1. **Concept Narrative:** Nature inspired sculptural structures–influenced by tree ferns, traditional boats, and island crafts–will generate electricity, capture rain, produce food and generate new resources for the village and it’s visitors. The main organically shaped solar production facility will be made of stone, concrete, metal, plastic and wood. Solar panels will produce 75 kW of electricity and can easily be expanded to provide more in the future. Cisterns will be located near the main structural columns to capture rainwater and provide irrigation to the agricultural production below.

A woven sculpture of wood, using invasive species and surplus trees harvested from the island, will form a utility corridor and pathway linking to the village below. The design will use modern and traditional weaving techniques and form a beautiful trellis for edible vines including; Malabar spinach + Passion fruit. This woven sculpture will provide interest along the path connecting the main solar production site to a point near the Chief’s home.

Sun + Rain Columns made of the same materials as the agrivoltaic (solar + food) production facility will follow the utility corridor and be distributed at important points throughout the village and school grounds. These stations will provide lighting for paths, electricity for small electronic devices, irrigation for the edible vines and small group gathering areas.

Drinking water for the entire village will be provided by repairing or replacing the upper dam. The mountain stream to the northeast of the solar site will feed a pond for edible fish production.

All of these improvements will help increase tourism by creating new points of interest and increasing the utility capacity of the village.

(271 words)

1. **Technical Narrative:** Our project uses solar panels to produce electricity along with cisterns and dams to capture rainwater. Modern and traditional building techniques used on the islands will connect everything together. The central agrivoltaic facility for the village will generate 75 kW of electricity. Energy will be converted from DC to AC at this point, be protected using conduit and electrical containment systems, and then run to the village micro-grid with a centrally located battery storage system. We envision working with the Fiji Rural Electrification Fund (FREF) to finalize the electrical components and will follow their chosen utility route to build the woven, wooden sculpture through the village.

The agrivoltaic installation will capture 2,000,000 liters of water for irrigation and emergency use each year. Storage and use throughout the year will increase yields and assist farmers with navigating times of limited water. A new dam and pond located near the agriculture site will provide protein in the form of fish and nutritious irrigation water for enhanced crop production.

Smaller Sun + Rain Columns, distributed along the utility corridor and at important points throughout the village and school, will each produce 700 watts of energy and collect 5,000 liters of water annually. These stations will provide charging for cell phones, nutritious food production for nearby villagers and points of interest for visitors.

Textile weaving traditions will be brought directly into the structure of the columns to bind the posts together. Additional ornamental pieces will enhance their beauty and help identify the different parts of the utility corridor and village.

The repaired or replaced dam will generate 888,125,000 liters of water annually. We believe this is the simplest and most cost effective way to provide an abundance of water for the village. A new pipe will provide water to a central purification and distribution point, with smaller lines connecting to a few neighborhoods. If funding allows, we will provide water to each individual residence.

(321 words)

1. **Prototyping and Pilot Implementation Statement:** Prototyping will occur in North American and then move to Fiji for educational distribution and refinement. At the beginning of the modeling process we will ask for villagers input on traditional building techniques, technologies, and materials that we can use. We will also explore the most readily available building materials found in Fiji so we can incorporate them into our system.

Our design studio will collaborate with a conservation technology company here in North America to create the modular prototype. It will be a Sun + Rain Column, approximately four meters tall and one meter wide that will form the primary structural element of our larger agrivoltaic facility and also serve as a stand alone system.

Once completed we will visit Suva, Fiji with our prototype to share its capacities, learn about local interests, and plan for full-scale implementation. We will also visit Marou at this time. If chosen for implementation we would ask villagers to assist with site investigation, documentation, material identification and other design development activities. For construction we plan to hire a lead contractor from Naviti or Fiji who will employ local villagers and incorporate traditional knowledge and building methods.

(186 words)

1. **Operations and Maintenance Statement:** We expect the Marou Village facilities will be operated and maintained by the Fiji Rural Electrification Fund (FREF) and residents. We’re looking forward to interacting with both groups to better understand their requirements. And the various parts of our system are designed for easy operation, maintenance and replication.

All of the construction, plumbing and wiring components will be readily available, easy to maintain and simple to replace. Light fixtures will be functional and beautiful at night - providing much needed direction and safety - along with elegant points of interest after the sun goes down. Lights will mainly aim downward to prevent light pollution. Some uplighting will have proper cut-offs at the canopy. Elegant, diffused lighting will illuminate the columns and important paths.

As part of our effort we will develop and provide basic operations and maintenance manuals that can be used after installation. We envision having several of the villagers who help with construction serve as operations and maintenance leads.

Using a train-the-trainer model, we will offer operations and maintenance trainings for interested residents, teachers and students. These educators will then share their knowledge with the community, and develop classes for visitors, so that everyone understands the system’s components and significance.

(204 words)

1. **Environmental Impact Assessment:** Our effort will provide a net ecological benefit through renewable energy generation, important plant and animal identification, protection, invasive species removal, low carbon/embodied energy materials and waste reducing construction techniques. Important trees, shrubs, perennials, ground covers and animals will be identified and protected at the pre-construction phase. This will be done with support from villagers and conservation ecologists.

Invasive species will also be identified, harvested and used to create both protection zones and the foundation of the artistic utility corridor sculpture. Additional site clearing will provide wood and soil for land stabilization and stormwater management improvements. Modest grading, and burying of surplus wood, will create landforms to direct and absorb water. This will help protect buildings and infrastructure for the residents. Erosion control mats (some woven using local materials), native seeds and plants will restore degraded areas during and after construction.

Primary materials are meant to have a long life cycle with minimal maintenance. The woven utility corridor sculpture will be a piece of living art that will change over time and be cared for like any garden.

Lastly, green building materials will be chosen based on checklists from the Living Building Challenge (Landscape / Infrastructure Typology) and the US Green Building Council’s LEED rating system. For example, concrete footers will use beach sand and volcanic stones found on-site so that we can utilize local resources and minimize our carbon footprint. Cement will be low carbon by using GreenCem, from Cement Australia, or a similar product. The metal, wood, plastic and solar panels will also be sourced with environmental sensitivity in mind.

(265 words)

Total: 1,256 words