



Concept Narrative

A Lightweight, High-Impact Infrastructure for Marou Village.

Inspired by local traditions of weaving and seafaring, our Photovoltaic and Water Collection Towers evoke the plaited baskets and sailing vessels native to the region. The exterior surface draws on traditional patterns of palm or pandanus-leaf basketry, with photovoltaic panels arrayed in a distinctive plaited geometry—suggesting a basket afloat, reaching skyward. Within, an inverted net captures rainfall, echoing the structure and symbolism of fishing tools and woven traps.

The supporting structure is a hybrid tensegrity system: primarily tensile, with selectively rigid components. This system is both materially efficient and highly resilient—capable of withstanding extreme winds by flexing rather than resisting. Drawing on principles from sail rigging, the design uses steel and UV-resistant nylon cables, avoiding the need for heavy machinery or highly specialized labor during construction.

Design Intent + Visibility

The towers are conceived as beacons—visible from both Marou Village and the surrounding sea. Their shimmering forms, emerging from the treetops or behind village dwellings, are meant to spark curiosity and guide travelers. Among the four proposed towers, three are dedicated to water collection, while the fourth incorporates a climbing structure for children, weaving functionality with play.

Site Integration + Environmental Sensitivity

Each tower occupies a minimal footprint, providing partial shade without obstructing plant growth or animal movement. The open, porous geometry ensures light and rainfall reach the ground, preserving ecological viability below. During construction, any surface disturbance is temporary, and post-installation impact is negligible.

Power Generation + Storage

Each tower supports 40 standard 500W commercial PV panels (dimensions: 2000mm × 990mm), each capable of generating 2–3 kWh per day. In total:  
Per Tower: ~80 kWh/day  
Annual Output (4 towers): ~136,000 kWh  
Storage: Standard LFP (lithium iron phosphate) batteries

Note: All electrical control systems are housed in elevated, secure containers at each tower base, easily accessible for monitoring and maintenance.

Water Collection System

The interior net is designed to guide rainwater into a durable, UV-resistant nylon basin. Each of the three water-collection towers stores up to 63,000 liters, totaling 189,000 liters site-wide. Seasonal rainfall will, of course, influence actual storage levels.

Construction Strategy + Maintenance

To reduce cost and simplify logistics, the design incorporates readily available components:

- No custom-fabricated parts
- PV frames serve as semi-rigid elements in the tensegrity system
- Construction requires no heavy equipment
- Assembly can be performed with common tools and with assistance from the Marou Villagers.

Maintenance is minimal: PV panels can be cleaned annually with a power washer or high-pressure hose. Replacement of cables, fasteners, or fabric components can be done using standard fittings and tools.

Conclusion

This project seeks to embody sustainability, visibility, and community adaptability through its material logic and visual poetics. Drawing from local traditions while integrating global technologies, the towers are lightweight yet impactful—forming a new infrastructure that is flexible, functional, and culturally resonant.