

# FOREST CARBON INITIATIVES IN SARAWAK: A MILESTONE FOR SUSTAINABLE FOREST MANAGEMENT AND CLIMATE MITIGATION

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The Forest Department Sarawak has been a leader in implementing forest carbon initiatives to combat climate change and promote sustainable forest management. These initiatives aim to tackle deforestation and forest degradation, both major contributors to greenhouse gas emissions. A significant milestone was the amendment to the Forests Ordinance on 19 May 2022, which included special provisions for carbon stocks in section 70. This amendment facilitates the execution of a forest carbon activity program that aligns with international standards. To further support these efforts, the Forests (Forest Carbon Activity) Rules 2022, effective from 1 January 2023, were formulated through a series of workshops. Additionally, the Policy Direction for Forest Carbon Activities in Sarawak, approved on 30 January 2023, provides a framework for implementing these activities and advancing the state's forest carbon market. These initiatives are anticipated to create a new revenue stream for Sarawak through carbon trading, offering a financial incentive to monetize forest resources and promote sustainable practices. The forest carbon initiatives represent a crucial step towards mitigating climate change and enhancing sustainable forest management in Sarawak. The revision of the Forests Ordinance, along with the establishment of the Forests (Forest Carbon Activity) Rules 2022 and the Policy Direction, are pivotal in the state's development of forest carbon projects. Carbon trading not only generates revenue but also supports local communities and the conservation of Sarawak's natural resources.

**Keywords:** maximum 3 keywords; Forest Carbon; climate change; sustainable forest management.

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## 1. INTRODUCTION

Forests play a vital role in combating climate change by acting as carbon sinks, absorbing and storing carbon dioxide (CO<sub>2</sub>) from the atmosphere. However, deforestation and forest degradation have contributed significantly to the increase in greenhouse gas (GHG) emissions globally. The tropical forests of Sarawak, located in the Malaysian on the island of Borneo, are particularly important for biodiversity, climate regulation, and local livelihoods. The state has been actively engaged in implementing various forest carbon initiatives to address these challenges and promote sustainable forest management.

In recent years, the Forest Department Sarawak has taken significant steps towards aligning its forest management policies with international climate change mitigation frameworks. The amendment of the Forests Ordinance on 19 May 2022, which included special provisions for carbon stocks in section 70, marked a major milestone in Sarawak's efforts to combat deforestation and forest degradation. Following this amendment, the Forests (Forest Carbon Activity) Rules 2022 came into effect on 1 January 2023, supported by a series of workshops. Additionally, the Policy Direction for Forest Carbon Activities in Sarawak, approved on 30 January 2023, further strengthens the state's position in developing a forest carbon market and advancing sustainable practices.

This paper aims to provide an in-depth analysis of Sarawak's forest carbon initiatives, focusing on the legislative framework, the operational mechanisms of the forest carbon activity program, and the anticipated socio-economic and environmental impacts. It also discusses the role of carbon trading in generating revenue for the state and its potential to support local communities and the conservation of natural resources.

## 2. BACKGROUND: THE IMPORTANCE OF FOREST CARBON INITIATIVES

### 2.1 Global Context of Climate Change and Forest Carbon

Climate change, driven by anthropogenic GHG emissions, has become one of the most pressing environmental challenges of the 21st century. The Intergovernmental Panel on Climate Change (IPCC) has highlighted the significant role that forests can play in climate change mitigation through carbon sequestration. Forest ecosystems absorb CO<sub>2</sub> from the atmosphere and store it in biomass, soil, and other organic matter. However, when forests are cleared or degraded, this stored carbon is released back into the atmosphere, contributing to global warming.

Deforestation and forest degradation account for approximately 10-15% of global CO<sub>2</sub> emissions, according to the Food and Agriculture Organization (FAO) 2020. In response, various international initiatives, such as the United Nations' Reducing Emissions from Deforestation and Forest Degradation (REDD+) program, have been developed to incentivize the preservation of forests and promote sustainable land-use practices. REDD+ aims to reward developing countries for reducing emissions from deforestation and forest degradation, while also conserving biodiversity and enhancing the livelihoods of forest-dependent communities.

### 2.2 Forest Carbon Initiatives in Malaysia and Sarawak

Malaysia, as a member of the United Nations Framework Convention on Climate Change (UNFCCC), has committed to reducing its carbon footprint by focusing on forest conservation and sustainable land management practices. The country's National Policy on Climate Change (NPCC) and the 12th Malaysia Plan (2021-2025) emphasize the importance of forests in addressing climate change while Sarawak's Post-COVID-19 Development Strategy (PCDS) 2030 focuses on leveraging forest resources for carbon offsets and reducing emissions. Sarawak, with its vast tracts of tropical rainforests, is uniquely positioned to contribute to national and global carbon sequestration efforts.

Sarawak's forest carbon initiatives are grounded in its commitment to sustainable forest management (SFM), which balances environmental, economic, and social objectives. The state's initiatives aim to tackle deforestation and forest degradation, both of which are major sources of GHG emissions. Sarawak has recognized the need to

integrate carbon accounting into its forest management strategies to enhance its role in climate change mitigation.

### **3. LEGISLATIVE FRAMEWORK FOR FOREST CARBON IN SARAWAK**

#### **3.1 Amendment to the Forests Ordinance**

The Forests Ordinance in Sarawak underwent a significant amendment on 19 May 2022, introducing provisions that specifically address carbon stocks. Section 70 of the Ordinance was updated to recognize forest carbon activities, including the measurement, reporting, and verification (MRV) of carbon stocks. This amendment provides the legal foundation for the implementation of forest carbon initiatives in Sarawak, aligning the state's forest management policies with international climate change mitigation frameworks.

The amended Ordinance acknowledges that carbon is now a recognized commodity that can be traded under regulated markets. By doing so, it opens up new avenues for revenue generation through carbon credits. Forest carbon projects, especially those involving conservation, afforestation, and reforestation, can now be formally recognized and regulated under state law.

#### **3.2 Forests (Forest Carbon Activity) Rules 2022**

Following the amendment to the Forests Ordinance, the Forests (Forest Carbon Activity) Rules 2022 were formulated and came into effect on 1 January 2023. These rules were developed through a series of workshops.

The Forests (Forest Carbon Activity) Rules 2022 provide detailed guidelines for the implementation of forest carbon activities, covering aspects such as project eligibility, carbon accounting methodologies, and MRV protocols. The rules also outline the roles and responsibilities of various stakeholders involved in forest carbon projects. These regulations ensure that Sarawak's forest carbon initiatives adhere to international best practices and standards, such as those established by the Verified Carbon Standard (VCS) and the Climate, Community, and Biodiversity Standards (CCBS).

#### **3.3 Environment (Reduction of Greenhouse Gases Emission) Ordinance, 2023**

The Environment (Reduction of Greenhouse Gases Emission) Ordinance, 2023, focuses on mitigating GHG emissions beyond the forestry sector. This legislative tool complements forest carbon initiatives by regulating industrial emissions and promoting low-carbon technologies. It establishes emission reduction targets, introduces carbon pricing mechanisms, and encourages companies to participate in carbon trading schemes.

### **4. IMPLEMENTATION OF FOREST CARBON ACTIVITIES**

#### **4.1 Measurement, Reporting, and Verification (MRV) System**

A robust MRV system is critical for the success of forest carbon initiatives. The MRV system ensures that carbon stocks are accurately measured, reported, and verified, providing the basis for issuing carbon credits. In Sarawak, the MRV system is aligned with international standards to ensure transparency and credibility in carbon accounting.

The MRV process typically involves three main components:

- **Measurement:** Assessing the amount of carbon sequestered by forests through field measurements and remote sensing technologies.
- **Reporting:** Documenting the results of carbon measurements in a transparent and verifiable manner.
- **Verification:** Independent third-party verification to ensure the accuracy of the reported carbon stocks.

#### **4.2 Carbon Trading and Revenue Generation**

One of the key outcomes of Sarawak's forest carbon initiatives is the development of a forest carbon market. Carbon trading provides a mechanism for monetizing the carbon sequestration services of forests by selling carbon credits to companies and countries seeking to offset their emissions.

The forest carbon market is expected to attract both domestic and international buyers, particularly as global demand for carbon credits continues to rise. The state's carbon credits are anticipated to be highly valued due to the rich biodiversity and high conservation value of its forests.

### 4.3 Community Involvement and Benefits Sharing

The involvement of local communities is essential for the success of forest carbon projects. Many of Sarawak's rural communities depend on forests for their livelihoods, and any forest carbon initiative must take into account their needs and rights. The Forests (Forest Carbon Activity) Rules 2022 include provisions for benefit-sharing, ensuring that local communities receive a share of the revenue generated from carbon trading.

## 5. SOCIO-ECONOMIC AND ENVIRONMENTAL IMPACTS

### 5.1 Socio-Economic Impacts

The forest carbon initiatives in Sarawak are expected to generate significant socio-economic benefits, particularly for rural communities. By providing a new revenue stream through carbon trading, these initiatives can help reduce poverty and improve living standards in forest-dependent areas. Job creation in areas such as forest management, monitoring, and eco-tourism is another potential benefit.

Furthermore, the revenue generated from forest carbon activities can be reinvested in community development projects, such as infrastructure improvements, education, and healthcare services. This can contribute to the overall socio-economic development of Sarawak's rural areas.

### 5.2 Environmental Impacts

From an environmental perspective, the forest carbon initiatives in Sarawak are expected to have far-reaching positive effects. By promoting the conservation and sustainable management of forests, these initiatives will help protect Sarawak's rich biodiversity, which includes endangered species such as orangutans, hornbills, and various plant species.

The initiatives will also contribute to climate change mitigation by enhancing the carbon sequestration capacity of Sarawak's forests. By reducing deforestation and forest degradation, the state can help lower its carbon emissions and contribute to global efforts to combat climate change.

## 6. CHALLENGES AND OPPORTUNITIES

### 6.1 Challenges

While the forest carbon initiatives in Sarawak present many opportunities, there are also challenges that need to be addressed. These include:

- **Financial barriers:** Implementing forest carbon projects requires significant upfront investment in areas such as MRV systems, capacity-building, and stakeholder engagement.
- **Regulatory complexities:** Ensuring that forest carbon activities comply with both national and international regulations can be challenging, especially given the evolving nature of carbon markets.
- **Community engagement:** While local communities stand to benefit from forest carbon initiatives, ensuring meaningful participation and addressing potential conflicts over land rights and resource use can be difficult.

### 6.2 Opportunities

Despite these challenges, there are numerous opportunities for Sarawak's forest carbon initiatives to succeed. These include:

- **Global demand for carbon credits:** As companies and countries strive to meet their climate commitments, the demand for high-quality carbon credits is expected to grow, providing a lucrative market for Sarawak.

- **Technological advancements:** Advances in remote sensing, satellite imagery, and carbon accounting methodologies can help improve the accuracy and efficiency of MRV systems.
- **Public-private partnerships:** Collaborating with private sector actors can help mobilize the financial resources and technical expertise needed to implement large-scale forest carbon projects.

## 7. CONCLUSION

Sarawak's forest carbon initiatives represent a significant step forward in the fight against climate change and the promotion of sustainable forest management. The amendment to the Forests Ordinance, the establishment of the Forests (Forest Carbon Activity) Rules 2022, and the approval of the Policy Direction for Forest Carbon Activities provide a robust legal and policy framework for the implementation of forest carbon activities.

By creating a forest carbon market and promoting sustainable practices, Sarawak is not only helping to mitigate climate change but also generating new revenue streams, supporting local communities, and conserving its valuable natural resources. As global demand for carbon credits continues to rise, Sarawak's forest carbon initiatives have the potential to position the state as a leader in forest-based climate solutions.

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