



# Empowering the Aceh Province

## Project Brief

### Community-Led Mangrove Restoration and Monitoring Project in Aceh Province, Indonesia

[janeglavan@distantimagery.org](mailto:janeglavan@distantimagery.org)  
[coryrhodes@distantimagery.com](mailto:coryrhodes@distantimagery.com)



Understanding Through Imagery

## Introduction to Indonesia's Mangrove Ecosystems

Indonesia is home to the world's largest expanse of mangrove forests, covering approximately 3.5 million hectares. These ecosystems play a crucial role in protecting coastlines, supporting biodiversity, and sequestering carbon. However, Indonesia has experienced significant mangrove loss over the past three decades, with an estimated 40% of its mangroves degraded or converted for aquaculture, agriculture, and urban expansion. Recognizing the urgent need for conservation

and restoration, the Indonesian government, with support from the Tierra Mar Foundation Indonesia, has set an ambitious goal to restore 600,000 hectares of mangroves by 2024, focusing on high-priority areas like Aceh Province.

At Tierra Mar Indonesia, they drive impactful and sustainable solutions by integrating innovation, conservation, and responsible resource management. Their approach ensures long-term benefits for the environment and local communities.

TMI thus applies a community-based approach, adopting systems thinking in managing complexity, and focusing on solutions based on Nature-based Solutions (NbS) standards. Under the leadership of Dr. Tonny Wagey, Executive Director of TMI the fund emphasizes community engagement, scientific rigor, and long-term sustainability in its initiatives. Therefore, in collaboration with TMI, this project in Aceh aligns with these goals, empowering communities to take active roles in environmental monitoring and mangrove restoration.

## About Distant Imagery Solutions

At Distant Imagery, we're pioneering a community-first model for environmental restoration by empowering local communities to build, operate, and adapt our in-house designed drones and aerial tools. Our approach gives communities full control over the restoration process and the technology, enabling sustainable, large-scale environmental impact at minimal costs.

We aim to democratize climate technology by equipping communities with the tools and training to carry out and sustain environmental restoration projects independently. This model fosters local resilience as community members acquire the skills and resources to lead projects, scale restoration efforts, and generate livelihoods without ongoing external dependencies.

**Once licensed, communities retain 100% of the project revenue, supporting economic self-sufficiency.**

In 2024, we 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. Beyond restoration, we support communities in essential Monitoring, Reporting, and Verification (MRV) tasks, empowering them to monitor illegal activities, track resource use, and protect their territories.

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





## Primary Project Activities

### 1. Drone-Based Mangrove Restoration

Community members will be trained to build, operate, and maintain drones designed for efficient mangrove seed dispersal. This technology enables rapid and large-scale restoration of degraded mangrove areas, enhancing biodiversity, carbon sequestration, and coastal protection. By involving communities directly in the restoration process, we ensure local ownership and sustainability of the efforts.

### 2. Monitoring and Reporting Using Aerial Technology

To support sustainable mangrove management, communities will utilize drones for MRV activities, including monitoring forest health, detecting illegal logging or land conversion, and assessing restoration progress. This real-time data collection empowers communities to make informed decisions and take proactive measures to protect their mangrove ecosystems.

## Collaborative Platform for Community Innovation



Example Community Exchange between Brazil and Kenya

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 restoration efforts.

## Support and Collaboration

Dr. Tonny Wagey, with over 25 years of experience in fisheries, oceanography, and environmental management, leads TMI. His expertise and leadership ensure that this project aligns with national development plans and leverages scientific insights for effective implementation. The active participation of local communities, supported by the Foundation, is central to the project's success, ensuring that restoration efforts are community-driven and sustainable.

## Expected Outcomes

- **Enhanced Mangrove Restoration:** Utilizing drone technology accelerates the restoration of degraded mangrove areas, contributing significantly to Indonesia's national restoration targets.

- Improved Monitoring and Protection: Community-led MRV activities enable early detection of threats and informed decision-making, strengthening the protection and management of mangrove ecosystems.
- Capacity Building and Empowerment: Training programs build local capacity, empowering communities to independently sustain restoration and monitoring efforts, fostering long-term environmental stewardship.
- Knowledge Sharing and Innovation: The collaborative platform promotes the exchange of innovations and best practices, enhancing the effectiveness and adaptability of restoration methodologies across different regions.

## Conclusion

This project exemplifies Distant Imagery's mission to democratize climate technology, promoting self-sufficiency and resilience within local communities. By partnering with Bappenas and Dr. Tonny Wagey, we align with Indonesia's national development goals and contribute to the sustainable restoration and management of mangrove ecosystems in Aceh Province. This collaboration represents a unified commitment to protecting Indonesia's unique coastal ecosystems and empowering communities to lead in environmental conservation



Example of DIS Community Built Drone for Habitat Restoration