International Association for Impact Assessment

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Webinar moderator: Bridget John (bridget@iaia.org)

The leading global network on impact assessment

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- Understanding Impacts on Vulnerable Populations through Psycho-Social Impact Assessment
- Health Considerations in Impact Assessment
- Resettlement and Impact Assessment – Points of Intersection
- Environmental Risk Assessment in the Food Chain
- *More to come…*

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Housekeeping

Recording? ✓

Questions? ✓

Slides available? ✓

Empowering Indigenous Voices in Impact Assessment

Dr Kēpa Morgan and Tūmanako Fa`aui

Ngāti Mākino Iwi Authority

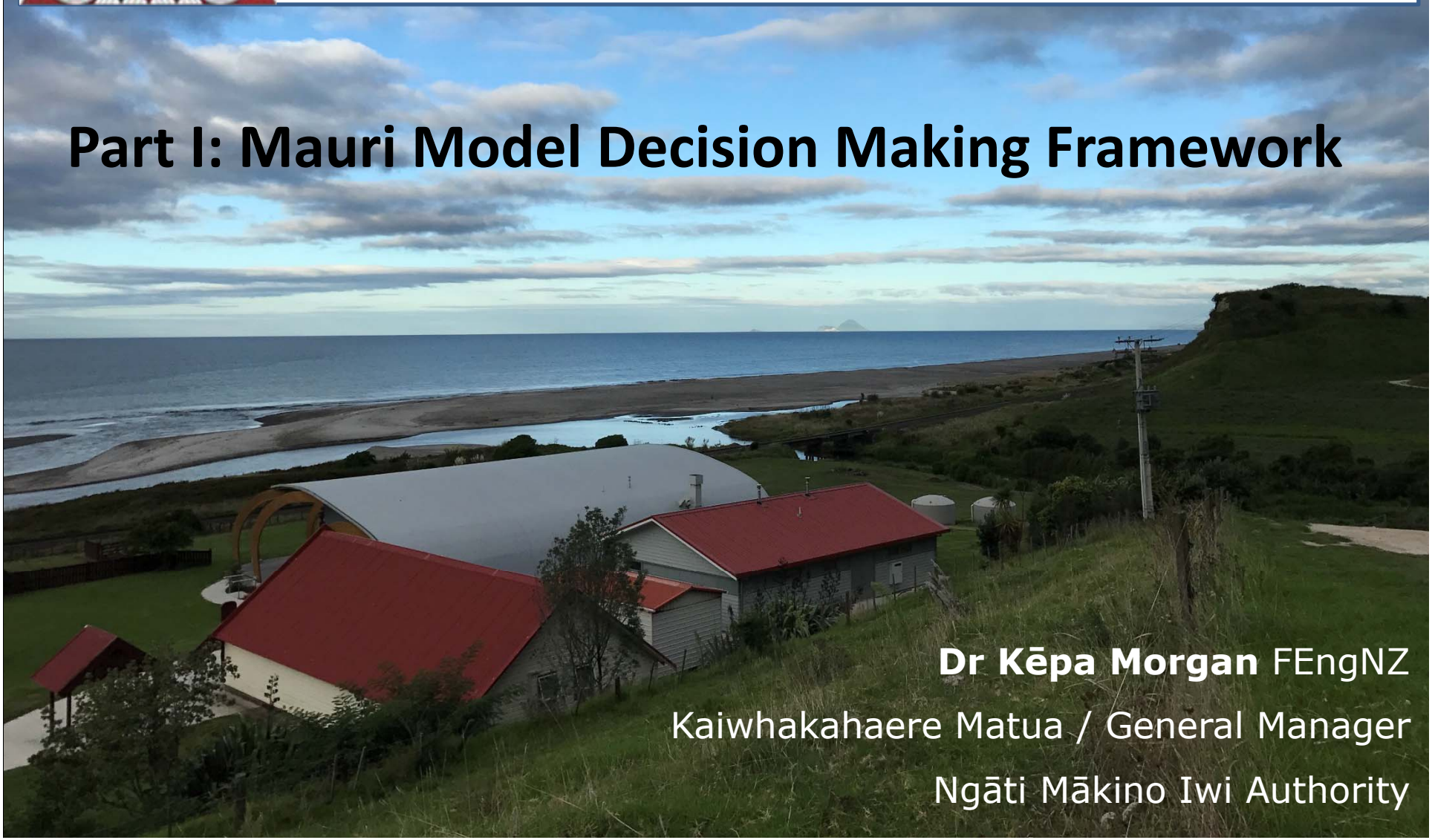
Ngā Pae O Te Māramatanga

IAIA webinar

7 December 2017

mauri meter

Part I: Mauri Model Decision Making Framework



Dr Kēpa Morgan FEngNZ
Kaiwhakahaere Matua / General Manager
Ngāti Mākino Iwi Authority

Webinar Relevance to IAIA

Non-technical skills needed

- Stakeholder engagement 56%
- Understanding decision-making processes 48%
- Stakeholder conflict resolution 68%
- Quantitative research methods & modeling 69%
- Qualitative research methods 58%
- Innovation 67%

"Relevant regardless of community"

Need a way of modelling reality

- What did our (Māori) ancestors use?
- Mauri
- Why?
- Recognize that bias exists – can be beneficial
- Mauri Model – four dimensions
- Approximating worldview differences
- Best representation of reality

Ways of knowing: Waitangi Tribunal pre 1990

	Motunui	Kaituna	Manukau	Rangataua
Year	1983 Wai6	1984 Wai4	1985 Wai8	1990 Wai3
Claimant	Te Ati Awa	Ngati Pikiao	Ngati Te Ata	Tauranga Cmte
Rohe	Tai Hauauru	Waiariki	Manukau	Tauranga
Claim	Pollution of reefs	Pollution of river; pollution of lake	Pollution of harbour: access	Potential pollution of Welcome Bay
Issue	Petrochemical industry; Motunui outfall impact on kaimoana	Diversion of sewage from Rotorua to Kaituna impact on lake life	Construction of sewage ponds, airport, motorway; impact kaimoana	Housing corp development; water right for sewage discharge
Objection	Impact on food sources; cultural offence	Impact on food sources; cultural offence	Impact on food sources; cultural offence	Impact on food sources; cultural offence
Outcome	Motunui outfall abandoned	$12M Scheme abandoned; Land based effluent disposal	Harbour mgmt plan; Kaitiaki Removal of ponds; Beach remediation	Sewage discharge plan and water right abandoned

IMPACT ON MAURI

MAURI: a way of understanding the life supporting capacity of water, the people, or an ecosystem.

MAURI

THE ATTRACTIVE FORCE BETWEEN THE PHYSICAL AND META-PHYSICAL THAT FACILITATES ALL LIFE

Hauraki Gulf Forum
Tikapa Moana
Te Moananui a Toi

"The waters of the Hauraki Gulf are increasingly healthy, resilient and full of life. People are strong Kaitiaki, lifting its MAURI"

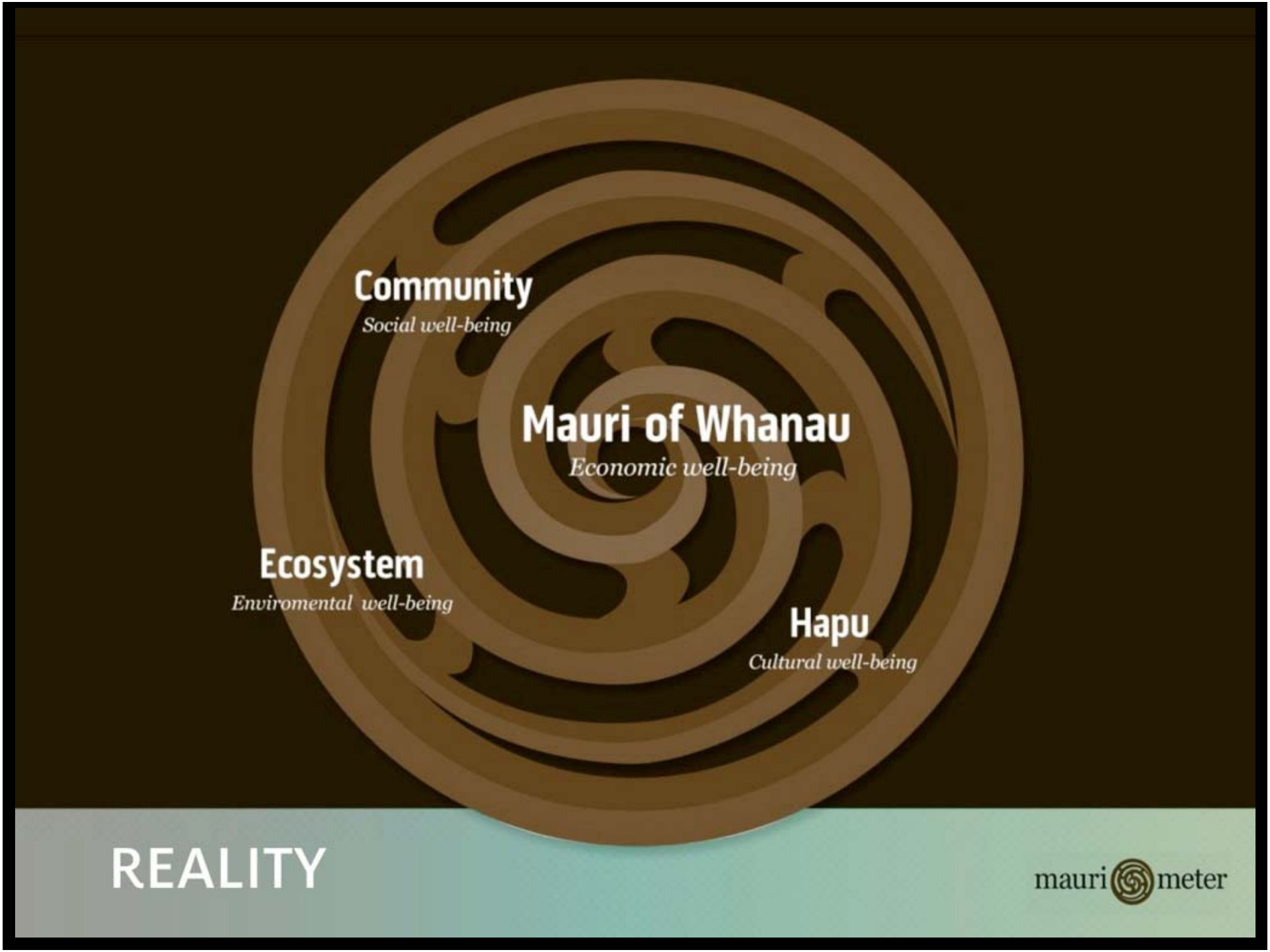
(Water Quality Roundtable, 2015)

"Kia mau ki te mauri o te Taiao o Tikapa Moana, Te Moananui a Toi – Enhance the MAURI of the Hauraki Gulf"

(Mātauranga Māori Roundtable, 2015)

Three kete recognising; wāhi tapu, MAURI o te wai, manawhenua.

1. **Extent to which local authorities protect MAURI**
2. **Extent to which tangata whenua protect MAURI**
3. **Extent to which other agencies protect MAURI**
4. **Extent to which actions of wider community affect MAURI**
5. **Physical evidence that MAURI is protected (Nathan Kennedy, 2014)**


Community
Social well-being
Mauri of Whanau
Economic well-being
Ecosystem
Enviromental well-being
Hapu
Cultural well-being
REALITY
mauri meter

Pairwise Comparison Mauri Dimensions

extremely	strongly	moderately	equal	moderately	strongly	extremely
−3	−2	−1	0	+1	+2	+3

less important — equal — more important

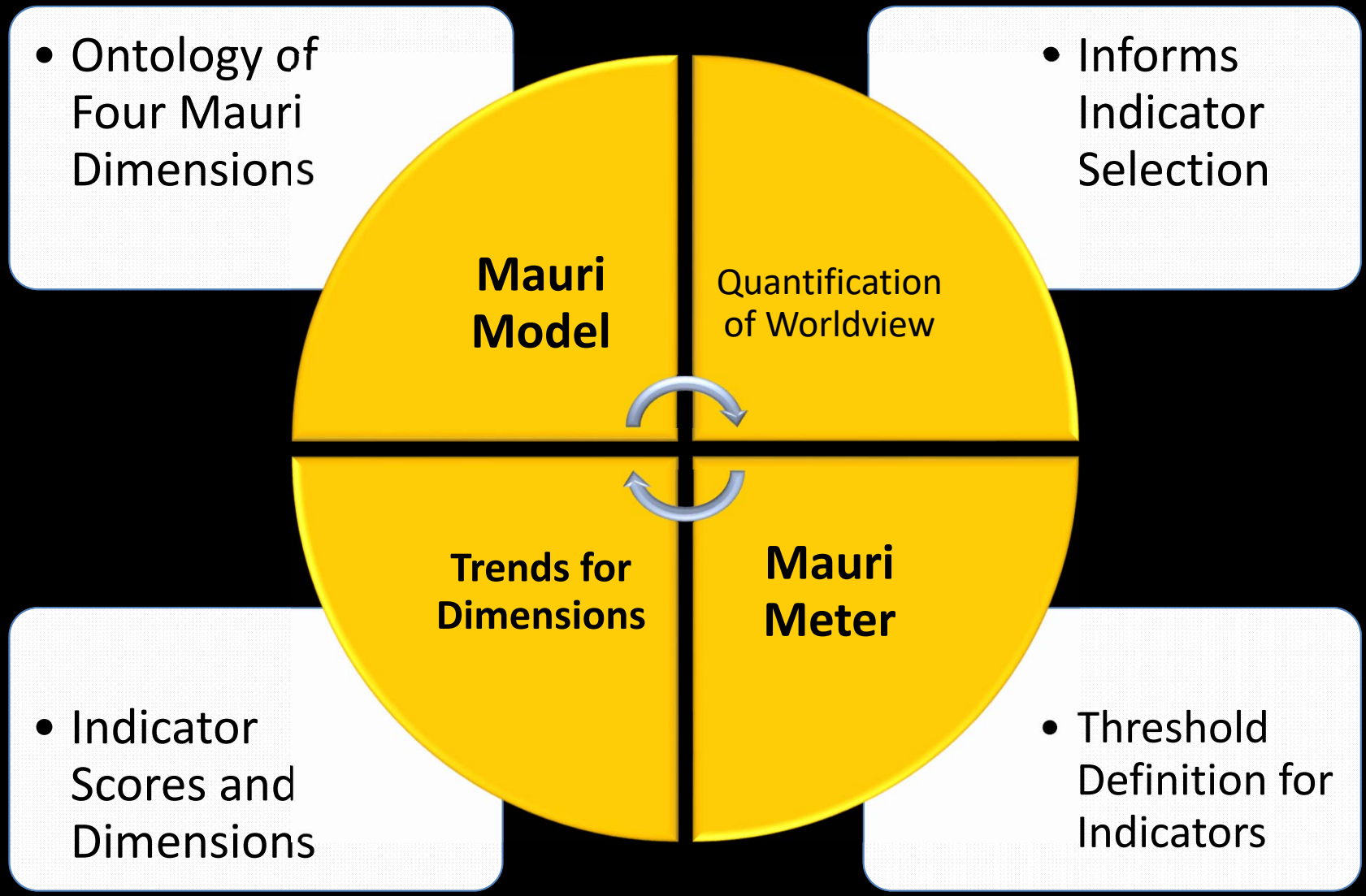
Mauri Wellbeing	Ecosystem	Hapū cultural	Hapori social	Whanau economic	Total
Ecosystem	0	A	B	C	Σx_i
Hapū cultural		0			
Hapori social			0		
Economic				0	

mauri meter

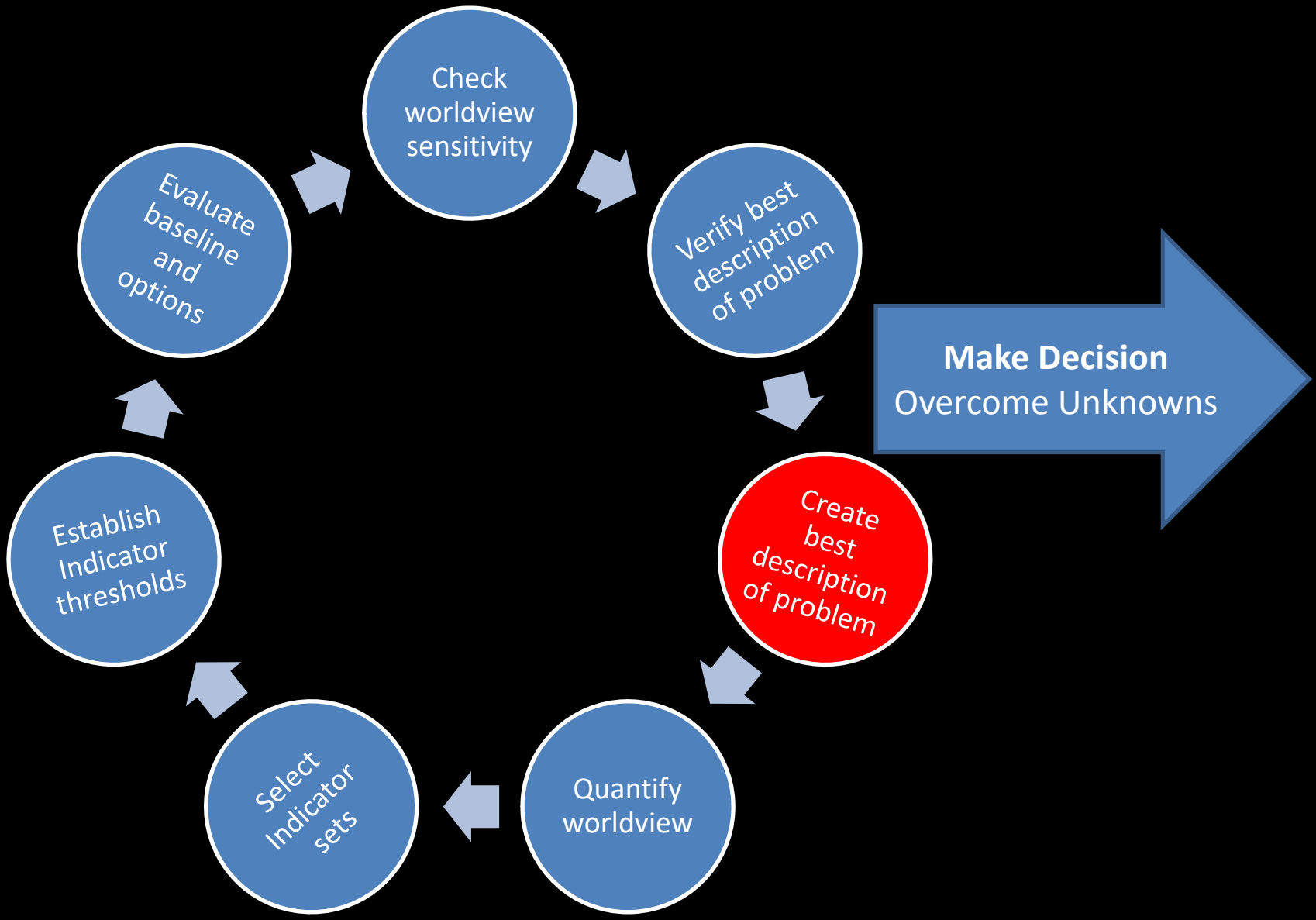
Percentage weight for dimension;

$P_D = (\Sigma x_i + 9) / 36 \times 100\%$

Mauri Model Decision Making Framework



Learn to better describe the problem?



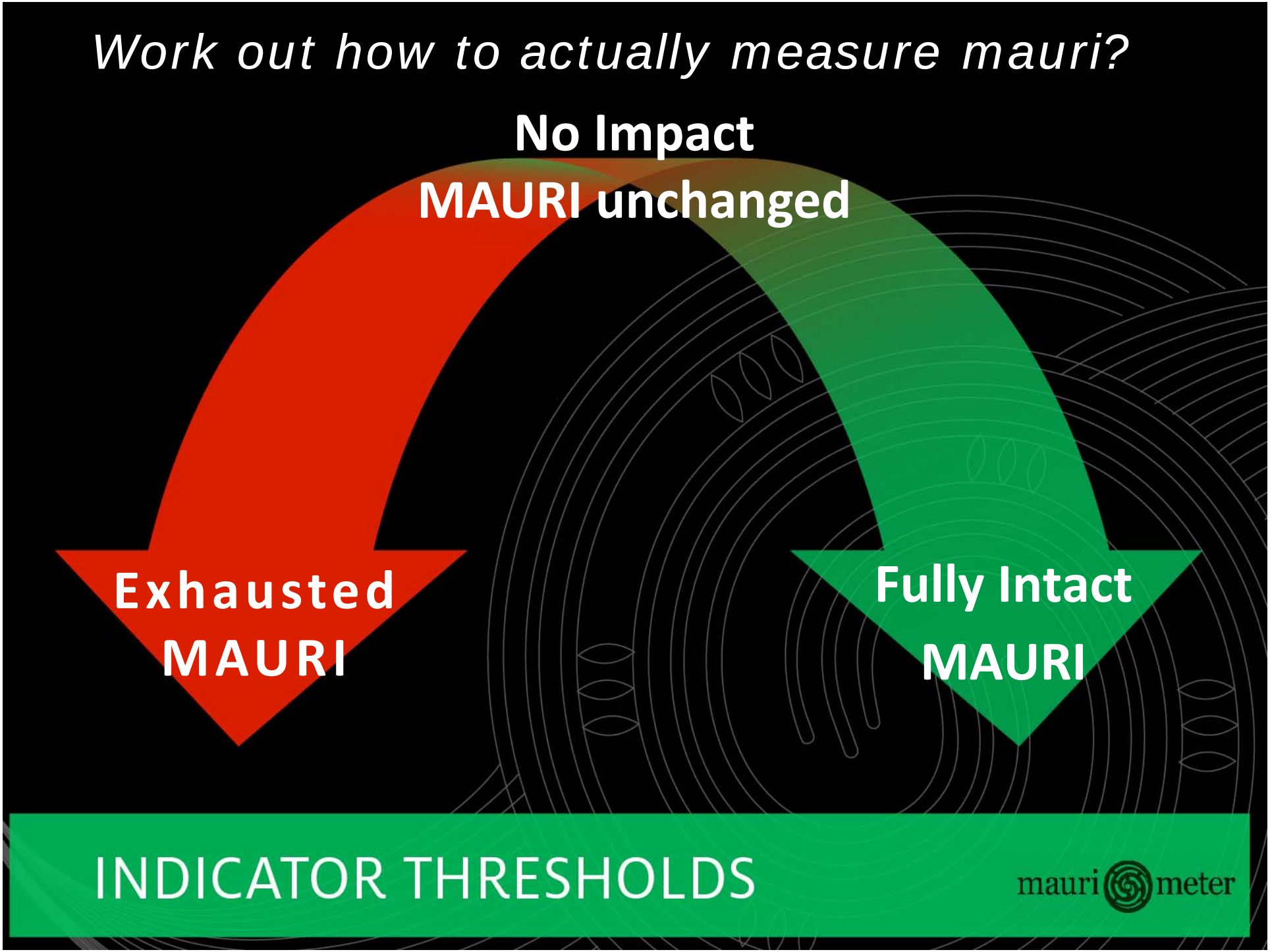
Cawthron Institute REPORT 2224 (2013)

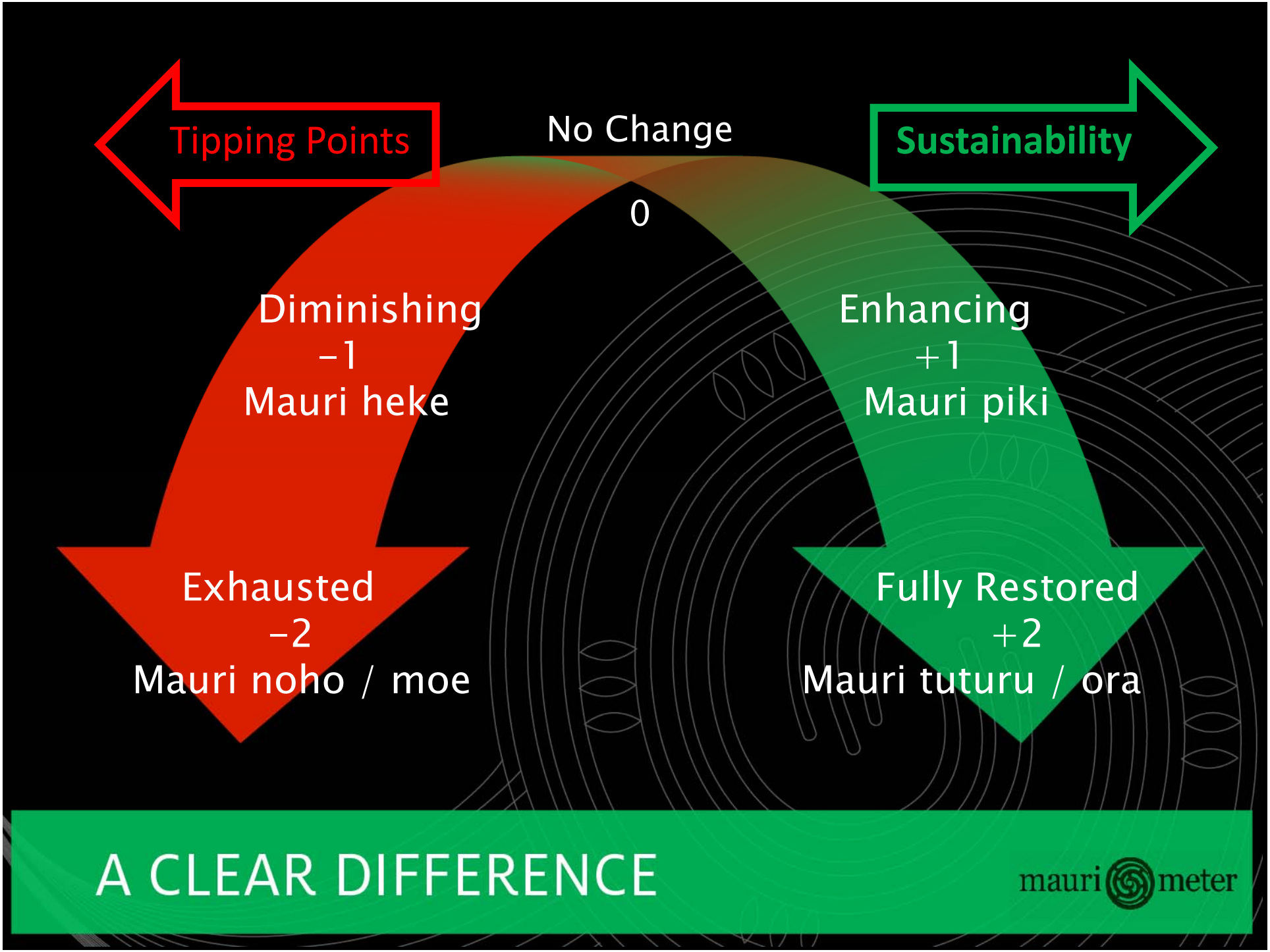
- The Boston Indicator Project
- The Dashboard of Sustainability
- Earth Check (Kaikoura Green Globe)
- Ecological Footprint
- Environmental Performance Index
- **The Mauri Model**
- Human Development Index
- NZ's progress using a Sustainable Development Approach
- Sustainable Society Index
- Well-being Index; and
- Whistler2020

The set that appears to be the most useful

regardless of the community, is the Mauri Model.

Challenger, 2013


Work out how to actually measure mauri?
No Impact
MAURI unchanged
Exhausted
MAURI
Fully Intact
MAURI
INDICATOR THRESHOLDS
mauri meter


Tipping Points
No Change
0
Sustainability
Diminishing
−1
Mauri heke
Enhancing
+1
Mauri piki
Exhausted
−2
Mauri noho / moe
Fully Restored
+2
Mauri tuturu / ora
A CLEAR DIFFERENCE
mauri meter

Marine Habitat Management for Motiti Rohe Moana

No Change
10%<extent<5%
0 threshold

Diminishing
-1
Mauri heke

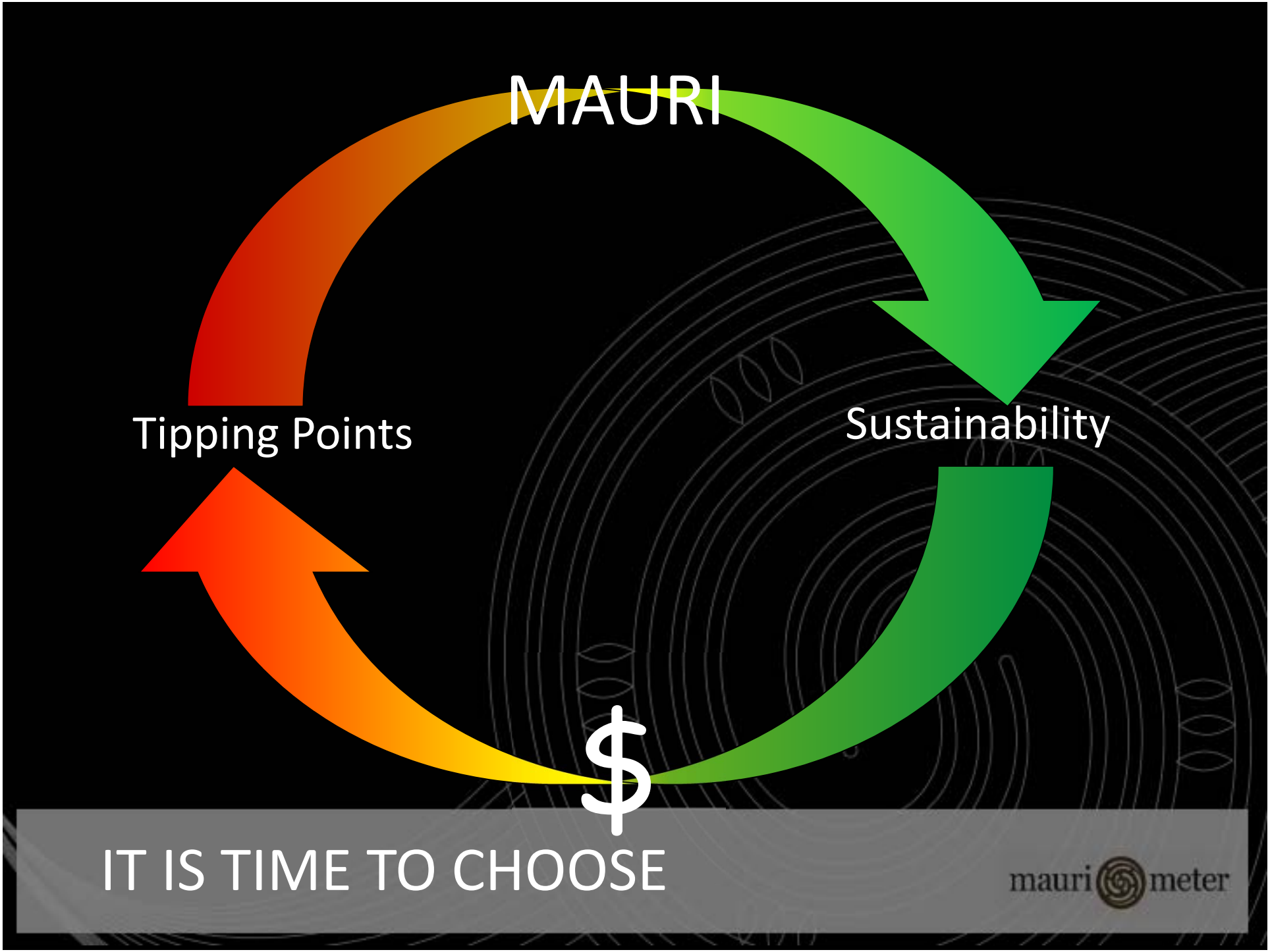
Enhancing
+1
Mauri piki

Exhausted
-2
Mauri noho / moe

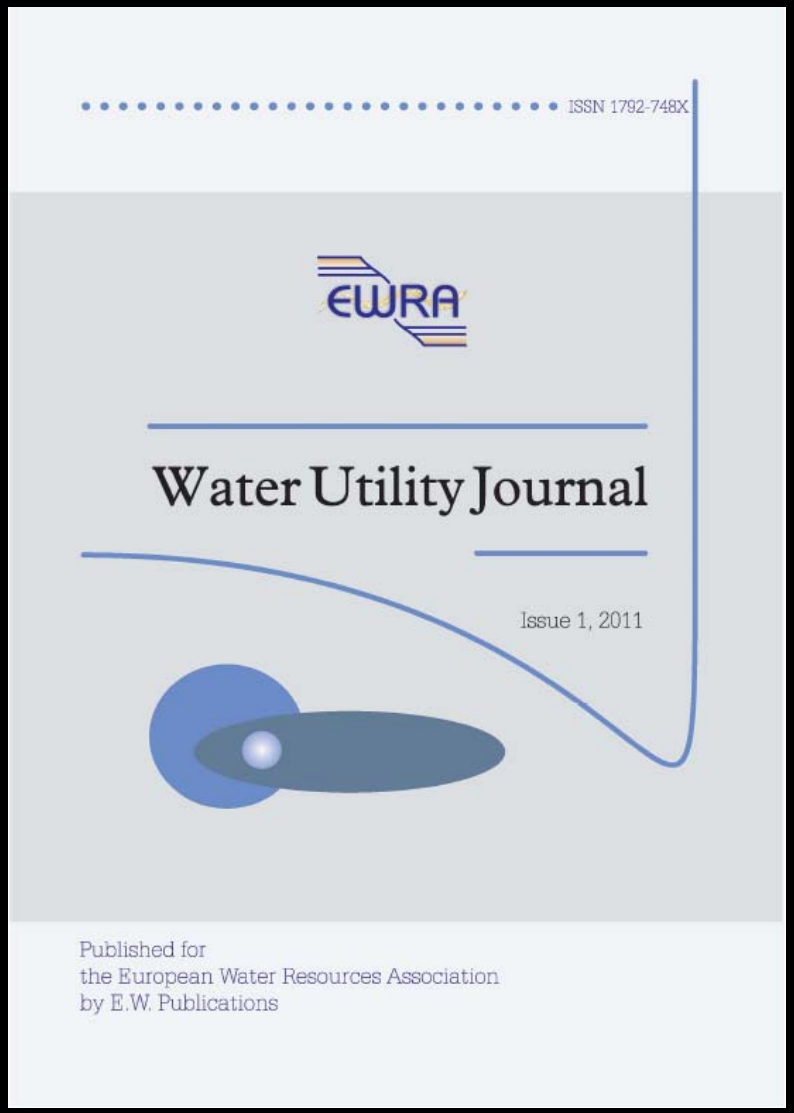
Fully Restored +2
<1% kina barrens
Mauri tuturu / ora

A CLEAR DIFFERENCE

mauri meter


MAURI
Tipping Points
Sustainability
$
IT IS TIME TO CHOOSE
mauri meter

Case Study: Agats, Papua



Understanding the Differing Realities Experienced by Stakeholders Impacted by the Agats Municipal Water Supply, Papua

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ABSTRACT

Agats Township is the capital of the Asmat Regency in southern Papua, Indonesia. The tidal range normally inundates the urban area, and fresh water supply is a problem for residential occupancy. Climate change has exacerbated this problem with an increasing extent of inundation and sediment deposition. A solution implemented to address the water supply requirements for Agats has introduced inequalities for the regional community. Issues beyond equitable access to the water supply such as cultural transgressions raise further questions regarding sustainability. An earlier study showed that some aspects of Asmat Culture resonate with the Māori of Aotearoa New Zealand. The research identified as feasible the transfer of an assessment framework which was created specifically for the New Zealand context to Asmat. The Mauri Model Decision Making Framework (MMDMF) is a unique sustainability assessment framework for gaining insight into complex problems. The objective of this research is to apply the MMDMF in Asmat to measure the sustainability of a Local Government project to supply fresh water to Agats Township. The Mauri Model evaluation shows that the project is not sustainable from the Asmat People's perspective, but it is considered sustainable by the Local Government. The Mauri Model shows that benefits are accrued in the social and cultural dimensions, while the environmental and economic dimensions are diminished.The differences in worldview values and therefore the perception of an infrastructure project's sustainability stem from the different values of the stakeholders effected. The findings demonstrate the international applicability of the Mauri Model Decision Making Framework in other cultural contexts.

Keywords: Asmat, Māori, water management, Mauri Model, mauriOmeter

1. Introduction

River Basin Management is one of the most complex and rapidly changing contexts of Resource Management today (Molle, 2009, Shmueli, 1999). The combining impacts of historic land management, river basin modification and climate change associated sea level rise and storm event ferocity are creating engineering challenges that have not been previously recorded. Understanding the wider implications of infrastructure developments in river basins must then be an essential area of further investigation as these engineering interventions add to the complexity being created. This article shares a unique new evaluation framework that unravels this complexity and provides a means of integrating the myriad interconnected facets of knowledge required to understand the problem. Agats Township located in the Asuwetz River Delta (Asmat Regency) of Papua. The results are then portrayed as they are perceived by stakeholders holding opposing views illustrating the influence of worldview bias in engineering decision making.

Agats Township is the capital of the Asmat Regency in south-western lowland Papua Indonesia. Asmat is the largest tidal lowlands area of Papua and one of the largest alluvial swamplands in the world (Kar, 2013) having the attributes of a globally unique ecosystem (Mawdsley and Houterman, 2010) because it stretches from coastal Arafura sea to about 200 Km inland to reach the first mountainside (Tommaseo and Lucchetti, 1992, Paoletti, 1995) and with significant cultural diversity (Giesen and Houterman, 2009).

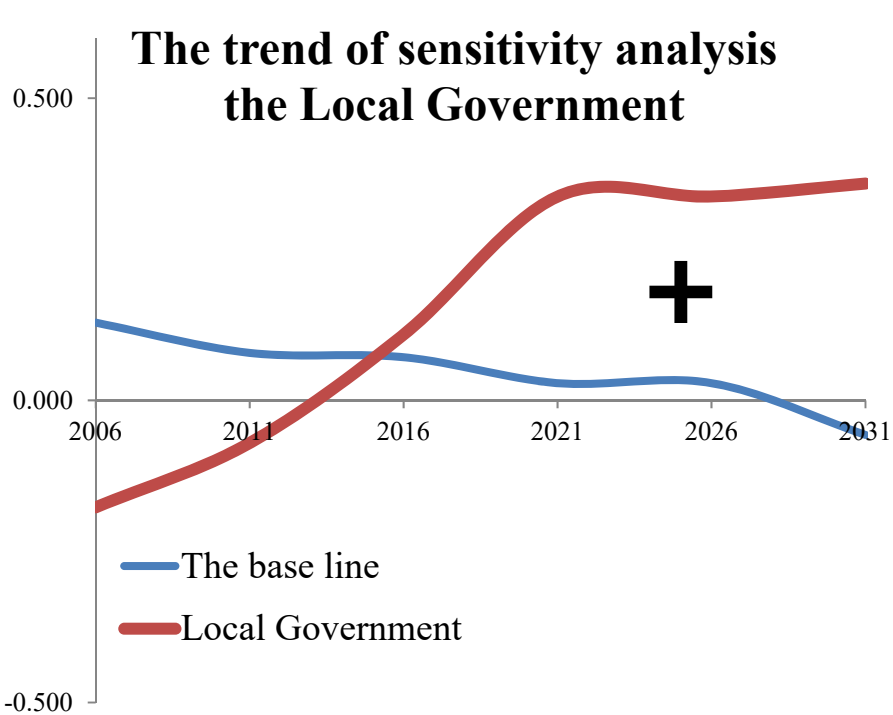
One of the UNESCO World Heritage Parks, the Lorentz National Park (Davidson, 1990, Asmat Government, 2011b, Asmat Government, 2012b) which is the largest protected area in Southeast Asia, is also located in this area together with other regencies (Papua-Government,

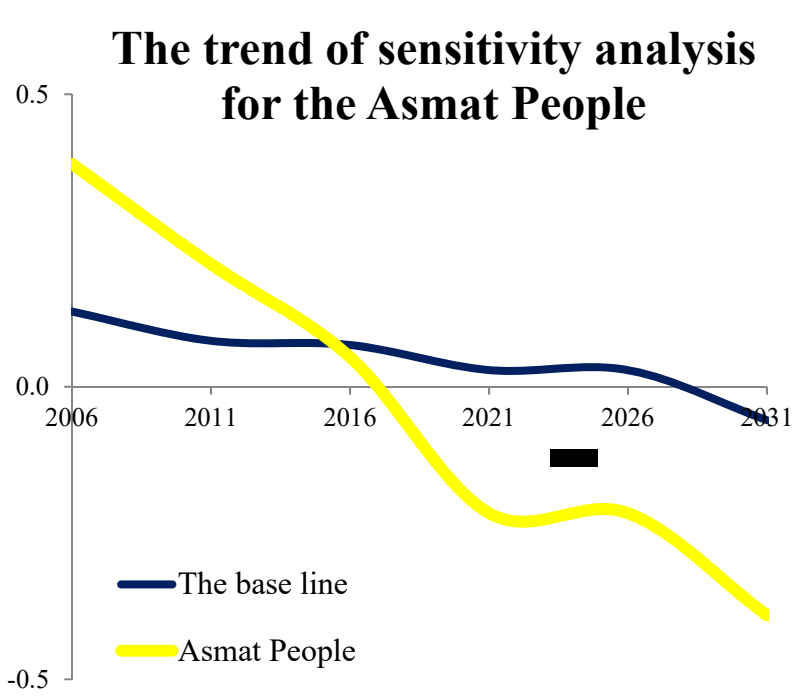
International Example: Asmat Regency Water Supply Project in Papua (PhD research)

- Agats is the capital of the Asmat Regency
- Population 15,000 people
- Area 2963 km²
- 0 to 5m elevation
- Slope less than 2 %

Images: Dr Elisabeth Wambrauw

Analysis of Stakeholder Values and Influence of Worldview Dimension Priority





Local Government **Asmat People**

Clearly Demonstrates Transfer of Mauri / Wealth

Thank You!

Tēnā Koutou,
Tēnā Koutou,
Tēnā Koutou
Kātoa!

Empowering Indigenous Voices in Impact Assessment – Part II: The 2011 MV Rena Disaster

Tūmanako Fa'aui BE Civil (Hons), PhD Candidate

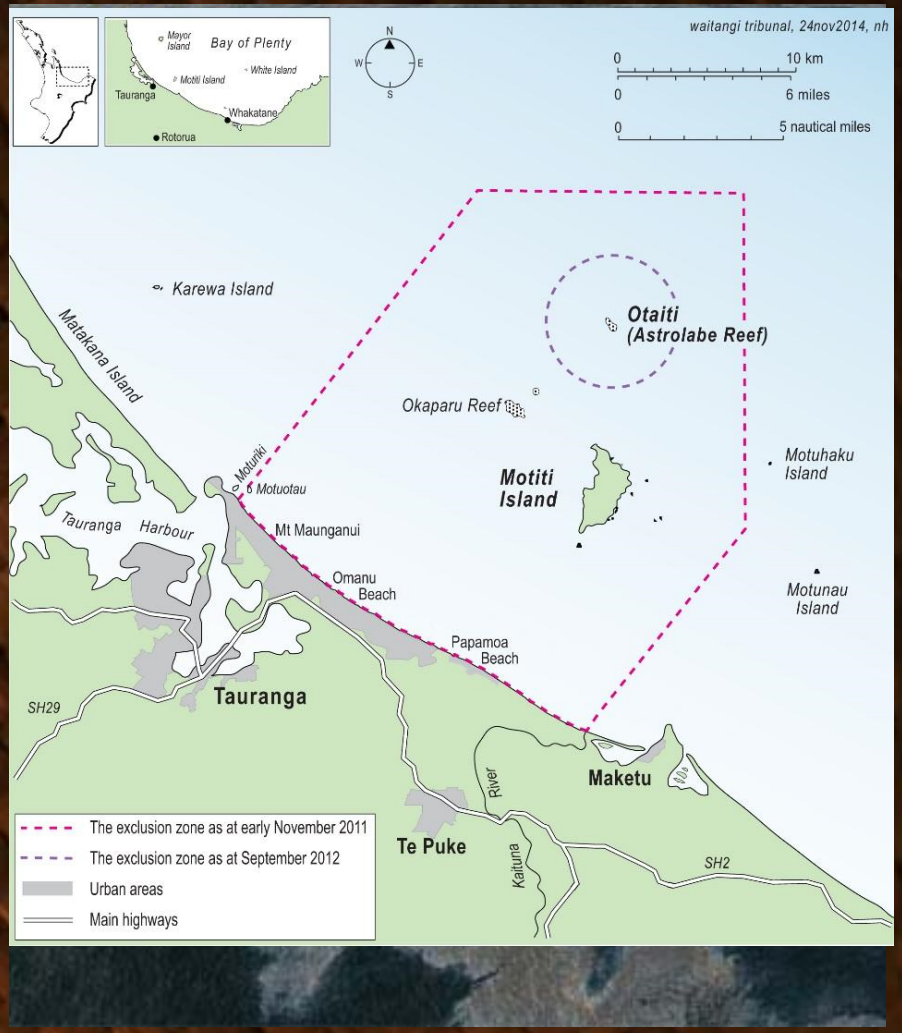
NGĀ PAE O TE MĀRAMATANGA

THE UNIVERSITY OF AUCKLAND
Te Whare Wānanga o Tāmaki Makaurau
NEW ZEALAND

ENGINEERING
DEPARTMENT OF CIVIL AND ENVIRONMENTAL ENGINEERING

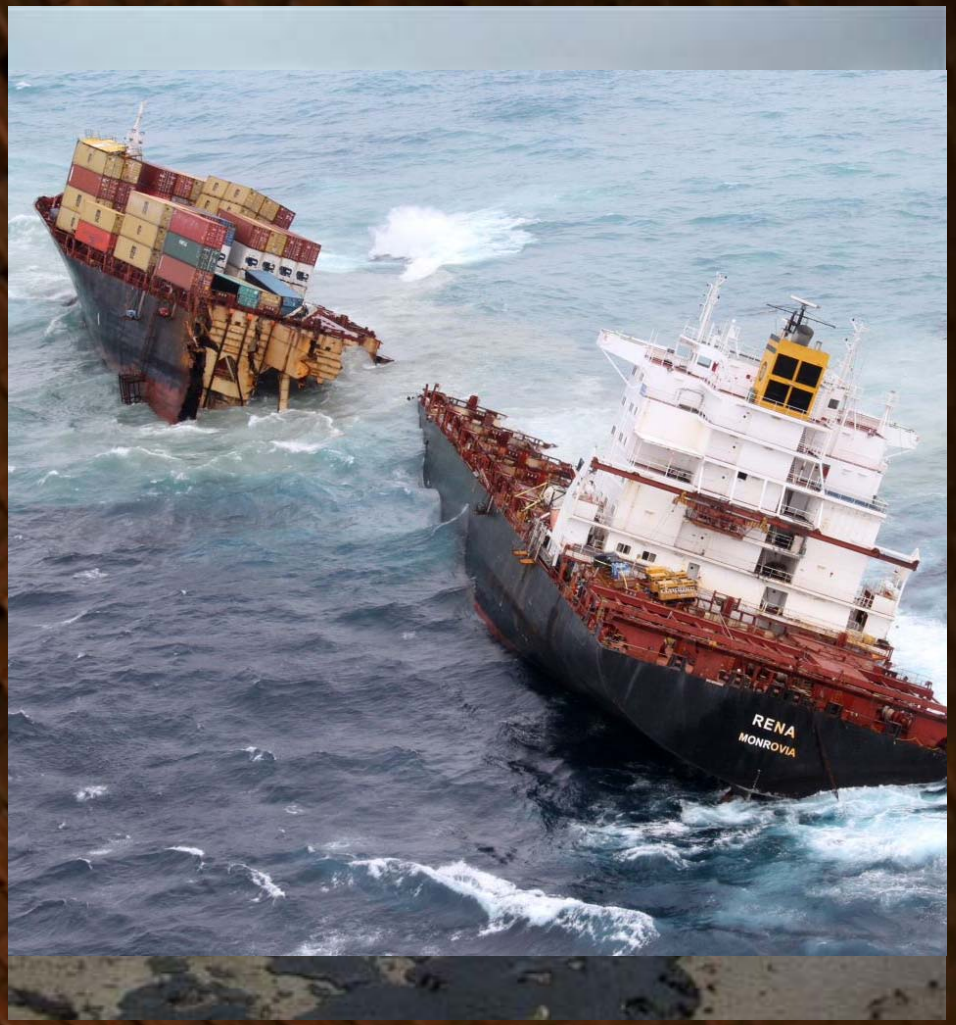
NZ's Worst Environmental Maritime Disaster

- MV Rena
- 5 October 2011
- 350 tonnes HFO spilled
- 1368 containers on board, 361 lost
- 3 nautical mile exclusion zone
- >$500mil (NZD) to date



Highly complex situation

- High energy environment at reef
- Tier 3 oil spill
- Communication lines
- Environmental impacts
- Follow on effects



Community context

- Discovered by Ngātoroirangi
- Significant to many tribal groups
- Traditional fishery
- Spiritual connection
- First responders

Cultural context

"To understand what that does to the people who rely on it – that's their Pak'nSave [supermarket]"

"How would you like it if I came and opened up mother's coffin and put my rubbish on top of her? That's exactly what they've done. We look at this as a mess, others look at this as an opportunity to make money"

Working with Māori communities

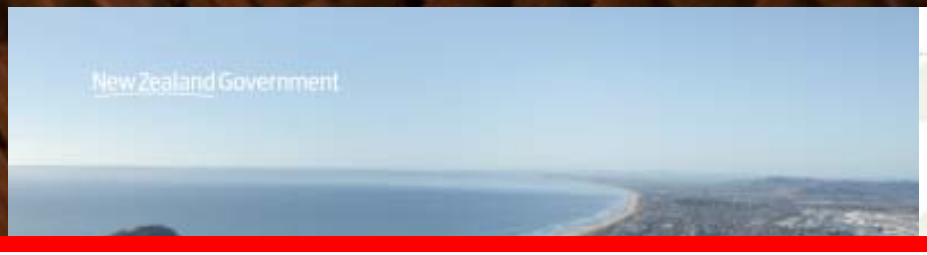
Kaupapa Māori methodology

"…research which is culturally safe, which involves the mentorship of kaumātua (elders), which is culturally relevant and appropriate, while satisfying the rigor of research, and which is undertaken by a Māori researcher, not a researcher who happens to be Māori." (Irwin, 1994)

Kaupapa Māori methodology

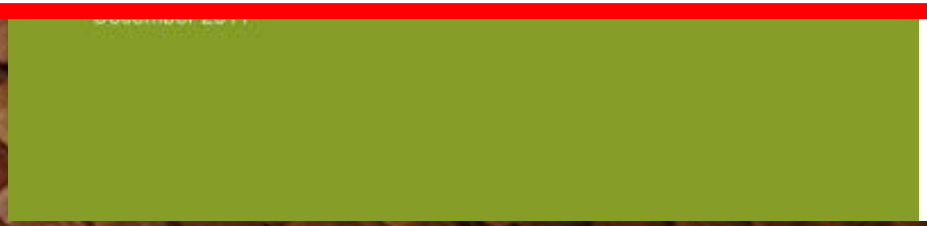
"Research by Māori, for Māori and with Māori"

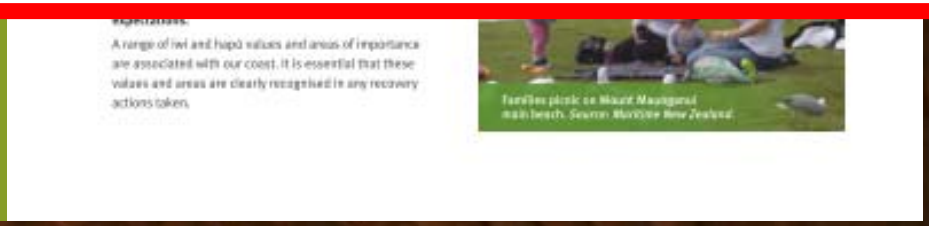
(Smith, 2005)



Goal: Restore the mauri of the affected environment to its pre-*Rena* state

Mauri includes: lifeforce, the integrity, form, functioning and resilience of the coastal environment, including its ecosystems, all kaimoana, marine and inter-tidal areas, rocks, estuaries, rivers and streams, islands, dunes and land, and customary fishing areas.





Empowering indigenous voices

- Direct collaboration and participation
- Breaks down barriers
- Inclusion of intangible factors
- Empowers indigenous knowledge
- Sustainability trends
- Recognition of worldviews
- Convergence of knowledge

Exploring the interface (Durie, 2004)

"There was an immediate connection and understanding [of the Mauri Model] . . . it accurately and appropriately expresses cultural values in a way that scientists can understand and vice-versa. So the story it tells is a story grown from the tangata whenua (indigenous) experiences, and it can be expressed in a way that everyone understands"

(Comment from Te Arawa participant at research findings seminar [Morgan et al., 2015]) .

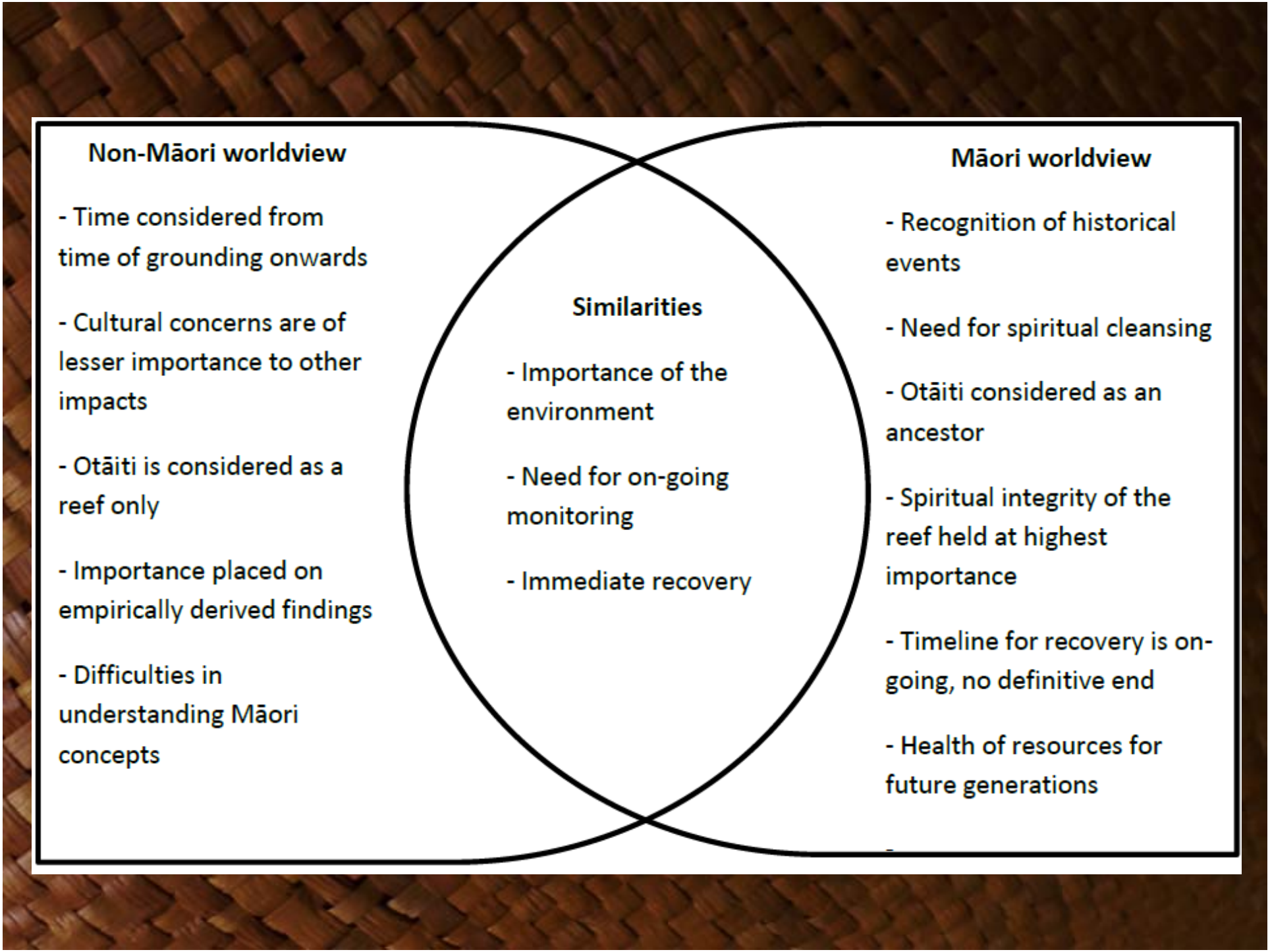
Exploring the interface (Durie, 2004)

"What I was most impressed with was how the process ensures a meaningful link between the researchers and ahikāroa (iwi with long undisturbed occupation of land) . . . that convergence between the academics and those at the 'grass roots' is important for gaining a better understanding of what the communities are experiencing, and the capacity of the community is actually increased also"

(Comment from Te Arawa participant at research findings seminar [Morgan et al., 2015]).

Community consultation

- Initial meeting with Iwi from impacted regions
- Working relationship with Te Arawa ki Tai
- Action Research based methodology
- Workshops used to identify indicator sets
- Iterative process


Non-Māori worldview
- Time considered from time of grounding onwards
- Cultural concerns are of lesser importance to other impacts
- Otāiti is considered as a reef only
- Importance placed on empirically derived findings
- Difficulties in understanding Māori concepts
Similarities
- Importance of the environment
- Need for on-going monitoring
- Immediate recovery
Māori worldview
- Recognition of historical events
- Need for spiritual cleansing
- Otāiti considered as an ancestor
- Spiritual integrity of the reef held at highest importance
- Timeline for recovery is on-going, no definitive end
- Health of resources for future generations

Hapū mauri / Cultural wellbeing

Code	Indicator	Description
CUL1	Rangatiratanga	Recognition of Treaty of Waitangi obligations
CUL2	Mana	Implementation of authority roles
CUL3	Manakitanga	Customary harvesting of food for manuhiri
CUL4	Kaitiakitanga	Recognition of traditional roles as kaitiaki
CUL5	Whanaungatanga	Establishing and maintaining relationships - looking after people
CUL6	Wairuatanga	Spiritual practices and beliefs
CUL7	Kawa	Historic considerations of tapu, respecting past practices
CUL8	Tikanga	Access to resources for traditional practices
CUL9	Whakatipuranga	Retention of traditional knowledge for future generations and relevance within changing conditions
CUL10	Wahi Tapu	The integrity of traditonally and culturally significant sites
CUL11	Tikanga II	Integrity of resources used for traditional practices
CUL12	Matauranga Maori	Recognition of traditional Maori knowledge within government policies

Ecosystem mauri/ Environmental wellbeing

Code	Indicator	Description
ENV1	Reef ecosystem/structure integrity Otaiti	Life supporting capacity of reef structure
ENV2	Pelagic species	Impact on the health of pelagic species in affected region
ENV3	Demersal species	Impact on the health of demersal species along the seabed in the affected region
ENV4	Bird species	Impact on the health of sea and pelagic bird species in the affected region
ENV5	Reef fish species	Impact on the health of reef fish species in the reef systems of Otaiti and surrounding
ENV6	Contamination of water column I	Water contamination due to dispersion of contaminants
ENV7	Contamination of water column II	Water contamination due to long term decomposition of debris and oil
ENV8	Air quality	Contaminants in the air column
ENV9	Adjacent reef structures and islands	Life supprting capacity of the surrounding reef structures and islands
ENV10	Restorative capacity of the ecosystem	Impacts of external stressors on the natural restorative capacity of the ecosystem
ENV11	Marine mammals - pinnipeds	Impact on the health of pinniped species - seals, in the affected region
ENV12	Marine mammals - cetaceans	Impact on the health of cetacean species - whales and dolphin species, in the affected region

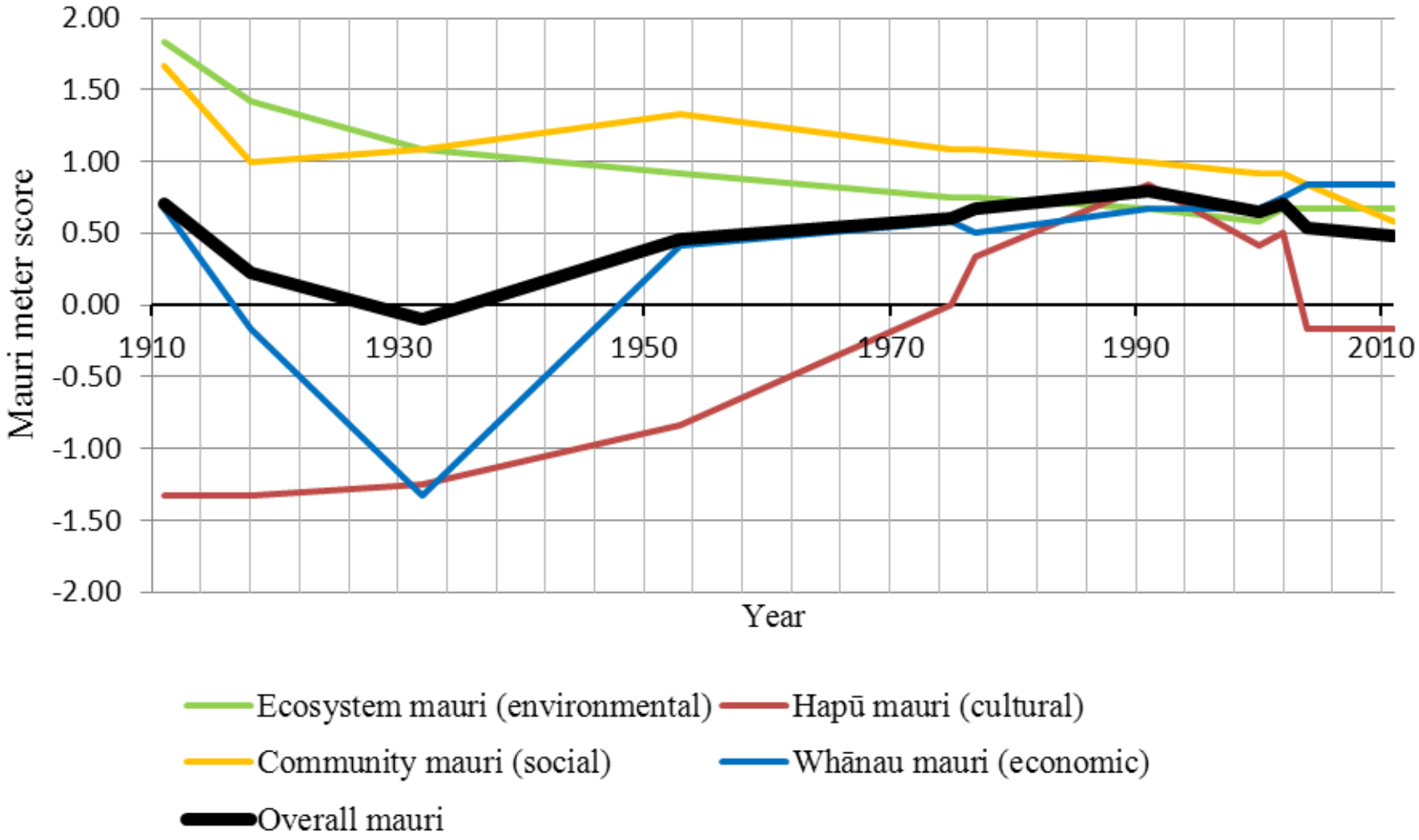
Whanau mauri/ Economic wellbeing

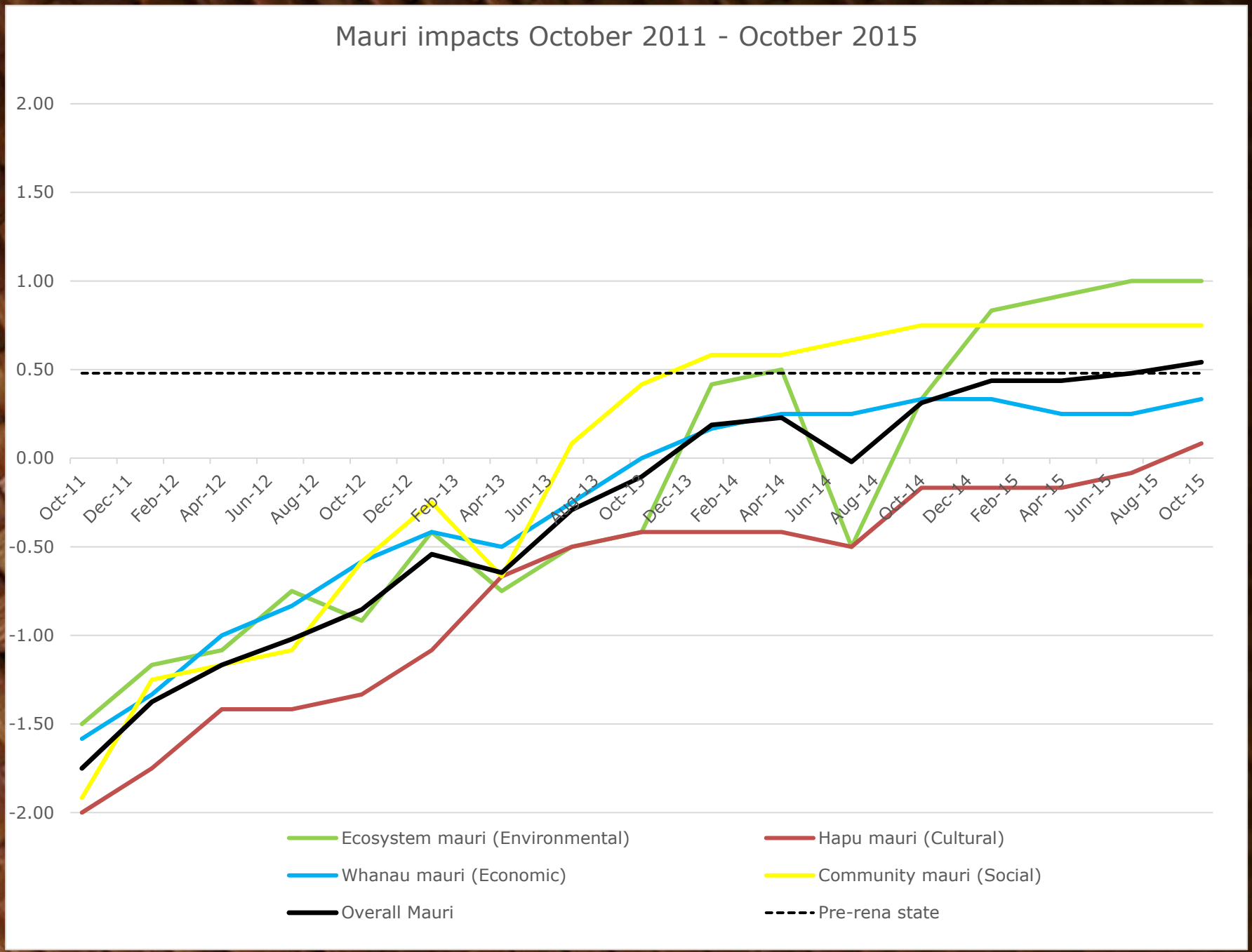
Code	Indicator	Description
ECO1	Council regulatory costs	Reflection of the council's regulatory costs and resources within local residents regional land rates
ECO2	Regional future liability	Reflection of the region's future liability
ECO3	Government resources	The cost of the government's resources input into the recovery process, reflected in taxes
ECO4	Commercial fishing	Commercial fishing activity within the affected area
ECO5	Property values	The change in property values in the impacted areas
ECO6	Employment opportunities	Employment opportunities within the region
ECO7	Investment incentives	The attractiveness of the region for investments
ECO8	Tourism activities	Impact on tourism activites and tourism providers within impacted region
ECO9	Holiday disruption	The cost (or opportunity cost) of disruption in holiday
ECO10	Business insurance	Availability of insurance for businesses and the impact on insurance premiums
ECO11	Food costs	Impact on the cost to provide food for families
ECO12	Business operation	The economic impact of the disaster on local businesses

Community mauri/ Social wellbeing

Code	Indicator	Description
SOC1	Food gathering	Viability for food gathering along beaches - shellfish gatheing, fishing
SOC2	Recreational fishing	Impact on recreational fishing (pelagic and demersal species) off shore
SOC3	Recreational water sports	Impact on recreational water sports - surfing, swimming
SOC4	Recreational diving	Impact on recreational diving activities at Otaiti
SOC5	Recreational beach use	Public use of the beaches along the affected coastline for recreational activities - walking, sunbathing, gatherings etc.
SOC6	Air quality	Aesthetic impact to air quality, odour due to decomposition of lost cargo from Rena and fuel oil
SOC7	Coastline cleanliness	The impact upon the aesthetic appeal of coastline due to debris and fuel oil washed ashore
SOC8	Marine ecosystem	Aesthetic integrity of the marine ecosystem impacted by the disaster
SOC9	Holiday quality	Quality of holidays for holidaymakers within impacted area
SOC10	Access to environs	Public access to the impacted environs - Otaiti, beaches, reefs, rocks etc.
SOC11	Psychological wreck presence	The public knowledge of the presence of the wreck, impacting on the perceived pristine quality of the reef
SOC12	Public health	Risks to the health of the general public, within Rena impacted area

Pre-Rena mauri impacts




Mauri impacts October 2011 - Ocotber 2015
2.00
1.50
1.00
0.50
0.00
-0.50
-1.00
-1.50
-2.00
Oct-11
Dec-11
Feb-12
Apr-12
Jun-12
Aug-12
Oct-12
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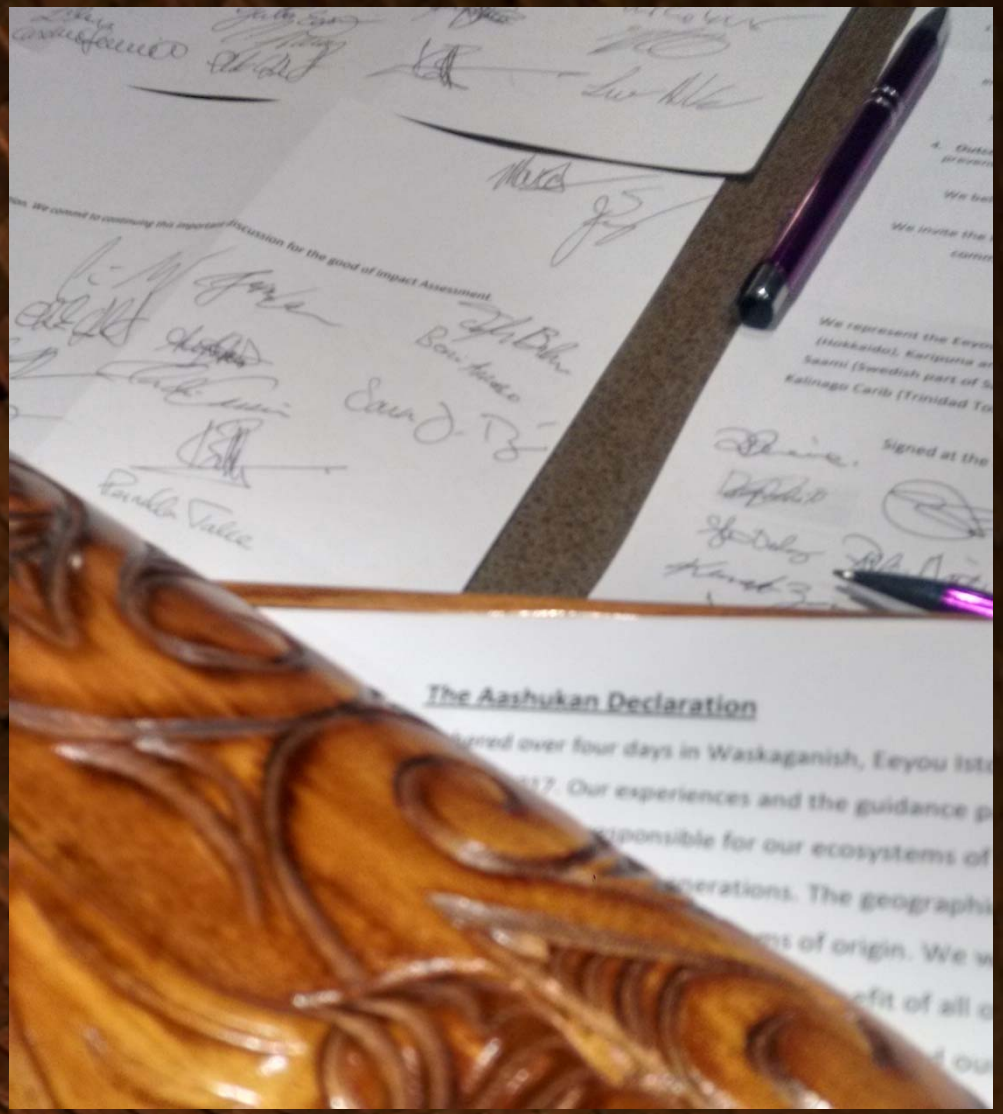
Apr-14
Jun-14
Aug-14
Oct-14
Dec-14
Feb-15
Apr-15
Jun-15
Aug-15
Oct-15
Ecosystem mauri (Environmental)
Hapu mauri (Cultural)
Whanau mauri (Economic)
Community mauri (Social)
Overall Mauri
Pre-rena state

Aashukan and final thoughts

- Participation is essential
- Value in TEK and local knowledge
- MM empowered iwi in decision making process
- CONTEXT is everything



IAIA 2018

AASHUKAN, ONE YEAR LATER

SESSION PROPOSAL ID **106**

Lead Chair: **Marc Dunn** | CoChair(s): **Kepa Morgan** , **Philippe Hanna**

Session Format: **Paper Session** | Accepts Submissions: **Yes - Open**

IAIA Section Topic: **Indigenous Peoples**

In 2017, the Indigenous Peoples Section organized Aashukan, designed to build bridges between communities and proponents through IA. This session will revisit the lessons from Aashukan. Presenters are encouraged to bring case studies that exemplify (or not) the principles from Ashukan to continue the discussion initiated in 2017.

ACCEPTANCE STATUS: **APPROVED**

IAIA 2018

INFORMING ENVIRO-CULTURAL JUSTICE IN IMPACT ASSESSMENT

SESSION PROPOSAL ID **94**

Lead Chair: **Kepa Morgan** | CoChair(s): **Tumanako Ngawhika Fa'aui**

Session Format: **Workshop** | Accepts Submissions: **Yes - Open**

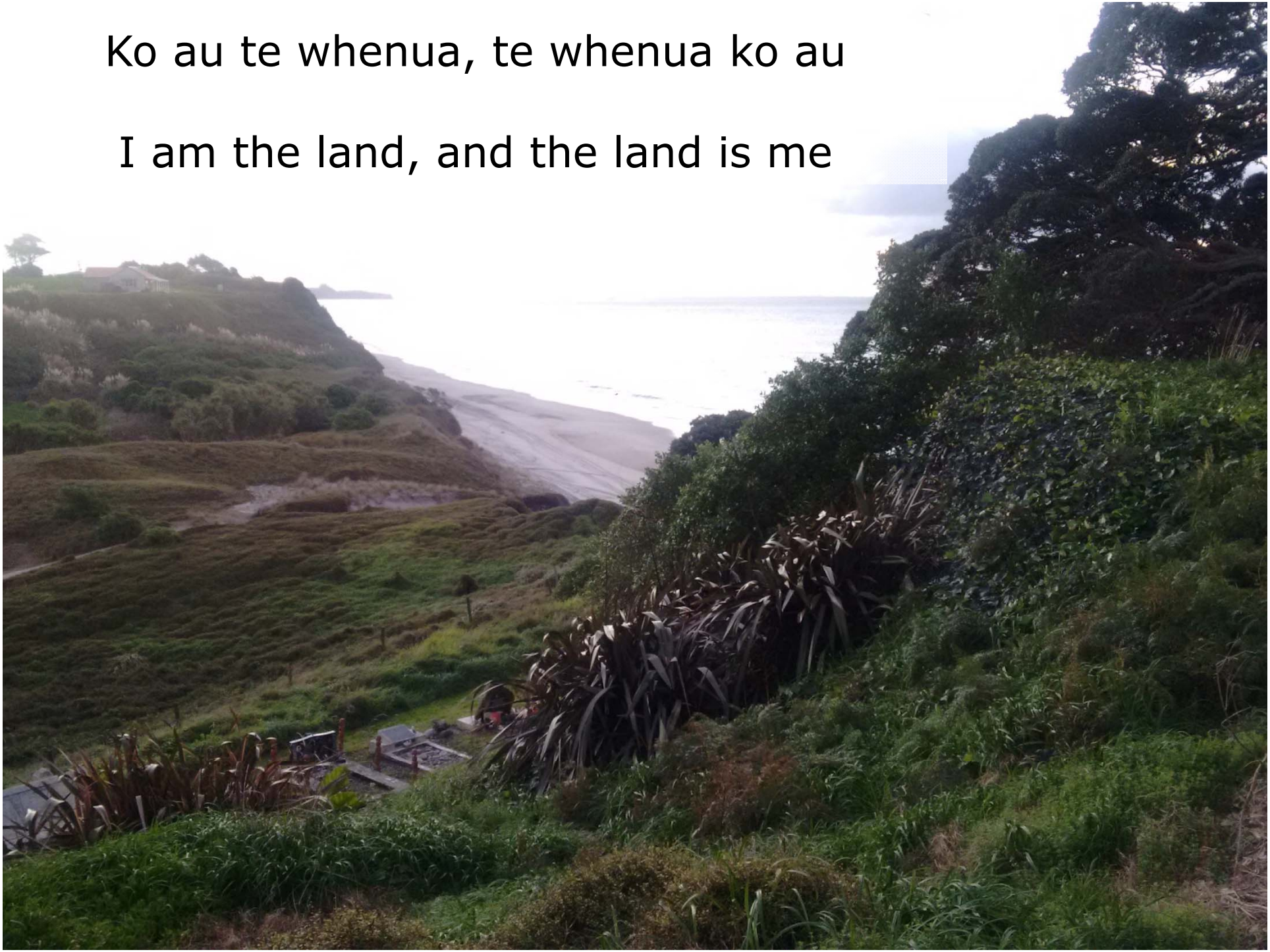
IAIA Section Topic: **Indigenous Peoples**

Building on Aashukan, informing cultural justice is the focus. Disaster, scarcity, and competition all result in prioritization of the majority while enviro-cultural costs are ignored. Often Indigenous Peoples are the minority. What examples can be shared that achieve the empowerment of environmental and cultural justice in impact assessment?

ACCEPTANCE STATUS: **APPROVED**

Ko au te whenua, te whenua ko au

I am the land, and the land is me



He Patai?

Questions?

Tēnā koutou katoa!

Thank you for being here!