Strategic Implementation Plan: Blue Carbon Credit Generation through Mangrove Restoration in Coastal Philippines

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Abstract

This proof-of-concept project aims to support Japanese small- and medium-sized enterprises (SMEs) in generating blue carbon credits by leveraging mangrove ecosystems in coastal regions of the Philippines. The project integrates both institutional and scientific approaches to design a feasible and strategic implementation pathway. We review applicable certification schemes, conduct stakeholder mapping, and develop a procedural flow for practical implementation. Our scientific monitoring strategy involves literature reviews, preliminary data acquisition, and analysis using remote sensing technologies. We provide recommendations for certification schemes, potential collaboration paths, and administrative bottlenecks navigation. Our results highlight the potential for blue carbon credit generation through mangrove restoration in the Philippines, with implications for climate change mitigation and sustainable development.

1. Introduction

The generation of blue carbon credits through mangrove restoration has gained significant attention in recent years due to its potential for climate change mitigation and sustainable development. Mangroves, found in coastal ecosystems, play a crucial role in sequestering carbon dioxide from the atmosphere, making them an attractive option for carbon offsetting. This project focuses on supporting Japanese SMEs in generating blue carbon credits by leveraging mangrove ecosystems in coastal regions of the Philippines. Our approach integrates both institutional and scientific aspects to design a feasible and strategic implementation pathway.

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2. Related Work

Several studies have explored the potential of blue carbon credits generation through mangrove restoration. For example, (**?**) highlights the importance of machine learning in analyzing satellite imagery for mangrove mapping and monitoring. Other studies have focused on the institutional aspects of blue carbon credits, including certification schemes and stakeholder engagement (). Our project builds upon this existing research by providing a comprehensive framework for Japanese SMEs to generate blue carbon credits through mangrove restoration in the Philippines.

3. Background

Mangrove ecosystems are found in coastal regions and play a crucial role in sequestering carbon dioxide from the atmosphere. The Philippines is home to a significant portion of the world's mangrove forests, making it an ideal location for blue carbon credits generation. Our project focuses on the coastal regions of the Philippines, where mangrove restoration efforts can be implemented to generate blue carbon credits.

4. Method

Our approach involves a combination of institutional and scientific methods. On the institutional side, we review applicable certification schemes, conduct stakeholder mapping, and develop a procedural flow for practical implementation. On the scientific side, we conduct literature reviews, preliminary data acquisition, and analysis using remote sensing technologies. Our scientific monitoring strategy involves the use of satellite imagery to analyze mangrove presence and carbon sequestration potential.

5. Experimental Setup

Our experimental setup involves the use of satellite imagery and remote sensing technologies to analyze mangrove presence and carbon sequestration potential. We utilize Google Earth Engine to visualize spatiotemporal variations in carbon stocks and identify areas with high vegetation density, indicative of mangrove ecosystems.

6. Experiments

Our results are presented in the following figures and tables. Figure ?? shows the maximum wind speed, typhoon passage count, and impact count within a 500km radius of the Cebu area. Figure ?? presents the recommended certification scheme and potential collaboration paths for the SME. Figure ?? shows the visualization of mangrove presence using satellite imagery.

7. Conclusion

Our project provides a comprehensive framework for Japanese SMEs to generate blue carbon credits through mangrove restoration in the Philippines. Our results highlight the potential for blue carbon credit generation, with implications for climate change mitigation and sustainable development. We recommend that SMEs pursue certification with Verra, given its shortest path and highest influence score. We also suggest potential collaboration paths, including engagement with UNEP and the Ministry of the Environment of Japan.

Impact Statement

This project has the potential to contribute to climate change mitigation and sustainable development by generating blue carbon credits through mangrove restoration. The project's results may have broader implications for the environment, economy, and society, including the potential to support sustainable livelihoods and promote ecosystem conservation.
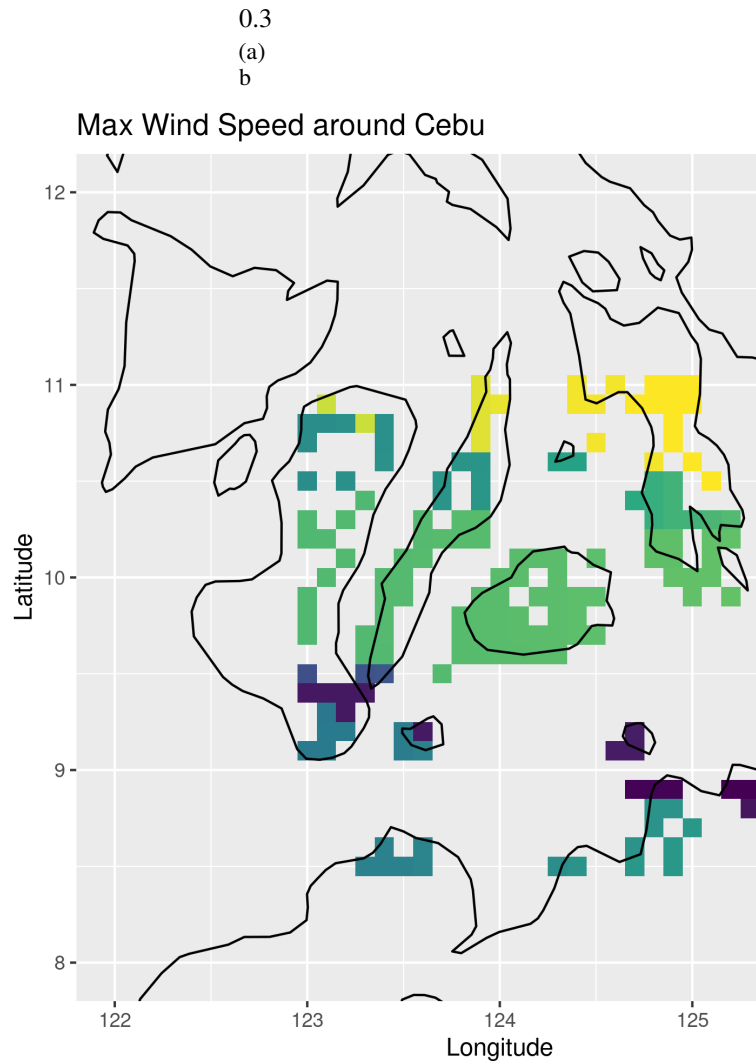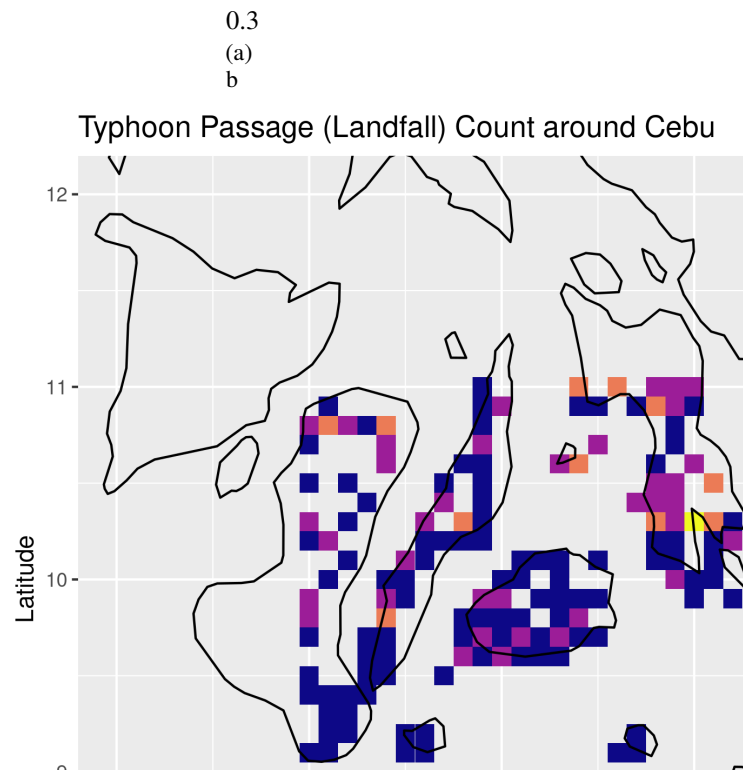
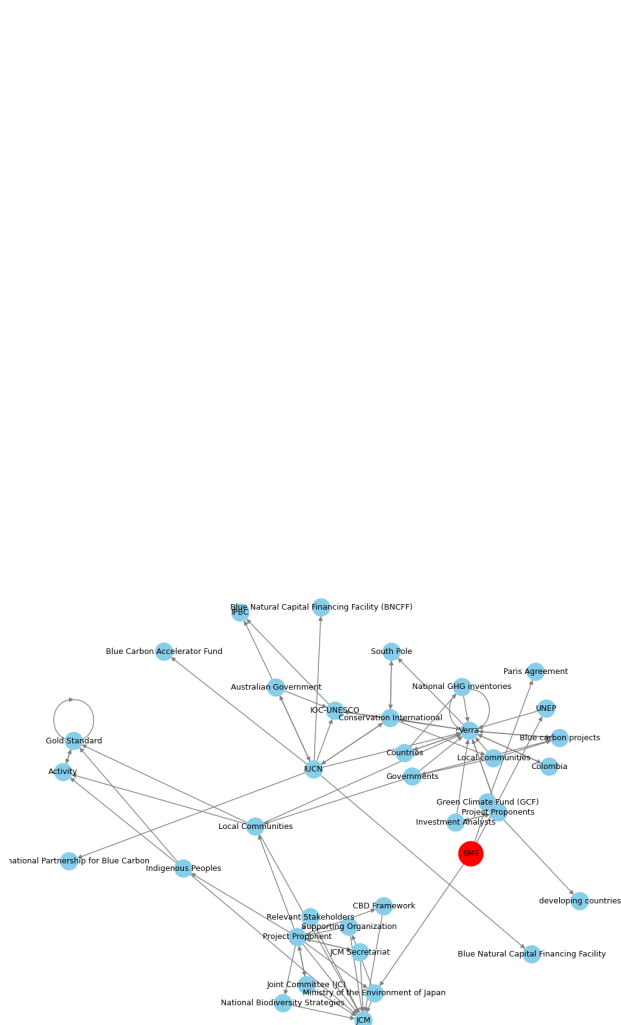0.3

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Figure 1. Maximum wind speed

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Figure 5. Recommended certification scheme and potential collaboration paths
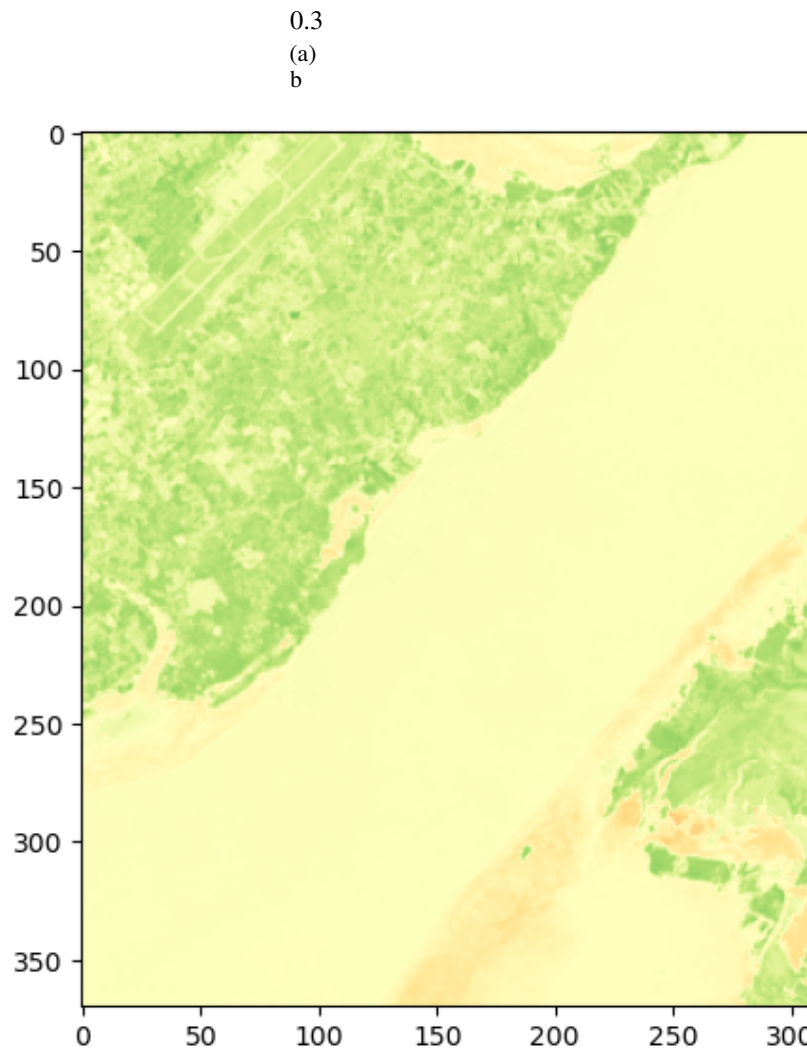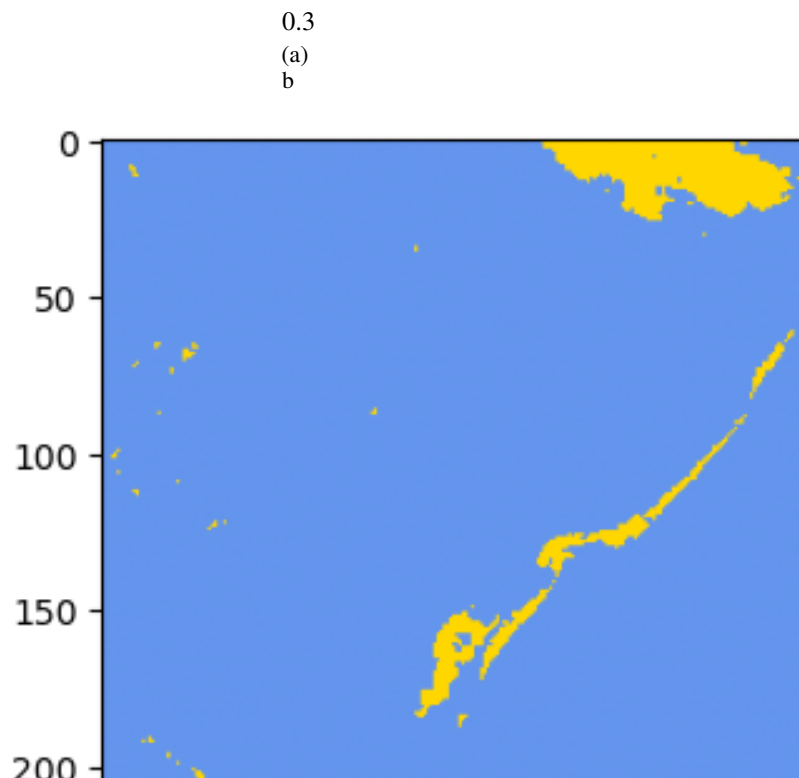
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Figure 6. NDVI band

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Supplementary Material

Our approach involves a combination of institutional and scientific methods. On the institutional side, we review applicable certification schemes, conduct stakeholder mapping, and develop a procedural flow for practical implementation. On the scientific side, we conduct literature reviews, preliminary data acquisition, and analysis using remote sensing technologies. Our scientific monitoring strategy involves the use of satellite imagery to analyze mangrove presence and carbon sequestration potential.