

Complexity of land tenure rights in peatland management in Southeast Asia

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Key messages

- Tenure insecurity poses a challenge for sustainable peatland management in Southeast Asia due to unclear land rights and conflicting interests, contributing to unsustainable land use, peatland fires, deforestation, and hindered conservation efforts and long-term sustainability.
- Tenure systems across the region highlight the need for effective policy frameworks to ensure tenure security and sustainable peatland management at the national and regional level (e.g. the ASEAN Peatland Management Strategy).
- Efforts to strengthen tenure rights through social forestry schemes and community-based forest management in the region are ongoing with mixed results. But challenges persist in the implementation of tenure reforms and securing community rights.
- Promoting sustainable peatland management requires governments and stakeholders to strengthen community rights, enhance stakeholder engagement, build community capacity, implement free, prior and informed consent (FPIC), and integrate policy on land and tenure security with climate mitigation strategies.

Introduction

Tropical peatlands are among the most critical ecosystems in Southeast Asia, covering approximately 23 million hectares and representing about 40% of global tropical peatlands (ASEAN 2021). These peatlands exist across all Southeast Asian countries but are primarily found in Indonesia and Malaysia. They are vital for biodiversity conservation, carbon storage and local livelihoods. They support a variety of species uniquely adapted to these waterlogged environments, including endangered wildlife, such as the orangutan and Sumatran tiger (CIFOR 2017; Giesen and Sari 2018; MoEF 2022). Beyond their ecological importance, peatlands provide essential ecosystem services, such as regulating water cycles, mitigating climate change and supporting agricultural activities.

Between 1990 and 2015, the percentage of peatland forest cover in Southeast Asia decreased from 76 to 29 percent (11.9–4.6 million ha; Miettinen et al. 2016). Significant failures in agricultural development have been documented on peatlands, where many projects have been abandoned. For example, around 1 million hectares of peatlands were cleared and drained for rice cultivation under the Indonesian Mega-Rice Project, despite only 5% of the land being suitable for rice cultivation (Giesen and Sari 2018).

Unsustainable forestry activities, including legal and illegal logging, overexploitation of forest resources, agricultural practices, and oil palm, pulpwood and rice plantations, have continued to take place in peatland forests for decades (Chin 2012; ICRAF 2016; Miettinen et al. 2016; CIFOR 2017; Adrianto et al. 2019; Nurhayati et al. 2021; ASEAN Peat 2022), leading to increased vulnerability to fire through large-scale peat drainage and accelerated peatland degradation. Peat fires are a major contributor to transboundary haze pollution, leading to severe public health and socioeconomic issues at local, national and international levels across Southeast Asia.

Peatlands are complex socio-ecological landscapes characterized by competing interests, conflicting resource usage types and overlapping land tenure (Thorburn and Kull 2015; Mizuno et al. 2016). Overlapping land rights among stakeholders complicates land and resource governance, impacting social and environmental safeguards.

Thus, to better understand and document the complexities of peatland tenure issues to support sustainable peatland management and deliver benefits for communities, this study aims to provide insights and lessons learned from Southeast Asian countries and provides recommendations for improving peatland management.

Land tenure and property rights

Land tenure and property rights refer to the rights held by individuals, communities, families, companies and other corporate or community structures over forest and land, water, wildlife and mineral resources (USAID 2013). Land tenure systems have emerged from historical and cultural factors that shape actual or customary and legal rights held by individuals or groups over land and resources and determine social relations between community members. A country's land tenure framework (i.e. rules for acquiring land and resources) defines the allocation, transfer and management of land and resources among state, community, individual and private-sector stakeholders (USAID 2013). This supports both short- and long-term land investments, whether in peatlands or other landscapes, and defines who has the right to make land-use decisions while identifying associated responsibilities and right to benefit (USAID 2013).

Lack of land tenure security for local communities is a major cause of deforestation in Southeast Asia (Angelsen 2008). Vulnerability can arise from perceived insecurity in land tenure or from insecure tenure leading to land loss, particularly, in situations where alternative livelihood and housing options are limited (Reale and Handmer 2011). Expropriation and occupation by external entities have resulted in communities losing access to previously utilized land, endangering livelihoods as private investors or companies acquire extensive concession lands from governments. This insecurity is particularly prevalent in communities living inside state forests (Suyanto et al. 2005; Dahal et al. 2011). Uncertainties over tenure, land ownership and Indigenous Peoples' rights have often triggered land grabs from small-scale farmers, which are frequently followed by severe environmental degradation, ecosystem destruction and water, soil and air pollution (Larson et al. 2013). REDD+ projects have demonstrated that the degree of tenure vulnerability determines how a project's risks, costs and benefits are distributed (Larson et al. 2013). Further, historical injustices need to be addressed where land rights are highly polarized, access to land is very unequal and land is underutilized by large-scale landowners (Kasimbazi 2017). Such issues are common in countries where most people cannot afford land. Secure land ownership over generations becomes increasingly marginalized by legal and market-based systems that prioritize individual rights (Kasimbazi 2017).

Land ownership issues are worsening wealth disparities, leaving disadvantaged communities with little access to land for their livelihoods. If land tenure is not addressed, conflicts will persist, leading to continued land encroachment and peatland degradation (Chin et al. 2012). Despite some efforts, such as Indonesia's Peatland and Mangrove Restoration Agency (BRGM) attempting to reduce deforestation in peatlands by restoring an estimated 2 million hectares of degraded peatland and mangrove ecosystems (CIFOR 2017; Mongabay 2021), Southeast Asian countries have yet to determine clear policy directions for peatland management at national level. At regional level, however, the Association of Southeast Asian Nations (ASEAN) *Peatlands Management Strategy 2006–2020* was developed to assist in sustainably managing peatlands and mitigating fires and transboundary haze. The updated *ASEAN Peatlands Management Strategy*

(APMS) 2023–2030 expands on this, placing greater emphasis on land and resource tenure-related issues, such as land ownership, access and use rights, which are critical to ensuring effective peatland management. By addressing tenure complexities, the revised strategy seeks to enhance cooperation among stakeholders and strengthen the protection and restoration of peatland ecosystems across the region.

The future stability of peatlands in Southeast Asia will depend heavily on resolving land tenure and property rights issues. Perceived tenure security may be one factor influencing farmers' land-related decisions and behaviour (Linkow 2016; Pradasa and Masyhuri 2020), thus, impacting sustainable use. Tenure rights for forest use are frequently contested, overlapping and insecure (RRI 2008; Sunderlin et al. 2008; Riggs et al. 2016). In many cases, legal titles are used as a proxy for tenure security (Arnot et al. 2011) but whether a legal title can guarantee secure rights is still a subject of debate (Qian et al. 2022).

Methodology

Data and information were collected qualitatively through a literature review. Searches were conducted in major international scientific databases, such as Web of Science, Scopus, CAB Abstracts and Google Scholar. To organize and manage the search results, separate files were created for each database using EndNote, a reference management software. The analysis combined qualitative descriptions with the literature review to identify factors contributing to forest and land degradation. In addition to the scientific databases, findings from various research topics were identified, assessed and interpreted. Journal articles were used as the primary sources of research data. One key objective was to highlight the intricacies of tenure by showing that relationships between people and natural resources are multifaceted and not easily defined.

Conceptual framework

This study draws on approaches in the literature, mainly frameworks developed by Doss and Meinzen-Dick (2020) and Qian et al. (2022), to create an adapted framework to specifically address land tenure security issues in Southeast Asian peatlands (Figure 1).

The adapted framework consists of three broad areas:

1. Context, including formal and informal institutional arrangements and tenure reforms that could bring about legal (*de jure*) and actual (*de facto*) tenure security;
2. Tenure conditions, consisting of recognition of tenurial rights, conflicts over tenure and resources and tenure reconciliation that could be used as a win–win solution;
3. Outcomes, including secure tenure and sustainable peatland management in the future.

Context

Land tenure and property rights systems include mechanisms for dispute resolution, rights protection and land resource management. Land tenure refers to the framework governing rights to land and resources, delineating who holds what rights, for how long and under what conditions (Schlager and

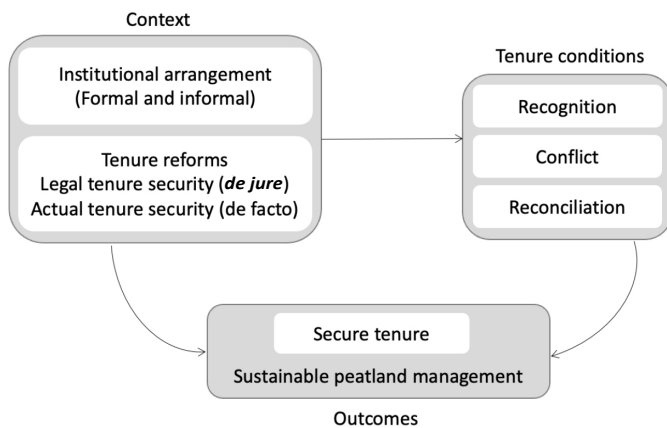


Figure 1. Land tenure framework for secure tenure in sustainable peatland management

Ostrom 1992; FAO 2002), functioning as a social institution to regulate individual and group behaviour concerning land use. These systems influence the capacity of communities to manage land use, utilize its products and engage in transactions, such as land transfers or leasing. Further, within these systems, tenure security provides enforceable claims to land, supported by enforcement mechanisms that range from national laws to local village regulations, all upheld by national regulatory frameworks (Payne and Lasserre 2012).

Tenure arrangements across Southeast Asian countries are highly variable, reflecting diverse legal frameworks and historical contexts (ASEAN 2022). Some countries acknowledge community ownership rights encompassing both forests and forestland by delegating a substantial degree of authority and management responsibilities to local communities and Indigenous groups (Larson et al. 2010). For example, in Indonesia, a Constitutional Court ruling in 2013 acknowledged customary forests as privately rather than state-owned, thereby, legitimizing community claims over traditional territories. In some cases, states have granted various rights over forests and forestland to private companies and individuals under specific terms and conditions, typically, for large-scale commercial plantations or agro-industrial enterprises. Despite this, in almost all countries in the region, the state maintains ownership over the major portion of the national forest estate (Dahal et al. 2011), usually limiting the autonomy of local communities in managing forest resources. However, some countries – such as Indonesia, Malaysia and Vietnam – have implemented social forestry programmes intended to enhance community involvement in forest management although these efforts frequently fall short of transferring full ownership or decision-making power to local communities (Sirimorok et al. 2024).

Institutional arrangements (formal and informal)

Institutional arrangements are designated as formal and informal rules that constrain human behaviour (North 1990, 1991). Informal institutions can be described as endogenous, site specific and socially and culturally embedded. These informal rules include socially accepted norms, attitudes and values, which are often unwritten but remain enforceable

within the community through shared understanding (Pejovich 1999). Even though informal rules are often unwritten, they are endogenously enforceable. Formal institutions, on the other hand, are typically exogenous, operating at national, regional and district levels and owned and enforced by state machinery. Examples of formal rules are the written codes, regulations and laws that include constitutions and legal codes, which determine the governance and enforcement arrangements usually undertaken by the state (Quaye 2014).

In Southeast Asia, different countries demonstrate unique examples of formal and informal land tenure arrangements in peatland management. For instance, in Indonesia the formal legal system recognizes the national land registry (BPN) for managing land tenure, which includes formal recognition of Indigenous land rights under the *Hak Ulayat* law. Informally, Indigenous communities such as the Dayak in Kalimantan, continue to enforce traditional land management practices, relying on customary laws (*adat*) that have been passed down through generations (Sirait 2009). In Malaysia, formal institutions, such as the National Land Code (1965), provide a legal framework for peatland management but in Sarawak local communities maintain informal arrangements based on customary practices for land use, with traditional territorial boundaries enforced by local leaders (Cramb and Wills 1990). See Box 1 for more details on land ownership differences in Indonesia and Malaysia. In the Philippines, land tenure in peatland regions often involves a mix of formal land titling through state programmes and informal agreements within local communities, which are governed by traditional leadership structures and negotiated agreements (Pulhin et al. 2007).

Tenure reforms (*de jure* vs. *de facto*)

According to the literature on tenure, *de jure* rights refer to statutory rights granted by a government through formal legal institutions, such as land title registries and concession contracts (Kuster and de Graaf 2019). The strength of *de jure* tenure rights depends on the type of legal instrument establishing those rights. When a right is part of a country's constitution it is likely to be stronger (i.e. less likely to be revoked or changed) than when it is part of a lower-level legal instrument, such as a ministerial decree or a local regulation, that can be overturned by the central state (Larson and Springer 2016).

Tenure reform could mean handing over rights to local communities to retain ownership of forest lands (Aggarwal et al. 2021). Formal institutional arrangements at the national level (i.e. laws and regulations) will determine how effective a land tenure reform is in improving legal tenure security. This, together with informal institutional arrangements at the local level, such as village self-governance and social norms, also shape *de facto* tenure security. While *de jure* tenure security is essential for communities, companies and governments, informal institutional arrangements remain crucial for *de facto* tenure security in many local communities.

De facto tenure security can be based on informal and sometimes formal rules where communities are settled and make use of resources. Government may recognize *de facto* tenure as legal (*de jure*) tenure, but it may remain *de facto*. In practice, the division between *de jure* and *de facto* tenure

Box 1. Land ownership: Comparing Indonesia and Malaysia

The regulatory framework for land ownership in Indonesia – which covers administration, management of land information, planning and development – includes laws, regulations, standards, customary norms and administrative procedures related to land use (Bennett et al. 2021). This framework provides developers, landowners, communities and residents with information regarding their rights over land. It is designed to protect individual land rights through legislation, define institutional responsibilities, ensure the ‘rule of law’ when land rights are revoked or confiscated by the state and resolve conflicts. Tenure transformation, which refers to changes in land ownership and access rights, can be driven by factors such as technological advancements, infrastructure development, emerging market opportunities and shifting state policies (Roth and McCarthy 2014). These changes in tenure arrangements often lead to broader landscape transformations, altering how local communities use and interact with natural resources in response to these evolving dynamics.

In Malaysia, land registration systems differ from Indonesia. Once land is registered, ownership is considered absolute and cannot be contested. Malaysia’s land registration system is generally stronger, providing greater legal certainty to landowners. Land acquisition in Malaysia can be achieved through various means, including purchase, government land application or legal processes involving multiple agencies and legal professionals. In Malaysia, land acquisition involves the government, private sector and related agencies to ensure fairness and proper compensation. The 1965 National Land Law in Malaysia ensures that land rights ownership cannot be contested after registration (Tanjaya 2022).

Indonesia’s land registration system, however, is prone to disputes and still necessitates the establishment of a specialized land court to resolve land-related issues promptly while in Malaysia strengthening the certificate’s legal power can enhance the system’s effectiveness (Tanjaya 2022). Nevertheless, there is a policy in Indonesia that has provided secure land rights to local community farmers to manage land for agroforestry and collect non-timber forest products as alternative livelihood sources with little intervention from local governments (Suyanto et al. 2005).

remains unclear because formal and informal rules may potentially overlap (FAO 2012).

In the Philippines, tenure reforms have been implemented to bridge the gap between *de jure* and *de facto* land tenure. The Comprehensive Agrarian Reform Program aimed to redistribute land to tenant farmers and Indigenous Peoples. However, many communities still face challenges in gaining full *de jure* recognition of their rights owing to bureaucratic delays, and informal land arrangements continue to dominate in many rural areas (Pulhin and Dressler 2009). Similarly, in Thailand the Community Forestry Bill was introduced to formalize community rights over forest lands. While the bill provided a *de jure* framework for local forest management, many forest-dependent communities continue to rely on informal systems to regulate land use, particularly, in upland and forest areas (Vechbanyongratana and Niwatananun 2020).

Social forestry schemes offer one approach for resolving *de jure* and *de facto* tenure conflicts, allowing communities to obtain legal recognition for their forest territories. In Vietnam, the 1993 Land Law granted long-term use rights to individuals and households, transforming previously state-owned land into private holdings. However, the gap between *de jure* and *de facto* tenure persists, with many local communities in rural and mountainous regions still relying on customary practices for land management (Sikor and Nguyen 2007). In Indonesia, this can take the form of partial recognition and designation as community forest, village forest, community plantation forest or partnership schemes; or full recognition as customary forest.

Tenure conditions

We identified three tenure conditions – recognition, conflict and reconciliation – that can arise from *de jure* or *de facto* tenure under various institutional arrangements. These

conditions can be seen as either threats or opportunities when addressing tenure issues and they can also be interconnected. In this context, recognizing community forestry and land tenure rights is likely to reduce conflicts over tenure and resources. Additionally, reconciliation can be achieved by promoting collaboration among stakeholders as a conflict resolution strategy.

Recognition of rights

Tenure rights have long been recognized as a crucial issue in development, conservation and natural resource governance (Larson and Springer 2016). They govern who has the right to use which resources, in what way, for how long, and under what conditions, as well as who has the authority to transfer rights to others, and how (Larson et al. 2012). Tenure rights are often referred to as a ‘bundle of rights’ because they encompass a range of entitlements, including access, use, management, exclusion and transfer of land and resources (Schlager and Ostrom 1992). Different rights within the bundle can be shared, divided or allocated among stakeholders in diverse ways, along with the accompanying obligations and responsibilities.

In some Southeast Asian countries, colonial land policies have shaped tenure systems, establishing patterns of land distribution (Lubis 2013; Quizon 2013) that disrupted traditional land tenure systems and led to unequal land ownership. Despite this, the ancestral customary land rights of Indigenous Peoples who have traditionally managed their lands, have been recognized in some constitutions and land laws. For instance, the 1987 Philippines Constitution recognized Indigenous Peoples’ land rights. Similarly, Indonesia’s 1960 Basic Agrarian Law established that national land law would be based on *adat* (customary law), incorporating *adat* concepts, principles, systems and institutions (Priambodo 2018).

Recognition of customary land rights is often hindered by unclear boundaries and complex governance, exacerbating land conflicts. In the Philippines, land grabbing further complicates the issue. To address this challenge, it is essential to establish clear tenure rights for Indigenous Peoples and local communities, securing

their property rights through formal regulations. Formalizing tenure rights is crucial for smallholders to optimize yields and ensure profitability. Even in countries with slow tenure system reform, policymakers have strengthened state control by nationalizing unregistered customary lands and forests (World Bank 2018). As evident in Vietnam, while land tenure policies are well-defined, their implementation remains a challenge (e.g. Tuan 2023), particularly, regarding peatlands, owing to insufficient research.

Indonesia recognizes customary or communal tenure rights to land and forests. The Constitutional Court's Decision No. 35/PUU-X/2012, issued in May 2013, established that customary forests are collectively owned by customary communities, thereby, removing them from the state forest estate (MoEF 2020; Tamara et al. 2022). Cambodia's 2003 Land Law formally recognizes Indigenous community land rights while Thailand's 2019 Community Forest Act grants communities legal rights to manage and protect local forests. These laws and regulations represent a growing regional trend toward securing community tenure rights, which is essential for promoting sustainable forest governance. Under Indonesia's Social Forestry programme, rights have been transferred to forest-dependent communities through various schemes, including community forestry (*Hutan Kemasyarakatan*), village forest (*Hutan Desa*), community plantation forest (*Hutan Tanaman Rakyat*), partnership forest (*Kemitraan*) and customary forest (*Hutan Adat*), as outlined in Minister of Environment and Forestry Regulation No. 9/2021 (MoEF 2021).

The first four schemes grant usufruct rights to community groups for 35-year periods, renewable upon expiration. In contrast, customary forest schemes grant full ownership rights to recognized customary groups. To participate in social forestry, local communities and customary groups must apply for permits, meeting specific requirements. Notably, customary communities must obtain a subnational government decree recognizing their existence as a customary community to be eligible.

Malaysia has a two-tier land administration system – consisting of the federal government at the first level and state administration at the second – where land matters are primarily under the jurisdiction of the states (Halid and Hassim 2024). Several Malaysian states have gazetted specific villages as Indigenous areas. However, the nomadic lifestyle of some communities means that these areas can change as they relocate. Malaysia recognizes the concept of “wandering area” in certain regions, particularly, within forest reserves. When a state government proposes to de-gazette a forest reserve, it is required to hold a public hearing involving local communities and NGOs. For example, the plan to de-gazette Kuala Langat Utara (North Kuala Langat) in 2020 for commercial forestry and development was cancelled and the forest remains gazetted (Donald 2021), which was achieved through a public hearing process.

Conflict

The current tenure situation in the region is a legacy of centuries of conflicts, marked by both security and insecurity. A significant challenge arises from the discrepancies between *de jure* and *de facto* land ownership status, both within and outside concessions, leading to widespread land

clearing and unsustainable land use. Various tenure conflict typologies exist, involving local communities, companies, governments and other stakeholders. Conflicting claims over forests and land can result from different data sources and competing land-use interests (Larson et al. 2023). These conflicts can arise from overlapping claims over state forests managed by communities. Furthermore, unclear institutional arrangements and inadequate capacity for peatland management have led to tenure conflicts in peatland utilization, primarily owing to insufficient intersectoral coordination and communication between governments and communities (Wicaksono et al. 2019). Further, the conversion of peatlands for plantations and agricultural expansion has led to numerous land tenure conflicts, which have further led to rural and Indigenous communities being displaced, with some even forced to abandon their land owing to the expansion of concession areas (HRW 2021).

In Indonesia, forests and peat swamps have become *de facto* open-access areas, fostering tenure uncertainty and conflicts among multiple stakeholders. This uncertainty, combined with limited access to land and lack of tenure security, contributes to forest and peatland fires (Applegate et al. 2001). Additionally, conflicts have arisen from the construction of drainage canals and transmigration projects, which often disregard existing settlements in project areas. These development programmes have far-reaching impacts on land ownership, tenure systems and community institutional structures (Galudra et al. 2010).

In Malaysia, particularly in Sabah and Sarawak, tenure conflicts often arise between Indigenous communities and commercial interests. Native communities claim traditional ownership of land through customary law while the state has granted concessions to logging, oil palm and other plantation companies. These conflicting land claims have led to legal disputes, protests and even violence. The 2018 Sarawak Land Code (Amendment) Bill aims to address some of these issues by recognizing native customary rights (NCR) although the implementation remains contentious (Ngidang 2005; Colchester and Chao 2013).

The Indonesian government's policy of granting business permits to oil palm and mining companies has created conflicts with communities and changes in land tenure. This policy contradicts the national effort to preserve and protect peat domes from land use, leading to overlapping claims by various stakeholders, including local communities, concessionaires, forest management units and local and central governments. These claims revolve around forest resources and rights, such as ownership, rights to claim or sell carbon credits and requirements for co-investment in emission reduction efforts (Galudra et al. 2010).

In Indonesia, the number of tenure conflicts increased significantly over the last decade, with approximately 4000 reported between 2011 and 2014, with many still unresolved (IDLO 2020). One manifestation of these conflicts is the criminalization of farmers, Indigenous Peoples and activists. Furthermore, concession licences granted by governments to companies frequently have the effect of prohibiting access to rural communities, including women and other marginalized community members, and evicting people from their land (IDLO 2020).

Concessions for forest, oil-palm plantation and mining cover more than 8 million hectares of peatland ecosystems in Indonesia. The expansion of these concession areas has led to widespread displacement, forcing many rural communities to flee their ancestral lands surrounding peatlands (Osawa and Binawan 2023). Although Indonesia's Law No. 18/2013 aims to prevent and eradicate forest destruction, particularly from organized illegal logging activities, its implementation has tended to harm local communities rather than holding companies accountable.

Thailand has also experienced significant land tenure conflicts, particularly in forested areas. Land reforms intended to redistribute land to poor farmers have often excluded Indigenous and forest-dependent communities. Conflicts persist between state agencies, which claim legal ownership of forests, and local communities that rely on these areas for their livelihoods. The 2018 Forest Reclamation Policy further exacerbated these tensions by reclaiming land from small-scale farmers, leading to evictions and protests (Vechbanyongratana and Niwatananun 2020).

In Cambodia, land tenure regimes are highly fragmented between lowland central plains and peripheral uplands (Diepart 2015), creating challenges to accessing land management services. However, under the new government's leadership, accessibility is being improved and the implementation of online registration services is simplifying and streamlining the process for communities to register their land (Sothiny 2025) with the aim of resolving land conflicts.

Conflicts often arise from the designation of forest areas without adequate consideration for local conditions and community participation in designation processes (MoEF 2020). In Indonesia, Presidential Regulation No. 88/2017 provides a legal framework for resolving land tenure conflicts in forest estates, allowing for non-litigious approaches to resolve disputes out of court (MoEF 2019). Vertical conflicts between communities and companies holding forestry and plantation permits often occur as a result of conflicting data and interests. While some deep-rooted conflicts remain unresolved, others have been addressed through reconciliation agreements that foster collaborative relationships between communities and companies (Wehrmann 2008).

Reconciliation

In most Southeast Asian countries, land policy and regulatory frameworks are often used to defend unequal land distribution and tenure insecurity (Hall et al. 2011). To improve governance, local communities should be given access and rights to manage their natural resources. This can be achieved by providing access to forest resources in buffer zones, thereby, enhancing community livelihoods; securing tenure rights through social forestry and customary rights; and preventing further expansion into vulnerable areas by smallholders (Larson et al. 2012). Enhancing transparency over tenure rights and land claims can foster stakeholder engagement and investor confidence in sustainable land-use development and peatland restoration (Payne and Lasseve 2012).

Vietnam's U Minh Ha National Park in Ca Mau Province spans approximately 3000 hectares of peatland, playing a vital role in climate regulation, carbon storage, water provision and climate change mitigation due to its high biodiversity and conservation values. A recent project by The Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) aimed to enhance the management and preservation of U Minh Ha's peatland ecosystem. Through livelihoods and water management initiatives, the project directly aimed to benefit U Minh Ha National Park and residents, while promoting community involvement in peatland protection and forest fire prevention efforts (VNA/VN 2022).

Land use and forest management rights issues have been widespread throughout Indonesia and other countries while legal procedures for resolving conflicts are slow-moving (Hermosilla 2005). Considering the contested legal frameworks, valuation methods are being developed to inventory multiple claims cost-effectively within limited time frames. There have been multistakeholder efforts to gain a better understanding of the complex dynamics and contestation of concurrent and historical rights (Warta Tenure 2009). Tenure security issues may not be easy to deal with but if the rights of land users and owners are clearly defined then various mechanisms can be used to protect those rights. From some official government perspectives, recognition of legal tenure security is still defined, to varying degrees, in terms of statutory guarantees such as individual land titling (Larson et al. 2012).

Over the next decade, social forestry schemes could play a central role in Southeast Asian countries (RECOFTC 2021). These schemes offer potential solutions for reconciliation or conflict resolution, particularly, in addressing escalating tenure conflicts. Rapid economic growth has exacerbated inequality, leaving marginalized communities increasingly vulnerable. To address these challenges, flexible, adaptable and multifunctional approaches to tenure issues are necessary, enabling communities in forestlands to adapt to changing needs and circumstances (RECOFTC 2021). The implementation of social forestry varies by country, resulting in mixed outcomes owing to unique social, economic and political challenges. In Indonesia, the social forestry programme has led to positive results, such as increased forest cover, improved food security and higher incomes. Success factors include a strong regulatory framework, active community participation and support from stakeholders such as provincial governments, a Working Group on Social Forestry, the Ministry of Environment and Forestry, and civil society organizations (Banjade et al. 2016; Siscawati et al. 2017).

Community-based forest management (CBFM) practices offer a promising approach to reconciliation, as demonstrated by CBFM schemes in peatland restoration programmes, which provide alternative incomes for peatland-dependent communities (Nawir et al. 2007). Angelsen and Wunder (2003) highlighted three key benefits of CBFM for poverty alleviation: increased local control over forest benefits; secured land-use rights; and equitable benefit-sharing arrangements. In Thailand, the 2019 Community Forest Act provided legal recognition for communities to manage and protect local forests, showing the effectiveness of such models in forest conservation (Agarwal et al. 2022). Similarly, in Cambodia, the 2003 Land Law also recognized Indigenous community land rights over forests.

Through CBFM, communities can obtain rights to collect non-timber forest products (NTFPs), firewood and timber, with income generated from activities such as tree nurseries, timber harvesting and NTFP collection. Furthermore, CBFM can promote alternative livelihoods, including household energy sources such as biogas generators, which reduce reliance on unsustainable practices (Jewitt 2019). In Malaysia, land conversions for commercial purposes exceeding 20 hectares require an environmental impact assessment to be submitted to the Department of Environment (DOE) for approval as stated in the Environmental Quality (Prescribed Activities) (Environmental Impact Assessment) Order 2015. Specifically, the DOE prohibits the conversion of peatlands, which are classified as environmentally sensitive areas, into commercial land, stipulating that the department will take legal action against landowners for any violations of this policy. This demonstrates, in terms of existing regulations, the importance of protecting peatlands and the recognition of land tenure rights to prevent illegal exploitation. Together, these case studies provide a regional example of how tenure frameworks can support sustainable forest management.

A policy change could lead to uncertainty over land ownership and the authority to allocate ownership; consequently, many claims of illegality have occurred and become a challenge for recognized authorities to provide solutions. This requires approaches that can cover different perspectives and ways to find and implement solutions (Galudra et al. 2010). Reconciliation through negotiation should be allowed to achieve higher-level goals. However, stakeholder legality is sometimes insufficient to effect changes on the ground. Local communities, who have existed for generations, sometimes challenge existing land access regimes to clear land and extract forest resources as forest concessions have done for many years.

Tenure issues in peatlands

Tenure issues in peatlands have gained recognition in Southeast Asian regional documents, including the APMS 2023–2030 and *ASEAN Guidelines on Recognition of Customary Tenure in Forested Landscapes*. These documents emphasize the need to resolve tenurial conflicts and secure the rights of Indigenous Peoples and local communities living in or near peatlands to ensure effective peatland restoration and sustainable management across the region.

Despite this growing recognition, tenure-related challenges, particularly in terms of land ownership, access and resource use, have not been widely addressed in previous Southeast Asian peatland management policies (ASEAN 2021).

Three major issues are crucial for promoting sustainable peatland management in Southeast Asia: management issues; policy and institutional frameworks; and community-based approaches (SMPFSA 2010; ASEAN 2021). Tenure concerns are interconnected with each of these aspects because unresolved land rights often lead to conflicts and unsustainable land-use practices. In Indonesia, which contains 88% of Southeast Asia's peatlands, challenges related to land tenure are prevalent, with competing claims from communities, private entities and the state being common (MoEF 2022).

Management issues

Forest and land tenure pose significant challenges in peatlands. The conversion of these areas for plantations, agriculture and settlements undermines local communities' tenure security. While decision-makers may see peatlands as revenue sources, farmers depend on them for their livelihoods and often resort to unsustainable practices such as burning to clear land for cash crops. Extension agents tend to promote quick solutions, complicating sustainable management. Land conversion leads to conflicting interests among stakeholders and creates tenure issues as more farmers operate on increasingly smaller plots (Sumaryanto and Rusastra 2000).

Human-caused fires pose a serious challenge to peatland management, with fires accelerating peatland deforestation and degradation (Saharjo 2013). Peatlands are targeted for agricultural expansion, resulting in annual fires that contribute to severe air pollution (Gaveau et al. 2014). These fire risks are often linked to unclear land tenure and unsustainable plantation development, with many hotspots found in acacia and rubber concession areas. To mitigate fire risks, peatland management must address different land status conditions and tenure regimes (Prayoto et al. 2020).

In Malaysia, Sarawak's peat-swamp forests are perceived as valuable agricultural resources, particularly because of their location on a flat and accessible coastal plain. They are state-owned lands and are considered more suitable for agriculture compared with hilly areas, which often involves complex land tenure issues. Historically, large-scale logging has depleted valuable timber species since the early 1950s (Sawal 2003; Cole et al. 2021). This utilitarian view of peatlands is reflected in local agricultural practices wherein only specific ethnic groups hold legally recognized rights to land use in the region.

Another issue can be seen in the Ex-Mega Rice Project (EMRP) area in Kalimantan, which faced unclear land ownership and usage owing to government policies (Galudra et al. 2009). According to McCarthy (2013), the EMRP represents a local transformation of peat–forest boundaries that is part of a broader series of changes in land tenure in Indonesia. Overlapping claims exist in the area, with communities claiming customary (*de facto*) ownership rights while ignoring the state's legal (*de jure*) ownership.

Peatland tenure issues have emerged partly due to a lack of understanding about peatland management among decision makers, extension agents and the public. Decision makers often view peatlands solely as economic assets for revenue generation whereas farmers rely on them for subsistence, frequently resorting to unsustainable practices such as burning to clear land for cash crops. Additionally, extension agents may prioritize promoting rapid land-use changes to meet short-term agricultural needs, inadvertently leading to peatland degradation.

Policy and institutional issues

Peatlands are governed under policies related to environmental management, forestry, water resources and fire control (MoEF 2021). In Southeast Asia, land tenure systems are evolving, influenced by new international regulations, historical contexts and human rights concerns (Payne and

Lasserve 2012). Land policy aims to protect individual land rights and clarify responsibilities. However, endogenous forces – such as population growth, industrialization and urbanization, and accelerated resource exploitation – can act as drivers that sharpen and transform tenure systems. Additionally, external forces such as colonial legal legacies, internationally harmonized statutory laws, and global agreements on environmental protection and Indigenous Peoples' and local communities' rights, also impact land tenure systems (UN-Habitat 2014). In Indonesia, the National Peatland Ecosystem Protection and Management Plan (RPPEG) has become a new milestone in addressing peatland governance issues, including land tenure. The decree outlines strategies for sustainable peatland use, degradation control, and climate change mitigation and adaptation. The RPPEG also has served as a reference for long- and medium-term development, and spatial and forestry plans (MoEF 2022). Similarly, Malaysia has established laws and regulations to ensure the sustainable management of peatlands, focusing on preventing peat fires and protecting biodiversity (Ministry of Natural Resources and Environment 2011).

Regulatory frameworks provide the legal basis for land management institutions and define rules for land titling and registration, ensuring property rights systems function effectively. For land registration and certification, a registration system should ensure transactions involving land parcels are legally documented and have priority over unregistered transactions. Land-use arrangements are usually justified by the need to protect the public interest. However, despite a legitimate public interest in accessing land and natural resources, tenure arrangements and land-use systems can sometimes lead to unfair outcomes (FAO 2007). In peatland management, addressing tenure issues requires the involvement of all stakeholders, including government entities, local communities and private companies (FAO 2022). Additionally, increasing public awareness and knowledge, educating small businesses and communities, and supporting community development can help reduce tenure conflicts. Transparency and stakeholder participation in peatland governance support informed decisions on land use, strengthen land rights and prevent unfair tenure arrangements, ultimately reducing carbon emissions and avoiding land-use incentives (FAO 2007).

Tenure insecurity can pose a serious problem when conflict arises without reconciliation or win-win solutions. Such conflicts can result from uncertainty over land rights and ownership. Communities that rely on customary practices for land use and access may find their rights unrecognized by the government (FAO 2007). Secure land and property rights are crucial for reducing poverty and fostering economic development, gender equality, social stability and the sustainable use of resources. Poor land management can lead to problems such as land disputes, land degradation and reduced opportunities for socioeconomic development. There are several mechanisms to enhance tenure security. As mentioned above, social forestry schemes can grant communities partial or full rights to manage surrounding forest resources, a practice also observed in several Southeast Asian countries outside of Indonesia. Additionally, long-term land leases and formal recognition of customary rights and informal settlements are effective approaches for strengthening community tenure security (FAO 2007).

Different types of land tenure exist along a spectrum. Each type gives different rights, security and responsibilities. This range is shown in frameworks such as the Voluntary Guidelines on the Responsible Governance of Tenure of Land, Fisheries, and Forests by the FAO, which provides a comprehensive view of the various tenure systems. (FAO 2012). A robust policy framework is essential for the effective operation of a property rights system and for establishing a legal basis for land management institutions, such as land certification. Tenure reform policies must ensure tenure security and clarity of rights, with compensation for communities that lose their rights. Clearly defining the boundaries of protected forest areas is also important. Despite many countries restructuring their land rights frameworks, land tenure insecurity remains a significant problem.

Community-based issues

Tenure issues in peatlands can affect the income and livelihoods of nearby communities, as many have relied on peatlands for various economic activities for generations (Adriani et al. 2024). Many individuals have managed their peatland areas for years whether through inheritance, purchasing (with land certificates) or by clearing for farming. However, governments have allocated many of these areas in production forests to concession companies (Ramankutty et al. 2018; Mizuno et al. 2021). This situation underscores the insecurity surrounding peatland tenure.

Many community members and outsiders compete for access to peat-swamp state forest for activities such as fishing, extraction of timber and NTFPs, and agriculture. Peat swamps are also viewed as potential areas for agricultural expansion. In Indonesia, large-scale investments and projects have created ongoing uncertainty about local communities' access rights despite the Regional Autonomy Law (Law No. 23/2014). Despite decentralization efforts, local communities still face limited access to peatlands and derive few benefits from these resources. The state, companies and external actors frequently utilize these areas for large-scale plantations, settlements or cultivation. This ongoing tenurial uncertainty highlights persistent structural inequalities in income and land access in rural areas (Utoyo 2012).

Conclusion and the way forward

To manage Southeast Asia's peatland forests sustainably it will be necessary to address three main types of issues – policy and institutional; community-based; and management – with each relating to tenure and rights. Achieving sustainable peatland management will depend on regulatory conditions and clear tenure in peatland areas. Addressing tenure security issues could involve recognizing community land rights, resolving conflicts between different stakeholders and finding reconciliation for win-win solutions. Clear and enforceable legislation on land ownership and customary tenure rights is crucial for effective peatland management. Historical and cultural factors have long shaped both customary (*de facto*) and legal (*de jure*) rights, influencing social relations within communities. Strengthening and enforcing communities' tenure rights is essential for reducing conflicts over land and natural resources in peatland forests.

Land tenure security has significant implications for livelihoods, development and land degradation. Tenure security plays a crucial role in fostering inclusive investment in land, agricultural production, sustainable natural resource management and the move toward a market economy. Various land ownership systems offer both advantages and disadvantages. To understand how decisions about land and natural resources are made, implemented and enforced in both formal and informal settings it is essential to evaluate inclusive and sustainable land governance holistically. Governments, as policymakers, are responsible for protecting land and ensuring its sustainable management through land tenure systems.

As a way forward, below are some considerations for managing tenure issues in peatland management.

- Support legal recognition for communities, for example, through social forestry schemes or community-based peatland management, and consider improving the overall tenure framework to reduce conflicts and provide more security for communities living in and adjacent to peatland areas.
- Conduct stakeholder engagement programmes to update legislation governing peatlands and coordinate with related stakeholders to enforce legislation appropriately.
- Carry out capacity development for communities to manage peatland areas according to traditional practices and state law and to manage conflicts, develop partnerships and collaborate with various stakeholders.
- Develop social safeguards that capture historical perspectives and acknowledge perceived injustices to Indigenous Peoples and local communities and apply free, prior and informed consent (FPIC) to multiple stakeholders (government, private sector, migrants and Indigenous/customary communities) during the collaboration process, as they determine land-use systems and rights to forests.
- Conduct further research to assess various land tenure reforms and community–peatland interactions, identifying innovative methods for improving peatland management. Due to the scarcity of scientific literature in this area, studies are needed to address existing knowledge gaps and provide evidence-based insights, ultimately, supporting more effective and sustainable land governance amidst evolving regional developments.

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