**LAGI 2025 Fiji Narrative Template
Concept Narrative**

“Two Birds” is a design project inspired by the traditional *masi* cloth patterns and the cultural meaning embedded within them. The chosen motif of two birds is a repeated symbol in native art, representing good luck for the land and the community. This symbol guided the design exploration, where the pattern was examined through various arrangements, scales, and configurations. From this exploration, a unique grid system was developed and transposed onto the land, serving as the foundation for pathways, shelters, and the integration of sustainable technologies.

The project is centered around enhancing community experience, creating a space that encourages gathering, interaction, and movement. Visitors and villagers alike can walk through an inviting landscape, weaving between vortex wind turbines and resting under shelters designed for comfort and connection. These shelters not only offer communal spaces but also incorporate rainwater capture systems to support local needs. Solar panels installed on the rooftops contribute to renewable energy generation, working alongside the turbines to power the site sustainably.

The land use strategy supports both ecological and social resilience. Walkable pathways lead to areas designated for local farming, providing opportunities for food cultivation and reinforcing community self-reliance. The materials used throughout the project are chosen for durability and sustainability: metal for the shelter and turbine structures, concrete for turbine foundations, and solar panels for energy production. Altogether, “Two Birds” blends cultural heritage with innovative design, offering a project that is deeply rooted in place and purpose.

**Technical Narrative**

 The technologies incorporated into this project include vortex wind turbines, rainwater catchment and storage systems, and photovoltaic (PV) solar panels. These technologies were selected not only for their sustainability and efficiency, but also for their compatibility with the site’s cultural and ecological sensitivities.

 Vortex wind turbines were chosen for their minimal ground impact, making them ideal for areas where environmental disturbance must be kept low. Their compact, bladeless design eliminates the threat to birds and bats often associated with traditional turbines, and their ability to withstand strong wind conditions makes them durable and reliable. The installation includes three sizes of turbines:

* 36 units at 3 meters tall, each producing 100 watts
* 68 units at 6 meters tall, each producing 500 watts
* 12 units at 9 meters tall, each producing 1 kilowatt

Together, these turbines provide a total wind energy output of 49.6 kilowatts.

 The photovoltaic solar panels are based on the PV effect, first demonstrated by A.E. Becquerel in 1839 and later developed into a viable energy solution by Bell Laboratories in 1954. These panels are installed across the rooftops of the shelter structures and are estimated to operate at 20% efficiency, with each square meter producing 200 watts at peak (W(p)) under full sun exposure. The site includes three primary solar collection zones:

* Pathway shelter: 50 square meters = 10.125 kilowatts
* Main gathering shelter: 40 square meters = 12.15 kilowatts
* Farming shelter: 22.5 square meters = 5.4 kilowatts

 Combined, these PV panels contribute an estimated 27.675 kilowatts of solar energy. Factors like shading, dust, and environmental conditions will impact performance, but even with natural efficiency variation, the panels will provide a reliable supplement to the wind turbines. Potential future enhancements, such as PERC technology or bifacial panel upgrades, could further improve energy capture and performance.

 Rainwater catchment systems are also integrated into the shelter structures to provide an accessible source of clean water for drinking, agriculture, and daily use. These systems support self-sufficiency by reducing dependence on external water sources and enhancing climate resilience for the community.

Altogether, the installation’s combined energy production from wind and solar technologies totals approximately 77.275 kilowatts, forming a robust, renewable foundation for powering the village’s daily functions while embodying the project’s mission of sustainability, innovation, and cultural integration.

**Prototyping and Pilot Implementation Statement**

Our team will approach the prototyping and implementation of the project in a carefully phased manner, beginning with the most impactful elements to ensure immediate benefits for the local community. Phase One will focus on the installation of the largest vortex wind turbines alongside the first shelter, which will be strategically located to provide shade and protection for a designated farming area. This shelter will support the development of community agriculture by offering a functional and comfortable space for villagers to tend to crops and gather. The decision to prioritize the largest turbine in the initial phase is intentional—it will generate the highest energy output, immediately contributing renewable power to the village and setting a strong foundation for the site’s self-sufficiency.

Phase Two will introduce the second shelter and a group of mid-sized wind turbines, expanding both the energy infrastructure and the usable communal space. This phase will continue to enhance walkability and gathering opportunities across the site, encouraging interaction and engagement as more components come to life. The mid-sized turbines will increase energy capture capacity while diversifying the spatial experience.

Phase Three will complete the installation with the largest communal shelter and a cluster of smaller wind turbines, which will fill out the grid and create a more immersive and interconnected landscape. This final shelter is envisioned as a centerpiece for community events, workshops, and daily interactions—a cultural anchor that reflects the symbolic “Two Birds” motif through both form and function.

Throughout all phases of the project, collaboration with the local villagers will be essential. We envision a highly participatory process, where community members contribute their knowledge, labor, and creativity to the construction of shelters, installation of technologies, and maintenance of the farming areas. By empowering the community to take part in the building process, we aim to foster a strong sense of ownership and connection to the project. Additionally, skills training and knowledge exchange can occur during the construction process, equipping villagers with tools and expertise to sustain and expand the project in the future.

This phased and collaborative approach ensures that the design not only respects and reflects cultural values, but also delivers meaningful, incremental benefits that grow over time.

**Operations and Maintenance Statement**

Our design is intended to be largely self-sustaining over its lifespan, minimizing the need for frequent external intervention while empowering the local community to take part in its care. The vortex wind turbines are engineered for long-term durability, with a projected operational life of 30 years or more and very minimal maintenance requirements. Their bladeless design reduces mechanical wear, and their compact structure minimizes the risk of breakdowns, making them ideal for remote or rural settings.

While solar panels typically have a strong lifespan—often 25 to 30 years—they will eventually require replacement or upgrades to maintain peak energy efficiency. Until that point, they will operate reliably with very little maintenance. However, regular cleaning to remove dust, plant overgrowth, or debris will be important to ensure consistent energy production, and this is where community involvement becomes vital.

The community’s role in maintenance will primarily focus on everyday care and site upkeep. This includes removing natural debris from pathways to maintain accessibility, managing the growth of plants around and beneath the solar structures, and ensuring that rainwater catchment systems remain unblocked and functional. These activities not only preserve the effectiveness of the systems, but also reinforce a sense of shared stewardship and pride in the project.

By designing with longevity, simplicity, and community participation in mind, the project can thrive with minimal outside resources. This approach aligns with the broader goals of resilience, independence, and cultural integration, ensuring the site remains a vibrant and functional part of the community for decades to come.

1. **Environmental Impact Assessment**

 While our installation is designed to be low-impact and environmentally conscious, some minor effects on the natural ecosystem may occur, primarily during the construction phase. The most significant disturbances will likely result from site preparation, including digging foundations for the vortex wind turbines and installing the shelter supports where they meet the ground. These activities may temporarily disrupt soil structure, vegetation, or small ground-dwelling species.

 To mitigate these impacts, our team will implement several key strategies. First, we will conduct a site analysis and ecological survey prior to construction to identify sensitive areas, existing plant life, and local wildlife habitats. This will allow us to strategically place turbines and shelters to minimize disruption to the existing ecosystem. Where digging is necessary, we will use minimal excavation methods and prefabricated components that can be assembled quickly, reducing time and disturbance on site.

 In addition, we will use non-toxic, durable materials that do not leach into the soil, and ensure all pathways and structures follow the natural contours of the land as much as possible, promoting water flow and reducing erosion. Native plants will be preserved where feasible or reintroduced after installation to restore the natural ground cover and support biodiversity.

 Because vortex wind turbines are bladeless, they eliminate the risk of bird and bat collisions, a common issue with traditional wind turbines. Their quiet operation also helps maintain the natural soundscape of the area. The project’s emphasis on walkability, renewable energy, and water collection means that, in the long term, it will support rather than strain local natural resources, promoting a more sustainable and ecologically integrated way of living.

 Overall, by combining careful planning, environmentally sensitive construction practices, and sustainable technologies, we aim to ensure that our installation has minimal negative impact on the natural ecosystem—and, over time, contributes positively to the health and resilience of the land.