



Pacific
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THE ECONOMICS OF COMMUNITY RELOCATION AS AN ADAPTATION STRATEGY IN FIJI

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Origins

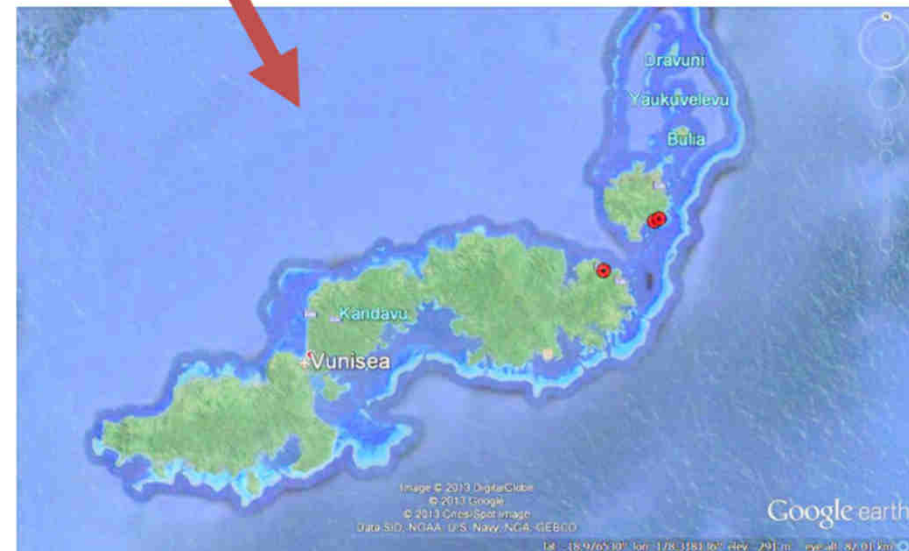
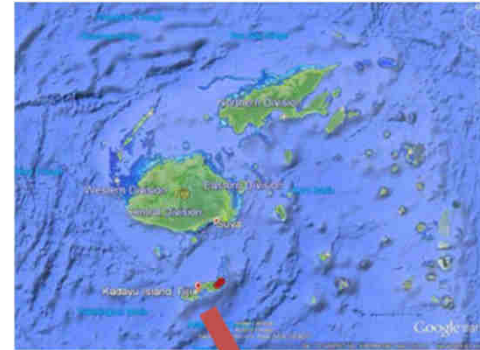
- Training workshop in cost-benefit analysis (CBA) attended by officials from Climate Change Division (CCD) of Fiji Government (April '15)
- Director CCD requested assistance from SPC to complete economic analysis of community relocation (November '15)
- All funded by:
SPC/USAID project 'Vegetation and land cover mapping and improving food security for building resilience to a changing climate in Pacific island communities'



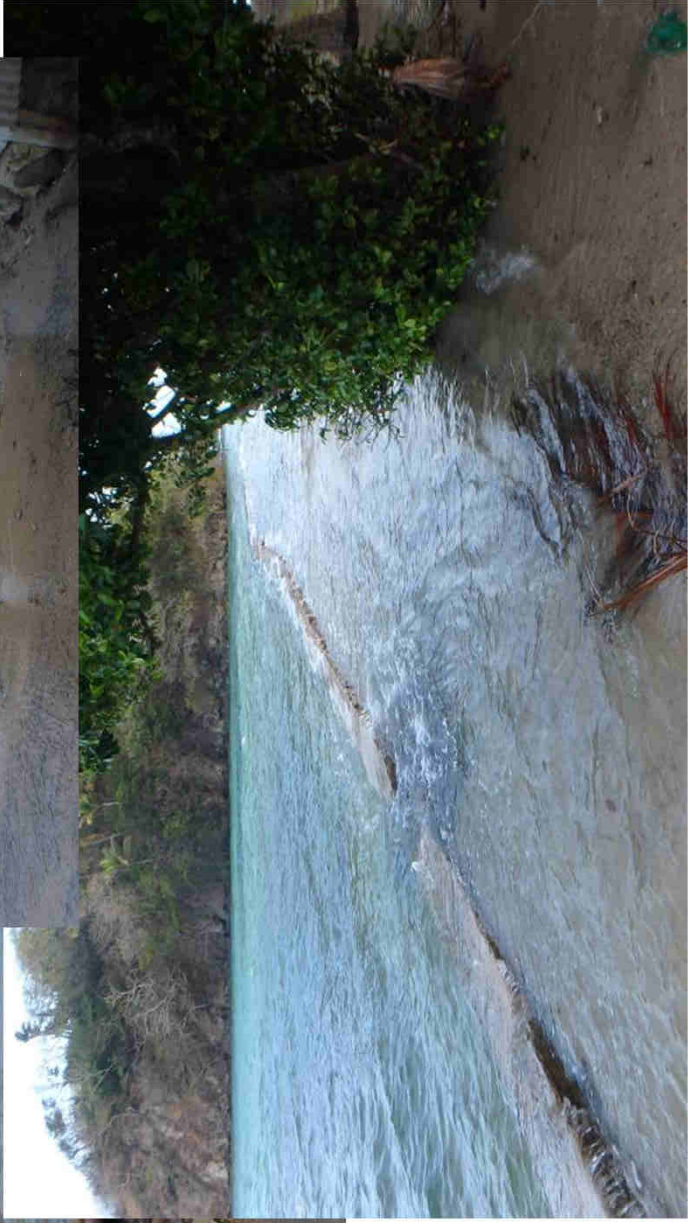
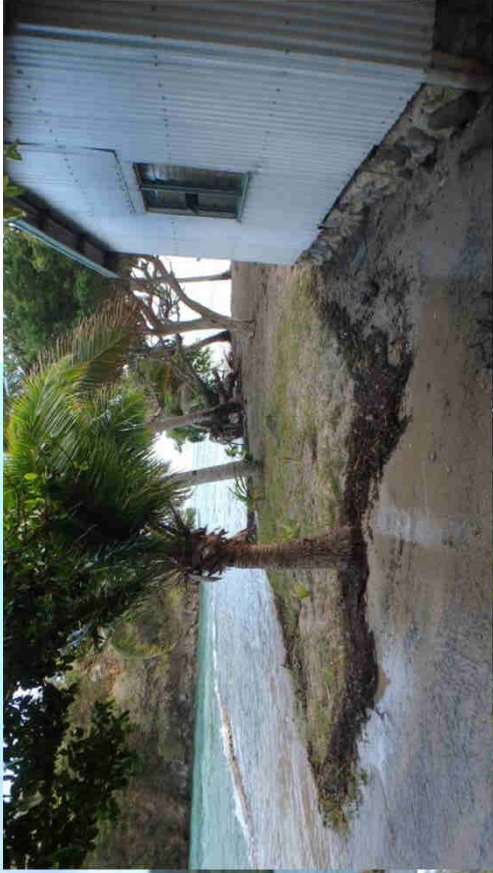
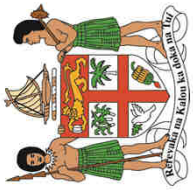
Background

Narikoso village – Ono Island, Kadavu

- 25 households
- Between 95 & 105 inhabitants
- Mainly subsistence fishing & agriculture
- iTaukei Lands



Source: Bosserelle (2015)





Background cont.

Villagers requested assistance from Government in 2011

➤ Relocation identified as response

➤ In 2012, military excavated three terraces





Background cont.



In 2013, village approached CCD & SPC/GIZ to assess site

- Stable – after planting of grasses & trees
- But not big enough to accommodate village



Economic analysis

In 2015, CCD decided to assess the community's options through CBA

Three broad aims:

1. To assess the economic dimensions of relocation using Narikoso as a case study
2. To analyse Narikoso's adaptation options
3. Contribute to the finalisation of Fiji's climate change relocation guidelines



What is CBA?

Framework to assess the merits of a project from the perspective of society (not a single individual, community or business)

Essentially involves:

- Measuring the gains and losses ('benefits' and 'costs') from a project or activity using money as a measuring rod
- Summing the monetary value of the gains and losses and comparing them



Economic impacts

Benefits

“anything that **increases** human welfare”

- Outputs of project

How much are you **willing to pay** to secure those benefits?

Costs

“anything that **decreases** human welfare”

- Inputs to project

What are the **opportunity costs** of implementing the project?



Economic costs and benefits

$$\text{Total economic cost/benefit =}$$
$$\text{Market + non-market costs/benefits}$$

There are multiple *economic* values that are not captured by market prices: environmental, social etc.

- This is one reason why economic analyses such as CBA differ from *financial* or *business* type analyses



Options considered

Option	Households relocated
No intervention	0
Relocate entire village	25
Relocate 'Red Zone'	15
Relocate front line	8

Project lifetime : 50 years
Discount rate : 8%





Economic costs

Quantified

Direct costs

Clearing land

Stabilising land

House materials

Constructing new water supply

Labour

Etc. etc...

Environmental costs

Removal of mangroves

Unquantified

Environmental costs

Removal of coastal plants

Disruption of natural coastal processes

Etc. etc...

Social costs

Moving to smaller houses

Loss of access for older generation

Changing community dynamics

Moral hazard problem

Etc. etc...



Economic benefits

Quantified

Direct benefits

Avoided loss of subsistence production

Avoided loss of cash income

Avoided damage from inundation

Avoided damage from extreme event

Unquantified

Social benefits

Reduction in worrying about sea

Better access to mobile phone signal

Less pressure to migrate to urban centre



Key CBA outputs

Net Present Value (NPV)

- What is the overall impact?

(Discounted) Benefits - (Discounted) Costs

Benefit-Cost Ratio (BCR)

- For every dollar faced in costs, how much is returned in benefits?

(Discounted) Benefits / (Discounted) costs

- If **NPV > 0** (BCR > 1), net economic **benefit** to society
- If **NPV < 0** (BCR < 1), net economic **cost** to society



Results

	Entire village	Red Zone	Front line
NPV	< 0	< 0	< 0
<i>Rank</i>	3	2	1
BCR	< 1	< 1	< 1
<i>Rank</i>	2	1	3

Preliminary results suggest all relocation options represent net economic cost to society

This implies that no intervention is the preferable option

Overall, unquantified impacts would increase net economic costs



Some lessons learned...

1. Magnitude of the threat is the key determinant of the benefits of relocation
 - Risks must be identified and understood properly before decision to relocate is made
 2. Proper scientific, environmental and social assessments must be completed
 - The social and environmental costs may far outweigh the benefits of relocation
- Risks may be reduced to acceptable levels without relocating entire villages



Some more lessons learned...

Given negative payoffs, it may be more beneficial to only move most vulnerable households

- More thought needs to be given to how to accommodate partial relocation within communities

A better understanding of community vulnerabilities would enable targeted assistance to the most vulnerable communities

Government doesn't have to do everything

- Partnerships between Governments, NGOs, civil society and development partners should be built



Thank you