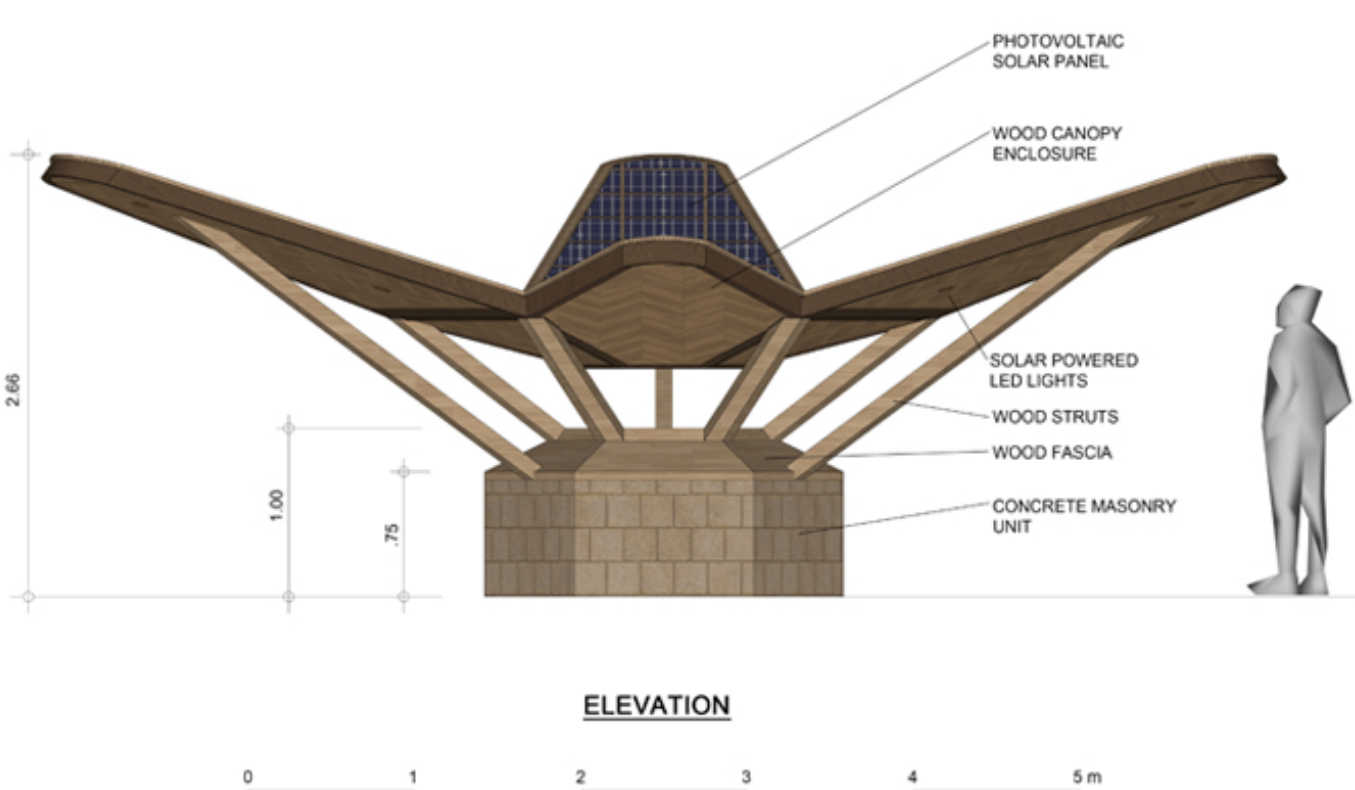
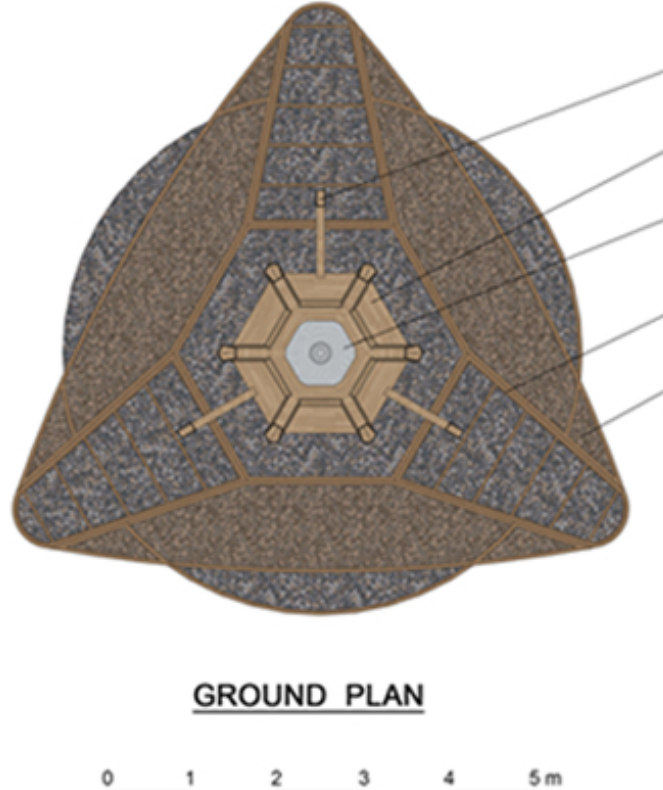
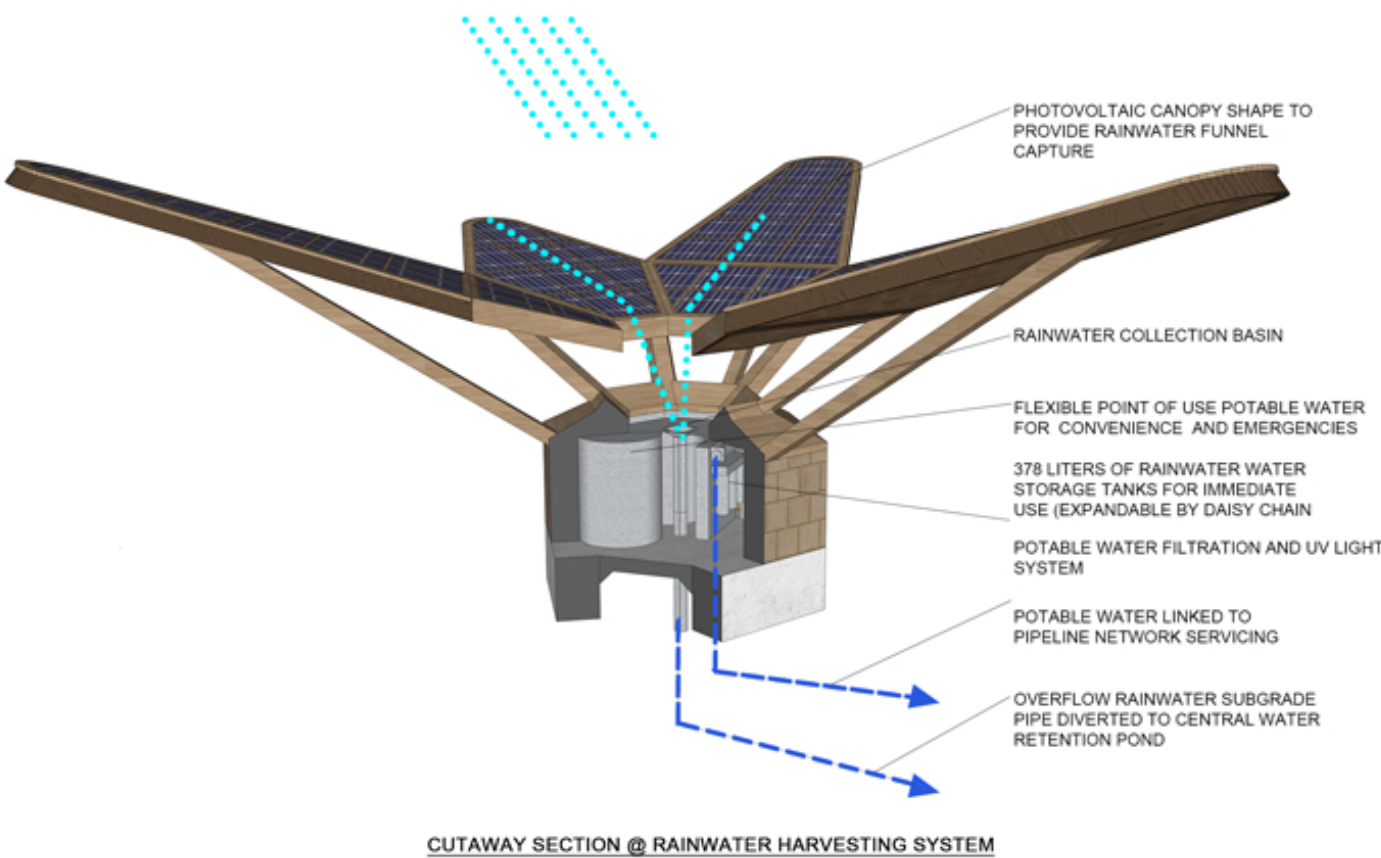
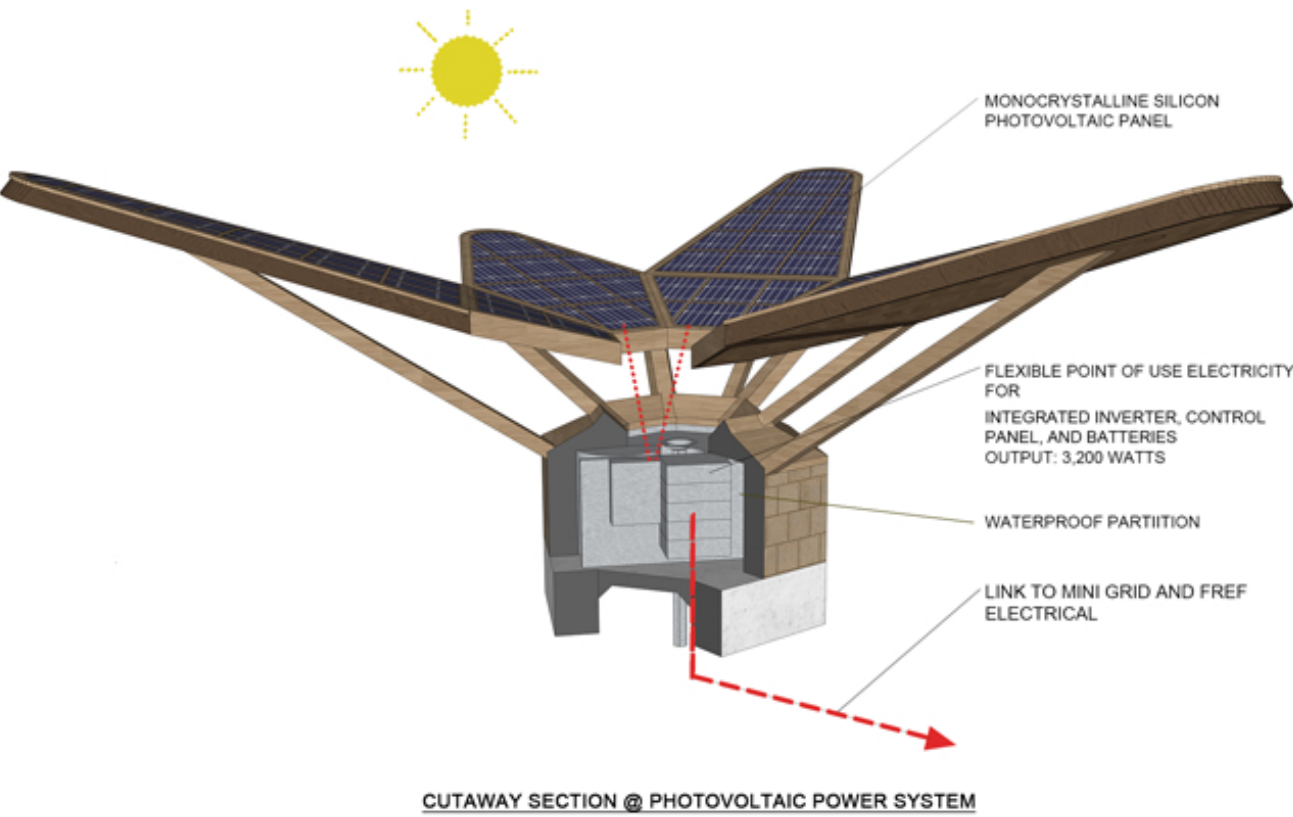
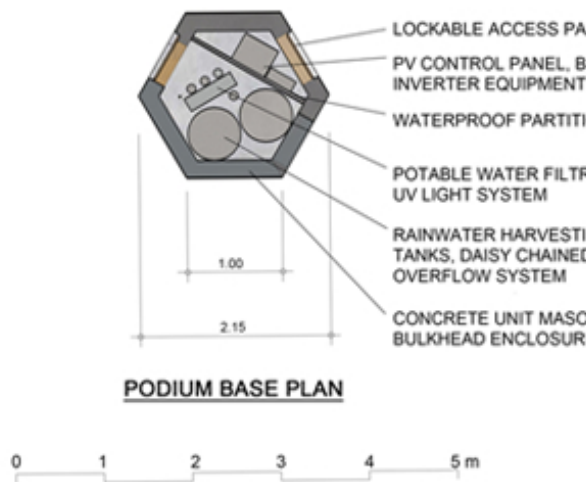
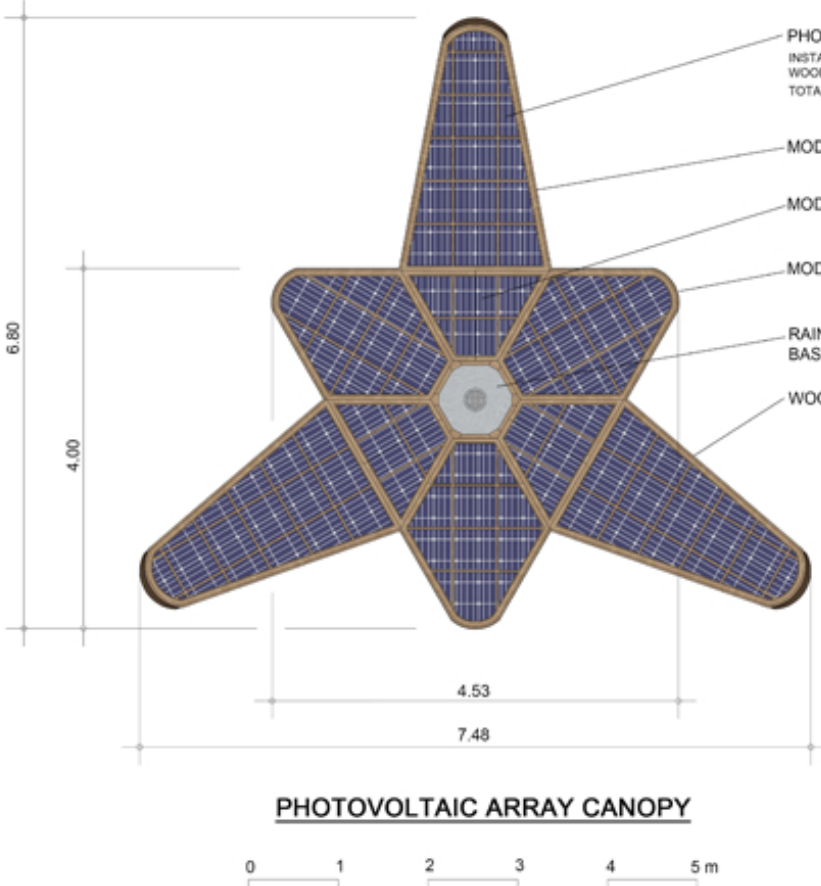


PHOTOVOLTAIC AND RAINWATER HARVEST POD PROTOTYPE



PRODUCTION NOTES

The solar and rain harvesting system is a self-contained modular unit hosting both photovoltaic panels and rain collection storage. The photovoltaic system is linked to a neighborhood mini-grid and provides point of use location from its internal batteries and inverter. This flexibility allows structured daily use while maintaining access for convenience and emergencies. Additionally, it provides power for night lighting, wayfinding, and solar pool lighting and water equipment for mitigating the mosquito vector cycle.

Each pod provides 3,200 watts of electricity. There are 25 pods distributed around the site thereby generating 80,000 watts. The system layout allows for future expansion by elongating the linear garden circulation system and attaching more pods. The linear gardens provide triple duty by offering shared land uses through social gardening along a path, offering a landscaped spine to connect with nature, and infrastructure for underground water and power lines. There is an open recreation space in the south zone of the site that has relatively flat terrain for expansion of the linear gardens and pods. The north garden strand extends into the existing village farmland linking residents with modern technologies.

The lower base structure of the pod is surrounding by landscaping as a visual buffer for equipment. This feature alongside with the linear gardens provides a mini Agrivoltaic system of dual-use land. This approach allows for efficient use of land by harnessing solar energy while still allowing for food production potentially increasing overall land productivity.

The rainwater harvesting system consists of rain catchment surfaces of the photovoltaic array sloping toward a central basin, and off-the-shelf rain barrels for storage portability, flexibility, and maintenance. The internal capacity of the 2 tanks is 378 liters of water. They are capable of expansion by daisy-chain to additional tanks. An overflow device guides excess water to flow into the adjacent central wet pond through underground pipes. The wet pond is a water retention system to prevent flooding from stormwater and a natural filtration system for water sediments to settle on the pond's floor before seeping into the aquifer. The water capacity storage of the pond is 900 cubic meters. The wet pond also provides water for emergency firefighting apparatus.

The hexagonal shape of the photovoltaic array offers relief from wind pressure by allowing air to flow around the structure more efficiently than flat sided walls. The central opening for collecting rainwater also tempers wind uplift by providing an opening to let wind flow through the opening and flow around the tiled angles of the photovoltaic array.

The pod prototype is built from local sourced materials of bamboo, palm wood, stock sized lumber, and cement block units for the foundation. Plywood supporting the photovoltaic panels provide shear strength for wind and seismic loads resistance.

