



# Possible Analytical Approach for Developing Ecosystem-based Adaptation Master-plan

Dave Loubser  
PEBACC Country Manager - Vanuatu



**SPREP**  
Secretariat of the Pacific Regional  
Environment Programme



# Ecosystem and Socio-economic Resilience Analysis and Mapping



**SPREP**  
Secretariat of the Pacific Regional  
Environment Programme

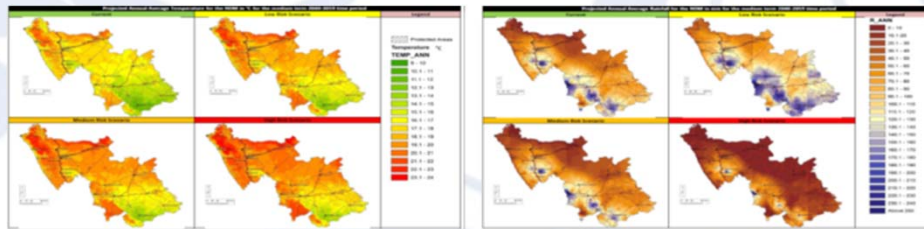


# Habitat Stability to Climate Change

- Use various climate variables
  - What is available
  - What do you believe is important
- Can use a variety of proxys for habitat
  - Land Cover
  - Vegetation
  - Biome



# Habitat Stability to Climate Change



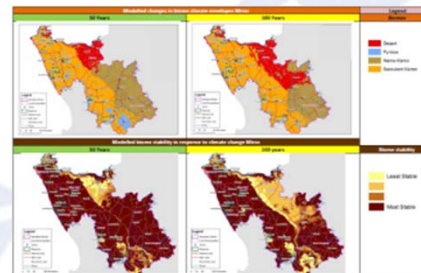
Annual Average Temperature

Annual Average Rainfall

Biome/Habitat/Vegetation

Model Predicted changes  
in habitats based on  
predicted climate  
envelopes

Habitat Change Prediction



habitat  
stability



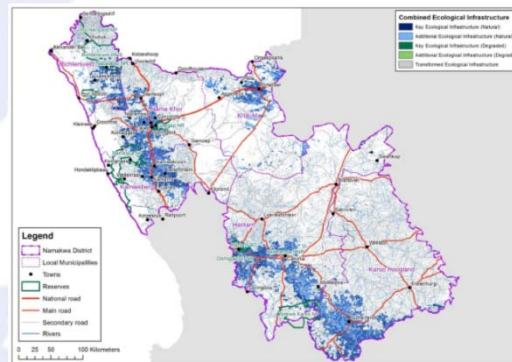
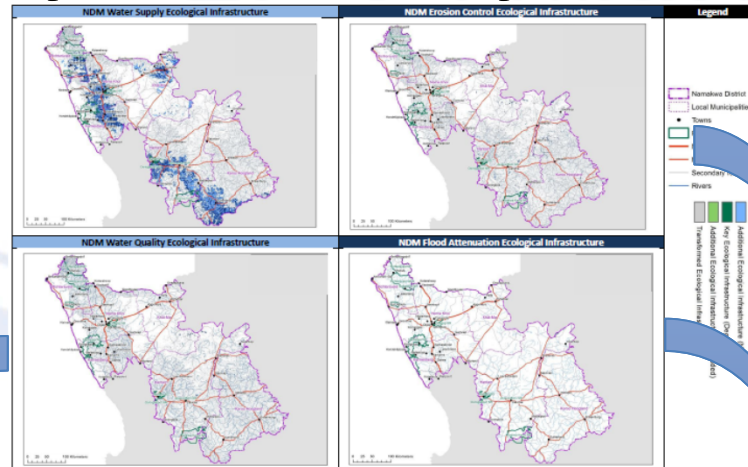


# Priority Water Ecosystem Services

- Flood Attenuation
- Stream flow Augmentation
- Erosion Control
- Sediment trapping
- Etc.



# Priority Water Ecosystem Services



**SPREP**  
Secretariat of the Pacific Regional  
Environment Programme



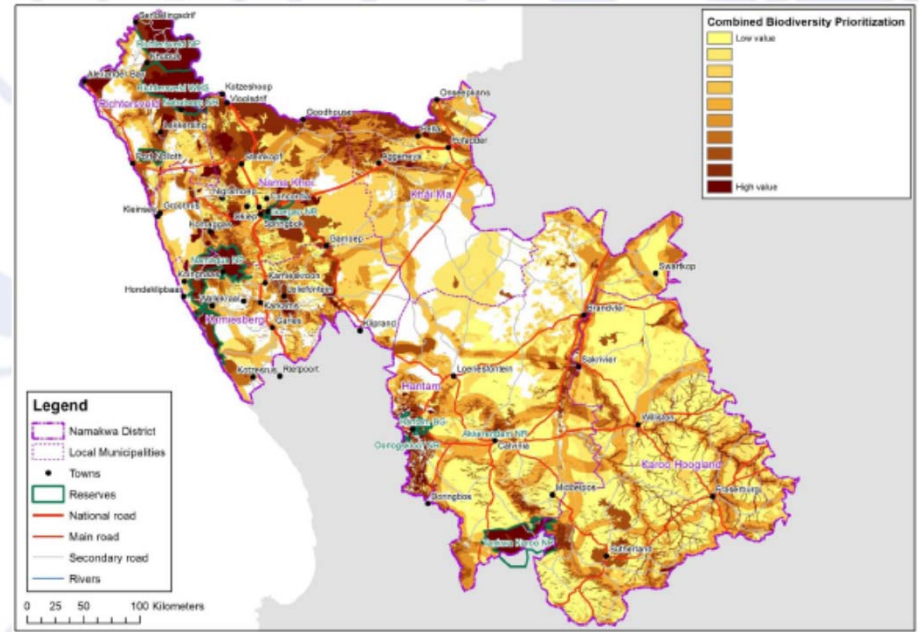
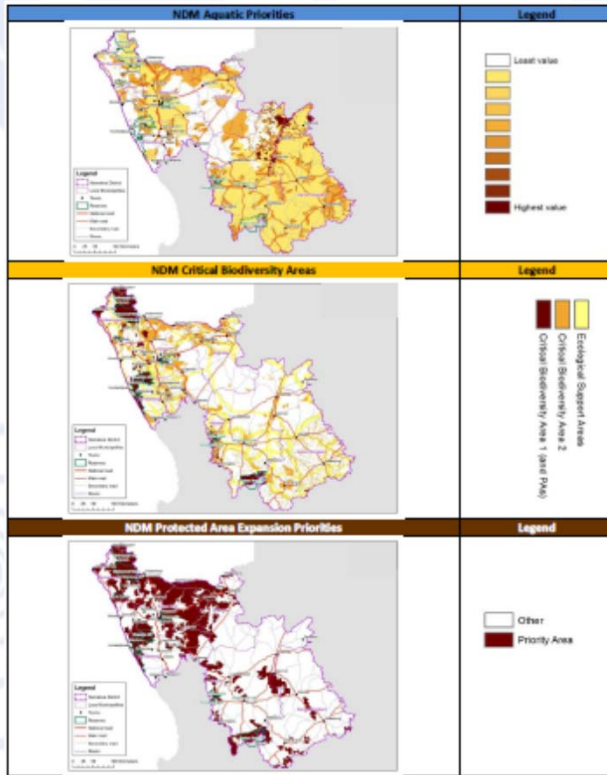


# Priority Biodiversity Infrastructure

- Aquatic Priorities
- Critical Biodiversity Areas
- Protected Area Expansion Priorities



# Priority Biodiversity Infrastructure



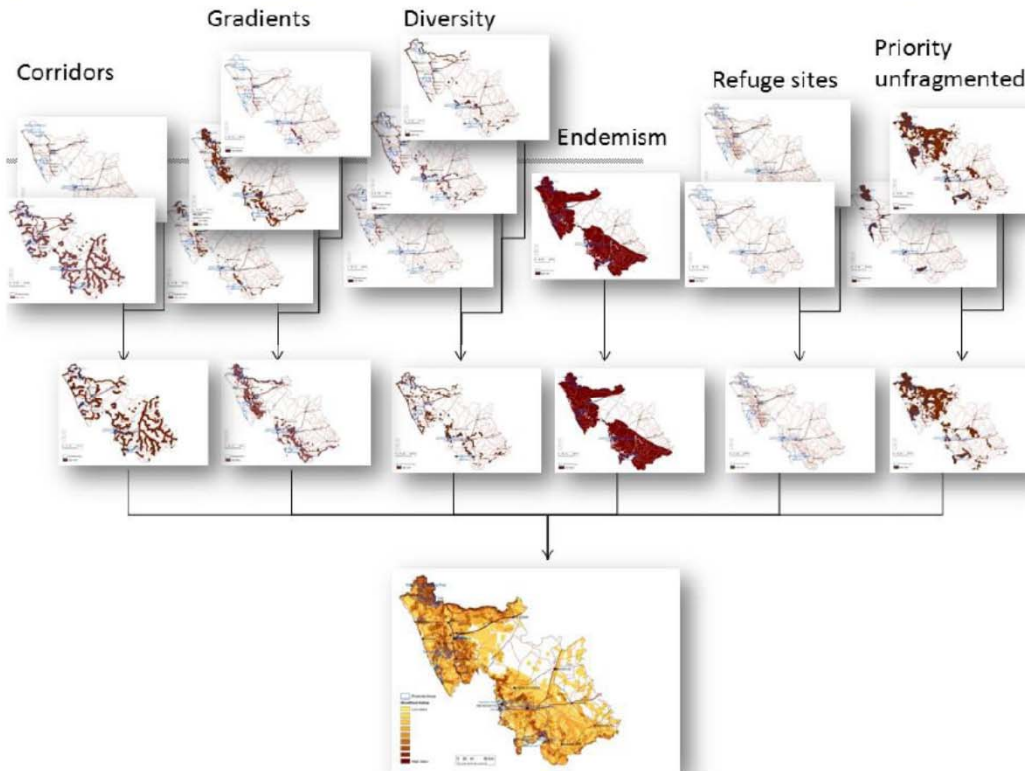


# Priority Areas Supporting Resilience

- Refugia
- Areas of endemism
- Corridors
- Dispersal Areas
- Gradients / heterogeneous areas



# Priority Areas Supporting Resilience



**SPREP**  
Secretariat of the Pacific Regional  
Environment Programme

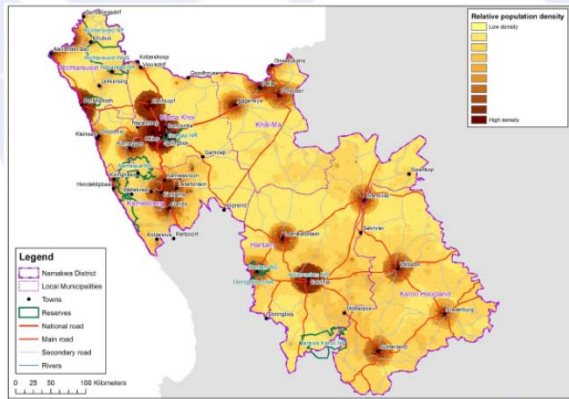


## Priority Socio-Economic Vulnerability

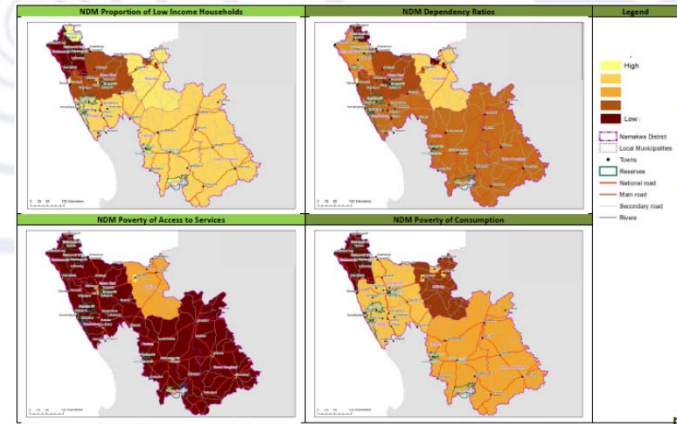
- Population density and location
- Poverty Index
- Consumption
- Dependency ratio
- Access to services
- etc



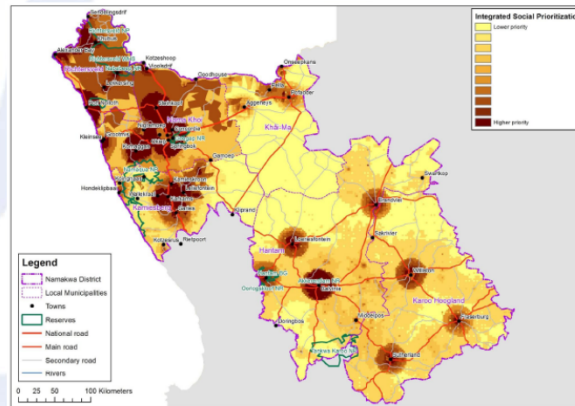
# Prioritise Socio-Economic Vulnerability



Population



Other Socio Economic Variables



Integrated Socio-Economic Map



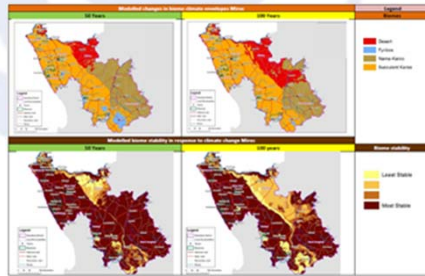
**SPREP**  
Secretariat of the Pacific Regional  
Environment Programme



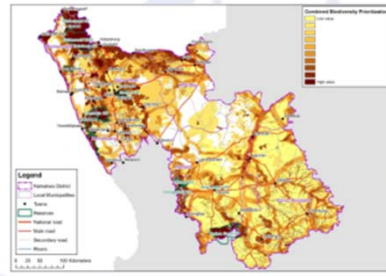




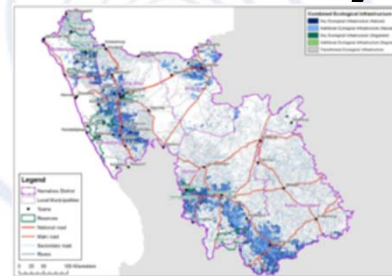
# Prioritised Vulnerability



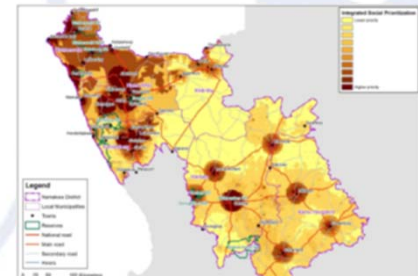
Habitat Stability



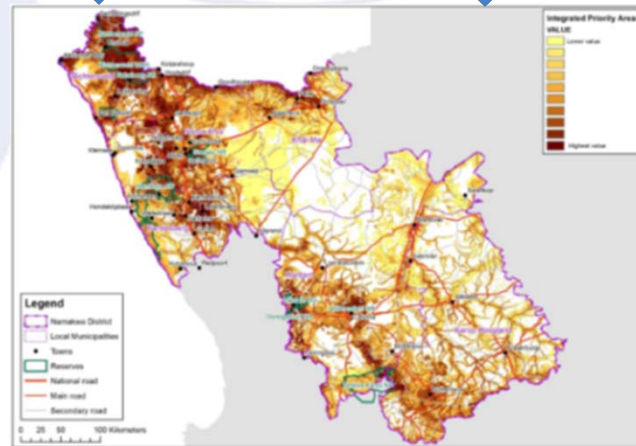
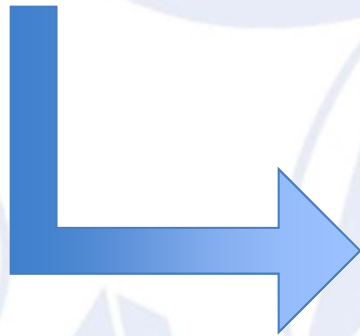
Prioritised Biodiversity Infrastructure



Prioritised Water Ecosystem Services



Prioritised Socio-Economic Services



Vulnerability



## Approach

- This study was done in a data rich area
- Use proxys where possible
- Don't limit one's self to the categories used
  - Water may not be the most important ecosystem service
- If you can show one variable is more important than another, weight it accordingly
- There are other tools to model habitat change/stability

