Empowering the Kingdom of Tonga

Project Brief

Community-Led Mangrove Restoration and Monitoring Project in the Kingdom of Tonga

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Distant Imagery Solutions

Understanding Through Imagery

Introduction to the Kingdom of Tonga

The Kingdom of Tonga, an archipelago in the South Pacific with over 170 islands, embodies resilience in the face of adversity. The nation has demonstrated remarkable strength as it navigates significant environmental challenges like rising sea levels and land subsidence. The 2022 Hunga Tonga–Hunga Ha'apai volcanic eruption and the ensuing tsunami highlighted the islands' vulnerability to natural disasters, yet it also ignited a powerful response. Committed to a bright future, Tonga has set an inspiring goal of planting one million trees by 2023, focusing on restoring mangroves to bolster coastal protection and enhance ecosystem health.

About Distant Imagery Solutions

At Distant Imagery, we're pioneering a new approach to environmental restoration. Our community-first model empowers these communities to build, modify, and operate our in-house designed drones and aerial tools, giving them complete control over the restoration process and ownership of the technology.

Our mission is to democratize climate technology by providing communities with the tools and training to independently carry out, monitor, adapt, and sustain environmental restoration projects. This model supports local resilience by ensuring community members have the skills and resources to lead projects, scale restoration efforts, and create sustainable livelihoods without ongoing external dependencies.

Once licensed and trained, communities retain 100% of project revenue generated, fostering environmental stewardship and economic self-sufficiency.

In 2024, we successfully partnered with ADNOC, ENGIE, and Mubadala Energy to plant 5.5 million mangroves using our custom drone technology—demonstrating our approach's scalability, speed, and effectiveness in restoring critical ecosystems. Beyond restoration, we support communities in essential Monitoring, Reporting, and Verification (MRV) tasks, empowering them to monitor illegal fishing, poaching, land encroachment, and resource use within their territories.

Lord Fakafanua

Through the collaborative platform we are building, communities will also share their innovations, modifications, and methodologies, creating a dynamic exchange of best practices and continuously improving restoration outcomes across regions.

Project Overview for Tonga
Lord Fakafanua, a respected advocate for environmental sustainability in Tonga, supports this project. As Speaker of the Tongan Parliament and Chair of the Legislative Committee on Environment and Climate Change, he is committed to policies that foster community-led conservation and resilience. His involvement highlights the project's alignment with Tonga's national goals and ensures it benefits from strong local support and guidance.

Primary Project Activities

1. Elevation Change Monitoring Using Kites
    To address the urgent issue of land subsidence and rising sea levels, community members will receive training in kite-based aerial technology to capture precise elevation data across the islands. This long-term data collection will guide adaptive strategies and ensure that communities have continuous, updated information on how their land changes over time. The kite platform is selected for its accessibility and ease of use, making it a sustainable choice for ongoing monitoring.

2. Drone-Based Mangrove Restoration
    In alignment with Tonga's goal of planting one million trees, this project will employ community-led and built drone technology to propagate and plant mangrove seedlings efficiently. Community members will receive hands-on training in drone assembly, operation, and maintenance, allowing them to build and modify drones as needed for the restoration process and modify the field methodology together. This approach enables them to independently expand their mangrove restoration work, enhancing coastal protection, carbon sequestration, and biodiversity.

Secondary Project Activities

1. Agricultural Support through Drone Technology
    Drones will also support sustainable agriculture, assisting with soil analysis, crop health monitoring, and precision planting. This drone-based approach enables efficient, data-driven management of agricultural resources, promoting resilience and food security. Through training sessions, community members gain the skills to operate and adjust drone technology to their specific agricultural needs, creating a foundation for more efficient farming practices.

Example Community Exchange between Brazil and Kenya

Collaborative Platform for Community Innovation

This project integrates with Distant Imagery's collaborative platform, where community members can document and share modifications and innovations related to drone technology and restoration methodologies. This knowledge-sharing fosters continuous improvement and adaptation of best practices across different regions and communities, enhancing the overall effectiveness of r ensuring that restoration efforts are community-driven and sustainable.

Expected Outcomes

- Enhanced Environmental Monitoring: Equipped with skills and technology, communities will be able to monitor elevation changes and other critical indicators over time, informing proactive adaptation measures.

- Scalable Ecosystem Restoration: Active lead in drone-based mangrove planting and restoration empowers communities to strengthen coastal defenses, increase biodiversity, and effectively sequester carbon.

- Sustainable Agriculture Practices: Drone technology supports better agricultural planning and resource management, benefiting crop health, soil quality, and food security.

- Collaborative Knowledge Sharing: The shared platform allows for exchanging modifications and insights across regions, enabling communities to adapt and innovate continuously in their restoration projects.

Conclusion

This project exemplifies Distant Imagery's mission to democratize climate technology, fostering community ownership, independence, and resilience. By partnering with Lord Fakafanua and the Legislative Committee on Environment and Climate Change, we strengthen Tonga's commitment to environmental restoration while providing communities with the resources they need to shape a sustainable future. This collaboration represents a unified effort to protect Tonga's natural heritage, ensuring lasting impact and economic empowerment for its people.

Example of DIS Community Built Drone for Habitat Restoration