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**Maori Issues**  
for Remediation of  
Bio-hazards, Chemo-hazards and Natural  
Disasters

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Massey University**

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## **Ethics approval**

*This project was reviewed and approved by the Massey University Human Ethics Committee: Southern A, Application 06/55. Contact Professor John O’Neill, Chair, Massey University Human Ethics Committee: Southern A, telephone 06 350 5799 x 8635, email [humanethicsoutha@massey.ac.nz](mailto:humanethicsoutha@massey.ac.nz)*

## Abstract

This study sets out:

1. To identify and demonstrate a body of knowledge relevant to Maori and remediation of biological hazards, chemical hazards and natural disasters (disaster recovery)
2. To do it in a Maori-appropriate way that supports Maori research approach
3. To provide something new and useful for Maori and other stakeholders involved in such issues

A Kaupapa Maori mixed-methodology was used to guide research decisions and actions, including the development of a 'Haurapa' approach based on the journey of a 'typical Maori researcher'.

Through literature review, case studies and semi-structured interviews, a pool of knowledge was identified and used to draw out a set of themes and indicators which complement others in related fields. New knowledge was validated against related findings. Use of the findings is demonstrated, along with ideas for future application and testing.

A conceptual 'Pa model' is proposed as a useful way to approach the subject for engagement with Maori and improved understanding of the overall context. Existing frameworks are adapted to work for this topic, including a useful tool for filtering potential indicators.

In conducting this study, the following hunches or hypotheses were considered:

- That Maori are not adequately prepared or included regarding modern hazards and disaster response
- A lack of Maori involvement results in inequalities
- Valuable gains can be made with a Maori-centred approach and proper treatment of Maori issues

The conclusion supports the statements and recommends further work in the area.

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## Glossary

The following terms and associated meanings are used in this paper:

Aotearoa	New Zealand
Aroha	Love
Atua	God
BoPDHB	Bay of Plenty District Health Board
DHB	District Health Board
EHO	Environmental Health Officer
EPI	Environmental Performance Indicator
Hapu	Sub-tribe
Hau	Wind/Breath
Hau kainga	True Home
Hau kainga	Local people
Hinegnaro	Mind
Holistic	Whole of system view
HPO	Health Protection Officer
Hui	Meeting
Iwi	Tribe
Kaha	Strong
Kai	Food
Kainga	House
Kaitiaki(tanga)	Guardian(ship)
Kanohi	Face
Kaupapa	Subject
Kawa	Tribal etiquette or rules of behaviour
Kete	Flax basket
Kohanga Reo	Maori 'language nest' early childcare centre
Korero	Talk, discussion
Kotahitanga	Unity
Mahi	Work
Mahinga Kai	Food gathering
Mai rano	From long ago
Maia	Brave
Mana	Authority/prestige
Manaaki	Hospitality
Manawanui	Stout-hearted
Maoridom	Maori society
Maori-fied	Slang for level of Maori culture portrayed by a person

Marae	Meeting grounds
Matauranga	Knowledge
Mauri	Indicator of 'life force'
Ngakau	Heart
Paepae	Seating for speakers/tribal leaders
Pakeha	Non-Maori, European
Pakeke	Adult, mature
Papakainga	Maori housing area
Pou	Pole, central pillar
Rahui	Trespass notice, ban
Rangatahi	Younger generation
Rangatira	Chief
Reo	Maori language
Rohe	Tribal area
Runanga	Maori body, assembly
Stakeholder	Interested party
Taiao	Environment
Tangi(hanga)	Funeral, grieving process
Taonga	Treasure
Tapu	Sacred/set aside
Tauiwi	Settler, Foreigner, non-Maori
Tikanga Maori	Maori protocols
Tinana	Physical body
Tino Rangatiratanga	Self-determination
Tohu	Sign
Tohunga	Expert
Tuakana	Elder sibling
Tupapaku	Corpse
Tupuna	Ancestor
Urupa	Cemetery
Waahi Tapu	Sacred place
Waiata	Song
Waiora	'Water of life', spiritual/holistic wellbeing
Wairua	Spirit
Whakapapa	Relatedness, genealogy
Whakatipuranga	Growth
Whanau	Family
Whanaungatanga	Relationship, relatedness
Whenua	Land

# Chapter 1 - Introduction

This paper documents a research project designed to achieve three things:

1. To identify and demonstrate a body of knowledge relevant to Maori indicators for remediation of biological hazards, chemical hazards and natural disasters
2. To do it in a Maori-appropriate way that supports Maori research approach
3. To provide something new and useful for Maori and other stakeholders involved in such issues

In doing so, the following hunches or hypotheses are being considered:

- A. That Maori are not adequately prepared or included regarding modern hazards and disaster response
- B. A lack of Maori involvement results in inequalities and gaps
- C. Valuable gains can be made with a Maori-centred approach and proper treatment of Maori issues

The study is approached from the researcher's perspective as a previous 'Maori health inspector' (health protection officer), analyst/journalist/educator and Maori development practitioner. It seeks things like improved policy and service, Maori health outcomes, community development and the desire to bridge science/indigenous/spiritual perspectives to make a difference for people of my country, Aotearoa New Zealand and beyond.

With such bias in mind, along with the author's background provided below, the reader can decide what is most important to take from the material presented. Korero is drawn from people of Maori and non-Maori backgrounds, having working knowledge of Maoridom and/or disaster recovery. Other information is drawn as deemed appropriate for the methodology chosen.

The paper presents discussion and ideas to bridge gaps and foster understanding. Some effort is made to use plain language so most can understand otherwise complex things. The research process being a tauwi framework, there is no real attempt to 'Maori-fy' it other than to include ideas from a Maori perspective where it seems appropriate. Maori are already over-researched, marginalised and less well-served by 'the system' to date, so the focus is on identifying where things are at rather than grabbing at indigenous knowledge or intellectual property.

## ***Ko Wai Au? – About the Researcher***

*Kapiti te motu  
Raukawa te moana  
Waikanae te awa  
Whakarongotai te marae  
Ngati Toarangatira, Te Ati Awa  
me Ngati Raukawa nga iwi*

*Kapiti is the island  
Cook Straight is the sea  
Waikanae is the river  
Whakarongotai is the marae  
Ngati Toa, Te Ati Awa  
and Ngati Raukawa are the tribes*

*Ko Wi Parata Te Kakakura te tangata  
Nana ka puta mai a Utauta,  
Nana ko Tukumaruru  
Nana ko Hemi (Jim) Webber toku papa.  
Ka moe ia i a Pamela Gosling no Ingarangi  
Ka puta mai ahau te potiki o nga tama e toru.*

*Wi Parata Te Kakakura the ancestor  
From him came Utauta  
From her came Tukumaruru  
From him came Hemi my father  
in union with Pam Gosling (English)  
Came I, the youngest of three boys*

A grandson of Treaty of Waitangi signatory Te Rangihiroa, our great grandfather Wi Parata was a Maori member of Parliament and Cabinet in the 1870s. He took a landmark court case which highlighted the need to enshrine the Treaty of Waitangi in legislation for the government of the land to act in accordance with the founding Treaty of our nation.

Justice and equity is in my blood, maybe enhanced by being the youngest of three brothers. Raised in Lower Hutt and Northland by our English mother away from Kapiti Coast tribal roots, my Maori development began thanks to those involved with Te Herenga Waka marae at Victoria University in the late 1980s where I studied science. A career in Maori development since then includes journalism, environmental resource management, policy analysis, education, health and consultancy. I walk comfortably and have competence in both Maori and tauiwi worlds and work at the interface between Western and indigenous Maori world views.

Rotorua-based for the past 14 years, I have served amongst Te Arawa and wider Bay of Plenty iwi (tribes). My wife Jacque (nee Ormsby) ties me into Te Arawa (Ngati Rangiteaorere and Ngati Pikiiao) along with our four children aged 2 to 16 years. We are active members of the LDS (Mormon) Church. As a 40-year old, my philosophy towards life is a lot more grounded in eternal truths and things that really matter compared to when I was younger.

I consider myself a proactive, dedicated bicultural member of the wider community and interested in health and well-being for all – sometimes located about a third of the way between ‘radical Maori’ to ‘redneck Pakeha’ ends of a Maori-Pakeha cultural divide in New Zealand. I support the need for radical change or breakthroughs where obvious inequities exist and endorse continued openness in good faith where misunderstanding occurs – cooperation rather than force.

I like to problem solve and find innovative and inspirational solutions to bridging gaps. Now a company director, consultant, musician and social entrepreneur – this study was my first master’s thesis and anticipated to lead on to the potential for further research and development. I feel the pull of my tribal roots and responsibilities on the Kapiti

Coast north of our capital city Wellington and see further work to be done there if I am so entrusted to serve.

### ***Why this Study?***

This study was conducted as partial fulfilment for a Masters in Philosophy Degree with Massey University (with a Maori Environmental Health focus). Having completed the available Environmental Health qualifications as a science graduate, this Degree was the next available course of study in my chosen field with Massey. The study therefore draws from a science background, in the applied environmental health and protection field, with specific focus on the area of biochemical hazards and disaster recovery.

The following issues are contributing factors for the subject chosen.

#### **1. Lack of Maori knowledge and Involvement in the field.**

Very few Maori are involved in the science or regulatory areas of environmental health and protection. As existing or new hazards emerge to put people at risk, a lack of skilled Maori in the field leaves scientific and regulatory response to happen without sufficient Maori involvement. This can make it harder for things to work properly and appropriately in situations where Maori are concerned.

Maori are often at the community or receiving end of disasters and environmental health issues where agencies like Fire, Health and councils are responsible for taking action. However, policies, procedures and frameworks around disaster recovery are not Maori ones. If Maori considerations are not central to what goes on each time, their needs and aspirations may be lost over time as the 'system' keeps providing what it deems 'normal' and most important for the general public.

This one-size-fits-all system continues to result in 'gaps' or inequalities with many areas concerning Maori health and wellbeing. A philosophy of the researcher is best results can be achieved for all New Zealanders when Maori considerations are not only included, but central to the New Zealand approach - 'what's good for Maori will be good for New Zealand' as the community moves forward without leaving significant others behind. With distinct differences between a colonising Western culture and indigenous Maori one, having formed a Treaty of nationhood, approaches that cater for both cultures should be the goal.

#### **2. Improving Response Capacity in Aotearoa New Zealand**

New Zealand, like other nations, has increased preparations for various emergencies after scares in recent years with issues like rising terrorism, anthrax, pandemic influenza and tsunamis. There is an ongoing programme to increase our ability to respond to the various biological, chemical and natural disaster threats.

As Maori are a significant part of the population and the nation-forming Treaty partnership, those responsible need to know before things happen that emergency/recovery services, procedures and policies are likely to work where Maori are concerned. Often there is no warning or time to prepare and breakdowns can occur due to unforeseen cultural difference, ignorance or even apathy – all linked to a lack of

planning or willingness to give equal recognition to Maori. Such breakdowns could see Maori lives affected or lost in unfairly high proportions.

The science and regulatory focus in this study links with preparedness work of ESR (the Environmental Science and Research Crown Research Institute), provider of science services to the New Zealand Government. When disasters arise that require rapid response scientific services and advice (like with chemicals, disease and the environment), ESR and agencies it works with need Maori issues to be considered in what they do. This is also a part of the Government's obligations as a Treaty partner.

### **3. Developing a Specialist Field for Maori**

As one of just three Maori in New Zealand designated by the Director General of Health as a regulatory Health Protection Officer, efforts by the researcher during previous years (2000-05) were focused on Maori environmental health and protection workforce development. This included fostering employment issues and scoping an emerging body of knowledge for those working with both tauwi and Maori approaches in the field. Maori consideration and approach suffers if there is no workforce capacity to carry it out.

This study takes a more focussed approach to 'drill down' in more depth into just one area of environmental health and protection interest (disaster recovery). With so little Maori in the field overall, deeper consideration in one area may help inform others and promote further inclusion of Maori issues. A general need for Maori to be more involved at all areas means those in under-represented ones have a duty to work harder to improve the inclusion of Maori concerns.

#### ***About the Title***

The working title for this study was originally '*Maori Cultural Indicators for Remediation of Bio-hazards, Chemo-hazards and Natural Disasters*'.

During write-up, the title changed to 'Maori Issues...' instead of 'Maori Cultural Indicators...' as it became clear the information coming back was more general than specifically about indicators. Whilst some cultural indicators are involved, the wider considerations are better summed up as Maori issues. There does not appear to be enough adequately equipped people available to discuss disaster recovery indicators for Maori in depth – the focus keeps coming back to more generic issues and values.

In breaking down meanings of the title keywords, 'issues' is a catch-all phrase but the others are still worth examining, including the cultural indicators of interest.

## Chapter 2 - Current Knowledge

In preparation for this study, the following information was gathered to establish a starting point from existing knowledge and ideas.

1. A breakdown of the keywords and terminologies involved to get clear what was being discussed
2. Literature review and searches for related studies and documents
3. A collation of further ideas and options for tackling the subject - being one with little obvious Maori involvement

### 1. Keywords and Terminologies

The following section clarifies title keywords and other terminologies relevant to this study. Each term is defined as simply as practicable along with any extra interpretation as required. The online Wikipedia tool (<http://en.wikipedia.org>) assisted in providing 'common view' definitions. This supports study aims to demonstrate a simple research approach relevant to and understandable by many Maori. Increasing numbers of Maori are doing research from a grass roots approach and using the most easily accessible tools.

#### Maori

Māori refers to the indigenous people of New Zealand and their language. In the Māori language, the word *māori* means "normal," "natural" or "ordinary". In legends and other oral traditions, the word distinguished ordinary mortal human beings from deities and spirits (*wairua*) (Atkinson, 1892).

Māori people often use the term *tangata whenua* (literally, "people of the land") to describe themselves in a way that emphasises their relationship with a particular area of land — a tribe may be *tangata whenua* in one area, but not another. *Māori* became the term used to refer to Maori people in a pan-tribal sense or as a whole in relation to New Zealand.

It is important to note that Maori are not all the same and have different views and perspectives on things just like non-Maori. This can be especially true as traditions and beliefs vary between one tribal area and another.

#### Culture

Culture can be defined as all the ways of life including arts, beliefs and institutions of a population that are passed down from generation to generation.

As 'the way of life for an entire society' culture includes codes of manners, dress, language, religion, rituals, norms of behavior such as law and morality, and systems of belief as well as the arts. Various definitions of culture reflect differing theories for understanding, or criteria for evaluating, human activity.

## **Maori Culture**

Māori culture has a rich and distinctive history, some of which now forms part of everyday New Zealand culture. International audiences may recognise the haka (war dance) performed at sporting challenges, whilst Maori language and customs are increasingly seen as fundamental to New Zealand culture as a whole. There are still many traditional aspects not fully understood or embraced by wider society.

Most Maori now grow up in the larger cities away from tribal homelands and traditions – however cultural revival is active and strong. Since this study seeks issues of relevance to Maori, the default Maori perspective being benchmarked is that of a Maori person versed in their traditional Maori culture, as passed on and practiced in their tribal homeland. Variances from this benchmark need consideration in relation to how ‘Western colonised’ a person is, or what level of cultural revival they have achieved or choose to follow. More on this is provided in the discussion section.

## **Indicators**

Ecological indicators are used to communicate information about ecosystems and the impact human activity has on ecosystems to groups such as the public or government policy makers.

Health indicators are used by many governments to track a comparable set of health measurements to compare each other’s progress and identify trends that need attention. For example, to compare how healthy people of one country are versus those of another, sets of indicators like birth weight, infant mortality and life expectancy are used. Indicators used need to meet certain rules, like being able to be measured regularly in each country – no point comparing if one country doesn’t collect the data or can’t tell if things have changed for the better or worse since previous measurements.

A number of New Zealand agencies monitor indicators for their subject area, which all fit together as part of a national NZ Sustainability Indicators Project – these are shown in Appendix 6. For example, Te Puni Kokiri (Ministry of Maori Development) tracks 5 indicators relating to Maori development, whilst the Ministry for the Environment monitors 14 environmental performance indicators. The indicators from each agency link with quality of life indicators from major cities and smaller city reports.

## **Cultural Indicators**

Defining cultural indicators can be as varied and wide in scope as definitions of culture (refer above, 'the way of life for an entire society'). Some relevant examples are provided below.

Cultural Indicators for New Zealand was launched in 2006, a report forming part of the Government's Cultural Statistics Programme. The indicators include five key themes, Engagement in Culture, Cultural Identity, Cultural Diversity, Social Cohesion and Economic Development. Selected to measure trends and progress within the cultural sector ('the arts'), contribution to New Zealand's economic/social life the indicators also help identify and monitor improvements in cultural wellbeing and inform policy making (MCH, 2007).

At the international level, cultural indicators are identified as having an important role for explaining the urgency and scope of indigenous peoples' needs and for advocating to satisfy these needs (FAO, 2007).

A United Nations forum on indigenous peoples and indicators of well-being identified two core themes under which to group indigenous indicators (UN, 2006):

1. Identity, Land and Ways of Living; and
2. Indigenous Rights to, and Perspectives on, Development

By way of example, consensus on cultural indicators of indigenous peoples for food-related issues includes 5 indicator clusters as follows:

- i. access to lands, territories, natural resources, sacred sites and ceremonial areas
- ii. abundance, scarcity and/or threats to traditional seeds, plant foods and medicines, food animals, and their associated production practices
- iii. use and transmission of knowledge, methods, language, ceremonies, dances, prayers, oral histories, related to traditional foods and agro food systems, and the continued use of traditional foods in daily diet
- iv. capacity for adaptability, resilience, and/or restoration of traditional food use and production
- v. ability to exercise their rights of self-determination and free prior informed consent, and to defend their Food Sovereignty and own development (FAO, 2007)

## **Maori Cultural Indicators**

For this study, Maori Cultural Indicators are measurements linked to Maori people and the world view and traditional practices which they share.

For example, the number of traditional food gathering sites accessed by a Maori community may be a useful indicator, as is levels of contamination at those sites. Other indicators may include numbers of Maori decision-makers in a department or how many authorities include Maori frameworks as part of their process.

## **Remediation**

Remediation means providing a remedy, so environmental remediation deals with the removal of pollution or contaminants from environmental media such as soil, groundwater, sediment, or surface water. This is usually for the general protection of human health and the environment – for example, a brown field site intended for redevelopment. Remediation is generally subject to an array of regulatory requirements, or can be based on assessments of human health and ecological risks where legal standards don't exist or are only advisory.

A Google search returned a variety of definitions for remediation, only some of which link to a health reason (and therefore people) – i.e. 'cleanup of a site to levels determined to be health-protective for its intended use'. The varied reasoning around remediation is useful to note, as Maori perspective is likely to bring additional areas for remediation – such as when a spiritual component is involved, or an imbalance in relationships with nature. Further discussion around this term is important as a pivotal concept within this study.

Maori considerations in this study help raise questions like 'levels determined by whom?', 'whose version of health?' and 'what intended uses?'. Maori health and wellbeing is more holistic (whole system) than generic approaches which break it down into health silos and indicator sets like birth weight and life expectancy. Many Maori have a zero tolerance approach to contamination which conflicts with levels scientists say is safe – and intended uses often differ. What local authorities see as a drain full of weeds, Maori may rely on for food (like eels or watercress), preferring pristine conditions, as sustenance and the ability to host guests may be at stake.

Another definition, 'redress: act of correcting an error or a fault or an evil', aligns to metaphysical or supernatural aspects of Maori world view. For example, a severe flood might be seen by some as a response from higher forces to some previous error (from human contentions through to bad environmental practice). Some might talk about 'mother nature' taking revenge for the sins of man – remediation in reverse if the bad behaviour of people has created the need for a natural remedy!

Within New Zealand, remediation standards are affected by current scientific/regulatory knowledge and community or political views. The latter may include Maori issues, depending on organisational culture, Maori relationships, and policy environment of the government of the day. Over recent years for example, political backlash over 'race-based' programmes has seen ministerial policies stripped of all reference to New Zealand's founding document, the Treaty of Waitangi.

## **Hazard**

A hazard is a situation which poses a level of threat to life, health, property or environment. Most hazards are dormant or potential, with only a theoretical risk of harm, however, once a hazard becomes 'active', it can create an emergency situation.

Having the potential to cause harm, (like a chemical, harmful bug or dangerous cliff) hazards become a 'risk' to people if they get too close. A good fence or vaccine can keep people safe from harm – so the hazard is no longer a risk to people if precautions are followed. Domestic hazards like cigarette smoking feature highly in the lives of

Maori, with inequitable risk-reduction amongst Maori from government intervention programmes.

There does not appear to be a common word in Maori for 'hazard'. The closest phrase used by many would be 'kia tupato' (be careful), followed by the consequence - 'kei whara koe' (you might get hit or injured). Another word, 'morearea' can be used in a number of ways to mean crisis, desperate, dreary, hazardous or dangerous. The word 'tupono' is also used for 'risk' but can also mean gamble, chance and stumble – a test of faith (Ngata, 2007).

The Maori Language Commission, releases new Maori words to keep up with latest terms and technology. However, Maori approach relates things to a Maori world view. For example, a chemical may be from the natural world, but if it is out of place or in a processed or unnatural state, balance may be upset and life sustaining properties, such as those of fresh water, may be undermined. Some Maori would say the life-sustaining force or *Mauri* is affected or that a rahui (ban) needs to be enacted until balance is restored.

Regarding hazard levels, what scientists might claim to be unsafe levels of bacteria, others might say is natural and healthy for building their immune system. In one case study, rural Maori have commented that gastro-intestinal illness and diarrhoea are a 'good clean out' rather than something to go and pay a doctor to do tests for – a natural part of life rather than a hazard (see case studies in Appendix 9).

The spiritual perspective many Maori follow might consider unseen forces as hazards of equal if not higher importance than the physical ones. The spiritual plane deemed higher than the physical (things exist spiritually before they do physically), a focus on just physical hazards at the exclusion of Maori spiritual considerations may undermine the effectiveness of discussion about hazards.

## **Biohazard**

A biological hazard or biohazard is an organism, or substance derived from an organism, that poses a threat to (primarily) human health. This can include medical waste, samples of a micro organism, virus or toxin (from a biological source) that can impact human health. It can also include substances harmful to animals.

Biohazards are classed into four levels of risk (1= low, 4=high) by the United States Centre for Disease Control and Prevention. For example chicken pox at level one, measles at level two, TB and SARS at level three and Ebola at level four. A common biohazard of concern to Maori on the domestic front might include bacterial contamination of shellfish beds or streams, such as from farm run-off or illegal discharges.

In the traditional Maori world view, biological or living things might come under the domains of Tane (forests, flora and fauna – including people) or Tangaroa (water and aquatic life) – metaphysical children of Papatuanuku earth Mother and Ranginui sky Father. How Maori people relate and interact with these entities as distant siblings is a deeper discussion not covered in this study.

## **Chemo hazard (Chemical Hazard)**

A **chemical hazard** arises from contamination with harmful or potentially harmful chemicals.

Chemicals have the ability to react when exposed to other chemicals or certain physical conditions. The reactive properties of chemicals vary widely and they play a vital role in the production of many chemical, material, pharmaceutical, and food products we use daily. When chemical reactions are not properly managed, they can have harmful, or even catastrophic consequences, such as toxic fumes, fires, and explosions. These reactions may result in death and injury to people, damage to physical property, and severe effects on the environment.

From a Maori perspective, chemicals, being ‘non-living’ things, still have a *mauri* or life force like rocks do. Everything is connected via genealogical relationship with Papatuanuku/Earth Mother - whakapapa or relatedness connects all things. Problems occur when things are out of balance in their natural relationship with each other. As with the biological classes, deeper discussion about chemicals is not covered in this study.

## **Natural Disaster**

A natural disaster is the consequence of a natural hazard (e.g. volcanic eruption, earthquake, or landslide) which affects human activities.

Human vulnerability, exacerbated by the lack of planning or lack of appropriate emergency management, leads to financial, environmental or human losses. The resulting loss depends on the capacity of the population to support or resist the disaster - their resilience. A natural hazard can't lead to natural disaster without involving people in a vulnerable state.

The kinds of natural disaster envisaged for this study are those likely to involve disaster recovery services like fire, health, civil defence and likely to put human life or wellbeing at risk. Maori could argue disastrous loss of traditional food sources from rivers puts family wellbeing at risk. Agencies that don't accord the same priority as Maori in recovery from such disaster may have difficulty convincing Maori of their own disaster priorities.

On the metaphysical level, a natural disaster for some (like a flood), might be considered a sign or response from Mother Nature to correct an imbalance. However, when human lives and wellbeing are in danger, saving life and property are the primary focus – according to the Maori whakatauki/Maori proverb ‘*he aha te mea nui o te ao? He tangata, he tangata, he tangata*’ or ‘what is the most important thing in the world? It is people, people, people’.

## **2. Literature Review**

From university libraries and on internet searches, very little information appears specifically around Maori and remediation of hazards (disaster recovery).

In order to establish some reference points for comparison, the following related issues considered as closest matches, were reviewed:

1. Maori response to the development of Environmental Performance Indicators and Maori-specific indicators in New Zealand
2. The Maori Environmental Health and Protection Field (science and regulatory-based and similar Maori issues being tackled)
3. A selection of related case-studies and documents that add value to the topic. For example, Maori experience with civil defence emergencies, sawmill workers against poisons (SWAP) activity and the current approach to hazard and risk prioritisation

## **1. Maori-Specific Indicators in the Environment**

### **Maori Environmental Performance Indicators**

During the late 1990s, the Ministry for the Environment consulted Maori over the development of Environmental Performance Indicators (EPI), including some Maori-specific ones. The programme stated the Ministry ‘recognises the value of indigenous knowledge and seeks not only to incorporate Maori concepts, but to recognise the alternative to empirical science they provide’ (MfE, May 1998). It also aimed to build on existing monitoring and data held by other stakeholders (MfE, 1998).

Maori participants highlighted major tensions with a strand-by-strand approach for EPIs, preferring an holistic perspective with seamless and inter-changeable components. Participants identified spiritual and philosophical goals (along with political and operational), including an overarching one ‘*to sustain and support the Mauri of Te Taiao*’ – *the life force of the environment* (MfE, 1999). This correlates with Maori proverb, ‘toitu te whenua, toitu te moana, toitu te tangata’ – sustaining the land and the water sustains the people.

Participants also highlighted their wish to protect and enhance natural resources of significance to hapu/iwi, especially those ecosystems from which medicinal, support resources (like flax for kete/food baskets) and food supplies are harvested. Various indicators and local monitoring options were raised. Ozone depletion, for example, was suspected of driving certain shellfish deeper into the sand. At a national level, the need was perceived to recognise the Treaty of Waitangi and to ensure that hapu and iwi environmental interests are protected in accordance with the principles of the Treaty of Waitangi. Interests therefore include practical outcomes for Maori people.

These stances assuredly apply to the disaster recovery context of this study as a component of the holistic environment Maori refer to. The generic themes which emerged during consultation (MfE, May 1998) include:

- Spiritual – the idea that we are all linked from Creation and the shared role of Maori and Pakeha as kaitiaki of the environment
- Philosophical – the idea of a pervasive force such as ‘Te Mauri’ giving a powerful and evocative framework
- Political – that the Treaty of Waitangi must be explicitly mentioned in policy goals

- Operational – the inculcation of tikanga (traditional practice) into the overall process (probably at the monitoring end)

In proposing a national set of EPIs, the Ministry documented several potential Maori-specific indicators requiring further work. For example, changes in the number of kaitiaki (local guardians), presence of customary target seafood species and volumes of customary take. It recommended Maori consider further work around response indicators (signs suggesting recovery action like rahui/traditional bans is needed), state of environment indicators (localised state of the resource monitoring) and how Maori concepts might be woven into the programme. Several EPI case studies and reports since with Maori groups have described localised resource management initiatives and approach.

Most recently, King et al. (2007) assert that Maori environmental knowledge (MEK) provides a unique source of expertise that can contribute to contemporary natural hazards management and mitigation in New Zealand. This article on MEK and natural hazards reviews available written and oral histories about Maori and natural disasters. It identifies environmental indicators used to forecast environmental changes in a number of tribal areas and suggests five areas where MEK might contribute to natural hazard management and mitigation as per the following table.

**Table 1: Potential contributions of MEK to natural hazards management and mitigation (King, et al., 2007)**

Raising community awareness (i.e., education)	MEK can inform and raise community awareness re hazard events ...helping facilitate the transfer of important knowledge from one generation to another
Natural hazards histories	MEK can provide insight into past hazards, including provision of important baselines to assist with the construction of chronologies
Research hypotheses	MEK can present us with valuable starting points to generate questions and therein better understand the nature and history of our local environments—including insight about the areas that may again be impacted by natural hazards
Past community response and recovery	Past response and recovery experiences can assist with future community hazard management
Community monitoring	Community assessments of change are based on the cumulative knowledge of local trends, patterns and processes. This can be important for detecting changes taking place in the environment

## **Iwi Case Studies**

Maori on the North Island's East Coast Ngati Konohi, for example, reported statements like 'common sense signs tell them when the marine environment is health or unhealthy. Common sense signs are "looks good, smells good, taste good - the environment is healthy. Looks bad, smells bad, taste bad - the environment is unhealthy.'" Environmental health signs suggested by participants can be defined in terms of colour, taste, touch, size, sight, smell, abundance and variety. A number commented since the environment was not traditionally polluted, they could not recall signs to indicate whether the marine environment was unhealthy. Initial conclusions stated clear goals to regain control of the resource for the benefit of all, but noted gaps and the need for further indicator work (MfE, 2005).

In further documented work (MfE, 2006b), Ngati Ngāti Konohi established primary and secondary tohu (signs) for monitoring the marine environment. The former divided into species-focussed indicators (like availability of target species) and process-focussed indicators (like observation of predators suggesting an intact food chain). Secondary tohu included test plots, council datasets on water/shellfish/bathing quality and land-based indicators used in overall resource management (like flowering seasons marking the best harvest time for seafood species (kina).

Further down the coast, Ngati Kere also documented indicator work and expressed similar goals of reclaiming and sustaining marine resources. They trialled performance indicators for local-goals (like what koura (crayfish) are able to be collected in knee-deep water) and concluded they were better placed than external agencies to monitor the local environment to sustain their primary values around feeding the people and providing for visitors. Future process recommendations include use of focus groups for efficiency (selected on skills for the project, local passion and performance outputs), resourcing (including payment) and contingency planning (particularly for time limits). Community development was integral to the process (Ngati Kere et al., 2007).

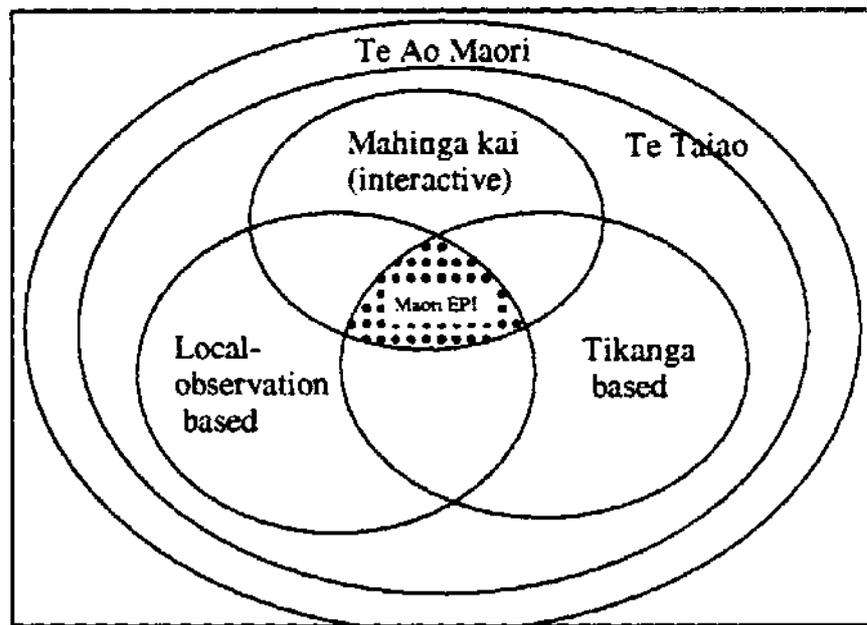
Another development is a Cultural Health Index for streams and waterways following case study work on the Taieri River. Current monitoring techniques were correlated with Maori community indicators to demonstrate a more robust bicultural model. Cultural indicators for stream health ranged from site access, species availability for customary food gathering, farming proximity to the perceived sound and appearance of rippling water (low flow indicator). Community development and knowledge transfer was an integral part of the process (Tipa, 2003).

## **Maori Environmental Approach Useful**

It is useful to track back to the reasons and recommendations received by the Ministry before consulting and working with Maori over EPI development. A matrix of key statements that seem valid for this study is drawn from the consultant's report (MfE, 1998) and included in Appendix 11. By replacing environment-type terms with disaster recovery-type terms, the statements from expert Maori opinion seem to fit just as appropriately with this topic. This would support validity of the original advice and consistent holistic nature of the Maori principles involved. Findings from this study

could be compared against the statements as a form of triangulation to validate ideas or discover differences.

The report locates traditional Maori environmental monitoring as comprising three categories - mahinga kai-based EPIs (food-gathering, flora & fauna knowledge from customary use); local observation-based EPIs (information from local Maori observations) and human ecology-tikanga based cultural indicators (concepts of kaitiakitanga, mauri, whakapapa, whanaungatanga and tapu). The first two are environment-centred; the latter one is people-centred – linking holistically such that the development of Maori indicators requires all three.



**Figure 1: Maori environmental monitoring in Te Ao Maori (The Maori World) (MfE, 1998).**

Finally, the report contains valuable advice and rationale around Maori issues and the development of Maori indicators. It recommends Maori be included in the mainstream indicator program (rather than separate or not at all), various Maori-responsive processes be applied and government duties/obligations be noted. Since it is still early days for contemporary development of Maori indicator programmes, the information here is considered appropriate for the topic in hand. Modern Environmental Indicator models which include Maori cultural aspects include the Cultural Health Index (MfE, 2006) and The Mauri Model (Morgan, 2007). The latter provides resource management decision-makers with tangata whenua-inclusive weightings relating to the environment.

## Maori Development

In discussing Maori indicators, one should not go past advice on Maori-specific outcomes and indicators provided for Te Puni Kokiri, the Ministry of Maori Development (Durie et al., 2002). While this report is not specifically environment-focussed (includes Maori development/social policy), it identifies eight outcome areas most commonly identified by interview participants, namely:

- Maori wellbeing

- Whanau wellbeing
- Culture and cultural identity
- Te Reo Maori
- The Maori asset base
- Tino Rangatiratanga
- Kotahitanga
- Treaty Settlements

The report also provides a cross-sector framework for approaching Maori specific outcomes and indicators. Called Te Ngahuru (refer Table 1 below), it sets out five overarching principles, leading to two outcome domains (human and resource capacity), four classes of output involving ten identified goals. Flagged for further development at more local levels were outcome targets for each of the stated goals and the indicators which might track progress towards the targets.

**Table 2: Te Ngahuru – A Maori Outcomes Schema (Durie, et al., 2002).**

Principles	Domains	Classes	Goals	Targets	Indicators
Inter-connectedness	Human Capacity	<b>Te Manawa</b> Secure Cultural Identity	1. Positive Participation in society as Maori		
			2. Positive participation in Maori society		
Specificity		<b>Te Kahui</b> Collective Maori Synergies	3. Vibrant Maori communities		
			4. Enhanced whanau capacities		
Maori focus		<b>Te Kete Puawai</b> Maori Cultural and Intellectual Resources	5. Maori autonomy (Tino rangatiratanga)		
			6. Te Reo Maori used in multiple domains		
Maori commonality	Resource Capacity	<b>Te Ao Turoa</b> The Maori Estate	7. Practice of Maori culture, knowledge and values		
			8. Regenerated Maori land base		
Contemporary relevance		<b>Te Ao Turoa</b> The Maori Estate	9. Guaranteed Maori access to clean and healthy environment		
			10. Resource sustainability and accessibility	E.g. Kina stock +50%	E.g. MAF stock takes

## Maori Health and Wellbeing

A growing range of Maori health and wellbeing conceptual models has been generated by academics and others to help guide and inform practitioners, policy-makers and anyone interested in Maori health. These are not discussed in detail here but include well known conceptual models like Te Whare Tapa Wha, Te Wheke and Te Pae Mahutonga for Maori Health Promotion. For example, Te Whare Tapa Wha (four-sided

house), asserts four cornerstones of holistic health comprising physical, mental, social and spiritual components.

Such conceptual models that provide a common framework and high level goals for all can be useful to re-focus the wide variance amongst communities over their goals and outcomes. Space is then allowed for local target setting and performance indicators.

Occasionally, Maori will come together and form consensus statements out of collective brainstorming. For example, The 1994 Maori Health Decade Hui (held in Rotorua) summarised Maori health as:

*Identity, Self Esteem, Control of Destiny, Tino Rangatiratanga, Voice Heard, Wairua/Hinengaro/Tinana, Personal Responsibility & Cooperative Action, Respect for Others, Te Reo Maori & Tikanga, Economic Security, Whanau Support*

In contrast to more clinical definitions of health, measured by things like life expectancy and infant mortality rates and their associated determinants, the hui version of Maori health was said to be measured by:

*Number of Maori in Positions of Influence, Value of Resources in Maori Ownership, Increase in Educational Achievement, Use of Te Reo, Increase in Quality of Life, Drop in Crime Rate, Economic Success*

On a similar note, modern tribal approaches to wellbeing exist such as the Whakatipuranga 2000 vision of Kapiti Coast tribes. This links individual and collective wellbeing and brings in various indicators such as tribal numbers and depth/strength of cultural knowledge.

## **2. Maori Environmental Health and Protection Field**

Maori Environmental Health and Protection is a field of work in the health regulation sector where Maori are severely under-represented. At any one time, the number of Maori officers employed is in the single digits compared with a workforce of several hundred health protection officers (HPOs) in public health units and environmental health officers (EHOs) in local authorities. This leaves a lack of practitioner knowledge around Maori issues relating to environmental health and protection topics.

A 2001 survey of both these groups regarding capacity and priority for Maori competency revealed significant gaps with respect to Maori expectations (Webber, 2001). Comparison with equivalent indigenous colleagues in Australia and other Pacific countries shows a contrast between their progress on indigenous workforce development and the absence of similar development within the New Zealand sector.

Whilst much has been done about improving Maori participation in other parts of the New Zealand health sector, little has been done in this area. Reviews for generic 'health inspectors' have occurred at various times over the years, but little differentiation has happened in the case of Maori and specific workforce issues and perspectives they encounter.

### **Papers Included/Excluded**

Since it was anticipated there would be little by way of specific literature relating to this issue, key documents relating to environmental health and protection generally

were searched for as well as a wider scope of documents pertaining to the Maori context. This included historical setting of Maori inspectors, Maori education and indigenous development in the field overseas. Searches were conducted on several databases, particularly EBSCO, CINAHL, web searches and Massey University Libraries for combinations of key words (and their synonyms) including: environmental health, health protection, Maori, public health and health inspectors.

Papers were included if they were key health sector documents inclusive of both environmental health and protection and any Maori commentary (separately or together). Documents were also included if they had a bearing on the wider context from a Maori or indigenous perspective. For example, *Health Through Marae* (Te Puni Kokiri, 1995) includes neither a health protection nor Maori health sector workforce development focus, yet was considered a potential part of the conversation within which Maori regulatory approaches may evolve. Conversely, generic health inspector documents were excluded if they neither included specific Maori mention nor contained elements deemed to be currently relevant for Maori practitioners.

Many documents reviewed were Crown agency reviews/policy documents or discussion pieces by various stakeholders. There seems to be little by way of formal research and/or peer-reviewed studies. The key papers reviewed are discussed below within the following themes:

1. Specific reference to Maori HPOs (or health inspectors) in review/policy documents
2. Related discussion from general HPO/EHO and wider health sector workforce development
3. Reference to other indigenous Environmental health settings overseas

### **Review of Studies**

Since the accounts of Maori health inspectors under Pomare and Buck in the early 1900s, the Maori 'inspector' workforce appears to gain little or no mention in the literature until recently. The Public Health Association HPO Workforce Development Review (PHA, 2000) recommends development of a Maori health protection workforce and meaningful inclusion of (and consultation with) Maori when planning development initiatives for HPOs. Key industry reports prior to this make little or no reference to Maori within the sector.

Board of Health reports on Training and Employment of Health Inspectors in 1963 and 1973 focus on generic discussion. Whilst health education is identified as being of the utmost importance requiring 10 percent of an inspector's time, the requirement to be fully trained in this area and for work with communities makes no reference to Maori or cultural contexts (Board of Health, 1973). A 1986 submission to the Board of Health indicates no change (Weldon, 1986).

Most recent work around HPO workforce development includes a 'competency' range of discussion and policy documents (MoH, 2002). These were circulated seeking written feedback on key questions, which served as consultation towards establishing a core set of entry and ongoing competencies for being designated as an HPO. Submission response from stakeholders was mediocre with little evidence of Maori participation - the April 2002 analysis of submissions showed 17 submissions and reflected concerns at the lack of inclusion of Maori HPO issues (MoH, April 2002).

While other recent health workforce overviews talk of the need to increase Maori participation across all roles, this has not yet resulted in significant Maori comment in respective sections on health protection. Armstrong (a visiting US professor) and Bandaranayake (1995) after talking generically about protection roles, note under a separate section that “Maori health policy and planning has assumed new independence in the last decade ...accommodation of Maori health perspectives, and of other minority New Zealand cultures, must continue to evolve in the larger system as well”. This does not seem to be the case in the regulatory environmental health and protection field.

A more recent stock take of health workforce issues and capacity (HWAC, 2001) provides data and comment on HPOs and EHOs without raising any Maori workforce issues. Comment is noted in other areas such as the “development of Maori community health workers is seen as a major opportunity to develop by-Maori-for-Maori services” (HWAC, 2001, xiv). Further relevant comment includes, “even where sufficient numbers of Maori are being trained (for example in midwifery), the high expectations in the workplace cause retention issues such as ‘burn out’...This needs urgent attention by employers and provider organizations in order for Treaty of Waitangi obligations to be met.”

Aside from sector-wide comment on Maori environmental health and protection, some relevant papers have been written by individuals and organizations. Wellington Polytechnic (now Massey University) Environmental Health Programme leader Steve Bell provided some useful background and figures for Maori attending the programme, including comment on attendance barriers (Bell, 1996). The Public Health Leaders Group and Auckland DHB produced a benchmarking survey of staffing and remuneration via all 14 public health services – a question was included to identify what additional salary might be paid to a specialist Maori HPO. Protection and Promotion turnover data was not differentiated for Maori (Pritchard et al, 2002).

Papers and presentations by Maori HPOs have started to appear at conferences and national publications in recent years. Titles (by this author) include: Developmental needs for Maori health protection (Webber, August 2000); Environmental health protection for Maori community: Minisurvey (on Maori skills in the EHO/HPO industry) (Webber, April 2001); Protecting the health of Maori community (Webber, July 2001); HPO competencies for working with Maori (Webber, July 2001); Queensland indigenous environmental health exchange (Webber, April, 2002); HACCP for Maori health protection: A risk assessment approach to kaitiakitanga (Webber, June 2002); Fiji and public health: A new era in Pacific public health (Webber, April 2003). These papers are generally to stimulate further discussion - some reflect collected statistical data and strategic documentation such as a survey of Maori competency within the current workforce or indigenous developments overseas.

A number of other papers are relevant, which don't include comment on Maori environmental health and protection, but reflect important workforce environment and trends. The National Report on Environmental Health 1998/99 (NZIEH, 2000) surveys employment conditions and service delivery. Other opinion pieces here (Stout, 2002) and overseas (Statham, 2002) provide consistent themes of things like patch protection or survival as professions. Strategic issues such as the interchange between EHO and HPO have been discussed in generic forums. Maori views on some of these issues are likely to be distinctive and different from generic views, such as the need to network

HPOs and EHOs for critical mass in the Maori workforce and the need to maintain strategic Maori links with local authorities and other regulatory agencies like OSH.

While there has been little dialogue in New Zealand on Maori environmental health and protection issues, indigenous developments overseas provide useful reference points. Australia has some well-developed indigenous environmental health strategy and initiatives (Webber, April 2002). The University of Western Sydney reported on a four-year project and study to establish an indigenous professional and local community workforce (Brown et al, 2001), The report includes some 'groundbreaking' (for Australia perhaps) analysis on power relations and professional practice issues for indigenous education. When Fiji launched its public health association, it was spearheaded by indigenous Fijians including a much stronger contingent of indigenous Environmental Health Officers than in New Zealand (Webber, April 2003). Documentation at the launch reflected a new direction of community-responsive strategic planning for Pacific ingenuity to replace what is seen as a less appropriate Western/colonial health inspector approach.

Finally, from the literature about 'inspectors' in New Zealand - whilst now 100 years on, discussion about Maori health protection and its relevance to Maori should not happen without some reference to Maori health inspector predecessors of yesteryear. Thanks to the efforts of various researchers and the storage habits of certain departments, quite a record exists of Maori sanitary inspectors and their role with communities in reducing infectious diseases from the early 1900s (Lange, 1972).

Outside of the HPO/EHO field, the New Zealand indigenous Maori context invites a much wider scan of educational, cultural and indigenous development issues to help inform debate on Maori environmental health and protection workforce development. Within the confines of this review, just a few of the vast pool of literature that could contribute to this context are discussed.

General Maori Health workforce development is tackled in documents like the Retention of Maori Staff with the Ministry of Health (Navigate, 2002) and the still valid submission of the Board of Health Maori Standing Committee and its Guidelines for the Introduction of a Maori Perspective into the Training of Health Professionals (Board of Health, 1987). The former conducted a survey of staff to provide a snapshot of things whilst the latter drew together the thinking of key leaders in Maori health to leave a lasting guideline for staff development in cultural awareness, basic and specialist levels of Maori responsiveness. Other lessons can be learned through general Maori health workforce surveys such as one conducted in Wanganui (Douglas, 1989) or even educational learning styles that might help inform educators about appropriate education methods for Maori (ETSA, 1996).

### **Conclusion**

In conclusion, there is very little in the way of literature specifically relating to Maori environmental health and protection as a regulatory workforce or associated best practice and body of knowledge. What little reference to such Maori practitioners is either historic record or recent discussion pieces. Whilst the need for workforce development has been identified, there is yet to be strategic analysis and review of past and present situations to help inform the process. Overseas indigenous comparison exists, but a significant aspect of Maori cultural context needs to be developed.

### **3. Weaving the Strands Together**

#### **He korero te kai a te rangatira – talk is the food of chiefs**

Part of any study is to find out what others say about the topic. In Maori terms, one of the attributes of rangatira (chiefs or Maori leaders) is to weave people together (and their thinking) – ‘ranga’ means to weave, ‘tira’ is a group of people. By achieving unity and common understanding (kotahitanga), stronger forward progress can be made together.

The following excerpts are helpful in shaping the focus, design and completion of this study.

According to one DHB Maori health director, the next challenge [in Maori health] will be assertive work with other sectors to forge partnerships and increase Maori responsiveness of services for day to day needs of Maori within the wider determinants of health. “It would be hugely exciting for me if in the future I could walk into any support service including a health care environment and know that the staff will have an understanding of me and my cultural perspective.” (Maori Health Directorate, 2006). A question for the disaster recovery field is where stakeholders currently sit on the Maori responsiveness continuum.

At the time of writing, a new Public Health Bill is being developed to update and improve the Health Act 1956 - responsible for much of the way our country approaches environmental health and protection issues. In its current form, the Bill maintains a reliance on current regulatory structures and personnel to both enforce health regulations and encourage healthy environments. Medical Officers of Health, Environmental Health and Health Protection Officers would continue in the front line of defence for ensuring public safety in the face of various health hazards in the environment. With a foot in both community wellbeing and regulatory camps, these professional groups are perhaps the closest professional workforce linked to the outcome of Maori disaster recovery.

One of the stated purposes of the Public Health Bill is to reduce inequalities for Maori, yet it does not clarify how this would be achieved. A prior survey by the researcher seems relevant to highlight an ongoing gap. In a 2001 survey of the same workforce, large gaps were discovered between Maori expectations and the lack of capacity amongst officers around Maori language and community understanding. When asked how important such competency was for their jobs, there were equally large gaps, with only a minority of officers regarding it as a priority (Webber, 2001).

At the service level, Public Health Units and Medical Officers of Health were subsequently surveyed about the Maori skill base they wanted for their officers. Overall, specialist Maori competencies were recognised along with some general Maori abilities for all staff. However departments did not seem willing to treat Maori positions any differently from the roles of other officers or extend efforts outside of the norm to overcome a perceived difficulty in recruiting Maori (Webber, 2005).

Despite designated officers acting under delegated authority of the Director General of Health, Maori officers experiencing intolerable employment scenarios related to the nature of their roles are left to the mercy of their DHB employers. Maori issues are low priority within regulatory frameworks and turnover of Maori officers is very high. Inclusion of Maori issues in disaster recovery needs to be considered in light of the workforce and other stakeholders that would deal with those issues.

Many papers, recommendations and frameworks by Maori leaders from various fields exist which can be applied to the topic of this study to good effect.

In discussing Maori and transgenic research, Durie (2003) notes key themes in Maori submissions to the Royal Commission on Genetic Modification. In common with other indigenous peoples, Maori philosophy and practice centres on unity with their accustomed environment. Concerns arise where there is possible disturbance to relationships and a fundamental sense of order. Most argued it was unacceptable if it contradicted Maori custom, philosophy and tikanga.

Key themes also focussed on upholding the Treaty of Waitangi, active inclusion of Maori in any decision-making and indigenous flora and fauna property rights/intellectual property. ‘Unnatural’ things were opposed; however Maori maintain the right of full access to new technologies and advancements with an open mind for potential health gains for Maori.

Noting a lack of clear methods by agencies to assess Maori world views (and often from a conflicting world view), Durie suggests shifting the focus from a ‘risk paradigm’ to a ‘paradigm of potential’ to better understand Maori values and apply within a modern holistic framework. Citing a similar approach in other sectors, he constructs a ‘research potential framework’ *Rangahau Painga*, using the identified Maori concepts relating to GM. The aim is to determine whether research is coherent, accords with Maori views and is likely to make a positive contribution.

**Table 3: Rangahau Painga - 'A Research Potential' Framework (Durie, 2003)**

Domain	Maori value/Concept	Desired Research Outcome
The Natural Environment	Mauri Integrity	Research that contributes to the integrity of ecological systems
	Whakawhanaungatanga Relationships	Research that strengthens relationships between people, between people and the natural environment, and between organisms
	Kaitiakitanga Guardianship	Research that contributes to resource

		sustainability
The Human Condition	Wairua Spirituality	Research that contributes to human dignity within physical and metaphysical contexts
	Tapu Safety	Research that contributes to human survival and safety
	Hau Vitality	Research that contributes to maintenance of human vitality
	Whakapapa Intergenerational transfers	Research that contributes to the standing of future generations
Procedural Confidence	Tikanga Protocols	Research that contributes to the development of protocols to address new environments

With regard to Maori views, most commentators recognise Maori are not a homogenous group, although a common set of underlying values is often focussed on. As an alternative to this approach (so Maori are not forever limited to just the box containing those underlying values), attention should be drawn to new research tracking five distinct segments of Maori society. Nielson (2007) reports a new trend in their research showing a significant growth in importance of traditional cultural values to Maori. However, the culturally-based segmentation now being used to track this shows how the five segments of Maori society are not connected with their culture in the same way.

The five segments are:

1. Cultural Traditionalists – older, settled, many of whom see themselves as role models to the younger generation. Traditional cultural values are extremely important to this segment.
2. Upbeat Achievers – well-educated, successful and settled. Traditional cultural values are fundamentally important to them. These are the role models of the future.
3. Strivers – typified by a wish to achieve. Some in this segment have not had good role models in their own life, and want a different future for themselves or their families.

4. Young Battlers – young, female-oriented segment, most of whom have children. One in five does not feel their culture provides them with strong role models.
5. Disaffected Youth – young, male-oriented segment, many of whom are still finding their feet. Less culturally engaged than other segments. Some feel they lack strong role models.

These segments of Maori society may not only think and behave differently with regards to certain kaupapa Maori at their stage of life, but they are likely to be reached and/or respond differently as stakeholders wish to work in Maori responsive ways. The term ‘social marketing’ is highlighted here as an important tool for getting messages appropriately to Maori – and without treating them as a homogenous group then blaming them for failures that really belong to the system. This would go hand in hand with ‘risk communication’ – another tool requiring better application with regards to Maori and hazards.

### **Biological and Chemical Risk Prioritisation**

Finally, a reality check is made here relating to the biological and chemical agents that are a key focus for those interested in disaster recovery.

There are numerous lists and approaches to working out which harmful things are the highest priority to do something about. Many of these Maori or the general public would never have heard of. Well known threats include things like anthrax (bio terrorism), AIDS and 1080 - however ranking in order of seriousness, ability to respond and so on is a very complex issue.

Examples of risks with heightened concern from Maori in New Zealand might include:

- 1080 poison
- Contaminated lands (timber treatment, farm chemicals, dump leachate)
- Contaminated shellfish beds (faecal discharge, antifouling or invading organisms like dinoflagellates)
- Cigarette smoke
- Indoor air quality (such as waste products from gas heaters)
- Human waste products entering the environment
- Any industrial discharges to the environment
- Farming discharge (animal faeces) to drains/streams
- Chemical weed-sprays near food sources
- Bird flu pandemic

Most of these can be straight-forward to avoid/remedy with the right kind of understanding and agreement between stakeholders – which is often not the case. There is a very large list of potentially high risk biohazards and chemo hazards which Maori have little or no engagement in or understanding of.

Appendix 7 contains a number of links for further reference about the wide range of risks various organisations are working with.

## Chapter 3 - About the Study

Having established the aims of the study and sought feedback from Maori and other stakeholders, how to effectively carry it out needed to be decided. Being Maori and dealing with Maori knowledge and aspirations required a Maori responsive research approach by default.

### ***Methodology***

Methodology helps explain why certain research design and methods are used in order to gain the new knowledge desired. It also dictates how knowledge is treated and validated.

For example, Western approaches to knowledge benefit individuals who rely on inquiry as the source, rights of open access and compartmentalisation of knowledge via disciplines and analysis. By contrast, customary Maori approach is more focussed on benefiting the collective and integrating knowledge with holistic Maori world views, drawing on more metaphysical sources and experience, with often protected levels of knowledge. Where either/or choices need to be made, they need to be Maori responsive.

Using Cunningham's (1998) taxonomy for Maori research, either Maori-centred research or Kaupapa Maori research approaches are called for, since Maori are significant participants and research is being carried out by Maori with the generation of Maori knowledge. Kaupapa Maori research has the advantage of vesting control of the research with Maori rather than 'mainstream'. This is very attractive to a Maori researcher not wanting to be pushed around by Western-dominated research approach. However, to achieve optimal outcomes, there is a need to keep a foot in both camps to engage both Maori and non-Maori stakeholders with an interest in the research.

This study therefore draws on both Western and Maori world views or research paradigms, with the aim of 'mana-enhancing' both for a win-win solution. Two Western terms that help address these paradigms are ontology and epistemology, which talk about the nature of reality and how we interpret and deal with the world we see. Ontology is 'an inventory of the kinds of thing(s) that do, or can, exist in the world' [affected by our belief systems]. Epistemology is the philosophical theory of knowledge...how we know what we know...what counts as legitimate knowledge (Davidson & Tolich, 1999, pp. 23-26).

A common example of Maori world view is the three baskets of knowledge – te kete Tua-Uri (the 'real' world behind what we sense), te kete Aro-Nui (the natural world before us that we can observe) and te kete Tua-Atea (the world beyond space and time) (Marsden & Henare, 1992). Since much of Maori reality descends from these understandings, the paradigm gap between Western and Maori is reduced by modern physicists who discovered the universe is an 'open system' - reality being more than just sense perception, matter as energy and atoms as process. This allows possibility for incursion of things like spirit, and for mankind to discern processes that occur beyond the world we see in the realms of Tua-Uri and Tua-Atea.

Until such areas are more fully understood and universally accepted, there is still a need to engage people with research that fits with more traditional Western world views. As discussed later in the chapter, a Kaupapa Maori research framework is chosen for this study to ensure Maori consideration is fully included, based on a Maori ontological and epistemological position. However, a mixed methodology is employed involving Western methods like literature review, interviews and case study based on more Western ontology and epistemology.

Being an emancipatory project to help make a difference and using qualitative research methods to foster understanding amongst different points of view, this study is anti-positivist (no one factual truth) and supportive of critical social theory. It resists being constrained in order to remain open to a more interpretive epistemology – enabling more flexible ways of knowing things. While Western-accepted methods are followed for carrying out much of the work, a ‘haurapa’ research approach was developed to present the underlying essence of Kaupapa Maori research. Research decisions can still be reached by spiritual and metaphysical signposts rather than just by Western academic logic.

Research can be affected by the researcher’s own values, thoughts and choices - so highlighting such bias and giving some background on the researcher, assists the reader to make up their own mind what to take on board whilst reviewing the information made available.

The remainder of this chapter expands on:

1. Kaupapa Maori Methodology
2. Haurapa Research Approach
3. Tools and Methods

## **1. Kaupapa Maori Research**

*E tipu, e rea, mo nga ra o tou ao; ko to ringa ki nga rakau a te Pakeha hei ora mo to tinana; ko to ngakau ki nga taonga a o tipuna Maori hei tikitiki mo to mahunga; a ko to wairua ki to Atua, nana nei nga mea katoa.*

This proverb from respected Maori leader Sir Apirana Ngata, instructs today’s generation to use the Western tools of today, whilst hearts are set on the gifts from our Maori ancestors and spirits set on the Creator from whence all things come. It is with this in mind, a mixed methodology is considered for addressing the research aims and with regard to theoretical basis and design. Strengths and weaknesses are discussed below in justifying use for this study. First however, it is important to connect with my own Maori framework for this choice.

According to whakapapa related through Maori world views (paraphrased here)...in the beginning there was Te Kore (nothingness) of many levels, through stages of night and light down to Ranginui (‘Sky Father’) and Papatuanuku (‘Earth Mother’). One of their offspring, Tane, ascended the heavens to retrieve the three baskets of knowledge – te kete Tua-Uri (the ‘real’ world behind what we sense), te kete Aro-Nui (the natural world before us that we can observe) and te kete Tua-Atea (the world beyond space and

time) (Marsden & Henare, 1992). This whakapapa provides a basis for some first principles from which subsequent tikanga (customs) can flow and be validated.

This Maori world view is enhanced by modern physicists discovering the universe as an 'open system', reality being more than just sense perception, matter as energy and atoms as process – this allows possibility for incursion of things like spirit, and for mankind to discern processes that occur beyond the world we see in the realms of Tuauri and Tuathea. The point for discussion with current research methodologies is that Mātauranga Maori or Maori ways of knowing (epistemology) require consideration of things other than currently known research methodology tools (in the Aro-Nui realm).

Whakapapa again links me to the many cause and effect reasons for adopting certain methodologies in the pursuit of knowledge, truth and light. For example, for no other reason than it has been laid down as a spiritual signpost by a tupuna (ancestor) or tuakana (elder sibling) in the field of research rather than some other Western academic logic.

### **Pros & Cons**

The mere mention of 'Kaupapa Maori research' by someone who is familiar to and trusted by a Maori community, has a higher chance of being supported than other research 'dirty words'. Bishop (1994) states, like many authors, that Maori have not been served well by research. He goes on to say alternative approaches by Maori reflects a form of resistance to critical theory after critical approaches 'failed' to address the issues of communities such as Maori. There are a plethora of testimonies in the literature describing various negative effects research has had on the 'over-researched' Maori from marginalisation to near genocide. It is no wonder that any consideration of research approach can depend heavily of Maori attitudes towards research and the benefits or risks of being involved.

A quick analysis of the target group for this research (Maori and/or disaster recovery stakeholders), estimates what support there may be for certain approaches. For example, participants may be generally comfortable being involved in case study analysis. However, non-Maori could feel out of their comfort zone with the thought of participating in 'Kaupapa Maori Research'. Maori versed in traditional Maori frameworks might be reluctant to engage in what they perceive as 'tauwiwi research approach' and technical aspects of 'environmental health' or Western science indicators. A mixed methodology involving both worlds provides opportunity for all to find comfort with the research approach.

Durie (1996) asserts new methodologies are required that will better measure and reflect Maori health as designed by Maori. Initial scoping of Kaupapa Maori Research as a potential solution reveals what little has been defined about it, nor, according to most authors, should it be so easily classified into Western frameworks – this would undermine it. So before getting too caught up in the chance to make it up as one goes along, a few common principles can be laid out relating to KMR.

Kaupapa Maori is formative according to Cunningham (1998), having its own methodologies and employing a range of contemporary and traditional methods. He says a definition will develop over time as more come to understand the philosophy and benefits of the approach. Glover (2002), used Durie's Whare Tapa Wha as a kaupapa Maori framework for commentary. Whilst still not defining KMR, she repeats Smith's

(1999) report of common agreement that being Maori, identifying as Maori and as a Maori researcher is a critical element.

Clues have been left by various authors about KMR. Irwin (1994) says it is culturally safe, involves relevant/appropriate mentorship of kaumatua while satisfying rigour of research and is undertaken by a Maori researcher. Glover (1997) says it is a desire to recover and reinstitute Mātauranga Māori – the indigenous system that was in place before colonization. Smith (1995) describes it as research by Maori, for Maori and with Maori. Reid says it challenges universal approach ...and argues that the theoretical approaches of a variety of disciplines fall well short of being able to address Maori needs or give full recognition of Maori culture and value systems.

Some writers have set out questions and frameworks to follow. For example, Bishop (1994) considers the ‘empowering approach’ by asking questions like ‘who initiates the research and why? ... who will benefit?’, ‘who is the researcher accountable to’ and ‘who has control over the distribution of the knowledge?’. Glover (2002) sets out 20-plus-point checklists of expectations for Kaupapa Māori projects and researchers, but in other discussion echoes advice that there are no certainties as different tribal areas and even researcher skills relevant to those areas (like dialect) will vary along with local priorities.

It seems an attempt to ‘match’ sets of KMR to assess its usefulness in answering the research aims is a Western-compromised way to go about things. Just like the range of ‘values’ like honesty, integrity and trustworthiness, which people are expected to adhere to in order for things to go well. We are often at the mercy of the ‘gods’ hoping people will carry those values – however, a bad trait identified can bring an intervention response. Similarly, concepts and values in Maori society (like whanaungatanga, whakapapa, manaaki, aroha and tikanga) can be sensed in action by unwritten indicators of how well people are applying them. This could lean consideration more towards ‘how things are done’, or the ‘feeling it creates’, rather than ‘what is done’.

If wairua (spirit of love) is present and things are done with love/aroha, KMR could achieve far more with the research aims than traditional Western tools on their own. However, one researcher’s view and application of KMR may differ from others who may not follow the methodology with the same degree of wairua. Such things as academic rigour, repeatability and validity could be marginalised.

Yet KMR and Western tools are not mutually exclusive. Glover (2002) quotes the Hongoeka Declaration for Maori Health Research that ‘Maori have the right to use any approach to health research that will benefit the people...we will promote and develop kaupapa Maori methodology and methods’. She says Reid (1996) sums up the accepted position that ‘we can use modern statistical tools and methodologies just as we can drive Japanese cars’. So the field is open and Western tools can be used within a KMR framework without having to justify one methodology over another.

Bishop (1998) was criticized in his Maori approach by Lopez (1998) along the lines of individuals and cultures being multiple-positioned (not just other). Lopez says assumptions have been made that Pakeha are ‘outsiders’ and that ‘insiders’ will speak the same voice. Lopez also looks for evidence of collaborative effort claimed when a sole person ends up writing about the research and is sceptical about any of ‘the

masters' tools' being used to dismantle the master's house (quote from Lorde, 1981). Smith (2001) says KMR as a counter-hegemonic approach to Western research competes not only with positivism but also Government purchasing priorities (Foundation for Research, Science and Technology being the largest spend). Until KMR gains more widely recognized outcomes, it helps to be seen to include methods recognizable (and validate-able) to tauwi - like two sides of an apex standing together to form a more robust structure – as seen with the Maori and government sides to the NZ Maori Health Strategy's Korowai Oranga framework.

A distinction between KMR and other Maori centred-research is the degree of Maori control (Cunningham, 1998). For example identification of priorities, leadership of the team/project and measurement of results against Maori development goals. He says these controls are the equivalent of mainstream controls, not additional to. A down side to this, depending on who holds the purse strings, is the difficulty for an agency to 'let go' of its often taxpayer accountabilities and getting around the less familiar measurements for Maori development goals (and alternative/more holistic ways of getting there).

Much criticism in recent years has been levelled at the alleged non-accountability of the multitude of Maori health providers that do not seem to be reducing problem statistics like smoking rates in young women. Areas like environmental health and protection are quite rigidly defined regulatory roles and flexibility of approach is difficult unless linked to things mainstream can validate. Conversely, Maori communities are less likely to buy-in if they can't relate to what is presented to them. For satisfying the aims of this study, a KMR approach incorporating tools like interviews, literature review and case study has the best chance of engaging required stakeholders (Maori and non-Maori, community to policy levels) and producing meaningful results.

## **2. Haurapa - A Kaupapa Maori Approach to Research**

In line with the goal to do this study in a Maori-appropriate way, a kaupapa Maori approach to the research was developed called '*Haurapa*' - a Maori term meaning 'to diligently search for', as introduced in Maori research circles by Charles Royal (Royal, 1992).

The haurapa concept is extended here to generate a simple approach laying out the typical path an average Maori person might take in the quest to find new knowledge. Timing, methods and other considerations are therefore subject to Maori perspective and realities as a way to validate and guide the research in an appropriate way for Maori.

Whilst not all Maori are the same and variations will exist, the steps and considerations are taken from a perceived unwritten 'best practice' in a Maori context that many Maori would identify with. For example, first ask someone trusted in the whanau, then kaumatua, iwi, tohunga or other experts and so on - as directed by previous advice, wairua or tohu (signs) along the way. Information can come by informal, unexpected and spiritual channels depending how the researcher conducts themselves and their own state of readiness. Fragments of knowledge get pieced together in relation to the researcher's level of familiarity with Maori society – a non-Maori researcher would miss much.

With inclusion of Western tools, the mixed methodology chosen for this study reflects current trends in kaupapa Maori research to utilize whatever tools are needed to gain new knowledge appropriately with regards to Maori considerations. Whilst the most visible method selected is the semi-structured interview for a dozen key stakeholders, behind the scenes were other methods and more complex considerations around timing and choice of options.

Since Maori knowledge and perspective is being sought (along with other information relevant to Maori), optimal results are anticipated by using process that aligns to Maori knowledge holders and researchers. The top three considerations in doing this are to ensure the process is appropriate for, the participant, the researcher and kaupapa Maori. Once these are satisfied, remaining considerations can be accommodated like ‘how does this fit with an ethics committee and other things required by the research process?’

According to the researcher’s own knowledge of how Maori community works, it boils down to a continual question from a Maori perspective of ‘what’s the most appropriate thing to do/say at this point in time?’... what feels right according to the wairua and appropriate according to tikanga? ...what response is needed according to the thinking of the Maori Communities I belong to?’ Answers may differ depending on the researcher and communities to which they belong. Despite the potential for variance, validation (from the collective) comes from staying true to the understandings of the collective.

### **3. Research Tools and Methods**

This study aims to consider a variety of perspectives rather than prove or disprove specific Maori issues or indicators. There is less need for large samples of people or controlled experiments to prove ‘facts’. Instead, qualitative sampling was used to get a feel for people’s thinking on issues, along with a few simple tests and observations to help inform and build a more complete picture of things.

Criteria for selecting which research tools and methods to use include:

- Compatibility with the research paradigm
- Acceptable to all stakeholders/participants
- Ability to contribute towards answering the research question; and
- Ability to complete within resource constraints

Justification for this is supported by Davidson and Tolich (1999, p21) who say deciding methods to be used depends on the paradigm involved, questions being asked, people they are being asked of, and the amount of time and money available to complete the research.

Relating to these criteria, several tools were selected as the appropriate way to proceed – literature review, case studies, hui presentations and semi-structured interviews. The use of several methods is supported by Bouma (2000, p182) who asserts it is often better to use several data gathering techniques – it may provide different perspectives (as sought by this study). Denzin (cited in Patton, 1990, p. 187) also says multiple methods of observations must be employed as each method reveals different aspects of reality and no single method adequately solves the problem (of rival causal factors).

Linking methodology decisions with the Haurapa approach used, Tuhiwai-Smith (1999, p.15) says cultural protocols, values and behaviours tend to be approached as an integral part of indigenous methodologies. For example, the decision not to conduct interviews by phone relates to Maori cultural preference for 'kanohi ki te kanohi' (face to face) interaction.

## Case Studies

The use of case studies has increased over the past couple of decades. Their acceptance as a viable research tool has re-emerged, in part, because people want a convenient and meaningful technique to capture a time-framed picture of something. They also appeal to people due to 'face-value credibility' - they can be seen to provide evidence or illustrations with which some readers can readily identify (Bachelor, 2000).

Critics of the case study method believe that the study of a small number of cases can offer no grounds for establishing reliability or generality of findings. Others feel that the intense exposure to study of the case biases the findings. Some dismiss case study research as useful only as an exploratory tool. Yet researchers continue to use the case study research method with success in carefully planned and crafted studies of real-life situations, issues, and problems. Reports on case studies from many disciplines are widely available in the literature (Ischool, 1997).

Researchers such as Robert E. Stake, Helen Simons, and Robert K. Yin have suggested techniques for organizing and conducting case study research successfully with the following six steps proposed by Ischool (1997) based on their work:

- Determine and define the research questions
- Select the cases and determine data gathering and analysis techniques
- Prepare to collect the data
- Collect data in the field
- Evaluate and analyze the data
- Prepare the report

In amongst these steps are a range of considerations for things like identifying/reducing bias and ensuring the reader can track how things were done and conclusions were arrived at.

Despite the origins of this as a 'tauiwi research tool' (barriers for many Maori), being a validated research method is important. The new knowledge generated needs to be accepted in a tauwi-dominated sector for stakeholder uptake of ideas and follow-up action. It could be considered a 'lesser evil' of the Western research options for Maori, as it can provide a necessary snapshot whilst being emancipatory, less likely to do harm or create barriers. From the researcher's position, this approach is also able to adapt to timeframe, budget and the need for flexibility.

While not a large part of this study, a Case Study approach was considered useful for having research participants consider hypothetical scenarios against which to explain their perspective and issues to do with disaster recovery. This study also anticipated making significant reference to other case studies, so an appreciation of case study context is useful.

## **Literature Review**

A fundamental tool of Western research, literature review helps discover what is already known, what questions have been asked, what research approaches have been tried and with what results. For this study, online catalogues were searched starting with the Massey University Library for a variety of keywords relating to Maori and disaster recovery. By following available leads to different databases including Google searches on the internet, a picture was established as to the extent and nature of studies available about the topic.

Other types of paper, discussion pieces and presentations were also reviewed, including case studies. Due to the limited amount of information evident on the topic this enabled more flexibility in drawing in ideas appropriate for the Haurapa approach being applied from a Kaupapa Maori perspective. For example, Maori development initiative from a different field can still relate and help inform this topic.

Keyword searches included all of the terms addressed in the 'Keywords and Terminologies' section of chapter 2. Other items were found by following leads of interest and enquiry throughout the journey as a Maori researcher. For example, asking for clues from other Maori researchers, following up interesting statements made at hui or reviewing previous work that may be re-applied in a new context.

Once found and noted for potential inclusion, literature (and occasional oral records) was reviewed and annotated as appropriate, with key notes recorded or entered directly to computer according to the area of discussion or review related to. This provided background information to generate a picture of where things were at from which to guide the research forward. Information gained also added value to data gained from interviews and provided a context within which to draw meaning. For example, new indicators were more easily developed by comparing how interview data related to the indicator process in the literature review.

## **Interviews**

Maori are not homogenous and according to Fitzgerald et al. (1996), attaining a meaningful random sample of any Maori population can be difficult. Non-random mixed purposeful sampling was used for this study to ensure multiple perspectives were attained. Patton (1990, p. 169), notes the strength of purposeful sampling lies in selecting information-rich cases for study, from which "one can learn a great deal about issues of central importance to the purpose of the research".

Interviews were semi-structured in that a selection of standard questions were provided in advance for participants to consider, yet open-ended interviewing was conducted to allow discussion to discover and pursue topics of interest. The former helped focus and optimise participant time, the latter to retain optimal flexibility. The process was tested first according to Haurapa approach by starting with dearest and nearest (like interviewing family) and moving out from there to less familiar territory with more preparation.

## **Data Analysis**

Content analysis (Paton, 1990, p.381) was used to identify, code and categorise the data obtained from the interviews. Key themes were able to be distilled once classification and analysis of the emerging data into themes was complete. Analysis was also conducted in consideration of the wider pool of information and ideas gathered – for example, indicators were looked for since there is a current trend to develop indicators, including cultural ones.

## **Error Management & Validity**

Errors in data collection from interviews were minimised by touch-typing interview notes directly to PDA (Personal Digital Assistant or palm-computer with portable keyboard). Once tidied up, they were sent back to participants to confirm/correct as appropriate. Line-by-line breakdowns of comments into themes were also managed by computer spreadsheet to enable regular reviewing of context if lost when lines were taken out of order.

Overall, triangulation was a major approach to ensuring accuracy and validity in this study - for example, to compare if recorded comments and findings align to what has been said/done according to other accounts and processes. Patton (1990, p. 187) describes triangulation as the combination of methodologies in the study of the same phenomena. He says it is possible to achieve triangulation within a qualitative inquiry strategy by combining different kinds of qualitative methods, mixing purposeful samples and including multiple perspectives.

Within this study, findings are triangulated in several ways. Firstly, findings are compared against other available information such as provided by literature review and other sources from mixed methodology. Secondly, a variety of perspectives were sought between Maori and non-Maori and within different ‘types’ of participant – this highlighted common thinking/re-enforcement of ideas and variety/scope of thinking on the themes raised. Thirdly, findings were arrived at different treatments of the data such as a statement-based theme list versus a number-crunched breakdown of classifications. Findings were also checked against templates from previous work to see how well they fitted or vice versa.

## **Ethical Issues**

Massey University Human Ethics Committee approval was required before this study could proceed. Examples of criteria needing to be satisfied include accessing participants in a suitable manner, correct paperwork, gaining informed consent, ensuring confidentiality and protection of data. From a Maori perspective, the weightier ethical issues were around how to do Maori research within a tauwiwi framework without compromising Maori people.

Several steps were taken from a Haurapa approach to guide the research journey safely. They include use of karakia, liaison with kaumatua, presentation and feedback at hui. A Yahoo group website was established for transparency and Maori colleagues invited to act as a sounding board. Interview participants included kaumatua and mentors in the Maori world who were in a position to experience the process and provide guidance for next steps of the journey.

## **Maori Cultural Expectations**

As a Maori researcher with significant involvement of Maori participants and topics, it was important to act in accordance with tikanga Maori where appropriate. This included the approach (phone or face-to-face first rather than letter), appropriate greetings (hongi/mihi), important process (karakia, whakawhanaungatanga), rights of passage (establishing credentials in the Maori world), common ground discussed (kotahitanga – demonstrate shared perspectives), appropriate signs of respect and so on.

The main koha (gift) involved was the principal of reciprocity as participants were both given an opportunity to influence the kaupapa and receive a copy of the research outcomes.

## ***The Process***

### Overview

A dozen stakeholders (six Maori and six Government) were selected for interview around the topic and were provided with a discussion starter and sample questions (Appendix 1). Touch-typed notes from the resulting nine semi-structured interviews were analysed to discover key themes and compare them with several other sources of information. Meetings and approaches included appropriate Maori protocol such as karakia or whakawhanaungatanga where relevant.

A 'haurapa' approach was used to direct the typical journey of a Maori seeker of new knowledge. This influenced the selection, order and content of the interviews and other activity. For example, whanau first then kaumatua, tohunga and other recommended experts.

Initial thoughts on the approach to this study were gathered by presenting it to various Maori stakeholder groups. These included the ERMA National Maori Reference Group, National Maori Health Protection Hui and Midland Maori Public Health Leadership Group. For ongoing transparency, a yahoo group website was established at [www.maori\\_bcd@yahoo.com](http://www.maori_bcd@yahoo.com) for people to track developments, receive automated email postings and review documents. Members of the latter group (MPHL) were invited to act as a monitoring and reference group via the yahoo group website. Along the way, kaumatua and other leaders were consulted as appropriate to maintain confidence the research approach was alright.

Once Massey University Ethics Committee approval to proceed was granted (after three attempts), a dozen stakeholders were selected and invited for interviews. These were selected in consideration of ESR advice, own contacts and referrals. Aside from targeting half Maori and half agency stakeholders, the main criteria for being included were to have knowledge and experience in disaster recovery and/or Maori perspective relating to such situations. Paperwork for this process is included in Appendix 1.

Haurapa approach for this study dictated a certain order for interviews to proceed. As with the researcher's idea of a 'typical Maori seeker of knowledge', the journey to discovery started at the whanau level (asking friends and family what they thought), before approaching kaumatua for advice, then tohunga and on to other experts and

external parties. Like the symbolic flax bush, the tender new shoot (researcher) is sheltered and strengthened by those near and dear before growing out into the wider environment in a more developed state. Input wasn't confined by a formal letter or interview as stated to satisfy the ethics committee. Once the ice was broken, as with rites of passage in Maori society, further opportunities to gain deeper understanding opened up in subsequent dialogue – 'snowball sampling' in effect.

Whilst inclusion criteria were already set as required by the ethics committee, a set of unwritten criteria surfaced according to the haurapa approach. For example, does the kaumatua interview (which doubles as a mentor/guide) endorse the current interview schedule or suggest a change in course? Does the korero from participants to date provide a good cross section/balance of views from a Maori perspective - old/young, male/female, staunch/novice? Are representative Maori views covering the cross-section of views desired? Is inclusion of an alternative agency more likely to make a difference (according to the third project goal of making a difference) than chasing the one listed which doesn't seem responsive?

Semi-structured interviews lasting 60 to 90 minutes were completed face-to-face with participants that responded. Questions were based on a list of sample questions provided before the interview, along with a discussion starter to encourage thinking around three case study scenarios. The case studies were chosen to reflect a cross-section of scenarios likely to be of relevance to many Maori – toxic spill to a river, a chemically contaminated rental property and bird-flu pandemic. The aim was to help initiate the flow of ideas in otherwise complex and un-chartered territory for many.

Interview notes were touch typed to PDA (a palm-sized computer) and returned to participants for checking/changes. The option of audio recording and transcription was provided where appropriate.

Once processed, information was formed into a discussion document for sharing with stakeholders for any further comment or ideas. Throughout this time, background information was sought via literature review, departmental information or other avenues as they arose. A journal was kept to note issues as they arose and provide an opportunity for reflection.

#### Interview Participants

Interview participants were anonymised, however they may be linked to statements where this is more appropriate from a Maori viewpoint - for example, to validate/qualify the Maori perspective being given or acknowledge the source of information or intellectual property.

Due to the small sample size, participant 'types' were profiled to suggest 'where they are coming from' and remain alert to what coverage or gaps developed. Like tauwiwi, Maori are not all the same, so it was felt more important to provide a snapshot of a varied set of views rather than trying to show a representative view from a larger sample of people. Some common themes can still be drawn.

## Chapter 4 - Interview Results

Ten interviews resulted from the 12 stakeholders approached. Stakeholders did not generally provide both Maori and technical experts where anticipated – it was one or the other, or the participant had both Maori and technical expertise. Interview discussion returned largely general statements rather than finer details about specific disaster scenarios. For example, only one interview achieved specific reference to a Standard Operating Procedure (SOP) relating to Maori for certain disaster scenarios.

The following section provides examples drawn from participant feedback in the interviews. Further in the chapter, data is processed as themes. By considering the information in various ways, increased understanding may result.

### ***Participant ‘Types’***

As expected, there was a noticeable difference in feedback between ‘types’ of participant. For example, the more child-protective focus of a Maori mother of young children, the world view considerations of a Maori departmental advisor and the politically-charged assertions of a community leader. Views of non-Maori participants were not so differentiated other than relating to the departmental portfolio they served. Observations were occasionally recorded that add insight to the participant type – for example, one participant is self-described as an ‘old hack bureaucrat’.

Participants were:

- A whanau member (to the researcher) – 30-something mother of four with education and experience in the health sector. Grew up in a Maori whanau and marae community in Te Arawa rohe (tribal area). Has reasonably pro-Maori views but not an ‘activist’
- A kaumatua (elder) from Te Arawa tribe – known as a mentor to the researcher. Community leader active in local/regional iwi development, experience in the government sector including health
- Tohunga/Maori expert in the environmental health field – known also as a kaumatua/mentor to the researcher. Advisor to a government department in the health sector and active in Maori workforce development at the national level
- Maori leader with a national profile, experience in civil defence, military, Maori development, consultancy and leading Maori institutions
- Government Department Maori advisors (several) with policy and technical backgrounds in environmental health-related fields
- Departmental nominees from Environmental Risk Management Authority (ERMA), Ministry of Health (MoH), Ministry of Agriculture and Forestry (MAF) and the Fire Service Commission – all but the MoH nominees happened to be Maori – contact had been requested for both Maori liaison and technical staff.
- Ministry of Health participants (2) were:
  - A Project Manager with public health background (20 years including health promotion)
  - An Emergency Management professional new to New Zealand

- Ministries for Environment and Maori Development also feature in the policy/advice background of some participant(s) despite no nominee being provided as a study participant by those agencies.

## **Obvious gaps**

It could be argued there are obvious gaps if looking for a representative cross-section of views and ideas. For example, the absence of hard-core ‘Maori activists’ or ‘Pakeha rednecks’ in the participant line-up could mean a less robust consideration of the real-life issues likely to surface as such people assert themselves at opportune times. Gaps may also exist where stakeholders did not respond or nominate participants able to satisfy the interview requirements.

## ***Interview Responses***

A discussion starter and questions (Appendix 1) were provided in advance to encourage participants to consider the subject at hand and were helpful prompters when needed during interviews. However, questioning varied to follow interesting lines of enquiry as they surfaced. Responses are paraphrased below according to participants and the key themes they reflected, followed by tables summarising overall theme and indicator responses. Analysis for indicators was conducted later but is included here in keeping with the original study intention to focus on indicators.

### ***Some Pre-interview Responses***

‘That's scary to start with (info sheets)...too much writing/off putting... this is for only certain types...can't take in too much...build rapport with small goals lest people don't come back’

‘Make sure we start interview with karakia (prayer)’

‘Will need to confirm approval to use knowledge belonging to others’

An indicator inspired from these three responses might be along the lines of ‘how many agencies are applying a Maori responsive checklist before engaging with Maori participants?’. By way of explanation, it is a problem for many Maori how some agencies expect one-off consultation based on a fat wordy document and have no regard for how restricted knowledge might be handled.

### ***Interview Responses***

**The Maori mother identified different responses from different Maori types, the need for Maori to be more educated and informed and an expectation for services to be more Maori responsive:**

‘Depends how Maori-fied they are...young bucks wouldn't care...males take more risks...older ones with family more careful... stuff restrictions, whanau comes first...some would listen, some won't’

‘Need to be educated (on our marae)...wouldn’t know who to go to...if it looks OK, would just do it...more cautious if informed...only act if someone gets knocked down’

‘Expect tauwiwi to respect Maori ways...services need to have capacity/guidelines to provide for Maori... Maori services are under-prepared’

A potential Maori indicator raised was ‘how often Maori become sick after eating food from traditional sources’. Another one that became apparent is ‘participation levels from Maori women/mothers’ - providing ‘common-sense nurture-based perspective’ to complement sometimes male-dominated thinking. One participant stated ‘it’s the women who (ultimately) make the decisions’ - i.e. the men suffer if the women aren’t happy, so tracking inclusion of women’s views could be significant for long-term success.

### **The Te Arawa kaumatua identified resource ownership, spiritual dimensions, leadership issues and some likely scenarios.**

‘Main concern how long it takes to restore environment...good agency contact...local information needed (appropriate use of knowledge)...local buy-in needed...equity issues...economic development...safety considerations’

‘Mauri of springs links with ancestors...tapu area to be revered...invisible chemicals like an evil spirit...spiritual level of cleansing source...deeper understanding needed...people choose own level of response...agency has to deal with it.’

‘Families responsible for different areas...many will come home...need to be aware/prepared...strong leadership has to come forward...resist challenges...confusion if too many options...can alter tikanga for common sense’

‘We’ll lose more than we should...some will wish to stay with the dead (if frozen)...others will seek alternatives (back-yard burial to virtual tangi)...direct action (fell trees to close roads) ...appropriate communication required’

Potential indicators identified include: time taken for clean-up/remediation of local environmental incidents, local reports of dying species, presence of suitably committed agency staff, appropriate timeframes used for community interaction, proper regard given for mauri of a resource, breaches of tapu/lack of proper regard, spiritual level of cleansing required, incidence of spiritual cleansing carried out and capacity of agency to deal with cultural indicators.

### **The Tohunga/Maori expert highlighted local authority/health agency relationships, varied state of readiness amongst Maori communities and key priorities and approaches.**

‘Seems like just another Maori face to carry on the process of mainstream delivery...some councils responsive, others don’t want to know...lots of

desecration...lack of discussion in key areas...some progress with skilled rangatahi administrators...stronger with active participation on local boards/committees'

'Our people knew how to deal with hazards...marae became central place for any emergency...many will go home/strain resources...will look after own first...rural areas only distributing information need more coordination'

'Maori may be more concerned with housing/health (daily issues) than disaster ...metaphysical response to accept ways of nature...resist interference with tangihanga...little response until consequence seen (like death)... limited technical perspective'

'Develop network of kaitiaki/key people within marae...intergenerational mix...brown face needed with community work...win confidence...get to know Maori - kanohi kitea (be seen)...a bit at a time'

An indicator of concern was the numbers of non-Maori workers using waiata practice to satisfy professional development credits for Maori responsiveness (rather than more productive outcomes for communities). Another was how overloaded people are with other priorities (rather than having sufficient time resource to cope effectively with Maori issues).

**A departmental Maori advisor introduced ideas around Maori responsiveness, good process/suggested improvements and Maori perspective/risk perception.**

'Our science people are willing (to include Maori approach) but totally ignorant...some rednecks not willing at all – too hooked on their science...bottom rung of 'ladder' tolerates us - top rung integrates with us...only enough resource to work with those willingly on the ladder...legislation means don't have to get Maori consent'

'Key synergies come from good inter-department Maori relationships...needs succession planning – it falls if people leave...need to widen the pool to draw from (people & training)'

'Kaitiaki concerned with worst-case 'what ifs'...case history of living with risk without it being called such (no word)...its more about mis-trust today...also protection of whakapapa and mauri...much is dispelled by tauwiwi as 'esoteric' – damaging for it to be used to counter material world views when there are already plenty for Maori that don't need validation'

'Cautionary approach assumes risk to mauri of the environment until consultation clears way forward...is the risk to mauri subjective or altered by support levels of different hapu...relationship advice could smooth way forward for non-Maori stakeholders.'

Potential indicators from this discussion include – willingness of departmental/science personnel to accept/value Maori knowledge as integral to a normal/science-based approach, tracking personnel (and resource) against the Maori responsiveness ladder (#

off ladder, on ladder, tolerate level, integrate level and stages in between).  
Departmental paperwork could track categories of alert/response/outcome for selected case study areas like mauri impact assessment.

**A departmental Maori policy person identified cultural practice case examples, departmental process and Maori understanding of environmental process.**

‘the lake has properties for preparing the dead and weaving...well-established journey stops for travellers (healing, food, prepare bodies)...different spaces allocated for different purposes...had cultural coping mechanisms (example 3 burials a day) – restrictions now...kawakawa leaves hid smell for month-long tangi...people need to tangi...Maori have dual Christianity/Maori world view...can revisit, strengthen & dignify old rituals...e.g. talking to deceased heads a year later...people won’t decouple or identity is gone...tied to the land (pito/umbilical buried there)’

‘Regulation now impedes cultural process...need a way for cultural practice to be better understood and able to continue without being outside of any law...need creativity...rely on Maori units of each agency...responsiveness growing after statement of intent and CEO support (philosophical not legal foundation)...Maori identity must be retained’

‘cultural considerations around land application of blood drew battleground comparison ...knowing natural states and cycles is important – from wai mauri to wai mate (living water to dead water), each have their purpose...know times when to use or not use...know indicators like the moving river ‘paru’ (black mud)...the power of karakia (to influence matter/chemicals)...natural disaster event ‘honoured all’ by forcing non-Maori to accept Maori hospitality...water shortage strains quality issue – grey water contaminated by people worse than dead water...reconsider natural process in nature to make it safe’

Potential indicators from this interview include progression from one state to another of whanau recovery from ‘hara’ (transgression/bad thing), planning of resources for future capacity and the ability to sustain selves and manaaki/honour others.

**A national service senior Maori advisor identified strengths in departmental Maori responsiveness, departmental realities/limitations, Maori community realities and some useful practitioner tips.**

‘Tikanga around death most important, along with Maori-specific responsiveness (especially communication with fatalities and significant Maori sites)...main responsiveness training done at recruitment (including Maori concerns)...have a Maori liaison team...current efforts voluntary because people want to...legislation would cause grudges...there’s no Treaty mention in policy...SOPs include alert for cultural issues...staff support process without needing to understand why...funding independent of government...good employment policy pre-dates legal requirements to provide for Maori...management support world class best practice all levels...better support

when greater loss involved...smaller communities better as they know each other...national kaumatua forum supports – work gets done at district level’

‘50% service compliance with responsiveness ideals set...can’t always engage with Maori issues – emergency takes priority...training is done, but mishandling in the fields is common...assume other agencies handle Maori aspects...can look at them once generic job is done...no responsiveness monitoring done (other than training at recruitment)...no incentive to do more...staff reflect the diverse community – personal views give way to technical parameters of the job...the rest is left to others...standards vary between regions and types of incident...rural ‘band aids’ sometimes the poor cousin’

‘Kaitiaki concerned over no control or advice about what ends up in their waterways/land...Maori are generally understanding about impacts from emergencies beyond their control...they prefer proactive prevention & challenge with ‘what if things go wrong?’...safety messages wear off as strong attitudes are maintained (‘won’t happen to me till whanau gets hit’)...priorities mixed up (fags before safety items)...not enough said on marae...a social evil related to socio economic status, which agencies can’t fix...Maori often face risk levels in multiple sectors at the same time (like housing, education, health, road fatalities, violence, recreation etc.)’

‘More Maori staff will increase front line understanding...target organisational culture (for Maori-friendly environment) rather than management which rolls over...start Tangata Whenua relationship before a crisis - can also help community planning & operational strengths’

Potential indicators from this interview include presence of kaumatua/other experienced Maori support (like chaplains), and Maori responsiveness links to socio-economic indicators. In the latter case, examples exist where some Maori have statistically high risk of fatality from multiple areas like health, road-death, fire, swimming, violence etc., depending which one gets to them first. This may contribute to altered risk perception, where everything is risky so nothing stands out requiring a risk response above the other.

**The Maori institutional leader identified Maori reality/case studies, likely scenarios and useful advice, particularly with regard to process and communication within Maori communities.**

‘In emergency Maori gather & move together (e.g. earthquake/Cyclone Bola)...instinctively follow natural leaders (rather than paepae speakers)...karakia used to provide safe passage...choose culturally secure destination like marae...society doesn’t understand capacity of Maori to survive using collective responsibility, kawa and generations of learning...agencies try to impose but learn to comply with kawa...benefits from needs being met...HR and safety & protection issues likely...maybe intercultural elements present...like a Matata flood considered either natural event or redress for wrongs...interpretation may be used politically’

'Tikanga not do or die – cultures adapt...common sense likely to prevail...severity may override natural instinct (to gather) – information allows people to choose to isolate themselves (like for a pandemic)...many will still meet in order to un-bundle centuries of instinctive behaviour...preference for comfort and custom but not immune to change...can train (like military) to act contrary to what mind says...likely to be barriers (like roadblocks preventing tangihanga)...small alternative grieving likely (like using photographs when body lost)...

'Maori organisations would adapt for pandemic...confident but not trained in this lifetime...communities not practiced and unprepared people will react individually/irrationally...higher losses if don't get to them in 24hours...army command and control approach better/faster...being prepared is the ideal...expected loss calculations – higher if people reject messages... limited resource may focus where uptake is higher...poorest/hardest to reach may be last...greater effort if at national scale...normality may be suspended by decision-makers (e.g. tangihanga)'

Leadership advice – 'Paepae (marae elders) is centre of local leadership but natural leaders arise...a strong marae committee may form leadership response...indicators of marae strength can be observed...enduring leadership qualities evident...rural areas more stable than urban...value those who know how/where to gather food...knowing how/which organisations can be relied on to link up community is a challenge (some efficient/others fail)...rural areas start with marae committees...other options kohanga, training, health, schools etc.

Communications advice – 'have to 1) understand the effective leadership structures; 2) link to them and develop appropriate communication through them; 3) have someone competent to respond to Maori reactions (requires expertise)...consider community-appropriate options from text messaging to bonfires (tsunami alert)...optimise current channels like regular agency visits/briefings...many overlook synergies, over-consult, misunderstand the process...smiles and cuppa concluding the formalities mistakenly taken as a satisfactory consultation...government departments haven't improved in 30 years of observation...talk past each other...English double negative – basic yes/no misunderstanding...immigrants fail to communicate adequately...bad pronunciation creates barriers...Maori decision-making confounded between opposing views (like inoculation debate)...likely to repeat in pandemic without correct/trusted communication...may not listen to advice provided'

Local organisation advice – 'develop policy to enable local leaders to act equitably rather than politically...Maori organisations better able to respond/link with community...channels already prepared/able to anticipate & cater for likely scenarios...skill levels/capacity varies between communities at different stages of development'

Potential indicators from this interview include - ability to include cultural process (like karakia) and culturally secure destinations/outcomes, evidence of Marae community growth and strength (effective leadership likely) and prevalence of key community resource people (food gatherers, organisers, 'clever-types' etc.)

**A departmental Maori analyst identified points around agency inclusion of Maori and potential impacts for Maori community.**

‘Ask how are Maori involved in decision-making...what are the local/cultural impacts of pests/disease...what level of commitment is there from Maori unit and agency teams...highlight sameness with other communities c.f. shifting concerns...harder when Maori don’t engage due to mistrust...some agency staff want to do the right thing but have no one to go to’

Most of these aspects could be developed for potential indicators of Maori interest – for example, levels of Maori/unit participation in certain processes

**The tauwiwi emergency management professional identified limited involvement of Maori**

‘Reliance placed on Maori unit being accessible...technical considerations happen a level higher on government project work...limited technical resource in NZ and shortage of Maori advisors...known (pragmatic) approaches used in emergency...Maori would be included at standard operating procedure level...need process to consult & include Maori views...small field where people know each other...consistent relationships needed’

One indicator could be the inclusion of Maori responsiveness statements within SOPs or other parts of the process. Availability, resource and skill base of Maori units could be another as part of regular audit process.

**The tauwiwi departmental project manager identified limited resource for inclusion of Maori issues.**

‘We haven’t done well for anyone...very hard/slow to increase attention to issues...have been overshadowed by chronic disease work...100-year events shifted down agenda...constant struggle to raise awareness of officials...more ministerial attention if public are strong on issue...must be community engagement...need closest community links available and divvy up cross-agency central level initiative...Maori communities may respond better...health of Maori communities everybody’s business...Maori unit tends to lead...spiritual issues span government rather than single issue for emergencies...likely 10 years to change this.

An indicator could be the number of national/local forums to engage Maori and evidence of Maori participation/feedback.

**Together, the tauwiwi participants identified options for Maori inclusion and resource limitations**

‘Public involvement in emergencies is negligible...strong Maori channels may pass information faster than other fragmented communities...most relevant connections are at local level...should involve DHBs...high level reference committee considers Maori perspectives (e.g. pandemic planning)’

‘Resource limits means other agencies need to step in where non-generic Maori priorities arise...may depend on strength of DHB relationship...valid models available but no resource...capitalise on local disaster to improve public awareness next time...plenty of gaps – still have families living in chemically contaminated houses...Pandora’s Box if spiritual cleansing issues cost landowners’

Indicator ideas include number of DHBs with local Maori engagement over emergency planning and number who have completed cultural indicator frameworks.

## ***Theme Summary by Participant***

The themes drawn from the different participants are summarised in the following table.

**Table 4: Theme Summary by Participant**

<b>Participant (10)</b>	<b>Themes Raised (27)</b>
Maori mother	Different responses from different Maori types
	The need for Maori to be more educated and informed
	An expectation for services to be Maori responsive
Te Arawa kaumatua	Resource ownership
	Spiritual dimensions
	Leadership issues
	Likely scenarios
Tohunga/ Maori expert	Local authority/health agency relationships
	Varied state of readiness amongst Maori communities
	Key priorities and approaches
Departmental Maori advisor	Maori responsiveness
	Good process/suggested improvements
	Maori perspective/risk perception
Departmental Maori policy person	Cultural practice case examples
	Departmental process
	Maori understanding of environmental process
National service senior Maori advisor	Strengths in departmental Maori responsiveness
	Departmental realities/limitations
	Maori community realities
	Practitioner Tips
Maori institutional leader	Maori reality/case studies
	Likely scenarios
	Useful advice
Departmental Maori analyst	Agency inclusion of Maori
	Potential impacts for Maori community
Tauiwi emergency management professional	Limited involvement of Maori
Tauiwi departmental project manager	Limited resource for inclusion of Maori issues

## ***Indicator Summary by Participant***

Potential indicators drawn from the interviews are summarised in the table below.

**Table 5: Indicator Summary by Participant**

<b>Participant (10)</b>	<b>Potential Indicator (32)</b>
Pre-engagement	Has a Maori responsive checklist been applied before engaging with Maori participants?
Maori mother	How often Maori become sick after eating food from traditional sources
	Participation levels from Maori women/mothers
Te Arawa kaumatua	Time taken for clean-up/remediation of local environmental incidents
	Local reports of dying species
	Presence of suitably committed agency staff
	Appropriate timeframes used for community interaction
	Proper regard given for mauri of a resource
	Breaches of tapu/lack of proper regard
	Spiritual level of cleansing required
	Incidence of spiritual cleansing carried out
	Capacity of agency to deal with cultural indicators
Tohunga/Maori expert	Numbers of non-Maori workers using waiata-practice to satisfy professional development credits for Maori responsiveness
	How overloaded people are with other priorities
Departmental Maori advisor	Willingness of departmental/ science personnel to accept/value Maori knowledge
	Tracking personnel (and resource) against the Maori responsiveness ladder
	Track categories of alert/response/outcome for selected case study areas like mauri impact assessment
Departmental Maori policy person	Progression from one state to another of whanau recovery from 'hara' (transgression/bad thing)
	Planning of resources for future capacity
	The ability to sustain selves and manaaki/honour others
National service senior Maori advisor	Presence of kaumatua/other experienced Maori support
	Links to socio-economic indicators
Maori institutional leader	Ability to include cultural process (like karakia)
	Culturally secure destinations/outcomes
	Evidence of Marae community growth and strength
	Prevalence of key community resource people (food gatherers, organisers, 'clever-types' etc.)
Departmental Maori	Levels of Maori/unit participation in certain processes

analyst	
Tauwi emergency management professional	Maori responsiveness statements within SOPs/other
	Availability, resource and skill base of Maori units
Tauwi departmental project manager	Number of national/local forums to engage Maori
	Evidence of Maori participation/feedback

## Chapter 5 - Number Crunching and Thematic Analysis

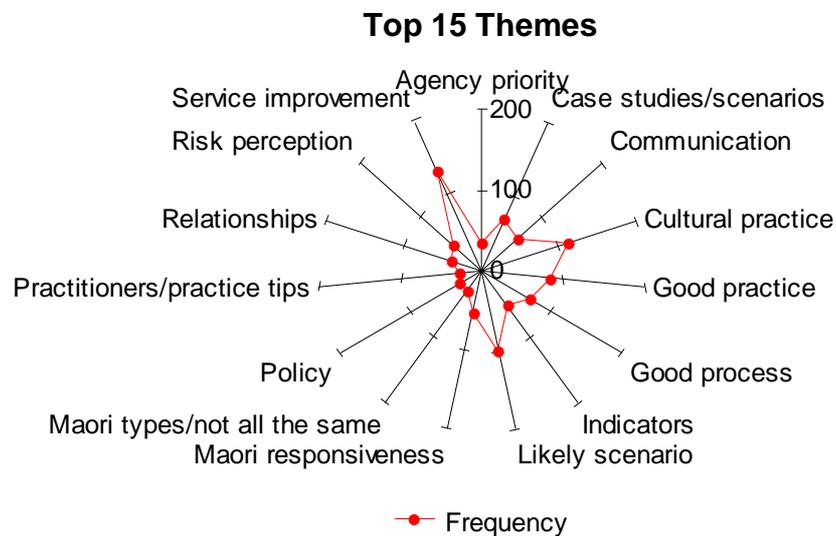
As an alternative approach to analysing interview results, a line-by-line classification of interview notes into multiple-coded themes. This results in the following ranking of the 20 most common themes. Figures are given to show roughly how many times the themes appeared in discussion - this does not mean they are any more or less important. Themes were applied to each line until no new themes could be thought of to choose from – hence nearly twice as many themes are here (50) compared with the previous section (27). Also not shown here is which themes relate to different ‘types’ of participant as in the previous section.

<b>THEME</b>	<b>OCCURRENCE</b>
Service improvement	134
Cultural practice	112
Likely scenario	100
Good practice	85
Case studies/scenarios	69
Good process	68
Communication	60
Indicators	53
Maori responsiveness	53
Risk perception	47
Relationships	38
Agency priority	35
Maori types/not all the same	30
Policy	30
Practitioners/practice tips	28
Leadership	22
Community realities	21
Local/traditional knowledge	19
Advice needed, lack of knowledge	18
More caution if informed	16
<b>Other Themes included:</b>	
Tikanga/kawa	13
Whanau first/avoid risk to whanau	13
Contacts	12
Resource ownership	12
Limited capacity (for things Maori)	11
Safety	8
Age-sex diffs/generational attitudes	7
New challenges, not ready	7
OK if looks alright	7
Offence/upset	6
Expect losses	5
Maori perspective	5
Participation	5
Trusted source	5
Flexibility	4
Prevention/preparedness best	4
Quote	4
Restore environment	3
Conflict	2
Cultural safety	2
Economic/Education issues	2
Funding	2
Ignore rules	2

Natural or not	2
Rural/urban	2
Busy Maori Staff	1
Frameworks/policy/options	1
Intellectual property	1
See before act	1
Too much writing/reading	1

## Refining the Themes

Themes mentioned more than once (45 of them) are outlined below in three groups of 15 (top, mid, bottom) with some discussion to help clarify points being made. Again, the number of mentions does not mean themes are any more or less important than others. Of the many ways to group korero into different categories, this is just one way to get one's head around it.



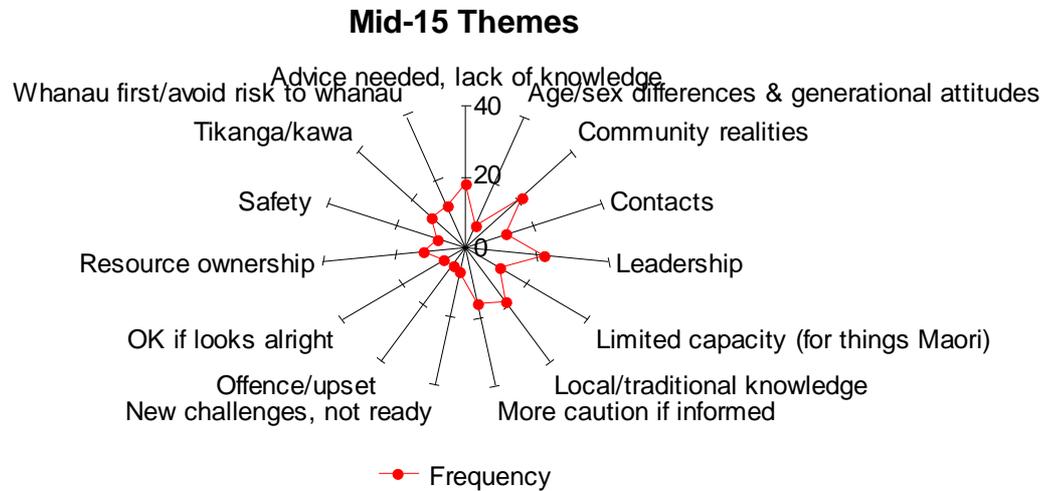
**Figure 2: Top 15 Themes**

From the 15 themes mentioned most often, most can be grouped together to provide key themes. For example, service improvement, good practice and good process all point towards the importance of **doing a good job with regards to Maori** (agencies as well as Maori). This key theme is re-enforced by including communication, relationships, Maori responsiveness and policy.

Another key theme in the top 15 relates to **realities for Maori** that may be taken into account to improve understanding and response. These include cultural practice, risk perception and Maori types.

A third key theme emerges around **practical outcomes** such as likely scenarios, case studies and practitioner tips.

Examples of comments within these key themes are provided in Appendix 2A.

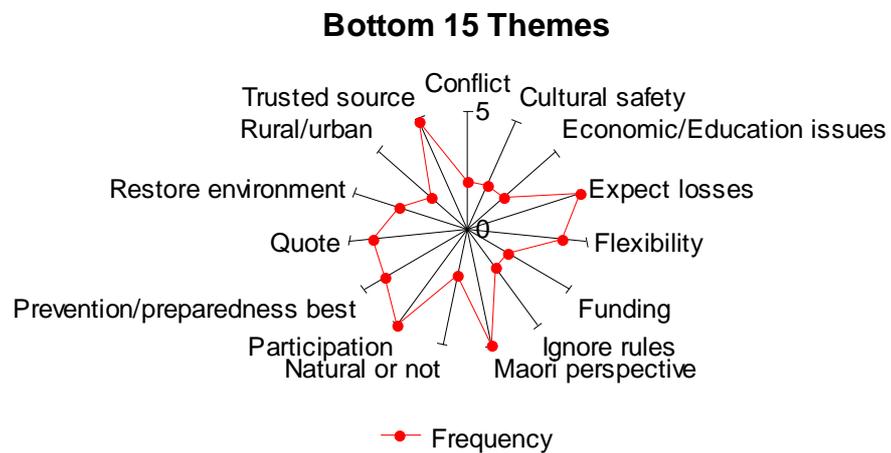


**Figure 3: Mid-15 Themes**

As with the previous 15 themes, some of the mid-15 can be grouped into the same key themes - for example, the 'realities for Maori' key theme can include community realities, tikanga/kawa and 'OK if it looks alright' (risk perception). The 'doing a good job for Maori' key theme can include limited capacity, whilst 'practical outcomes' might include safety, offence and leadership ideas.

Three additional key themes can be also be suggested relating to these mid-15 themes. For example, a **Maori Development** key theme could include leadership, resource ownership and local/traditional knowledge. **Maori Preparedness** as a key theme could include safety, whanau first, new challenges and more caution if informed. A **Protocols and Approach** key theme may cater for areas like age/sex differences, offence/upset, contacts and advice. These extra key themes will also cross-match to themes from the other sets of 15.

Examples of comments about these mid-15 key themes can be found in Appendix 2A.



**Figure 4: Bottom 15 Themes**

The bottom 15 themes fit a number of the previous-sub themes but can also be classed within the following key themes:

- **Maori Viewpoint/Thinking** - Maori perspective, trusted source, restore environment, natural or not, ignore rules, quotes
- **Plain Truths** - expect losses, funding, economic/education, conflict, prevention/preparedness best, rural/urban differences
- **The Interface** - participation, cultural safety, flexibility

Examples of comments within these key themes are provided in Appendix 2A.

### ***Putting Themes to the Test***

With only few participants and limited opportunity to gather all there is to know, a concern is that essential points might be missed. In other words, the key themes are not the be-all and end-all of discussion – just a useful set of hooks on which to hang further thinking.

By way of example, the five themes that were not grouped due to only being mentioned once may all be very important. To test the set of key themes developed, the five omitted themes are considered briefly below and linked to one or more of the key themes.

- **Busy Maori Staff** – an organisation with limited Maori capacity may experience bottlenecks, burn-out of Maori staff or poor process if appropriate Maori staff are not fully available. Key themes include Doing a Good Job for Maori, Good Process, Realities for Maori, Plain Truths and The Interface
- **Frameworks/policy/options** - lack of Maori-responsive frameworks and policy can mean little or no progress towards achieving Maori-related outcomes. Key themes include Doing a Good Job for Maori, Practical Outcomes and The Interface
- **Intellectual Property** – Many Maori are very sensitive to intellectual property issues and stakeholders ignore these at their own peril. All of the Key themes are potentially involved here
- **See Before Act** – Perhaps a part of the Risk Perception theme, various elements may comprise this behaviour (like mistrust of science/authorities, lack of information/education, limited capacity to react and so on). Key themes include Realities for Maori, Maori Preparedness, Plain Truths and Maori Viewpoints/Thinking
- **Too Much Writing/Reading** – Any stakeholder focussed on document-based policy and process needs to be aware that many key Maori stakeholders do not operate the same way. Key themes include Doing a Good Job For Maori, Realities for Maori, Practical Outcomes, Protocols and Approach, The Interface and Plain Truths

The test seems to confirm relevance of the key themes. As further issues or themes arise, they could be considered in light of which key themes they may relate to. One

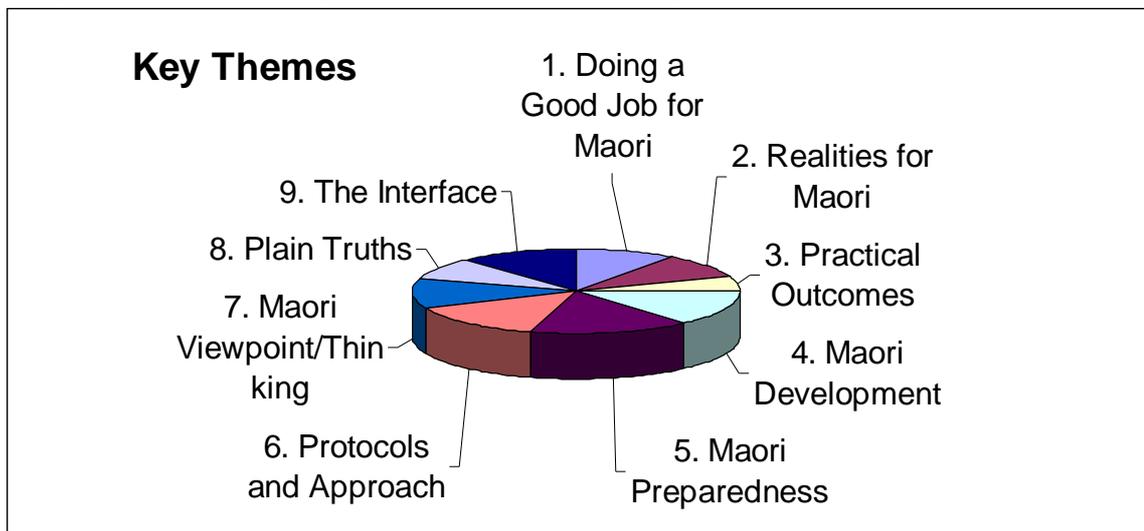
danger being, are issues rejected if they don't meet key themes or over-prioritised if they relate to more themes than something equally important? What other process is lost if this one is used? So again, the key themes may be useful but should not be considered the only framework.

### **Summing up the Themes**

The following items provide further information and ways of looking at the themes:

- Appendix 2A - provides examples of comments recorded against key themes
- Appendix 2B – summarises which themes relate to which key themes
- Appendix 3 – provides a weighting of the key themes and how many times each theme fits with them

The pie chart below compares overall mention of key themes with each other.



**Figure 5: Key Themes**

## Chapter 6 - A Weighting and Priority System?

This chapter begins to analyse the findings in a way that helps consider what to do with them.

### ***A Weighting System***

If a weighting system was used according to how many key themes an issue relates to, then the theme test from the previous chapter might place Intellectual Property as a top priority, having relevance in all of the key themes (refer Appendix 3). This is despite barely making the count for number of interview mentions and may not be a current priority with many stakeholders that work with Maori. At the other end of the scale, safety could be overlooked if it remains with a low count.

This first cut at ranking themes is subjective and random (likely to vary each time and with different people) so who uses this as a tool may be just as important as how it is used. A 'haurapa' approach might focus more on 'who and how' when the tool is applied to ensure things are applied in the best interest of Maori – 'people don't want to know what you know, until they know you care'.

However, stakeholders opting out of tools when they don't fit their comfort zone may first need to address more generic themes like integrity, relationships, partnership and ultimately the power share and who controls the process. Some Maori may not engage at all unless things are approached within Maori frameworks and cultural concepts – for example themes like kotahitanga, whanaungatanga or kaitiakitanga may attract better dialogue than non-Maori concepts around risk, emergency management or disease.

Meanwhile, testing of the current themes with stakeholders may be useful, as well as comparing any case studies against a checklist developed from the list. For example, in a certain scenario – does the process ensure both safety and the protection of intellectual/cultural property?

From Appendix 3, ranked themes could be re-tested at local levels with input from local communities. An organisation wishing to begin a programme of Maori responsiveness might start working with the first group of ten themes and so on over time. This may help stakeholders move past sole reliance on things like weekly waiata sessions for their Maori responsiveness programme. Waiata may be a starting point for participation, but the themes identified suggest wider issues need to be taken on at practitioner and decision-maker level

### ***Maori Weightings***

Some Maori reading this report may ask 'why only use tauwiwi models and analysis?' and therefore discount any findings as one-sided. A Haurapa approach would require this to be addressed – in fact on the tauwiwi-Maori continuum, this whole report (conducted and written in English using largely Western Framework) is much skewed towards tauwiwi.

Depending on what 'type' of Maori and from what areas of practice, various ways of weighting this work could be used. This could be as simple as the 'what's in it for

me/us' scale for Maori people on the ground (from the kitchen to the paepae). For example, will it improve their experience over the counter, engagement as advisors, agency respect for and observance of tribal protocols? If not, the rest of the process may be like shuffling deck chairs on the *Titanic* and not very relevant to them (and ultimately those who want to engage/work with them).

Alternatively, for those working with general Maori frameworks, a range of established Maori conceptual models are available. Health sector frameworks like *Te Whare Tapa Wha* and *Te Pae Mahutonga* might prompt questions like 'where is the spiritual aspect to this work?' or 'how is local leadership and autonomy enabled by this?'. Can a *Korowai Oranga* triangle (MoH Maori Health Strategy) be drawn representing how both Maori and Crown aspirations join to achieve the outcomes?

Others might seek more specific tools like those currently in use at the cutting edge. People in the field for example may want to see a hands-on tool like the *Cultural Health Index* measuring dual science/cultural indicators for waterways (MfE, 2006). People in Maori policy may want to apply a checklist like the Advocating Public Health Policy for Maori (PHA, 2002) to ensure effective policy and outcomes for Maori. Aside from the national level, regional or tribal groups may have their own frameworks and criteria like *Nga Pou Mana* determinants of health within the Bay of Plenty District Health Board operations (BoPDHB, 2002).

Finally, new or emerging models could be trialled for this kaupapa. The Mauri Model is promoted as a decision-making tool in natural resource management (Morgan, 2007). Statistical weightings are gained as Maori assessments of planning aspects are made according to positive/negative effects on mauri and related outcomes for Maori wellbeing. The same could be done for aspects of disaster recovery. Perhaps a new model could achieve comparable outcomes to those previously mentioned but tailored to specific circumstances of disaster recovery.

The reality of all these possibilities is people need something simple and implementation becomes difficult with continual changes. A checklist of available options could help stakeholders pick and choose best-suited applications for their situation (Appendix 5) or produce an annual 'warrant of fitness' report based on how well aspects of each model or framework are met.

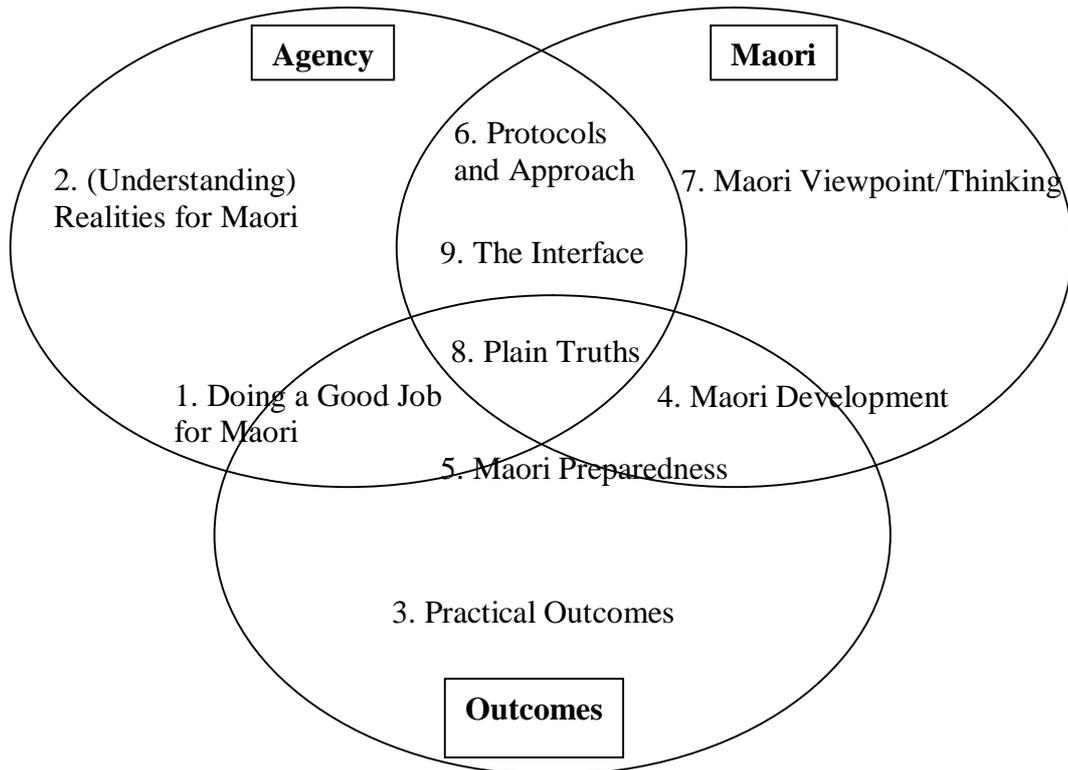
To avoid generating anything new and confusing, another option is to stick with whatever tool of the day is being pushed by officials interested in Maori outcomes, health and wellbeing. For example, the Ministry of Health in recent years has developed a Whanau Ora Health Impact Assessment which helps with policies and decision-making to consider impact on Maori inequalities and determinants of health (MoH, 2007). There are strengths in following the crowd as government resource is applied to train people and implement – also potential weaknesses as anything governmental is subject to change.

### ***Allocating the Themes for Action?***

By way of an exercise to simplify things further, three spheres of interest are considered for allocating action around the 9 key themes – Agency-focussed issues, Maori-focussed issues and Best Outcomes-focussed issues, as inspired by the *Korowai*

Oranga triangle used for the NZ Maori Health Strategy. The figure below suggests where key themes might sit as a useful guide for stakeholder focus.

**Figure 6: Allocating Themes into spheres of interest**



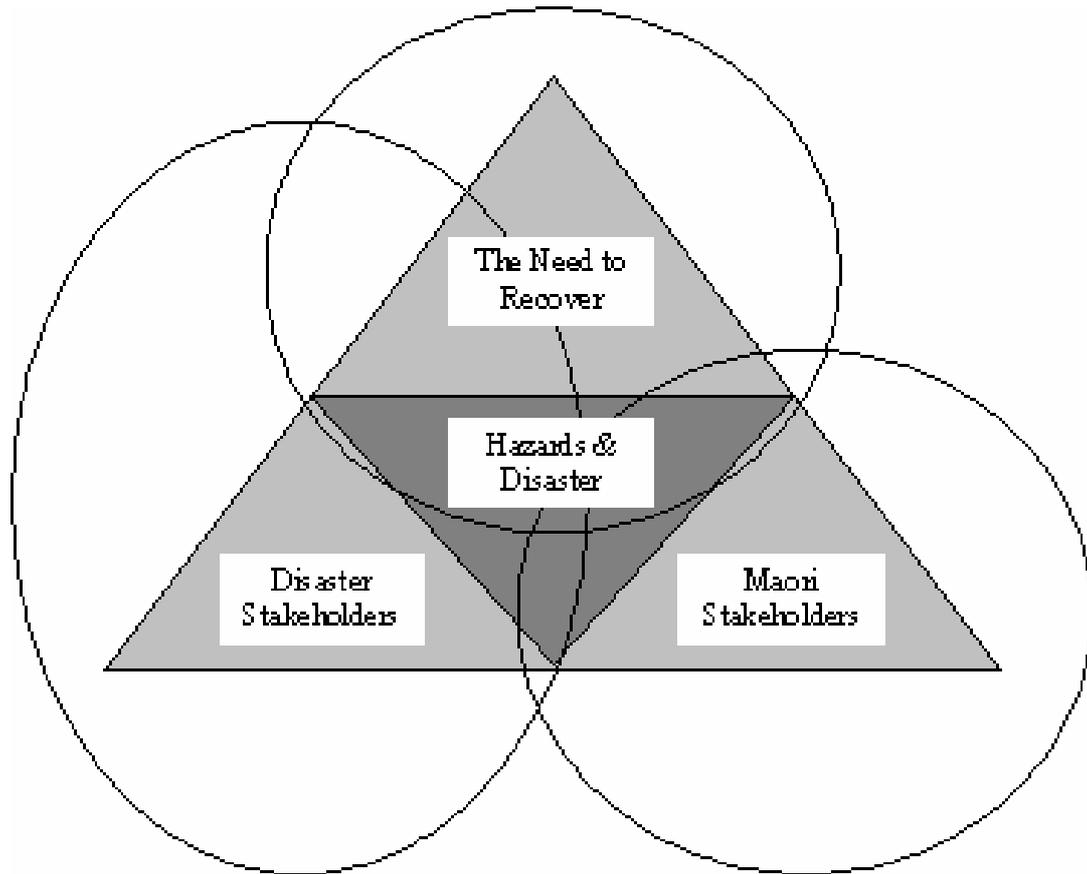
Summarising the diagram into simple statements:

- Maori need to focus on developing and articulating their thinking and viewpoints about certain scenarios and technical issues. They also need to relate it to outcomes relating to their own Maori development aspirations
- Agencies need to work at better understanding Maori realities and then the outcomes of doing a good job for Maori (both agency and Maori aspirations)
- Between them as partners, Maori and Agencies both need to develop the interface including appropriate protocols and approach, whilst being real about the plain truths that need to be kept in mind on the way to achieving outcomes
- With the above things in place, Maori preparedness for participation in and recovery from disaster scenarios should be the mutual outcome along with other practical outcomes that all stakeholders are interested in. These include aspects of Maori development, service development (both doing a good job for Maori) and plain truths including the way the relationship works and issues are communicated.

An alternative way to represent the relationship around these spheres of interest is to super-impose a ‘niho taniwha’ framework – drawn from traditional Maori design (Figure 7). The uppermost priority as the point of focus is the need to recover from disaster. Maori and Disaster stakeholders are equal partners in this, each with their own spheres of interest. The larger and more intersecting the spheres of interest, which contain themes like those identified above, the better the hazard and disaster ‘wedge’ between them will be covered. For example, Maori may be frustrated where the disaster stakeholder sphere does not intersect with theirs and the need to recover (like spiritual

remediation). Similarly, disaster stakeholders may find the Maori sphere not as big as theirs when discussing the need to prepare for certain disaster scenarios (like a pandemic).

**Figure 7: Niho taniwha framework for disaster recovery relationships**



## Chapter 7 – Discussion

Thus far findings have been presented in the form of examples, themes and statements – processed in various ways to gain an understanding from different angles. This section discusses the study and findings in relation to the key aims and assumptions introduced at the beginning, as follows:

1. Validating the findings as part of a knowledge base
2. The study and Maori research approach; and
3. Usefulness of outcomes and next steps

### ***1. Validating the findings as part of a knowledge base***

A philosophy of the researcher, underwritten by Haurapa considerations, is not to forget or minimise the wisdom that has already been handed down by elders and others who have gone before. In other words, ‘don’t keep re-inventing the wheel’ and ‘it’s been said before’ – so this study refers back to previous wisdom where practicable.

A concern for many Maori is the need to respond to ever-changing agencies and staff to maintain relationships and repeat Maori aspirations every time new initiative or relationship-positions roll over. This is not only resource depleting but diverts energies from where the forward momentum could be for Maori to progress.

However, one still needs to revisit things from different angles and circumstances to see if they still hold or can shed any further light for new situations. Nothing discovered so far seems a surprise other than the uncanny way participant responses sequentially introduced new themes rather than repeat exactly the same as others. This could be partly due to Haurapa approach progressing interviews gradually out from a ‘closer-to-home’ start, and some snowballing effect as decisions were made to seek a broad scope of views. It could also reflect a tendency to steer interview discussion more towards new ideas and ground that had not yet been covered – this would reduce the significance of applying statistical weightings around the key themes discussed in the previous chapter.

There is also a need for research purposes to show how new knowledge gained is valid and not just made up or mistaken. To do this, the study findings can be ‘triangulated’ by comparing them against other sets of information or by reprocessing in different ways. The following section provides:

- i. Comparison against Maori Reference Group statements
- ii. Comparison with Environmental Performance Indicators
- iii. Internal comparison via data-processing and conceptual models

Study findings to be compared and validated include:

1. 27 themes derived by grouping participant interview statements
2. 32 potential indicators derived from interview statements
3. 50 numerically ranked themes grouped under 9 key themes and placed by Venn diagram within circles of Maori, Agency or Outcome importance.

## **i. Comparison with Maori Reference Group statements**

A review of the statements (Appendix 10) made by the ERMA hui attendees (a Maori reference group for the purposes of this study) suggests the themes and comments found in this study align to those of the reference group – the words may differ but the context and meaning is the same.

For example, kaumatua brainstormed issues like:

*‘tikanga - know your role...act when risk to taiiao/whanau... communication... include/inform/educate more...Pakeha must listen (be responsive)...don't risk mauri’*

Feedback to the indicators study included ideas like:

*‘different responses likely from different rohe/areas...Relationship/networks are essential... Equal weight with Maori values needed... Need Maori people at every level... whakapapa is the only way to bring people together... Without wairua, nothing can be achieved with Maori’*

These overlap with many of the key themes and indicator ideas. An example of a reference group idea that didn't overtly appear in the study is the term 'cultural toxicity' (things that harm or place Maori culture at risk). However, it can be seen catered for in other ways from the study findings such as a potential indicator measuring breaches of tapu, reports of dying species or falling usage of responsiveness checklists.

One concern going into the study was of not being able to discuss technical aspects around hazards, risks and disaster recovery in any depth. For example, many Maori would have awareness and opinions around 1080 poison (as flagged in the reference group notes), but there has not been a lot of community discussion around emerging threats like a pandemic or chemical agents linked to terrorism. Catch-all concepts like mauri, whakapapa, wairua and tino rangatiratanga become the default or bottom line for addressing any new threat – if they could possibly harm these things we're against it, without really getting into more technical details.

Looking at the kind of statements and indicators returned thus far, they are generic responses by default rather than more definite opinions about definite scenarios. For example, there are no opinions expressed over whether or not Maori communities would accept their dead (tupapaku) being frozen till a pandemic had passed (if gatherings like tangihanga were restricted). Whilst agencies want to know what to expect in advance (one DHB has arranged non-freezing options for preserving deceased bodies) default principles leave it to 'see how it goes' based on themes like Maori inclusion in planning, open communication, good relationships and equal weighting for Maori values.

In the heat of the moment, and little time for agencies to stop and talk in an emergency, anything not a specified part of the plan (including Maori aspirations) is likely to fall to the side. This would tend to support the hypothesis stated at the beginning of this study that Maori are not adequately prepared or included which may result in inequalities. Yet if more thorough application of Maori concepts occurs down to the finer details, planners and decision-makers may have improved outcomes (like the DHB example above that knew local Maori tikanga rejects the notion of putting their deceased on ice).

## ii. Comparison with Environmental Performance Indicators

A review of the table of statements made in the MfE report for Environmental Performance Indicators (Appendix 11) suggests the themes and comments found in this study align to those of the EPI programme. By inserting disaster recovery terms in place of environmental ones, the document reads as if it was written specifically for this topic. This not only endorses the quality of the original advice but attests to the robustness of the Maori principles and issues in dealing with things in a holistic way.

A further comparison is made by treating identified indicators from this study in a similar way to those of the EPI programme. For example, the EPI indicators are classified into three categories (mahinga kai, local observation and human-based tikanga indicators). Table 6 below classifies indicators from this study (refer Table 5) into four areas - Environment-based (E), People-based (P), Pathway-based (L for Link) and/or Tikanga-based indicators (T).

In line with the stronger link in this study between people and hazards, the classifications aim to apply environmental health and protection principles – people are protected from hazards in their environment by focussing action in any of three areas:

- the pathogen/environmental hazard
- the pathway (how the hazard links to people to cause harm)
- the people

For example, to prevent people from getting malaria, action can be demonstrated at any of the three levels - kill the harmful mosquitoes (spray programme), stop them getting to people (using nets/repellent) or vaccinate the people so they don't get sick if bitten.

To add further value, the indicators below are separated into stage 1 (current datasets could be accessed) or stage 2 (yet to develop), subjective or objective (more defensible) in nature and into three areas of interest - Maori, Agency or Outcome-focussed (see Chapter 6, Figure 6).

**Table 6: EPI-type filter for Indicators**

Legend: E/P/T = Environment/People/Link-based indicators; M/A/O = Maori/Agency/Outcome-based focus; S/O = Subjective or Objective measurement

Indicators	Stage	E/P/T	M/A/O	S/O
Availability, resource and skill base of Maori units	1	P	A	O
Application of Maori responsive checklist before engaging with Maori	1	P	A	O
Number of national/local forums to engage Maori	1	P	A	O
Numbers of non-Maori workers using waiata-practice to satisfy professional development credits for Maori responsiveness	1	P	AO	O
Time taken for clean-up/remediation of local environmental incidents	1	EP	AO	O
Evidence of Maori participation/feedback	1	P	M	O
Links to socio-economic indicators	1	P	MO	O

Evidence of Marae community growth and strength	1	P	M	SO
Presence of kaumatua/other experienced Maori support	1&2	PT	MAO	SO
Local reports of dying species	1&2	E	MO	SO
No. of Maori becoming sick after eating food from traditional sources	1&2	LP	MO	SO
Maori responsiveness statements within SOPs/other	2	P	AO	O
Incidence of spiritual cleansing carried out	1&2	T	MAO	O
Ability to include cultural process (like karakia)	2	T	A	S
Appropriate timeframes used for community interaction	2	P	A	S
Capacity of agency to deal with cultural indicators	2	P	A	S
Proper regard given for mauri of a resource	2	T	AO	S
Willingness of departmental/ science personnel to accept/value Maori knowledge	2	PT	AO	S
Breaches of tapu/lack of proper regard	2	T	M	S
Prevalence of key community resource people (food gatherers, organisers, 'clever-types' etc.)	2	P	M	S
Progression from one state to another of whanau recovery from 'hara' (transgression/bad thing)	2	EPT	M	S
How overloaded people are with other priorities	2	P	MAO	S
Levels of Maori/unit participation in certain processes	2	P	MAO	S
Planning of resources for future capacity	2	P	MAO	S
The ability to sustain selves and manaaki/honour others	2	PT	MO	S
Culturally secure destinations/outcomes	2	T	O	S
Presence of suitably committed agency staff	2	P	A	SO
Tracking personnel (and resource) against the Maori responsiveness ladder	2	PT	AO	SO
Spiritual level of cleansing required	2	T	M	SO
Participation levels from Maori women/mothers	2	PT	MO	SO
Track categories of alert/response/outcome for selected case study areas like mauri impact assessment	2	PT	MO	SO

**With such a filter in place, one could now identify the best Maori-specific indicators to start with (current data sets, objectively measured) as:**

Environmental

- Local reports of dying species

People

- Evidence of Maori participation/feedback
- Links to socio-economic indicators
- Evidence of Marae community growth and strength
- No. of Maori becoming sick after eating food from traditional sources

Pathway/Link

- No. of Maori becoming sick after eating food from traditional sources

### Tikanga

- Presence of kaumatua/other experienced Maori support
- Incidence of spiritual cleansing carried out (limited data set – maybe hospitals)

### **Agencies might like to focus on:**

#### Environmental

- Time taken for clean-up/remediation of local environmental incidents

#### People

- Availability, resource and skill base of Maori units
- Application of Maori responsive checklist before engaging with Maori
- Number of national/local forums to engage Maori
- Numbers of non-Maori workers using waiata-practice to satisfy professional development credits for Maori responsiveness
- Presence of kaumatua/other experienced Maori support
- Links to socio-economic indicators

#### Pathway/Link

- No. of Maori becoming sick after eating food from traditional sources

### Tikanga

- Presence of kaumatua/other experienced Maori support;
- Incidence of spiritual cleansing carried out (limited dataset/maybe hospitals)

### **Best potential indicators from an Outcome-specific approach could be:**

#### Environmental

- Time taken for clean-up/remediation of local environmental incidents
- Local reports of dying species
- No. of Maori becoming sick after eating food from traditional sources

#### People

- Numbers of non-Maori workers using waiata-practice to satisfy professional development credits for Maori responsiveness
- Time taken for clean-up/remediation of local environmental incidents
- Presence of kaumatua/other experienced Maori support
- Links to socio-economic indicators

#### Pathway/Link

- No. of Maori becoming sick after eating food from traditional sources

### Tikanga

- Presence of kaumatua/other experienced Maori support;
- Incidence of spiritual cleansing carried out (limited dataset/maybe hospitals)

The indicators therefore seem able to be workable and can mirror the pattern used for the EPI programme with useful results. This adds weight to their validity and

usefulness as new knowledge, some of it Maori-specific or derived, and in a way that adds to what wasn't previously there from a generic approach.

### iii. Internal agreement via multiple data-processing and models

Themes for this study have been arrived at from two directions - first, by grouping participant comments into themes as introduced by each participant. Secondly, by classifying all interview notes line-by-line into themes then key-themes, they were able to be ranked and grouped in various ways. Comparing the two sets of themes shows they share much in common, perhaps stated in slightly different ways.

The table below provides weightings alongside each of the statement-derived themes to indicate how many of the nine numerically derived key-themes they align with. The latter were developed independently from the former so the high weightings suggest they significantly validate each other and that the nine key themes can continue to be used with confidence. The least matched key theme still aligned to nearly half (14/32) of the statement-derived themes. The strongest match was 24/32.

**Table 7: Match between Statement-derived and Numerically-derived Themes**

Statement-derived Themes	Match	%
Agency inclusion of Maori	6	66.7
Cultural practice case examples	6	66.7
Departmental process	5	55.6
Departmental realities/limitations	5	55.6
Good process/suggested improvements	5	55.6
Key priorities and approaches	5	55.6
Likely scenarios	4	44.4
Limited involvement of Maori	9	100.0
Limited resource for inclusion of Maori issues	9	100.0
Local authority/health agency relationships	7	77.8
Maori community realities	5	55.6
Maori perspective/risk perception	6	66.7
Maori reality/case studies	5	55.6
Maori responsiveness	5	55.6
Maori understanding of environmental process	3	33.3
Potential impacts for Maori community	8	88.9
Strengths in departmental Maori responsiveness	4	44.4
Practitioner Tips	6	66.7
Useful advice	6	66.7
Varied state of readiness amongst Maori communities	6	66.7

As demonstrated in the previous section, the set of indicators drawn from the interviews also respond well when treated like the EPI programme indicators. The ‘M/A/O’ column in table 6 groups the indicators according to the Venn diagram relationships suggested in Chapter 6 Figure 6. Hence, level one indicators (with probable current datasets) can be identified as:

#### Maori-priority

- Evidence of Maori participation/feedback
- Evidence of Marae community growth and strength
- Local reports of dying species
- How often Maori become sick after eating food from traditional sources
- Links to socio-economic indicators

#### Agency-priority

- Availability, resource and skill base of Maori units
- Presence of kaumatua/other experienced Maori support
- Application of a Maori responsive checklist before engaging with Maori?
- Number of national/local forums to engage Maori
- Numbers of non-Maori workers using waiata-practice to satisfy professional development credits for Maori responsiveness
- Time taken for clean-up/remediation of local environmental incidents

#### Outcome Priority (that both Maori/Agency should want)

- Numbers of non-Maori workers using waiata-practice to satisfy professional development credits for Maori responsiveness
- Time taken for clean-up/remediation of local environmental incidents
- Links to socio-economic indicators
- Presence of kaumatua/other experienced Maori support
- Local reports of dying species
- Number of Maori becoming sick after eating food from traditional sources

The highest ranking tikanga indicator, ‘Incidence of spiritual cleansing carried out’, exists at level 2 (possibly level 1 if datasets already exist in places like hospitals), can be objectively measured and unites all three priority areas (Maori, Agency, Outcomes). It therefore would be suggested as a good place to start in terms of developing new indicator/data sets.

### **Other internal comparisons**

Some of the well-known Maori health conceptual models mentioned in this study can be used to see how themes and indicators relate. For example, do themes and indicators exist in all four of cornerstones of the ‘Tapa Wha’ model – physical, mental, social and spiritual? Are both sides of the Korowai Oranga framework evident allowing both government and Maori aspirations to work together for mutual outcomes? Will the indicators reflect Te Pae Mahutonga aspects of self-determination and access to the Maori world? On reflection, all of these examples can be answered affirmatively thereby adding further validity to the findings.

Since the approach that is evolving seems to draw on many different aspects to end up as something new, yet tries to retain the old, it seems appropriate to represent it with something traditional from the Maori world. Maori retain their past in order to face the future. As the overall kaupapa is about keeping people in their environment safe from foreign or hostile incursion, the concept of a palisade-fortified pa (traditional Maori village) may be useful.

A conceptual model based on the traditional layout of a fortified Maori Pa entails three concentric perimeters of palisade (inside, middle, outside fences), each with a single gate through which the enemy must pass before getting to the next perimeter. This allows maximum opportunity to deal with the outsiders before they get to the inner core, which in this case represents where Maori 'reside' on this topic. From outer-most to inner, these three levels of protection have been referred to as *pikirangi*, *hukahuka* and *kiritangata* (Grant, 2003).

Each of the fence posts of this conceptual model represents a *tikanga*-based indicator (outer fence), people-based indicator (middle fence) or environmental indicator (inner fence) – the outer *tikanga*-based indicators often the first thing experienced by those approaching Maori over issues. Problems can be detected via each indicator post if something or someone tries to break through without coming through the appropriate gateway and earning right of passage. Some of the posts are strong and last, others need testing or replacement – a normal part of maintenance and similar to the ongoing survival of Maori culture.

A common scenario is Maori in a defensive position fighting to defend core environmental indicators, after having their outer two fences breached, sometimes unintentionally by the perceived 'invader'. Better prepared stakeholders deal well with *tikanga* protocols and are open to hearing some of the people-based indicators (even if their silo is not set-up to address them – hence the 'scratched record syndrome'). This may get them through the second gate with a chance to negotiate the inner fence they are most interested in – however, ever-perceptive Maori may still be guarded with their responses. Perhaps only the most committed and true visitors are welcomed through the final gate and invited to sit together, build unity, strong bonds and common understanding – perhaps even a two-sided '*korowai oranga*' house amongst the people.

Detecting which visitors are committed and true, building relationships, avoiding offence and managing rites of passage in protection of the people are all specialties Maori have perfected over generations of inter-tribal dynamics and passed down through *tikanga* still much in practice today. Of any of the learnings from this study, these distinctions could over-ride all others.

## ***2. The study and Maori research approach***

One of the aims for this study was to conduct it in a way that was both appropriate from a Maori perspective and could demonstrate a simple but useful research approach likely to be of relevance to many Maori.

Examples of options chosen from a Maori standpoint range from developing the 'haurapa' approach within a kaupapa Maori methodology, setting up several Maori

reference points (reference groups, yahoo website, occasional korero with kaumatua/mentors) or even just the inclusion of easy access tools like Wikipedia, shunned by academia but likely to be popular with the new wave of beginning Maori researchers. Whether or not these, and the personal integrity of the researcher, amount to something that can be judged fit from a Maori perspective remains to be seen.

In terms of Kaupapa Maori, if it seems like the findings may bring about useful gains for Maori, without having breached any protocols or brought any additional risks, then one might suggest the aim is met. However, Maori contexts differ from Western ones, being more fluid and subject to change. The knowledge could fall into wrong hands, be abused or its use could have unforeseen consequences unable to be managed within a Maori context. Unknowns like this might restrict many researchers and the accompanying knowledge from entering into a tauwiwi research framework.

As profiled in the introduction, the researcher is located mid-range on the ‘activist-redneck’ continuum, so there will be other extreme views of what should and should not be done to satisfy an assessment of appropriateness from a Maori perspective. Overall, the objective has been met by introducing some Maori thinking (without giving away too much) within a tauwiwi research framework and finding something that could be useful for Maori and other stakeholders.

### ***3. Useful outcomes and next steps***

The third aim of this study was to end up with something useful to all stakeholders. Validation from previous sections may (or may not) make findings more useful. There are also considerations about how, by whom and for whom the knowledge gained here might be applied. Usefulness could be measured for example by demonstrating a tool that seems to work, process improvements for stakeholders or a bottom line improved outcome from Maori experience.

Care is needed to avoid benefits for one stakeholder (like a more streamlined process) disadvantaging another (like Maori dropped from the loop because a new tool is in use). While Kaupapa Maori consideration locates Maori priorities at the centre – it also seeks ‘mana-enhancing’ solutions for all – win-win solutions. In a busy dog-eat-dog world, many don’t see the point of taking the time tikanga Maori requires to cement relationships and avoid offence.

Finally, the study doesn’t get technical enough to consider Maori issues with specific pathogens or scenario flow charts (as in Appendix 8). For example, what steps require cultural applications with the deceased (like karakia/accompanying the body) and how is it likely to differ between different classes of infectious/toxic agents (like restrictions on gatherings in the case of a pandemic)? As per participant feedback to take small steps lest they be left behind, it seems important to start at the ‘outer levels’ to build unity and common understanding amongst stakeholders before proceeding in to the next/deeper level.

The remainder of this section discusses useful outcomes and next steps in three parts:

- i. New Tools
- ii. The Stakeholders
- iii. Indicators of Success

## i. New Tools

The conceptual model in Figure 6 of Chapter 6 could be considered a useful tool to separate out key themes and outcomes of priority to each stakeholder. Adaptation from the environmental performance indicator programme in Table 6 seems to be an effective way to classify and filter potential indicators. A number of techniques used in this study, like aspects of haurapa approach, may also be useful and qualify as new tools for further use.

However, one challenge with new tools is they need testing and compete with a myriad of other tools and frameworks. Haurapa considerations would suggest upholding Maori preference to hold strong to wisdom passed down from those before to better tackle the path ahead. An example can be drawn from Durie's 'Research Potential' Framework summarised in the Chapter 2 literature review (Table 3).

To date, new tools have been largely developed by:

- Breaking down what people have said about the topic
- Amending other models and frameworks to apply in the context of this study; and/or
- Thinking about and conducting things in a Maori-centred way

By focussing the same process solely on timeless concepts handed down by elders (which Durie's approach uses, along with his own handing-down of Maori wisdom), Durie's framework qualifies for direct transposing to the topic of this study. Replacing the use of 'research' in Durie's framework with 'remediation' in the table below now provides sound Maori guidance for a remediation framework. The stated aims also transpose to determine whether **remediation** is coherent, accords with the main concepts underpinning Maori cultural and spiritual views, and is likely to make a positive contribution.

**Table 8: 'Remediation Potential' Framework**

<i>Domain</i>	<i>Maori value/Concept</i>	<i>Desired Remediation Outcome</i>
The Natural Environment	Mauri Integrity	<b>Remediation</b> that contributes to the integrity of ecological systems
	Whakawhanaungatanga Relationships	<b>Remediation</b> that strengthens relationships between people, between people and the natural environment, and between organisms
	Kaitiakitanga Guardianship	<b>Remediation</b> that contributes to resource sustainability
The Human Condition	Wairua Spirituality	<b>Remediation</b> that contributes to human dignity within physical and metaphysical contexts
	Tapu Safety	<b>Remediation</b> that contributes to human survival and safety

	Hau Vitality	<b>Remediation</b> that contributes to maintenance of human vitality
	Whakapapa Intergenerational transfers	<b>Remediation</b> that contributes to the standing of future generations
Procedural Confidence	Tikanga Protocols	<b>Remediation</b> that contributes to the development of protocols to address new environments

The remediation outcomes in the table all seem to align to/validate the themes previously discussed. In a similar way, any of the established Maori conceptual models could provide levels of guidance – for example, Te Whare Tapa Wha (physical, spiritual, social, mental aspects within a Maori world). A new tool outcome is therefore demonstrated in the effective adaptation of tried and true Maori conceptual models.

Finally, not to be overlooked is the underlying purpose for this study. It is completed as an exercise by the researcher, after much tuition and testing, in order to learn how to do research effectively. It can be assumed on completion of the study, a new tool is created in the form of a work-ready Maori researcher.

## ii. The Stakeholders

Before suggesting what may be useful to different stakeholders, consideration needs to be given to who they are and where each sits on the continuum towards integration of Maori aspects in disaster recovery. Also important is what ‘terms of reference’ they have to achieve inclusion of Maori considerations – whilst Maori can’t escape sometimes extreme scrutiny from their own communities, an agency that is only required to ‘have regard’ to things Maori may differ from one that has more comprehensive Treaty of Waitangi or partnership commitments.

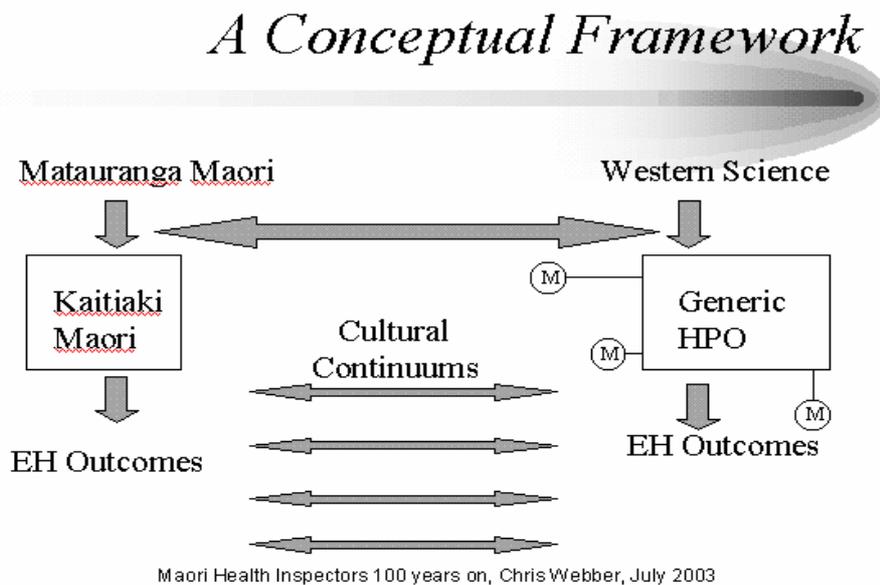
A ‘Haurapa’ test was devised as a very basic means of identifying where stakeholders are located on such a continuum. It stems from being a Maori parent of kohanga-reared children now in the mainstream education system. A key indicator used as a parent to test their classroom is to look for things like:

- Do any Maori books appear on the class bookshelf?
- Are there other resources and an environment that says “this is a place for Maori too”?
- How proactive and proficient is the teacher/key staff in fostering Maori language and things Maori with my child?
- Are Maori role models/figureheads/frameworks referred to rather than just non-Maori ones when trying to teach and inspire the class?

As the most accessible and measurable public interface for the researcher, a ‘Haurapa’ test was devised reviewing front door websites of key stakeholders for similar indicators of Maori responsiveness and development. A demonstration is included in Appendix 4, however further investigation and comment on stakeholders is not considered necessary for this study.

In comparison to this method, interview notes turned up an interesting comment about evaluating which marae were likely to be more responsive and proactive regarding emergency scenarios and preparedness. Without a corporate website to review, it is suggested one only needs to drive by and observe the various signs of marae development to gain a picture of the capacity and responsiveness of the marae community to take on new challenges. For example, evidence of recent upgrades, grounds development, supporting initiatives (like kohanga reo/kaumatua flats). One could also peruse the list of awarded grants money issues to see which marae group is upgrading their buildings or doing some other development.

Regardless of organisational efforts and responsiveness, stakeholder success relates to actions of individuals and where they sit on the responsiveness continuum. The following figure depicts how Maori Health Protection Officers (M) are employed as 'clip-ons' to the generic health protection role (informed by Western approach) – but are required to work at various points along the continuums towards a kaitiaki Maori role (informed by Maori knowledge and practice). Various continuums exist depending on things like being male or female, young or old, Maori or non-Maori and staunch traditionalist or novice learner of the culture (Webber, 2004).



**Figure 8: Conceptual framework locating Maori responsiveness (Webber, 2004)**

In summary, stakeholders will take what they want from the results of this and other studies, depending where they sit on the Maori responsiveness continuum and the commitment of individuals to apply the effort. The key message is for stakeholders to be aware of such continuums, where they are located and what options for progress there may be. Raising such understanding and awareness is a useful outcome from this study.

### iii. Indicators of success

In trying to fit at the interface between Western and Indigenous, Government and Community, Science and layperson, Maori and Non-Maori viewpoints an ‘end result’ question could be posed:

*From the findings so far, what is likely to be of most use to each of the stakeholders that will support/promote best outcomes for all involved?*

Some ideas include:

- A useful policy guideline document or checklist
- A handy office resource like a wall chart or field toolkit
- New/improved communication channel(s)/decision-making process
- A wave of knowledge transfer within stakeholders and/or community
- Plans/openings/assurances for dialogue between stakeholders (including Maori) for certain situations
- A measurement tool for the way Maori experience disaster recovery
- A ground-breaking model to share with others wanting to include community/cultural indicators in the way they carry out disaster recovery

Another imperative from a ‘Haurapa’ perspective is to avoid the ‘scratched record’ syndrome of Maori repeatedly having to re-state their needs and aspirations to ever-changing stakeholders with little result. From a Maori perspective, over-using words can cheapen them or make the talk ‘common’ (Wi Kingi, 1995) to the extent of being ignored – so one challenge is how to value what is being said and recognise the voices that have spoken. A number of the ideas above could assist.

Stakeholders could consider the discussion, test the weightings and tools provided, foster further discussion and commit to carry forward one or several of the ideas in a way that best suits their organisation. Progress could be measured against a tool or continuum by scheduling regular reviews with appropriate stakeholders (including Maori) – perhaps an annual Disaster Recovery Warrant of Fitness with both Maori and institutional assessors.

All of this is pretty unlikely due to resource limitations and other priorities - let alone the lack of engagement of Maori to push things along. Even the production of trendy tools is questionable as an indicator of success if not either embraced or proven effective at the outcome end for Maori as well as emergency stakeholders.

As with the conceptual Pa model proposed earlier in this chapter, all other considerations may be academic unless Maori welcome stakeholders in on their own terms and treat them as committed and true ‘friendlies’. They don’t have to be in agreement over issues, but a relationship of trust and reciprocity needs to exist. Indicators of success are then more about stakeholders understanding and applying principles of engagement, Maori being able to fully engage and a pathway forward to ‘build a house’ together.

It is therefore not really appropriate to prefabricate the ‘house’ here, other than to identify some of the qualities likely to be needed when a partnership begins. The findings and indicators from this study shed some useful light and support further engagement.

## Chapter 8 - Conclusion

This study achieved its aims to demonstrate a body of knowledge around Maori and disaster recovery, and in a Maori appropriate way with some useful outcomes for stakeholders.

Maori are not really engaged enough to generate in depth response to many technical aspects of disaster recovery scenarios. Maori are therefore under-represented and less likely to achieve equitable outcomes in this field. Protocols for engagement need to be followed by stakeholders and long-term relationships formed with Maori in order to develop responsiveness in this field.

A general lack of Maori involvement in related scientific and regulatory fields requires innovative use of available knowledge. Using a Kaupapa Maori methodology, the Haurapa approach developed was a useful addition to the growing range of tools being applied by Maori researchers. Existing Maori conceptual models can be easily adapted to apply to this field rather than re-inventing the wheel.

Nine key themes were distilled from more than 50 themes that arose during interviews. More than 30 such themes are supported with useful quotes to provide some insight for those looking into the area. Separation of the themes into spheres of interest makes them useful in linking stakeholders and prioritising action for each for mutually beneficial outcomes.

From this process the following suggestions are made:

- Maori need to focus on developing and articulating their thinking and viewpoints about certain scenarios and technical issues. They also need to relate it to outcomes relating to their own Maori development aspirations
- Agencies need to work at better understanding Maori realities and then the outcomes of doing a good job for Maori (both agency and Maori aspirations)
- Between them as partners, Maori and Agencies both need to develop the interface including appropriate protocols and approach, whilst being real about the plain truths that need to be kept in mind on the way to achieving outcomes

The 9 Key themes are:

1. Doing a Good Job for Maori
2. Realities for Maori
3. Practical Outcomes
4. Maori Development
5. Maori Preparedness
6. Protocols and Approach
7. Maori Viewpoint/Thinking
8. Plain Truths
9. The Interface

While the study generally approaches the topic under the banner of ‘Maori Issues’, a dozen stage one indicators (with current datasets likely) are identified to provide objective measurement under classifications (Environment-based, People-based, Pathway-based and tikanga-based measurements). Another 20 stage two indicators requiring development and datasets are identified. The stage one and two indicators spread across the four classifications of indicator as well as the spheres of interest identified (Maori, Agency and Outcomes). The indicators can be successfully filtered to identify which ones have best potential for each of the identified spheres of interest and classifications.

A number of different tools and applications are introduced for trial and further development. It is recommended these be considered by stakeholders along with the supporting guidance from the EPI programme summarised in Appendix 11. Long term relationships of trust and engagement with Maori at all levels needs to occur for ongoing work to include Maori cultural indicators and issues in the disaster recovery field involving biohazards, chemo hazards and natural disasters. There are definite gains to be made – the consequences of not doing so are high.

It is recommended the approach for Maori involvement be considered within a Maori framework such as that represented by the Pa conceptual model. This approach suggests addressing tikanga, people and pathway-based indicators before just focussing on environmental ones. This may invite Maori engagement and better understanding of Maori context by non-Maori stakeholders. At present the issue may still be considered external to the outer palisade, this study providing just a few glimpses through the gaps.

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## **Appendix 1 – Sample Paperwork for Stakeholder Interviews**

1. Information Sheet for Maori Stakeholders
2. Discussion Starter and Sample Questions

## **Information Sheet** (Maori Community/Practitioner Stakeholders)

### **Maori Cultural Indicators for Remediation of Bio-hazards, Chemo-hazards and Natural Disasters**

***Kia ora! Thank you for considering this study. The following should assist you in making your decision, after which you're invited to complete and return the attached consent form. Feel free to make contact (see below) for more information or korero.***

#### **What is the study about?**

This study is part of an MPhil Masters thesis and aims to find out where issues of cultural importance or concern for Maori fit with a range of emergency and disaster recovery situations. This is so those involved in such events may be more aware and that Maori issues may be better included and catered for.

#### **WHO is doing the study?**

The study is being carried out by Masters student Chris Webber, of Ngati Toa, Te Ati Awa and Ngati Raukawa tribes – ex-Health Protection Officer (BoPDHB), Maori Journalist, Educator, Policy Analyst (Te Puni Kokiri) and now an independent practitioner based in Rotorua (married into Te Arawa).

*Research supervisors for this study are Professor Philip Dickinson (Massey University), Dr Te Kani Kingi (Massey University) and Maui Hudson (ESR).*

#### **WHO else is involved?**

- Six Emergency/Recovery Government Stakeholders and six Maori organizations/practitioners are being approached for this study
- People are being invited to participate in the study if they have knowledge of Emergency management/recovery situations and/or Maori perspective relating to these
- You are invited to participate as you have been identified as fitting this description, by either a formal approach to your organization, other stakeholders (including ESR) or wider word of mouth

#### **WHAT is involved?**

- As a participant, you would be invited to an interview with Chris to talk about your views on important issues regarding Maori and emergency/recovery situations and if/how these are addressed. You would also have the opportunity to comment on documents provided by way of feedback
- If audio-taping is used (upon your agreement on the consent form), you will be able to obtain a copy of any transcript made and make amendments

#### **WHAT happens to the information?**

- The information gathered will be kept confidential (unless agreed otherwise) and used to improve understanding about various incidents, Maori concerns and the way response agencies (and Maori) carry out their involvement in such incidents
- Ownership of Maori intellectual property is to remain with Maori

- Data will be stored electronically and on paper for 5 years before being destroyed or archived in consultation with Massey University
- Unless other arrangements are made, progress and a summary of project findings will be available via [http://groups.yahoo.com/group/Maori\\_BCD](http://groups.yahoo.com/group/Maori_BCD) or sent on request by contacting [cwebber@xtra.co.nz](mailto:cwebber@xtra.co.nz)

#### **WHERE/WHEN & WHY be involved?**

If you become a participant, you may be able to participate by phone or face-to-face and return extra comments by post, email, fax or verbally.

- Your interview is expected to take up to an hour. You will also have the opportunity to comment on documents provided to you by way of feedback
- It is expected this project will provide something of benefit for all who participate

#### **ANYTHING ELSE I need to know?**

- The study involves kaupapa Maori methodology where required to maintain flexibility and appropriateness for working with Maori. You therefore have a right, and are encouraged, to query any aspect according to tikanga and responsiveness concerns that may arise for you at any stage

#### **Your Rights as a Participant**

You do not have to accept this invitation. If you decide to participate, you have the right to:

- decline to answer any particular question
- withdraw from the study at any time
- ask any questions about the study at any time during participation
- provide information on the understanding that your name will not be used unless you give permission to the researcher
- be given access to a summary of the project findings when it is concluded.

#### **Support Processes**

Where practicable/available, appropriate kaupapa Maori supportive environment and process will be utilised (such as inclusion of Kaumatua, Maori liaison and advice).

#### **Project Contacts**

For further enquiries about the project please contact one of the following:

- Student Researcher: Chris Webber, 9 Jervis Street, Rotorua  
Phone 0274 353 755, 07 346-1002 or [cwebber@xtra.co.nz](mailto:cwebber@xtra.co.nz)
- Supervisor: Prof. Philip Dickinson, Massey University, Private Box 756, Wellington  
Phone 0508 439 677 extn.6478, email: [P.J.Dickinson@massey.ac.nz](mailto:P.J.Dickinson@massey.ac.nz)
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- Co-Supervisor: Maui Hudson, ESR Maori Development, PO Box 50-348, Porirua  
Phone 04 914 0700, email [maui.hudson@esr.cri.nz](mailto:maui.hudson@esr.cri.nz)

**Note:** *“This project has been reviewed and approved by the Massey University Human Ethics Committee: Southern A, Application 06/55. If you have any concerns about the conduct of this research, please contact Professor John O’Neill, Chair, Massey University Human Ethics Committee: Southern A, telephone 06 350 5799 x 8635, email [humanethicsoutha@massey.ac.nz](mailto:humanethicsoutha@massey.ac.nz).”*

## Discussion Starter & Sample Questions

### Maori Cultural Indicators

For Remediation of Biological/Chemical Hazards and Natural Disasters  
A Masters Thesis Study by Chris Webber

*Questions for participants to ask themselves:*

- **How much do you know about the emergencies and risks of concern to our Maori communities?**
- **Are the various services prepared to deal with the issues that may arise for Maori?**
- **What roles should Maori play in the various scenarios?**

In preparation for challenges ahead, this 2006 study is designed to highlight where cultural concerns of Maori may need consideration with regard to Biological and Chemical Hazard response or recovery from Natural Disasters. Please take a moment to consider the following examples and note ideas that may surface around dealing with such incidents.

#### 1. Pandemic Influenza

The bird flu mixes with human strains and spreads worldwide, national economies & systems fall over, agencies & workforces get overloaded or stop, supply of goods and services (including food) breaks down, communities struggle on their own, Maori die in great numbers, authorities ban gatherings like tangi, bodies are frozen, rebuilding lives takes a while.

#### What if it was less serious?

A new strain of influenza circulates. A lot of people are ill, those at higher risk could die. Agencies place restrictions on gatherings, public places and worksites, advice is issued for communities to follow (like isolate the sick).

#### 2. A Toxic Spill in Your River

A tanker of eco-toxic material overturns, chemicals flush through the river system, living things die, some soil is removed near the river banks, warnings are issued against using food sources from watercress, tuna to shellfish in the bay, and the area is otherwise declared safe.

What if the following week the river floods local papakainga, kai is gathered for a hui or someone raises concerns about downstream waahi tapu (sacred sites), puna wai (natural springs) or drinking water supplies (bore and river)?

What if the spill was a slow discharge from the sawmill or dump 20 years ago?

#### 3. A P-Lab in Your House

Tenants are arrested by police after a P-lab is discovered in the house. The whanau moves into the house. Council says get the place decontaminated by specialists (costing thousands) and makes a note on the property file.

What standards do you expect Council to apply before declaring this (or any) house fit to live in?

How can you decide if the whanau is at risk before or after the house is cleaned?

How many whanau may be living in houses with unacceptable levels of contamination – what should be done?

Does it matter who is making the decisions? What if it was a runanga rather than a Council or Health Department? What considerations are there for current stakeholders to consider?

What type of responses might there be such as from kaumatua/kui, kaitiaki, young parent, child, rural/non-rural, staunch/not staunch and so forth? When does tikanga-based response become more/less essential?

Follow the links from [www.angelfire.com/me/manakupu](http://www.angelfire.com/me/manakupu) to see more and follow progress or contact direct – [cwebber@xtra.co.nz](mailto:cwebber@xtra.co.nz) or (0274) 353 755

**Sample Interview Questions for Maori Cultural Indicators Study:**

Kia Ora - Please refer to the attached information sheet then consider the sample questions

below as preparation for your interview (a separate sheet is included for making notes).

OPTION A: (Directed at general Maori Stakeholders)

**Key Question: ‘What is important to Maori in dealing with Bio/chemical hazards and natural disasters?’**

Example of Potential Subsidiary Question: ‘**What things in these scenarios affect mauri and expression of kaitiakitanga? Expand on this as necessary.**’

OPTION B: (Directed at Generic/Government/Emergency Stakeholder)

**Key Question 1: ‘How are issues of importance to Maori incorporated into the way your organisation and staff plans for and responds to bio/chemical hazards and natural disasters?’**

**Key Question 2: ‘What information/process would be of most use to your organisation and staff to ensure Maori considerations are adequately addressed when dealing with bio/chemical hazards and natural disasters?’**

Example of Potential Subsidiary Question 3 (directed towards a Maori liaison person for an emergency stakeholder): ‘**How well prepared is your organisation and staff to adequately address Maori considerations when dealing with bio/chemical hazards or natural disasters? What else is required to improve the effectiveness of this?’**

Example of a Potential Subsidiary Question 4 (directed towards emergency stakeholder management): ‘**What commitment(s) does your organisation have to the inclusion of Maori considerations in the way it deals with bio/chemical hazards or natural disasters? Please explain (legislative, policy, relationship, best practice, procedures other).**’

OPTION C: (Directed at Maori Environmental Health & Protection Practitioners)

**Key Question 1: Answer OPTIONS A & B above where appropriate.**

**Key Question 2: What kind of resource and information would be of most use in assisting emergency/recovery stakeholders to deal with bio/chemical hazards and natural disasters inclusive of Maori considerations?**

Example of Potential Subsidiary Question 3: ‘**What indicators/values would be of most practical use in guiding/supporting stakeholder response to these scenarios?’**

**Note: As a participant in this study, you can choose not to answer any question.**



## Appendix 2A – Examples of Comments Related to the 9 Key Themes

**Table 9: Comments Related to Key Themes**

Themes	Comments
<u>1. Doing a Good Job for Maori</u>	
Service improvement	<p>Agencies - depends how determined staff member is to find out local info - have to find suitable person to work along side. Agency has to be able to deal with cultural indicator.</p> <p>Organisation's challenge is develop an infrastructure that will be flexible, reciprocal, and acceptable but has regulatory response to it.</p> <p>Incurion scientists - have will but total ignorance – doing Maori 101 is an idea. Medium to long term, would like more Maori staff in organisation - assumes deeper and richer understanding of cultural issues in front line staff. We need to get to school level/Marae level.</p> <p>Seemed like adding another Maori face to the team but just carrying on the process of mainstream delivery. Fair amount of pessimism from past experience - they think we're all one and the same. Low capability - some rednecks not willing at all - waste of resource and time because of their faith in the science and the outcomes they can achieve. Legislation means 'I don't have to wait for their consent'. Regulatory stuff now impedes our cultural process. Cultural considerations grossly mishandled. Need coordinated approach rather than silos. Basic need to learn to communicate (with Maori). Some want to do the right thing but no one to go to.</p>
Good practice	<p>Non-Maori must get to know Maori - might have to go outside of the square of learning the sciences. If can keep working with them then word will get around.</p> <p>I do ground work first to talk to committee, foot in the door first, identify the issues for them and say we do have some people that can work in those areas.</p>
Good process	<p>Confusion if too many options. Women will make the first move/decisions. Avoid checkbox system</p> <p>Find kaitiaki/key people within marae, develop network.</p> <p>Have SOPs (standard operating procedures) in control rooms to indicate (notifications) cultural considerations.</p>
Limited capacity	<p>Some want to do the right thing but no one to go to – too hard/quit. Compromise.</p> <p>Valid model to go out to communities - but may not be the resource. Problem across the board not just Maori.</p> <p>Pandora's box if landowner has to pick up cost of spiritual cleansing a p-lab house. More ministerial attention if public are strong on issue.</p>
<u>2. Realities for Maori</u>	
Cultural practice	Different spaces allocated for different purposes.

	<p>Might not use water at certain times of year important to know varying states of resources. Had cultural coping mechanisms previously. Regulatory stuff now impedes our cultural process. People need to tangi.</p> <p>Strengthen our rituals to retain dignity - karakia very strong thing and rahui to condition access to resources.</p>
Risk perception	<p>'OK if it looks alright' (risk perception). Some would hire countdown cleaner to clean P-lab house themselves.</p> <p>Toxic spill different from parasite in fish that's been there for years and part of nature. P-lab chemical no different from evil spirit. Severity of pandemic may override natural instinct. Essential for iwi Maori to have risk communication targeted for them. Sometimes our people aren't too informed, If they don't see one of their own drop dead, they just carry on.</p>
Maori types	<p>Depends how Maori-fied they are. P-lab house - services may need to cater for different Maori in different ways e.g. I wouldn't need the house cleared (maybe a blessing from Church priesthood instead) but wouldn't be offended if offered, Other Pakeha-fied Maori might be offended.</p>
Community realities	<p>Less endowed communities may be less compliant. Still got families living in chemical contaminated houses - lots of gaps.</p> <p>Impact on kids not knowing about their pa/marae. Trying to feed messages but some pakeke still in old thinking and 'how far can we trust'.</p>
Tikanga/kawa	<p>They assume message received (after marae welcome/feed/thanks) - but what they're really getting is the kawa/tikanga part. Pandemic will be a hullabaloo - tikanga may step aside for common sense. Tikanga not 'do or die' - cultures adapt. Our people won't decouple or else identity is gone. Some family tikanga varies - e.g. no marae meeting today because burial yesterday.</p>
'OK if it looks alright' (risk perception)	<p>Toxic spill - if I can't see it, I'd probably eat it. I'd ignore talk of runoff and just get the watercress - attitudes are generational.</p>
<u>3. Practical Outcomes</u>	
Likely scenarios	<p>Families will start to come back to community - may not have finance to survive in cities (prepare for them to come back). May put pressure on hau kainga infrastructure.</p>
Case studies	<p>When we go to heat incident we give info to people who we can, then drive away. They may just be there in their clothes (&amp; need further support/advice) – have a good thing with police/victim support direct dial. Other social service providers could be involved e.g. Pikiao runanga do social support in their area after any incident.</p> <p>Can be a bit ad hoc around country and with different incidents.</p> <p>Still a long way to go - won't ever get to stage all staff will automatically think of Maori considerations.</p> <p>Fire/others always having trouble reaching them - have to develop means of communication to get through them.</p>

Practitioner tips	<p>Try and pitch to organisational culture and not management which rolls over - provide environment conducive to Maori staff.</p> <p>Communications - 1) have to understand, 2) have to link to them, 3) have someone competent to respond to Maori reactions - requires expertise, then on the way towards doing things.</p> <p>I do ground work first to talk to committee, get foot in the door, identify issues for them and say we do have some people that can work in those areas. Often the 'is that so' response given – so suggest we can bring them back to work with you if you like.</p> <p>Obvious ways of reaching leadership - providing briefings, visits, govt departments do all the time - a lot of them miss the point.</p> <p>Agency should have guidelines even if one statement about Maori connectedness - nothing to stop them ignoring but it shows respect. Non-Maori got to get to know Maori - might have to go outside of the square of learning the sciences.</p>
Safety	<p>Safety first, especially if have children. River safety not just about deep, shallow, rapids - more about not contaminating upstream from drinking site. Pandemic query - what are people coming back home to and with (infectious). Different levels of cleansing. New family moving into house for own safety should also be sure - bring in own protection (bless/clear house).</p>
Offence	<p>Offended by washing undies with tea towels. Pakeha don't seem to care - but if you get them to think about it, it's a hygiene thing.</p>
Leadership ideas	<p>Natural leaders rise compared with day to day leaders. Some families coming back to marae will try to do things their own way – may need to be stronger with them or suggest they go elsewhere. Strong marae committee - becomes basis of leadership response.</p>
<b>4. Maori Development</b>	
Leadership	<p>Local leadership has to centre around paepae - over past 20 years, te reo speakers there does not mean they have skills to lead. Can determine marae strength by way it looks - always growing.</p>
Resource ownership	<p>P-lab response different if my own house. Different families had different parts of the river they identified as theirs - e.g. places to drink, wash, and swim. Equity issues and justice involved. Mauri of spring linked to habitation from ancestors.</p>
Local/traditional knowledge	<p>Knew where to go to get the good fish/watercress. Temperature changes meant different species e.g. eel in certain places due to geothermal hot spots. Need buy-in from the locals for agency involvement -</p> <p>Need to ensure info is going to be used to better the environment. Handful of people known - they know where the kai is (to feed people in emergency). Most relevant connections lie at local/district level - would like to see this working with DHB.</p>

<u>5. Maori Preparedness</u>	
Safety	Sometimes our people aren't too informed, If they don't see one of their own drop dead, they just carry on.
Whanau first	Would disregard pandemic restrictions on gatherings - if it's my whanau, I'd just go (to tangi etc). First priority is protection of my family – more so now with children.
New challenges	Mai rano our people knew how to deal with natural hazards - now have hazardous, toxic situations genetic engineering and modifications to do with the land/mahi kainga etc.
More caution if informed	Some wouldn't have the knowledge of risk and would ignore - lack of knowledge varies. A lot of Maori are ignorant of things as they've been brought up to eat from the river. Information allows us to override our natural instincts (to gather when we should isolate).
<u>6. Protocols and Approach</u>	
Age/sex/other differences	Young bucks wouldn't care. Older Maori/with families more likely to think safety. Younger more relaxed but may be more likely to pick up if connected to elder Maori. Males take more risks (Maori or Pakeha).
Offence/upset	Mauri/kaitiakitanga - local kaitiaki not being able to control what ends up in their water/whenua & not being advised. If Doctor mis-pronounces 'matetinokino' (pandemic) - how can people take seriously.
Contact	Have to ask DHBs about strength of local Maori relationships etc. For other than generic messages. Emergency management a small field - colleagues know each other.
Advice	If our guys were made to do it, may inflame already misunderstood issue - so if use stats and need in community - can't fault argument.
<u>7. Maori Viewpoint/Thinking</u>	
Maori perspective	They expect Maori to abide by their ways – why can't they abide by some Maori ways. Our stuff is there and we don't need to validate/contest it against scientific values.
Trusted source	I'd probably go by landlord's word that house has been cleaned. Maori won't vote for counsellors – so counsellor attitude is stuff them (issues not progressed). Trying to feed messages to them but some pakeke still in old thinking and 'how far can we trust'.
Restore environment	Mauri/kaitiakitanga - fix the kai required. Main question - how long will it take for cleanup to restore to normal.
Natural or not	Toxic spill different from parasite in fish that's been there for years and part of nature. Wouldn't drink roof rainwater due to rust and dust (more so than bugs).
Ignore rules	Would ignore pandemic restrictions on gatherings if it's my whanau, I'd just go. Some families returning to marae will do things their own way (contrary to local tikanga/rules).
Quotes	General community doesn't understand the capacity of Maori communities to survive using principles of collective responsibility, kawa and generations of training/practice. Information allows us to override our natural instincts – e.g. military trained to think/act in heat

	of moment contrary to what mind says.
<u>8. Plain Truths</u>	
Expect losses	Action not taken till someone gets knocked down (by pandemic) – then it's a bit too late. Dr may say take injection but without right communication will be people missed. War calculation, for Example, 25% may not listen - focus on those you can save. Poorest and hardest to get will be last.
Funding	No incentive to fund Maori issues. Non-government Fire funding from insurance levies.
Economic/education	Economic development is key. More caution if educated/informed.
Conflict	Roadblocks likely to face people returning home to Marae in pandemic. Tendency to Collect together may be contrary to emergency management push for isolation.
Prevention/preparedness best	Maori will ask 'What is the ramification of having that site there?' (For example if food supply could get contaminated). Proactive/prevention so event doesn't happen.
Rural/urban differences	Natural disaster - rural starting area is marae committees. Urban areas not so sure how to deal with Maori.
<u>9. The Interface</u>	
Participation	Public involvement in emergencies is negligible. Pandemic high level reference committee chews over Maori perspectives. Sometimes Maori don't make it easy – has been a lot of distrust (for those who won't engage). How are Maori involved in the decision-making – example Biosecurity incursion response.
Cultural safety	Example – hospital chaplain can move aside for alternative which is meaningful for patient.
Flexibility	Tikanga not 'do or die' - cultures adapt. Preference is to go thru comfort and custom but not immune to changes. Common sense likely to prevail.

## Appendix 2B - Summary of Themes and Key Themes

The following table suggests which themes relate to the 9 Key Themes

**Table 10: Summary of Themes and Key Themes**

KEY THEME	INTERVIEW THEMES THAT RELATE
1. Doing a Good Job for Maori	Agency priority, Busy Maori Staff, Communication, Cultural practice, Cultural safety, Flexibility, Frameworks/policy/options, Good practice, Good process, Indicators, Intellectual property, Leadership, Limited capacity (for things Maori), Local/traditional knowledge, Maori responsiveness, Offence/upset, Participation, Policy, Practitioners/practice tips, Relationships, Service improvement, Too much writing/reading, Trusted source, Whanau first/avoid risk to whanau
2. Realities for Maori	Advice needed, lack of knowledge, Age-sex diffs/generational attitudes, Busy Maori Staff, Case studies/scenarios, Community realities, Cultural practice, Cultural safety, Ignore rules, Intellectual property, Likely scenario, Limited capacity (for things Maori), Local/traditional knowledge, Maori perspective, Maori types/not all the same, More caution if informed, New challenges, not ready, OK if looks alright, Practitioners/practice tips, Quote, Risk perception, See before act, Too much writing/reading, Whanau first/avoid risk to whanau,
3. Practical Outcomes	Case studies/scenarios, Contacts, Flexibility, Funding, Good practice, Indicators, Intellectual property, Likely scenario, More caution if informed, Practitioners/practice tips, Prevention/preparedness best, Restore environment, Service improvement
4. Maori Development	Advice needed, lack of knowledge, Agency priority, Busy Maori Staff, Case studies/scenarios, Communication, Community realities, Contacts, Cultural practice, Cultural safety, Economic/Education issues, Flexibility, Frameworks/policy/options, Funding, Good practice, Good process, Indicators, Intellectual property, Leadership, Limited capacity (for things Maori), Local/traditional knowledge, Maori perspective, Maori responsiveness, Maori types/not all the same, New challenges, not ready, Participation, Policy, Practitioners/practice tips, Relationships, Resource ownership, Restore environment, Rural/urban, Service improvement, Tikanga/kawa,
5. Maori	Advice needed, lack of knowledge, Age-sex

Preparedness	diffs/generational attitudes, Busy Maori Staff, Case studies/scenarios, Communication, Community realities, Contacts, Cultural practice, Cultural safety, Economic/Education issues, Expect losses, Flexibility, Frameworks/policy/options, Funding, Good practice, Ignore rules, Indicators, Intellectual property, Likely scenario, Limited capacity (for things Maori), Local/traditional knowledge, Maori perspective, Maori types/not all the same, More caution if informed, Natural or not, New challenges, not ready, Participation, Practitioners/practice tips, Prevention/preparedness best, Relationships, Risk perception, Rural/urban, Safety , See before act, Tikanga/kawa, Too much writing/reading, Trusted source, Whanau first/avoid risk to whanau
6. Protocols and Approach	Agency priority, Age-sex diffs/generational attitudes, Busy Maori Staff, Case studies/scenarios, Communication, Community realities, Conflict, Contacts, Cultural practice, Cultural safety, Flexibility, Frameworks/policy/options, Good practice, Good process, Indicators, Intellectual property, Leadership, Likely scenario, Limited capacity (for things Maori), Local/traditional knowledge, Maori perspective, Maori responsiveness, Maori types/not all the same, Offence/upset, Participation, Policy, Practitioners/practice tips, Relationships, Restore environment, Rural/urban, Service improvement, Tikanga/kawa, Too much writing/reading, Trusted source
7. Maori Viewpoint/Thinking	Age-sex diffs/generational attitudes, Case studies/scenarios, Communication, Community realities, Cultural practice, Cultural safety, Good practice, Good process, Ignore rules, Indicators, Intellectual property, Local/traditional knowledge, Maori perspective, Maori responsiveness, Maori types/not all the same, Natural or not, Offence/upset, OK if looks alright, Practitioners/practice tips, Quote, Relationships, Restore environment, Risk perception, Rural/urban, See before act, Service improvement, Tikanga/kawa, Too much writing/reading
8. Plain Truths	Advice needed, lack of knowledge, Agency priority, Age-sex diffs/generational attitudes, Busy Maori Staff, Case studies/scenarios, Community realities, Cultural practice, Economic/Education issues, Expect losses, Funding, Intellectual property, Likely scenario, Limited capacity (for things Maori), Local/traditional knowledge, Maori types/not all the same, New challenges, not ready, Practitioners/practice tips, Prevention/preparedness best, Risk perception, Rural/urban
9. The Interface	Advice needed, lack of knowledge, Agency priority, Age-sex diffs/generational attitudes, Busy Maori Staff, Case

	studies/scenarios, Communication, Community realities, Conflict, Contacts, Cultural practice, Cultural safety, Flexibility, Frameworks/policy/options, Good practice, Good process, Intellectual property, Leadership, Limited capacity (for things Maori), Maori perspective, Maori responsiveness, Offence/upset, Participation, Practitioners/practice tips, Relationships, Service improvement, Tikanga/kawa, Too much writing/reading, Trusted source
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## Appendix 3 – Key Themes and Weighting

**Table 11: Key Themes and Weighting**

THEMES	OCCURRENCE	KEY THEMES									TOTAL
		1. Doing a Good Job for Maori	2. Realities for Maori	3. Practical Outcomes	4. Maori Development	5. Maori Preparedness	6. Protocols and Approach	7. Maori Viewpoint/Thinking	8. Plain Truths	9. The Interface	
Practitioners/practice tips	28	1	1	1	1	1	1	1	1	1	9
Intellectual property	1	1	1	1	1	1	1	1	1	1	9
Cultural practice	112	1	1		1	1	1	1	1	1	8
Case studies/scenarios	69		1	1	1	1	1	1	1	1	8
Good practice	85	1		1	1	1	1	1		1	7
Community realities	21		1		1	1	1	1	1	1	7
Local/traditional knowledge	19	1	1		1	1	1	1	1		7
Limited capacity (for things Maori)	11	1	1		1	1	1		1	1	7
Cultural safety	2	1	1		1	1	1	1		1	7
Busy Maori Staff	1	1	1		1	1	1		1	1	7
Service improvement	134	1		1	1		1	1		1	6
Communication	60	1			1	1	1	1		1	6
Indicators	53	1		1	1	1	1	1			6
Relationships	38	1			1	1	1	1		1	6
Maori types/not all the same	30		1		1	1	1	1	1		6
Age-sex diffs/generational attitudes	7		1			1	1	1	1	1	6
Maori perspective	5		1		1	1	1	1		1	6
Flexibility	4	1		1	1	1	1			1	6
Too much writing/reading	1	1	1			1	1	1		1	6
Likely scenario	100		1	1		1	1		1		5
Good process	68	1			1		1	1		1	5
Maori responsiveness	53	1			1		1	1		1	5
Agency priority	35	1			1		1		1	1	5
Advice needed, lack of knowledge	18		1		1	1			1	1	5
Tikanga/kawa	13				1	1	1	1		1	5
Contacts	12			1	1	1	1			1	5
Participation	5	1			1	1	1			1	5
Rural/urban	2				1	1	1	1	1	1	5
Frameworks/policy/options	1	1			1	1	1			1	5
Risk perception	47		1			1		1	1		4
Leadership	22	1			1		1			1	4
New challenges, not ready	7		1		1	1			1		4
Offence/upset	6	1					1	1		1	4
Trusted source	5	1				1	1			1	4

Restore environment	3			1	1		1	1			4
Funding	2			1	1	1				1	4
Policy	30	1			1		1				3
More caution if informed	16		1	1		1					3
Whanau first/avoid risk to whanau	13	1	1			1					3
Prevention/preparedness best	4			1		1				1	3
Economic/Education issues	2				1	1				1	3
Ignore rules	2		1			1		1			3
See before act	1		1			1		1			3
OK if looks alright	7		1					1			2
Expect losses	5					1				1	2
Quote	4		1						1		2
Conflict	2						1			1	2
Natural or not	2					1		1			2
Resource ownership	12				1						1
Safety	8						1				1
<b>TOTAL</b>	<b>1188</b>	<b>24</b>	<b>23</b>	<b>13</b>	<b>33</b>	<b>38</b>	<b>34</b>	<b>28</b>	<b>20</b>	<b>28</b>	<b>241</b>

## Appendix 4 – Haurapa Test for Stakeholders

The following test was devised to conduct short (5-10 minute) visits to the main website for each Non-Maori stakeholder to see what impressions and useful information could be gleaned from the perspective of a Maori person looking for appropriate/relevant information about disaster recovery and the organisation involved.

Indicators Selected (before visiting any sites) include:

1. Website overtly Maori-friendly/Maori inclusive?
2. Depth of Information around Maori Issues
3. Easy access to key Maori staff
4. Partnership with Maori/community evident
5. Demonstrated level of accountability for things Maori (Legislation/Terms of Reference/MOU etc.)

Scale of 1 (high) to 5 (low) for each indicator as well as a subjective rating A (high) to E (low) for any comments/experiences recorded.

**Table 12: Haurapa Test for Maori Responsiveness – demonstration only**

Stakeholder	1	2	3	4	5	Avg	A-E	Comments
Civil Defence								
ERMA								
Fire								
Lakes DHB	5	4	3	3	3	3.6	C	No Maori anything on front page. Sitemap devoid of Maori reference except Outline of DHB Maori governance structure, intro to Maori mental health, service improvement statements, and one Maori health link (nurses). Partnership mostly at governance level. Internal Maori responsiveness recorded but can't be navigated to
Local Govt.								
MAF								
MfE								
MOH								
Police								
TLAs								
TPK								

The result demonstrated here suggests Lakes DHB has a rating of C3.6 – average perceived responsiveness and poor indicator rating.

**Limitations** - Limitations to this test include the time limit, narrow set of indicators and an assumption that the website reflects the general state of the organisation with regard to Maori. However, this is a typical 'first impressions' type of test a Maori investigator might conduct along with other word of mouth or networked information. First impressions can leave a lasting impact on the way Maori continue to respond or interact with such organisations.

## **Appendix 5 – Sample Checklist for Maori Models**

The following sample checklist suggest key elements of Maori conceptual models and frameworks people might prompt themselves with or build into a ‘warrant of fitness’.

### Tapa Wha

Is our ‘house’ able to stand in balance and harmony? Have we made provision (for ourselves/partners) for the work to include aspects like:

1. Physical
2. Mental
3. Spiritual
4. Social

### PHANZ – Healthy Policy for Maori

Is our policy-making process and each final policy analytically sound and responsive regarding Maori needs - do outcomes support Maori Health gain?

1. Policy Outcome Supports Maori Health Gain (12 checkpoints)
2. Policy Outcomes Responsive to Maori (13 checkpoints)
3. Analytically Sound Policy Development Process (5 checkpoints)
4. Policy Development Process Responsive to Maori (8 checkpoints)

### Korowai Oranga – Partnership

Can aspirations from both government and Maori sides of the pyramid be met whilst achieving the shared outcomes below – refer Ministry of Health Documents

### Nga Pou Mana (Bay of Plenty Version) – Tangata Whenua Determinants of Health

Have we worked with tangata whenua to address their concerns and aspirations within the following key areas of relationship:

1. Mana Atua (deity)
2. Mana Tupuna (ancestors)
3. Mana Whenua (land)
4. Mana Tangata (people)

### Te Pae Mahutonga – Health Promotion Sign-Poster

Are the choices we’re making setting us on the right course for a healthy future for Maori by fostering their inclusion in terms of:

1. Mauriora – access to the Maori world
2. Waiora – environmental protection
3. Toiora – healthy lifestyles
4. Te Oranga – participation in society
5. Nga Manukura - leadership
6. Te Mana Whakahaere - autonomy

### Mauri Indicators

Can we include mauri measurements assisted by the community? (Morgan, 2007)

### Treaty of Waitangi - refer Treaty guides – How are we really going?

# Appendix 6 – NZ Integrated Approach to Indicators

Figure 8: Diagram showing indicators work in a New Zealand context.

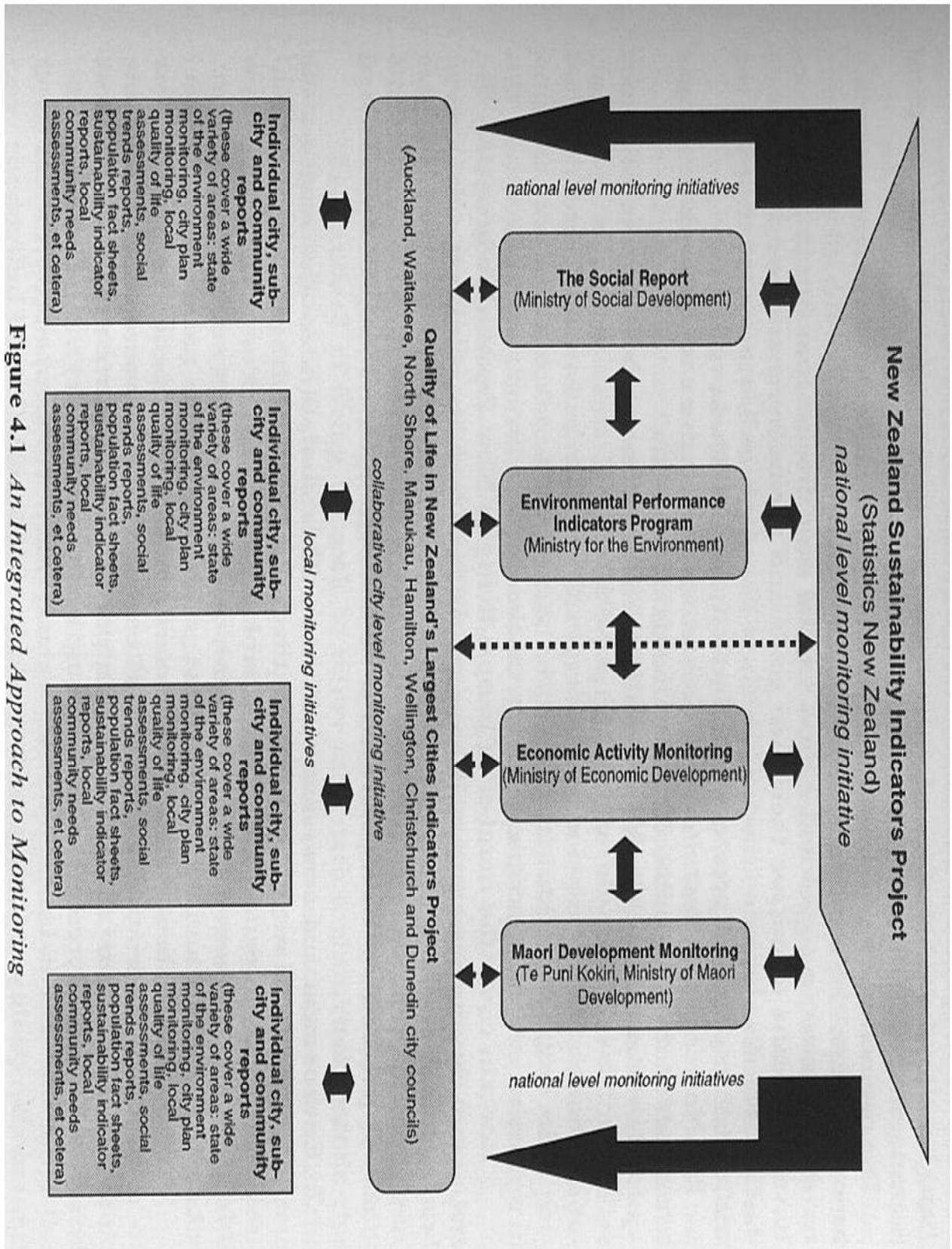


Figure 4.1 An Integrated Approach to Monitoring

## **Appendix 7 – Biological and Chemical Risk Links**

The following links relate to the wide range of risks various organisations are working with.

### **Chemicals**

CDC Emergency Preparedness and Response (USA) – 59 chemicals listed by injury type: biotoxins, blister agents/vesicants, blood agents, caustics, choking/lung/pulmonary agents, incapacitating agents, etc.

<http://www.bt.cdc.govt/agent/agentlistcheem-category.asp>

Environment Canada's national Pollutant Release Inventory:

[http://www.ec.gc.ca/pdb/npri/npri\\_home\\_e.ctm](http://www.ec.gc.ca/pdb/npri/npri_home_e.ctm)

Making the UK Safer: detecting and decontaminating chemical and biological agents:

<http://www.royalsoc.ac.uk/document.asp?tip=0&id=1345>

EU's chemical priority list of 141 chemicals.

<http://ecb.jrc.it/esis/esis.php?PGM=ora>

### **Biological/Microbial**

#### **Humans**

CDC Emergency Preparedness and Response (USA) – 45 assorted diseases and microbial agents.

<http://www.bt.cdc.govt/agent/agentlist.asp>

NZFSA Microbial hazard sheet – list of 24 microbial food-borne hazards.

<http://www.nzfsa.govt.nz/science/data-sheets/index.htm>

WHO Epidemic and Pandemic Alert and Response (EPR)

<http://www.who.int/csr/en/>

#### **Animals**

International Organisation of Epizootics, the World Organisation for Animal Health

[http://www.oie.int/eng/maladies/en\\_classification.htm#ListeOIE](http://www.oie.int/eng/maladies/en_classification.htm#ListeOIE)

## Appendix 8 - Emergency Planning

Example from a Standard Operating Procedure (SOP) – Maori not really engaged

### Health and Safety Procedures

#### HOW TO HANDLE CHEMICAL AND OTHER BIOLOGICAL AGENT THREATS

##### IF A SUSPICIOUS LETTER OR PACKAGE IS OPENED:

The same procedures as unopened letters and packages and, in addition:

1. Don gloves
2. Place opened letter/package in plastic bag
3. If contents spilled:
  - Don't clean up or swipe spilt contents
  - Clear area of people
  - Isolate area
  - Switch off air conditioning
  - Wash hands with soap and hot water
4. If contents are spilt on clothing:
  - Select a room for changing
  - Carefully remove clothing and place in plastic bag
  - Shower with soap and hot water
  - Have available overalls or other clothing for person to change into
5. Call the Police

##### EMPLOYEES REGULARLY WORKING WITH MAIL

Should consider wearing protective gloves while handling letters and packages.

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Extract from a 'PATH' planning tool, helping to plan good outcomes for Maori

The 'vision' for disaster recovery identified by Maori in the PATH plan includes:

- A tool that works
- Helping to write the book
- No more scratched record (repeating ourselves)
- Cutting edge/leading the way
- Bringing together Maori and Crown sides for mutual outcomes
- Oiling the wheels of beaurocracy
- People working in partnership
- Maintaining balance
- Sustainable improvement
- Living within our healthy natural environment

## Appendix 9 – Case Studies

### ***SWAP – sawmill workers against poisons***

One of the most significant chemohazard remediation issues followed by Maori in recent years is the SWAP campaign (Sawmill Workers Against Poisons). For nearly 40 years from the 1950s, Maori sawmill workers and their families were exposed to timber treatment chemicals. SWAP claims they are still suffering and dying disproportionately as a result and want remedial action for their health and contaminated sites in the Whakatane area.

Many of the contaminated sites, they say affect traditional food and water sources and they consider people contaminated with the chemicals continue to pass the effects down multiple-generations. Much of the struggle has been for recognition amongst the relevant government health, environmental and support/compensation silos. Ongoing risk issues have also surfaced around movement of contaminated soils during flood or inadequate council remedial efforts. There is ongoing pressure for natural remedies like new bio-remediation technology ('chemical-eating' fungus), full transparency and ongoing research and government support for those affected.

Most of the focus is on the identified chemicals and adverse effects on the Maori families and their environment, without going too much into Maori world views and cultural indicators.

### ***Cultural Health Index for Waterways***

The following table is drawn from MfE (2006) reporting on its case study work over waterways and shows indicators put forward by both Maori and the Ministry for the Environment. It can be seen by comparing the types of indicator put forward by each, that Maori have a preference for indicators that can be simply measured without complicated equipment or scientific terminologies.

**Table 13: Indicators of stream and river health as identified by kaumātua and MfE**

<b>Indicators identified by kaumātua only</b>	<b>Indicators identified by both kaumātua and MfE</b>	<b>Indicators identified by MfE only</b>
Place names (3)	Temperature (3)	Dissolved oxygen (% saturation)
Unpleasant odours (4)	Riparian condition (8)	Ammonia (mg/l)
Greasiness of water (3)	Occurrence of native fish (14)	Periphyton
Presence of riffles/white water (9)	Clarity (10)	Macroinvertebrate index

Sound of winds in riparian vegetation (2)		
Sound of birds present (2)		
Sound of current of waterway (4)		
Sound of flood flows (1)		
Flow in river visible (11)		
Smell (8)		
Presence or absence of activities in the headwaters (2)		
Sediment on/not on the riverbed (8)		
Continuity of vegetation (4)		
Unnatural growths (1)		
Foams, oils and other human pollution (8)		
Flood flows (2)		
Willow infestation (1)		
Abundance and diversity of birdlife (14)		
Presence or absence of stock in the riparian margin and waterway (7)		
Changes to the river mouth (2)		
Unnatural sedimentation in channels (2)		
Loss of aquatic vegetation in the marine environment (1)		
The health of fish found in the waterway (3)		
The stomp test (1)		
Changes to the extent of the tidal influence (4)		

There are similarities but some fundamental differences between Māori and non-Māori perspectives. One example that highlights the difference is the notion of water pollution. Māori spiritual values conflict with scientific measures. For example, from a Western science perspective drinkable water may carry contaminants but at a level that is not toxic to humans. In contrast, Māori require drinking water to be protected from spiritual pollution which means certain discharge activities, regardless of the level of physical contamination, are prohibited (Ministry for the Environment 1997).

## **Field Note Case Studies**

The following are summaries from selected case studies as recorded in field notes of the researcher which now form part of unpublished 'Maori Health Protection Files' recording the researcher's work as a 'Maori Health Inspector' during the years 2000 – 20005. Consideration of these case studies helps guide thinking around Maori issues in this study.

### **Tuhoe Exhibition Gastro Outbreak**

The biggest gastroenteritis outbreak in contemporary Tuhoe history which barely registered with the mainstream infectious disease surveillance system. Through ongoing conversations with community contacts, hundreds of people are reported to have come away from 2001 celebrations for the Tuhoe Exhibition in Wellington, with severe gastroenteritis. Anecdotal evidence suggests 'busloads' of Tuhoe people from the Bay of Plenty barely made the return leg for want of toilet stops. Another busload of symptomatic kaumatua continued journeying to the South Island to visit others – cultural or other barriers may have contributed to faecal sampling not being carried out, despite the presence of a GP with the group. Just two people were identified after reporting to other GPs and being found positive for infectious disease – one Giardia, the other Typhoid. Little if any follow-up was evident other than identification of suspect foods (raw cockles and mishandled pork) at the dining hall end. It is suggested more appropriate means of surveillance and response are required which reside closer to the community level (such as with Maori health service providers) and which can interface with public health contacts.

### **Ruatoki Housing Gaps**

Families with severe housing problems and environmental health risks were found falling through the cracks of both TLA and targeted (Housing Corp) systems for intervention. In response to householder complaints, the progress of certain families were tracked and the lack of progress noted over time. One family living in a dilapidated unlined tin shed (without power or water) next to their 'condemn-able' house was unable to make progress and wanted to have their house condemned in order to pursue legal avenues against substandard construction process. A Maori organisation within the community was conducting a housing repair programme which they were expected to align to. Advice at the time that the Maori organisation's programme was not working proved to be accurate, however no alternative actions were taken and the family of little means, continues living in the shed, whilst still paying the mortgage for a house they can't live in.

### **Benchmark - Taieri River Cultural Health Index**

Introduction of this approach amongst Maori communities met with an observed 100% positive response. It was used as a context for discussing safe water by first validating that there are two cultural perspectives that make up the whole and a more robust picture. Without such benchmarks, conversations based on 'Western science' alone were found to have less relevance for the communities to the extent they were bound to fail (or at least be tolerated without real prospects for change). A mobile Stream Health Monitoring Kit was found to be an essential 'hands on' tool to show whilst introducing the topic of stream health and extending the issue to include two perspectives. Whilst some expressed interest to use the kit, the limited practical application of it was less significant than its use as a prop to anchor the cultural health index discussion.

### **Taneatua Building Rubble & Rats**

A routine visit to a Maori health provider's building discovered rat infestation due to a large pile of building rubble from the commercial building next door which had burnt down several

months prior. Complaints by the provider to the local authority (Whakatane DC) had failed to see the removal of the nuisance. On sighting rats in the health centre and documenting/photographing the case (as a Health Protection Officer), the Medical Officer of Health was asked to intervene. A decisive statement from the MOH and community-initiated media attention was followed by removal of the nuisance removed. Support by an 'official' and further advocacy appeared to make the difference.

## **Ruatahuna Water Committee**

Only one of Ruatahuna's dozen or so community water supplies has been registered and monitored for water quality. A sanitary survey discovered third-world standards prevailed with gross bacterial contamination in some supplies. Limited capacity for infrastructure and the prevalence of traditional/cultural issues meant a non-mainstream approach was required to help evolve safe drinking water management.

With the assistance of the Maori provider (Hinepukohurangi Trust) key members of each sub-community (Marae-Hapu groups) were selected as water committee reps, introduced to basic water monitoring techniques and provided with initial sampling (dip-stick) and record-keeping resources (notebooks/community wall-chart). Whilst attempting to build up a picture over time of each water supply, data on hand was used to seek support from those agencies with an interest in strengthening community capacity and the need for safe drinking water.

The local authority (Whakatane DC) has a 'user pays' policy requiring the community to be rated directly for any council work regarding its own water supply – being a small community of low socio-economic status most options were therefore out of reach. Housing NZ Corp. committed to some assistance such as new tank and treatment for Marae which fed on to other houses. The corporation were encouraged engage an engineer for wider community solutions but tended to focus on individual houses (sometimes with adverse results – see separate case study). The major landowning farm trust engaged its own consultant and put forward the option of a collective reservoir if other stakeholders could come in at the treatment end. Ongoing Practical workshop skills and sustainable water management plan were planned whilst ultimate 'political solutions' like the Puna Wai o Hokianga project were sought (ongoing).

## **Benchmark - Puna Wai o Hokianga**

This project demonstrates two things – political solutions upon exposure of tangata whenua realities and culturally appropriate approaches in order to achieve success.

Whilst drinking water in the Hokianga had been substandard for a long time, it was only after recent severe flooding and a question in Parliament about the number of communities having to boil their water that millions of dollars were allocated to upgrade water supplies and community development project work.

In contrast to purely Western science rationale for clean water (no bacteria), Maori knowledge and approaches have been demonstrated as key in achieving community buy-in. The kaupapa of waiora is less about parts per million and more about whakapapa and relationship to water from the Creator down through historical and traditional information regarding landmarks and waterways and the role of kaitiaki within this.

## **HNZC Water Tanks in Ruatahuna**

Despite contrary advice from the community - some new houses built in Ruatahuna by Housing NZ Corp. were equipped with roof water supplies and collected in tanks on the ground – a system which relies on electricity and pumps, both of which have been shown to fail. In a short time, pumps needed replacement as they had run dry. Public health issued a reminder that the

protection of health required a sustainable supply that would not be prone to breakdown due to the regular loss of electricity or other factors. The current rural housing programme could benefit from more involvement by public health in the planning/implementation loop – this could reduce the possibility of adverse results for communities when things go wrong.

### **Ruatoki-Taneatua Recreational Water & Boils**

Concerns by Maori health provider over possible links between river water quality and high incidence of boils led to recreational water sampling and investigation of other pathways. Information was brokered between Regional Council data, swimming spot tests and correlation of individual household circumstances (like sanitation and GP anecdotal evidence) to propose possible causes and solutions. Information was distributed to community via health provider in order to raise level of awareness regarding environmental health risks and possible solutions

### **Waioho Stream Bathing Quality**

The now typically contaminated Waioho stream (bacteria from farms) was identified and Council challenged (by community) over the situation since the stream is a traditional and well-used recreational swimming resource. Warning signs and upstream tightening of farming practice was initiated by council. The issue was previously not addressed without the advocacy and scientific knowledge of the local Whare Waananga CEO.

### **Minginui Lead Paint**

A local provider was given a lead-paint test kit to enable a youth project to test lead paint in the community. A rangatahi carried out lead tests, finding every house tested had lead paint. Community general knowledge of health issues like lead paint is considered by those spoken to be low or absent. Communities like this still need such issues raised with them, unlike majority of other communities that have moved on, or enjoy a higher level of general knowledge or interface with services like health.

### **Waiohau Kohanga Reo**

A random visit to a local provider allowed the opportunity for the question to be raised as to why local pre-school children were always sick with stomach complaints. A simple water test and advice resulted in a contaminated water supply being identified and a new treatment system being installed by the Kohanga Reo National Trust. The issue may not have come to light had the community contacts been expected to make contact with a public health service that was unknown/unfamiliar to them.

### **Te Mahoe Water Supply Transfer**

A community looking to inherit/take over a water supply from the local authority (Whakatane DC) was advised that the supply had suffered bacteriological problems and may be in need of major infrastructure upgrade way beyond the capacity of the community (village trust) to fund. This issue reflects the trend of some Maori communities to seek independence from Council (which they feel doesn't serve them well). There is potential for Councils to agree to such moves where poor economies of scale exist and communities are unlikely to be able to sustain health standards on their own.

## **Ngati Rangiwewehi RMA Submission**

An opportunity to serve and contribute skills as an expert witness to a Maori community submission was provided. By serving in this way, a long-term partnership is likely and has mutually beneficial outcomes. This Rotorua community is kaitiaki-rich, yet was able to benefit from specialist public health knowledge where it had none. In return, a strengthened relationship contributes to higher critical mass of active kaitiakitanga to interface with and promote sufficient momentum for Maori approaches to environmental health to be developed in other areas. Also an opportunity to present a submission supported by many to environmental decision-makers who, in other hearings, have attacked such Maori input as having insufficient scientific evidence, therefore relevance.

## **DHB, TLA & Iwi Presentation Round**

Presentation rounds inviting stakeholders to join with environmental health initiatives/loops proved to be slow and bureaucratic. Government/Crown organisations tended to pass presenters from one committee to another, whilst monthly or slower meeting dates restricted momentum. Maori stakeholders often had less capacity and inefficient systems resulting in unnecessary delays or in some cases no responses at all.

## **HPO Survey & Maori Competencies**

Health protection and environmental health officers from around the country were surveyed with regard to their levels of competency in te reo, Maori community understanding and the level of priority for these skills in their current work. When compared within each other and against survey of a Maori reference group, significant gaps existed between the expectations of Maori and those in the industry. A trend was also highlighted between a 'hard core' of those applying low skills/low importance and those more 'in between', many of whom have had some exposure to working with Maori. Further discussion was prompted to tease out further discussion and detail regarding Maori competencies.

## Appendix 10 - Maori Reference Group Notes

### ERMA Maori Network Hui, Rehua Marae, Christchurch – 20 April 2006

In the lead-up to this study, a presentation about it was made to the national Maori Network Hui of ERMA (Environmental Risk Management Authority). The feedback from this hui serves as a guide into the study as well as a reference point to refer back on to make sure progress aligns with principles from the group.

#### Misc. Comments Made:

- Issues like 1080 need ‘more research’
- A chasm exists between Maori and researchers – need to be linked better
- From anti-fouling discussion – don’t replace one chemical with another

#### From Indicators Presentation:

- Refer HSTLC/Council Liaison process
- Different responses likely from different rohe/areas
- Relationship/networks are essential
- Cultural Health Index-type tools may not stand up in court (better at iwi to iwi level, more valued – benefits at TLA/autocracy level).
- Pre-planning is important as is relationship building
- Overcoming colonisation
- Maturanga Maori is not the same as indigenous knowledge
- Without wairua, nothing can be achieved with Maori
- Equal weight with Maori values needed
- Qualitative measures also needed
- Need Maori people at every level (from pre-planning to emergency decisions)
- Cultural toxicity is an important concept compared with ecotoxicity
- Like Pacific peoples, whakapapa is the only way to bring people together
- PATH presentation well received. “Cutting Edge”, “Inspiring for other areas”

#### Relevant Observations/Notes/Comments from other Hui Presentations/Activity:

From ERMA board presentation

- enforcement/monitoring (officers) is weak
- Non-science [and Maori] ask ‘what if’
- Maori not involved – Maori have to use the available organisations (like complain to a Council officer)
- ‘Need a Maori body to deal with it’ – MERMA
- Nga Kaihautu can conduct own evaluation and review report. Anyone can be appointed to sit on decision-making committee. Kaihautu seat only makes recommendations.

From Hori Parata, Ngati Wai ‘Rat Man’ presentation

- 2001 Kaikoura spill (18 tonnes brodifacoum rat poison) - hard to measure 3-day death, 14mth ban on kaimoana. Paua all gone. DoC said no evidence of dead marine life. Scum floated on water, birds ate. Public health ‘not a stakeholder’. Crown Public Health officer Paul Schoolderman said in an article ‘CPH had

talked to experts and all agreed it was not a threat to human health'

([http://www.nzherald.co.nz/category/story.cfm?c\\_id=61&objectid=190486](http://www.nzherald.co.nz/category/story.cfm?c_id=61&objectid=190486))

- Credentials – 'can you whakapapa to Papatuanuku' (more important than a Masters degree etc.)
- Cull not eradicate at times
- Be assertive

#### Kaumatua Responses to ERMA Brainstorming (8 Questions – refer workshop notes):

- 1. HSNO is important - plan based on whakapapa/tikanga principles. This is our brief, know what your role is, know who you are
- 2. Action when there is a risk to taiao, when risks to our own hapu/whanau. Communication is important factor, kanohi ki te kanohi! (refer also unspoken reo). Problem solving - our way of working in the pakeha system forced on us
- 3& 4. Include HSNO in Iwi Management Plans, why? Yes definitely, protection and safety of environment - safety is paramount to the natural world - our world. Natural world didn't have all introduced chemicals. This is role of kaitiaki - principles of kaitiaki, when there is a danger we know what to do, we know who we are, what to do and how to do it. Pakeha need to listen and do what we say, a rat is a rat is a rat [we know what we're talking about]
- 5. HSNO should be included in kaupapa of council plans and all govt agency plans, included in all parts of iwi MPs where applicable. We are in business of changing attitudes so all about education, learning language of kaitiaki - so no problems
- 6. How? - identify food sources if do have impact, good relationships with various authorities, get good (Maori) media people, need good relationships with community - develop trust, need good relationships with iwi, be strong, be sensible, be assertive
- 7. Mauri - depletion/degradation, extinction, ignorance, benefits - knowing your taonga. Mauri is within the taonga - tikanga is everything how you handle it, it is the life force. Anything that is a risk to the above is a hazard - we don't need it then - this is what matauranga Maori is - it is the catalyst
- 8. Need education of misuse of substances, education on careful use, kanohi ki te kanohi, need knowledge as to the risks and benefits - need to communicate this, bilingual communications - education, young and old?
- Networking and Support

## Appendix 11 – Environmental Performance Indicators

The following statements are drawn from a Ministry for the Environment report to demonstrate how interchangeable the issues are from an environmental brief to a disaster recovery one. By replacing environment-type terms with disaster recovery type ones, the statements can be seen as reasonably common or applicable for the topic of this study also, and might be used as a future prompt or reference point.

**Table 14: Statements related to Environmental Performance Indicators**

<b><u>Report Chapters</u></b>	<b><u>Statements Relevant to Maori Cultural Disaster Recovery Indicators</u></b>
<b>Recommendations</b>	develop and adopt a Treaty and tikanga-based framework for evaluating and incorporating Maori or a Maori view into the EPI Programme
	use partnership, active protection, consultation and tikanga principles to develop this framework further
	note the specific mention of the EPI Programme in the Ngai Tahu Settlement
	note that other claims deal with resource management issues
	note the international instruments and use these instruments to guide the EPI Programme or any advice to MfE
	note the discussion on Maori knowledge and the EPI Programme
	adopt the principles of active protection, partnership, self-determination, compensation, prior informed consent, active participation and respect to deal with any Maori concerns regarding their knowledge
	adopt mahinga kai as a category of traditional Maori Knowledge valuable for developing Maori EPI
	adopt local observation based knowledge as a category of traditional Maori knowledge valuable for developing Maori EPI
	adopt tikanga based indicators as providing valuable information for contributing to the EPI Programme
	consider the above options for incorporating Maori and a Maori view into the EPI Programme
	adopt 'Maori included in the mainstream EPI programme' as the most preferred option
	define how the EPI Programme can best meet the needs of Maori and oversee the development of a consultation strategy to provide information for developing Maori EPI
	investigate other national consultation processes taking place with Maori and assess the feasibility of EPI being included into those processes
	Consider what types of information is needed from Maori?
	Consider will the Maori EPI be developed nationally, regionally or locally?
	Consider how will Maori knowledge be collated and by whom?
	Consider how will this knowledge be interpreted, stored and used to develop EPI?
<b><u>1. CONTEXT</u></b>	
Purpose of report	investigates the opportunities the EPI Programme provides for Maori to formalise and record environmental information in accordance with Maori cultural, spiritual and ecological norms
	assumes that Maori knowledge is a valuable source of information for environmental monitoring and defining human-environment relationships (i.e. human ecology).

	accepts that traditional Maori knowledge provides an insight into resource management and environmental monitoring that Western science does not, and perhaps cannot provide
	Although there will be some inevitable and sometimes irreconcilable differences between Maori and non-Maori views of the environment, often the objectives will be the same
	Both Maori and non-Maori appreciate that the continued depletion of resources means restrictions are necessary and that a balance needs to be struck
	recognises the value of indigenous knowledge and seeks not only to incorporate Maori concepts, but to take full advantage of the alternative to modern science they provide
	accepts that Western science may not provide all the answers
	Stage 1 indicators where current monitoring can provide the required data now - stage 2 indicators to be identified where there are gaps
	build on existing monitoring. This includes data held by regional councils, territorial authorities, government departments, Crown Research Institutes and Maori
Gaining Maori 'buy-in'	"Buy in" must also be gained from Maori who are more than a mere stakeholder under the Treaty, RMA and international law
	make it clear that Maori will retain control over their traditional knowledge, if it is their wish
	stress the value the EPI Programme will have in achieving greater environmental outcomes
	highlight that Maori involvement will assist in up-skilling Maori and provide Maori with information to enable a more effective and sustainable resource management
	state that MfE are committed to including Maori in the EPI Programme
	clearly define the objectives of the EPI Programme and how those objectives will meet the needs of Maori
	stress to Maori their involvement may assist in minimising any adverse environmental effects on their resources and will help with their particular goals in environmental management
	objectives of a Maori EPI Programme will vary due to the wide spectrum of Maori environmental goals. A lack of clearly defined goals and objectives will lead to gathering information that is of little benefit to Iwi and the EPI Programme.
Treaty Principles	
Partnership	The Treaty principle of partnership incorporates notions of co-operation, reciprocity and opportunities for power sharing through the transfer of certain functions. The Treaty requires parties to act reasonably and in good faith and the responsibilities of the parties are analogous to fiduciary duties (Court of Appeal, 1987, Maori Council v. Att. General 1 NZLR 641).
Active protection	The principle of active protection is not merely passive, but extends to active protection of Maori people in the use of their resources and other guaranteed taonga to the fullest extent practicable as well as active protection of the environment itself. This principle obligates the Crown to actively protect Maori tino rangatiratanga and kaitiakitanga over their resources (ibid, 1987).
	The Treaty obligates the Crown to actively protect Maori from restrictions imposed by legislation, plans or policy which prevents or limits them using their land and resources in accordance with their cultural preferences (ibid, 1987).
	Adequate resources and information are necessary to inform and support Maori in the development of a comprehensive monitoring Programme, a fundamental Treaty right.

Consultation	Another key Treaty principle relevant for this report include the requirement to be fully informed when making decisions by consulting with Maori on key issues.
	<i>On matters which might impinge on a tribe's rangatiratanga, consultation will be necessary. Environmental matters, especially as they may affect access to traditional food sources - - mahinga kai - - also require consultation with the Maori people concerned. The degree of consultation required in any given instances may vary depending on the extent of consultation necessary for the Crown to make an informed decision (Waitangi Tribunal Ngai Tahu Report, 1992)</i>
Conclusions	The Treaty and the RMA provide the most appropriate framework for evaluating and incorporating Maori or a Maori view into the EPI Programme
Claims & Settlements	A large proportion of Treaty claims to the Waitangi Tribunal seek the right for Maori to be involved in environmental management
WAI262 Claim	The scope of the WAI 262 claim is very wide and could be interpreted to include resource management processes such as the EPI Programme
	The claimants argue that the Crown breached the Treaty by not recognising and providing for the rights of Iwi Maori to exercise tino rangatiratanga over indigenous flora and fauna
	The WAI 262 claim is relevant to the EPI Programme because it deals with Maori rights to be involved in RMA processes as well as the protection, enhancement, and utilisation of traditional Maori knowledge and environmental management techniques
Ngai Tahu Settlement	The settlement specifically mentions the EPI Programme and seeks a guarantee that the MfE will work, in consultation with Ngai Tahu, towards developing a set of Maori environmental indicators as part of the EPI Programme
	It is likely that the Treaty settlements process will continue to be used by Maori to influence environmental management issues
Conclusions	Claims and settlements are likely to continue and could affect the EPI Programme in the future (e.g. seeking involvement of specific Iwi in the EPI Programme).
	The Waitangi Tribunal Reports on these claims and the primary evidence collected may provide useful information for the EPI Programme
International Obligations+A91	Various international instruments dealing with environmental issues and indigenous peoples include the Convention on Biological Diversity (particularly article 8 (j)), Agenda 21, the Draft Declaration on the Rights of Indigenous Populations and other agreements developed by Iwi and Non Governmental Organisations (e.g. the Mataatua Declarations, IUCN Declarations, the Belem Declaration).
	The development of a Maori EPI Programme should look to these international instruments and any monitoring programmes being conducted in conjunction with indigenous peoples as a source of information to guide the EPI Programme in New Zealand.
	The Convention on Biological Diversity (CBD) is of particular importance ...legally binds the government to implement strategies ...
	Preamble recognises 'The close and traditional dependence of many indigenous and local communities embodying traditional lifestyles on biological resources, and the desirability of sharing equitably benefits arising from the use of traditional knowledge, innovations and practices...'

	Article 8(j) obligates the government to...respect, preserve and maintain knowledge, innovations and practices of indigenous communities embodying traditional lifestyles...and promote their wider application with the innovations and practices and encourage the equitable sharing of benefits arising from the utilisation of such knowledge, innovations and practices (Article 8 (j), CBD)
	Implementation of CBD article 8 (j) could require: Indigenous land demarcation and guarantees of security; support for indigenous-based and designed conservation and sustainable development efforts; research centres to develop strategies and models to apply traditional technologies in a larger context; support for and strengthening of indigenous organisations, including local, regional, national, and international indigenous alliances, councils, federations, unions etc. and creation of enforceable international legal structures to develop mechanisms for protection of, and equitable sharing of, benefits from indigenous and traditional knowledge, innovations, and practices.
	Need to be aware of these types of measures, being suggested internationally, when developing the EPI Programme
	The Biodiversity Convention and other international instruments recognise and protect the rights of Maori to be involved in resource management and to have their traditional knowledge, innovations and practices respected, preserved and maintained
Conclusions	There are several international instruments relevant to indigenous peoples and resource management which imposes certain obligations on the Crown
	These instruments articulate the right of indigenous peoples to be involved in resource management which also relates to environmental monitoring by implication
<b><u>2. MAORI KNOWLEDGE</u></b>	
	Report recommends that Maori knowledge used within the EPI Programme should be accorded the same status as empirical scientific knowledge and be used to complement the mainstream EPI Programme
	Report assumes that Maori cultural, spiritual and ecological knowledge is a valuable source of information relevant to environmental monitoring and human-environment relationships (i.e. human ecology)
Consider NZCA definition	<i>holistic and integrative, including all the range of species and processes in the particular ecosystems or catchment, as well as spiritual, historical and cultural information</i>
	<i>inclusive of the human species and their needs and activities as another member of the overall system</i>
	<i>linked inextricably with social and cultural identity and values</i>
	<i>qualitative rather than quantitative</i>
	incorporating intuition, feeling and moral dimensions, rather than insisting on rational objectivity and neutrality;
	collective amongst the community, rather than a matter of individual private expertise - although special healers and interpreters are recognised and respected;
	the cumulative experiences and observations of long periods of time and historical continuity in particular place or region
	passed down through the generations in oral traditions, often encoded or framed within symbolic systems, stories and parables
	locally and regionally specific, rather than generalised
	seasonal and cyclical, incorporating the yearly and lunar cycles; and not static or stuck in the past, but constantly adapting and updating as environments, species and populations change

	and new phenomena are introduced. (NZCA,1997: 90)
TMK and EPIs	To be effective the EPI Programme must be ongoing and flexible enough to adapt to the specific needs of Maori
	Respecting and understanding Maori knowledge will allow Maori EPI to be developed according to Maori processes and knowledge bases
Key questions	Whether to deal with traditional Maori knowledge or monitoring techniques which have been developed in the last 200 years; or a combination of the two
	how to translate data and information which has been collected from Maori into 'useful knowledge' for environmental monitoring and long term sustainable management
	what information is to be collated and how that information is to be used by the EPI Programme
Conclusions	Maori knowledge will be useful for the development of EPI and thus should be accorded the same status as empirical scientific knowledge
	Maori knowledge could also be used to complement any empirical scientific knowledge in the mainstream EPI Programme
	The EPI Programme needs to be flexible enough to accommodate the different types of Maori knowledge (e.g. cultural indicators such as mauri and whakapapa)
Protection Of Information	assumes that Maori will have concerns regarding access to their traditional knowledge and that they may want to retain control over who has access to this knowledge
	difficult to predict how much of an issue the control over traditional knowledge will be until it is known what knowledge will be needed in the EPI Programme and why
	general principles will need to be agreed upon if Iwi are to 'buy-in' to the EPI Programme
a) Confidential knowledge	Maori may restrict access to any sensitive information they want to keep confidential (e.g. waahi tapu sites (sacred sites), traditional knowledge of flora and fauna, traditional resource management techniques)
	Assurances may need to be given and Maori may wish to retain some control over the process
	This information may be held in secure files or under other similar types of restrictions (e.g. held in one place only)
b) Sensitive knowledge	There may be a class of information provided by Iwi, which although is not strictly confidential may need to be restricted in some way (e.g. knowledge concerning the location of urupa)
c) Commercial knowledge	Traditional knowledge could be exploited (economically or otherwise) by people other than the kaitiaki (guardians) of that knowledge
	Traditional knowledge could be altered, commodified and individualised through the use of intellectual property laws
	The knowledge may also be used in publications or by researchers who may benefit without seeking consent from Maori or with no benefits accruing to Maori
Mitigating Exploitation	Where any information is acquired from Maori on the assumption of trust, it is a given that the rights, interests and sensitivities of that Iwi must be safeguarded
	The overall objective of any research of Maori knowledge must not restrict Maori development, but must encourage that development
	Acquisition of knowledge, for whatever application, will always raise issues about control, resource allocation, equity and power

	Because Maori have been the focus of research in the past, often without their consent or with no benefits accruing to them, they are sometimes suspicious of those who want to access their knowledge
	Maori awareness of these issues has increased in recent times because more Maori are becoming aware of their culture and traditions
	Subsequently demands have increased by Maori to have these traditions protected from exploitation
	assume that Iwi will have concerns about the use, control and exploitation of their knowledge without their consent or with no benefits accruing to them and that these issues may hinder progress
<u>Adopt Principles</u>	risks would be minimised if the goals and objectives of the EPI Programme and Maori are well defined at the start and if the following principles are adopted
Active Protection	the Crown must take active measures to protect and enhance the relationship of Iwi and their environment and thereby promoting the maintenance of cultural and biological diversity
Partnership (good faith)	the Crown having access to knowledge of Iwi will at all times conduct themselves with the utmost good faith
Self-determination	recognising the right of Iwi to control, use, and restrict access to their traditional knowledge and share in any benefits from products or publications developed from access to and use of their knowledge - places duty on scientists and researchers to share these benefits with Iwi
Compensation	Iwi should be fairly remunerated or compensated for access and use of their knowledge and information - remuneration could be in the form of information sharing or technology transfer
Informed Consent	prior informed consent of Iwi must be obtained before they, or their knowledge, are incorporated into the EPI Programme
	the Crown to ensure that they are dealing with individuals, or more likely organisations, who are mandated to represent the Iwi they are purporting to represent
	representatives must have the consent of the Iwi to pass on their traditional knowledge
Active Participation	the critical importance of being active participants in all phases of the project from inception to completion
	the protection of Maori knowledge being exploited without the consent of Maori or with insufficient compensation
Respect	necessity to respect the integrity of the culture, traditions and relationship of Iwi with their natural environment and the importance of avoiding ethnocentric conceptions and assumptions
Property Rights	Maori will likely include concern about knowledge being economically commercialised and individualised through the use of intellectual property rights
	Particularly if copyright or patents on inventions developed using traditional Maori knowledge provided for EPI programme
	above principles will help alleviate these concerns
Conclusion	It is likely Maori will have concerns about their knowledge being used and these concerns may be alleviated by adopting the above principles
<b><u>3. Maori EPIs</u></b>	Traditional Maori environmental monitoring can be divided into three categories; mahinga kai based EPI's, local-observation based EPI's (ecocentric) and human ecology - tikanga based cultural indicators (anthropocentric)

	Maori environmental monitoring is developed in a Maori cultural context through tikanga
	The overlap of all three indicator types is where Maori EPI knowledge is contained at its fullest
	Only a combination of the three areas; mahinga kai, tikanga and local observation will provide a sufficient methodology hence fuller picture
	Using both people centred and ecological categories to develop Maori EPI's is consistent with the holistic way Maori view the environment
Mahinga Kai EPIs	Maori knowledge of mahinga kai resources will be useful for developing Maori EPI's
	Mahinga kai information is more likely to be quantifiable, current research Programmes could be used and mahinga kai is of critical importance to Maori so Maori 'buy in' will be easier to gain.
	Maori will be suspicious of giving over information and knowledge without an ongoing positive relationship
	Maori may not 'buy in' if they don't see EPIs as distinctive from other government initiatives
	Mahinga kai activities are controversial amongst conservation groups and other non-Maori
	To avoid overlap, EPI programme must be coordinated with other research process
Local Observation	derived from Maori monitoring the environment at a local level
	information collected likely to be similar to that of non-Maori monitoring but will be driven by Maori cultural preferences
	The Maori daily form of monitoring the environment is contrary to empirical sciences periodic collection and extrapolation of data
	The use of traditional monitoring knowledge, passed down, is very important to Maori as the links with nga tupuna are enhanced by the continuation of the patterns of their experience
	Monitoring on this basis values the knowledge of Maori communities, which in turn empowers that community
	participatory and localised monitoring process could lead to a greater Maori 'buy in' to the EPI Programme
	The ever-changing nature of the environment makes locally based information and EPI's more valuable for effective long term resource management.
	advantage of quantifiable information, up to date and first hand assessments of environmental trends
	Maori EPI interest may increase whilst formalising and co-ordinating local activities and may be easy to co-ordinate with mainstream EPI's
	Maori will be suspicious of giving over information and knowledge without an ongoing positive relationship
	Maori may not progress locally based monitoring without assistance to up-skill and capacity build local hapu
	Risk of overlapping with mainstream EPIs and be difficult to distinguish from mahinga kai category
Tikanga Cultural Indicators	Tikanga underpins Maori assessment just like Western science (in the past) has been underpinned by cultural assumptions and ideologies
	These concepts are well known by Maori throughout New Zealand and are very important. (e.g. mauri, whakapapa, kaitiakitanga, rahui, mana etc.)
	Tikanga based knowledge could provide a framework for developing nationally based EPI

Kaitiakitanga	Consider what is the nature of the kaitiakitanga relationship or how do Maori want to express their kaitiakitanga relationship in relation to environmental monitoring?
	Consider what resources, information, skills are needed by Maori to be effective kaitiaki? (i.e. Is it a level playing field)
	Consider if the option being considered enhances the ability of Maori to be kaitiaki (i.e. will it benefit Maori)?
	Consider if the option being considered acknowledges the decision making power of Maori as kaitiakitanga?
Mauri	Consider what indicators were used traditionally by Maori to assess the condition of mauri or whether mauri was present or not?
	Consider who was it that was traditionally charged with assessing the mauri of a resource and how was this done?
	Consider was it the realm of tohunga to determine the state of mauri and if so, what were the indicators used by these tohunga to make this assessment?
Whakapapa	Consider is the traditional Maori relationship with the environment being enhanced (e.g. Is traditional Maori knowledge and technique being protected and enhanced)?
	Consider is the issue best dealt with at an Iwi, Hapu or whanau level?
	Consider if the option being considered appreciates the interrelated nature of the Maori world view and if not, is this a problem?
	Consider if the group being dealt with is linked to the land (resource) through whakapapa (i.e. do they have mana whenua) and if not, is this a problem?
Tikanga advantages	Maori less likely to be suspicious of giving over this type of information and knowledge as it is freely available
	Could be used to develop national EPI from easier to access tikanga based information
Tikanga Disadvantages	Information is not quantifiable and may be difficult to 'fit' or convert usefully into EPI Programme
	difficult to convince scientists, council staff, politicians, decision makers and policy analysts that qualitative tikanga based information will be useful
4. RMA and Monitoring	Iwi and stakeholders have mechanisms, experience and relationships around monitoring issues which can influence other activity
6. Consultation/Communication	involves significant best practice and expertise regarding Maori