

Southeast Asia's Carbon Credit Development From Carbon Colonialism to Carbon Sovereignty

Albert Lin

ESG Service Corp., Association. Chief Advisor, Vietnam

Corresponding author E-mail: bh117.albert@gmail.com

Received: October 20, 2024 / Revised: February 7 , 2025 / Accepted: February 7 , 2025

Abstract

Southeast Asia plays a pivotal role in the global carbon credit market, contributing significantly through mechanisms such as the Clean Development Mechanism (CDM) and REDD+ projects. However, these contributions have often been characterized by "carbon colonialism," where foreign entities dominate carbon credit projects, limiting economic benefits for local communities. Countries like Vietnam, Malaysia, Indonesia, and Thailand are now transitioning toward "carbon sovereignty," seeking greater control over their carbon markets.

This paper explores the historical evolution of Southeast Asia's carbon credit development, highlighting the shift from passive credit suppliers to active market participants. Vietnam is establishing a national carbon trading system by 2027, Malaysia is leveraging its voluntary carbon market, Indonesia is strengthening its I-CER mechanism, and Thailand is expanding its T-VER program. These efforts are aimed at enhancing transparency, ensuring fair economic returns, and fostering regional cooperation to maximize benefits from carbon trading. A case study on Indonesia's revocation of the Rimba Raya carbon offset project illustrates the region's efforts to reclaim sovereignty over carbon resources. By asserting control over their carbon markets, Southeast Asian nations are positioning themselves as leaders in sustainable development and climate action. This shift not only strengthens their economic resilience but also contributes to global emissions reduction goals.

Keywords: Carbon sovereignty, carbon colonialism, carbon credit markets, Southeast Asia, Sustainability

Introduction

Development of Carbon Credit Sovereignty (Vietnam, Malaysia, Indonesia, Thailand)

The Rise of Global Carbon Credit Markets

The formation of the carbon credit market began with global awareness of climate change and the need to reduce greenhouse gas emissions. (Change, I. P. O. C. 2007) Mechanisms such as the Kyoto Protocol and later

the Paris Agreement (Change, U. C.2015) aimed to create a framework where countries could trade carbon credits (Protocol, K. (2010)) and meet their emission reduction targets. Carbon credit markets are divided into compliance markets (RCM), governed by international agreements, and voluntary markets (VCM), where companies and governments can voluntarily trade and generate carbon credits to meet their carbon neutrality goals. (Santikarn et.al.,2021)

Southeast Asia plays a crucial role in the global carbon market due to its abundant natural resources, extensive forest cover, and renewable energy potential (Kliem, F. 2024). Countries like Vietnam, Malaysia, Indonesia, and Thailand have provided significant carbon credits, especially through CDM (Clean Development Mechanism) and REDD+ (Reducing Emissions from Deforestation and Forest Degradation) projects (Singh et al., 2023). However, these contributions led to criticism, often termed "carbon colonialism," where local communities and environments did not sufficiently benefit from these projects despite their critical role in offsetting emissions for developed countries (Bachram, 2004).

Historical Background of Southeast Asia's Development

Historically, Southeast Asia has relied on its agricultural and natural resources as a primary economic driver (Barbier. 2019). This dependency has made the region a crucial source of carbon credit generation. However, challenges remain, such as balancing economic growth with environmental preservation, ensuring fair participation in international carbon markets, and safeguarding national interests from exploitation (Blum, 2020). As the carbon market matured, these nations began transitioning from passive credit suppliers to more proactive actors in pursuing carbon sovereignty (Peou, et al.,2021).

The Carbon Colonial Era

Vietnam's Carbon Colonial Experience

Vietnam was among the first Southeast Asian countries to engage with Clean Development Mechanism (CDM) projects. Rapid industrialization increased the country's emission levels, leading to the adoption of renewable energy projects, including wind, solar, and hydropower, which generated Certified Emission Reductions (CERs). However, foreign investments dominated these CDM projects, resulting in limited economic benefits and long-term gains for Vietnam. This disparity led to the concept of "carbon colonialism," where Vietnam's natural resources were primarily used to offset emissions from developed countries.

Malaysia's Carbon Colonial Era

Similar to Vietnam, Malaysia faced issues related to "carbon colonialism." The country's CDM and REDD+ projects generated significant carbon credits sold to developed nations to meet their carbon goals (Sen & Sahoo, 2024). These projects were primarily funded by international capital, with local communities playing limited roles in decision-making processes, exacerbating the perception of carbon colonialism.

Indonesia's Carbon Colonial Phenomenon

Indonesia, with its vast forest resources, became a key player in REDD+ projects. These projects, intended to reduce deforestation, often resulted in foreign-led initiatives (World Rainforest Movement, 2024). The economic benefits of carbon credits primarily flowed to developed nations, while local communities, particularly

indigenous populations, experienced reduced access to forest resources. This imbalance intensified criticisms of carbon colonialism in Indonesia (Sen & Sahoo, 2024).

Thailand's Carbon Colonial Experience

Thailand's carbon credit market, shaped by CDM and its T-VER program (Thailand Voluntary Emission Reduction Program), also mirrored the colonial dynamic. While these projects generated carbon credits, the benefits were largely exported, with Thailand's local economic and environmental gains being relatively limited (Marquard et al., 2021). The government's plan to expand green areas to cover up to 55% of the country's territory for carbon offsetting has raised concerns about potential impacts on local communities and land rights.

The Transformation of Carbon Sovereignty in Southeast Asia

The shift from carbon colonialism to carbon sovereignty in Southeast Asia signifies an important transformation for countries like Vietnam, Malaysia, Indonesia, and Thailand. As these nations work to reclaim control over their carbon credits, they are positioning themselves as active players in the global carbon market. The future development of their national carbon markets, along with enhanced transparency and international cooperation, will solidify their roles in achieving global climate goals (Sen & Sahoo, 2024). Southeast Asia's journey toward carbon sovereignty is an essential component of the global fight against climate change, demonstrating the region's leadership in environmental governance and sustainable economic development (Heinrich Böll Foundation, 2024).

Southeast Asia's Carbon Credit Development

Southeast Asia's transition from carbon colonialism to carbon sovereignty marks a significant shift in how countries like Vietnam, Malaysia, Indonesia, and Thailand approach their roles in the global carbon credit market. Through concerted efforts in national carbon credit generation and market governance, these countries are working to reclaim the economic, environmental, and social benefits of their carbon resources (Sen & Sahoo, 2024).

Vietnam: Developing a National Carbon Market

Vietnam's carbon sovereignty efforts are led by its goal to establish a national carbon trading system by 2027. This system aims to manage carbon credit generation across the country's energy and industrial sectors, assisting Vietnam in meeting its ambitious 2050 carbon neutrality target (Sen & Sahoo, 2024). The national market will align with international standards through mechanisms like the Internationally Transferred Mitigation Outcomes (ITMO), enabling Vietnam to balance both domestic and global climate goals (Marquard et al., 2021).

Vietnam has also been a pioneer in integrating its carbon projects into the CDM, generating carbon credits from renewable energy initiatives such as wind and solar power. As the voluntary carbon market (VCM) grows globally, Vietnam is expected to expand its presence in international carbon markets, making its national market an attractive platform for carbon credit investments (Sarmiento, 2023). The government is also fostering greater transparency and compliance in carbon credit projects by implementing robust Measurement, Reporting, and Verification (MRV) systems, a critical element in establishing trust with international buyers and investors (Sen & Sahoo, 2024).

Malaysia: Leveraging Green Technologies for Carbon Credit Growth

Malaysia has made significant strides in asserting its carbon sovereignty by establishing the Bursa Malaysia Voluntary Carbon Market (VCM), a platform that enables companies to generate, trade, and offset carbon credits (Marquard et al.,2021). This market is managed through the Malaysia Green Technology and Climate Change Corporation (MGTC), which plays a pivotal role in ensuring that the economic benefits of carbon credit generation are retained within Malaysia (Wartini, 2024).

Malaysia's Nationally Determined Contributions (NDC) outline its ambition to reduce greenhouse gas emissions intensity by 45% by 2030, with a broader target of achieving carbon neutrality by 2050 (Sen & Sahoo, 2024). To meet these goals, Malaysia is expanding its renewable energy projects, including solar and hydropower initiatives, to generate carbon credits for international sale (Hossain et al.,2018).

A key aspect of Malaysia's carbon sovereignty journey is the development of green technologies that facilitate carbon credit generation while promoting sustainable economic growth (Heinrich Böll Foundation, 2024). The government is also enhancing the integrity of its carbon credit projects by ensuring compliance with international standards such as the Gold Standard and Verra.

Indonesia: Expanding the I-CER Mechanism for Sovereignty

Indonesia, with its rich forest resources and active participation in the REDD+ initiative, has been at the forefront of global carbon credit generation (Sen & Sahoo, 2024). The country is strengthening its Indonesian Certified Emission Reductions (I-CER) mechanism, allowing Indonesia to autonomously generate and trade carbon credits on the global market (Stephan, 2013).

The I-CER system is central to Indonesia's goal of achieving carbon neutrality by 2060 (Heinrich Böll Foundation, 2024). By consolidating the management of its carbon credit resources, Indonesia aims to ensure that the economic benefits of carbon credits flow back into local communities, supporting both sustainable development and climate action (Wartini, 2024).

Indonesia is also addressing past challenges with transparency and governance in REDD+ projects (World Bank, 2023). Through more stringent monitoring and reporting requirements, the government is working to protect indigenous communities' rights while ensuring that REDD+ projects generate lasting environmental and economic benefits for the nation ((Rosales et al.,2021).

Thailand: Strengthening T-VER and Regional Cooperation

Thailand's Thailand Voluntary Emission Reduction Program (T-VER) is a crucial component of the country's carbon sovereignty strategy. Thailand is working to increase domestic participation in its carbon market while developing international collaborations that enhance carbon credit trading opportunities (Rosales et al.,2021).

Country	Legal Framework	Start Time	NDC Declaration	Market Reliance for Sales	Annual Sales Volume	Market Analysis
Vietnam	National Green Growth Strategy (2020-2030)	2022	Reduce emissions by 9% by 2030, with international support, up to 27%	CER and VER generated through CDM and REDD+ projects sold through RCM and VCM	No specific data available, but market growing steadily	Challenges in transparency and compliance; Opportunities in renewable energy and forest carbon projects
Malaysia	Malaysia Green Technology and Climate Change Corporation Act (2021)	2021	Reduce GHG emissions intensity by 45% by 2030	VER generated through MGTC and Bursa Malaysia VCM, sold through VCM	2022 VCM transactions amounted to RM 12 million (around USD 2.85 million)	Challenges in lack of compliance market; Opportunities in green technology and growing demand in VCM
Indonesia	Presidential Regulation No. 98/2021	2021	Reduce emissions by 29% by 2030, with international support, up to 41%	I-CER and REDD+ projects generating credits sold through VCM	2021 market transaction value around USD 65 million	Challenges in project management and data transparency; Opportunities in forest resources and renewable energy potential
Thailand	T-VER (Thailand Voluntary Emission Reduction Program)	2013	Reduce emissions by 20% by 2030, with international support, up to 25%	Carbon credits generated through T-VER projects, sold via VCM	No specific data available, but expected to grow with renewable energy and efficiency projects	Challenges in compliance market development; Opportunities in renewable energy and energy efficiency projects

Figure 1: Market analysis of carbon credit in Southeastern Asia

Case Study: Indonesia's Battle for Carbon Sovereignty through Rimba Raya

The project, located in Central Kalimantan, had generated over 30 million carbon credits since its inception. However, issues surrounding unauthorized license transfers and non-compliance with payment obligations led to the government's decision to reclaim control over the project.

This move illustrates Indonesia's broader strategy of reducing dependency on foreign entities that have historically dominated its carbon market. The Indonesian government's strong action against Rimba Raya sets a precedent for how the country will handle carbon credit projects moving forward, ensuring that the benefits of carbon credits remain within Indonesia's borders and contribute to its national development goals.

By asserting control over such projects, Indonesia aims to prevent future exploitation of its natural resources and ensure that carbon credit projects align with the Nationally Determined Contributions (NDCs) outlined in its climate policy. This case highlights the challenges faced by countries rich in carbon resources and their ongoing efforts to balance global market demands with national sovereignty.

As Indonesia continues to strengthen the I-CER mechanism and expand its carbon trading platform, IDX Carbon, the country is expected to become a major player in the global carbon credit market, with a clear focus on ensuring that the benefits of carbon credits serve local communities and support sustainable development initiatives.

Conclusion: The Future of Carbon Sovereignty in Southeast Asia

As Vietnam, Malaysia, Indonesia, and Thailand continue to assert their carbon sovereignty, they are reshaping the global carbon credit landscape. By developing national carbon markets, enhancing transparency, and promoting international cooperation, these countries are demonstrating their leadership in both climate action and economic development.

Through their efforts, Southeast Asia is not only addressing global climate challenges but also ensuring that the benefits of carbon credits support local communities and foster long-term sustainability. This shift from carbon colonialism to carbon sovereignty will ultimately strengthen the region's role in the global fight against

climate change, paving the way for more equitable and sustainable carbon markets in the future. The transition from carbon colonialism to carbon sovereignty in Southeast Asia has been shaped by a number of political, economic, and environmental factors. Each of the four key Southeast Asian nations—Vietnam, Malaysia, Indonesia, and Thailand—has faced unique challenges and opportunities as they assert greater control over their carbon resources, aligning national carbon markets with global sustainability goals. As they work to enhance transparency, increase local control, and benefit from international cooperation, they collectively offer a blueprint for other developing countries engaged in global carbon markets.

Challenges in Achieving Carbon Sovereignty

While significant progress has been made, Southeast Asian countries face several hurdles in fully achieving carbon sovereignty. One of the most pressing challenges is ensuring transparency in carbon credit projects. Many carbon credit schemes, especially those involving forestry and land use, have been criticized for lacking robust MRV (Monitoring, Reporting, and Verification) mechanisms, which are necessary to ensure that carbon credits are generated and managed according to international standards.

For instance, Indonesia's REDD+ projects have faced scrutiny for not adequately benefiting local communities or preserving biodiversity as intended. In the past, local populations, particularly indigenous groups, have reported being marginalized by the projects despite their land being central to the success of carbon offset initiatives. Moving forward, stronger legal protections and frameworks will be necessary to balance local and international interests.

Carbon sovereignty also requires that countries invest in green technologies and renewable energy infrastructure, areas where Southeast Asia continues to make incremental progress. Malaysia, for example, has emerged as a regional leader in developing solar energy projects, which contribute significantly to its domestic carbon credit generation efforts. However, like its neighbors, Malaysia must navigate external pressures from international investors who may seek to prioritize profits over sustainable, long-term benefits for local ecosystems and communities.

Southeast Asia's Role in Global Climate Leadership

As Southeast Asian nations strengthen their carbon markets, they are positioned to take on a more prominent role in the global conversation about climate change and carbon neutrality. By building transparent, locally controlled carbon credit systems, these countries can serve as models for other developing nations seeking to balance participation in global carbon markets with national sovereignty over environmental resources.

International cooperation will be crucial to Southeast Asia's continued progress. Initiatives such as the Joint Crediting Mechanism (JCM) between Japan and Southeast Asian countries demonstrate the potential for bilateral agreements to facilitate technology transfer, provide financing, and ensure that carbon credit projects are aligned with NDCs (Nationally Determined Contributions) under the Paris Agreement. By leveraging these partnerships, Southeast Asian nations can expand their carbon credit generation capacity while maintaining control over how those credits are used and sold.

The Future of Carbon Sovereignty in Southeast Asia

Looking ahead, Southeast Asia's trajectory toward carbon sovereignty will be shaped by its ability to integrate regional cooperation with global market demands. A regional carbon trading network, potentially spearheaded by countries like Indonesia and Malaysia, could greatly enhance the region's collective bargaining power within the global carbon market. Such cooperation would enable Southeast Asian nations to trade carbon credits more efficiently and establish shared standards for MRV and project verification, ensuring that the benefits of carbon credit generation are fairly distributed.

Furthermore, as Southeast Asia strengthens its position in the global carbon credit market, it will be critical for each nation to align its carbon strategies with broader sustainable development goals. This includes ensuring that carbon credit projects not only reduce emissions but also support biodiversity, economic growth, and social equity, particularly for marginalized communities living in resource-rich regions.

The evolution of carbon sovereignty in Vietnam, Malaysia, Indonesia, and Thailand represents a broader shift in how developing countries are approaching global carbon markets. By taking control of their carbon resources, enhancing local participation in carbon credit generation, and developing national carbon markets, these countries are reshaping the landscape of carbon trading.

Southeast Asia's journey reflects a growing recognition that while global cooperation is essential for addressing climate change, it must be balanced with national interests and local needs. As these countries continue to strengthen their carbon sovereignty, they are setting the stage for more equitable and sustainable participation in the global carbon economy—one that respects the sovereignty of developing nations while contributing to global climate goals.

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