1. Concept Narrative

To create our pavilion, we chose the image of a jellyfish. The idea came to us due to the fact that the islands are surrounded by the Pacific Ocean and seas that are rich in marine life, one of which is jellyfish. They captivated us with their streamlined shape and variety of colors. We created such an image of the pavilion so that everyone could feel comfortable in this place, we wanted to convey the atmosphere of islands surrounded by large water. We also tried to take into account the cultural peculiarities and traditions of the people living on the Fiji Islands in the project. In order for our project to cause minimal harm to the island's environment, we tried to choose natural materials such as wood, metal and cotton. The pavilion itself consists of different modules – large, medium and small. Under the large module there is a quiet recreation area where people can take shelter from the heat, have a quiet time, sit and read a book, gather the whole village and hold a kava drinking ceremony. Under the middle module, we have placed tables with ottomans for master classes in carpet weaving, wood carving or tea parties. We decided to place hydroponics under the small modules, where everyone can grow their own plants for food.

2. Technical Narrative

We chose solar panels as technologies for energy generation. They do not harm the environment, and also have good performance. Due to their location on the modules, they do not take up much space on the ground, which allows them not to disrupt ecosystems. According to our calculations: The total area of the batteries is 734 ㎡, the panels with a capacity of 250-300 W/㎡ will produce approximately 352,320 kWh/year. As an output, we will receive electricity to supply homes on the island. As a technology for collecting water, we chose nets that collect water from the mist. We chose this method because it is environmentally friendly and does not harm the ecosystem. The principle of operation of this method is to collect condensate from the mist in a special tank underground. Due to this, the water is quite clean and does not require special special treatment. According to our calculations: The total area covered by the grid is 1126 ㎡. Such an area can collect from 100,000 to 2,252,000 liters per year. For the climate of Fiji, a more realistic figure is 500,000 liters per year, which corresponds to about 20 liters per day for one house. So, as an output, we will get water for irrigation of coconut plantations, and with additional processing (filtration and disinfection), the water is suitable for drinking.

3. Prototyping and Pilot Implementation Statement

Before developing the prototype, we studied the climatic conditions on the islands. To select the optimal installations for collecting energy and water, as well as to determine their design and shape. For the prototype of an energy generation plant, we will need: solar panels, as well as batteries for them. For the prototype of the water collection plant, we will need: nets made of eco-friendly material, a frame made of corrosion-resistant material, a drainage chute and a water collection tank. When making the prototype and testing it, we planned to assemble a small sample: a 2x3 m grid with a gutter and a water tank, as well as 1-2 solar panels. Then we wanted to test the efficiency of the installation, measure the actual volumes of water and energy collected. When interacting with communities, we planned: 1) Hold a meeting with the leaders to explain the principle of operation and also show the prototype in action. 2) Train residents in system maintenance (cleaning grids and solar panels, replacing batteries). 3) We would also like to collaborate with the local universities of Fiji National University and USP for research. After successful testing and adaptation of the design from local residents, we would start manufacturing full-scale installations and replicating them.

1. Operations and Maintenance Statement

For the operation of our project, it is necessary to provide strong structures to hold the solar panels, as well as removable grid structures, in order to avoid breakdowns during severe hurricanes. It is also necessary to provide corrosion protection due to the humid climate and salty air. It is necessary to ensure that both solar panels and grids are cleaned from excess dirt and insects. It is necessary to check the equipment for malfunctions several times a year. The grids will need to be changed every few years. Local residents can carry out cleaning and treatment of installations, as well as monitor the condition of the installation. In times of bad weather conditions, residents will need to ensure the safety of the nets.

1. Environmental Impact Assessment

Installing solar panels and grids to collect water from fog and air in Fiji can have a positive and negative impact on the environment.

1. The positive influence exerted by Solar panels:

• Reducing dependence on fossil fuels – reducing emissions of CO₂ and other pollutants.

• Reducing the burden on ecosystems – fewer diesel generators will be needed, which pollute the air and water. Water collection nets:

•Alternative source of fresh water– especially important for arid areas and small islands. •Reducing the load on groundwater – preventing salinization of aquifers due to excessive abstraction.

•Minimal energy consumption – unlike desalination plants, collecting water from the air does not require electricity.

1. Potential negative consequences Solar panels:

•Production and disposal – solar panels contain toxic substances (lead, cadmium), and improper disposal can pollute soil and water.

•Reflection of sunlight – in rare cases, it can affect the local microclimate and living organisms. Water collection nets:

•Impact on local fauna\*\* – Birds and insects can become entangled in the nets.

•Changes in the humidity of the microclimate – if water collection is too intense, it can affect local ecosystems (for example, reduce natural fog in forests).

• Mesh materials – if plastic components are used, they can decompose over time, polluting the environment with microplastics. To solve possible problems, we suggest using biodegradable or recyclable mesh materials. Provide a recycling program for solar panels. Monitor the impact on local ecosystems. In general, the introduction of these technologies will have significant environmental benefits, especially in the context of climate change and lack of fresh water.