**LAGI 2025 Fiji Narrative Template
Concept Narrative**

* Our concept is to create a place for local residents where they will receive not only benefits in the form of electricity and water, but also a pleasant thing in the form of places of recreation and spending time together. To do this, we have developed 4 pavilions, and Pavilion 5 - the fifth element - is nature! After all, nature is such a scope for action! 3 of the 5 pavilions are equipped with technologies for energy generation, water harvesting and cultivation. One of the pavilions is purely recreational in nature. This is an indoor amphitheater where locals can gather together, hold meetings and celebrations. And the 5th element is nature - there are vegetable gardens with the cultivation of local vegetables, fruits and other plants. All this has combined into one complex in which people combine business with pleasure!
1. **Technical Narrative**
* We use 5 different technologies to achieve the required energy and water production per year. These are solar panels, wind spiral installations, water harvesting, water collection through the condensation process, and cultivation.
* How much energy and water does your installation generate each year?

**Pavilion 1**

Initial data:

According to NASA and PVGIS, solar radiation in Fiji is approximately 6.0 kWh/m2/day.

• Area: 256 m2

• Panel efficiency: 20% (or 0.20)

Calculation of the received solar energy:

Per day:

256 \* 6.0 \* 0.20 = 307.2 kWh

Per month (≈30 days):

307.2 \* 30 = 9216 kWh

Per year:

307.2 \* 365 = 112,128 kWh

4 solar panels with a total area of 256 m2 in Fiji will generate approximately:

• 307 kWh per day

• 9,216 kWh per month

• 112,128 kWh per year

**Pavilion 2:**

Initial data:

The average annual rainfall in Maru is approximately 1189.6 mm, which is equivalent to 1189.6 liters of water per square meter per year.

The roof area of the pavilion is 14\*14 m2 = 196 m2

Calculation of the collected water:

196m2 \* 1189.6 mm = 235,200 liters of water per year

**Pavilion 3:**

Initial data:

-The average annual wind speed in Maru is estimated at about 5.5 m/s at an altitude of 10 meters.

Approximate characteristics of wind turbines:

• Rated power: 1.2 kW at 12 m/s

• Expected power at 5.5 m/s: about 200 watts

• Base area: less than 1 m2

The area of drains collecting water is 14\*14 m2 = 196 m2

Calculation of energy production

For a single installation:

• Power: 200W

• Daily production: 200 W × 24 h = 4.8 kWh

• Annual output: 4.8 kWh × 365 days ≈ 1,752 kWh

For 25 installations:

• Total power: 200 W × 25 = 5 kW

• Daily production: 4.8 kWh × 25 = 120 kWh

• Annual output: 1,752 kWh × 25 ≈ 43,800 kWh

Calculation of the collected water:

196m2 \* 1189.6 mm = 235,200 liters of water per year

**total:**

• 470,400 liters of water per year

• 43,800 kWh per year from wind farms

• 112,128 kWh per year from solar panels

* The input data of the system for the entire pavilion complex is sunlight, wind, rainwater, fog and other natural phenomena where the process of water condensation takes place.
* The output data of the system for the entire pavilion complex is electricity, rainwater for irrigation and other needs, drinking water, grown food and recreation on the territory of the complex.
1. **Prototyping and Pilot Implementation Statement**
* Already at the beginning of the development of this project, we tried to make it as understandable as possible for all people: simple set shapes, all movements were programmed at 90 or 45 degrees, as much as possible interaction with nature. But for a simpler understanding, we would develop a program for the local population - instructions on the construction, repair and operation of pavilions.

We are also considering the possibility of building each pavilion separately from each other. They can be independent objects.

1. **Operations and Maintenance Statement**
* These pavilions are used to collect water, irrigate, grow crops, and generate electricity for the needs of the village through wind turbines and solar panels. For maintenance, it is necessary to periodically empty and clean water tanks, inspect wind turbines and wipe solar panels. Plants require constant care. The local community will be primarily responsible for cleanliness.
1. **Environmental Impact Assessment**
* We tried to design wisely, and therefore we tried to combine nature and modern technologies in our project. To use not only solar panels and wind turbines, but also local cultivation.