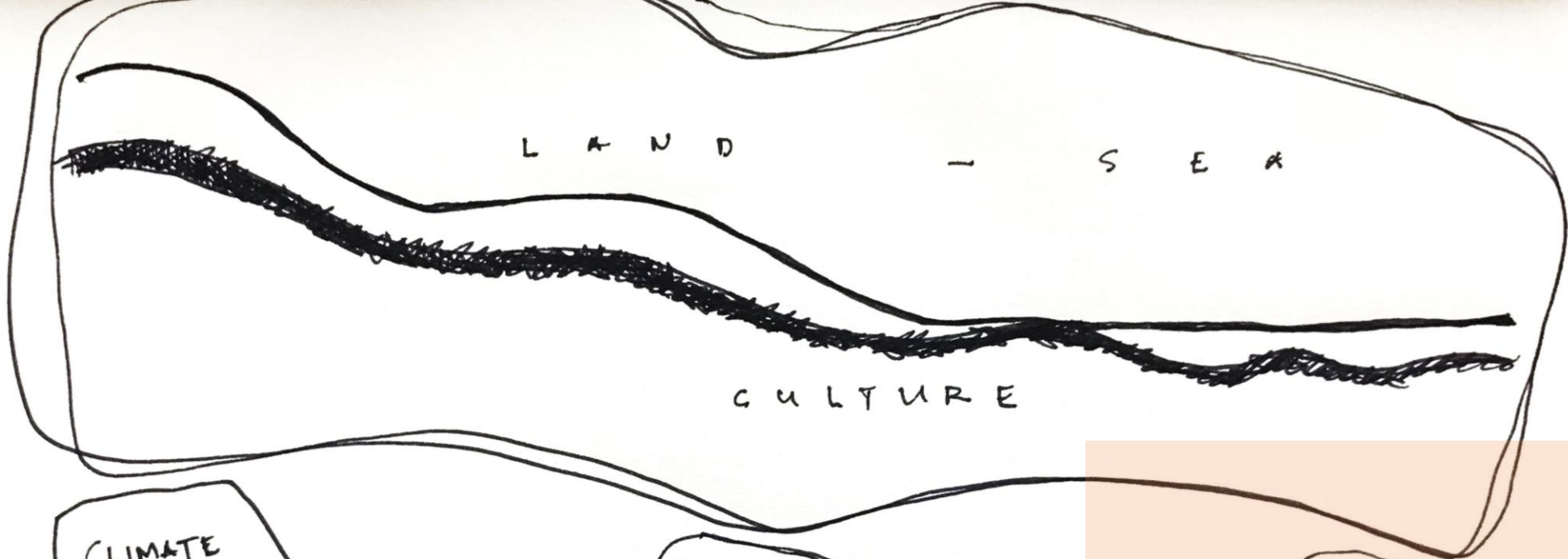


Indigenous values and climate change science:

Designing for threatened culturally significant places

- Prof Martin Bryant, Prof Penny Allan, Lizzie Yarina
- ICOMOS Culture: Conserving it Together Conference
- Suva, Fiji, October 2018
- Theme 4: Heritage at Risk: Climate Change and Disasters



CLIMATE
CHANGE
MIGRATION

NEW PLACES

OLD
CULTURES

CONSERVATION

RESILIENCE

INDIGINOUS
WORLD
VIEWS

CLIMATE
CHANGE
SCIENCE

HAVING
IMPACT

SYNTHESISING THROUGH LOCAL STUDIES

1. TRANSLATING SPACE

2. LANDSCAPE AS MIDDLE GROUND

3. INDIGENOUS ECOLOGIES

Coastal erosion



Increased salinity



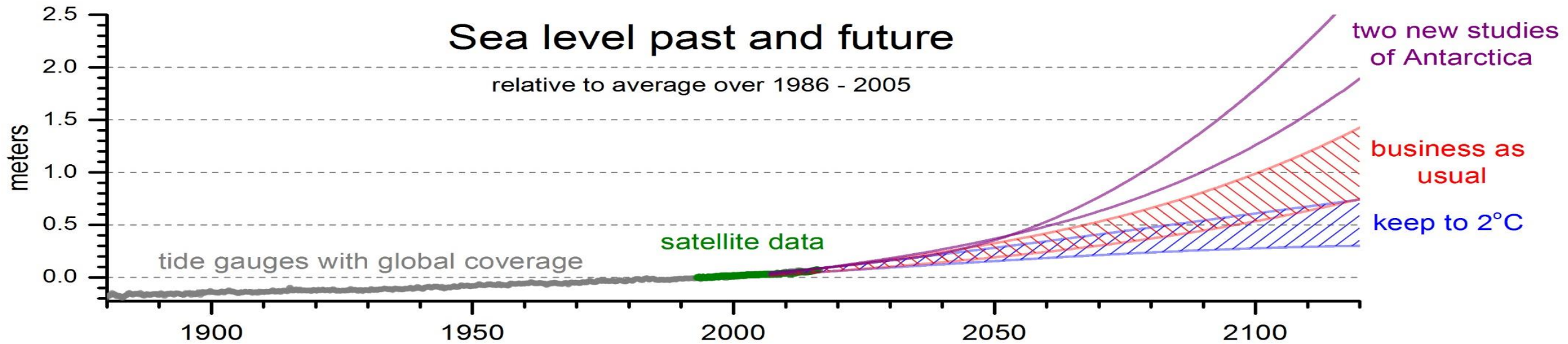
Inundation and rising water table



Impacts from natural hazards

Science is learning how fast sea level can rise

Governments have made a commitment to keep global warming to less than 2°C and the best estimates so far are that this would keep future sea level rise in the range 0.3 – 1 metre.



When Earth became about 3°C warmer about two million years ago the sea level was about 20 meters higher. The most recent science suggests that can happen at rates of more than 2 metres per century.

Problem statement

Climate change science has much uncertainty about it.

Adaptation to climate change is seen as requiring an engineering solution.

Engineering infrastructure is not feasible in low density areas

Indigenous cultures are inherently resilient, but unempowered in climate change science.

Question

How might western scientific knowledge and indigenous cultural knowledge influences adaptation to climate change?

Western science and Indigenous knowledge

Two ways of knowing, but one is extremely concrete and the other is extremely abstract. (Levi Strauss, 1962)

Indigenous ecological knowledge

Many adaptive practices of Pacific Islanders that have been identified as part of indigenous ecological knowledge.

They include the adaptive practices associated with land-based management of resource abundance; resource rotation; ecosystem structure and function; landscape patchiness (biodiverse heterogeneity); watershed-basins; ecological processes at multiple scales; **pulses and surprises**; and sources of ecosystem renewal.

Some of the cultural mechanisms that are linked to these practices include **the interpretation of indicators for action**; revival of local knowledge; and intergenerational transmission and geographical diffusion of knowledge.

These practices all encompass a world-view that embodies environmental ethics, values of respect, sharing, reciprocity and humility, in a way that will builds resilience.

(Berkes Colding Folke 2000)

Method

Engagement with local communities in NZ and Fiji to provide local leadership

Design research to synthesise issues

Exhibitions to gain impact

The Deep South: Te Kō mata o Te Tonga

Adaptation Strategies to Address Climate Change Impacts on Coastal Māori Communities



Huhana Smith
Principal Investigator

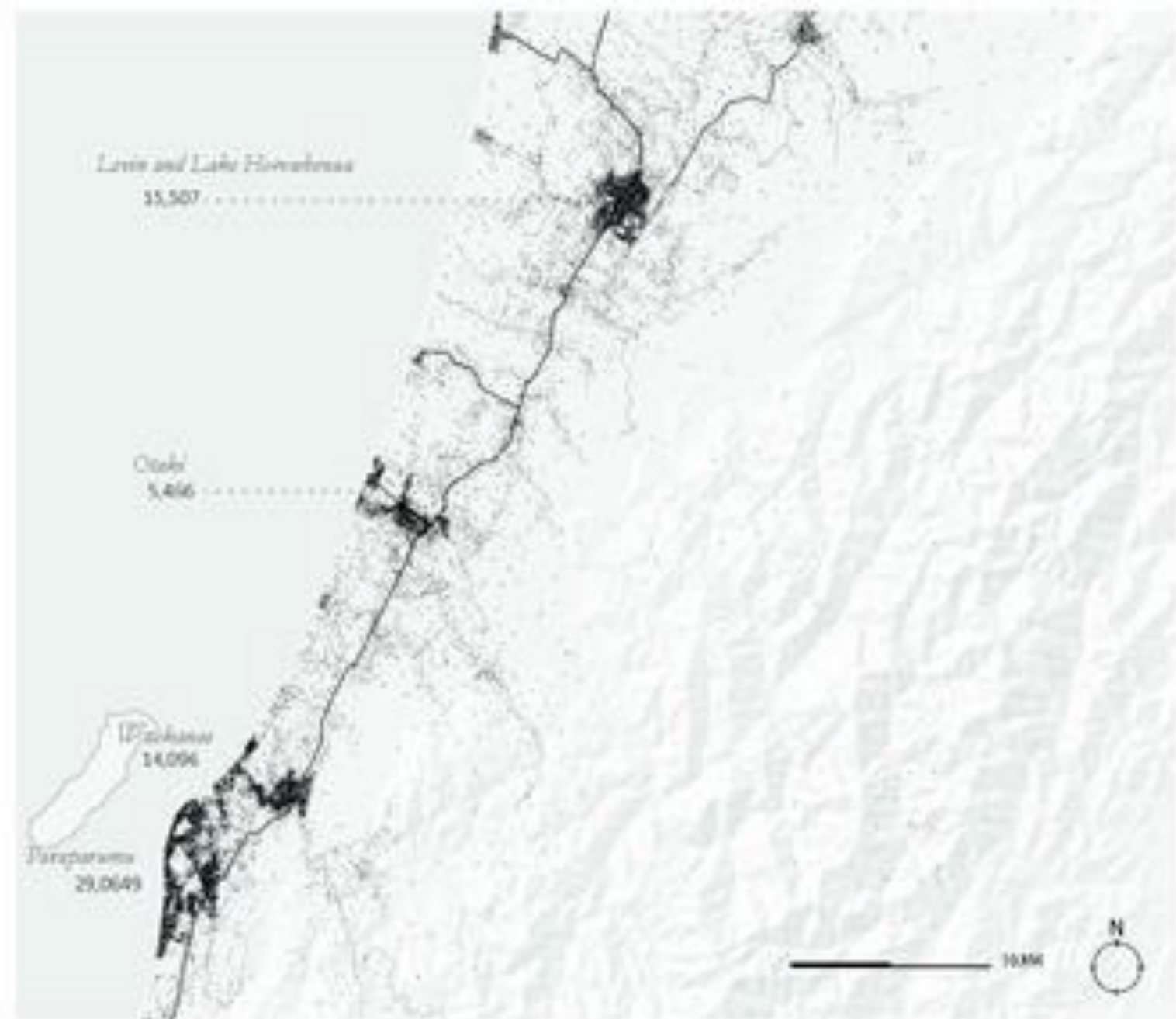


http://files.webklik.nl/user_files/2010_04/129219/photos/Kaart_19.jpg

Case study site in Horowhenua, on culturally significant farmland

Impacts from human activities





Mātauranga Māori

Mātauranga Māori is a contemporary Māori term for an indigenous world-view that has changed over generations. It revolves around the role of human interdependencies and inter-relationships to each other.

It is central to a Māori environmental worldview, founded on a spiritual dimension and dynamics of land, waterways and being, operating in a way that transcends analytical science. (Bryant, Allan, Smith, 2017)



Whakapapa

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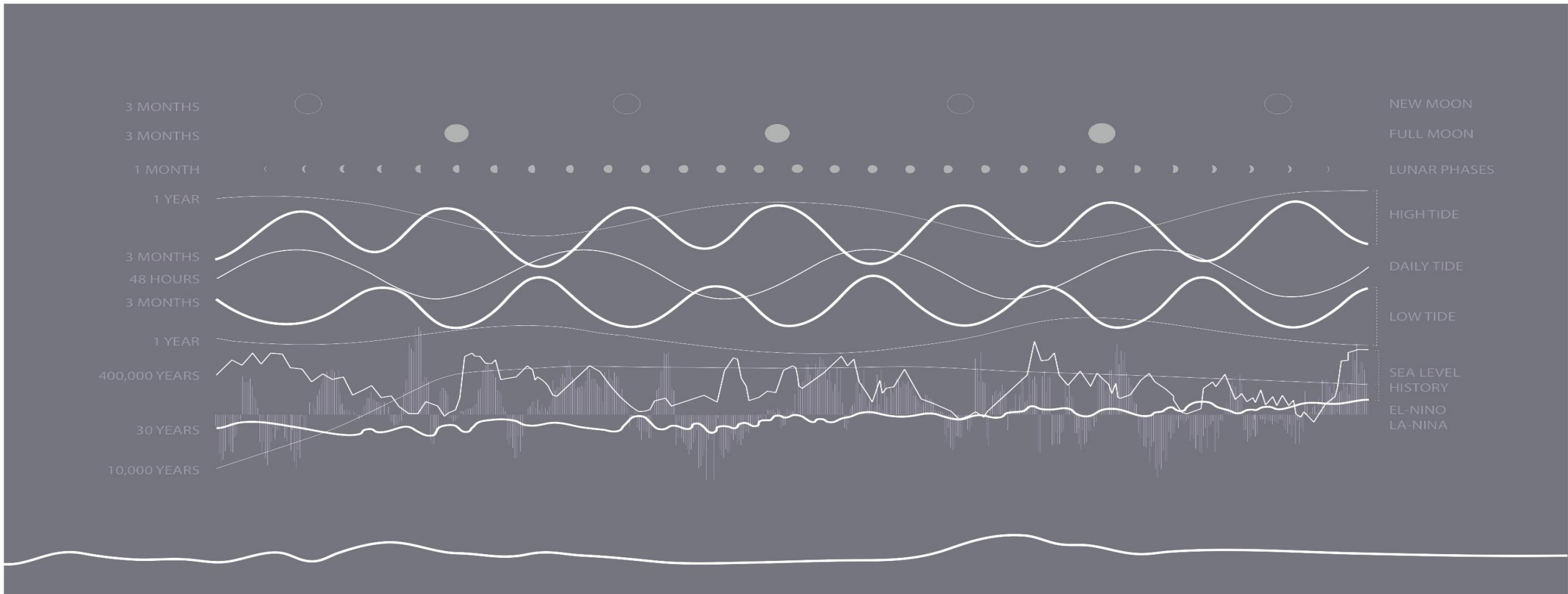


Hīkoi

Hīkoi is about observing knowledge, sensing it and feeling it especially through a journey across lands and along waterways . (Bryant, Allan, Smith, 2017)

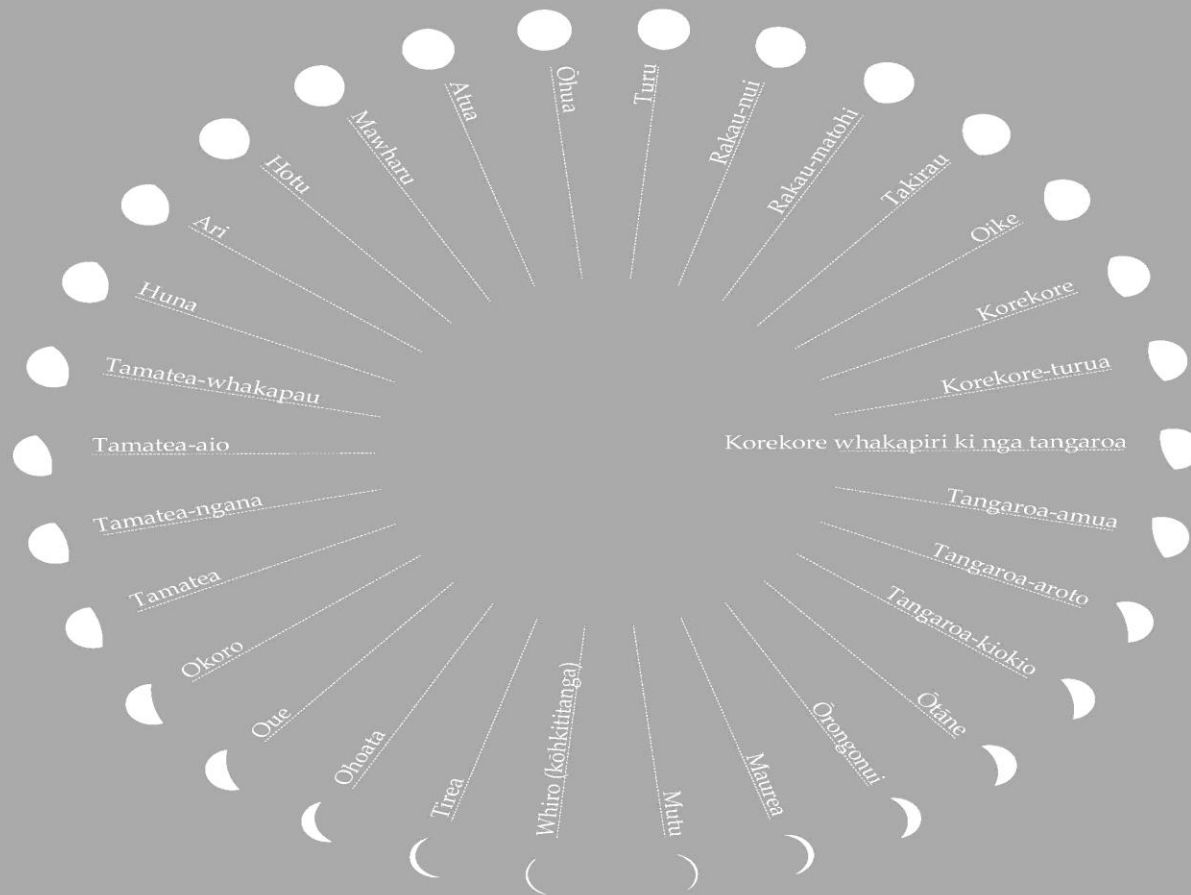
Kōrero Tuku Iho

Kōrero tuku iho are ways of telling narratives of the past, the present and the future orally within a Mātauranga Māori way of knowing. (Bryant, Allan, Smith, 2017)



Cycles: mātauranga māori and western science

maramataka



Whiro (kohkikitanga)	1.	(•	—
Tirea	2.	(•	—
Ohoata	3.	(•	—
Oue	4.	(•	—
Okoro	5.	(•	—
Tamatea	6.	(•	—
Tamatea-ngana	7.	(•	—
Tamatea-aio	8.	(•	—
Tamatea-whakapau	9.	(•	—
Huna	10.	(•	—
Ari	11.	(•	—
Hotu	12.	(•	—
Mawharu	13.	(•	—
Atua	14.	(•	—
Ohua	15.	(•	—
Turu	16.	(•	—
Rakau-nui	17.	(•	—
Rakau-matohi	18.	(•	—
Takirau	19.	(•	—
Oike	20.	(•	—
Korekore	21.	(•	—
Korekore-turua	22.	(•	—
Korekore whakapiri ki nga Tangarapa	23.	(•	—
Tangaroa-amua	24.	(•	—
Tangaroa-aroto	25.	(•	—
Tangaroa-kiokio	26.	(•	—
Otane	27.	(•	—
Orongonui	28.	(•	—
Maurea	29.	(•	—
Mutu	30.	(•	—

The moon calendar represents traditional ecological knowledge, is an expression of *whakapapa*, the relationship between people and culture and the environment. It codifies traditional knowledge gained through *direct experience* of the cycles of the moon and the rise and fall of the tides and connects this in a contingent relationship to specific actions, such as fishing, hunting and harvesting. This kind of relational thinking is a feature of both ecological science and the Māori worldview.

Whanaungatanga ki te whenua - *Bringing whanau back to the whenua*

Puawaitanga o te whenua - *Ensuring farms are economically viable*

Whakahokia nga Kai o te awa - *traditional resource management*

Kaitiakitanga mo apopo - *Protecting the farm for future generations*

Tiakitanga o nga wahi tapu - *Acknowledge and protect cultural/ ancestral sites and burial areas*

**Based on a visioning hui in April with members of the Katihiku Abu Whenua Trust and Te Hatete Trust and Incorporation of Ransfield's.*

*The vision**

strategies

Protect: plant dunes, build new dunes and berms to 'buy time, plant wet forest and sea grass to trap and build sediment)

Protect: the wetlands

Give the river and the sea room to move (direct the flow)

Restore: wetlands for food and buffering

Store: fresh water for water security

Make productive land even more productive

Diversify: find new ways of farming (food, wetlands, manuka, aquaculture, salty sheep and cows)

Retreat: Move to high ground: infrastructure first then papakainga

2. Protect wetlands



PROTECT

design

BEFORE



HAO DANASA, 'Catching Water-birds' and Pigeon (Orange-banded)



FRESH WATER

Re-establishing current vegetation
before planting riparian zones,
into the waterway for transportation
links and cultural preservation
identified by and based on all
the things



NOW

BRACKISH

By 2015
The state of the waterway is
being improved upon. The water
is being brought back to a
state of health. The waterway
is being brought back to a
state of health. The waterway
is being brought back to a
state of health.



ESTUARY

By 2015
The state of the waterway is
being improved upon. The water
is being brought back to a
state of health. The waterway
is being brought back to a
state of health. The waterway
is being brought back to a
state of health.



LATER

LATER

50 - 100 YEARS



PROSPEROUS
FARMING



NOW
0-15 YEARS

LATER

100 YEARS

WATERLANDS



P A M U
AHUMOANA
marine farm.

HOUSING
FARMING

HOUSING
MOEY

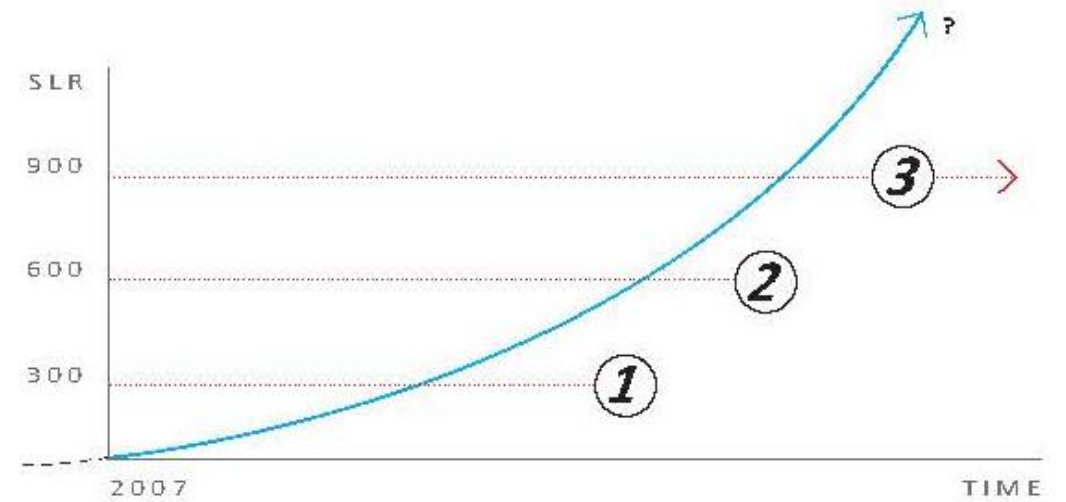
WATERWAYS

CROPS

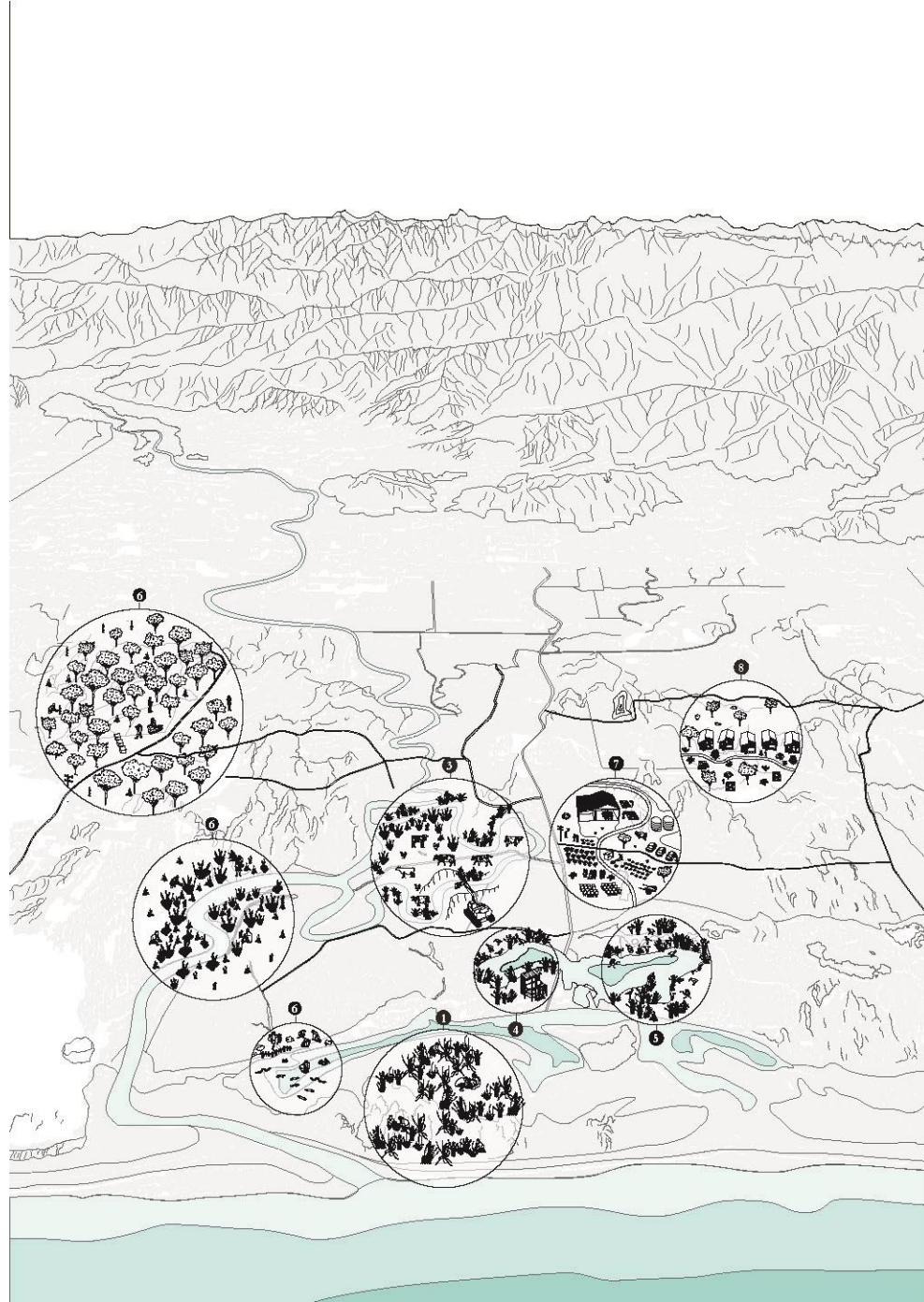
But communicating a vision — the ‘what’ — was not enough.

We also needed to communicate the ‘when’ and the ‘why’.

accommodating certainty and uncertainty



ecosystem thresholds in Hawai'i (Kane, H.H., Fletcher, C.H., Frazer, L.N. et al. 2015)



If...then...

Kuku



WAI-ORA: (pure water). This is water in its purest form. It is used in rituals to purify and sanctify and has the power to give life, sustain wellbeing and counteract evil. Waiora also means health. **WAI-MĀORE:** (freshwater). This is referred to as ordinary water which runs free or unrestrained and it has no sacred associations. **WAI-KINO:** (polluted). The mauri of the water has been altered through pollution or corruption and has the potential to do harm to humans. **WAI-MATE:** (dead water). This class of water has lost its mauri and is dead. It is dangerous to humans because it can cause illness or misfortune. Geographically it refers to sluggish water, stagnant or back water. Some tribes refer to it as waikawa. **WAI-TAI:** (salt or water from the ocean). This term also refers to rough or angry water as in surf, waves or sea tides. **WAI-TANGI:** (grieving waters). Refers to a river or part of a river which through some mishap has caused death, much pain and grieving to the tribe. **WAI-ARIKI:** (hot springs or curative waters). The term ariki means "chief" in English and they are referred to as the chiefs or patriarchs of all waters. **WAI-KATO:** (full flowing river). **WAI-RĀKEI:** (the place where the pools were used as mirrors). **WAI-RARAPA:** (the glistening waters).

tiakanga
acknowledging
ancestral sites and history

puawaitanga o te whenua
ensuring farms are economically viable

Whakapapa

Hīkoi



Kōrero Tuku Iho



Dowse



WAI-ORA (pure water). This is water in its purest form. It is used in rituals to purify and sanctify and has the power to give life, sustain wellbeing and counteract evil. Water also means health. **WAI-MAORE** (freshwater). This is referred to as ordinary water which runs free or unobstructed and it has no sacred associations. **WAI-KINO** (polluted). The mauri of the water has been altered through pollution or corruption and has the potential to do harm to humans. **WAI-MATE** (dead water). This class of water has lost its mauri and is dead. It is dangerous to humans because it can cause illness or misfortune. Geographically it refers to sluggish water, stagnant or back water. Some tribes refer to it as *wailama*. **WAI-TAE** (salt or water from the ocean). This term also refers to rough or angry water as in surf, waves or sea tides. **WAI-FANGE** (raging waters). Refers to a river or part of a river which through some mishap has caused death, much pain and grieving to the tribe. **WAI-ARIKE** (hot springs or curative waters). The term *ariki* means "chief" in English and they are referred to as the chiefs or patriarchs of all waters. **WAI-KATO** (full flowing rivers). **WAI-RAKEE** (the place where the pools were used as mirrors). **WAI-RARAPA** (the glaciating waters).



whakahoia nei kai o te awa
Whakahoia nei kai o te awa
Whakahoia nei kai o te awa

tiakitanga o nga wahi tapu
tiakitanga o nga wahi tapu
tiakitanga o nga wahi tapu



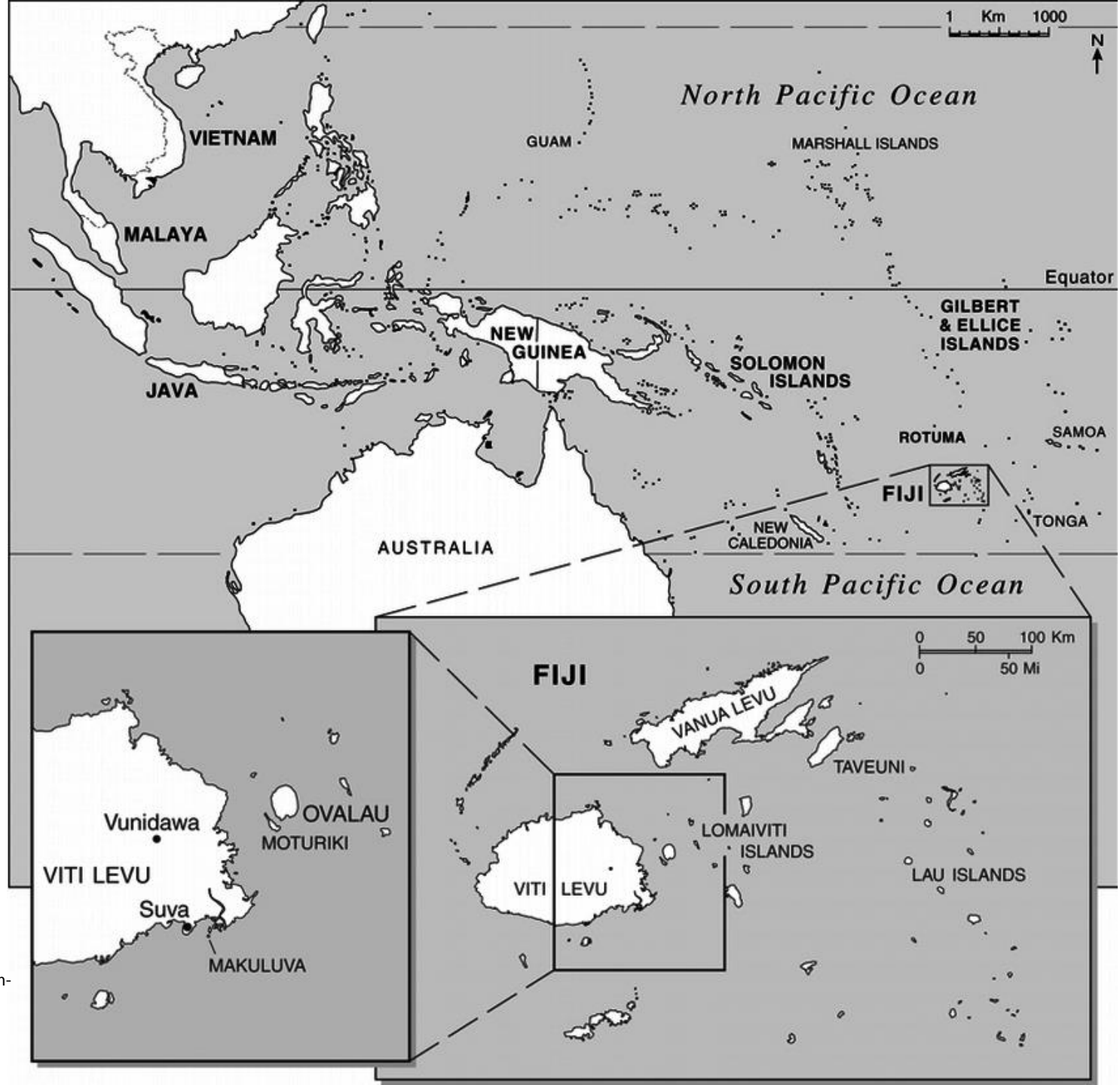
puawhanga o te wihama
puawhanga o te wihama
puawhanga o te wihama

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over the next 100 years we need to protect where practical, adapt where we can, and be prepared for retreat in the long term

Long retreat





https://www.researchgate.net/figure/Places-named-in-text-are-shown-with-historic-names-on-a-map-of-the-Western-Pacific-with_fig2_226004283

Indigenous knowledge: vanua

Elements of spirits, places, and humans (Aubrey Parke)

The Fijian Vanua Research Framework is an indigenous theoretical approach embedded in indigenous Fijian world views, knowledge systems, lived experience, representations, cultures and values...

The philosophy behind Vanua Framing is one of the interconnectedness of people to their land, environment, cultures, relationships, spirit world, beliefs, knowledge systems, values and God(s). (Nabobo-Baba, 2012; Smith, 2004).

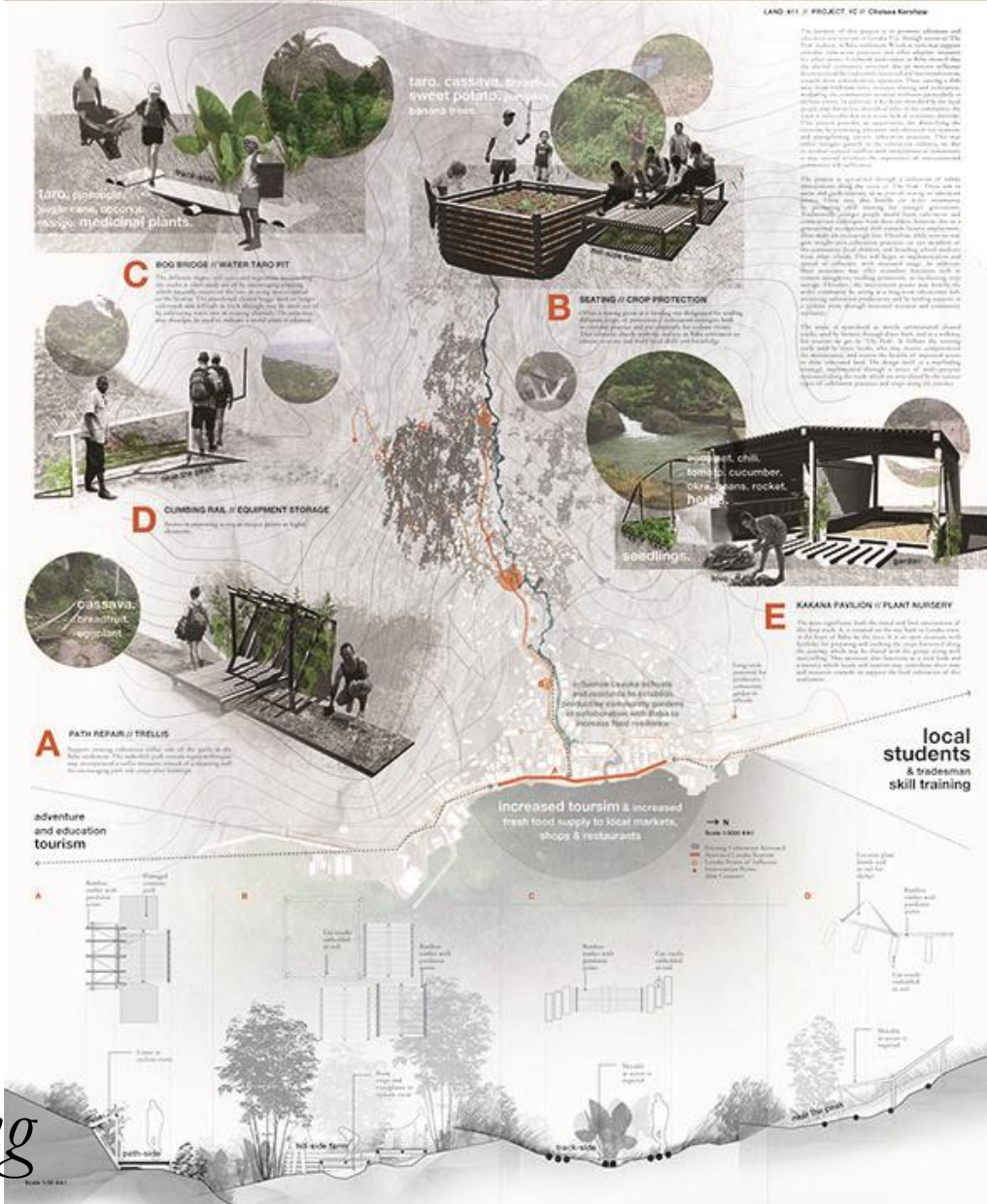


Levuka



the peak of vanua

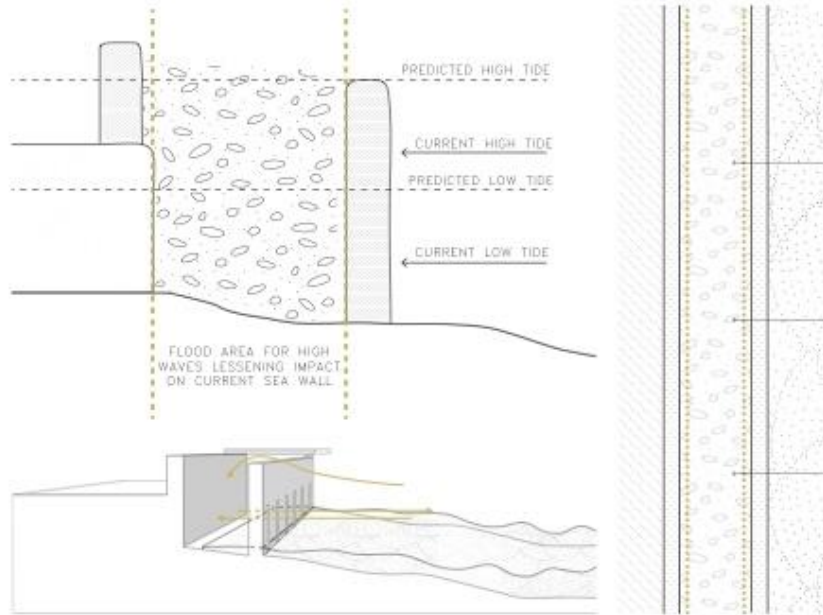
LAND 411 // PROJECT 10 // CHANAK KANIKVA



Diversifying

Plans and Sections

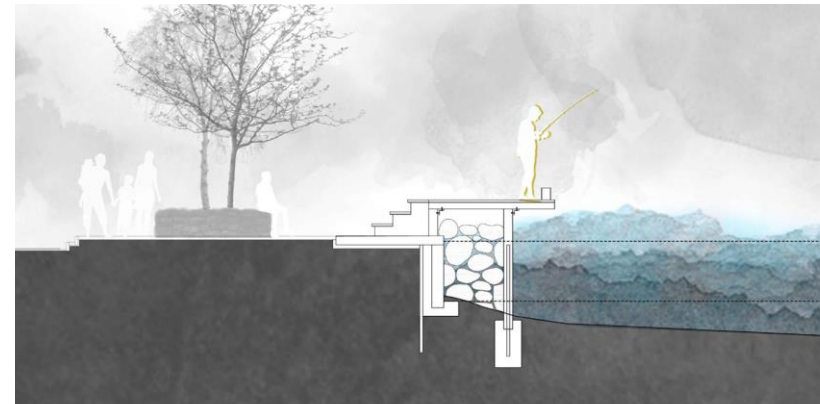
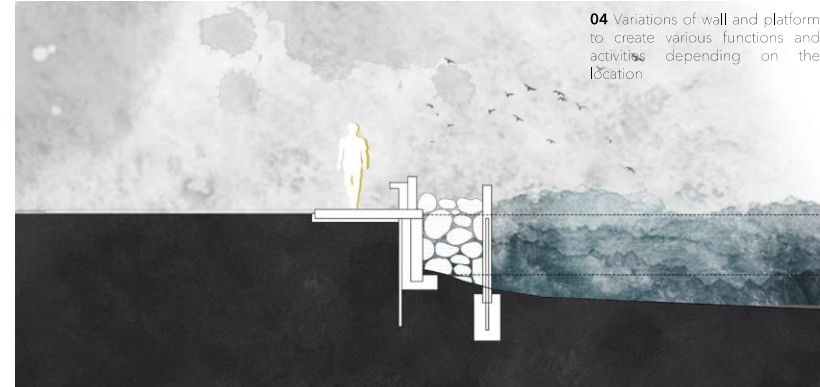
02 Drawings showing the wall in both plan and section with how it functions through tide levels and water movement.



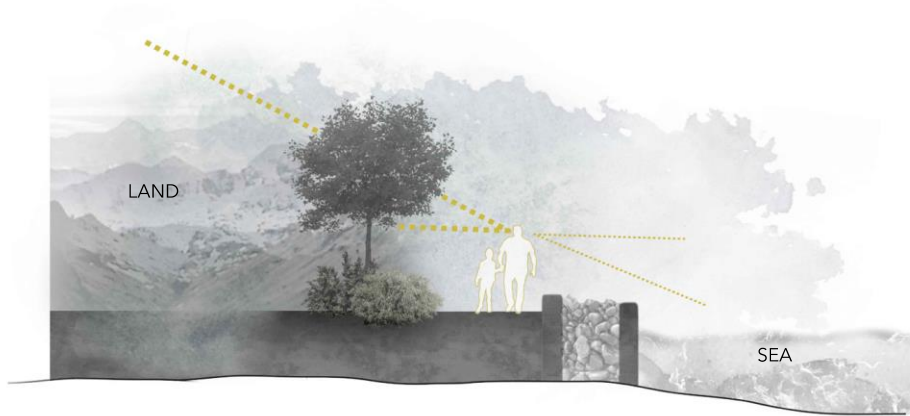
STAGES OF TIDAL CHANGES

03 Sections demonstrating the wall functions through tidal changes.

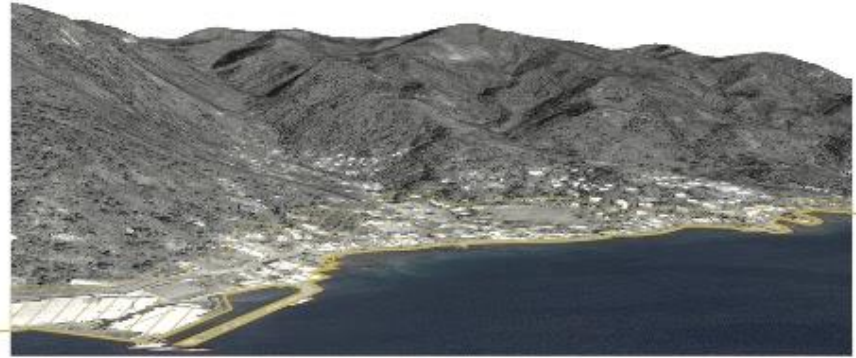
04 Variations of wall and platform to create various functions and activities depending on the location.



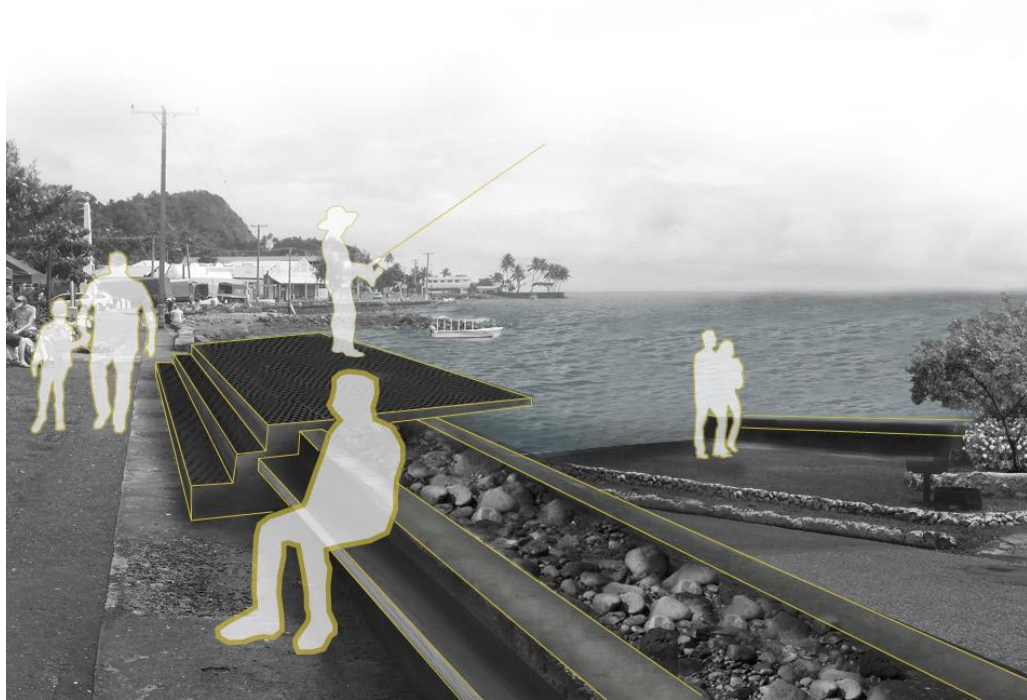
Protection and recreation



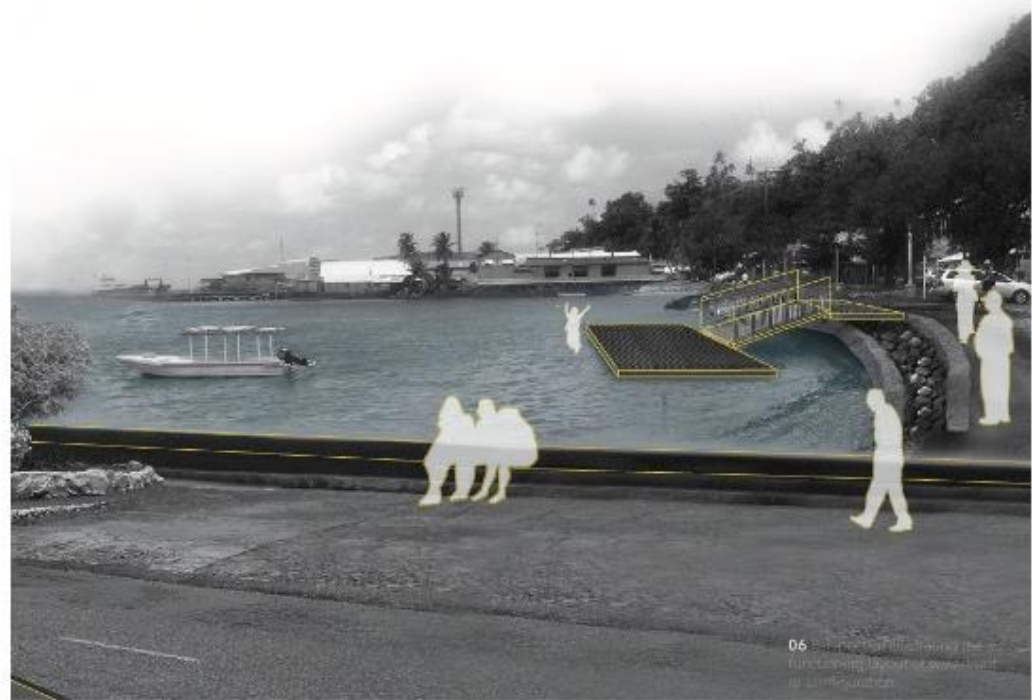
05 Emphasising the fijian values of living, the land and sea. Creating a unique moment in space and time.



Context View
Levuka Town

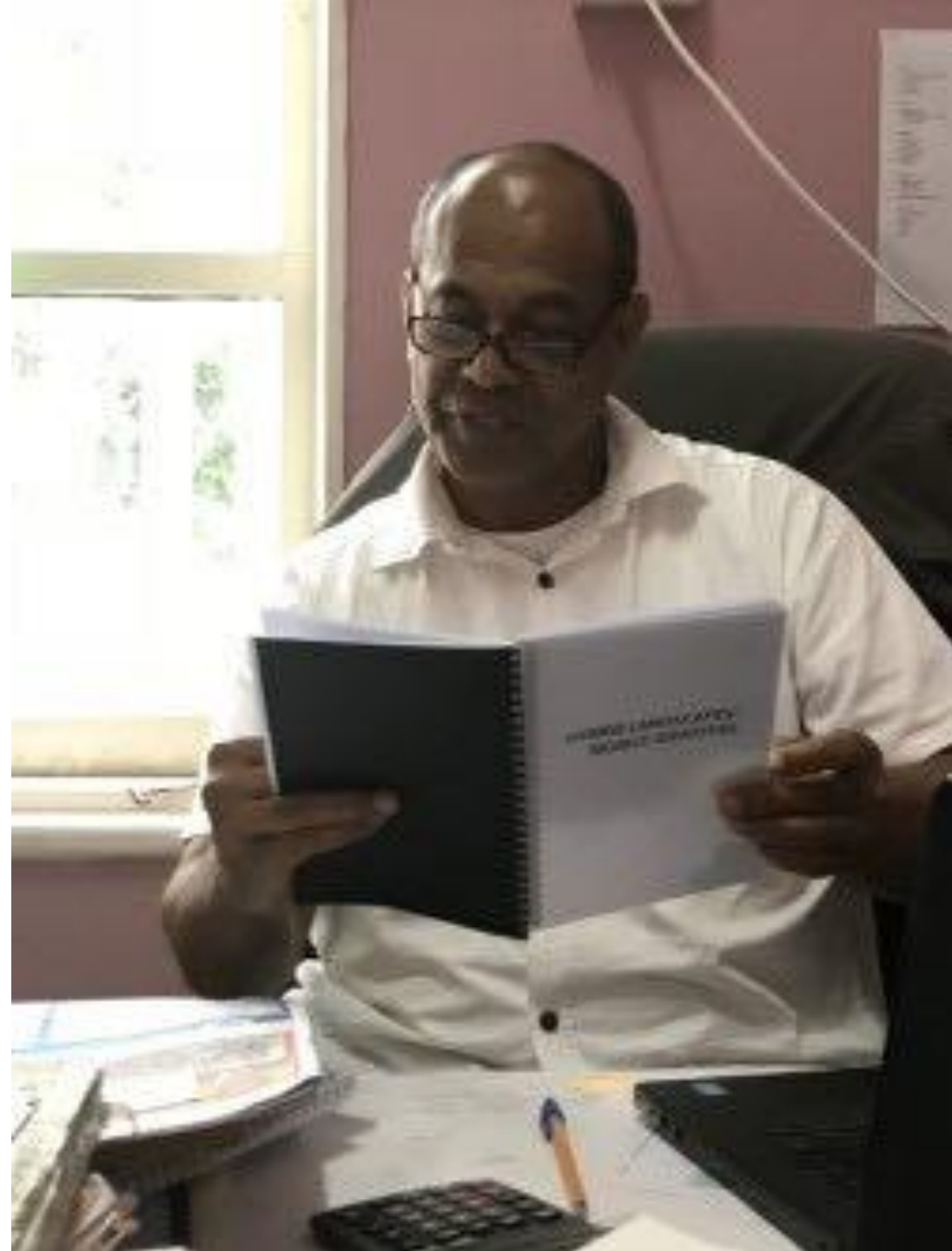


84 | Shoreline Synergy | Levuka, Fiji



06 The new promenade links the waterfront layout to the existing urban infrastructure.

Lambert | 85



Handwritten text on a vertical note pinned to the wall.

LARGER IMPLICATIONS

Research needs to occur with local leaders.

Indigenous world views provide mechanisms to look at problems and design in appropriate ways that reinforce indigenous cultures and their adaptability.

Design's role is to anticipate and encourage adaptive change and ensure that critical decisions are always open-ended. Openness allows design to be speculative and agile rather than prescriptive

Design can embed ecological values of thresholds and contingencies as part of its process. Contingencies show the potential to be opportunistic at a local level. Knowing what constitutes a threshold, how thresholds 'look and feel' and what one might do about them can empower communities to adapt. Both transfer climate change agency from governments to individuals and from the global to the local.

Designers can assist by identifying and communicating the nature of thresholds, their implications, and the contingent relationship between thresholds and a suite of possible adaptive responses.

Questions ?