# Marou Totem Landscape LAGI 2025 | land art for a changing climate

### **02. MATERIALITY & CODESIGN**

The totem trees provide electricity through solar panels and clean water with its muti-staged filtration system.

#### WATER FILTRATION WITH CLAY

Taking cues from the water-filtering abilities of soil and the traditions of clay filtration, we have researched the work done by "Potters for Peace" to developed a system for the Marou totems that can provide purified drinking water to villagers: it is a locally made ceramic container that 'hugs' the totem trunck, locking into eachother as they stack around it. The stacking provides a double layer of filtration, of the water that comes down already filtered through the canopy's natural systems (plants, cocopeat, carbon) Wehave developed 3d printed explorations in bioplastic first and then in clay to test its water-filtration capacities once fired.











Ceramic Water Filtration Precedent

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clay module 3dprint test firing in a kiln

testing with water

filtration rates



ceramic units assembly around the totem trunk (shown upside-down)

#### TOTEM STRUCTURE AND CANOPY: BAMBOO, COCUNUT PALM,

Locally grown bamboo, Schizostachyum glaucifolium, known as bitu dina a rapidly growing low-carbon renewable material. Traditional techniques for connecting the structure with magimagi (braided from long coconut husks) can be used as well as other mechanical systems to anchor the bamboo to the hexagonal timber frame.

The woven elements (proposed are the water-filtering planter-baskets and funnel membrane) would be designed by Marou villagers based on their expertise and wishes for the structure and plants that can grow in it. The technique is similat to that used for the lovo cooking containers, and rug design.









bamboo

magimagi

weaving/rug design

weaving used for lovo







## MAROU TOTEM FOR WATER & SOLAR GATHERING

#### Water filtering and collecting

the water totem mimicks the Earth's own filtration system, using natural materials and processes to purify water, while also incorporating local knowledge of Marou village residents for its design and fabrication.

#### planter basket filter | nutrient filter

rain water falls from the solar panels into the planters, which can be used to grow herbs and spices for use in cooking. Water travels through the plant nutrients down to the planter lining, the second filter. -local knowhow: use of coconut coir fibres

#### water passes through the coconut coir fibre that lines the

planter structure made from loosely woven palm leaf. -local knowhow: lovo weaving for traditional cooking

#### palm leaf funnel | carbon filter

made from a tight woven palm leaf structure, the water is directed into a funnel with a carbon filter local knowhow: rug weaving

filtered water faucet

#### \_\_\_\_\_ each trefold totem has a faucet for direct water access

ceramic water purification & faucet a system of interlocking ceramic vases, locally made with native clay, further filters the water into a purified quality ready for drinking

#### excess water to cistern

interconnected system of cisterns, using gravity and simple tranch system under a compacted soil surface

OVERALL RAIN WATER COLLECTED ON SOLAR PANELS Current design (1/3 capacity): 2.3 million liters



#### SOLAR PANEL collecting

fixed angle solar panels capture predominant sun exposure

solar panels | energy capture the system of solar panels are modular and designed to converge several arrays

conduit | combined cables the power from the array are converged into a single line of power.

solar controller | regulator power is parsed through the solar controller, from which DC loads may be delivered directly to fixtures and appliances that run on DC power

batteries power is delivered to a battery bank that stores the energy in an array. The batteries are housed in a protective container that doubles as bench seating.

inverte An inverter(s) will convert the power into AC power that may then be delivered to households

OVERALL SOLAR POWER GENERATED: 104KWh