazards is the most useful for my study (Gray, 2003). This report notes that Northland, with its steep terrain, long coastline and often short river catchments, is at risk from extreme weather events such as ex-tropical cyclones and severe convection storms. These events are difficult to predict, but can have a serious effect on the region through sudden intense rainfall and associated flooding. It is also predicted that global warming will result in higher rainfall rates and more intense storms in future (Gray, 2003).

A recent discussion document prepared for NRC as part of the RPS revision process (Mortimer, 2010) sets out feedback that had been received from tangata whenua when the original RPS was being prepared. It identified five issues:

- Recognition of tangata whenua, ahi kaa, tikanga Māori, tino rangatiratanga and kaitiakitanga
- Historical lack of tangata whenua or ahi kaa involvement in resource management planning
- Lack of recognition of tikanga in current plans and policies
- Lack of, or inappropriate, consultation, and
- A desire for tangata whenua and ahi kaa to determine what is appropriate management of their taonga.

A more recent review of Māori engagement in resource management (Te Puni Kōkiri, 2006) reported that in Te Tai Tokerau a forum of iwi representatives engaged at a high level with the Far North District Council. This group was called Te Waka Motuhake. However, in spite of persistent efforts of iwi, some were frustrated at the slow pace of change. Te Runanga O Te Rarawa was reported to be actively involved in Te Waka Motuhake. However, the most common form of engagement with Māori was as part of the resource consent processes; iwi and hapū were not effectively engaged in council planning (Te Puni Kōkiri, 2006).

Some informants in the Te Puni Kōkiri study reported that councils engage directly with hapū, and this was seen as appropriate since it is hapū who are kaitiaki of local resources (Te Puni Kōkiri, 2006). Barriers to Māori involvement in local and regional council processes were for the most part attributed to lack of

sufficient funding or resources for response, although capacity for responding varied from group to group. Some iwi reported having high capacity and expertise, although not always in Pākehā terms, others relied on dedicated volunteers who were not resourced sufficiently to respond to all requests and received little financial reward for their efforts.

The *Northland river management policy* (Northland Regional Council, 2006), which has been ratified by all Northland councils, proposes an integrated approach to flood hazard management, focusing not on preventing floods, but on avoiding and reducing risks. This policy emphasises the importance of emergency management and disaster recovery plans. Several important principles underpin this policy:

1. The expectation that floods can be prevented is not feasible, and people have to accept that floods will occur;
2. Communities need to be involved in river management, including removing willows, fallen trees and sediment from river beds;
3. There is a need to link policies of hazard identification, hazard management and emergency management to ensure an integrated approach. (Northland Regional Council, 2006, p4).

The Northland Regional Council's roles in river management as set out in this document are to supervise the activities of the district councils, to promote river management, to identify and quantify flood risk, to record flood events and to ensure that good data is collected. District councils are responsible for urban drainage, drainage schemes and undertaking river works in some rivers only.

Northland Regional Council also has a Priority Rivers Project, where 27 river catchments have been identified as priorities for flood risk planning because these rivers and streams pose the greatest potential hazard to communities (both to people and to infrastructure). The Awaroa and Rotokakahi catchment areas, including the Pawarenga streams, are included in the list of priority rivers (Northland Regional Council, 2009). Part of this Project is the production of flood hazard maps and models that will show which areas are most likely to flood and what could be threatened as a result. Unfortunately in August 2010, these flood hazard maps were not yet available.

Meetings with communities in the 27 identified areas were held in mid-2009. Initially Pawarenga residents were asked to travel to the neighbouring community of Panguru to meet with councils, but requested that a meeting be held in Pawarenga itself. At that meeting, local residents presented council staff with a draft Rotokakahi flood management plan that they had already prepared. This draft plan was then used as the basis for further discussion.

Neil Ericksen (2005b, p26) has described the New Zealand planning environment since the RMA and LGA, as a “devolved and cooperative mandate”. He questions whether in fact flooding is becoming worse or more frequent, and suggests that worsening flood hazard may in fact be due more to poorly developed or implemented policies than to any actual increase in the frequency or severity of flood events. He claims that in devolving responsibility to local government agencies, central government failed to ensure they had sufficient capacity or resources to take on the necessary tasks, and that cooperation among the various agencies was not always as good as it needed to be to reduce flood hazard in at-risk communities (Ericksen, 2005b). Furthermore, Ericksen (2005a) reported that reform increased efficiency and reduced costs but planning was often ineffective, since the different functions of councils were often quite separate, and implementation gaps were noted between policies and methods.

Having noted a “...gap between legislative intent and the practical response” (Ericksen, 2005a, p28), Ericksen identified a need for councils to provide more useful and sophisticated information, not only about flood events, but also flood hazards and measures that individuals and communities could take to reduce them. He also called for central Government to take the lead in developing an integrated systemic approach to reducing flood hazard, since “...Government is, and always has been (or should have been) responsible for the systemic flood hazard problem in New Zealand” (2005a, p31). Resources also need to be provided to ensure staff capacity in developing and implementing flood hazard reduction policies (Ericksen, 2005a, 2005b). He calls for a comprehensive information and education programme, better hazard definition and mainstreaming of flood risk reduction into policies, plans and practices.

I noted in my own research that there seemed to be a discrepancy between Northland Regional Council's published policy regarding flood hazard reduction and verbal information provided to me directly by Council staff. The NRC *River Management Policy* states:

“... river management in Northland will largely involve restoring river channels to their previous size and form by removing accumulated silt and gravel from the bed and banks, removing blockages caused by fallen trees, controlling streambank erosion, managing the gravel load in the rivers, and accepting that floodplains will flood, albeit less frequently when the channels are well maintained.” (Northland Regional Council, 2006, p10).

However, in practice the Council appears to be unwilling to undertake this kind of work in Pawarenga; during the course of my research several residents reported to me that neither Northland Regional Council nor Far North District Council had been willing to remove debris from streams and riverbeds following flood events. Information on the Priority Rivers Project notes that “typically, local communities – who stand to benefit the most – will pay for flood protection works, but only after consultation” (<http://www.nrc.govt.nz/Your-Council/Council-Projects/Priority-Rivers/Project-Overview/>, retrieved 1 August, 2010).

Research into flooding in Aotearoa New Zealand

In this section I describe several studies that have investigated flood response and recovery within communities in Aotearoa New Zealand, in order to identify suggestions or recommendations regarding community participation, particularly focusing on Māori involvement. I begin by briefly describing two studies that focus on community participation, then describe in greater detail two studies that explicitly investigate impacts on, and involvement of, Māori communities following flood events.

Jessica Ward investigated community participation in disaster recovery planning following flooding in Ohura in 1998 (Ward, Becker & Johnston, 2008). In this case study, it was found that participation was relatively limited, and the main approach used by authorities was consultation that did not fully involve the community. A gap was identified between the promotion of community empowerment in legislation and supporting documents and actual practice. These authors suggest some means of enabling full community participation, which can be difficult in the immediate aftermath of an event since resources are stretched

and people's capacity for full response is limited. They recommend that recovery planning should occur before an event and be fully participatory, based on solid relationships and an holistic approach that incorporates disaster planning into overall community development (Ward, Becker & Johnston, 2008).

In 2004, the small coastal community of Matata in the Eastern Bay of Plenty was severely affected by flooding and debris avalanches that destroyed and damaged properties and necessitated evacuation of a large proportion of the population (Busby, 2010; Rotimi, Le Mesurier & Wilkinson, 2006; Spee, 2008). Recovery from this event was very slow due to the severity of the damage, but was assisted by community planning that fostered relationship-building and the development of a shared vision (Spee, 2008). Kellie Spee (2008) conducted qualitative interviews with people affected by the Matata flood and key informants from the community to gain information about the flood and post-flood recovery processes. She found that many people reported ongoing trauma many months or even years later, which they attributed to slow recovery and flood mitigation processes that prevented them from returning to, or rebuilding, their homes.

Spee identified factors that facilitated recovery for Matata residents; these included the building of community initiatives and services, understanding and support for people who needed counselling to aid their recovery and a formal disaster recovery plan owned and developed by the community (Spee, 2008). Some members of the Māori community who were evacuated from their homes stayed on the local marae, and reported that this was a source of emotional support (Spee, 2008). In Matata, recovery was impeded by institutional responses that proceeded without community input or consultation.

Busby (2010), writing about 2004 flooding in the Eastern Bay of Plenty around Whakatane, reported the importance of Māori participation in both pre-event and recovery planning. He noted that Māori are significant stakeholders and also possess significant communication and social networks that could aid in disaster recovery. Furthermore, Māori traditional knowledge and cultural values and beliefs can be valuable resources in emergency planning; failure to take these into account is likely to "impede... mitigation activities that seek to develop sustainable, resilient communities" (Busby, 2010, p87). Recovery that lacks

cultural consideration is disempowering for Māori and may contribute to further victimisation (Busby, 2010).

Busby discovered in his interviews with flood victims and authorities involved in flood response that many Māori groups mobilised themselves to care for whānau in isolated locations and provided cultural and spiritual assistance. In reporting that making use of existing Māori networks is an example of recommended best practice of utilising local resources, he notes:

Psycho-social recovery from a cultural perspective may have benefitted with greater use of Marae as evacuation centres particularly for displaced Māori flood victims. Marae generally have the resources and people with the experience and skills to accommodate a number of people at short notice and to utilise the people that are accommodated in productive and constructive ways to help on the Marae (Busby, 2010, p89).

Failure to include Māori in recovery planning in this instance was attributed by participants to lack of recognition of Māori leadership by statutory authorities in charge of emergency management (Busby, 2010). Busby highlights the need for Māori participation in emergency management planning and the importance of fostering relationships between Māori communities and local and regional councils and points to “...the benefits of a cultural renaissance for Māori in creating stronger social capital and in turn building resilience for future disasters” (Busby, 2010, p92).

Hudson and Hughes (2007) studied the role played by Poupatate Marae in responding to flooding in the Manawatu region in 2004, and found that many Māori had evacuated to the marae due to their own homes being unsafe. The marae offered facilities such as accommodation, power, showers and food; whānau associated with the marae contributed food and other resources. Participants reported that the role of rural marae was vital in emergency response. Although marae are generally well-equipped to provide hospitality to large numbers of people, some were unable to cope with demand and required additional support.

Participants reported that staying together on the marae helped to reduce stress. One person commented:

You know that there will be someone to talk to – that social side there to talk to people about what you're doing. I s'pose... you've got a whole lot of people... the group consciousness that can do your brainstorming about what to do. And so all that stuff is activated on the marae for us. It's activated at the marae because we do it just naturally anyway... That's Māori for you... I can't explain it any other way. (Hudson & Hughes, 2007, p26)

Whānaungatanga was another aspect that helped to alleviate stress. No formal counselling was offered, but people talking amongst themselves were able to share problems and feel better about them. It was evident they dealt with the flood in very practical ways through organising for their community in exactly the same ways they would have organised a large hui or tangi.

Participants considered relationships with civil defence groups and local councils important in contributing to marae preparedness, but these relationships had not been effectively established, with both community and council participants noting that there was little direct involvement with Māori communities. Civil defence planning documents made no specific reference to Māori. Following the flood, lack of contact from civil defence had hampered recovery; isolation and lack of access due to flooding slowed relief efforts. Māori in particular were disadvantaged by lack of publicity of their plight as telecommunication failure prevented them from communicating the severity of their situation leading to some communities being overlooked. It is disturbing to note that in spite of widespread acknowledgement that marae form “natural community emergency centres” (Hudson & Hughes, 2007, p26), channels of communication between civil defence, marae and Māori communities were not always well-established or utilised.

Throughout the recovery process, Māori community processes and the responses of emergency management groups were very different and not necessarily complementary. Māori relied on their own world view and tikanga, using whakapapa links and traditional networks and processes, reporting that a face-to-face approach was more suited to their whānau, many of whom would not ask for help. Māori communities clearly preferred to do things in their own way, with back up from civil defence.

In spite of the costs of providing accommodation, food and other resources, Māori were reluctant to ask for reimbursement. It was suggested that offering koha rather than direct reimbursement would be more culturally appropriate.

This study demonstrated the important part played by Māori communities in flood response, something which Hudson and Hughes reported needs to be more fully recognised in emergency planning. Relationships were seen as key, with relationship-building needing to occur through dialogue and consultation in a partnership framework. They noted that Māori need to be represented at decision-making levels in civil defence groups and local authorities. A kanohi-ki-te-kanohi approach to communication using existing marae networks was favoured. Local authorities needed to provide Māori communities with information about available resources and support.

From the above studies, a number of common points can be drawn. Firstly, all highlight the importance of community involvement in emergency management pre-event and recovery planning. Secondly, there was evidence that Māori communities have considerable capacity for responding to disaster events through utilising existing resources and networks. However, it appears that Māori groups are not routinely invited to participate in planning for emergencies, nor are their significant resources recognised as potentially valuable contributions. For the most part, it appears that Māori communities and networks are largely invisible to authorities, and relationships between Māori and those responsible for emergency management are for the most part non-existent.

Summary of Chapter Two

In this chapter I have reviewed international literature that discusses the concepts of vulnerability, resilience and adaptive capacity and the relationships among these concepts. I have also briefly reported literature on Māori experience of these concepts. The importance of community participation and the usefulness of indigenous and local knowledge in environmental decision-making has been explored. I have then considered the legislative framework of flood management in Aotearoa New Zealand, and relevant policies and plans pertaining to Northland. Finally I have briefly reviewed and discussed some specific examples of literature reporting on flooding in various communities in Aotearoa New Zealand, focusing

particularly on reports of Māori communities' experiences and responses. Despite a comprehensive range of policies and plans that underpin flood emergency management and response, I found that Māori communities are not being invited to actively participate in these activities, and their experiences and potential contributions are largely ignored. In the next chapter, I explore further Māori-specific values and principles relevant to flood emergency management.

Chapter Three: Tikanga Māori

In this chapter I discuss important aspects of tikanga Māori, beginning with a general overview of tikanga and specific values and principles. I then describe some tikanga-based models that have been developed by Māori for use in environmental management. Finally I provide a rationale for my current study based on the literature regarding the importance of Māori values for environmental work.

To begin, I explore the notion of tikanga and how it has been defined and described by Māori writers. I also consider the underlying purpose of tikanga within the Māori world, in both traditional and contemporary society.

Definitions of tikanga often refer to it as customs. Bubbles Mihinui (2002) described tikanga as customs for managing and protecting resources and the wellbeing of the people. Ranginui Walker (2004) devotes an entire chapter of his book *Ka whawhai tonu matou* to describing “nga tikanga Māori”. In this chapter he explains the structure of, and roles within, Māori society and particular concepts such as tapu, utu and wero, and notes the significance of ceremonial events such as tangihanga. Walker’s account is comprehensive, since it includes almost all aspects of Māori life and provides useful information about the purpose of various aspects of tikanga. He identifies the purpose of tikanga as social control mechanisms to ensure the continued security and wellbeing of the group.

Māori Marsden (2003, p66) similarly defines tikanga as “method, plan, reason, custom, the right way of doing things”. He reports that what is considered to be tikanga today has been derived from early stories about the acts of gods and heroes and handed down through many generations as a “...reliable and appropriate way of achieving and fulfilling certain objectives and goals”. Tikanga principles are thus integrated into cultural standards, values, attitudes and beliefs.

Sir Mason Durie (1998, p23) defines tikanga as “guides to moral behaviour”. Within an environmental context, these would include preferred ways of protecting natural resources, exercising guardianship, determining responsibilities and obligations and protecting the interests of future generations. Durie (1998) notes that tikanga is more than just a set of rules, with tikanga decided through

consensus and based on responses to particular situations where guidelines are used to determine what to do.

Mihinui (2002) similarly notes that although tikanga itself may not change, practice may change according to specific circumstances. The dynamic nature of tikanga Māori is also noted by Sir Hirini Moko Mead (2003, p353), who claims that the core of tikanga keeps its integrity over time, but “...the proposition that tikanga Māori never changes is not supported by the facts of the real world”. He reports that many variables change, including physical settings, players and audiences.

Specific tikanga concepts named by various writers include:

- Wairua
- Tapu (and noa)
- Mana
- Whānaungatanga
- Manākitanga
- Kaitiakitanga
- Kotahitanga
- Rangatiratanga

I will now briefly describe each of the above concepts in turn.

Wairua

Wairua is usually translated as “soul or “spirit” (Mead, 2003). All things have wairua, including the earth, animals, birds and fish (Barlow, 2001). Wairua is a holistic part of the person, not located in a particular part of the body, and is immortal (Marsden, 2003; Mead, 2003). When a person dies, the wairua separates from the body (Mead, 2003). Māori believe that the wairua will remain close by during the tangihanga, then depart on a final journey. For many iwi, this final journey will mean travelling northwards along Te Oneroa a Tohe (90 Mile Beach) to Te Rerenga Wairua (Cape Reinga) and thence to Hawaiiki (Mead, 2003). This journey is largely symbolic, since the wairua has no physical existence.

For many Māori people, the wairua of our tūpuna are always around and may have a profound influence on their lives. In Te Ao Māori, the spiritual dimension is always a part of life. Wairua is a part of all other tikanga values. To fulfil kaitiakitanga obligations, for example, requires consideration and protection of wairua.

Tapu

Tapu has been defined in the literature as “sacred” or “set apart” (Barlow, 2001; Marsden, 2003; Mead, 2003). Māori Marsden (2003, p7) defined tapu as “... the sacred state or condition in which a person or thing is set aside by dedication to the gods and thereby removed from profane use”. A person or thing that is tapu has a value that is to be respected (Tauroa & Tauroa, 1986).

Tapu places restrictions on human behaviour and interactions, thus providing a means of social control (Mead, 2003; Tauroa & Tauroa, 1986). Mead (2003) notes that levels of tapu increase while certain activities are being performed; once the activity is completed and certain ceremonies have been performed, they return to normal. He notes, however, that for wāhi tapu, these places will keep their tapu as long as the community wishes it.

Noa is often paired with tapu. When people or things return to their original state following the lifting of tapu, they are regarded as noa. The state of noa means that balance has been achieved, relationships are restored and things are back to “normal” (Mead, 2003).

Mana

“Mana has to do with the place of the individual in the social group” (Mead, 2003, p29). Mana is sometimes translated as meaning “status or prestige” (Tauroa & Tauroa, 1986); Marsden (2003, p4) defines it as meaning “spiritual authority and power”. Humility is inherent in the notion of mana (Tauroa & Tauroa, 1986).

People will have differing levels of mana depending on whakapapa, where they draw their prestige or authority from their ancestors (Barlow, 2001; Mead, 2003). However, they can also acquire mana through their abilities, skills and talents (Barlow, 2001; Mead, 2003; Tauroa & Tauroa, 1986). Mana is a quality that can be difficult to define, and is more felt than seen, since it is recognised by others

rather than a status a person can work for or define for themselves (Tauroa & Tauroa, 2006). People with mana tend to have leadership roles in the community (Mead, 2003), although they may also be working quietly in the background (Tauroa & Tauroa, 2006). Through the ways they live their lives, individuals may develop their talents and thus increase their mana (Mead, 2003).

The term mana whenua refers to the authority that tangata whenua have over their lands through long association with particular locations that includes continuous occupation (Jefferies & Kennedy, 2009b; Kawharu, 2000). Expressions of mana whenua can be clearly seen in the naming of land after ancestors; these associations are inherent in the recital of pepeha which name a person's association with maunga, awa, and moana, and tupuna.

Mana and tapu are central principles that underlie and order Māori society and also the place of Māori within their physical and spiritual world (Jefferies & Kennedy, 2009b). Through failure to fulfil their duties as kaitiaki, the mana of the tribe will be diminished; mana whenua is inherently reciprocal, since those who hold mana whenua exercise their rights and obligations over their lands, but when they manage these lands carefully the life-sustaining ability of the lands returns to them (Kawharu, 2000). Thus, tikanga values do not stand alone, but exist as interacting aspects of the whole.

Whānaungatanga

Whānaungatanga stresses the importance of kinship bonds and whakapapa (Meads, 2003; Tauroa & Tauroa, 2006; Waitangi Tribunal, 1997). The focus is on relationships between people, and these relationships carry both rights and obligations. For example, there is an expectation that kin groups will support and help one another, even those who live far away. Whānaungatanga bonds are maintained and strengthened through obligations for support of tangihanga for example (Mead, 2003). Very often in contemporary society whānaungatanga is also used to refer to relationships with people who are not related through whakapapa, but who are brought close through shared experiences.

Manaakitanga

Manaakitanga literally means “mana enhancing” (Waitangi Tribunal, 1997). This term refers to looking after people (Mead, 2003), what the Waitangi Tribunal

(1997, p26) refers to as “generosity, care-giving or compassion”. Mead (2003) emphasises the nurturing aspect of manaakitanga and the care that is taken to ensure others are treated well. The principle of manaakitanga must be upheld even when relationships between groups are strained (Mead, 2003). Through giving to others, the status and authority of a group will be enhanced (Waitangi Tribunal, 1997).

Some groups prefer to use the word manaaki to refer to hospitality shown to people (Barlow, 2001). Manaaki is often offered by a host group to visitors in rituals of encounter; giving maintains or establishes authority, prestige and status (Kawharu, 2000). It is also a reciprocal relationship, since both sides benefit by the generosity of giving, and kinship bonds are strengthened (Kawharu, 2000). Kawharu (2000) also notes that manaaki is an important dimension of kaitiakitanga.

Kaitiakitanga

Literal meanings for kaitiakitanga stem from the core word “tiaki” meaning to care for, guard, protect, to keep watch over and shelter (Kawharu, 2000; Marsden, 2003). The prefix kai indicates the agent of the act, so a kaitiaki is a guardian, keeper, preserver and protector (Marsden, 2003). In former times, kaitiaki were guardian spirits who watched over or protected places or things, appearing often in the form of birds, animals or other natural objects (Marsden, 2003). They were also messengers who provided ways of communicating between the spirit realm and the human world (Barlow, 2001).

Kawharu (2000) describes kaitiakitanga as encompassing many other Māori values and incorporating spiritual, environmental and human spheres. For example, she sees kaitiakitanga as embracing principles such as rangatiratanga, mana whenua, tapu and mauri, as well as social protocols such as manaaki. In particular kaitiakitanga is usually interpreted within relationships of tangata whenua with their lands and territories, relationships which transcend time and space and include spiritual dimensions (Kawharu, 2000). Durie (1998, p23) reports that kaitiakitanga “... denotes the burden incumbent on tangata whenua to be guardians of a resource or taonga for future generations”.

The definition of kaitiakitanga given in the RMA 1991 (see p39 of this thesis) is a much more narrow definition than those described above. Several writers have claimed that attempts to define kaitiakitanga as “guardianship” have led to simplistic interpretations that fail to acknowledge the wider obligations and rights that the term encompasses for Māori (Kawharu, 2000; Kelsey, 2002; Tomas, 2006).

In February 2004, just three months before the Seabed and Foreshore Act was passed into law, Te Rarawa Iwi organised a large-scale event that included the unveiling of a pouwhenua (carved post erected to symbolise the relationship between Māori and the land), Poroa, on the shore at Ahipara. This pouwhenua, one of several that were erected around the coastline “...symbolises our sense of continuing heritage that we are bound, as kaitiaki, to protect” (Te Kukupa, March/April 2004, p3). Today, these pouwhenua stand as visible reminders of our sacred obligation to protect environmental taonga.

Kotahitanga

Kotahitanga has been defined as “tribal unity” (Barlow, 2001, p57). Historically, tribes lived in very close knit communities, all contributing to the wellbeing of the group. When anything threatened the community, such as war or disaster, support would be expected from all connected iwi and hapū (Barlow, 2001). In the face of colonisation and Pākehā settlement of Aotearoa New Zealand, a number of initiatives have attempted to bring about unity of Māori (Barlow, 2001). Inherent in kotahitanga are values of unity, reciprocity and respect (Moeke, n.d., retrieved 9th August, 2010 from <http://www.globalonenessproject.org/interviewee/trevor-moeke>). Moeke also reports that kotahitanga implies that the collective acts together as one.

Rangatiratanga

The concept rangatiratanga has a range of meanings, including sovereignty, self-determination and leadership (Mead, 2003). Rangatiratanga, in the sense of sovereignty, is guaranteed to Māori in Article 2 of Te Tiriti o Waitangi (Kawharu, 2000). Tangata whenua have both mana and rangatiratanga in respect of their tribal areas; kaitiakitanga is an inherent part of the exercise of rangatiratanga (Tunks, 2002).

Thus the notion of rangatiratanga has a strong political flavour, often related to issues of self-determination or sovereignty. In environmental management, Tunks (2002) has argued that rangatiratanga has been accorded lower status than Crown sovereignty, in spite of the government having a duty to actively protect the rangatiratanga of tangata whenua. Māori continue to demand and negotiate rangatiratanga, that is, the right to make their own decisions about management and kaitiakitanga of their lands.

Important tikanga values in Te Tai Tokerau

The *Muriwhenua Land Report: Wai 45* (Waitangi Tribunal, 1997) noted that whānaungatanga, aroha, manaaki and utu were four important values in the system that regulated Māori behaviour. These four values provide explicit behavioural guides, but do not constrain change. Because Māori law was based on values rather than a rigid set of rules, change could occur so long as the underlying values and principles were maintained (Tomas, 2006; Waitangi Tribunal 1997).

Nin Tomas (2006), in investigating the use of key concepts of tikanga Māori in regulating human relationships to natural resources in Te Tai Tokerau, concludes that principles of whakapapa and whānaungatanga provided the framework for Māori custom law, while mana and tapu were the principal determinants of its content and operation to protect mauri (life force). Malcolm Peri, a kaumatua of Te Uri O Tai, considers that tikanga is an overarching principle that reflects “...the intercognitive relation of mana and tapu, and that the quality of one’s mana is a reflection of one’s relationship to their tapu” (Peri, 1990, p1). Another writer from Te Tai Tokerau, Pa Henare Tate, describes mana and tapu as fundamental values. They are actioned through tika (correct action), pono (honesty and integrity) and aroha (love and compassion) (Tate, 1999, <http://www.tepuna.org.nz/whanaungatanga.html>, retrieved 20th June, 2010).

Sir Hirini Mead (2003) asserts that there are several approaches to tikanga Māori. Firstly it can be seen as a method of social control, providing guidelines for relationships. Secondly it can be viewed as an ethical code, since it sets out guidelines for what is considered “tika” (right) – moral and appropriate ways of behaving. In this sense tikanga is a “normative” system, since through setting out

guides for what is right or correct, behavioural norms are established. More importantly, in my view, Mead describes tikanga as an essential part of mātauranga Māori.

From the above attempts to explain various aspects of tikanga Māori, it is clear that although there are distinct values that can to some degree be separately defined, in the Māori world these values are closely interwoven, as different strands of the whole tikanga system. In the literature, many writers have pointed out the links between them while acknowledging the distinct characteristics of each value or principle. Kaitiakitanga, for example, rests on a number of related values – of rangatiratanga, mana whenua and manaaki. It rests on a foundation of whakapapa that binds tangata whenua to particular locations. In short it is a broad value that sets out rights and obligations of tangata whenua to the environment and to one another.

Māori Models for Environmental Management

In this section I briefly describe several tikanga-based models that have been developed to guide Māori in kaitiakitanga, particularly of the natural environment. Most of these models outline indicators for measuring the health of the environment, and specifically note how tikanga values are expressed through kaitiakitanga.

Cultural Health Index

Because of her concern about the degradation of natural resources of significance to indigenous communities, Gail Tipa conducted a study to investigate possibilities for co-management by state agencies and Māori (Tipa, 2002). Through conducting a case study on the Taieri plains, she found that collaborative management offered the best outcomes for Māori and for the environment, but concluded that both parties needed to build capacity before the full potential for collaborative management could be realised.

She then developed the Cultural Health Index (CHI) which uses holistic Māori values to evaluate the health of streams and waterways (Tipa & Tierney, 2003; 2006a). This tool has three components: a measure of site status (whether the site is of traditional significance to tangata whenua), a measure of mahinga kai values, and a cultural stream health measure (Tipa & Tierney, 2006a; 2006b).

Collaborative research with ecologists from Otago University has shown that the cultural stream health measure using indicators that are consistent with Maori values was “... significantly correlated with ‘western’ measures of stream health ... and performed at least as well in encapsulating the relationship between land development and stream health” (Townsend, Tipa, Tierney & Niyogi, 2004).

Gail Tipa has provided training for Māori communities in the use of the CHI. In addition, a detailed guide explaining how to use the CHI and calculate scores and containing forms, interview questions and data collection worksheets is available on the Ministry for the Environment website

(<http://www.mfe.govt.nz/publications/water/cultural-health-index-for-streams-and-waterways-feb06/>). Although this tool was originally developed for use by Ngai Tahu, it has since been validated in other regions so that it can be used around the country on rivers and streams of any size and type (Tipa & Tierney, 2006a).

The Mauri Model

Morgan has developed a model to demonstrate the relevance of traditional tangata whenua belief and practice in relation to the environment and align this with contemporary thinking. He proposes using mauri as a sustainability indicator (Morgan, 2004, 2007). Morgan (2004, p5) refers to mauri as “the binding force between physical and spiritual aspects” and also refers to mauri as life force. Mauri establishes the inter-relatedness of all living things based on whakapapa.

The Mauri Model is based on four circles that represent the interactive aspects of the ecosystem, to include impacts of activities on the mauri of the family/whānau (economic), the community (social), the clan/hapū (cultural), and the ecosystem/taiao (environment) respectively. For each of these dimensions, the sustainability of a particular activity can be assessed by scoring how it is likely to enhance or diminish the mauri within each of these aspects. This tool is designed to be used by tangata whenua, but Morgan claims it could be used also by Pākehā communities based on their own values (see Figure 5 below for a diagram of the Mauri Model).

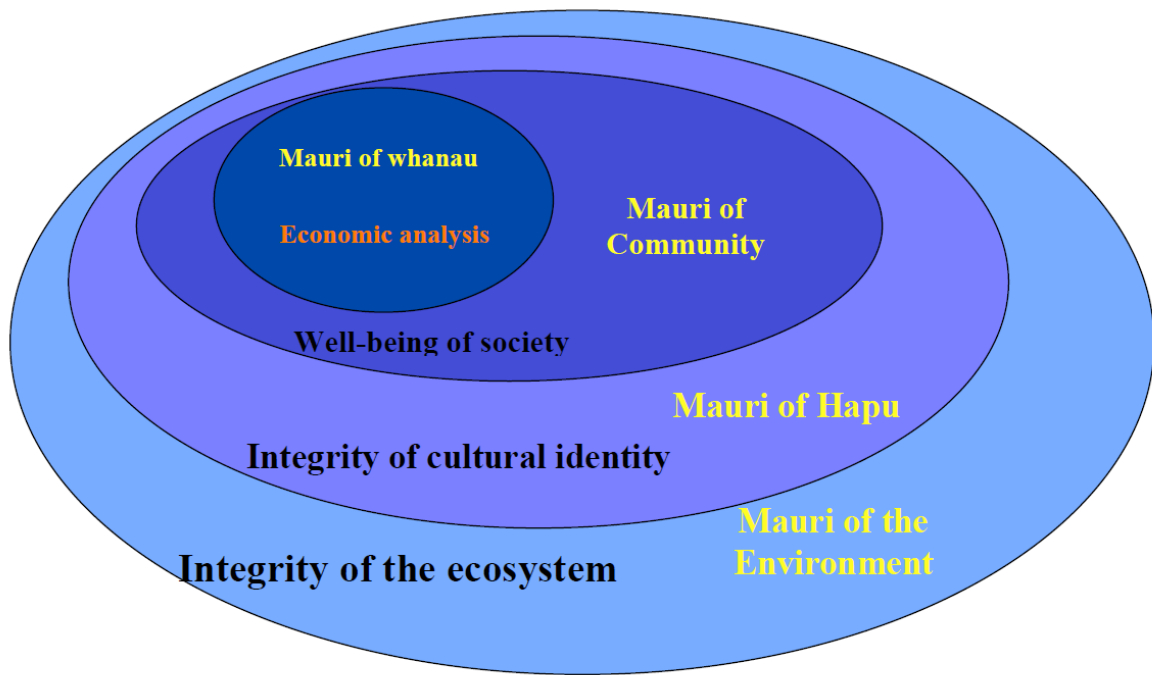


Figure 5: The Mauri Model (Morgan, 2007)

Weighting for each aspect has been chosen based on traditional tangata whenua values. The environmental aspect is seen as all-encompassing, and is therefore to be given priority. Next priority is the mauri of the hapū based on their relationship with the particular location, which takes precedence over the mauri of the community, with community being given priority over the whānau.

The mauri of the environment is measured by both its physical health and its spiritual integrity. Determining the effects of a particular activity using the mauri model will take into consideration effects on land, air, water, flora and fauna in any ways likely to affect mauri. This kind of assessment will be more holistic than focussing on physical effects only. However, Morgan (2007) claims that assessments of stormwater disposal using the Mauri Model yield very similar results to best-practice storm-water disposal practices being used in Europe and considered for adoption in New Zealand. Furthermore, use of the Mauri Model as an environmental assessment tool provides for the inclusion of tangata whenua values and priorities in resource decision-making.

Developing Māori Environmental Indicators

Garth Harmsworth (2002b, p2) has stated that survival of Māori culture, values and knowledge relies on “...an indigenous renaissance that takes traditional concepts and values and sets them equally in a contemporary context next to Western concepts and values, as a basis for living”. He calls for Māori to take control of their own lives and destiny to contribute to sustainable development, which he sees as a pathway to Maori autonomy, self-determination and the building of human and social capacity (Harmsworth, Barclay-Kerr & Reedy, 2002). His research identified many Māori values that were considered highly relevant in contemporary society that could provide an underlying philosophy for culturally-based sustainable development (Harmsworth, Barclay-Kerr & Reedy, 2002). As part of this project, Harmsworth (2002a) set out to develop mātauranga Maori based indicators for environmental assessment, in particular related to wetlands. Indicators were based on Maori environmental concepts of kaitiakiatanga, whakapapa, mauri and taonga. Harmsworth was also able to organise the indicators into the OECD categories of Pressure-State-Response in a way that was meaningful to the groups involved in the Wetlands project (Harmsworth, 2002a).

Harmsworth’s framework for achieving tikanga-based sustainable development has been designed for use within a Māori environment, within a framework of Māori aspirations. It is also expected to contribute to self-determination and autonomy for Māori communities, as well as increasing their human and social capacity (Harmsworth, 2002b).

Understanding Māori Environmental Values

Hirini Matunga (1994, cited in Durie, 1998; 2006) describes a four-part framework for understanding Māori values related to the environment. The four values that he claims it is important to uphold in making culturally responsible environmental decisions are taonga, tikanga, mauri and kaitiaki. He interprets taonga in a broad sense, meaning any resource or object that is highly valued, including language. Recognition and protection of taonga will vary in different tribal groups, according to their own tikanga. For Māori, all living things possess mauri. This includes natural and physical resources, which also have a spiritual essence (Durie, 1998). Damage to a resource will affect its mauri, and also the

mauri of the people associated with that resource. Kaitiaki refers to the burden on tangata whenua to be guardians of resources or taonga for future generations. These principles are very similar to those proposed by Morgan and Tipa.

Planning Under Cooperative Mandates

One important research initiative that has contributed greatly to the development of Māori indicators has been the Planning Under Cooperative Mandates (PUCM) project that has aimed to develop a framework and methods for evaluating the effectiveness of regional and district councils in ensuring that Māori values and interests are provided for in planning processes (Jefferies & Kennedy, 2009a, 2009b; Kennedy & Jefferies, 2008, 2009). These researchers developed and tested a method for evaluating the quality and implementation of environmental policies and plans, and then evaluated outcomes of planning processes such as resource consents, particularly for Māori communities (Jefferies & Kennedy, 2009b).

In this research programme, outcomes were defined as “statements of environmental results sought by a community”, and indicators as methods for measuring environmental change or progress towards outcomes (Kennedy & Jefferies, 2009b, p6). The researchers asked Māori communities to identify their desired outcomes, and utilised traditional indigenous indicators within a tikanga framework, focusing on three foundation principles: mana, mauri and tapu. “(T)he final structure of the framework recognised the key kaupapa (foundation or primary principles) of mana, mauri, and tapu, to which the three tikanga (mana whenua, mauri of water, and wāhi tapu) respectively relate” (Jefferies & Kennedy, 2009b, pxii). It was hoped that the development of Māori indicators based in tikanga would facilitate Māori involvement in planning processes.

When they trialled their methods and evaluated Māori participation, the researchers found that much work still needed to be done by councils to fulfil their statutory obligations and assist Māori to realise their environmental aspirations (Jefferies & Kennedy, 2009b). However, the work done by the PUCM research team establishes a substantial theoretical foundation for the development of Māori planning perspectives (Jefferies & Kennedy, 2009b; Kennedy & Jefferies, 2009). They have recommended that more work be done in developing Māori indicators,

by both central and local government agencies. Additionally, they recommend the setting up of a pan-tribal kaitiaki working group to further advance the participation of hapū and iwi in resource management and planning and to put pressure on authorities to develop and use Māori indicators and outcomes (Jefferies & Kennedy, 2009b).

Summary

The various models described above demonstrate possibilities for incorporating tikanga Māori values and principles in environmental management. All emphasise the importance of values such as mana, tapu, kaitiakitanga, whānaungatanga and mauri, and make suggestions for using these values in developing environmental indicators that are relevant to Māori communities. The importance of authorities responsible for resource management and planning to consider Māori values is also highlighted. In some cases, very specific suggestions are given for measuring environmental change using Māori indicators, with the suggestion that these indicators can be used by Māori communities themselves as a way of empowering Māori and ensuring that their views are incorporated into environmental management for a sustainable future.

Rationale for current study

The study of the role of Poupatate marae in the 2004 flood in Manawatu-Whanganui regions amply demonstrated the lack of consultation between civil defence groups and Māori communities and consequent unnecessary duplication of services. Hudson and Hughes (2007) noted that a predominant theme in their study was “...the need to establish and effectively develop relationships between marae and Māori communities, and local authorities and civil defence groups... to advance other important aspects such as knowledge exchange, communication and planning” (Hudson & Hughes, 2007). Such relationships, they claimed, would allow both groups to share knowledge and resources with one another of which they may not have been aware, and provide a vehicle for ongoing dialogue. Pohatu and Warmenhoven (2007) suggest that one way for Māori communities to counteract multiple vulnerabilities is through sustainable hapū development. They claim that because a hapū has strong kinship ties, plus a common land and resource base, it is at this level that communities are best-placed to undertake

reconstruction of solidarity and bring about positive change. “Hapū strongly binds people to each other, and to their natural, spiritual and ancestral environments through *whakapapa* and it is whānau inter-connected... an ideal level at which to realise human and social capacity, endeavour and enterprise” (Pohatu & Warmenhoven, 2007, p112). Hapū also are the repository for knowledge about tikanga, whakapapa and local land and resources (Harmsworth, Warmenhoven & Pohatu, 2004).

Taken together, these two studies suggest a need to explore further how Māori communities can plan proactively and in conjunction with authorities such as councils and civil defence groups to minimise flood risk and enable speedy response to flood events. Hapū, with their existing structures and knowledge of local resources and people, are well-placed to undertake and lead such planning.

Aim

As stated in Chapter 1, the aim of this study was to investigate and document Te Uri o Tai Hapū preferred strategies for reducing flood risk in Pawarenga and to consider opportunities to use Māori principles and values pertaining to our whānau hapu/ iwi as described by them.

Chapter Four: Methodology and Method

In this chapter, I look firstly at research methodology using a kaupapa Māori approach. I describe kaupapa Māori research and theory in some detail and discuss ethical issues likely to arise when conducting research within Māori communities. In the second part of the chapter I describe my research methods in detail and how I approached issues of research ethics and tikanga within my own community.

Methodology: Researching in the Māori World

Early research and reports about Māori were written by colonisers to inform people back in Europe about life and culture in Aotearoa. The information marginalised Māori in many ways, since all information was interpreted in a Eurocentric way, with Māori judged by comparison with European standards (Ormond, Cram & Carter, 2006). Furthermore, it has been claimed that non-Māori writers interpreted Māori culture using explanations that fitted with Western knowledge rather than in their own terms, demonstrating a lack of cultural understanding (Hanson, 1989). Research, such as that conducted by the Beagleholes in the 1940s, that made value judgements about Māori cultural practices helped to create public opinion of Māori as inferior and Western ways as superior (Beaglehole & Beaglehole, 1946). Cultural advisors were usually not used, and if they were, did not have much say.

As a result of non-Māori research practices since settlement began, Māori developed a negative view of research and researchers (Selby & Moore, 2007; Smith, 1999). Kaupapa Māori theory, research and action arose from concerns about the “...exploitative and detrimental impacts endured by Māori at the hands of non-Māori researchers” (Ahuriri-Driscoll et al., 2007, p61). In the next section I describe kaupapa Māori research in greater detail.

Mātauranga Māori

Mātauranga Māori (Māori knowledge) was passed on traditionally in whare wānanga, and only certain people were chosen to participate; often they were identified at birth, then prepared to take on that role (Jahnke & Taiapa, 2001; Marsden, 2003). Even today, only certain people may have access to sacred knowledge such as whakapapa. Selby and Moore (2007) note that anything

related to tribal history is a spiritual matter that must be treated with respect and humility. Researchers who receive such knowledge are honoured, and bound in reciprocal relationships with those who have given it.

In recent times, understanding of intellectual property has grown, and the importance of safeguarding intellectual property has increased as much knowledge is lost through being taken, misused or misinterpreted by researchers and others (Jahnke & Taiapa, 2001; Smith, 1999). Ormond, Cram and Carter (2007, p188) report: “Indigenous knowledge has become very attractive. However, it can only become part of the knowledge economy if we are prepared for it to be commoditised and traded”.

In most academic research frameworks, there would be no apparent problem with a participant providing information as an individual on their own behalf; the assumption would be that this individual “owns” the information and has every right to divulge it to the researcher. However, in the Māori world, knowledge is often perceived to be owned collectively – by a whānau, or by hapū or iwi (Smith, 2006). That means access to that knowledge is likely to be restricted, it is possibly only available to certain people – and for certain kinds of uses. Sometimes restrictions placed on knowledge will be traditional; sometimes they will have come about because of suspicion due to previous misuse of information. Ownership and control of research and any outputs are very important considerations, and need to be fully and carefully negotiated. This negotiation may be very time consuming, but should not be underestimated, as once agreement is reached, the data-gathering phase is likely to proceed much more smoothly (Jahnke & Taiapa, 1999; Smith, 2006).

Kaupapa Māori Theory and Research

Kaupapa Māori research has been defined as research that is “by Māori, for Māori, with Māori” (Ahuriri-Driscoll et al., 2007, p61). This phrase describes research that is Māori-centred, and carries several important principles that underlie kaupapa Māori research, which I will explore in turn.

First is the notion that kaupapa Māori research should be carried out *by* Māori. Māori researchers have noted the importance of whakapapa links as enhancing credibility when conducting research in Māori communities (Gifford & Boulton,

2007; Henwood & Harris, 2007; Ormond, Cram & Carter, 2007). Linda Tuhiwai Smith (1999) writes about the importance of “emic” research – research conducted by researchers who are members of the same group or community. She also notes that “insider” or “emic” research has been described as biased and lacking distance and objectivity (Smith, 2006). However, Māori researchers claim that kaupapa Māori research challenges mainstream (Western) assumptions about how knowledge is constructed and explicitly recognises how relationships of power affect what (and whose) knowledge is accepted as legitimate (Barnes, 2000; Cram, 2006; Smith, 2006).

Pohatu and Warmenhoven (2007, p109) use the metaphor of fire burning a flax bush to explain their views:

Setting alight the exterior of the bush is likened to the purging of Eurocentrism and its pervading ideologies and systems that mainly serve to keep indigenous peoples from flourishing. The fire is indigenous research, the overgrowth is patriarchal post-colonial systems, nutrients in the ash are the resilient enriching knowledge, customs and practices of indigenous peoples, and the new shoots represent the coalition of newly developed and practical models that are harmonious with indigenous paradigms, knowledge and practices.

Thus kaupapa Māori research must be informed by, and grounded in, Māori world views (Barnes, 2000; Cram, 2006; Pohatu & Warmenhoven, 2007; Smith, 1999, 2006). Debate has centred around appropriate methodologies for conducting kaupapa Māori research; most writers accept the view that a range of methods may be used, so long as they can be adapted to ensure that Māori remain at the centre (Ahuriri-Driscoll et al., 2007; Barnes, 2000; Gifford & Boulton, 2007). Smith (2006) reports that in kaupapa Māori research being Māori is “a given”, and it is also assumed that researchers will critique structural relations of power and utilise cultural values.

The importance of research *for* Māori has also been noted by researchers who call for kaupapa Māori research to be transformative (Cram, 2006; Gifford & Boulton, 2007; Smith, 2006). For research to be useful within Māori communities, it needs to be consistent with community development goals of iwi and hapū (Henwood & Harris, 2007; Selby & Moore, 2007).

Linda Smith (2006) talks about the ways in which Māori communities are socially and economically disadvantaged, leading to multi-layered and multi-dimensional marginalisation. Kaupapa Māori research takes Māori from the margins or the edges, and places them at the centre; such research also “decentres” or disrupts mainstream knowledge (Ormond, Cram & Carter, 2007). However, Māori researchers working with marginalised communities may themselves be marginalised within mainstream institutions (Clarke, 2006; Smith, 2006). Working in the margins is not necessarily seen as a negative thing, since “interesting lives are lived in the margins” (Smith, 2006, p6); the margins have been identified as a place for innovative solutions, for radical possibilities, creativity and power (Clarke, 2006).

Māori researchers who work in and with Māori communities describe tensions in trying to meet both community and academic goals (Ahuriri-Driscoll et al., 2007; Gifford & Boulton, 2007; Pohatu & Warmenhoven, 2007). They may also be expected to take an advocacy role on behalf of the community (Cram, 2006; Clarke, 2006). Researchers have also reported that researching within their own community brings challenges due to multiple roles (such as being seen as a mokopuna, or being judged by the previous behaviour of relatives), or being seen as an outsider because of having lived away for too long (Ormond, Cram & Carter, 2007; Pohatu & Warmenhoven, 2007).

Adrienne Ormond (Ormond, Cram & Carter, 2007, p191) notes:

It's very hard working in your home community... They really hold you to what you say and it's not just that they hold you, you hold yourself because you just have this real sense of responsibility. To do what is right for them, represent them in a way that is fine with them and with the institution. It's a lot of work in your mind to get that settled so that you're at peace with it.

Research *for* Māori should be empowering and build Māori capacity within communities (Henwood & Harris, 2007; Pohatu & Warmenhoven, 2007), although Ormond, Cram and Carter (2007) report that it can be difficult to address the day-to-day hardships of Māori communities through research that aims for social justice. Henwood and Harris (2007) note that Te Rarawa has trained research assistants because of their commitment to building Te Rarawa research capacity for future opportunities and projects.

Conducting research *with* Māori requires kaupapa Māori researchers to work closely with those with whom they are conducting research. At the foundation of this is the need to establish relationships (Gifford & Boulton, 2007; Selby & Moore, 2007; Smith, 2006). These relationships will usually be reciprocal, and are likely to remain long after the research has been completed (Selby & Moore, 2007). Key elements of ethical relationships are reciprocity, sensitivity, connectivity and the application of tikanga (Gifford & Boulton, 2007).

The principal of “kanohi ki te kanohi” (face to face contact) is at the heart of relationship-building (Cram, 2001; Selby & Moore, 2007; Smith, 1999). Thus, maintaining community relationships is time-consuming, and may require researchers to attend meetings which are unrelated to their research but are integral to supporting community development (Gifford & Boulton, 2007).

Accountability is also back to the community (Selby & Moore, 2007) who hold the mandate for ethical approval (Gifford & Boulton, 2007). Communities will decide whether someone is ethical or a good person, based on the relationships developed, making this relationship-building an essential first step for ethical research in Māori communities (Ormond, Cram & Carter, 2007). Ormond, Cram and Carter (2007) note that when conducting research within their own communities, Māori researchers also need to maintain their professional role as researchers.

Appropriate methods for gathering information in kaupapa Māori research are those that encourage community participation (Barnes, 2000). Fiona Cram (2006) advocates for unstructured or semi-structured talk as a way of “depowering” the researcher; it has been suggested that the telling of stories is one way for indigenous communities to value indigenous knowledge systems (Lekoko, 2007). Durie (2005, cited in Ahuriri-Driscoll et al., 2007) argues that perpetuating a “methodological gulf” between science and indigenous knowledge is unhelpful, and that research methods should draw on both approaches as appropriate.

In the past one of the problems with research *on* Māori has been the interpretation by researchers from a Eurocentric view that fails to take into account Māori values, priorities, cultural beliefs or practices (Smith, 1999). Therefore, in order to make sense of research information, those responsible for giving it should also

be involved in interpreting it (Selby & Moore, 2007). A reflexive process of data analysis that allows participants opportunities to comment on the data and how it is interpreted is likely to assist with this (Cram, 2006). However, in the end researchers have responsibility for shaping their analysis to ensure that it validates Māori knowledge and values, critiques power relations and disrupts colonial discourses in ways that make a positive difference for Māori (Cram, 2006; Smith, 2006).

From the above statement, it is clear that kaupapa Māori research is always inherently political since it will, by definition, unsettle the status quo (Cram, 2006; Ormond, Cram & Carter, 2007; Smith, 2006). However, I would argue that all research is political, but in scientific research the values and worldviews being promoted are not explicitly stated. Kaupapa Māori research has an explicit political agenda - that is to legitimate and validate Māori, to ensure the survival and revival of our language and culture, and to assist our struggle for autonomy and survival (Smith, 1997).

Principles for Kaupapa Māori Research

From the literature on kaupapa Māori research, a number of important principles have been derived to guide researchers. The principles set out below have been described by both Fiona Cram and Linda Tuhiwai Smith in particular, but are widely accepted by Māori researchers:

1. Aroha ki te tangata (a respect for people);
2. Kanohi kitea (the seen face, present yourself to people face-to-face);
3. Titiro, whakarongo... korero (look, listen... speak);
4. Manaaki ki te tangata (share and host people, be generous);
5. Kia tupato (be cautious);
6. Kaua e takahia te mana o te tangata (do not trample over the mana of people); and
7. Kaua e mahaki (don't flaunt your knowledge) (Smith, 1999, p120).

In any research, whether undertaken by insiders or outsiders, the researchers need to know the specific tikanga for that group (Jahnke & Taiapa, 2001). This might be assisted by having a cultural advisor who is a member of that group – however, such an advisor should be chosen with care – and should be acceptable to the

group. Because of this consideration, I chose two cultural advisors who are members of my hapū.

The principle of kanohi kitea (the seen face) means it is very important to front up in person to meetings or other community events whenever possible, even if these do not relate directly to the research. Being accepted by the group is vital to the research, and the researcher may be seen as an expert who can do other things for the group. Reciprocity is a notion often not considered by academic non-Māori researchers, but may be part of initial negotiations with the community. These important principles were incorporated into my research design, so that before I undertook my research, I gained permission from the community.

Ownership and interpretation of information both needed to be negotiated at the outset. My research design included reporting my findings back to a community hui before they were finalised. I also needed to consider ways of dealing with sensitive information in writing up my findings, to ensure this information would not be compromised.

Research which merely supports the status quo (e.g. that tells us that Māori communities are poorer, less educated or have less access to resources) is unlikely to be helpful or bring about change. However, research that seeks solutions to a perceived problem, and can foster creative thinking about possible solutions, or even research that investigates social and cultural contexts that contribute to Māori communities being disadvantaged, will be preferable to research that simply “admires the problem” and reinforces negative stereotypes. In my research, I endeavoured to provide research that would have value for the community, and might lead to some practical outcomes.

Accountability

Accountability is not simply keeping others informed, it implies a commitment of involvement and that there should be significant levels of control over research processes by the community (Gifford & Boulton, 2007; Spoonley, 2001).

All researchers are likely to have multiple accountabilities:

- To research participants
- To community and community leaders

- To their own whānau or hapū, kuia & kaumātua
- To academic institution/s (e.g. completion of a degree or diploma)
- To research ethics committees – not to vary from what was agreed
- To funders

These lines of accountability are all important, although at certain points some may take precedence over others. In my research, most of these accountabilities were present, and at times it was difficult to satisfy all demands.

Researching in my own community

The issue of who can (or should) conduct research with Māori is contentious, although there is general agreement that kaupapa Māori research should always be Māori-led (Cram, 2006; Ormond, Cram & Carter, 2007; Smith, 2006). Being an outsider to a group can be both an advantage and a disadvantage. It is an advantage in that the researchers may be less likely to get caught up in the politics of that group, but can stand back and see things more objectively. On the other hand it may be a disadvantage, since people may be suspicious; researchers may lack necessary understanding of tikanga or of important relationships already operating in the group.

As a member of Te Uri o Tai Hapū in Pawarenga, I was connected by whakapapa to the group with whom I was conducting my research and was well known to all of my participants. Although I have lived away from Pawarenga since my teenage years, visiting home frequently for community events has kept me in touch with people.

Method

In this second half of the chapter, I describe my research methods. I designed this research in three stages, since researching in my own community required me to attend to the principles outlined above, in particular the need to obtain permission for the study before beginning and the importance of returning the findings to the community for comment before they were finalised.

Stage One

In this stage I visited Pawarenga and spoke with a number of community members about my proposed research in order to familiarise myself with what

local issues were current. I also endeavoured to gain permission to undertake my research. Gaining permission was not a straightforward process due to cancellation of hapū meetings, but all those I spoke with were supportive of my research and encouraged me to continue.

Stage Two

On my second and third visits to Pawarenga, I conducted two focus groups (hui), one in March 2010 and the second in April 2010. Both were advertised in *Te Karere* (hapū newsletter) and through local networks. Each hui was approximately two hours long. In the first hui I showed *Te Ao Wera* (DVD) and then facilitated discussion about flood management. I took handwritten notes of this discussion. In the second hui, I showed participants a tape of the 1999 flood disaster in Pawarenga, and then facilitated discussion. The second hui was video-taped with the permission of participants. I also conducted interviews with 18 individuals in the community who were unable to attend the hui. These interviews were either video- or audio-recorded with the permission of each participant; some participants preferred not to be taped, so I took notes of these interviews instead.

Stage Three

Following the initial data-gathering stage, I transcribed the audio and video-tapes and organised the information into a number of topics and preliminary themes (Attride-Stirling, 2001). Once the initial themes were identified, I grouped the themes into clusters that represented broader or “organising themes” (Attride-Stirling, 2001).

I then took my preliminary findings back to a further hui with participants in the community for their comments and discussion. For this hui I designed a poster that summarised my main findings and contained a diagram of the main themes I had identified in my preliminary data analysis. Not all participants attended this hui, so I was unable to obtain feedback from everyone who participated and contributed to my findings. In fact, those who attended this third hui gave very little feedback on my analysis.

Research Data

Qualitative information was collected from my notes taken during semi-structured interviews and hui, and from transcripts of video and audio recordings of interviews and hui. Research data also included marae plans from each of the three marae in Pawarenga, and the Te Uri O Tai Hapū Plan, my own research notes and journals that contained both reflections and observations.

Data Analysis

A grounded theory approach was used to analyse the information collected from all participants in order to identify the key focus areas and themes (Glaser & Strauss, 1967). However, in addition to this kind of inductive analysis – working “up” from the data – I read the texts critically, as accounts constructed for a particular audience within the current research context, and also influenced by (constructed within) a colonial frame (Smith, 1999). The initial focus areas were then clustered into groupings of similar focus. Each one of these clusters was given a name or “organising theme (Attride-Stirling, 2001). Finally the organising themes were arranged in relationship to each other in a thematic network (Attride-Stirling, 2001).

As part of my data analysis I constructed a diagram to illustrate the network of themes that I drew from the data. As I began to write up the findings, some of the categories I had originally used were combined and new themes emerged. Connections between themes were also identified and added to the diagram. This diagram was very useful in visualising the connections between the different themes that participants spoke about (see Figure 6 in Chapter Five).

Recruitment Procedures

Initial consent to undertake the research was obtained from hapū members to ensure that my research topic and approach were acceptable to the community. Participants were identified through hapū networks and invited to participate either through personal information or through advertising in the hapū newsletter. Before agreeing to participate, participants were given an information sheet (see Appendix A) explaining the purpose of my study. They were told that they could withdraw from the study at any time if they wished, and assured that all information would remain confidential, with pseudonyms used to ensure that they remained anonymous. I also explained the study verbally and provided an

opportunity for participants to ask any questions. Participants were then asked to sign a consent form before they participated (see Appendix B for a copy of the consent form).

Interview and Focus Group Questions

Initially I designed a set of interview/focus group questions that were loosely based on the four key headings identified in the *Rotokakahi River Management Proposal*. These questions asked directly about the value of using mātauranga Māori and tikanga in flood management in Pawarenga. I had planned to ask specifically about the practical value of using tikanga when considering the safety and health of the community, protection of property and buildings, reducing risk to infrastructure (roads, bridges, power and telecommunications), protecting the environment and ensuring people were looked after (see Appendix C).

However, at my initial hui it became clear that participants were uncomfortable with a direct question being asked about tikanga, and I was advised to find a less direct way to approach the topic. As a consequence, in all subsequent interviews and hui I approached the topic more tangentially by asking people about how they had responded to past floods and what they thought the community needed to do to prepare for future events. This approach generated broad discussion and was more fruitful than a direct question-based approach.

Research Ethics

Initial consent to conduct the research project was obtained from Te Uri O Tai Hapū before the research was undertaken. The research involved a process of relationship-building with the local community. The principle of kanohi ki te kanohi meant it was important for me to consult the hapū prior to conducting my research, and attend marae meetings.

Adherence to the ethical guidelines of the University of Waikato (e.g. using information sheets and consent forms) and the application of kaupapa Māori ethical principles ensured that cultural values were protected and integrity maintained. Approval to carry out this study was granted by the Faculty of Arts and Social Sciences Research Ethics Committee in November, 2009.

Participants were informed that the purpose of my study was to meet the requirements for a Masters in Social Sciences thesis in Geography at the

University of Waikato. They were also advised that some parts of the research may also be used for conference presentations and journal publications. A summary report of the findings will be given to Te Uri o Tai Hapū once my thesis is completed for them to use for planning purposes.

All participants were aware of my whakapapa connections. Potential conflicts of interest due to my relationships with participants was minimised by inviting them to give feedback on my analysis of the information. Participants were not paid for their participation. Koha, in the form of refreshments and reimbursement for travel, was offered in return for participation.

In accordance with the Mataatua Declaration the data collected in this study remains the intellectual property of Te Uri o Tai Hapū. In seeking informed consent from participants, I requested permission to use this information for my thesis, and also gave them the opportunity to recheck or correct information once transcribed or withdraw information up to one month after data collection.

This study adhered to the principles of the Treaty of Waitangi. A kaupapa Māori approach assisted in ensuring that Māori values and worldviews were incorporated within the research. Māori ethical processes guided all aspects of this research.

Chapter Five: Findings

As I described in the previous section on method, the data themselves were in a number of forms, including my notes from hui and individual interviews, audio recordings of interviews, my journal notes containing my observations and reflections, video recordings of hui and video recordings of individual interviews. I have also included archival data in the form of marae and hapū plans in my data analysis.

Five main thematic networks were identified and used to organise the data; each of these networks has an organising theme that characterises the information cluster and around this organising theme there are a number of linked and related themes. These themes are illustrated in Figure 6. The first of these organising themes was *Resilience and Strengths*. Linked to this theme were five sub-themes: learning from the old people, self-reliance, talents and skills, resourcefulness and tenacity. The second organising theme, which I also linked to *Resilience and Strengths*, was *tikanga*. Linked to *tikanga* were principles of tika-pono-aroha, whānaungatanga, manaakitanga and kaitiakitanga. Although *kaitiakitanga* was one of the themes related to *tikanga*, this important principle was also the organising theme for a number of other themes: flood prevention, flood mitigation, restoration of the river and water quality. The fourth organising theme was vulnerability, which served as the central organising theme for a number of related themes: cultural vulnerability, economic vulnerability, physical vulnerability, social vulnerability and political vulnerability. Political vulnerability was an organising theme for three other themes – scepticism about government understanding, lack of “voice” and mistrust of experts from outside the valley. Participants’ reports of the effects of flooding have been linked to all aspects of vulnerability. I have presented these networks visually in a diagram that shows the links between themes.

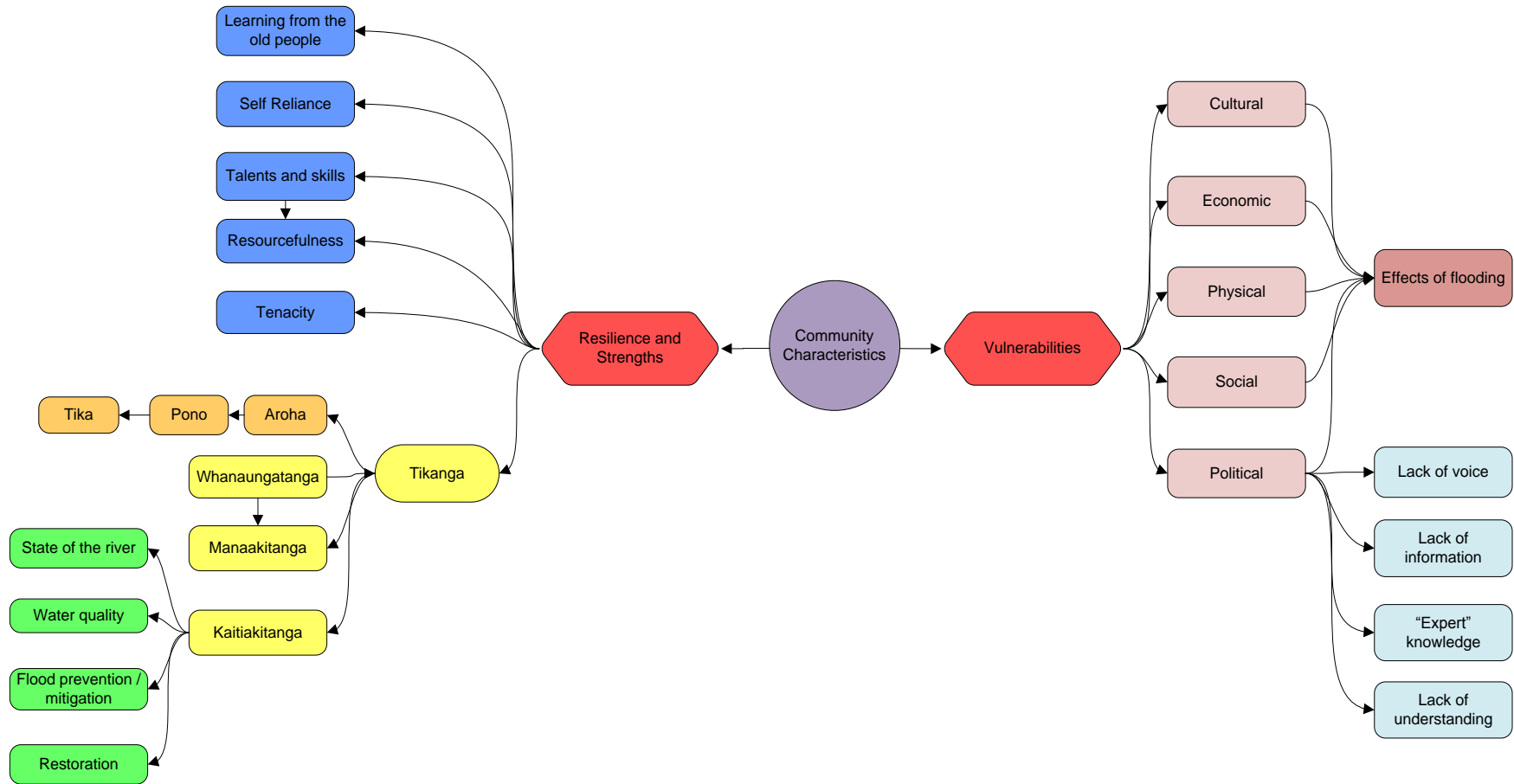


Figure 6: Diagram of thematic networks

Resilience and Strengths

In all of the interviews and hui, participants talked about a range of positive attitudes and behaviour that they thought were common to them in Pawarenga. This section explores the strengths. I have chosen to group the information under the headings of learning from the old people, self-reliance, talents and skills, resourcefulness and tenacity. These headings mirror the subthemes that I used to tease out the information, but are interconnected.

Learning from the old people

Several people reported that the older generation had passed down many useful skills from earlier times, when it was important to be self-reliant and resourceful. Participant A described how on one occasion she had been called on to help an old kuia set her fishing net: “Crossing the creek with an old lady (86 year old) to set the net. The next day we went back and there was fish for her to eat”. There was an understanding that earlier generations had a broad range of different skills that they needed to survive in Pawarenga, and which they had passed on to younger generations within their own families:

Another thing here – age means nothing [Name] My neighbour next door is 70 years of age. She could build her own home if she could hold a hammer. I saw her coming down to fix her fence one day and I said to her “you’re supposed to be in bed” and she said “what! Go lay there and die?”
(Participant A)

Every house should have a garden. One person that still does I know still does a big garden even today. [Name] rotary hoed it up for him. He takes after his grandmother I suppose. I think it’s following on from the old people... those old people who just did the work. Modelling from the parents
(Participant E)

These skills and strengths are further explained in the sections that follow.

Self-reliance

Several participants reported that people in Pawarenga are self-reliant. The need to be self-reliant meant that people had a “can do” attitude, and just got “stuck in” when anything needed to be done.

It’s the beauty of the land of Pawarenga. No one else lives like this. [Name], he can see the bus had broken down over there, off he goes on his tractor, fixes the bus and away it goes (Participant A)

The valley looks after itself. What gets done, we do it ourselves, from our own pocket (Participant H)

If I can see I can do it myself, I'll do it (Participant D)

During flooding events, this ability to do things for themselves was considered vital, since the community needed to be able to take care of itself in the first instance. One person reported:

We've learnt from ... (previous floods) that we ourselves have to be the care giver of ourselves until such time we can get help. We know all the organisations that help, then we have got Civil Defence to see if there is any dangers to life and limb, and they probably go out and leave it all to us. There's really no assistance for us... We know we have to look after ourselves for a start. The last one (flood), I tell you, we never had one ounce of government assistance at all (for the cleanup)...not one ounce. (Participant B)

Talents and skills

Several participants agreed that people in Pawarenga had many talents and skills that were useful to them in their everyday lives. These skills were also very useful in responding to flooding.

They're amazing, these people here. When you really think of all the engineers they have in the city. Our people don't have the tickets, but they can tell you if you're doing the wrong thing... natural engineers... These young fellows, they're so talented. We've got builders, we've got plumbers, we've got electricians... but they're not ticket holders. They keep us alive. (Participant A)

People learned these skills in very practical ways, when things needed to be done. One person noted that those people who had grown up in Pawarenga were more likely to have learned practical skills, but young people who had grown up away from Pawarenga did not have the same skills:

The people of the valley, they're so young, they're children, but put them on a boat or a horse, they can do fencing, kill a cow... they go out on horses when it's flooding and check all the old people and take them to a warmer place... But these are the stories we have here with our young ones... (Participant A)

Resourcefulness

Resourcefulness was common, and daily life in Pawarenga required people to be able to survive with few resources:

I came from a job that paid me [amount] each week. Why did I come back here? It's about people, it's about survival; it's about just being. People look at me for who I am. Over here, it's just life, and you don't know life until you come here (Participant A)

Tenacity

Tenacity was another strength attributed in particular to the older people in Pawarenga:

I feel sorry for us, I feel sorry for our oldies, eh, because they're hanging on to this place. We can turn around and walk away, but they won't, and why should they? You can't get these old people to leave their homes. If a flood's going to take them, they're going to go. If they're cold (they'll say) "no way I'm not leaving" (Participant A)

Summary and discussion

Overall, participants gave a picture of Pawarenga as a resourceful community, where residents had a range of useful skills and talents and a positive attitude towards getting stuck into doing whatever needed to be done to survive. When floods came, these same skills were able to be brought into good use, to ensure the safety and survival of the community. The geographical isolation of Pawarenga has most likely fostered such attitudes and skills.

These findings are similar to those reported by Hudson and Hughes (2007) who noted that Māori communities were very practical in their response to flooding and due to isolation were used to coping with difficult situations by themselves. They also support other studies that have found community participation to be important in flood response (Spee, 2008; Ward, Becker & Johnston, 2008); my participants' comments above demonstrate existing capacity in the community that would enable them to participate in emergencies.

In comparing these findings to previously published writings on resilience and adaptive capacity, it was clear that people in Pawarenga demonstrated a number of components of both of these concepts. Firstly, they showed capabilities in organising themselves, both generally and during flood events, one of the components of resilience identified by Folke et al. (2002). They also had capacity to respond, which Gallopin (2006) noted was an important factor in resilient communities. Participants described examples when the community coped well with disturbances and when flooding occurred were able to utilise local knowledge to respond to these events (Adger, 2006; Folke et al., 2002). I found evidence of collective ability to plan and adjust to sudden hazard events in ways that ensured community safety and minimised risk, all aspects that have been seen as important dimensions of adaptive capacity (Gallopin, 2006; Klein, Nicholls & Thomalla, 2003; Smit & Wandel, 2006). Thus Pawarenga has been described by

my participants as a community which demonstrates both resilience and adaptive capacity.

Tikanga

Titiro ki mua, he tohu mo muri
Look to the past as indicators for the future
(Te Rarawa whakatauki)

This section contains information about various aspects of tikanga that participants saw as useful, and that I identified from the hui and interview data. I begin by discussing what participants said about tikanga generally and then consider a number of key values and principles that came out of their korero.

In my very first hui, one kuia gave me instructions about how to proceed in identifying ngā tikanga ā hapū. She told me to carry out individual interviews with people who were directly affected by the floods rather than marae hui, look at what people said, and from that I should be able to pinpoint what the tikanga is. She asked me to write this up and then come back and check it out with her. She went on to describe her understanding of tikanga:

Tikanga is what your mother did... How she took care of the whenua has a lot to do with what your mother did... how she provided and cared for you children... what she produced from her beautiful gardens, and then look at what everybody produced from their gardens back then. Think about how everybody helped each other with their gardens. Once you understand that and how she gave to her children and to everybody else, that way you will know exactly what everybody else did in Pawarenga. (Participant C)

Talking about tikanga was not a focus for participants, which meant that asking the questions I had originally designed was not the best way to gather the information I needed. As noted in the previous chapter, I followed the advice of my Māori advisor about approaching the topic of tikanga by introducing it in a particular way.

One of the interviewees who wanted more information about how tikanga was relevant to flood management then replied to my question by saying that “I think it’s because we just do things up here, we know who’s going to do what, we all know our roles, so when something needs to be done, it’s actually something we don’t need to talk or think about” (Participant F). I remembered that when I was growing up in Pawarenga, part of the tikanga was that people never talked about

tikanga as such; it was something people just did in a certain way that one would recognise as being tikanga. A marae event was particularly understood to involve a certain kawa or way of doing things. Kuia and kaumatua would be guiding and informing people about how things would take place following consensus from certain people. Tikanga informed me about being respectful and was measured by people's actions.

One of the marae plans noted that tikanga was often taken for granted and that people had various levels of understanding. A kaumatua from Taiao Marae told me in March 2003 that at a hui held for young people there was genuine desire to develop Te Uri O Tai tikanga and kawa. He said: "firstly tikanga and kawa has to be understood by our people. Everyone has a different concept here. We need to ensure our concepts are understood and expressed our way" (Participant G).

Information from interviews and hui demonstrated a number of specific tikanga principles: tika-pono-aroha, whānaungatanga and manaakitanga, and kaitiakitanga. Brief subsections below report what people had to say about these specific tikanga principles and values.

Tika, Pono, Aroha

In this thesis, it is important that I place tika, pono and aroha as the cornerstone of all the tikanga values and principles that I have described below. One participant when asked what tikanga principles might be useful in flood management said: "I suppose you could use whānau, awhi, you'd use aroha you use pono you use tika. Pono me te aroha, me te tika" (Participant B). Other participants present when this statement was made agreed with it. Tika refers to doing things correctly, while pono refers to whether something is "true" or genuine" (Mead, 2003). Aroha is a broad concept of love, compassion and caring (Mead, 2003). These three terms are often used together as a way of judging whether a particular behaviour has upheld the required principles or standards, and thus has cultural integrity (Mead, 2003).

Whānaungatanga and Manaakitanga

I have grouped information relating to these two important tikanga principles together in this section, since the comments made by participants often demonstrated both at the same time. Whānaungatanga emphasises the importance

of relationships among people, while manaakitanga emphasises nurturing and caring. These two values were closely linked, particularly since most of the families living in the Pawarenga are related to one another. Most importantly some families live on Māori land blocks passed down from their ancestors or land which has now been converted into European title.

Participants reported that whānaungatanga was a very important part of their lives. They noted that ahi kaa look after the marae for all the whānau that do not live in Pawarenga. In order to do this, they undertake fundraising activities, cover the costs and host tangihanga. Participant I noted: “...when we do the hangi someone’s got to cut the wood, someone’s got to take it down there, and some one’s got to dig the hole.”

Participant B reported that people in Pawarenga were actively involved within their families and community:

Wayward kids, we bring them home and try put them on the right track, we feed them, we show them some skills like to go to the coast to get seafood... we do a lot of things like teach our reo, whānaungatanga, a lot of voluntary work, build houses, you know, those are the things we under-value ourselves doing.

These participants considered that the Pawarenga community makes a big contribution to the economy through looking after whānau when they return home, entertaining them and supporting the young people when they were in trouble. However, whānau also returned home to Pawarenga at certain times to help out with working bees and participate in fundraising events such as the annual fishing competition.

Similarly, people reported that during floods, people in the community pulled together to help one another out. “You know when you are in this place here when anything drastic happens to whānau everybody comes on board and gives you help. If you lose your house, somebody comes in and gives you stuff” (Participant I).

When flooding occurred, community members immediately got stuck in to make things safe and help with the clean up. This involved firstly simply getting to the houses that were worst affected, removing debris from around and under houses, and clearing septic tanks so they could be drained. One person reported that

young people would jump on their horses to take supplies to those kuia and kaumātua who did not want to leave their houses.

Many whānau living away from Pawarenga also helped out following floods. One person reported sending her children back to help; another remembered that many whānau sent either money or supplies with support from their workplaces.

We were in Auckland at the time. We sent thousands of dollars home. We also sent rolls of fence wire home. The kids were working in different places, so they got together koha and food for the People who were just trying to survive (Participant A)

Another person recalled someone driving a van loaded with supplies up from Tauranga. Both local people and outsiders provided assistance:

A lot of people came to work voluntary...people coming in from everywhere, army with supplies, Mitre 10, St Vincent de Paul. Clothing, food, shovels, spades, cleaning stuff. We dished it out to each family (Participant B)

It was clear from the hui discussion that a great deal of assistance came from outside Pawarenga. Most of it was distributed from the Pawarenga Trust building further up the valley because of the difficulty in accessing low-lying areas. One person reported that so much stuff arrived that they had asked for some of it to be taken to other communities also affected by flooding.

In the 1999 flood, Morehu Marae was opened up to accommodate people who were unable to stay in their houses due to the flooding. When I asked the group how people were fed during the flood, one person replied:

Every whānau helps out and everybody looks after themselves. However, if there's one common place where they need to be staying, well we all put in towards their accommodation and there are also the donations that come in from other organisations (Participant B)

Another participant reported that everybody in the valley and surrounding areas had come to help, working for nothing to help whānau to return to normal. In summing up, Participant B reported: "There were people who gave so much of their time from their hearts that they deserve a medal...yeah, there was a lot of love... a lot of awhina." Participant I believed that the Pawarenga community had done a great job because of their local knowledge: they knew where everyone lived, who would have the greatest need, and who was the best person to call on for particular assistance. From these responses it can be seen that

whānaungatanga and manaakitanga proved to be very valuable tikanga values when the community needed to respond to flooding.

Kaitiakitanga

Kaitiakitanga was talked about in a holistic way, and encompassed a number of different nurturing roles, related to both people and the natural environment. One person reported: “We are born Māori, we live Māori, we talk Māori and we nurture the whole person as Māori” (Participant C).

Marae and hapū plans identified a range of environmental issues that included the need to care for and restore forest, rivers and harbour, to manage fisheries, eliminate pest species and develop alternative energy sources. In these plans, the need to re-establish kaitiakitanga in Pawarenga for Te Uri O Tai was acknowledged. The *Taiao Marae Plan* (2008) prioritised the need to nurture their whānau into kai-korero, kai-karanga, kai-waiata, and kai-pūrākau roles. The *Morehu Marae Plan* (2008) identified kaitiakitanga as a priority. Similarly, the *Ohaki Marae Plan* (2008), due to this marae having been directly affected by flooding in 1986 and 1999 during which they suffered severe damage, focused on structural restoration.

Participants talked about the need to set up a flood management committee, but thought this needed to be something that came from the whole community. Related to kaitiakitanga, participants talked more specifically about the present state of the river, water quality, flood prevention/mitigation and the need for restoration.

State of the river

Participants thought that the rivers in Pawarenga, particularly the Rotokakahi River, had changed in recent years. Participant A said:

There’s been so many changes in our little valley in the last five years. The banks are caving in.

Participants agreed that riverbeds had silted up, making the rivers shallower and flooding more likely. Silt washing down the rivers had also affected the Whangape Harbour. Participant J said: “that’s a water flow problem, that’s the amount of water that comes down there, the water just pours down.” He also noted that after that last big flood, the water supply dried out more often, so the

water must have gone underground somewhere. This view was confirmed by one of the kaumātua.

Water quality

Several people reported that water quality had declined in both rivers and harbour:

Water quality has deteriorated. When we first came here we could drink the water, now no way unless it's been treated. The water is paru (dirty)... The harbour was filthy because rivers and creeks, stock were in, drinking and stamping it, once they're fenced and planted natives, it filters the water
(Participant D)

Threats to water quality came from sheep, cattle and horses that meandered across the river bed at times looking for grass and water. This is also due to there being no fences along the river banks to keep stock out. In the middle of the valley a number of car wrecks abandoned close to waterways seem to be having a significant negative effect on the estuaries where the mangrove trees are dying off. River banks require riparian planting to provide shade for water quality and in-stream biodiversity. Low water flow at certain times of the year also leads to reduced water quality (Proctor, 2006). The importance of keeping the rivers clean and fresh was reported:

Apart from flood management it's about keeping the river clean. Fresh water is such a commodity that it's very easy to abuse it, aye; we take it for granted
(Participant K)

These comments demonstrate concern that the mauri of Pawarenga rivers has been weakened, and that this needs to be addressed. Participants came up with several ideas for improving the state of the river and the quality of the water, which are described below.

Flood prevention/mitigation

All participants agreed that flooding was a regular occurrence in Pawarenga, and not something that could really be prevented:

I don't think you can prevent something like that happening again because it came from up in the forest. (Participant I)

However, they thought that planning ahead was needed to ensure flood damage could be minimised as much as possible. Planning needed to "...look at ways of enhancing the Warawara Forest and adjoining lands to help reduce the impacts of flood damage" (Ohaki Marae Plan, 2008).

Floods occur regularly in Pawarenga and there is a need to plan ahead... to have good civil defence systems in place, to understand the patterns of flooding, to make sure houses are sited away from the areas of most risk, and to undertake effective maintenance of waterways to mitigate the worst impacts from flooding. (Te Uri O Tai Hapū Plan, 2008, p1)

Participant B reported:

Prevention is one of the things you want to establish... there's not a hell of a lot of things that we can prevent, but...our river beds are one area, they need to be addressed. We just get a little bit of rain now and the ... beds just overflow over the top.

Participant J identified drainage as a big problem, and thought that money to do the drainage was needed. He proposed that a restoration plan be developed, that would create employment and care for the river:

Preparation is the biggest thing... we need to apply for a grant... You want the funding for the nursery for the shrubs, or if not creating employment and doing it ourselves.

Participant K recalled:

Now down at [Name]'s I heard that all those logs went around the house so surely if you have some sort of barrier behind your house you would have some sort of protection because hers was just a fence wasn't it (all agreed) and all the logs just parted away from her house.

Participant L also reported that he had noticed the fence behind his house slowed the flow of the flood down so that rocks and logs just dropped out. He suggested that planting a row of trees would have the same effect, while Participant K proposed planting flax bushes. At Ohaki marae, Participant B noted that the toilet block behind the old marae had also provided a barrier so that the water just went around it.

The flood protection measures that people described above could be simple and small practices that would be easy to implement and might provide protection. In the next section I look more specifically at suggestions that were made for restoration.

Restoration

Restoration, particularly of waterways, was mentioned by several participants.

One of the suggestions was riparian planting as a way to combat siltation.

Participant D, who had planted willows some years previously, reported:

I planted two lines (of willow trees). The first line used to wash out but the second line took root. Now the trees are catching a lot of the silt, instead of it running away to the harbour. No more clearing the land and letting the trees go into the river.

He also thought it would be good to use native plants and went on to say:

The thing is we've got to keep stock out, plant trees and fence stock out... What about all the little streams, you'd have to do those too...everybody's got to get together; I probably could do my stretch.

Another participant proposed a comprehensive restoration plan that would involve preparing, planting and maintenance of the river. He thought a nursery was needed in order to grow sufficient plants, and that it would be necessary to plan for what could be done manually and what would need machinery:

... It's a big project... machinery and labour, more manual labour than machinery. It's going to create employment... It's going to require pulling those logs out, we need to approach the landowners, shareholders, about putting those shrubs along the waterways... maybe not the whole length of the land, maybe just a couple of patches. (Participant J)

Summary

The need for active kaitiakitanga was acknowledged by participants who described issues with the river silting up and with water quality. They recognised what needed to be done to restore waterways and identified that planting flood barriers, drainage and riparian planting could all contribute to preventing more severe flood damage. However, lack of resources such as machinery and funding continued to be a barrier to action.

Discussion of Tikanga findings

The findings described above provide evidence of some of the ways in which people in Pawarenga utilised tikanga concepts in their everyday lives, and when responding to flood events. Although participants did not identify particular actions as examples of tikanga, their stories of how the community responded together when flooding occurred are in my view clear evidence of tikanga in action. Growing up in Pawarenga when it was a vibrant community in the time of our grandparents and parents from the 1950s through to the 1980s provided for a healthy learning environment that was carried on throughout the next generation. Tikanga permeated throughout all aspects of participants' lives and therefore provided a basis for responding to floods or any other emergencies. Having the

three papakainga with their marae structures and networks that embrace and uphold kawa and tikanga supported such responses.

The tikanga findings also demonstrate some of the characteristics of resilient and adaptive communities described in the literature. Again, there are clear examples of people's capacity of response (Gallopín, 2006) and a capability for self-organisation (Folke et al., 2002). In addition, local knowledge is recognised as valuable in emergencies (Adger, 2006; Folke et al., 2002; Fraser et al., 2006). Importantly, there is clear evidence that the important principles identified by Mitchell et al. (2010) for emergency response planning in Aotearoa New Zealand are already demonstrated through these examples of tikanga in action in Pawarenga, even though civil defence authorities have had no input.

From linking participants' examples of flood response to the international literature, it can be seen that tikanga offers a system of action that enables the Pawarenga community to demonstrate both resilience and adaptive capacity in the face of hazard events. Tikanga appears to provide a framework for immediate response that cuts through the emotional responses that other writers have described as inhibiting the ability to plan (Spee, 2008; Ward, Becker & Johnston, 2008). Through relying on their tikanga Māori communities demonstrate their resilience in emergencies.

The examples given by my participants are similar to reports of Māori responses in other flood-stricken communities. In the Manawatu floods, Māori associated with Poupatate Marae responded by mobilising community resources in a very similar fashion (Hudson & Hughes, 2007). Busby's (2010) account of Māori flood response in the Eastern Bay of Plenty also demonstrated that tikanga values and actions are the foundation for strength and resilience in Māori communities.

The specific tikanga values that I identified in my data analysis are similar to those identified by Māori scholars writing about environmental management and sustainability (e.g. Harmsworth, 2002b; Tipa & Tierney, 2006a, 2006b). Some of the observations made by participants about the river demonstrate that they are using indicators similar to those described, for example, by Gail Tipa (Tipa & Tierney, 2003, 2006a, 2006b) and the PUCM researchers (Jefferies & Kennedy, 2009a, 2009b).

Many other Māori writers identify the importance of mauri as an environmental indicator (Harmsworth, 2002a, 2002b; Jefferies & Kennedy, 2009a, 2009b; Matunga, 1994, cited in Durie, 1998; Morgan, 2004, 2007). Although my participants did not talk specifically about mauri, their comments about the state of Pawarenga rivers suggest they have noticed effects on mauri from a variety of sources.

My participants described actions that I have categorised as demonstrations of whānaungatanga and manaakitanga. The basis for whānaungatanga is whakapapa or kinship connections (Harmsworth, 2002b). Morgan (2004, 2007) has clearly identified the importance of relationships and whakapapa, and environmental impacts on the mauri of whānau. Mead (2003) has noted the importance of both whānaungatanga and manaakitanga and the relationship between them; Tomas (2006) reports that both whānaungatanga and whakapapa provide the overarching framework of tikanga in Te Tai Tokerau.

Kawharu (2000) links manaakitanga to kaitiakitanga, a link also evident in my participants' responses. Although my participants did not talk about kaitiakitanga as such, marae and hapū plans did note its importance in future planning. Kaitiakitanga has been identified as a significant value in environmental planning and management by most Māori who write about environmental concerns (e.g. Clarke, 2006; Harmsworth, 2002a, 2002b; Kawharu, 2000; Marsden, 2003; Morgan, 2004, 2007).

Thus it would seem that the tikanga values expressed by my participants are similar to those reported as important by other writers. These values provide the basis for Māori community response to natural hazard events in the same way that they provide for response in many other everyday situations. Tikanga values are not only found on ceremonial occasions, but underpin the daily lives of Māori communities and are the basis for their resilience.

Vulnerabilities

Participants described a number of different but related ways in which the Pawarenga community could be seen as vulnerable, including cultural, economic, physical, social and political dimensions. In this section, I describe each of these dimensions of vulnerability in turn, then synthesise all of the information to

provide an overall assessment of the vulnerability of Pawarenga during flood events and more generally.

Cultural Vulnerability

Memeha noa ngā tikanga, memeha kau ngā taonga

When the traditional practices fade, our traditional resources dwindle
(Te Rarawa whakatauki)

Cultural vulnerability includes a range of potential risks that may potentially challenge the integrity of culture, in addition to the spiritual aspects of life. Sims and Thompson-Fawcett (2002, p261) report: “The phrase ‘tangata whenua’ with a literal translation of ‘people of the land’, embodies the concepts of the interrelatedness between and the people and their environment”. The landscape provides a connection to deities, ancestors and descendants.

In this section I describe a number of aspects of cultural vulnerability that are relevant to Pawarenga. These include lack of te reo, not having enough people in the community to fulfil cultural roles, and a need for succession planning and to re-establish connections with whānau.

When it came to cultural roles, one participant reported that there were not enough kaumātua left in Pawarenga to fill marae roles on the taumata; marae and hapū plans also reported this same phenomenon. Lack of skills in te reo and not knowing history and whakapapa were seen as stumbling blocks for encouraging people to take up kaumātua roles. Succession planning was identified as a way to ensure people were available for such roles in future, through mentoring middle-aged people into marae roles. Such planning needed to focus also on encouraging young people to learn te reo and tikanga so they can actively participate on the marae in future.

Passing on of cultural knowledge was considered valuable. This could be done through documenting history and holding wānanga to pass on history and whakapapa. The marae was seen as the appropriate place to engage in whakapapa. Another issue contributing to cultural vulnerability was that many whānau members do not live in Pawarenga, and only returned for brief visits such as tangihanga or to work on specific whānau projects. For example, the

rebuilding of Taiao Marae in the 1980s was carried out and driven by whānau living in Tamaki-Makaurau.

Marae and hapū plans noted that it was vital to maintain whānau connections and ensure that those living away from Pawarenga had opportunities to return home and learn about their roots. Residents reported that at present marae facilities are under-utilised and some whānau are no longer using the marae, even though it could be the community focal point. In the *Ohaki Marae Plan* (2008), people identified a need to ensure costs for using the marae were not so high that they would keep people away.

Because of the strong links between people and the land, anything that challenges this connection may increase cultural vulnerability. Flooding contributes to cultural vulnerability since it can destroy cultural sites – a reality reported by several of my research participants. Damage to the Warawara Forest, to rivers, streams and the Whangape Harbour was reported to compromise the mana whenua of the people of Pawarenga.

Economic Vulnerability

Although Participant B reported that Pawarenga whānau contributed to the economy by looking after their people when they returned home and by taking care of rangatahi who were in trouble, participants also acknowledged that the community was small and economic opportunities were scarce. Marae and hapū plans noted that there was a need for sustainable employment in Pawarenga that would provide income for locals, since most of those people who are employed have to travel out of Pawarenga to work. A need to reduce dependency on government assistance through creating economic opportunities in Pawarenga was identified. Suggestions were diversification of land use, conservation management and eco-tourism.

Some of the suggested flood prevention measures such as maintaining drains and building fences and flood barriers were unable to be implemented due to lack of resources. One participant noted: “I would like to see our people doing the work, they need the employment and should be paid to do the drains” (Participant M). Funding made available for housing following the 1999 flood had mostly gone to other communities who were even more devastated (Participant B).

Another participant asserted:

There's a lot of funding out there. You want the whole thing worked out in terms of priority, then people will come on board. And creating employment for the young ones around here... a big yes to employment (Participant J)

Lack of resources and employment were considerable issues for the Pawarenga community, contributing to economic vulnerability. Residents have plenty of ideas for sustainable economic development and for local flood management solutions. Unfortunately lack of availability of local funding or resources, coupled with lack of access to external funding, make it very difficult for these ideas to be put into action.

Physical Vulnerability

The marae and hapū plans noted a number of ways in which the Pawarenga community was physically vulnerable. Remoteness and isolation were major contributors to physical vulnerability; isolation was made even worse by the poor state of the roads (Te Uri O Tai Hapū Plan, 2008). The *Te Uri O Tai Hapū Plan* noted that in the past local management of local roads had proved to be successful. However, participants reported that roads were at present poorly maintained. One person claimed road maintenance only occurred because school buses needed to travel in and out of Pawarenga each day. People needed to travel approximately one hour to reach many important amenities; other than the school bus no public transport was available (Ohaki Marae Plan, 2008).

Isolation was further exacerbated by lack of communication options with landline telephones and internet being the only telecommunication options available to Pawarenga residents. Participants reported no mobile phone coverage in the valley; the *Morehu Marae Plan* (2008) also noted this. In emergencies, people relied very much on telephone lines being available to communicate with the outside world. Several participants thought that more communication options such as radio or satellite telephone needed to be available for use in emergencies.

Housing was another identified issue. Many houses were of poor quality, and some were in need of repair (Morehu Marae Plan, 2008). Several participants reported that people were still living in houses with leaky rooves, and lacked resources to be able to fix them.

Additionally, some houses were situated in areas identified as being high flood risk. People living in high risk areas were not always able to resite their houses. However, since the flood in 1999, a number of houses considered most at risk had been raised, with a view to preventing damage from future flooding.

One participant reported that access to good quality housing was the key to community wellbeing. One suggestion for improving housing was for the community to develop a feasibility plan for community-owned housing on identified church land (Te Uri O Tai Hapū Plan, 2008).

Effects of flooding

The physical vulnerability of the Pawarenga is demonstrated further in the accounts that participants gave of the floods and their effects. They described how the floods had affected the natural environment, people, houses, marae and roads. In this section I summarise what they said about each of these areas, including information about how people responded to the floods.

The *Te Uri O Tai Hapū Plan* (2008) documents how flooding has affected the environment in Pawarenga over recent years, noting in particular the increased siltation of the harbour that has affected fishing and waka ama activities and the related increase in mangrove colonisation of the wetland areas. These effects have resulted from a number of flood events, each one bringing more debris from the hills and depositing it in the rivers, harbour and on low-lying land.

Participants reported that when the floods occurred, they had a major impact on the hills:

If you have a look at the hills, every now and then they slide. It seems to be more now, still sliding (Participant A)

The hills were just coming down... The forest was moving, coming down off those hills (Participant B)

A number of people pointed out the huge scars still visible on the hills around Pawarenga. Participant I said:

...you can see on the hills where it came from. Big logs... smashed right through the walls. See the hills – big scars... We could see the scars on the hills driving down from Broadwood.

Others described the water rising rapidly along with the smell and noise.

We were looking out from across the valley towards the bridge and we could see the fast flowing water under the bridge and all the logs rising and we could see everything moving around under the bridge rising up to the base of the bridge and we were wondering what was happening... until we turned the T.V. on and saw it on the news. A weather bomb had hit Pawarenga far up in the mountains which caused a debris landslide. Down came huge boulders and logs from 400 feet. It had to go somewhere... ended up in the valley (Participant N).

She also described the valley looking completely white with the flood water, as if the tide had come in and wiped out everything. People were unsure about what was happening, but were immediately concerned about whānau living further down the valley. Participant B described how he immediately tried to check on what was happening:

I tried to go further down the valley to check on people but couldn't get through, the water was moving so fast, and low and behold the bloody fire brigade was coming behind me... So I said to them I'll jump on the bonnet and direct them... and when we got through there we got down to [Name]'s and I couldn't believe it, she's on top of her roof, and her house was moving.

Flood waters completely covered the road in the low-lying part of Pawarenga, meaning it was impossible to get access to some whānau:

...we started crying, we were wondering how the people were down that end... and there was just no road there was no road we were just devastated...There was no road now, no culvert, there was nothing there (Participant N)

The debris avalanche brought down logs and boulders that smashed into houses and fences, breaking through the door and wall of the new marae. Several people lost their houses, and some houses later had to be moved or raised up.

Participants remarked that it was very fortunate that nobody had been killed by the debris, since there had been no warning.

When we got there it was all that the bloody bush had fallen down and all the logs were just stacked up and oh.... how nobody got killed I'll never know (Participant B)

There was no loss of life in either of (the floods)... that's amazing, eh... Sometimes it's scary here (Participant O)

The visual pictures conjured up by these accounts of the floods are dramatic. However, in spite of their fear, many people described how they worked together to ensure people were safe.

I told them I would go and get [Name] to move the dirt off the road, but when I got to [Name]'s place, there was nothing left. I saw someone walking around with a big white sheet on and I thought what the hell's happening?... Anyway I managed to wade through and found [Name]. All she had on was a big white sheet... and that's when I saw both her doors were open and logs were floating right through her house (Participant B).

Immediately it was ascertained that people were safe, the clean-up began:

...but the other parts came out as well, such as just getting to the houses tidying mess away and around the houses and under the houses, the clearing of septic tanks so they could be drained for a start to be emptied. Those were the things that people did first to make it safe (Participant I).

Participant B described working with equipment sent in from Auckland:

[One firm] sent in a truck and trailer, three diggers and a bulldozer, another from Auckland sent in two big diggers and two drivers... It was devastating. So that was the equipment we had and I was the operations manager. I had to look after all this gear. The deal was that we had all this gear for three weeks use or equivalent of sixty hours, whichever came first... It was hard for me. Certain people wanted things done but I knew time didn't allow for it as I had limited timeframe to do what was required so I moved as quick as I could to gain maximum use of this machinery loaned to us.

In addition to those people who helped with the recovery effort, participants reported that a small number of people responded more negatively:

Well the floods are not good memories for some. I have seen the worst come out of people and the best. The worst was people grabbing everything they shouldn't, and the best were the people who went there and worked for nothing and tried to do what they had to do to survive ... whatever they had to do to get their whānau back to normal. (Participant B)

In the above accounts of the flooding, I have used participants' own words as much as possible, because they were able to describe their experiences very graphically. It is clear that memories of the flood were still quite fresh in their minds, even though the events they described happened more than a decade ago. Clearly the flood had happened very quickly and had a deep emotional effect on people. However, most people had responded positively and done all that they could to ensure everyone was safe and that the clean-up happened effectively and quickly.

Social Vulnerability

The marae and hapū plans outline a number of social issues and concerns that have been identified in Pawarenga. The community has identified that there is a need to monitor the quality of education provided in the community and to ensure that children learn about the local environment, history and geography as part of their curriculum (Morehu Plan, 2008). Young people are considered to be very important and there is a need to support them through providing facilities and activities.

People have expressed concerns about parenting skills, domestic violence, and the abuse of drugs. Some services are run in Pawarenga by Te Oranga (iwi health organisation) and there are several Te Uri O Tai people employed in the delivery of these services. However, there is a perception that they would be more effective if they were devolved out to hapū communities. At present people have to travel some distance to access many services such as shops and banks.

Lack of employment in Pawarenga contributes to social vulnerability. Many people have had to move away to find jobs, and many of those who live there have to travel to work. Associated issues are the need for day care for children, and a need to fit quality family time around the demands of work. Some people are dependent on benefits; which means they have little money for anything beyond very basic essentials.

The marae rely on relatively few whānau to keep things going, which can place an unfair burden on those people. The plans identify a need to get more people involved and to extend the use of the marae for other types of hui in addition to tangihanga, weddings and reunions.

Political Vulnerability

In talking about their experiences of past flooding events, participants reported a number of ways in which they felt left out of political decision-making. In this section I summarise what they said about not having a voice on the various authorities and councils that were designing policies and plans for Pawarenga, their scepticism about officials' understanding of their needs and their thoughts about so-called "experts" who visited Pawarenga.

One participant reported that he had previously been employed by the Far North District Council and had at that time been a local civil defence officer as part of his council role. He noted that the roles of district and regional councils had changed since that time, with much less resourcing for such things as road maintenance and development at a local level. Another person said:

It's quite good to have someone who knows the political system that can deal with these rednecks (Participant K)

Several participants were unhappy that the views of Te Uri O Tai were not represented at Council levels. Participant B reported a lack of representation at all levels which meant Pawarenga needs did not get communicated to councils. He believed that lack of representation on boards might be partly because of the small population voting in elections, but also because of the ways in which boundary lines were drawn:

So the only reason why Māori should get on these boards is for representation...Some might call it separatism, I call it equity. But we know we haven't got a dog's show of representing ourselves....and that's just a fact. There is a strategy happening right now with the Runanga to look at how we can get representation on the Far North District Council.

These issues were also echoed in the marae and hapū plans. In addition to lack of voice on councils, the Taiao Marae Plan noted that Te Uri O Tai representation on the Runanga had not always been effective.

Some participants reported that people in the community did not have a good understanding of the roles of the two councils. This lack of understanding may have led on occasion to unrealistic expectations about what the councils were able to do. Participant K reported that some people had given negative feedback about how the government had not done anything for people following the flood, but that this was incorrect. It was also noted in one of the marae plans that the community needed to have a better understanding of council processes and how to make submissions.

Participants expressed some scepticism about outside experts who make decisions for Pawarenga. They reported that sometimes decisions are made by employees who have not even visited Pawarenga, or have only spent minimal time there talking to particular people. They believed that these decision makers did not

really understand the local situation. One person said: “The trouble is the Pākehās you know, they don’t get the wider picture” (Participant B)

In the group discussion, several participants described how the community had responded immediately to evacuate residents in the flood, and noted that by the time outside help arrived, the local people already had things well organised. They agreed that their local knowledge had been crucial, and were doubtful that outside authorities would have been able to respond as quickly or effectively.

Some participants made positive comments about council responses:

Council are already doing some things (Participant M)

... he (Northland Regional Council contact person) was very good to us really because he knows us you see. He did as much as he could to help us and um... he was always in contact with me telling me how to do it and what to do (Participant B)

Participant A showed me places along the roadside that it was the Far North District Council’s responsibility to maintain, but where no proper provision was being made for water runoff. This lack of proper drainage along the road meant that during heavy rainfall water ran from the road on to people’s land, remaining there for considerable periods of time as there was nowhere else for it to go.

Summary and Discussion of Vulnerability Findings

The findings reported above demonstrate that the Pawarenga community is vulnerable culturally, economically, physically, socially and politically. Physical isolation combined with low income levels exacerbates vulnerability across physical, social and economic dimensions. It is likely that colonisation processes have contributed to this community’s vulnerability through cultural marginalisation and political processes that have failed to ensure Māori have rangatiratanga over their taonga and resources.

Cultural vulnerability demonstrated by loss of te reo and a lack of people to fulfil cultural roles is likely to have resulted from assimilationist policies that led to suppression of Māori language (Thompson-Teepa, 2008) and to urbanisation (Metge, 2004; Pohatu & Warmenhoven, 2007). Both of these factors also mean that succession planning and the passing on of tikanga is made more difficult.

Economic disadvantage was demonstrated through reports by participants, and reflected also in the marae and hapū plans. Like much of rural Northland, Pawarenga, situated in the North Hokianga mesh block, has a deprivation score of 10, which is the highest possible score ([http://www.moh.govt.nz/moh.nsf/Files/deprivation-maps/\\$file/northland.pdf](http://www.moh.govt.nz/moh.nsf/Files/deprivation-maps/$file/northland.pdf), retrieved 13th August, 2010). The lack of local employment also means that many people need to live elsewhere. Thus economic vulnerability may contribute to cultural and social vulnerability

The geomorphology of Pawarenga makes it physically vulnerable, since local topography means the area is susceptible to high intensity rainstorms (Cathcart, 1999b). Location of dwellings and marae on the floodplains or on slopes at risk from floods contributes to this vulnerability. Economic factors further exacerbate physical risk, through limiting the opportunities people have for flood prevention measures.

Social factors reported by participants and in marae and hapū plans are also connected to other dimensions of vulnerability. Physical isolation means that there is a lack of social services in the local community and travelling to access services is both time-consuming and costly. Communication and access are fairly limited, at least by comparison with many other communities, with lack of cellphone coverage and high-speed broadband. What communications do exist are very vulnerable to natural hazards; road access during floods is likely to be unavailable.

Political factors were a major contributor to the vulnerability of the Pawarenga community. Political marginalisation has prevented tangata whenua from exercising their kaitiakitanga (Clarke, 2006). For example, the Warawara Forest which covers huge areas of the hills surrounding Whangape Harbour is Crown land under management of the Department of Conservation, with the local hapū shut out of management and decision-making.

Taken together, these different factors all make Pawarenga a vulnerable community, by increasing sensitivity to natural hazards as explained by other writers (Adger, 2006; Gallopin, 2006; Smith, 2006). Physical attributes of

Pawarenga increase people's exposure to hazards, one of the components identified by Adger (2006), Gallopin (2006) and Pelling (1999).

Wisner et al. (2004) have explained how social and political factors increase vulnerability, and how poverty may mean that people are living in marginal environments. Other writers have supported this view (Adger, 2006; Cutter, 1996; Pelling, 1999). Cutter's (1996) description of how social, historic and economic processes contribute to "hazards of place" seems to describe the plight of the Pawarenga. Sodeke (2004, cited in Pohatu & Warmenhaven, 2007, p112) has noted: "Urbanisation, displacement and alienation of hapū membership, cultural damage and environmental devastation are typical indicators of a vulnerable population".

Thus the data demonstrates an interwoven fabric of multiple vulnerabilities, based on cultural, economic, physical, social and political factors. Taken together, these factors increase their susceptibility to be harmed by floods (Adger, 2006) and make it more difficult for the community to respond effectively when floods occur. They also affect people's ability to plan flood response and recovery and to carry out their kaitiakitanga responsibilities.

The political dimension of vulnerability seems in many ways the most devastating, because people are marginalised and feel that they are unable to have a say in what happens in their community. In addition to the data I gathered, I heard many stories of local authorities carrying out work in the community without consultation, and without offering local people the opportunity to be involved in practical tasks. The lack of opportunities to be involved in decision-making coupled with a lack of resourcing for local activities has led to them feeling like a "community under siege" (Clarke, 2006, p147). Addressing political marginalisation through people being actively involved in planning and decision-making for flood management and response, and appropriate resourcing for this to occur, would be likely to reduce vulnerability.

Chapter Six: Discussion

Chapter Six provides further overall discussion and interpretation of my findings, and comparison to the literature. I also provide a diagrammatic representation of a possible framework for using tikanga in flood emergency response, and give some brief examples of how tikanga principles might be translated into specific actions in flood events.

In this study I set out to investigate and document Te Uri o Tai Hapū preferred strategies for reducing flood risk in Pawarenga and to consider opportunities to use tikanga Māori principles and values in emergency response. The identification of key concepts and principles of tikanga Māori customs and their connections to whānau and hapū of Te Uri O Tai was key to this study.

The findings that I have presented above demonstrate that the Pawarenga community displays evidence of both resilience and vulnerability. In this section I explore these findings further, and suggest how the concepts of resilience and vulnerability may be related. I then make some suggestions for how the situation could be improved for Pawarenga so that their resilience might be enhanced and vulnerability reduced. I then identify the limitations of my study and make suggestions for future research in this area.

Participants described a community of people who are both skilled and resourceful. When emergencies occur, everybody in the community responds to ensure the safety and security of people and property. Existing community structures and processes based on tikanga that are used for all major events swing into action when floods occur. Participants gave examples of particular tikanga values and principles in action; it was also evident that these values operate in a holistic way, with each value linked to the others.

These findings are a good fit with international literature on resilience and adaptive capacity. They demonstrate the community's capacity to respond (Gallopín, 2006) and their ability to organise themselves (Folke et al., 2002). Tikanga provides a framework for both planning and response in emergencies. The community has in place proven response processes for planning whānau hui that require people to mobilise their resources usually at short notice. Marae are the centre of these activities, and become a natural focus. These same well-

rehearsed processes enable people to respond in a similar fashion when floods occur, again focusing their activities around one of the marae.

Similar response patterns have been reported in other Māori communities such as Matata (Spee, 2008), Manawatu (Hudson & Hughes, 2007) and the Eastern Bay of Plenty (Busby, 2010). Provided that they are situated in safe places, marae make very good centres of focus in emergencies, because they are already well equipped with water supply, shelter, bedding and cooking facilities. In Pawarenga, Morehu Marae is situated on higher ground and unlikely to be affected by flooding, making it the best choice for providing shelter and accommodation during flood events.

I linked tikanga with resilience in analysing the findings, because I believed that it was the examples of tikanga in action in people's everyday lives, as well as during floods, that demonstrated their resilience. Isolation and a need to find their own solutions to problems had also promoted a "can do" attitude. When floods occurred, people did not rely on outside help, but immediately found ways to respond, based on their tikanga.

Participants did not talk about tikanga values specifically, but expressed them through their actions. This was similar to when I was growing up, when I learned my values from my parents and whānau, even though nobody specifically talked about tikanga. We were all shown what was right (tika) and I learned values of manaaki and aroha through observing my mother. Tikanga was taken for granted in Pawarenga, even though it was not discussed.

My findings also contain evidence of multiple dimensions of vulnerability in Pawarenga, including cultural, economic, physical, social and political dimensions, creating a picture of Pawarenga as a very vulnerable community. These dimensions taken together increase their susceptibility to harm from natural hazards, in particular flooding (after Adger, 2006; Gallopín, 2006; Pelling, 1999). Political vulnerability stems from marginalisation and a lack of "voice" in important political arenas such as council planning and decision-making processes.

Other communities have reported similar kinds of political exclusion. For example, in the Eastern Bay of Plenty, Māori leaders reported not being consulted when planning for emergency management (Busby, 2010). Similarly, participants in Hudson and Hughes' (2007) study reported that they were left out by, and invisible to, emergency response authorities during Manawatu floods. My own enquiries into CDEM policies while conducting my research left me with a strong impression that officials involved in civil defence work did not include Māori groups specifically in their planning, and had no plans to do so in future.

Many dimensions of vulnerability seem to be linked, either directly or indirectly, to processes of colonisation that have suppressed te reo Māori and marginalised Māori knowledge and world views, so that tikanga has been viewed by dominant (Pākehā) society as simply something to be used on marae or on ceremonial occasions. Structural racism perpetuated through policies and processes that have systematically undermined Māori knowledge or failed to consider Māori values have reinforced our vulnerability. We have often been considered invisible in our own country; this failure to see or consider Māori has been termed “cultural blindness” (Huygens, 1999).

These processes of marginalisation and disadvantage are not only historic, but continue today, perpetuated by local and government agency staff who see Māori as a “perspective”, an “alternative” approach, or something to be added on to the mainstream view. Civil defence emergency management staff who interpret the “resilient communities together” vision as meaning that communities need to *build* resilience (Mitchell et al., 2010) may fail to recognise that communities already *have* resilience and a whole host of talents and skills.

Tikanga is the resilience of Māori communities. Tikanga has enabled us to adapt to changing circumstances, to colonisation, to new ways of life, and today provides a blueprint to guide us in new situations (Mead, 2003). Since the earliest settlement of Aotearoa New Zealand, Māori have held firm to their tikanga, it has helped them to survive and thrive through difficult and threatening times.

Māori people have always been adaptable, embracing change and resisting attempts to assimilate them into European culture. The history of Māori protest is a history of resistance. Tariana Turia at a launch for the book *Resistance: An*

Indigenous Response to Neoliberalism reported: “Maori resistance is about survival as tangata whenua being based in our own collective histories; our own kawa and tikanga” (Turia, 2007). She describes Māori resistance as beginning in the 1800s, and being continuous ever since, marked by events such as Māori leadership around Waitangi Day, land occupations and the renaissance of Māori language. Resistance described in these terms depends on Māori resilience, and links strongly with tikanga and language, a demonstration of what Turia (2007) calls “...the unquenchable spirit of a people”.

In 2004, a visible sign of Te Rarawa resistance to the passing of the Seabed and Foreshore Act was the erecting of pouwhenua at strategic points along their coastline. These pouwhenua serve as visible reminders of the claim to sovereignty of this coastline by Te Rarawa. The way in which Te Uri O Tai wrote their original draft emergency management plan which included matters they wanted the Far North District Council to address as a matter of urgency and insisted that civil defence officers visit them in Pawarenga is another example of resistance, albeit on a smaller scale. In addition, everyday cultural practice based on tikanga can also be viewed as a form of resistance (Bargh, 2007; Sykes, 2007).

One of the biggest areas of concern, and of direct relevance for flood mitigation, is kaitiakitanga. Te Uri O Tai have stated clearly in their Hapū plan that kaitiakitanga is of utmost importance. However, in order for the hapū to be able to exercise kaitiakitanga, structures that are currently prohibiting them from expressing kaitiaki roles need to be changed. Such changes require government agencies to be willing to recognise that Te Uri O Tai have mana whenua over the lands, rivers and harbour, and support them in managing these taonga. Technical and financial resources are another important factor, since Pawarenga people quite simply do not have the means to undertake tasks such as river restoration without assistance. Communication is a key issue also, so that local and central government agencies can listen to the concerns of the community and work with them to achieve their goals. Perhaps the most important thing necessary for Te Uri O Tai in achieving kaitiakitanga is leadership from within the community.

I found out through my research process that the issues faced by the community in Pawarenga are not unique but echo those documented in other small rural Māori

communities. Therefore I believe there are some general lessons to be learned that have wider relevance. It is clear that it is time for local and central government agencies to establish and foster good, reciprocal relationships with Māori communities, not just by inviting them to a meeting here or there, but by going out and meeting with them in their own rohe, on their terms. Part of having a genuine reciprocal relationship will require listening openly, and being willing to value mātauranga Māori. Local indigenous knowledge can add greater depth alongside of Western science, and may lead to better, and more acceptable, solutions for tangata whenua. Good solutions will be ones that the community has participated in and can then own and play a part in implementing.

To whānau, hapū and iwi I would emphasise what you no doubt already know, the value and relevance of our tikanga values and principles in all aspects of our lives. We have an amazing resilience through holding to our tikanga; it is our protection. In the environmental management arena, a number of valuable models, all tikanga-based, are available; our knowledge of kaitiakitanga is an already proven resource. Through using tikanga-based models and strategies we will be able to claim our mana whenua and rangatiratanga, and ensure that our development is sustainable and that resources are nurtured and protected for future generations.

There were a number of limitations to my study. I studied one small rural Māori community, so am not able to say with certainty whether my findings would be generalisable to other similar communities. Even within Pawarenga, I was not able to gather the views of everyone in the community. Although everyone was invited to attend the hui or participate in interviews, only a small number of people participated. They were mostly older people, so I do not know if the views of young people are similar, or if those who did not attend the hui hold different views. However, among the people who participated I did find strong agreement, and there was no dispute or challenge to my findings when I presented them back for comment at a community meeting.

In spite of these limitations, the findings are similar to those of researchers in other Māori communities. Because of this similarity, and because of having reported my findings back to the community for comment, I believe that my data, and my analysis of it, is trustworthy. Further research in other Māori

communities is needed to confirm this. In particular it would be useful to investigate the usefulness of using marae in emergency response planning, since in my research it seemed the marae was the obvious choice for emergency accommodation. It would also be useful to investigate further the use of tikanga and mātauranga. It is likely that Māori hold knowledge about early warning signs for storms, potential floods or other natural hazard events; this knowledge is at present largely invisible, but could potentially contribute to emergency response planning.

A Tikanga Framework for Flood Management

In this section I propose a tikanga framework which could be used for preparing a flood management plan. This framework links back to the diagram of thematic networks that provided a basis for my organisation of the findings (page 79). However, in moving from data analysis to theorising I have conceptualised the relationships between the particular concepts in a way that shows how tikanga aligns with more mainstream notions of resilience, adaptive capacity and vulnerability. I begin with a diagram based around these three key concepts, demonstrating how I believe tikanga Māori can help to ensure emergencies are managed sustainably and safely as required by the CDEM Act. I then describe the various elements of the framework and how they are interlinked.

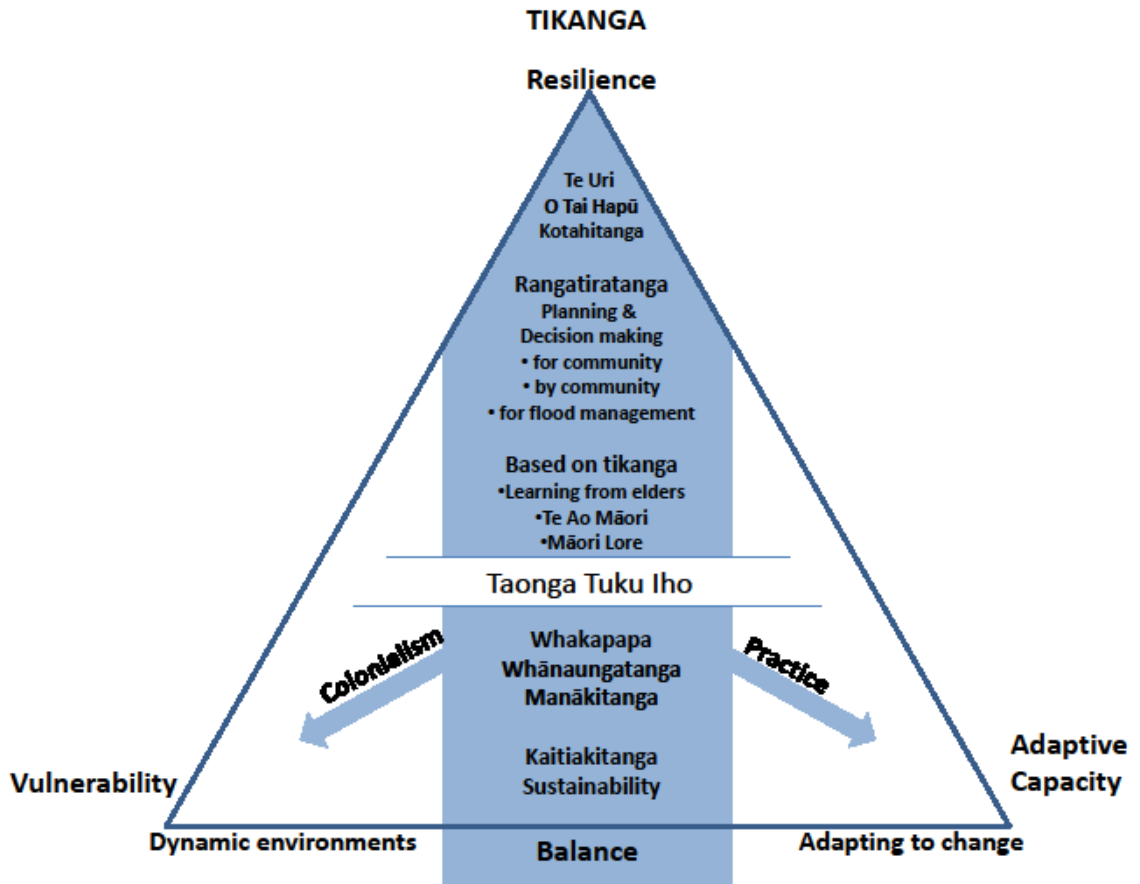


Figure 7: Framework for Flood Management Strategy

I have placed resilience alongside tikanga at the top of the triangle because it is our tikanga that makes us resilient as a Māori community. The first important principle to be considered is kotahitanga, meaning unity. At present Pawarenga has a number of different groups that operate independently of one another, such as the three marae committees and the Pawarenga Trust. In order for Te Uri O Tai Hapū to move forward together they need to come together and work as a collective. The second principle is planning and decision-making for the community by the community. Decision-making requires the collective to work together and claim their rangatiratanga, so that they have authority to make their own decisions.

The third principle is recognising that the basic tenets are tikanga values and principles. These principles are grounded in Te Ao Māori, and the values that have been passed down by the tūpuna. These treasures are the cornerstone of

Māori resilience, which is why I have placed taonga tuku iho across the centre of the diagram. Taonga tuku iho are the core or essence of tikanga.

Whakapapa links the people of Pawarenga together through common ancestry. For Māori, land is a tupuna, a source of tribal identity and whakapapa, and as such binds human relationships and is essential for spiritual growth and economic survival (Durie, 1998). Whakapapa is the basis for hapū membership (Mead, 2003). Thus whakapapa connects the people of the hapū to one another and to the land. Whānaungatanga has its basis in whakapapa, and refers to the fostering of relationships amongst kin. Whānau relationships bring mutual obligations and responsibilities; people expect to be supported by their relatives, wherever they may live (Mead, 2003). This support is expressed through manākitanga, nurturing and caring. The notions of whakapapa, whānaungatanga, and manākitanga provide the illustration of the tikanga principles that link people, land and tikanga, weaving together past, present and future.

Colonial processes have contributed to the multiple dimensions of vulnerability identified in the Pawarenga community. The various dimensions of vulnerability have been described and discussed in the previous chapter. However, in spite of being a vulnerable community, Te Uri O Tai Hapū also demonstrates a capacity to adapt to changing circumstances, and to respond to flood emergencies. People's adaptive capacity assists them in achieving a state of balance in a dynamic and ever-changing environment. The stabilising factor – the centre pou – is tikanga.

Living in a dynamic environment of constant change requires flexibility in response and a changing practice of kaitiakitanga. In order for Te Uri O Tai to fulfil their kaitiakitanga obligations, other tikanga aspects, particularly kotahitanga and rangatiratanga, must be in place. Through acting in a unified way and claiming their authority, the community will be able to plan for, and carry out, kaitiakitanga. Kaitiakitanga practice is likely to assist with reducing flood risk through restoration of the natural environment, and in particular the rivers.

In responding to dynamics of change, tikanga remains the same, but practices may change. This ability to change in response to environmental changes is the adaptive capacity. Adapting also restores balance in the social-environmental

system. However, in a dynamic environment there will always be interplay between vulnerability due to change and adaptive capacity which restores balance.

The following table (Table 2) explains implications for flood management for each of the tikanga principles in the diagram above.

Table 2: Implications of tikanga for flood management

Tikanga Principles	Examples of each Principle in Action
Tika Pono Aroha	<p>Planning takes into account important Māori values that underpin people's lives</p> <p>Tikanga values are recognised as the basis for our resilient Māori community</p>
Kotahitanga	<p>The three Te Uri O Tai marae in Pawarenga work together</p> <p>Alliances with other Te Rarawa marae are fostered</p>
Whānaungatanga	<p>Relationships amongst whānau form the basis of a flood response plan to ensure communication occurs</p> <p>Relationships with the Runanga and outside agencies (such as local authorities and civil defence) are established and fostered as a way of improving emergency response</p>
Manaakitanga	<p>Marae facilities are used to assist in flood response and recovery</p> <p>Local community resources contribute to flood response in the first instance (i.e. until outside help is available)</p> <p>Whānau who live elsewhere assist by contributing resources and helping out</p> <p>Taking care of people who are affected by emergencies through providing physical, emotional and spiritual support</p>
Kaitiakitanga	<p>Local community takes responsibility for restoration of waterways, enhancement of water quality and nurturing of the environment to ensure sustainability and capacity to respond to future threats (including natural hazards and climate change)</p> <p>Local community monitors environmental change using tikanga-based indicators</p>
Rangatiratanga	<p>Māori-led policy and planning for emergency response and recovery</p> <p>Other authorities recognise the community as the local experts and support them in planning and decision-making</p>

Chapter Seven: Conclusion

In this research project I set out to find out if tikanga concepts could be utilised in practical ways when living with the potential risks of natural hazards. This idea came about when I experienced a tsunami warning last year which left me feeling a deep sense of helplessness, personal grief, and loss of control. It was a very uncomfortable and stressful feeling. My attention was immediately drawn back to Pawarenga where I remembered the devastation from the two floods our people went through.

Tikanga was my first response. I thought that if these same values worked for me in a crisis, maybe tikanga could very well work for our people when dealing with grief and loss on a physical, spiritual, and emotional level when coping with a natural disaster. What I found was that tikanga values and principles provide the protective shell that binds and protects our people and our resources as it has done for many generations in the past and will continue to do in the future because it is our birthright inherited from our ancestors.

My participants described the strengths needed to be able to cope with, and respond to, natural disasters in Pawarenga such as the two floods that devastated our whānau and our valley. It was also clear that tikanga values and principles played a very important role in emergency management. Although research has found that cultural, social, physical, economic and political factors increase risk generally, tikanga values and principles together with local knowledge provided a holistic approach towards the resilience of the hapū. I conclude that tikanga provides a very useful framework for developing hapū-based flood emergency management strategies and plans for rural Māori communities.

Of particular importance is the need for outside agencies to understand the needs of rural communities by actively involving themselves closely with marae and hapū. In the Te Rarawa rohe, this would require them to visit and familiarise themselves with the 23 marae. This would be a step towards ensuring that hapū such as Te Uri O Tai have a voice in emergency planning processes. It would also assist government agencies in understanding the importance of a community emergency response plan based on Māori values. It is vital that communities are engaged and supported to participate in council emergency planning processes.

Political processes that exclude rural communities, and hapū in particular, from participating in decision-making and planning around environmental management generally have left people feeling marginalised, since they are unable to fulfil their kaitiaki role. With CDEM policies explicitly focused around resilience, participation of Te Uri O Tai Hapū in planning for emergency management should allow for their existing resilience, which stems from the upholding of tikanga, to be recognised and strengthened. However, this will only happen if relationships with the various authorities involved in emergency and natural hazard response are fostered, full participation in decision-making and in responding to natural hazard events is facilitated, and resources are available to support the community with their endeavours.

Community resilience does not lie in the heart of the CDEM; it lies with those who live in that space. It lies at the heart of the people, firstly kaumātua and secondly whānau, hapū and iwi. Community resilience lies also in the health of the environment. What ensures this is the condition of the soil, forest, rivers and people. The strength of the land reflects the strength of its people.

In my research I was only able to investigate the usefulness of tikanga as a framework for responding in flood emergencies. Further research is needed to investigate a number of other related topics. The first of these would be to enquire how communication, both within the community and between community and outside agencies could be improved. It would also be useful to investigate how tikanga could be used not only in emergency response but also in reducing flood hazard in Pawarenga. Such research could focus on kaitiakitanga and restoration activities to enhance the rivers and streams. In both of these research areas, the usefulness of tikanga frameworks warrants further investigation.

I conclude this thesis with a quote that sums up the importance of tikanga for Māori:

All tikanga Māori are firmly embedded in mātauranga Māori, which might be seen as Māori philosophy as well as Māori knowledge. While mātauranga Māori might be carried in the minds, tikanga Māori puts that knowledge into practice and adds the aspects of correctness and ritual support. People then see tikanga in action.

They do it, feel it, understand it, accept it and feel empowered through the experience. Tikanga Māori might be described... as the practical face of Māori knowledge. (Mead, 2003, p7)

Glossary

Ahi kaa	Burning –fire, rights to land by occupation. Those who keep the home fires burning
Aotearoa	New Zealand, Land of the long white cloud
Aroha	Love
Awa	River
Awhi	Embrace, help
Hangi	Food cooked in the earth by heated stones
Hapū	Sub-tribe, pregnant
Hinaki	An eel trap
Hoki	Also
Hui	A meeting or gathering together for a specific reason
Iwi	Wider tribal group
Kai karanga	A person who gives the call of welcome to visitors onto a mārae
Kai purakau	Story teller
Kaikorero	Speaker
Kaimoana	Food from the sea
Kaitiaki	Guardian
Kaitiakitanga	Guardianship, trusteeship, resource management
Kai waiata	Singer
Kanohi ki te kanohi	Face to face contact
Kanohi kitea	The seen face
Katakata	To laugh
Kaumātua	Elder
Kaupapa	Purpose
kawa	Marae protocol pertaining to a particular iwi
Koha	Gift
Korero	To speak
Kotahitanga	Unite, unity
Kuia	Female elder
Mahinga kai	Food-gathering places
Mana	Prestige
Mana whenua	Customary authority over lands
manaaki	To offer support, sharing
Manaakitanga (manākitanga)	Hospitality
Manuhiri	Visitors and guests

Māori	The indigenous people of Aotearoa
Marae	Ceremonial courtyard
Mātauranga Māori	Māori knowledge
Maunga	Mountain
Mauri	Life-force,
Mihi	Greeting
Mo	For
Moana	Sea
Mokopuna	Grandchild
Ngā	The (plural)
Noa	Balance
Nui	Big
Oranga	Health and wellbeing
Pā	Former marae complex
Pākehā	Person of European descent
Papakāinga	Home base, village
Paru	Mud, dirty
Pepeha	Tribal saying, set form of words
Pono	True to the principles of culture
Pou	Pole, post
Pouwhenua	Carved posts placed strategically on the land to acknowledge and represent the relationship between Tāngata Whenua, their ancestors and their environment
Pūrākau	Ancient story or legend
Rangatahi	Youth
Rangatiratanga	Political sovereignty, chieftainship, self-determination
Reo	Language (Māori)
Rohe	District
Rūnanga	Iwi council
Tamaki-Makaurau	Auckland
Tangata	People
Tangata whenua	People of the land, local people
Tangihanga	Funeral
Taonga	A highly prized object, treasure, property
Taonga tuku iho	Gift of the ancestors, precious heritage
Tapu	State of being set apart
Taumata	Speakers' bench similar to paepae

Te Ao Māori	The world of Māori
Te Puni Kōkiri	Ministry of Māori Development
Te Tai Tokerau	Northland
Te Tiriti o Waitangi	The Treaty of Waitangi
Te Wheke	Octopus
Tika	Correct
Tikanga	Customs, the correct way of doing things, protocol
Tino rangatiratanga	Supreme customary authority, self determination
Tupuna	Ancestor
Utu	Reciprocation
Waahi tapu or wāhi tapu	Sacred place
Waiora	Clean water
Wairua	Spirit, soul
Waka ama	Outrigger canoe
Wānanga	Māori learning institution, seminar
Wero	challenge
Whakapapa	genealogy, family tree
Whakarurutanga	Safety, protection
Whakatika	Correct
Whakatauki	Proverb
Whānau	Family group, family, off-spring, to be-born,
Whānaungatanga	Relationships, kinships
Whare wananga	House of learning
Whāriki	Woven art piece (mat)
Whenua	Earth, placenta
Whenua tuku	Land that has been gifted to the occupants

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Appendix A: Participant Information Sheet

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THE UNIVERSITY OF
WAIKATO
Te Whare Wānanga o Waikato

Information Sheet

Toi tu te whenua, toi tu te tangata:

A holistic Māori approach to flood management in Pawarenga

Researcher: Liz Proctor

Supervisors: John Campbell (JRC@waikato.ac.nz) and Pippa Wallace (pwallace@waikato.ac.nz), Department of Geography, University of Waikato.

Kaupapa Māori advisors: Chrissy and Pio Jacobs

*Ko Taiao Makora te maunga
Ko Awaroa ko Rotokakahi nga awa
Ko Ngātoki-mata-whaorua te waka
Ko Kahi ko Mataatua nga whare
Ko Paraihe Papa te tupuna
Ko Taiao ko Morehu ngā marae
Ko Te Uri-o-Tai te hapu
Ko Te Rarawa te iwi*

My name is Elizabeth Proctor and I am conducting research as part of my Master of Geography Thesis at the University of Waikato. My aim is to develop a model of how our values and tikanga can be used in practical ways to respond to flooding in Pawarenga. This research will build on the *Rotokakahi River Management Proposal* on managing flood risk and response presented to the Northland Regional Council by Te Uri O Tai.

I plan to conduct a hui for Te Uri o Tai Hapu members to discuss ways to reduce flood risk. You are invited to participate in this hui, where I will present a series of photos of Pawarenga and show a video as topics for discussion. If you are unable to attend this hui for any reason, I am also happy to interview you separately so that your views can be included.

This hui will be approximately 2 hours long, and refreshments will be provided. I plan to videotape the group hui with the consent of participants. After the hui I will provide transcripts of all discussion to participants for correction or additional comment. I will then conduct a preliminary analysis of the information. A second hui will then be held where I will present my findings, and those people who contributed the information will be invited to contribute to the analysis of the information.

I will use the information from these hui and interviews to write my thesis. All the tapes and transcripts will be kept in a locked filing cabinet; electronic files will be stored on a password-protected computer and back-up system. No individuals' names will be used in my report, so you will remain anonymous. Once my research has been completed I will organize a further hui to present the findings to Te Uri O Tai and provide the hapu with a copy of the thesis. Videotapes will be returned to the hapu with your permission.

Participation in these hui/interviews is voluntary, and you have the right to refuse to answer any question, terminate the interview and withdraw from the research or withdraw sections of the interview any time, up to one month after the date of your interview.

What are your rights as participants?

If you choose to participate in my research, you have the right to:

- Decline to participate;
- Decline to answer any particular question;
- Withdraw from the study up until one month after the interview;
- Decline to be audio-taped;
- Ask for the tape recorder to be turned off at any time;
- Ask for the erasure of any materials you do not wish to be used in any reports of this study;
- Ask any questions about the study at any time during participation.

If you have any questions about this study, you can contact me by mail, email or phone:

Elizabeth Proctor (Liz)

832 Papamoa Beach Rd

Papamoa

Phone: 07 542 4470

Mobile: 0274547910

Email: lcproctor@actrix.co.nz

This research project has been approved by the Human Research Ethics Committee of the Faculty of Arts and Social Sciences. Any questions about the ethical conduct of this research may be sent to the Secretary of the Committee, email fass-ethics@waikato.ac.nz, postal address, Faculty of Arts and Social Sciences, Te Kura Kete Aronui, University of Waikato, Te Whare Wananga o Waikato, Private Bag 3105, Hamilton 3240.

Appendix B: Consent Form

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THE UNIVERSITY OF
WAIKATO
Te Whare Wānanga o Waikato

Informed Consent

For the Research project entitled: **Toi tu te whenua, toi tu te tangata: A holistic Māori approach to flood management in Pawarenga**

I (your name).....consent to participate in a semi-structured interview for this research project conducted by **Liz Proctor** and supervised by John Campbell and Pippa Wallace.

Access to findings/information

I wish to receive a copy of the findings YES NO (Please circle your choice)
I wish to receive a copy of the completed dissertation YES NO (Please circle your choice)

Confidentiality:

I consent to being identified in the dissertation and any other academic article that may be written
YES NO (Please circle your choice)

I am aware that I have the right to:

- Refuse to answer any question, terminate the interview and withdraw from the research or withdraw sections of the interview any time, up to one month after the date of my interview.
- Request that parts of my interview be left from print.

I understand that:

- My confidentiality will be assured and my name will not be used in the research if I do not wish it to be;
- The collected information will be stored in a password protected word document, on a password protected computer;
- The collected information will be used for the purposes of this research and any academic articles that may be written.

Date: _____

Signature of participant: _____

Signature of researcher: _____

Thank you for your time and participation in this research. If you have any queries or concerns about the research or the way it was carried out please feel free to contact the research or the supervisor using the contact details below.

Researcher

Liz Proctor
lcproctor@actrix.co.nz
Ph: 07 542 4470 or 0274547910

Supervisor

Pippa Wallace
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Appendix C: Focus Group and Interview Questions

Interview/focus group questions were loosely based on the four key headings identified in the *Rotokakahi River Management Proposal*.

1. Do you consider that the use of mātauranga Māori and tikanga is valuable in terms of resolving flooding issues in Pawarenga? If yes, why? If not, why not?
2. Kaitiaki - Safety and health.
 - What tikanga concepts are useful when considering the safety and health of the community?
 - What are the practical implications?
3. Property and buildings
 - What tikanga concepts are useful in protecting property and buildings?
 - What are the practical applications of these?
4. Infrastructure (roads, bridges, power and telecommunications)
 - What tikanga concepts will reduce risk in the event of breakdown of infrastructure?
 - How can tikanga concepts assist in reducing risk and restoring infrastructure?
5. Mauri - A healthy river
 - What tikanga concepts are useful in protecting our awa and other taonga and reducing flood risk?
 - What are the practical applications of these?
6. Whanaungatanga - Relationships and key people
 - What tikanga concepts will be important in ensuring people are looked after?
 - How do these tikanga concepts assist in ensuring the community remains strong and resilient?