Casting a kaupapa Māori lens over One Health to explore synergies for collaboration

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Casting a Māori lens over One Health

Casting a Māori lens over One Health refers to a number of traditional sayings, such as *Ka pū te rūhā, ka hao te rangatahi*, symbolising casting the fishing net wider to explore new forms of knowledge and understanding, and to make a better future – *Hei oranga mō ngā uri kei te piki ake.* One Health provides an opportunity, based on alignment to holistic indigenous perspectives, through improved integration among disciplines, improved cross-sectoral collaboration, multi-, inter- and transdisciplinary research, knowledge and understanding, to build bridges, address many complex global issues and challenges (e.g. antibiotic resistance, infectious disease, health hazards, water quality), and create pathways to better futures.

A kaupapa Māori framework based on a Māori values and a methodological approach can improve the way we conduct research with Māori to achieve inclusiveness, as well as desired outcomes for all New Zealanders to reduce disparities, integrate health across society, and achieve social equity. We discuss this type of framework to explore synergies for Māori collaboration, and provide conceptual examples of what this could look like.

Casting the lens

Is a metaphor and refers to casting the net wider – as in fishing, or casting an eye over someone in order to trust and respect:

Based on a number of old traditional sayings (whakatauki):

e.g., *Ka pū te rūhā, ka hao te rangatahi*, symbolising casting the fishing net wider to search for or explore new forms of knowledge and understanding, e.g., Māori leadership, innovation

To make a better future – *Hei oranga mō ngā uri kei te piki ake.*

He rangi ta matawhāiti

He rangi ta matawhānui

A person with narrow vision has a restricted horizon; a person with a wide vision has plentiful opportunities

Global aspirations

In 2000 the Millennium Declaration was adopted by 189 countries:

in 2005 8 Millennium goals were agreed by the United Nations:

1. end of poverty and hunger;
2. universal education;
3. gender equality;
4. child health;
5. maternal health;
6. combat HIV/AIDS;
7. environmental sustainability,
8. and global partnership.

Millennium Ecosystem Assessment

Following the 2000 declaration the United Nations led Millennium Ecosystem Assessment was carried out between 2001 and 2005 (MEA 2005a, b) to assess the consequences of ecosystem change for human well-being.

The reports (MEA 2005a, b) made strong links between human well-being and ecosystems, and linked the Millennium Development goals to ecosystem services (MEA 2005a,b; WRI 2008) e.g., :

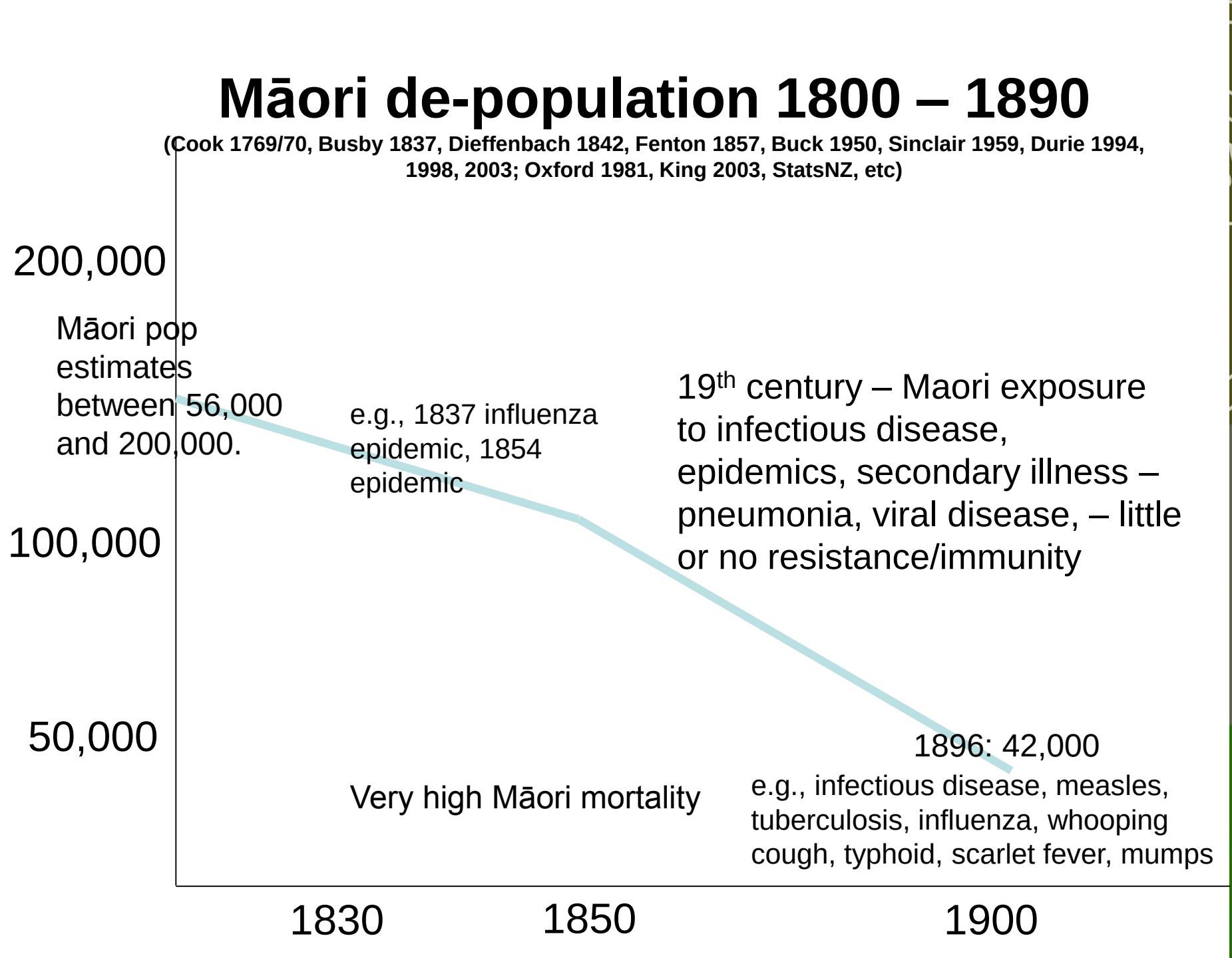
- health;
- natural hazard protection;
- adaptation to climate change;
- freshwater provision;
- environmental conservation;
- food production;
- poverty reduction;
- and energy security

Maori aspirations (Durie 2003)

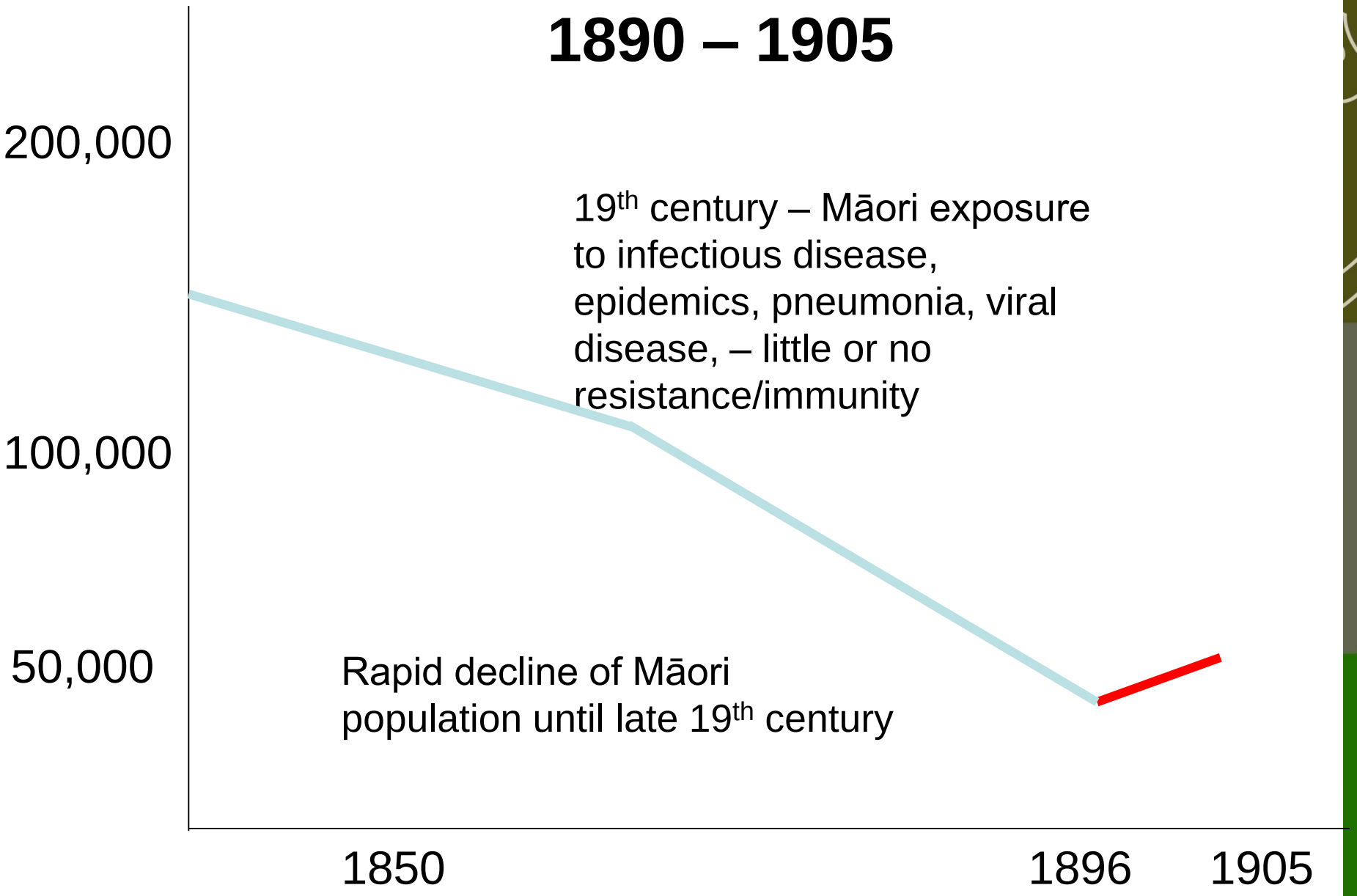
Outcome classes	Outcome goals	Indicators	Examples
Te Manawa – a secure cultural identity	Positive Māori participation in society as Māori	Māori active in government, business, industry and decision-making, etc.	Number of Māori in managerial positions, number of Māori MPs, equitable educational achievement, sector employment, Māori decision-making at local government level
	Positive Māori participation in Māori society	Māori active in their communities, whānau, marae	Activities at whānau and marae level, number of people living in tribal areas, networks, etc.
Te Kāhui – collective Māori synergies	Vibrant Māori communities	Organised Māori community networks, institutions	Māori community standards of living, number of marae & condition
	Enhanced Whānau capacities	**Strong and supportive families**	**Levels of Māori well-being**
	Māori autonomy (tino rangatiratanga)	**Māori practising self-determination**	**Decision-making in local politics, active kaitiakitanga groups**
Te Kete Puāwai – Māori cultural and intellectual resources	Te reo Māori in multiple domains	Increased use of Māori language	Number of fluent Māori speakers by iwi and nationally, use of te reo Māori in society
	Practice of Māori culture knowledge, and values	**Māori values and mātauranga Māori being used across institutions**	**Māori knowledge systems developed and being regularly used**
Te Ao Turoa – the Māori estate	Regenerated Māori land base	Area of Māori land and resources	Māori registered land area quantified
	Guaranteed Māori access to clean and healthy environment	**Māori participation in monitoring and state of environment reporting, Mātauranga in all ecosystems assessment**	**State and condition of mahinga kai, quantity and condition of flora and fauna;** **abundance/presence/absence of taonga species**
	Resource sustainability and accessibility	**Māori have access to clean and healthy resources and ecosystem services**	**State and condition of natural resources in tribal areas**

Māori de-population 1800 – 1890

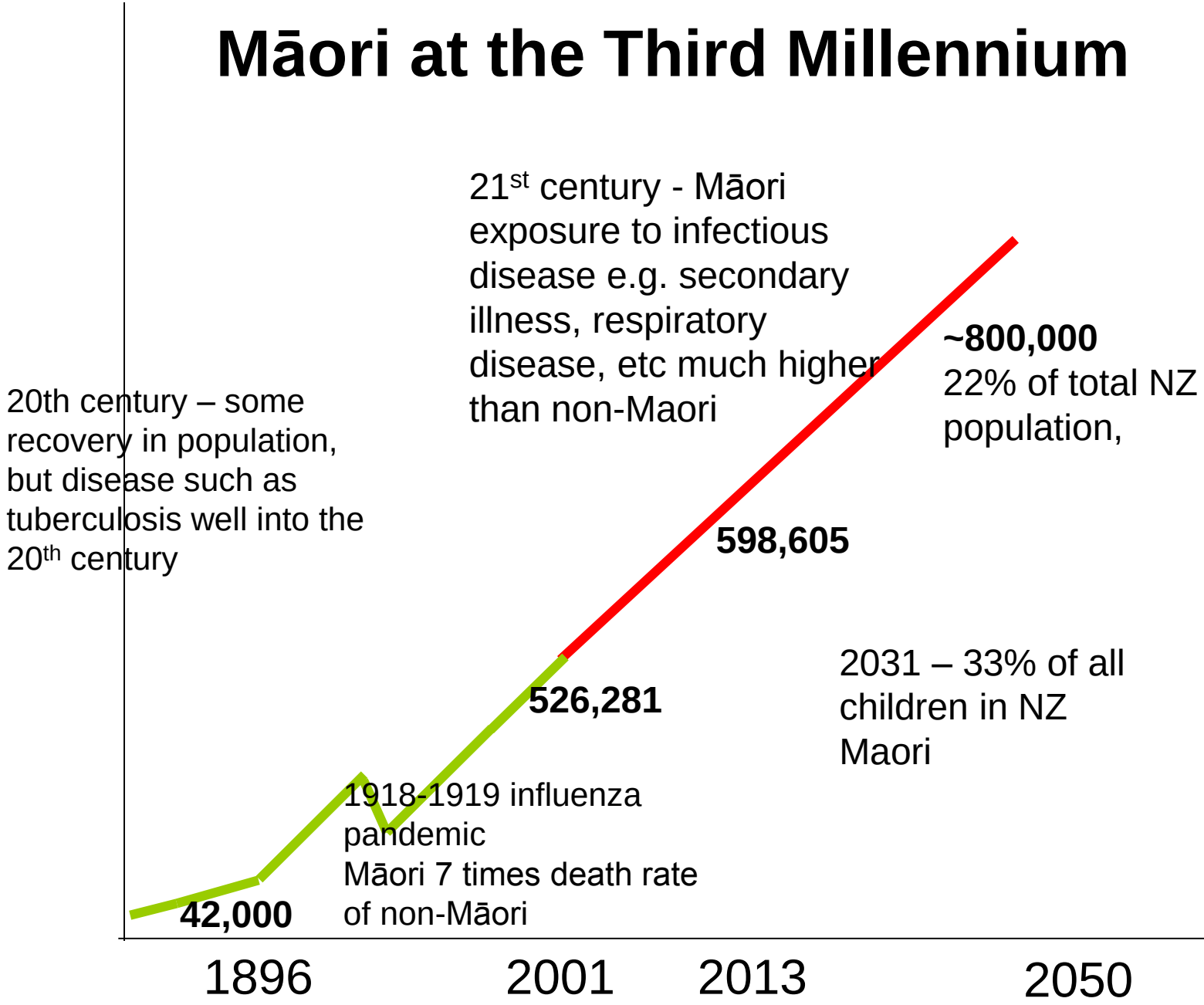
(Cook 1769/70, Busby 1837, Dieffenbach 1842, Fenton 1857, Buck 1950, Sinclair 1959, Durie 1994, 1998, 2003; Oxford 1981, King 2003, StatsNZ, etc)



Māori Demographic Recovery 1890 – 1905



Māori at the Third Millennium



One Health

- Alignment to holistic indigenous perspectives;
- improved integration among disciplines;
- improved cross-sectoral collaboration, multi-, inter- and transdisciplinary research, different perspectives;
- Use of other knowledge systems and understanding;
- building bridges;
- complex global issues and challenges (e.g. antibiotic resistance, infectious disease, health hazards, water quality);
- pathways to better futures (equity, living standards, wellbeing)

A kaupapa Māori framework

A kaupapa Māori framework based on a Māori values and a methodological approach can improve the way we conduct research with Māori to achieve inclusiveness, as well as desired outcomes for all New Zealanders to reduce disparities, integrate health across society, and achieve social equity.

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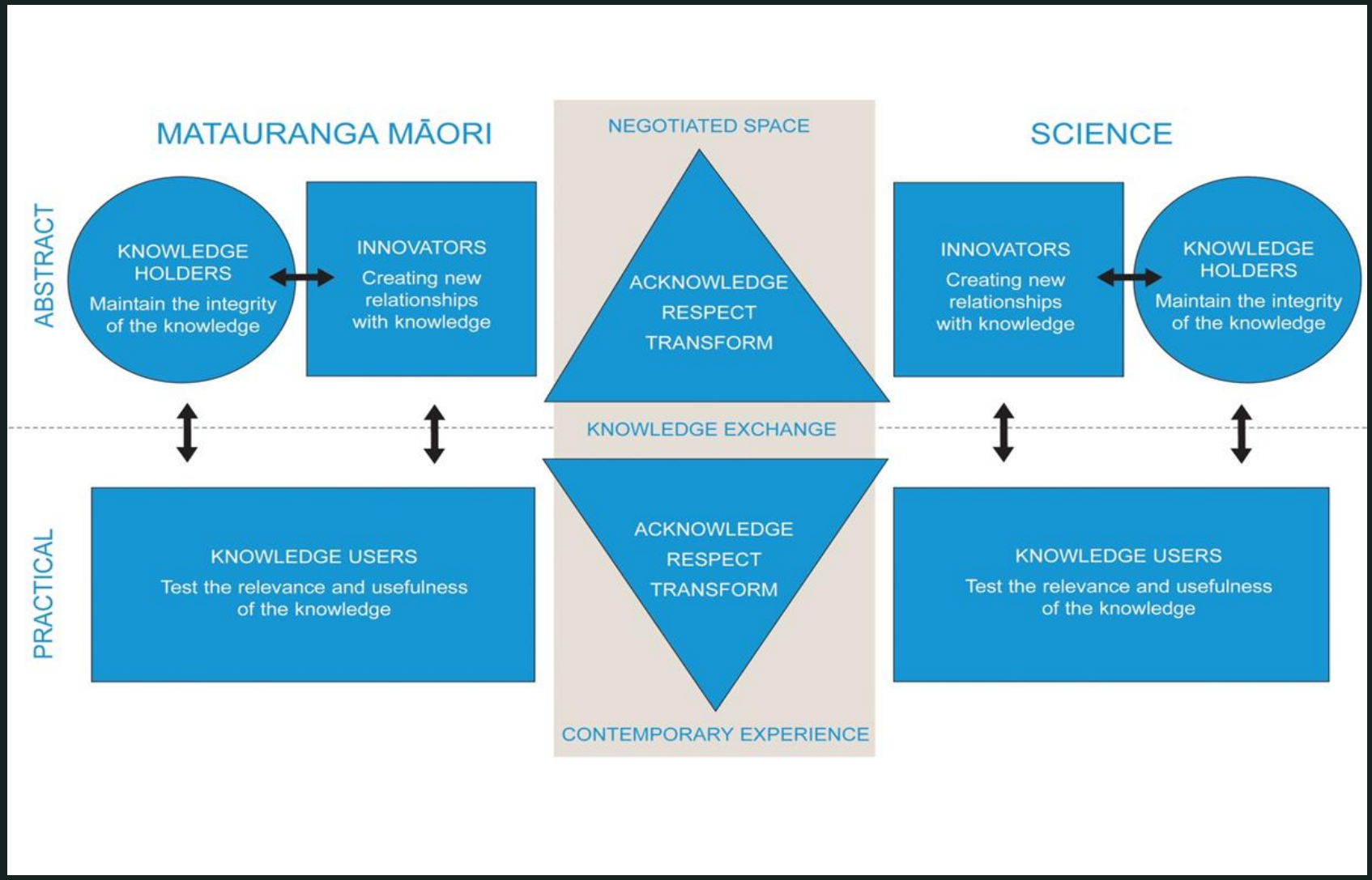
Integrated concept analysis – Bridging mātauranga Māori and science (Hudson et al. 2010, 2013)



Kaupapa Māori

- kaupapa Māori is specialised Māori research to achieve stated or desired outcomes for Māori and for all NZers in Aotearoa-New Zealand (e.g., reduce disparities, attain social equity, build capability and capacity, strong vibrant society, raise living standards, strong Māori identity, low disease)
- methodological approach based on Maori concepts, values and principles (e.g. Tikanga, Te Reo, Treaty of Waitangi, Tino Rangatiratanga,, Ako Māori, Taonga Tuku Iho, Whānaungatanga, Kaupapa, Ata, Whakapapa, etc.
- Māori led – provides the epistemology/methods/frameworks/strategies/practice to achieve desired outcomes

Kaupapa Māori approaches

- “Spaces for Māori realities within wider society” (Pihama 1993)
- Kaupapa Māori research operates out of this philosophical base” (Smith and Cram 1997)
- “As researchers we seek ways of operating that are tika (correct from a Māori point of view), from the inception of a research project through to its completion” (Cram 2001).
- Therefore includes: Hui, wānanga, observation, interviews, focus groups, qualitative and quantitative assessment, etc. e.g., within a Māori context, address Māori issues, Māori outcomes

Guiding principles of kaupapa Māori

Some of the key elements or principles (Graham Smith 1990, Linda Smith 1997) of Kaupapa Māori research are:

- Tino Rangatiratanga – The Principle of Self-determination
- Taonga Tuku Iho – The Principle of Cultural Aspiration
- Ako Māori – The Principle of Culturally Preferred Pedagogy
- Kia piki ake i ngā raruraru o te kainga – The Principle of Socio-Economic Mediation
- Whānau – The Principle of Extended Family Structure
- Kaupapa - The Principle of Collective Philosophy
- Te Tiriti o Waitangi – The Principle of the Treaty of Waitangi Pihama (2001)
- Ata - The Principle of Growing Respectful Relationships (Pohatu 2005)

Māori health and wellbeing and links to the environment

"Māori consider the environment fundamental to their well-being as their cultural values and the environment are inextricably linked. Finding a balance between the physical, spiritual, mental, and family dimensions of individuals was stated as the key to ensure optimum well-being".

Many Māori goals and objectives are formulated to maintain and enhance cultural values and human health and wellbeing

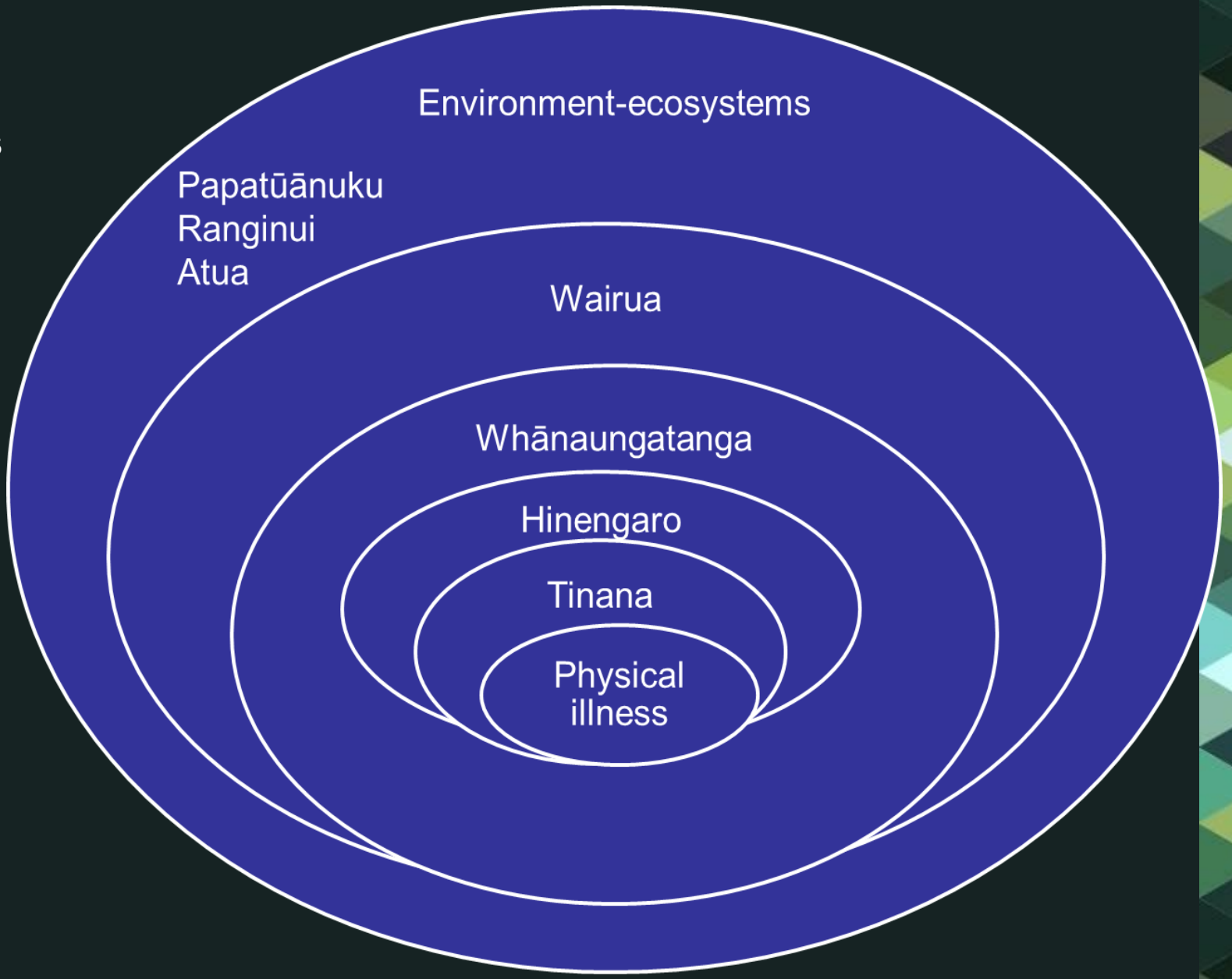
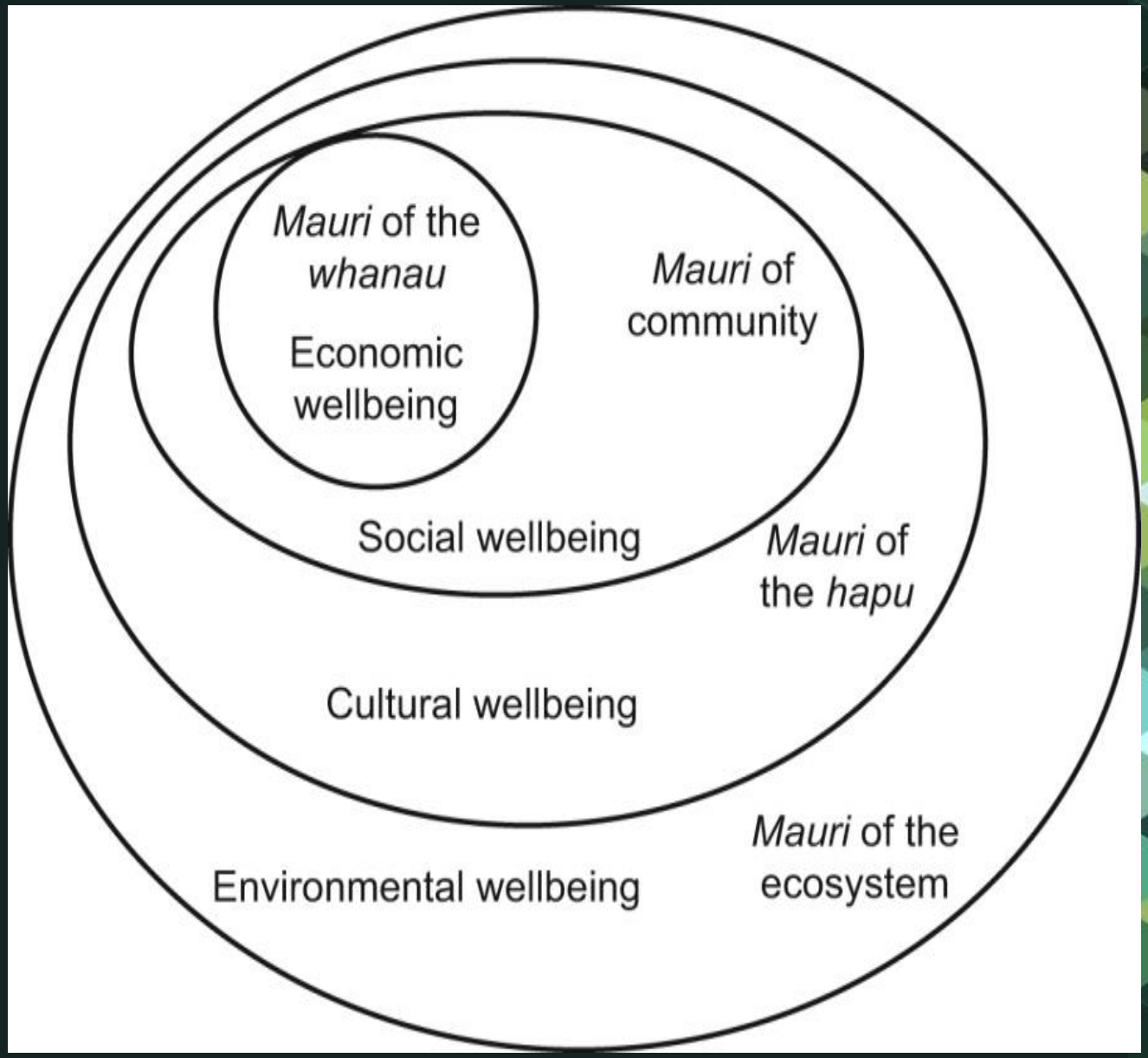


Figure 1. A decision-making tool for assessing the important cultural concept of mauri (from Morgan 2003-2012).



Six ratings of mauri are given for each aspect:

- Highly sustainable – 5
- Viable practice enhancing the mauri – 4
- Contributing to mauri – 3
- Neutral – 2
- Diminishing the mauri – 1
- Significantly diminishing the mauri and the resource – 0

Māori health and wellbeing

In the late 20th century many Māori believed the non-Māori health focus was too narrow and singular (i.e. concentrated too much on just physical illness) to meet their needs and did not reflect their traditional knowledge systems and values, and their holistic understanding of health and wellbeing.

A number of kaupapa based holistic Māori conceptual health models were developed.

Kaupapa based Māori health models

Models used to conceptualise the components of Māori well-being commonly emphasise the interactions and balance through 4 dimensions of reality:

- *taha tinana* – a material state or dimension, the body
- *taha hinengaro* – a mental state or dimension
- *taha wairua* – a spiritual state or dimension
- *taha whānaugatanga* – family, a related or associative state or dimension.

There are many variations of these models and concepts, but most stress a set of principles and practices to achieve a goal of mauri maintenance and human well-being (Durie 1994).

Three common Māori well-being models (Durie 1994)

	Whare Tapa Wha	Te Wheke	Ngā Pou Mana
Components	Wairua Hinengaro Tinana Whānau	Wairuatanga Hinengaro Tinana Whānaungatanga Mana ake Mauri Ha a koro ma a kui ma Whatumanawa	Whānaungatanga Taonga tuku iho Te Ao tūroa Turangawaewae
Features	Spirituality Mental health Physical Family	Spirituality Mental health Physical Family Uniqueness Vitality Cultural heritage Emotions	Family Cultural heritage Environment Land base
Symbolism	A strong house	The octopus	Supporting structures

The Te Pae Mahutonga model

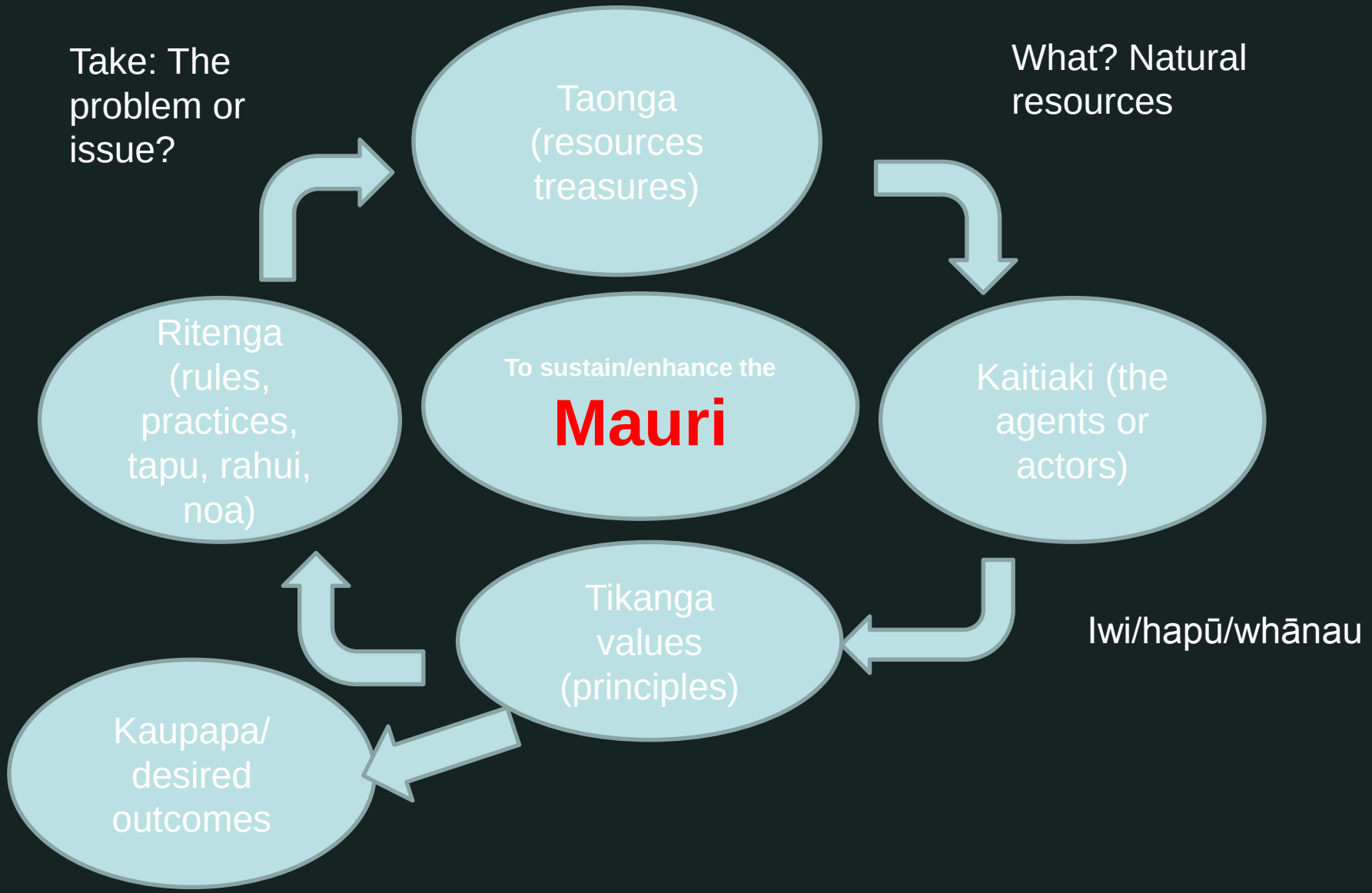
The Te Pae Mahutonga model presented by Durie (1999) emphasised 4 key tasks of health promotion: Mauriora, Waiora, Toiora, Te Oranga, along with 2 additional directional goals (pointers) of ngā manukura and mana whakahaere:

- Mauriora rests on a secure cultural identity, and encompasses inner strength and vitality;
- Waiora stresses environmental protection and stresses the connection to the natural and the spiritual world;
- Toiora is about choosing healthy lifestyles and emphasises good nutrition, and reducing risk and self-harm;
- Te Oranga is about actively participating in society, links to socio economic status, employment, education, decision-making, and the good and services on which we we depend;
- Ngā manukura is about leadership, communities, networks, influence, alliances, and partnerships;
- Mana whakahaere is about autonomy, self-determination and active community participation to have more control of one's own health needs.

Finding balance in the system – the principle of mauri

"Traditionally Māori acknowledged a natural order to the universe, a dynamic system built around the living and the non-living. Any shift in a system, for example through human interactions and/or impacts, cause shifts in the mauri of immediately related components. As a result, the whole system eventually becomes affected and degraded. All activities and relationships are bound up and governed by principles and ethics and regulated by an elaborate system of tikanga, ritenga or rules. The process is still used by Māori to guide resource use and management. Therefore, a key outcome for kaitiakitanga is to restore balance back the whole system, to maintain or restore the mauri, and to ensure this balance is maintained between people and the natural and spiritual worlds".

Te Ao Māori conceptual framework (Hirini Matunga)



A kaupapa Māori framework for collaboration

Māori concepts and a kaupapa Maori framework can be used to explore synergies for Māori collaboration with One Health (synergies for collaboration), and a conceptual framework with examples of what this could look like is presented:

Mahi tahi = collaboration (conceptual framework example)

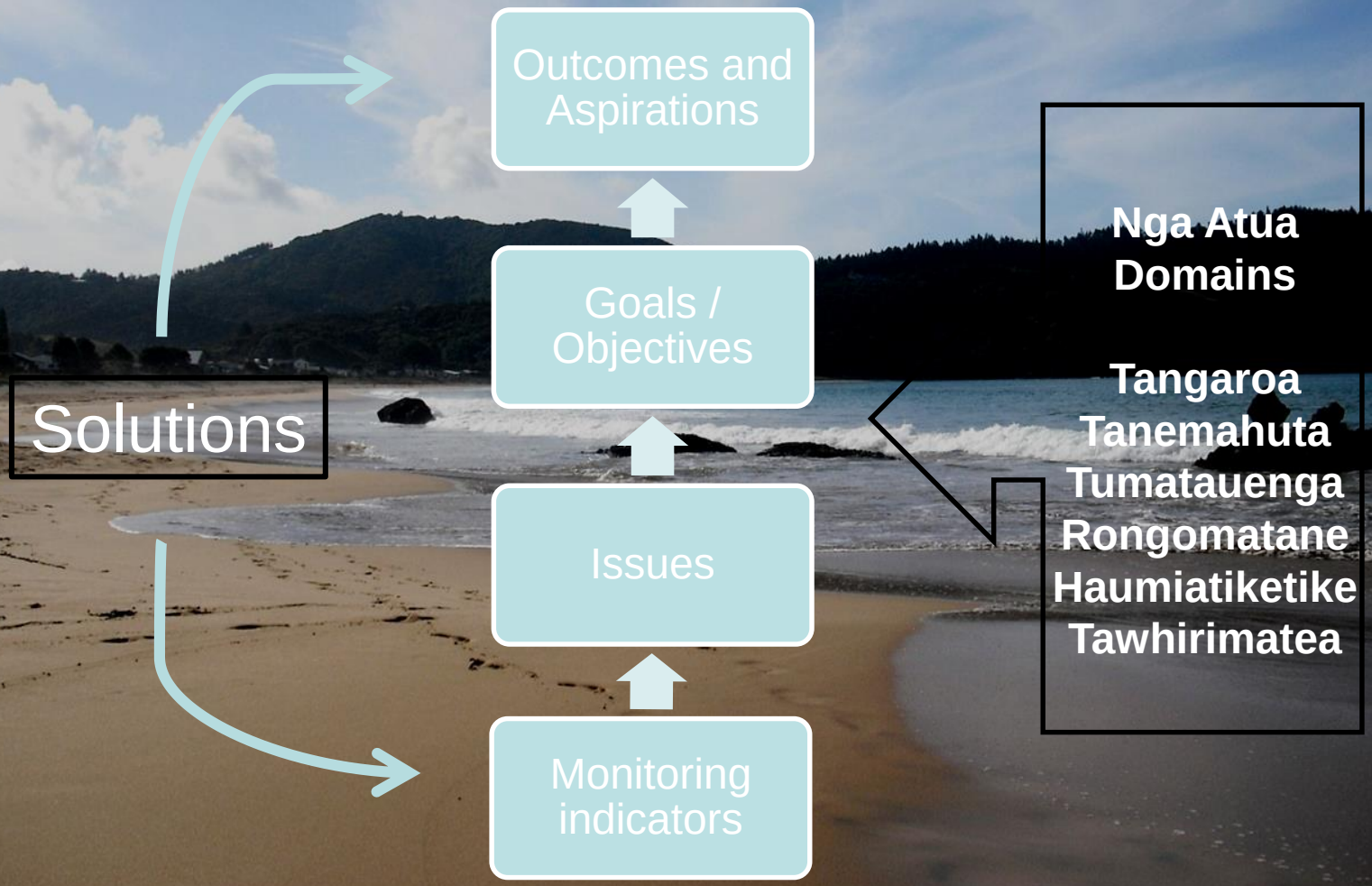
One health	Kaupapa Māori	Issue	Goals and Actions	Desired outcome
Improved integration among disciplines, engagement Multi-disciplinary, inter-disciplinary Build bridges, collaborative research/strategies; Improve communication	Working with Māori Effective collaboration based on Maori principles knowledge and understanding	Risk of infectious disease across all communities; Increase disease globally; global-migration; Increase disease outbreaks, epidemics, pandemics	Effective policy Maori and Pacifika understanding and awareness of infectious disease; Frame through Māori and Pacifika perspectives and issues; Improve health delivery, Improve housing, incomes, and living standards; Increase vaccination rates.	Low infectious disease rates across all populations
improved cross-sectoral collaboration, break down silos, use of other knowledge systems; engage with policy; share knowledge and data;	Holistic indigenous perspectives, build Māori capacity Transdisciplinary research Integrated knowledge systems used and understood	Poor water quality in Aotearoa-New Zealand; Degraded freshwater resources; Destruction of ecosystems, habitats and species	Build capacity Set cultural and environmental limits for water and resources Achieve drinking water standards in urban and rural	Healthy water, water quality (e.g., swimmability) targets reached; standards/drinking water (potable) standards reached customary activities and resources (e.g., mahinga kai) maintained, mauri enhanced.
Work across sectors, improved integration among disciplines; improve communication	Collaborative Māori research with One health researchers and professionals	Antimicrobial resistance, antibiotic resistance	Effective integrated policy and strategy Case studies	Limit antibiotic use in wider population; Find substitutes for antibiotics
improved integration among disciplines, knowledge and data sharing, communication	Collaborative Māori research with One health researchers and professionals	Intensive agriculture and urban expansion/human animal interface (e.g. *E coli*, campylobacter, pathogens, etc), high leaking nutrients, aquifers	Effective integrated policy; Improved planning to alleviate agricultural and urban impacts on health and environment	Healthy landscapes, urban areas, catchment planning Reduce health hazards, Reduce animal disease
Work across sectors , improved integration	Collaborative Māori research with One health researchers and professionals	Climate change, pests and disease, air quality, climate extremes, variability	Effective integrated policy Behavioural change	Reduction in GHG emissions, healthy environments, low carbon economy

Māori objectives for freshwater include, for example,

- improved drinking water standards,
- goals and standards for water quality,
- sustaining or restoring the mauri of water resources,
- healthy waterways,
- protection and maintenance of cultural resources,
- connected and healthy communities, and participation in freshwater management.

Therefore a principal outcome for Māori, to achieve these stated objectives, is an active and inclusive role in the management of freshwater.

Te Uri o Hau Monitoring Framework

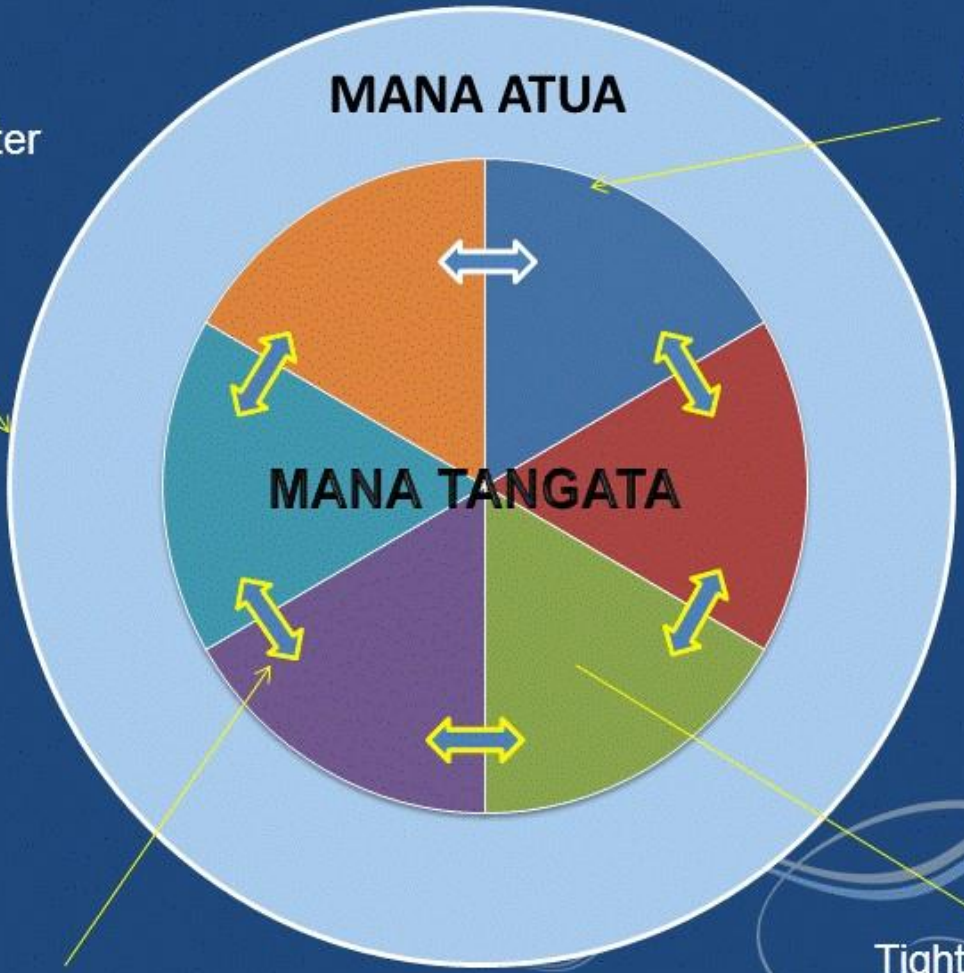


Aspirations, outcomes, goals

Values –Taonga spp.

Taonga tuku iho

Mana Atua Mana Tangata



The freshwater resource

Agreed limit (for agreed human interaction/ values)

- Ceremonial
- Drinking
- Food Gathering
- Recreation
- Economic
- Navigation

Distribution of values

Tight narrative objective for each value

Links between science and cultural indicators

In future environmental monitoring programmes could be classed into three main types that are complementary:

Māori knowledge based	Community – scientific based	Scientific based
Māori indicators – In depth Māori understanding and knowledge of particular environments. Understanding of Māori values, goals, and aspirations required. Examples: • Taonga lists; • Key sensitive taonga indicators; • Te Mauri/ wairua; • Knowledge on uses and preparation of taonga; • Land-uses, point discharges, modification, impacting on cultural values and uses. • Key pest species	**Community based indicators –** requiring low levels of technical input and skill but scientifically robust and part-value based. Cost effective, relatively simple and short duration. Examples: • Hydrology; • Soils/Nutrients; • Intactness of wetland; • Connectivity/Buffering or Fragmentation; • Introduced plants; • Animal damage; • Modifications to catchment hydrology; • Water quality within catchment; • Other landuse threats; • Key undesirable species; • % catchment in introduced vegetation; • Animal access.	**Scientific indicators –** requiring higher levels of technical input and skill, robust sampling strategies, analysis and interpretation. May be time consuming. Examples: • Chemistry, water quality, nutrients; • Hydrology; • Water table modelling; • Botanical mapping, classification of plants; • pH; • Bacterial counts; • Giardia; • Cryptosporidum; • GIS applications; • Satellite imagery; • Studies of fish, macro-invertebrates, macrophytes.

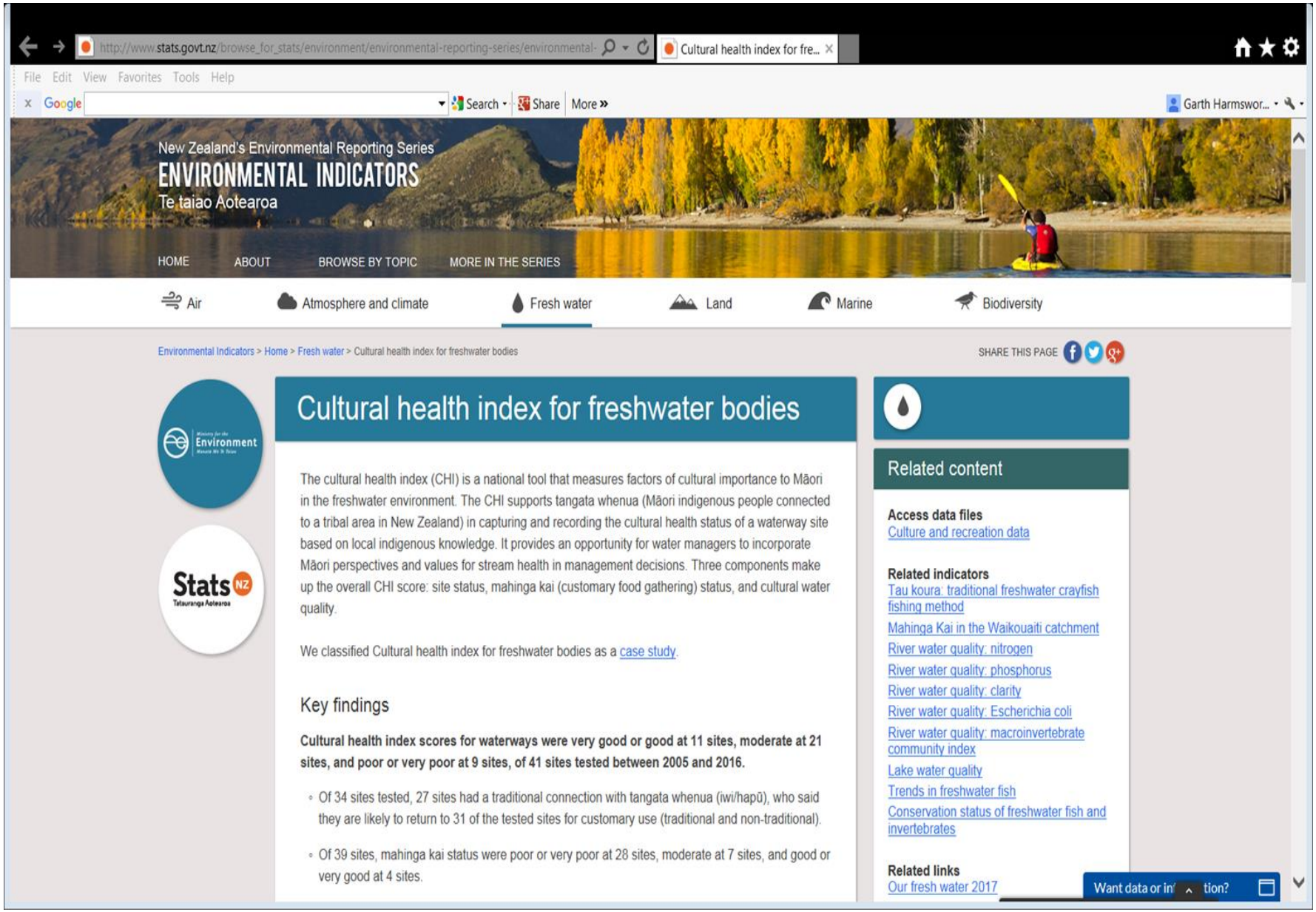
Existing cultural monitoring approaches for Aotearoa

Name of approach	Specific	Selected reference examples
Taonga (e.g., flora and fauna) species sampling, monitoring reporting, harvesting	Kōura (freshwater crayfish) Tuna (eel) Freshwater mussels; Kanakana/pihirau-Lamprey; Native fish species such as galaxiids spp., e.g., inanga, kōkopu, koaro, Plants such as kuta, raupō, harakeke, etc	Kusabs et al. 2015,a,b Williams et al. 2014 Rainforth 2008; Te Ao Marama Incorporated & Waikawa Whānau 2010; Kitson et al. 2012. Morris et al. 2013 Kapa and Clarkson 2009
Cultural habitats	Mahinga kai, cultural harvest sites	Stewart et al. 2014; Maxwell and Penetito 2007
Contaminants	Risk, customary resources	Kaitiaki tools; Stewart et al. 2014.
Report cards	2016 Pilot Waikato River report card: methods and technical summary Framework and methods guided by river iwi	Williamson et al. 2016.
The Cultural Health Index (CHI) for rivers and streams	CHI method and application https://www.mfe.govt.nz/sites/default/files/chi-for-streams-and-waterways-feb06-full-colour.pdf The CHI has been used extensively by iwi/hapū groups in NZ to inform decisions, and knowledge to support the collaborative process adaptations of the CHI for freshwater and estuarine environments	Tipa 1999; Tipa & Teirney 2003, 2006a,b; Townsend et al. 2004; Pauling et al. 2007; Nelson & Tipa 2012; Tipa and Associates 2013. Tipa & Nelson, 2012. Walker 2009 – Tiakina Te Taiao; Young et al., 2002; Townsend et al., 2004; Taranaki District Council, 2007; Hughey & Taylor, 2009; Harmsworth et al., 2011.
Baselines	Cultural health assessment	Pauling et al 2005
Cultural flow	Cultural flow preference studies	Tipa 2009, 2012; Tipa & Associates, 2013; Tipa and Severne 2010; Tipa and Nelson 2012; Rainforth 2014
Historic data and information	Mapping of Māori values, historic places, cultural resources, etc.	Harmsworth 1997, 98; Tipa 2013

Table. Links between values, objectives, monitoring, and actions to sustain or enhance the mauri

Values	Objectives	Performance measures/tools	Management variables (examples)
Kaitiakitanga **Mauri** **Mahinga kai**	Restore the mauri of freshwater to a standard Sustain/enhance cultural resources, mahinga kai, taonga spp. Define standards/limits/ above bottom lines *to support cultural values, life supporting capacity, ecological integrity, and ensure human wellbeing*	Monitoring such as CHI and mauri assessment identify change/trends in the state or mauri, or other indicators e.g. taonga spp. Condition of cultural resources, taonga spp., mahinga kai	Minimum flows Catchment management, Riparian, planting, landuse, erosion, Nutrient management/ reduction Water clarity & sed Pathogens (e.g., E coli) Stock exclusion Connectivity Habitat extent and condition

http://www.stats.govt.nz/browse_for_stats/environment/environmental-reporting-series/environmental-indicators/Home/Fresh%20water/cultural-health-index.aspx



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