Vula Itikotiko Marou,

a community built water basin strategy

At the larger scale of the Marou water basin, the project is a collection of community built, low-tech, low maintenance systems that act in synergy. The mini grid (Vula Kaukaua) is only one part of it.

To tackle the various issues encountered by the Marou and Naviti community, an addition of small scale community built project is proposed.

The synergy of the projects will try to :

- enhance groundwater recharge
- limit erosion of the land from both the sea and storms
- encourage the production of local food
- collect and store drinkable, local water
- harvest and store local, renewable, low carbon electricity
- kickstart educationnal, artistic, scientific, economic and social opportunities



Vula Wai {water moons} are permeable micro-dams distributed along the streams of the Marou water basin.

Vula Wai aims at slowing down water stream to maximize water table recharge and to prevent / minimize flash floods, and slowing down erosion of the island.

Vula Wai are around 4 meters in diameter and 0.5m high.

Vula Wai are community built with local stones, stand and silts found next to/in the streams.

They are not meant to be waterproof at all. They will need regular rebuild after big storms. But they are very simple to make : 1 hour work with 1 person and a pickaxe.



{vegetables moons}

Vula Kau {vegetables moons} are crescent earth mounds that are distributed along terrain contour lines.

Vula Kau 4 meters diameter moons retain rainwater avoiding village soil erosion, improve soil quality and produce local food for villagers and visitors.

Vula Kau will be built by the community, so that each family will have access to a moon to produce their food without chemicals or oil.

The 70 Vula Wai are placed above the mini-grid (Vula Kaukaua), protecting Marou village from both rainwater erosion and floods.

This half-moon system has been tested in harsh climates (Senegal, India, Sahara Green Belt...) and are proved to be efficient to improve soil quality and produce abundant local food.

+300m

150m

20km



20km

+1m

15m

Vula Korala

{korala moon}

Vula korala {coral moon} is a larger project that could be lead to develop coral nurseries that could contribute in the long term to coastal protection, scientific research, and sustainable tourism.

Vula Kaukaua

{energy moon}

60m

Vula Kaukaua {energy moon} is a electricity and water harvest system that is low-tech and low maintenance.

Vula Kaukaua is a 50 meters diameter slopped terrain forming an optimized average angle of 18° allowing a good electricity production all day + all year long with a minimized maintenance.

Vula Kaukaua's 450m² solar panel array is also harvesting and storing 450m³ drinkable rainwater stored in bladders.

Vula Kaukaua is built with local earth, standards solar panels, precast concrete modules, foldable water tanks (bladders) and standard low cost batteries to optimize logistics and construction costs on Naviti remote island.

Vula Kaukaua is also a social place where people can gather to harvest water and Kava that is planted in the central garden.



{protective compost moons}

Vula Taqomaka {protective compost moons} are a prototype of coastal compost that aims at creating soil while fighting against salt water erosion of the coastline.

Vula Tagomaka are 5 meter diameter moons built with weaved bamboo and palm leaves, placed on the erosion line of the coastline (between the beach and the ground). They are filled everyday by local villagers with all compostable matters, slowly degrading and creating fertile soil that can then be planted to be stabilized by vegetation roots.

Vula Taqomaka will have a very important role as they will protect both the land and the bodies of ancestors that built it : indeed Marou cemetery is placed along the shore and suffers from coastal erosion.

30m

+0m

30m