1*. Concept Narrative*

The proposed building will be constructed primarily of local palm wood, known for its sustainability and aesthetic appeal. The unique design includes a covering of mesh that effectively captures moisture from the air and collect it into four big containers. The mesh is beautifully adorned with indigenous patterns, adding a cultural richness that reflects the local heritage.

The inclusion of solar panels on the roof provides a renewable energy source, generating clean power for the residents of the Village of Marou.

Visitors will experience a harmonious blend of nature and technology, with an inviting atmosphere that encourages community interaction. The project includes an area for communal gatherings, workshops, and educational programs, promoting a sense of community and engagement.

2. *Technical Narrative*

The design incorporates solar photovoltaic technology for energy generation and a sophisticated moisture collection system .

In our project, we have installed 448 m² of solar panels, which together provide an impressive photovoltaic capacity of 84 kW.

Our aim is to harvest water from the atmosphere (rain, fog, dew) providing an alternative water source for the residents of the village*.* When the wind blows, it pushes moisture into the complex woven netting, effectively trapping it. Rubber expanders holding the nets to the frames reduce the impact of wind pressure on the net to keep them from breaking. It’s capable of harvesting between four and fourteen liters of water per square meter of net.

Above the solar panels, the net is designed with a finer weave, serving primarily to protect the system from flying coconuts.

These technologies were chosen for their eco-friendliness and efficiency.

System Inputs:

- Sunlight for solar energy

- Moisture in the air for the mesh collection system

- Local materials, such as palm wood

System Outputs:

- Electricity

- Collected water

- New community place

*3. Prototyping and Pilot Implementation Statement*

Our team will initiate the prototyping process by creating scaled models and simulations of the moisture collection system and solar integration. This will help us refine the design and address any potential challenges early on.

For full-scale pilot implementation, we plan to collaborate closely with the local community by hosting workshops to gather input and encourage involvement. Community members will participate in aspects like building, maintaining, and using the facility, fostering a sense of shared ownership.

4. *Operations and Maintenance Statement*

The building will be designed for low maintenance, leveraging durable materials like palm wood known for their long lifespan. Regular maintenance will include cleaning the solar panels, inspecting the moisture collection system, and conducting structural checks.

Local community members will be trained to oversee operations, perform maintenance tasks, and monitor the building’s performance. This involvement will strengthen community ties and ensure a sustainable operational model.

5. *Environmental Impact Assessment*

*Potential Positive Effects on Natural Ecosystems:*

1. *Water Conservation:* The moisture collection system improves local water quality and availability.
2. *Community Engagement:* The project raises environmental awareness and encourages conservation efforts.
3. *Climate Resilience:* Renewable energy use contributes to ecological resilience against climate change.

*Mitigation Steps:*

1. *Conduct an EIA:* Identify benefits and strategies to maximize positive impacts.
2. *Use Native Landscaping:* Employ native plants to provide habitat for local wildlife.
3. *Educational Programs:* Offer workshops to promote conservation and ecosystem understanding.
4. *Sustainable Practices:* Implement eco-friendly building practices to minimize negative effects.