

Changing patterns of built and unbuilt spaces in response to cascading disaster on peri-urban fringe of Port Vila.

How does the pattern of built and unbuilt spaces on peri-urban edge of Port Vila change in response to disasters?

What do these changes reveal about the vulnerability of urban edge communities to cascading disasters?

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Concept

- This research examines how the shaping of the landscape by gardeners on the rural urban fringe provides a better understanding of the capacity of socio-ecological systems to adapt to more intense and more frequent disasters.
- The aim of the research is to analyse, over time, to what extent gardening is an adaptive action that supports vulnerable communities during hardships caused by disaster.

Context

- Port Vila is home to 50 000 predominantly Ni-Vanuatu, most of whom are first and second generation migrant families from the eighty three inhabited islands of the archipelago, seeking jobs in tourism, retail, construction and the public service.
- In the decade between 2010 -2020 Port Vila's population grew an average of 2.2% in the municipal areas and the peri-urban areas grew at 2.6% per year (World Bank, 2020)

Urban Policy in Vanuatu

- urban planning policy is diffuse and poorly enforced; resulting in unregulated urban sprawl and the proliferation of informal settlements.
- agricultural policy has been almost silent on the role of urban agriculture and ambiguous about peri-urban land management for food security despite these landscapes producing the bulk of Port Vila's fresh food (James, 2018).

Research method

- This research classifies and quantifies the changes to the built and unbuilt spaces in selected peri-urban landscapes (Antrop, 2000).
- It analyses these changes at different time periods defined by two significant disaster events; the March 2015 Cyclone Pam and the March 2020 closure of international borders in response to the Covid19 pandemic.

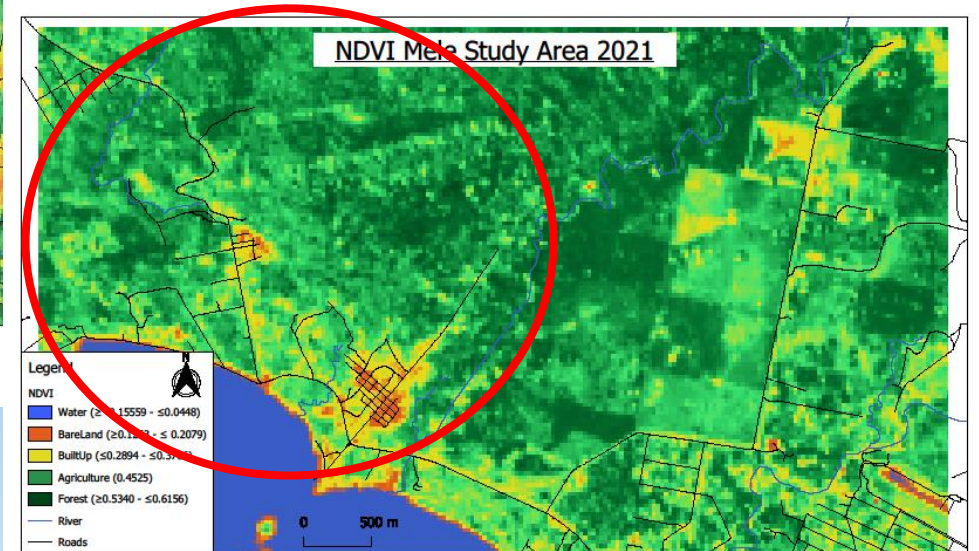
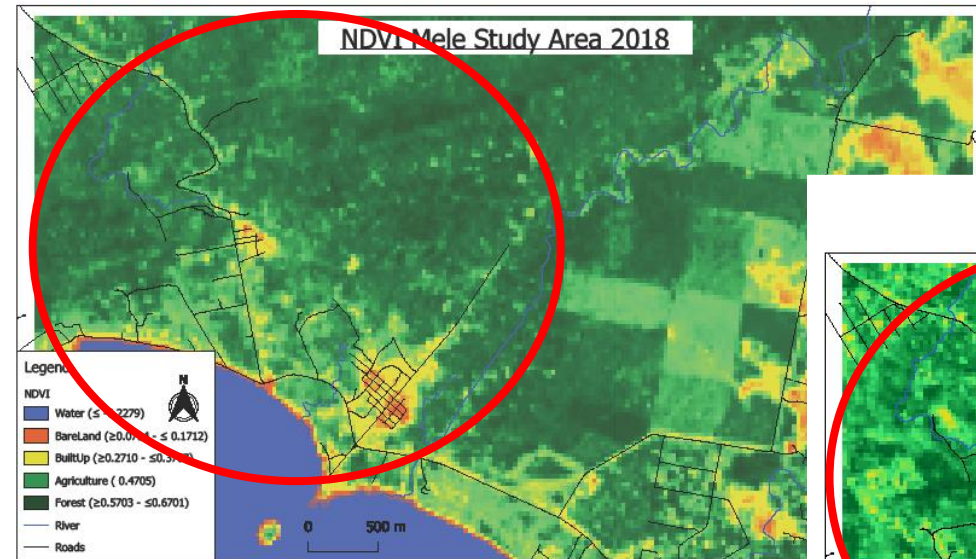
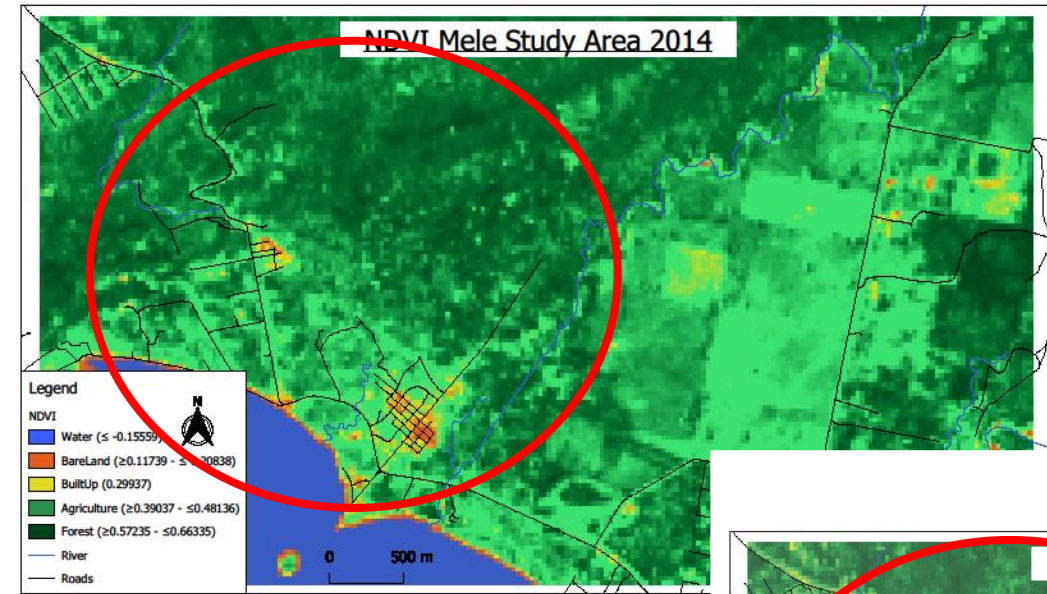
Adaptation

- Adaptation is a process and is often perceived as a technical, expert and defensive analysis of rural and urban conditions rather than a socio-ecological analysis of adaptive potential of landscapes in question (Pelling, 2011)
- There are limits to adaptation when individual choices are limited by other factors that constrain or dictate when and how they can act to improve their wellbeing (Aguiar et al., 2018)

SES stressor	Built spaces	Gardening
Lack resources to change	Informal settlements in Port Vila are located on land that may be subject to arbitrary decisions of custom land owners.	Land for gardening is allocated based on kinship relations and ties to key decision makers in the community. Access to land for gardening is uneven.
Lack information	Informal settlements are built from salvaged and cheap materials that are vulnerable in disasters.	During hardship, changes in gardening activity is driven by necessity (in response to hardship) rather than through strategic planning or business development that responds to the market demand for fresh produce.
Failure of institutions	Lack of planning, design standards, institutional support and enforcement of leases results in poor outcomes in terms of planning for population growth and service provision on the rural-urban fringe.	Lack of coordination between department of agriculture and the department of planning results in land use planning that favours leasing to private interests for development rather than adopting a more strategic approach to preserving productive agricultural land.
SES overwhelmed	A combination of natural disasters, poor regulation and arbitrary decision making by custom land owners result in settlements continually being built and rebuilt without lasting improvements in sustainable development outcomes. The SES can be temporarily overwhelmed and reconfigured continuously.	Sea level rise, urban expansion, erosion, pollution and weak regulation will reduce the land area available for gardening on the rural-urban fringe. Gardening will become less viable as an adaptive action for a smaller percentage of the growing peri-urban communities.

Table 1 stressors on peri-urban SES inPort Vila adapted from Pelling (2011)

Initial Findings



1. Growth of Mele village.

2. Thinning of the woody perennial canopy between 2014-2021 [evidence of increased gardening?]

What are the planning policy considerations to achieve sustainable development of the catchment?

