



## Project Narrative

Our project began by reading the site—its destructive forces and hidden potentials—to create a self-sustaining cycle that tackles the village's energy shortage.

### • Runoff & Flooding

Heavy rains cause surface runoff and sudden floods from nearby mountains. To control this, we designed a small dam on the upper terrace, planted mangroves to regulate flow, and installed three micro hydro turbines to generate electricity from overflow water.

### • Terracing & Site Slope

The land is terraced into three levels to slow water, prevent erosion, and support flood irrigation, making farming possible and safe.

### • Solar Energy Generation

In the sunniest, shade-free zone, we placed 307 solar panels facing north to follow the sun's path in the southern hemisphere. These panels generate both electricity and potable water.

### • Bamboo Framework

The panels are mounted on a spatial bamboo structure that doubles as a system for collecting and filtering water.

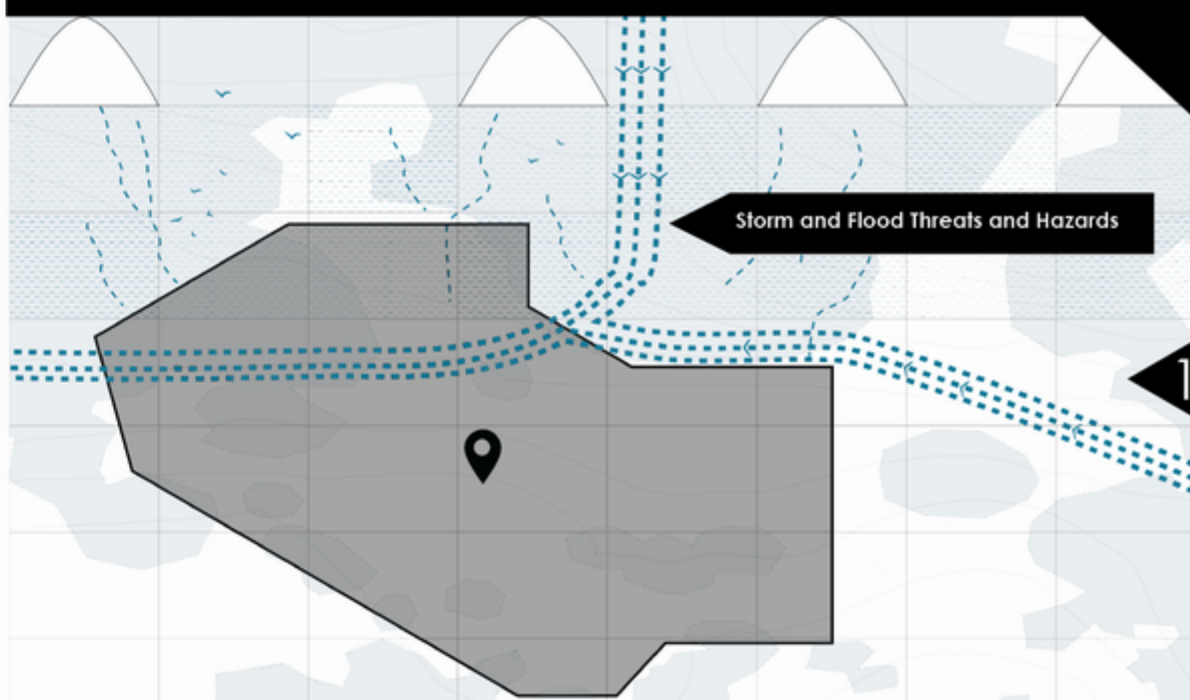
### • Coconut Fiber Filtration

Fifteen linear coconut fiber elements extend from under the panels. Dense near the panels, the fibers filter rainwater; looser at the ends, they trap moisture from fog, positioned to face prevailing winds for optimal condensation.

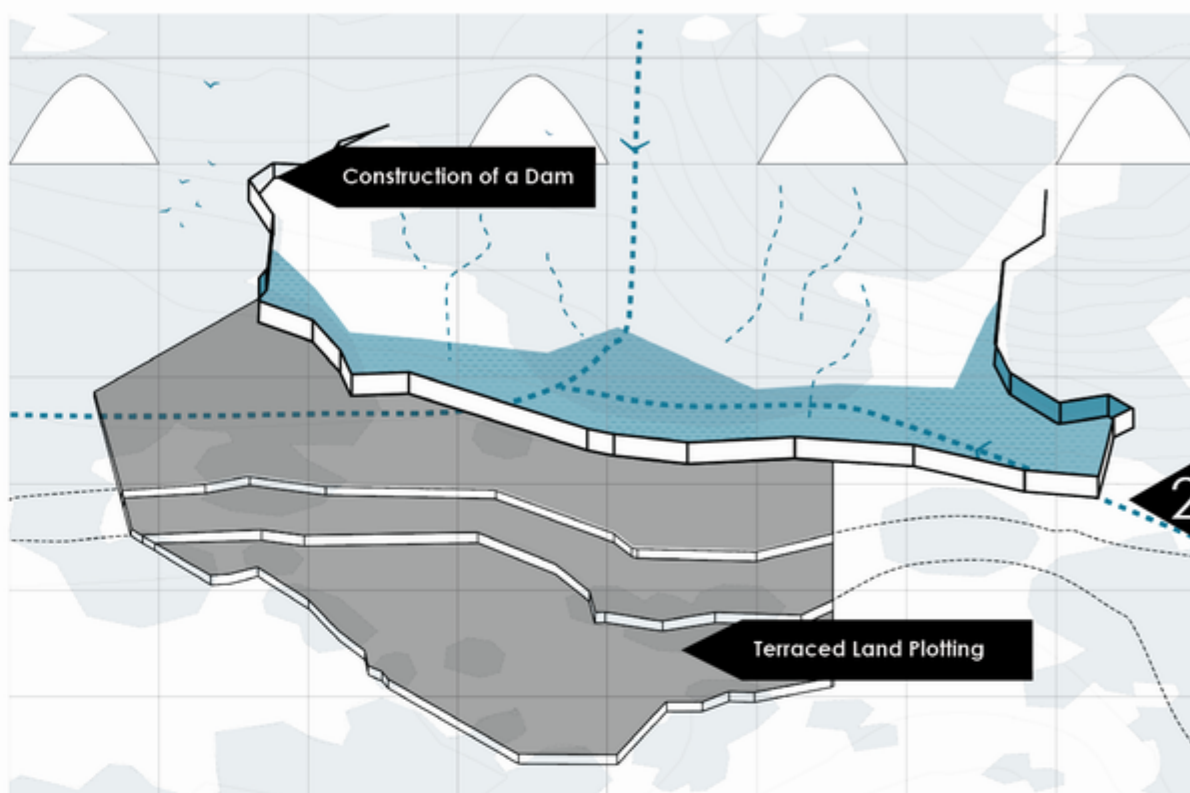
### • Seaweed Bio-Filtration

Below the entire system, seaweed-filled pipes act as a second filter, purifying collected rain and fog into drinkable water. The seaweed is cultivated in the lower agricultural terraces.

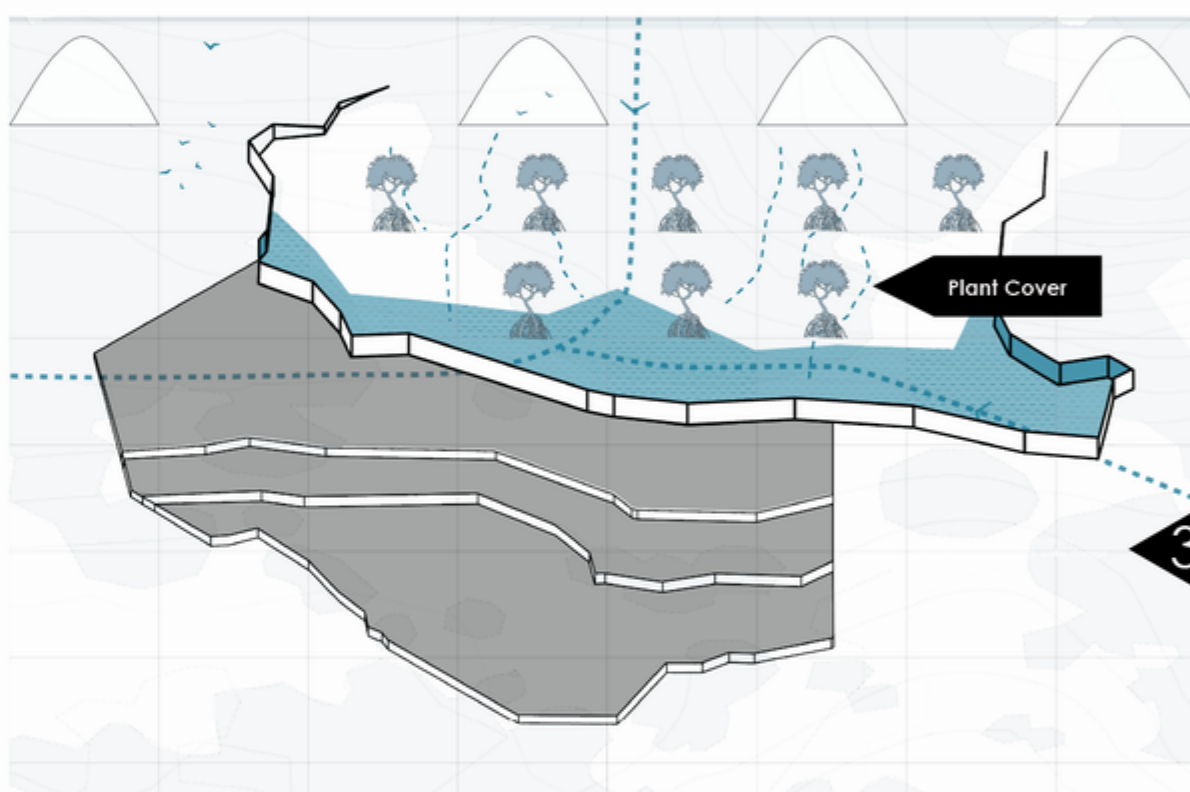
## Design Process



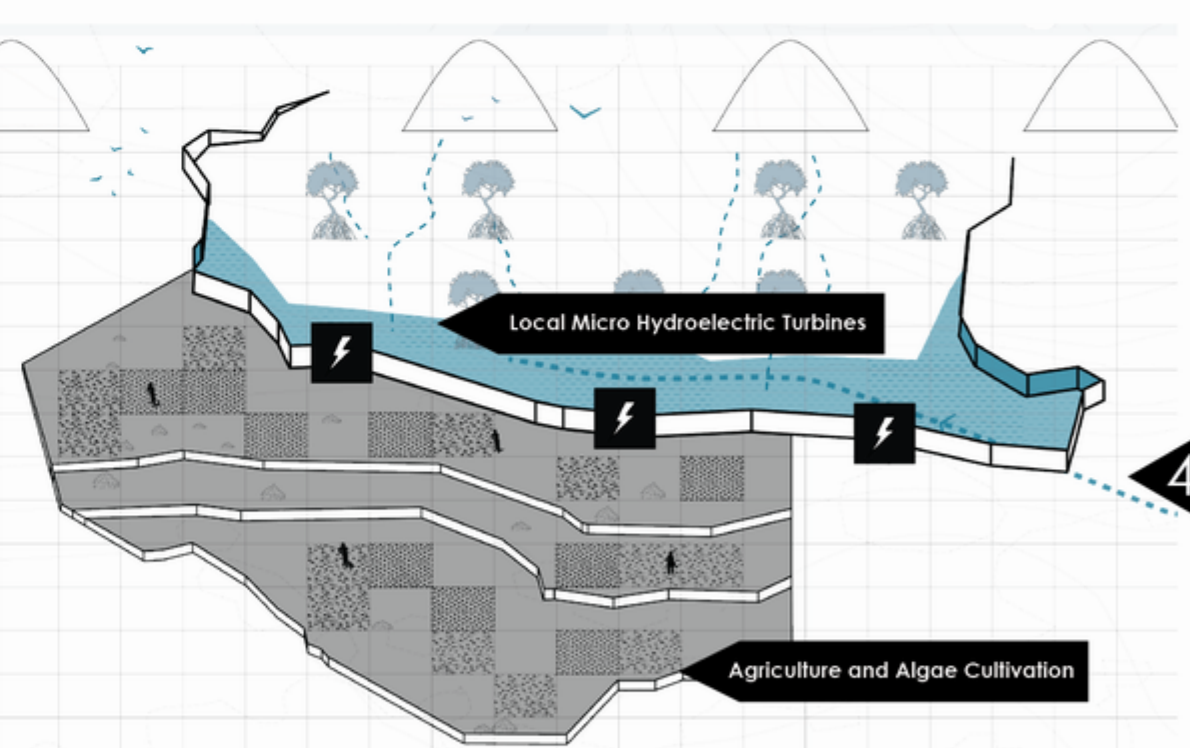
### Current Site Condition



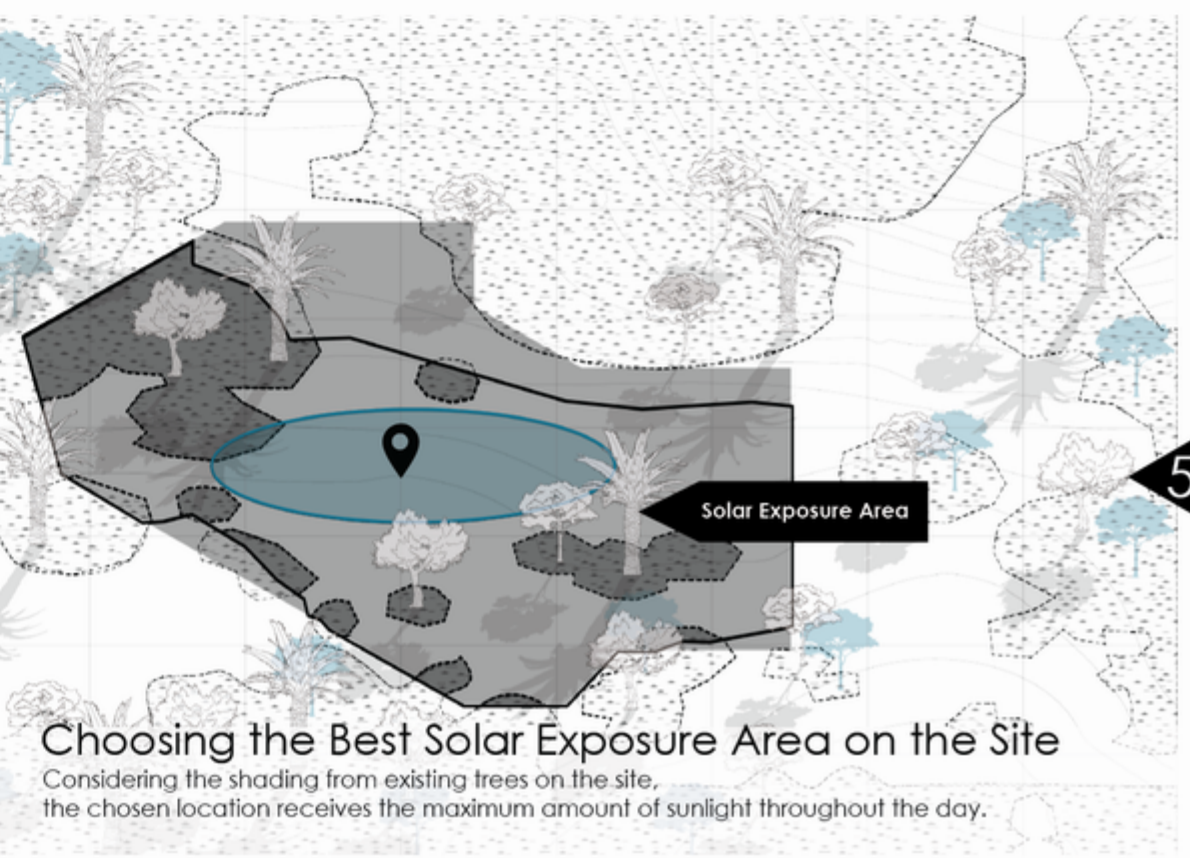
### 1- Flood Control Strategy



### 2- Soil stabilization Strategy



### Utilization of Terraced Land

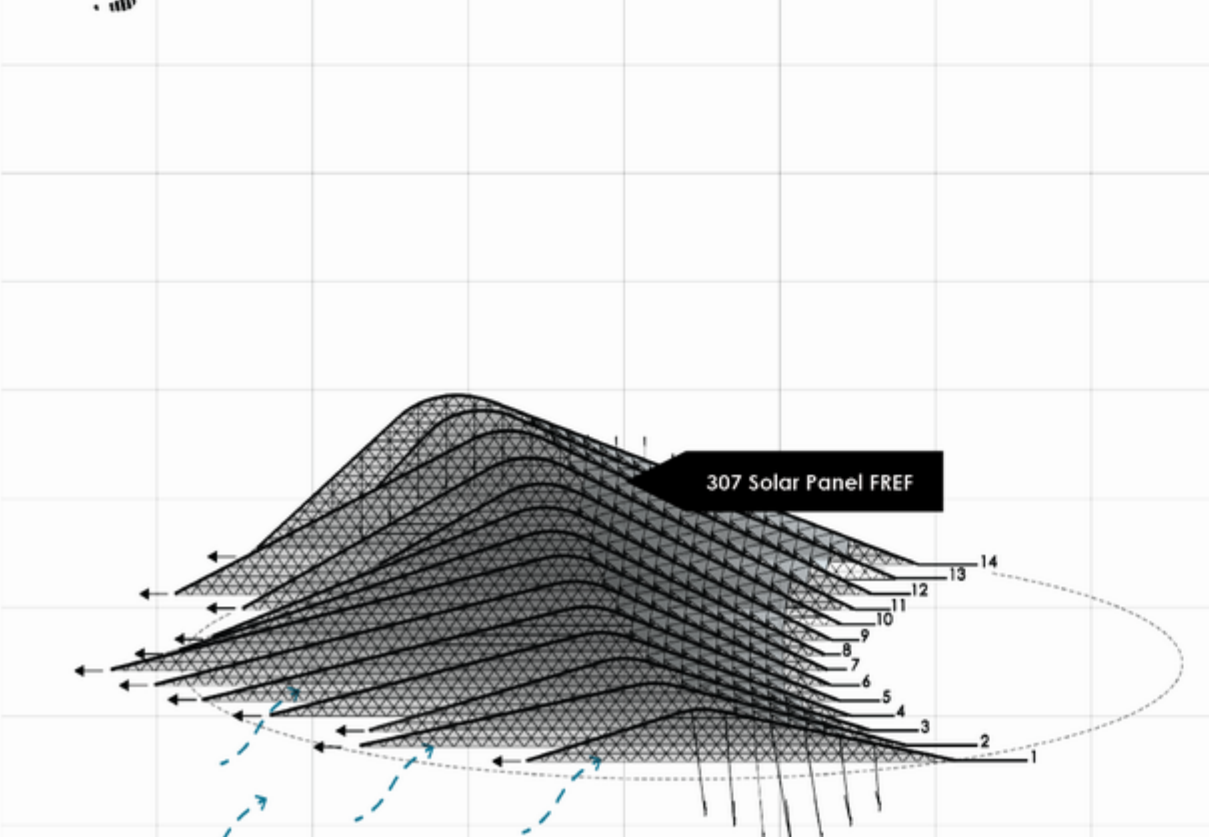
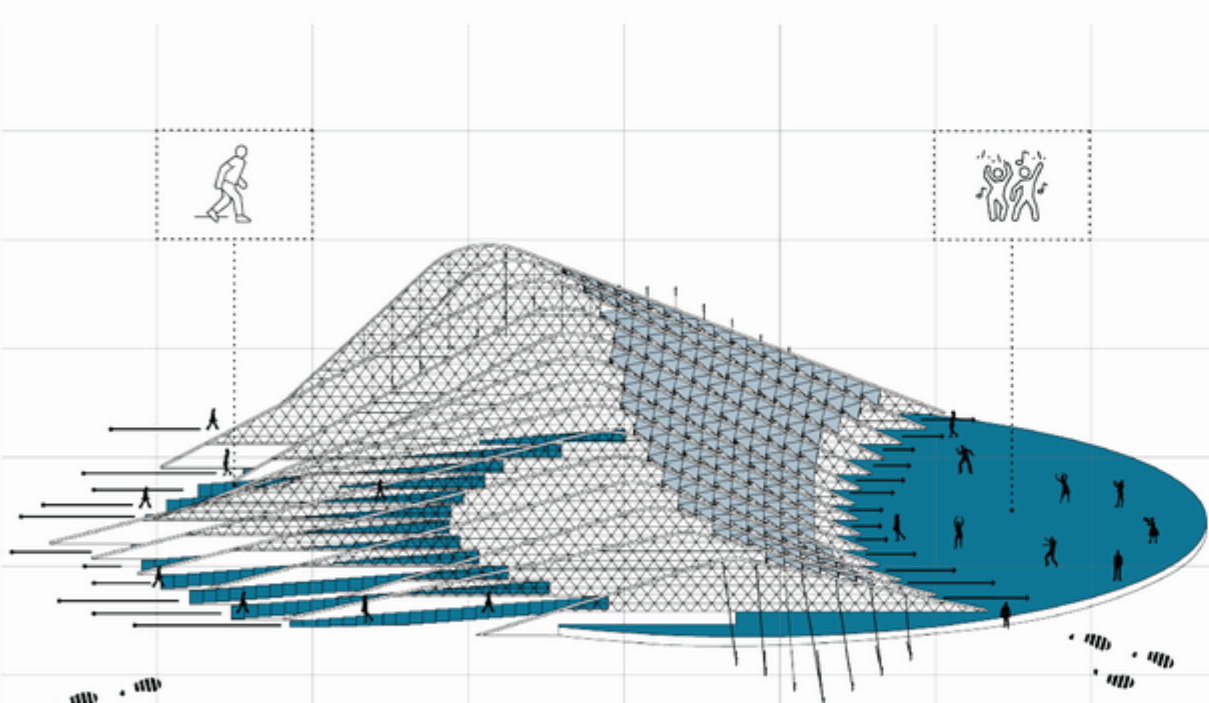


### Choosing the Best Solar Exposure Area on the Site

Considering the shading from existing trees on the site, the chosen location receives the maximum amount of sunlight throughout the day.

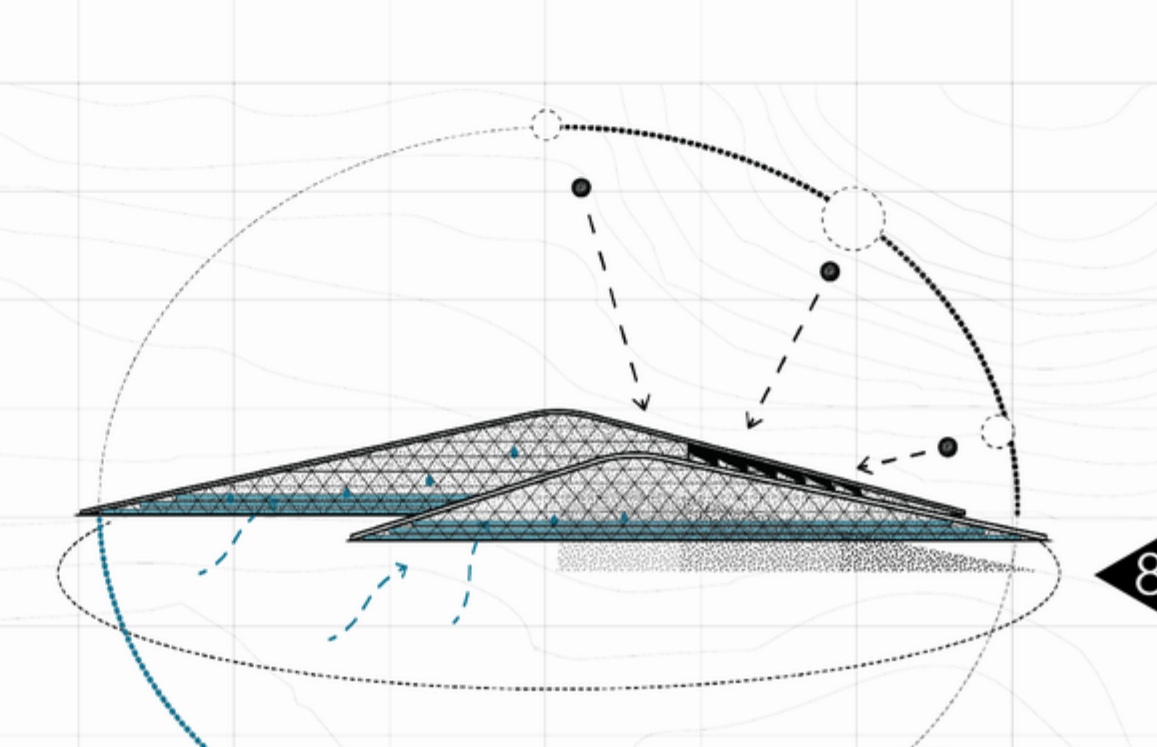
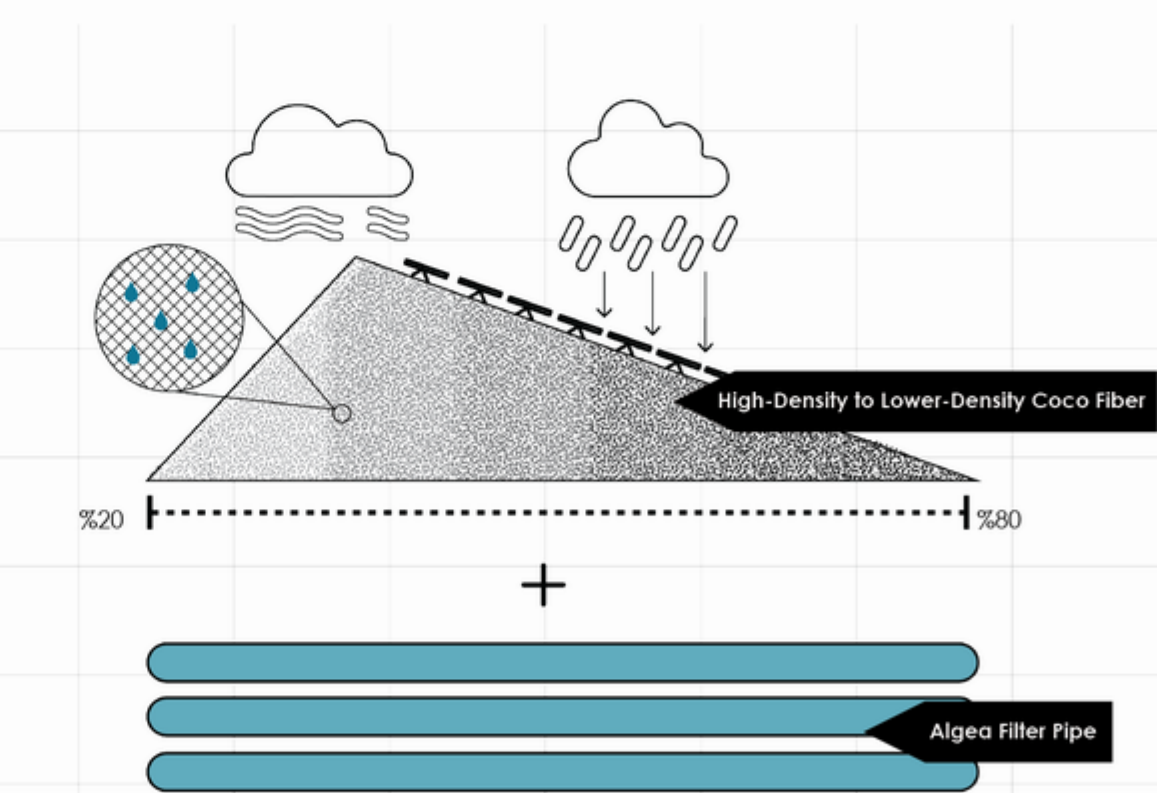
# Vale Ni Wai Siga

## AquaNest Solar Habitat



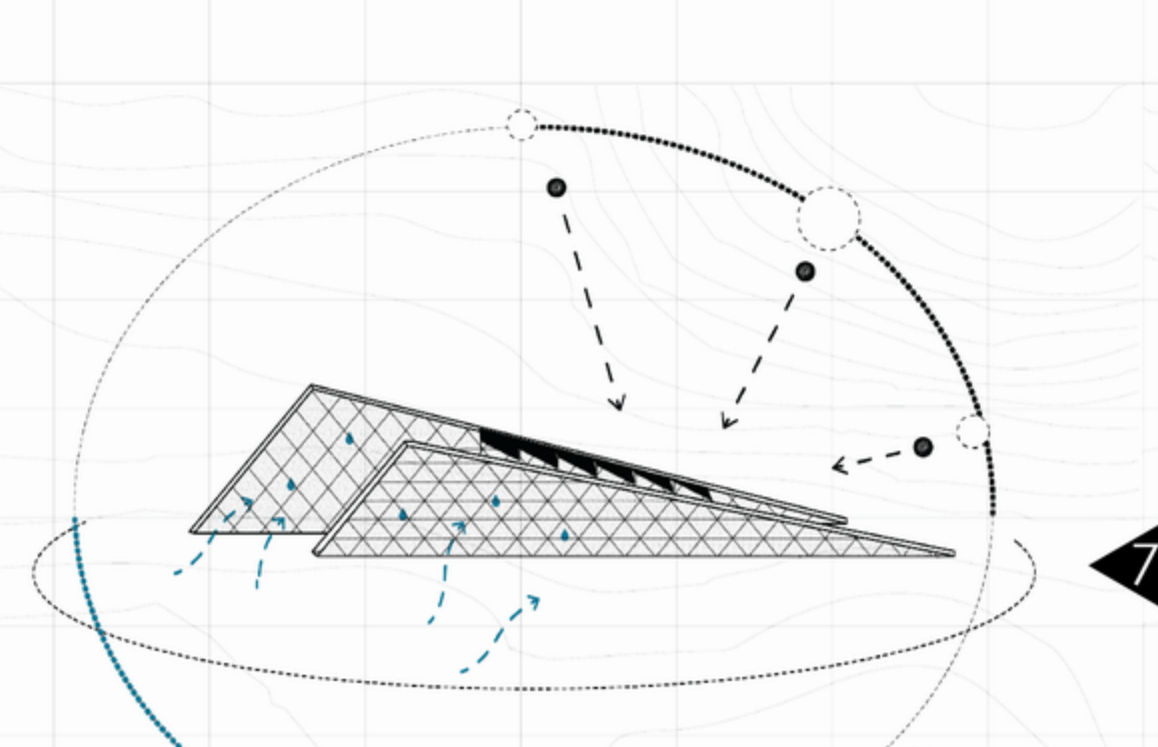
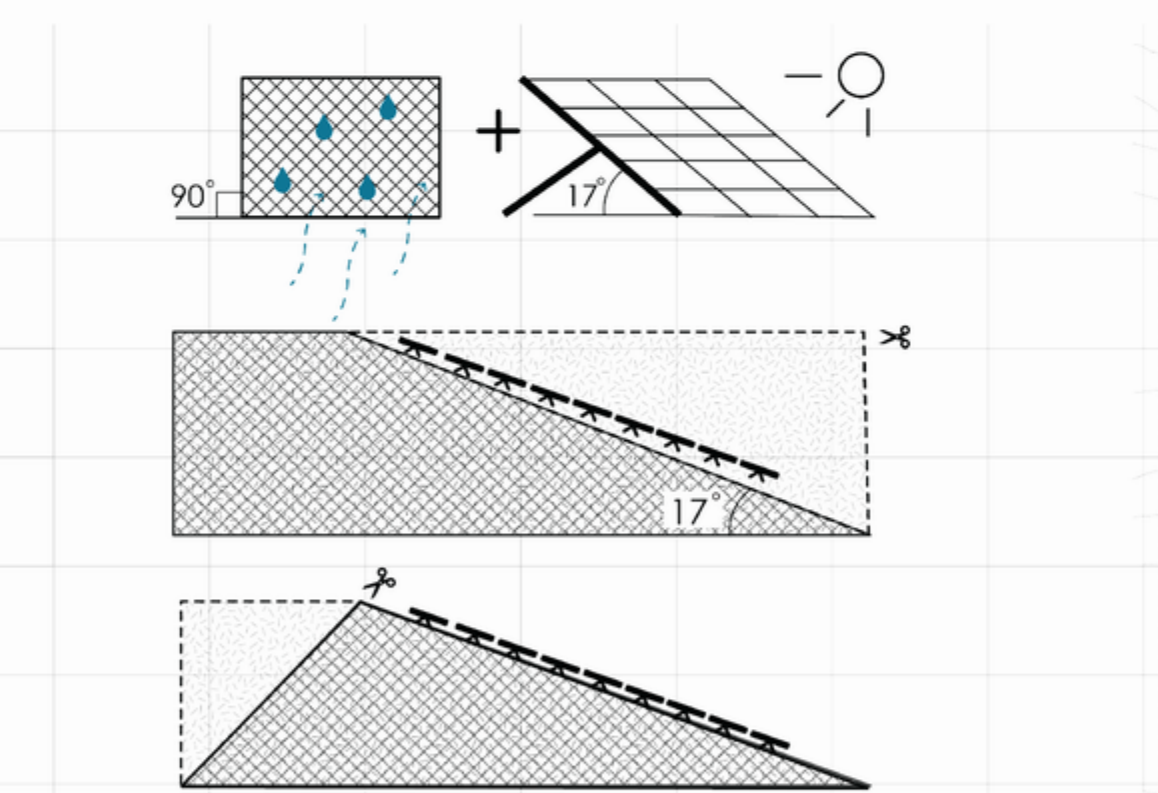
### Increase in the Number of Structural Panels

For the Installation of Additional Solar Panels to Achieve a 75 kW Energy Output and the Creation of Gathering and Discovery Spaces



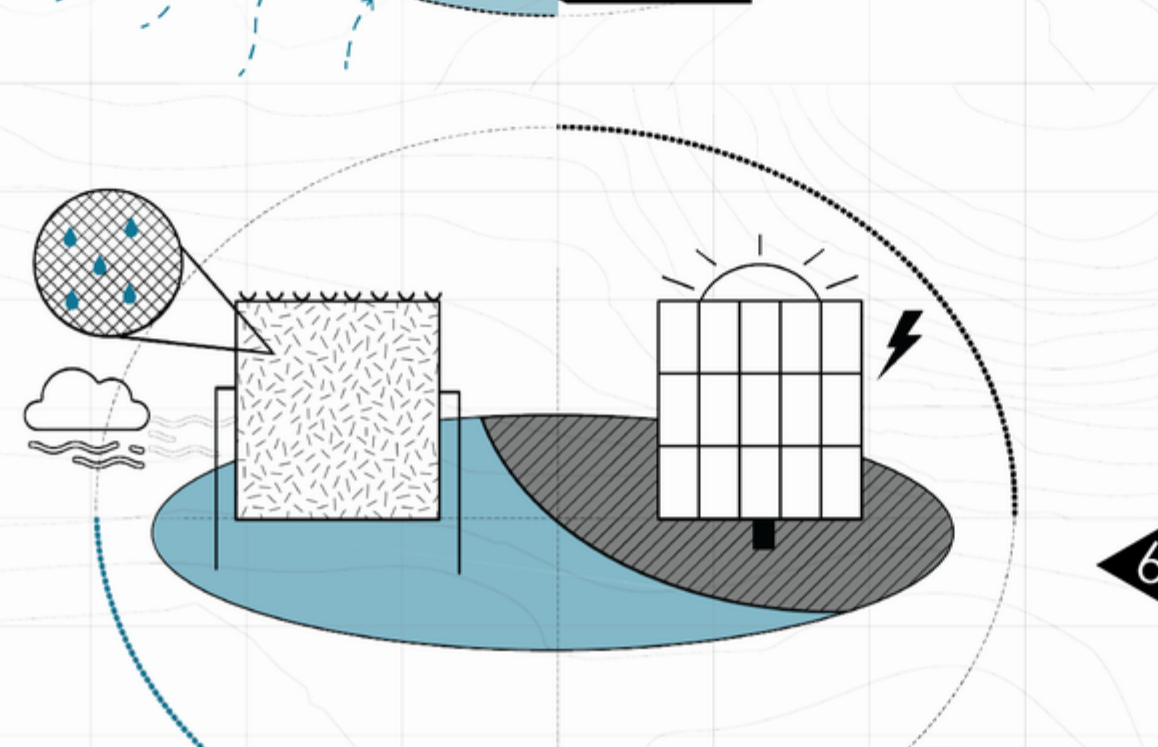
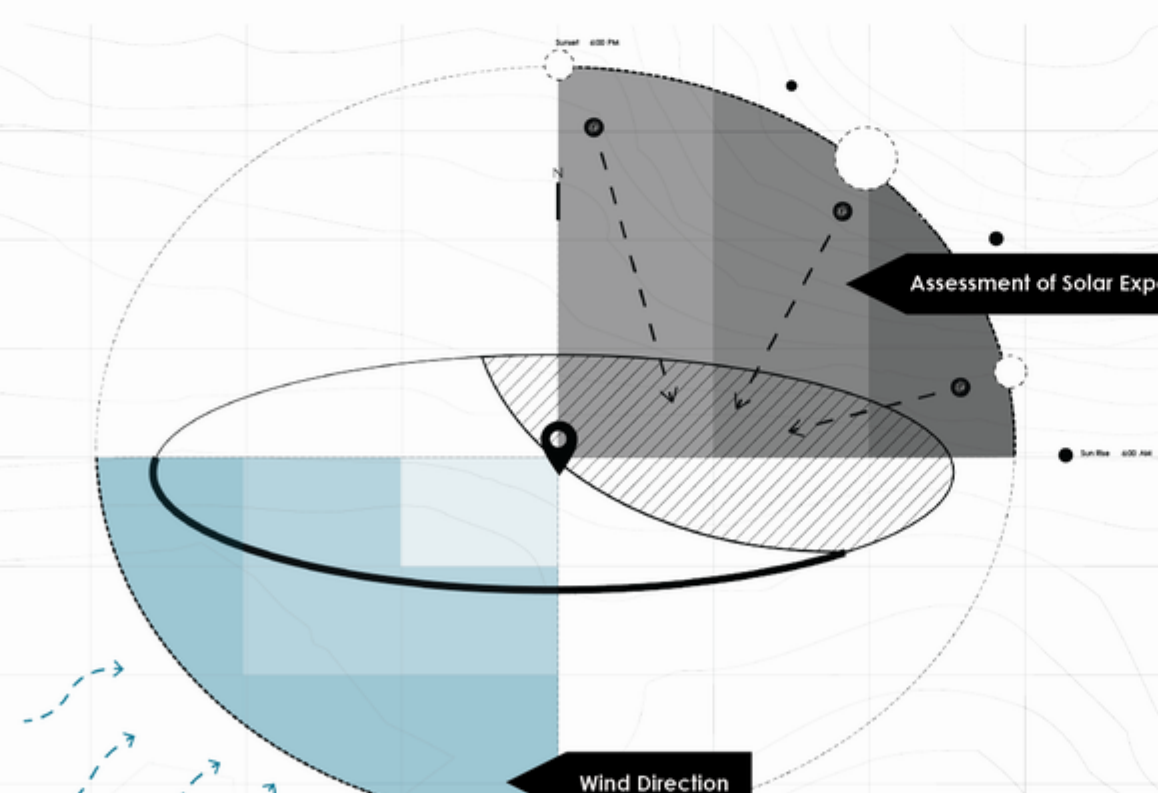
### From Rainwater Purification to Fog Harvesting

High-density coconut fibers are employed as fog catcher materials to filter rainwater collected from solar panels. In contrast, lower-density fibers are used to capture atmospheric moisture, enabling the production of drinking water from the air



### Combination of Solar Panels and Fog Nets

Combination of Solar Panels and Fog Nets Addressing the Issue of Drinking Water Purification and Electricity Shortages



### Site Analysis

The installation of panels is oriented primarily towards sunlight, while the wind direction is crucial to ensure the vertical alignment of windbreak panels for optimal performance