

# Tikanga Māori informed investment decisions for collective assets- Case Study: Makirikiri Aggregated Trust

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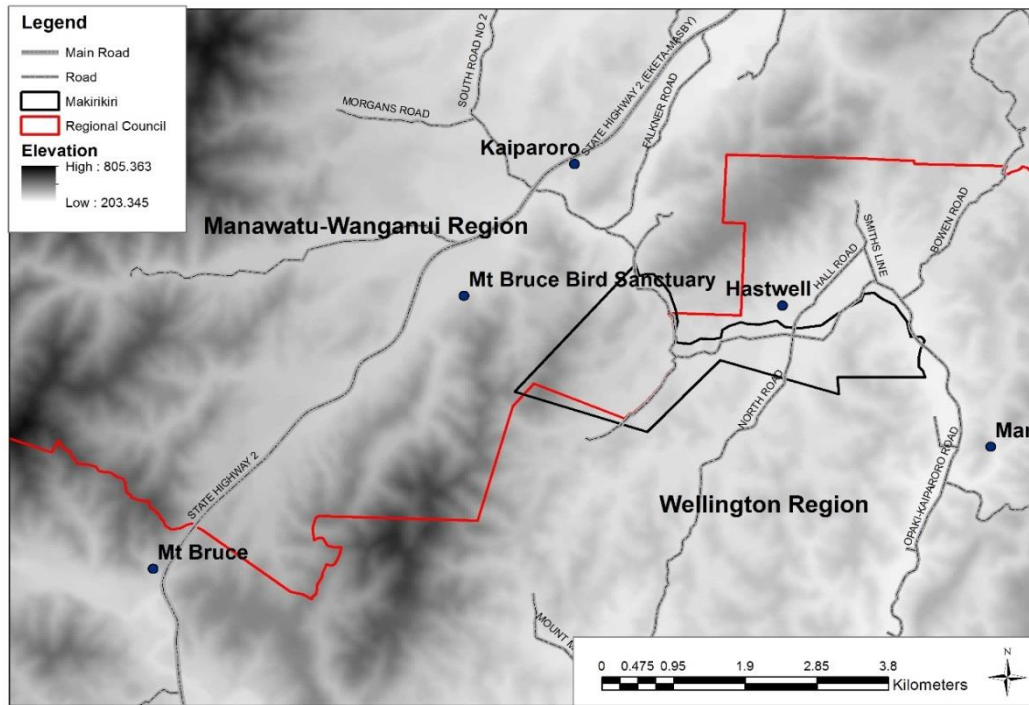
# Ngā Whāinga

## Aims

- Makirikiri Aggregated Trust is considering a number of multiple land use options for their farm
- Each option has pros and cons in terms of consistency with three core Māori principles:
  - Whakatipu Rawa – growing assets
  - Manaakitanga – reciprocity
  - Kaitiakitanga – sustainable management
- Manaaki Whenua has developed an integrated approach to assess potential impacts based on tikanga Māori



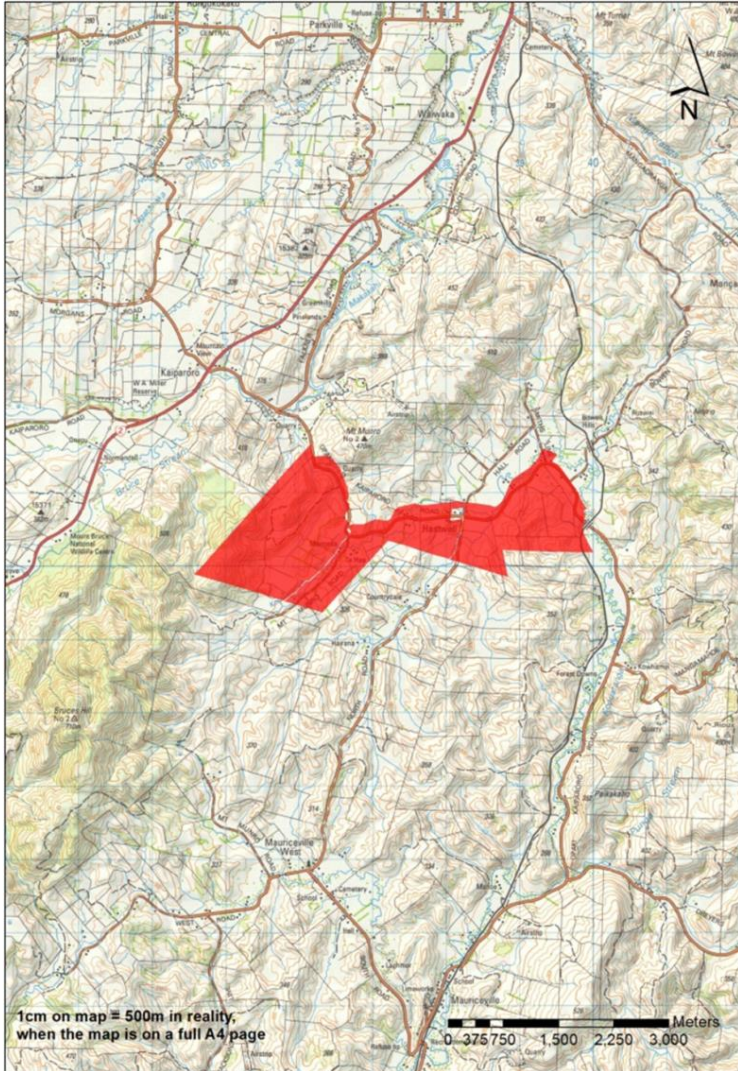
# Location



- Two river systems (Kopuaranga and tributary of Makakahi)
- 2 Regional Councils – Horizons-Manawatu & Greater Wellington

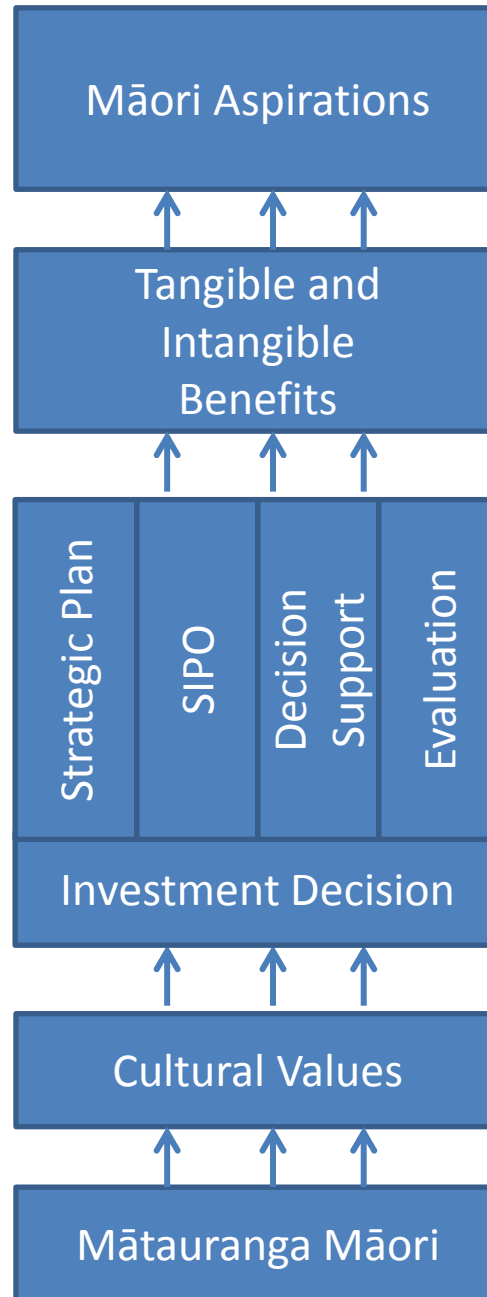


# Overview



- 535 ha total area
- 421 ha effective area
- 162 ha arable
- 86 ha of rolling “easy” hills
- 86 ha of moderately steep hills
- 61 ha of steep or shallow soils
- 26 ha very wet or flood-prone

# Conceptual Model of Cultural Values in Economic Decision Making

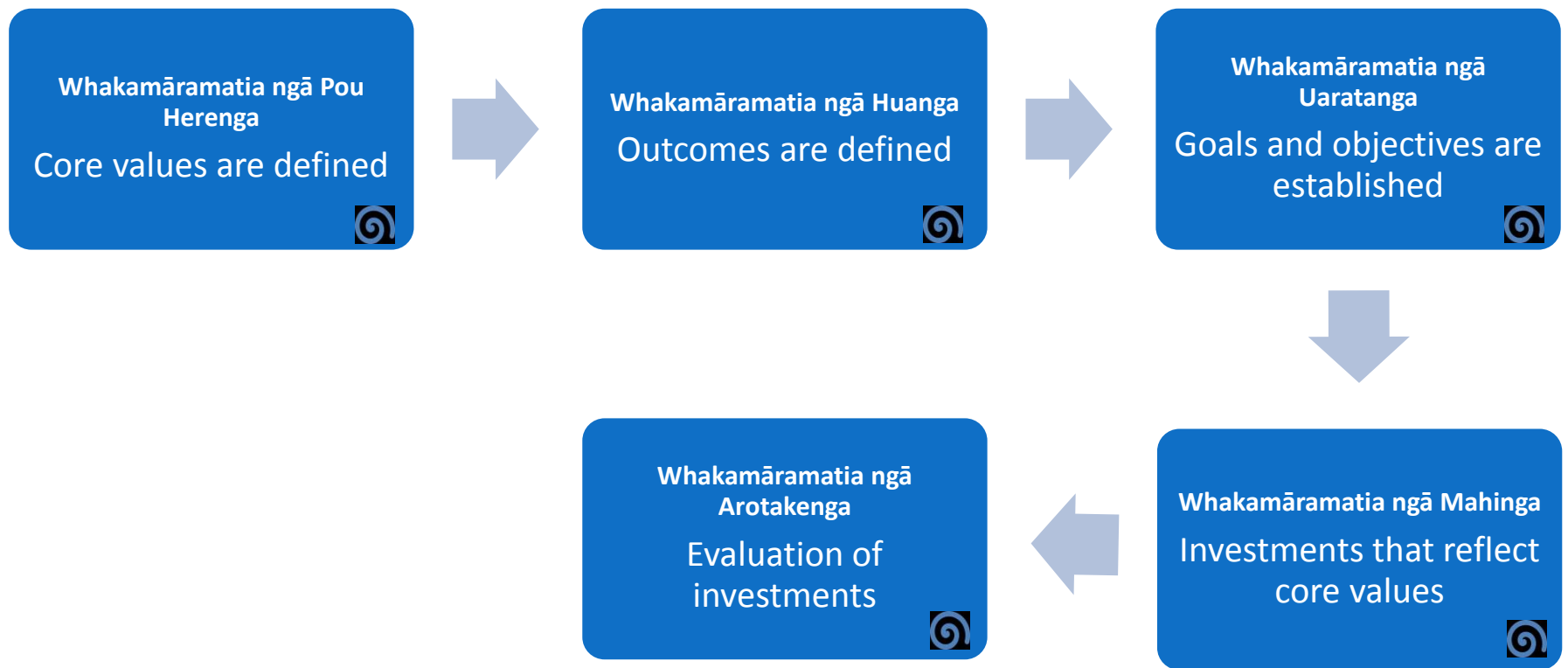




# Decision Tool

- Attributes of an effective decision tool:
- Based on on mātauranga Māori (Māori knowledge) theory and philosophy
- An holistic approach towards Māori wellbeing
- Mixed data measures
  - Qualitative/Metaphysical e.g. Narrative korero on values and aspirations, quality of life, well-being
  - Quantitative/Biophysical e.g. Water quality, FTEs, Maara Kai, Mahinga Kai
- Context specific measures - Iwi/hapū specific

# Decision Making Model



# Ngā Pou Herenga

## Core Values

- *Kaitiakitanga* – Māori sustainable resource management (not the same as guardianship as there is an element of active use based on whakapapa and the ability of securing an access and use right to the resource).
- *Manaakitanga* – is a principle that reflects reciprocity of actions to: the environment, the wider community, to iwi/hapū, and other people.
- *Whakatipu Rawa* – a concept concerned with growing the asset base, retention of Māori owned resources, and effective use of these resources for beneficiaries and future generations.





# Ngā Huangā

## The Vision and Outcomes

- A healthy and productive whenua



# Ngā Uaratanga

## Goals & Objectives

*Kaitiakitanga:* The mauri of Whenua X is enhanced by Year X

*Manaakitanga:* The mauri of hapū/iwi X and wider community is enhanced by Year X

*Whakatipu Rawa:* The asset base of X grows by Year X and there is an equitable distribution of dividends to current and future beneficiaries





# Ngā Mahinga

Actions on the ground

- Investments that support core values (kaitiakitanga etc.)  
e.g. restoration of wetlands and planting riparian areas





# Ngā Arotakenga

## Cultural Evaluation Tools

Measures based on what's important to Māori e.g. mauri, abundance of taonga species and water quality, jobs





# CULTURAL EVALUATION INDICATORS

HE TAUIRA – AN EXAMPLE



## Ngā Inenga - Indicators

- *He Pou Herenga (Guiding Principle):* Kaitiakitanga
- *He Huanga (Outcome):* The mauri of the whenua is maintained or improved through Kaitiakitanga
- *He Uara (Long term goal):* The mauri of the whenua is enhanced by 2019

<i>Indicator</i>	<i>Description</i>	<i>Variable</i>
Wāhi Tapu/taonga	The mauri of significant sites	Low/medium/high
Mahinga Kai	The mauri of food-gathering areas	Low/medium/high
Nga otaota Māori	The mauri of culturally significant plants	Low/medium/high
Intergenerational Investment	Intergenerational equity is maintained	Disagree/agree/strongly agree
Ngā Wai Tipuna	The mauri of culturally significant waterways is enhanced	Low/medium/high





## Ngā Inenga - Indicators

- *He Pou Herenga (Guiding Principle):* Manaakitanga
- *He Huanga (Outcome):* Our activities respect the environment, our hapū/iwi and wider community
- *He Uara (Long term goal):* The mauri of the hapū/iwi and wider community is enhanced by 2019

<i>Indicator</i>	<i>Description</i>	<i>Variable</i>
Education goals	Mātauranga Māori is enhanced	Low/medium/high
Whanaungatanga– Iwi/hapū outcomes	Mauri of the iwi/hapū is enhanced	Low/medium/high
Whanaungatanga– Whānau Hapori outcomes	Mauri of the wider community is enhanced	Low/medium/high
Partnerships	Inter-iwi and intra-community commercial relationships are maintained	Low/medium/high



## Ngā Inenga - Indicators

- *He Pou Herenga (Guiding Principle)*: Whakatipu Rawa
- *He Huangā (Outcome)*: The asset base is grown for future generations
- *He Uara (Long term goal)*: The asset base grows by 2019 and there is an equitable distribution of dividends to current and future beneficiaries

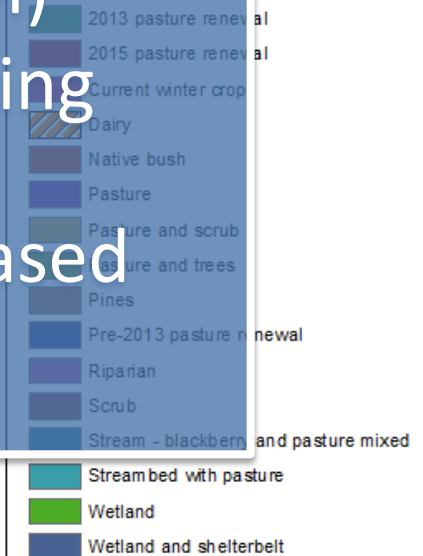


<i>Indicator</i>	<i>Description</i>	<i>Variable</i>
Equity	Distribution amongst members and future generations	Low/medium/high
Sustainable Return	To generate a sustainable return for shareholders	Low/medium/high

# Application of Decision Framework

We used a modular approach to modelling that included the following steps:

- 1) A land use assessment (desktop and on site)
- 2) Land use options modelling (using S-map the new national soils database)
- 3) Economic modelling (utilising NZFARM)
- 4) Environmental policy modelling (utilising NZFARM)
- 5) Cultural values assessment (ordinal based indicators)





# Ngā Kowhiringa Whai Putea

## Investment Options

- Sheep and Beef (S&B)
- Dairy
- Optimised S&B
- S&B with mitigation
- Dairy with mitigation



Criteria		1 Sheep and Beef	2 Optimised Sheep and Beef	3 Irrigated Dairy	2 & Environment mitigation	3 & Environment mitigation
Kaitiakitanga	Mahinga Kai					
	Ngā Wai Tipuna					
	Wāhi Tapu/Taonga					
	Ngā Otaota Māori					
Manaakitanga	Whanaungatanga					
	Education					
	Partnerships					
Whakatipu Rawa	Intergenerational Investment					
	Labour FTEs					



# Economic Modelling - NZFARM

## assessment - economic

(per annum)

Scenario	Area	Net Revenue	Milk	Lambs	Wool	Beef	Timber
	ha	\$	kg	kg	kg	kg	m3
Sheep & Beef	5	\$60	0	50	8	20	10
Optimised S&B	5	\$80	0	60	14	50	10
Dairy	6	<b>\$100</b>	10	30	3	10	10
Sheep & Beef + Mitigation	5	\$50	0	50	8	20	10
Optimised S&B + Mitigation	5	\$70	0	60	13	45	10
Dairy + Mitigation	6	<b>\$90</b>	9	25	33	10	10

NOTE: these are relative figures only





# Economic Modelling - NZFARM assessment - environment

(per annum)

Scenario	N Leach	P Leach	Total GHG	Forest Carbon Sequest	Net GHG	Water Yield	Soil Erosion
	kg	kg	tonnes	tonnes	tonnes	mm	tonnes
Sheep & Beef	10.5	11.5	10.5	4	7	3	12.5
Optimised S&B	11	<b>12.5</b>	<b>14</b>	4	14	3	12.5
Dairy	<b>17</b>	10.5	<b>14</b>	4	14	3	14
Sheep & Beef + Mitigation	10	11	10	5	5	3	12
Optimised S&B + Mitigation	10.5	12	12	5	9	3	12
Dairy + Mitigation	<b>14</b>	10	<b>14</b>	5	9.5	4	13.5

NOTE: these are relative figures only



# Ngā Huangā

## Findings

- We found that the improvements in cultural values (Kaitiakitanga and Whakatipu Rawa) were relatively low for each of the investment scenarios
- Benefits were more obvious for S&B particularly for Manaakitanga
- However when environmental mitigation was added in to all scenarios the level of benefits obtained utilising the cultural values criteria improved (relative to the no mitigation case)
- The economic gains from Dairy need to be weighed against the environmental and cultural impacts



# Ngā Huangā

## Findings

- Switching from the S&B to Dairy could increase average net farm revenue over the long run by about 70-87%.
- Requires initial capital improvements resulting in significant amount of debt.
- Optimising S&B could result in an increase in net revenue by about 25-43% per annum.
- Converting from S&B to Dairy could have a negative impact on water quality and GHGs
- Mitigation requires taking some land out of production, namely riparian areas close to the streams





# He Korero Whakakapi

## Conclusion

- A sound understanding of Māori values/principles is required for managing collective assets
- Informed investment decisions require explicit consideration of cultural values
- Our integrated assessment tool can help managers of collective assets make progress towards outcomes that reflect equality of distribution, and mitigate or improve the social and environmental domains that are the receptors of the externalities created by our economic activities.