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# Improving the Effectiveness and Sustainability of Climate-Change Adaptation Outcomes in the Pacific Islands: A Role for Faith-Engaged Approaches?

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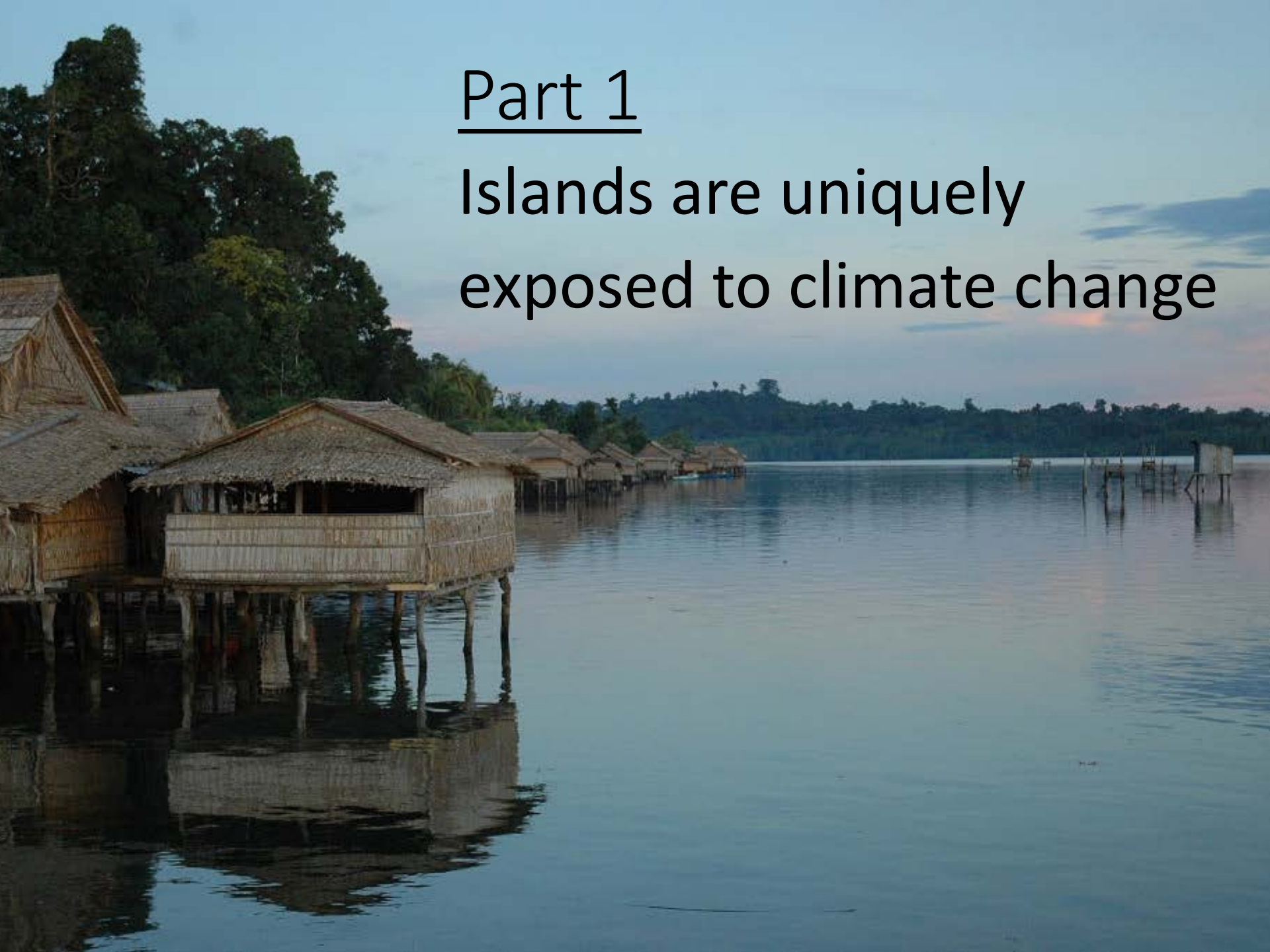
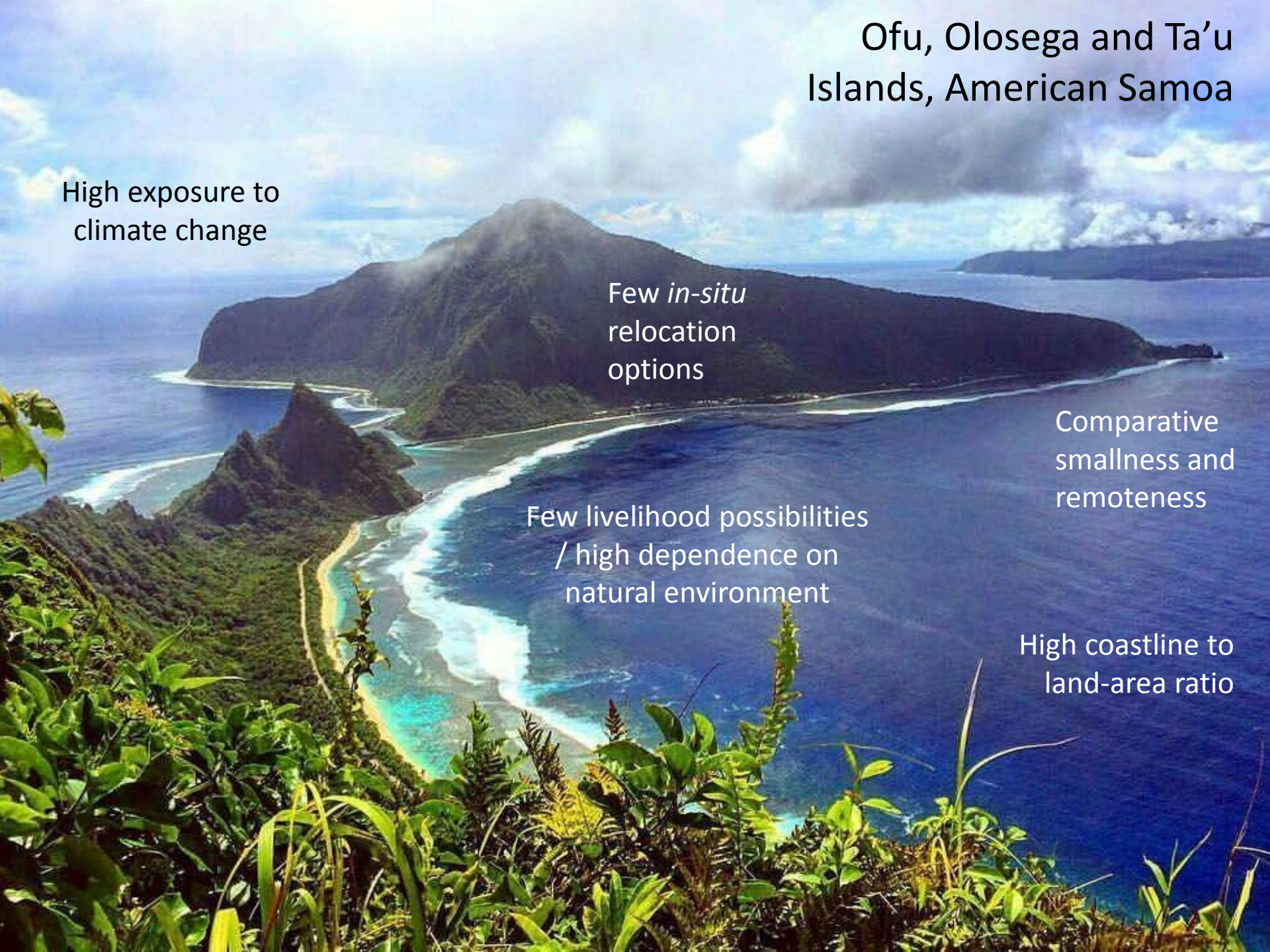
# Organisation of this Talk

1. Islands are uniquely exposed to climate change
2. Failures of (most) past interventions for climate-change adaptation in the Pacific Islands
3. The future need for transformational adaptation: how to design and drive it
4. A role for faith-engaged approaches?



# Part 1

Islands are uniquely exposed to climate change


Ofu, Olosega and Ta'u Islands, American Samoa
High exposure to climate change
Few *in-situ* relocation options
Comparative smallness and remoteness
Few livelihood possibilities / high dependence on natural environment
High coastline to land-area ratio

# Recent impacts of climate change on islands

- Sea-level rise
  - Shoreline erosion
  - Coastal-lowland flooding
  - Groundwater salinization

Marovo Lagoon, Solomon Islands (Edvard Hviding)

# Recent impacts of climate change on islands

- Sea-level rise
  - Shoreline erosion
  - Coastal-lowland flooding
  - Groundwater salinization
- Warming and precipitation changes
  - Food insecurity
  - Coral-reef bleaching

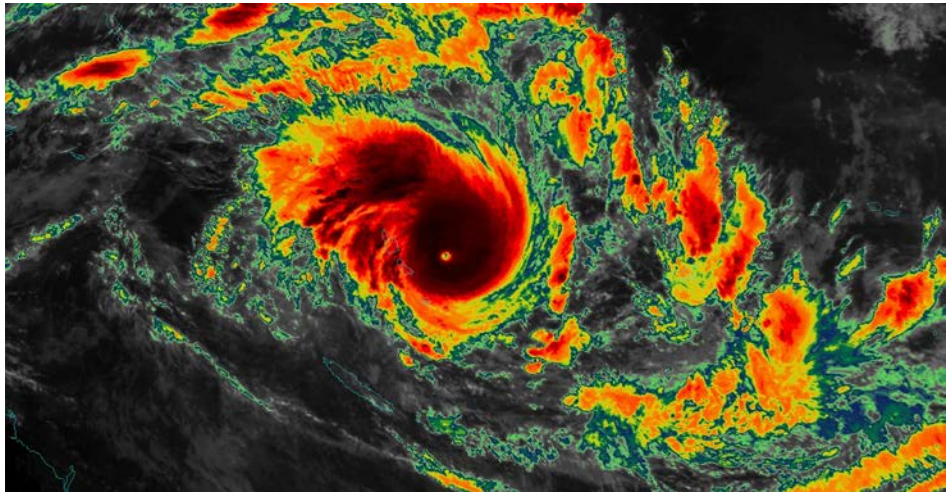
Falling subsistence production, Isabel, Solomon Islands


Coral bleaching, American Samoa (XL Catlin)

# Recent impacts of climate change on islands

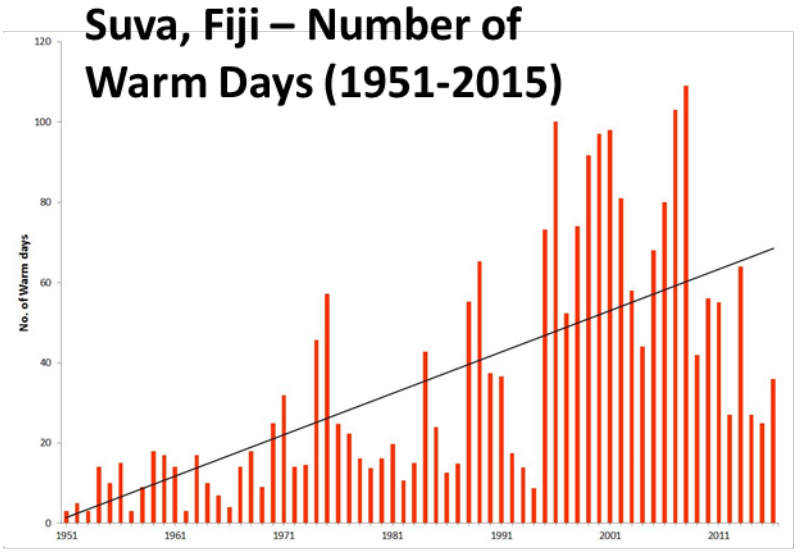
- Sea-level rise
  - Shoreline erosion
  - Coastal-lowland flooding
  - Groundwater salinization
- Warming and precipitation changes
  - Food insecurity
  - Coral-reef bleaching
- Extreme events
  - Tropical cyclones
  - Droughts

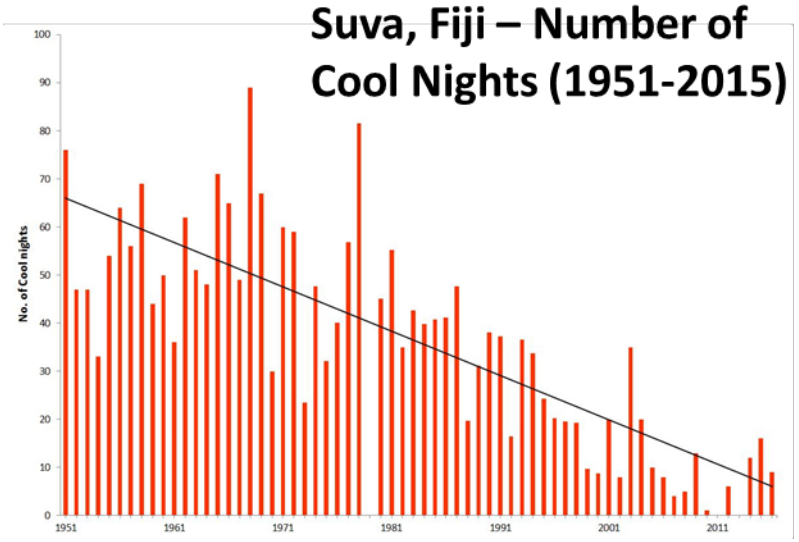
Tropical Cyclone Pam, March 2015, Vanuatu



# Future impacts of climate change on islands

- Temperature rise
  - By 2100, temperatures may be 3-4°C higher than today
- Impacts on
  - Human comfort / organization
  - Food production



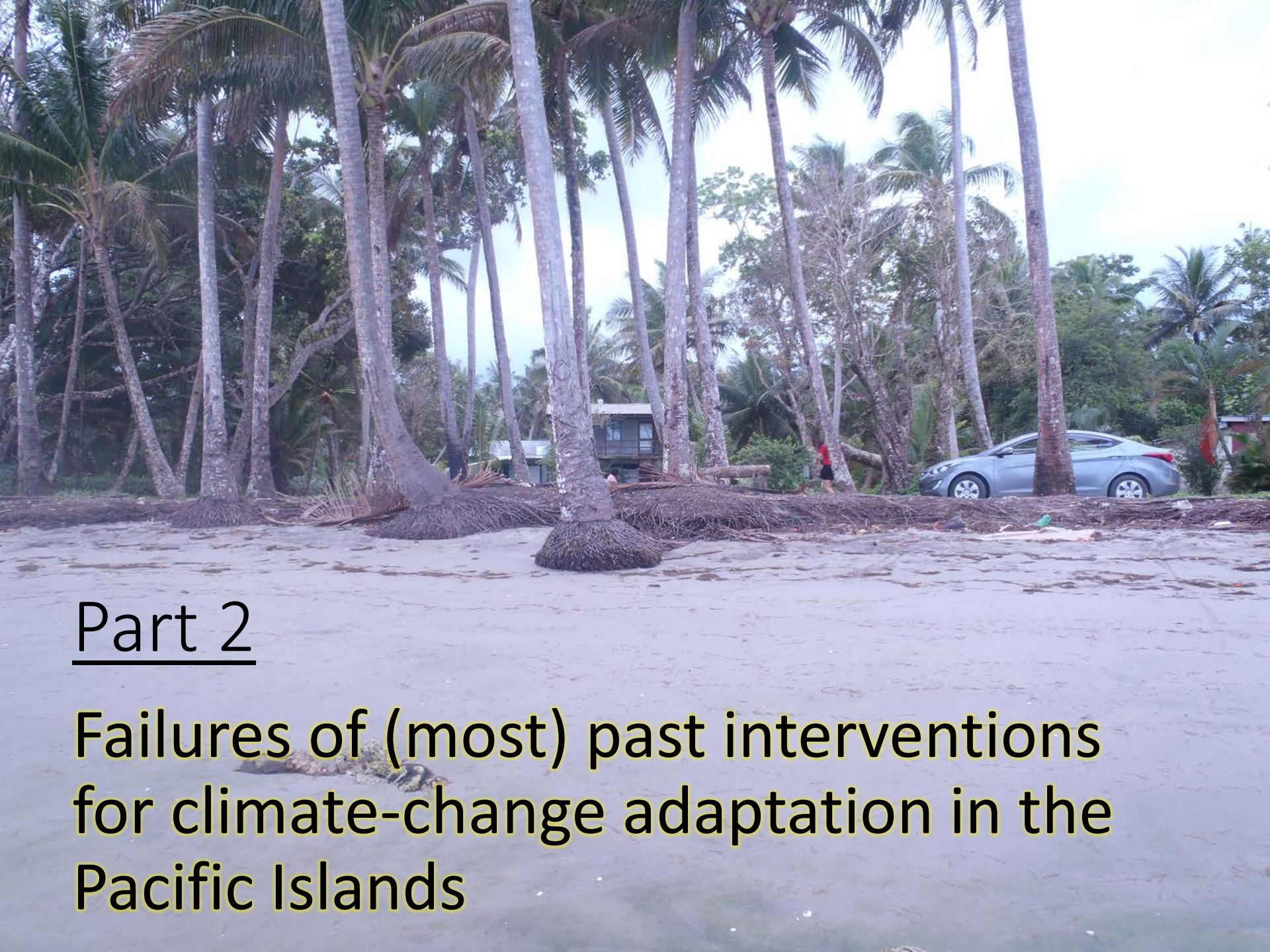



# Future impacts of climate change on islands

- Sea-level rise
  - By 2100, sea-level may be 1-1.2 m higher than today
  - "Sea levels may rise substantially above 1 or even 2 meters during the 21st century" (Hinkel *et al*., 27.6.2018, *Nature Climate Change*)
- Impacts on
  - Human settlement / economy
  - Food production

Vunidogoloa (Fiji) – the first climate-induced relocation inland?

Hetagi Lotomahana (Tuvalu) – saltwater in pawpaw plantation



# Part 2

## Failures of (most) past interventions for climate-change adaptation in the Pacific Islands

# Failures of climate-change adaptation on islands

- In the Pacific Islands, it is difficult to find many specific climate-change adaptations that have been successful (i.e. *effective* and *sustainable*).
- A problem common to islands is the use of a short-term solution to a long-term problem.
  - e.g. 'Protect' and 'Accommodate' rather than 'Retreat'

Damaged seawall, Bikenibeu, Tarawa, Kiribati


Navunievu, Bua, Fiji
(January 2018)
Refuse dumped along eroding shore
Eroding edge of Navunievu Village
Remains of 1990s seawall
Remains of 1970s seawall
Remains of once-continuous fringe of mangrove forest

# Failures of climate-change adaptation in the Pacific Islands

- Small Island Developing States (SIDS) are different to other island contexts because they usually
  - are **poorer** and therefore more **dependent** on external funding.

Coastal protection by local community, Vutia (Fiji))


Coastal protection funded externally, Pohnpei (FSM)

# Failures of climate-change adaptation in the Pacific Islands

- SIDS are different to other island contexts because they usually
  - are **poorer** and therefore more **dependent** on external funding.
  - have fewer national in-country **experts** able to **localize** global information about climate change.

Climate change glossary for Fiji (English and iTaukei)



Uncompromising World Bank project (Kiribati)

# Failures of climate-change adaptation in the Pacific Islands

- SIDS are different to other island contexts because they usually
  - are **poorer** and therefore more **dependent** on external funding.
  - have fewer national in-country **experts** able to **localize** global information about climate change.
  - are less 'western', more **culturally grounded**, less impressed by 'science', and favour **short-term planning** horizons.

*Faluw* (traditional men's house), Yap (FSM)

Taneti Maamau, President of Kiribati, 2018

# Part 3 The future need for transformational adaptation: how to design and drive it

# Aligning adaptation needs with interventions

- Should acknowledge islands as different to continents.
- Yet should also acknowledge islands as diverse; no one-size-fits-all solution works well.
- As along many continental coasts, we should acknowledge the growing need for transformational change … largely **relocation**.

High tide, Karoko, Fiji

# Relocation as transformational adaptation

- Relocation: the most important undiscussed issue on islands today.
- Yet with the rate of sea-level rise likely to accelerate in the next few decades … to reach levels >1 m by the year 2100 (relative to today), we need to discuss it.
- Relocation has been a feature of island life for millennia … only today is the need for relocation often rejected by coastal dwellers.

Korovou (new village), Yadua Island, Fiji

# Involuntary (within-island) relocation

Korovou (new village), Yadua Island, Fiji

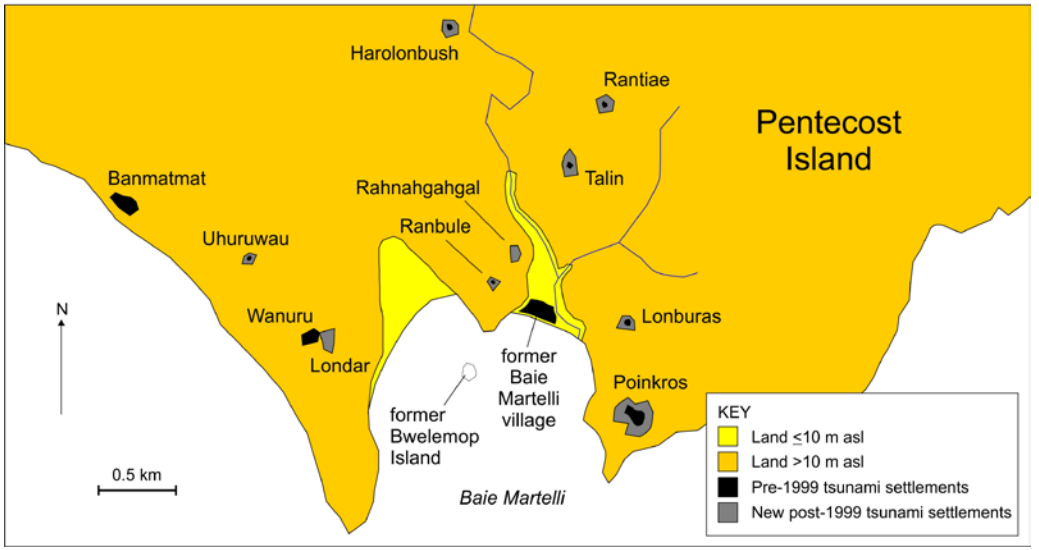
**Source**: Martin *et al*., 2018, *Climate Risk Management*

# Involuntary (within-island) relocation

Kenani (new village), Vanua Levu Island, Fiji

Vunidogoloa (old village),
Vanua Levu Island, Fiji

# Cyclical (upslope coastal) relocation




**Source**: Walshe & Nunn, 2012, *International Journal of Disaster Risk Science*

Baie Martelli, Pentecost Island, Vanuatu

# Autonomous (upslope coastal) relocation

Fagasa, Upolu Island, Samoa

# Relocation in island contexts: key challenges

- Acceptance of the need by affected people to move from vulnerable to less-vulnerable locations.
- Identification of less-vulnerable locations (*identification of place*).
- Negotiation to make these locations available for relocatees (*acquisition of place*) – land tenure, costs.
- Development of new locations to make them suitable for relocation (*establishment of place*) – infrastructure, housing, livelihood reconfiguration.

# Driving transformational change on islands

- Equally urgent on most islands, whether in richer or poorer contexts.
- Requires behaviour change on the part of all major actors (governments, donors, international organizations, communities).
- Localization (and local ownership) of adaptation is important, especially in poorer contexts (where external funding will drop in future).

# Part 4 A role for faith-engaged approaches?

# Faith engagement in Pacific Island Countries

- Most people living on Pacific Islands are routinely engaged in religious practice
  - 2011 Tonga census - <1% declared no religion
  - 2014 survey of students at the University of the South Pacific found 80.3% attended religious services weekly (27% twice weekly)
- This influences Pacific Islanders' attitudes towards climate change and their responses to it.

Data/inferences from Nunn *et al* (2016), *Climatic Change*

# Faith engagement in Pacific Island Countries

- Yet most interventions (for climate-change adaptation) in Pacific Island Countries are secular because
  - Intervenors regard climate change as a science-informed (not a faith-informed) issue
  - Secular solutions are normal in countries where faith engagement rates are comparatively low (perhaps <10% weekly churchgoing in Australia).


Buala, Solomon Islands

# Faith engagement in Pacific Island Countries

- Is the secular nature of external interventions (for climate-change adaptation) one reason for the conspicuous failure of the vast majority of these?
- It seems likely.


Togoru, Fiji

Data/inferences from Nunn & Kumar (2017), *International Journal of Climate Change Strategies and Management*

# Faith engagement in Pacific Island Countries

- The way forward?
- Engage faith-based organisations (FBOs) in developing **messaging** and **strategies** for responding appropriately to the impacts of climate change.
- Persuade external donors of the efficacy of faith-engaged approaches.

Church members building seawall on Tarawa (Kiribati) to protect Mormon Church lands

## RECENT PUBLICATIONS


Kumar, L., Eliot, I., Nunn, P.D., Stul, T. and McLean, R.F. 2018. Developing a regional-scale Index for the indicative susceptibility of Pacific Islands to climate change. *Geomatics, Natural Hazards and Risk*, **9**(1), 691-702.

Martin, P., Nunn, P.D., Leon, J. and Tindale, N. 2018. Responding to multiple climate-linked stressors in a remote island context: the example of Yadua Island, Fiji. *Climate Risk Management*, **DOI**:10.1016/j.crm.2018.04.003

Nunn, P.D. and Betzold, C. 2018. Geography of global climate change: Asia-Pacific human and state security. In: Wallace, D. and Silander, D. (eds). *Climate Change, Policy and Security: State and Human Impacts*. Oxford: Taylor and Francis, pp 67-85.

Nunn, P.D. and Kumar, R. 2018. Understanding climate-human interactions in Small Island Developing States (SIDS): implications for future livelihood sustainability. *International Journal of Climate Change Strategies and Management*, **10**(2), 245-271.