“Integrative approaches to environment, community & health: innovations and connections across local, Indigenous and geospatial knowledge"

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Garth Harmsworth (Te Arawa, Ngāti Tūwharetoa, Ngāti Raukawa)

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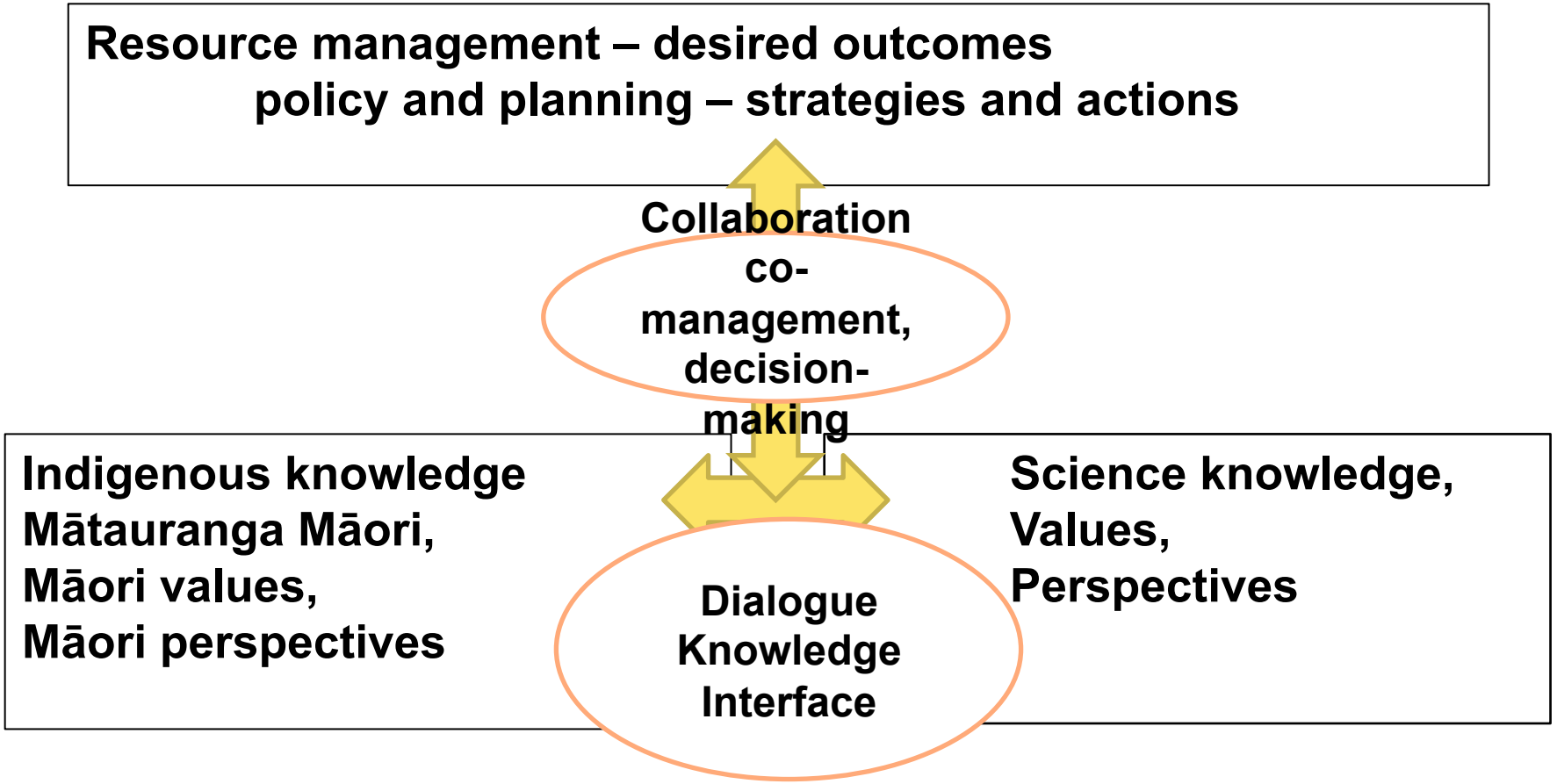

Figure 1: Dialogue space for understanding mātauranga Māori and science knowledge used to inform decision-making.

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.

Indigenous links/resources

Indigenous research in Aotearoa-New Zealand (Garth Harmsworth):

Indigenous Maori land – geospatial tools

- http://whenuaviz.landcareresearch.co.nz/
- Research gate: http://www.researchgate.net/profile/Garth_Harmsworth/

Landcare Research – geospatial tools

- **Landcare Research puts a large amount of its data into open access:**

http://www.landcareresearch.co.nz/resources/data

- **Land Resource Information Systems (LRIS) portal:**

http://www.landcareresearch.co.nz/resources/data/lris

- **Our Environment:**

http://ourenvironment.scinfo.org.nz/home

http://www.landcareresearch.co.nz/resources/data/our-environment

Geospatial – NZ contacts: David Medyckyj-Scott, Nick Spencer, Robert Gibb, and James Barringer, are leading much of the geospatial/database – web content/design work inside of Landcare Research NZ. Questions to David/Nick/Robert):

- Medyckyj-ScottD@landcareresearch.co.nz
- SpencerN@landcareresearch.co.nz
- GibbR@landcareresearch.co.nz

NZ resources (continued)

NZ Geospatial strategy (Land Information New Zealand):

http://www.linz.govt.nz/about-linz/our-location-strategy/geospatial-strategy-and-work-programme/new-zealand-geospatial

New LAWA (land, air, water Aotearoa) site for NZ: Regional councils feeding local data in - aggregated at national level:

http://www.lawa.org.nz/

Environmental reporting site for NZ (MfE) -our data feeds into this site

https://data.mfe.govt.nz/data/category/environmental-reporting/

Our Estuaries internet hub (Department of Conservation NZ)

www.doc.govt.nz/estuaries