

# SOCIAL FORESTRY IN DERAMAKOT FOREST RESERVE AND ITS SOCIAL IMPACT ASSESSMENT

Ricky Alisky Martin<sup>1</sup>, Johnny Kissing<sup>1</sup>, Elna Betrece Johnlee<sup>1</sup>,  
Mohd. Freezailah Tarmiji<sup>1</sup>, Dr Gaim James Lunkapis<sup>2</sup>

<sup>1</sup>Sabah Forestry Department, Locked Bag 68, 90009 Sandakan

<sup>2</sup>Universiti Malaysia Sabah, UMS Rd., 88400 Kota Kinabalu

Author for correspondence: [RickyAlisky.Martin@sabah.gov.my](mailto:RickyAlisky.Martin@sabah.gov.my)

## ABSTRACT

Sustainable Forest Management is crucial for maintaining healthy, productive forests that provide environmental, social, and economic benefits for present and future generations. It involves managing forests in a way that balances the needs of local communities, the economy, and the environment, while ensuring the long-term viability of forest ecosystems. Deramakot Forest Reserve (DFR) is an example of a well-managed forest that demonstrates the benefits of sustainable forestry, as it has maintained its biodiversity and ecological integrity while providing resources for local communities. A Social Impact Assessment (SIA) was conducted at DFR to identify local communities and other stakeholders that are directly affected by the DFR forestry operations, to assess the social impacts on individuals, groups, and communities as a result of changes arising from forestry operations in DFR and to recommend mitigating measures for identified impacts. The research methods consisted of three major stages including grounding the issues (literature review), capturing the realities by fieldwork (focus group discussion and interview) and conceptualizing and visualizing the findings into context and perspective, by analysing the primary and secondary data. Through a thematic analysis, eight keyword themes were identified to represent concerns and factors affecting local communities at DFR including demography and community, socioeconomic, culture and *adat*, heritage and landmarks, infrastructures, livelihood options, tourism potentials and access and services. The findings show a comprehensive understanding of each village's unique characteristics and potential areas of impact, the strengths and challenges faced by each community, and all relevant aspects of the village life allowing for a holistic assessment that can inform targeted interventions and policy making.

**Keywords:** *Social Forestry, Sustainable Forest Management, Deramakot Forest Reserve, Social Impact Assessment, Thematic Analysis, Focus Group Discussion.*

## 1.0 INTRODUCTION

The Sabah Forestry Department (SFD) stands pivotal in preserving and managing the region's rich natural resources. Established in response to increased environmental awareness, the Forest Enactment 1968 and the accompanying Forest Rules 1969 represent important legislative achievements for Sustainable Forest Management (SFM). Based on these law and regulation, the SFD is empowered to regulate, protect, and control the use of forest resources, balancing economic development with ecological preservation. One of the instruments to control forest operations in Sabah is through the Forest Management Unit (FMU) system. Currently, there are 43 SFM Licensed Areas, spread across 27 Sabah FMUs, and managed in different capacities. Deramakot Forest Reserve (DFR) is one of these SFM areas, directly managed by SFD and renowned worldwide for its best SFM practices.

A key component of SFM's success in DFR has been the integration of social forestry since 2000, which has contributed to environmental conservation and particularly to the socio-economic development of adjacent local communities. With support from internal and external funding sources, such as the Malaysia Plan and the Sabah-EU REDD+ initiative, Deramakot stands as a model for sustainable forestry that empowers and engages local communities. The establishment of social forestry in Deramakot led to a significant reduction in illegal logging. In the early stages, villagers are educated about conservation principles and offered jobs in activities such as boundary clearing, tree maintenance, and forest restoration (Figure 1). This provides considerable economic benefits while developing a strong sense of ownership among local communities over the forest.



Villagers planting tree seedlings in a forest restoration compartment.

Villagers tasked and paid to assist in boundary cleaning and planting.



Figure 1. Villagers involved in forest restoration and boundary cleaning/planting..

Social Impact Assessment (SIA) serves as an important tool to assess and mitigate the potential social impact of forestry activities on local communities and stakeholders. By conducting a comprehensive SIA process, SFD can proactively identify and address social concerns, such as livelihood displacement, cultural heritage preservation, and community empowerment, thereby fostering SFM practices that prioritize the well-being of all stakeholders involved. Through FMU implementation and adherence to Forest Stewardship Council (FSC) principles, SFD can effectively achieve its vision of a healthy forest that meets ecological and socio-economic needs, while safeguarding the interests of local communities for future generations. Key components of SIA include identifying stakeholders, assessing potential social risks and benefits, and proposing mitigation measures to address adverse impacts. Through extensive consultation, and participation of affected communities, experts analyse various social aspects such as access to resources, preservation of cultural heritage, displacement risks and economic opportunities, so it can be properly addressed. Additionally, SIA serves as a tool for informed decision-making, enabling authorities to balance development goals with social considerations, thereby fostering inclusive and responsible development practices. By integrating social factors into the planning process, SIA upholds the constitutional principles of social justice and ensures that development initiatives promote the well-being and dignity of the local communities.

DFR requires a comprehensive SIA to assess the impact of forest operations on local communities and their well-being. This need arises from the critical role of forests in the socioeconomic and cultural fabric of neighbouring villages, which requires a comprehensive understanding of how logging, conservation and other forest management activities impact livelihoods, cultural practices, and community health. The context of this study is in line with state legislation, state and national policies that focus on SIA and community welfare, such as the National Policy on Biological Diversity (2022-2030) and the Sabah Forest Policy 2018, which emphasize SFM and the protection of indigenous rights and community interests. Conducting the SIA for DFR ensures that forest operations are ecologically sustainable and socially equitable, adhering to policy mandates that support integrating environmental stewardship with the socio-economic upliftment of affected communities.

## **2.0 METHODOLOGY**

### **2.1 Study Site**

Figure 2 shows the location map of Deramakot Forest Reserve. There are six villages located adjacent to the DFR, all located in the southern part of the reserve (Figure 3). Among them, three villages are located around the mouth of Kuamut River, namely Kg. Kuala Kuamut, Kg. Kuamut Tengah and Kg. Tungkuyan. To the west, Kg. Desa Permai and Kg. Tulang-Tulang is located along the Milian River, while Kg. Balat alongside Kinabatangan River. All these villages are located on Stateland, outside the DFR. Unlike others, Kg. Balat, Kg. Desa Permai and Kg. Tulang Tulang shares a border with DFR.

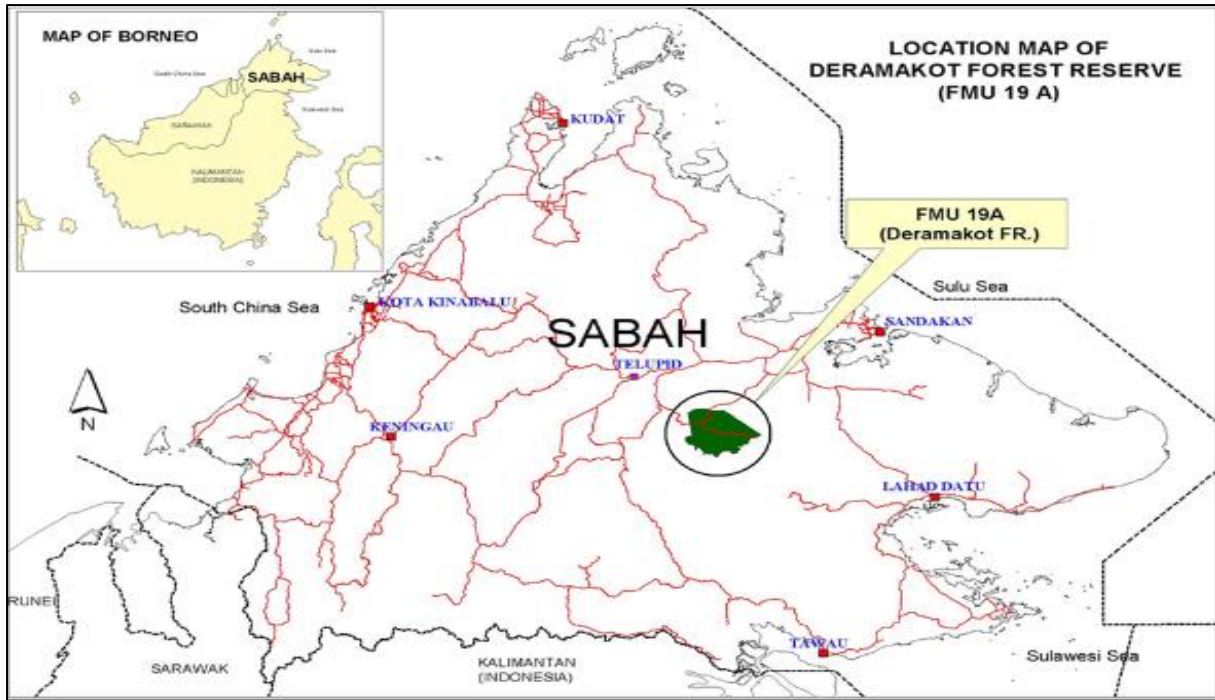


Figure 2. Location map of Deramakot Forest Reserve

Local communities in these villages function as important components of the surrounding ecosystem, each with their own cultural heritage, socio-economic dynamics and relationship with the forest. Understanding their spatial distribution and geographic characteristics is essential to understanding the interactions between local communities and the natural environment. Realizing their proximity to the DFR and major water bodies such as the Kuamut, Milian, and Kinabatangan rivers underscores their dependence on these aquatic and forest resources for sustenance and livelihood.

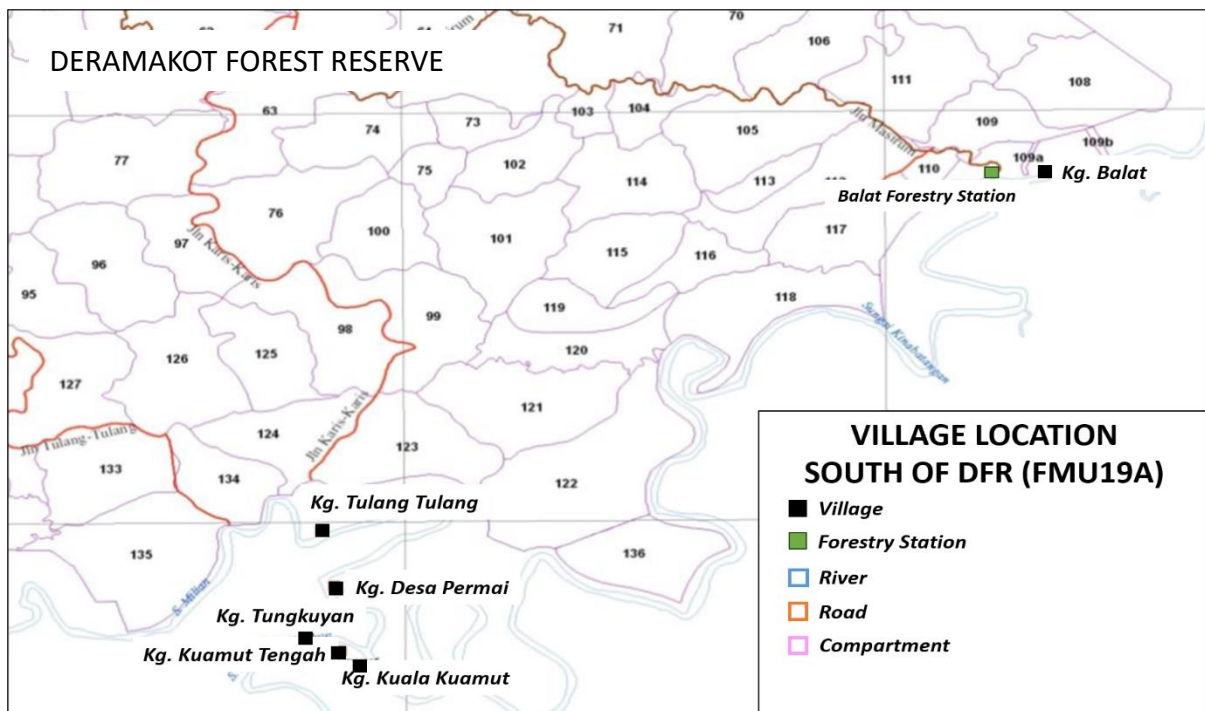


Figure 3. Location of villages south of DFR.

## 2.2 Method

The methodology is qualitative in nature, drawing from an array of secondary and primary sources. A substantial accumulation of existing data, particularly concerning the six villages in the southern region of DFR, formed the basis for secondary research. This data was verified through consultations with pertinent sectors, agencies, and fieldwork expeditions. Employing thematic analysis to find the most common denominators of impacts was evaluated using a severity index matrix (Si).

Historical data from previous DFR Forest Management Plans was vital in assessing both long and short-term ramifications, corroborated through ground surveys, interviews, group discussions, and workshops. The utilization of the Rapid Social Impact Assessment Matrix facilitated the analysis of these data, essential for effective management strategies. The research methods consisted of three major stages: 1) grounding the issues (literature review), 2) capturing the realities by working on the ground (fieldwork), and 3) conceptualizing and visualizing the findings into context and perspective, by analysing the primary and secondary data. Furthermore, the zone of influence was also identified and analysed and is crucial for understanding the scope and magnitude of potential social impacts associated with the project and informing decision-making processes.



Figure 4. The SIA Team gathered from several government, academia, NGO, and private sectors.



One of the *Focus Group Discussion* groups being interviewed. *Village Walk* with the villagers to observe and discuss on SIA.

Figure 5. Some of SIA methods in operation.

### 3.0 RESULTS AND DISCUSSION

#### 3.1 Impacts of forest operations on local communities

The findings indicated that the southern part of DFR may have impact on the 6 identified settlements and communities in the vicinity of Deramakot Forest Reserve. They are basically self-sustained communities consisting of mostly Native ethnic Sungai communities. Most of these Native communities have vast knowledge about forest and non-forest resources in the area. The villages are located at the southern boundary of DFR. Most villages are located not far from the mouth of the Kuamut River namely the Kg. Kuala Kuamut, Kg. Kuamut Tengah and Kg. Tungkuyan, Kg. Desa Permai and Kg. Tulang-Tulang. However, Kg. Balat is further away on the southern part of DFR the near Balat Forestry Station. All villages are confirmed to be located outside the gazetted boundaries of DFR. It was noted during the field visit that Kg. Balat, Kg. Desa Permai and Kg. Tulang-Tulang are situated closer to DFR boundaries.

The process of data capture and impact assessment for the six villages has provided a comprehensive understanding of each village's unique characteristics and potential areas of impact. By systematically collecting and analysing data across the eight thematic areas - Demography and Community, Socioeconomic, Culture and Adat, Heritage and Landmarks, Infrastructures, Livelihood Options, Nature Based Recreation Potential, and Access and Services, the team have been able to construct detailed village profiles that highlight both the strengths and challenges faced by each community. This multi-faceted approach ensures that all relevant aspects of village life are considered, allowing for a holistic assessment that can inform targeted interventions and policy-making. Each theme played a crucial role in shaping the village profiles. Demography and Community provided insights into population dynamics and social structures, while Socioeconomic data illuminated income levels, employment patterns, and economic activities. Culture and Adat captured traditional practices and local customs, essential for preserving cultural identity. Heritage and Landmarks identified significant historical and cultural sites,

contributing to community pride and Nature Based Recreation potential. Infrastructures assessed the availability and condition of essential facilities and services, influencing overall quality of life.

Livelihood Options explored the diversity of economic activities and potential for new income sources. Nature Based Recreation Potential evaluated the attractiveness of each village for visitors, considering natural and cultural assets. Lastly, Access and Services examined the connectivity and availability of essential services, critical for both daily life and development opportunities. Together, these themes provided a robust framework for understanding the complex interplay of factors that shape village life and development.

### **3.2 Issues and Challenges in Social Forestry in Deramakot**

Deramakot Forest Reserve in Sabah, Malaysia, stands as a global model for SFM. Its social forestry program has been central to this success, involving local communities in forest conservation while simultaneously improving their livelihoods. However, despite its many achievements, the social forestry model in Deramakot faces several critical issues and challenges that need to be addressed to ensure long-term sustainability for both the forest ecosystem and the local communities.

#### ***Illegal Logging and Limited Technical Knowledge***

One of the persistent issues in Deramakot is illegal logging, or in this case, it is called 'cultural harvesting'. It is where perpetrators felled trees along the riverine and took them out during flooding to nearby sawmill or any log buyer to be sold off or for self-usage to build or repair a house. While there has been a significant reduction in illegal logging due to the involvement of local communities in forestry activities, it remains a threat to the sustainability of the forest. Some individuals, driven by immediate financial needs, continue to engage in illegal timber harvesting, which undermines conservation efforts. Strengthening community-based patrols can help mitigate this issue, but there is also a need to integrate advanced technology into monitoring systems. Drones and mobile applications for real-time forest monitoring can help detect illegal activities quickly and deter further violations.

A related challenge is the limited technical knowledge within local communities. Many of the villagers involved in social forestry lack the skills needed for advanced forest management practices. This gap in understanding can result in inefficient forest use and hinder the adoption of more sustainable techniques. To address this, continuous training programs are essential. These programs should focus on teaching sustainable forest practices, conservation techniques, and the use of modern technologies in forest management. Building technical capacity within the community will empower local people to take a more active role in preserving their natural resources.

#### ***Funding Constraints and Livelihood Dependency***

Another critical issue is the instability of long-term funding. Although the government and some others has provided essential financial support for the community

development and conservation efforts in Deramakot, this funding is not guaranteed to continue indefinitely. The long-term success of social forestry in Deramakot depends on the consistent availability of financial resources. Without sustainable funding, many of the community-driven projects and conservation efforts could face setbacks. To address this, Deramakot needs to diversify its sources of revenue. One promising avenue is the development of nature recreation. The reserve's rich biodiversity and successful forest management practices could attract visitors interested in eco-friendly tourism, generating income for both the community and forest management.

Similarly, agroforestry, which combines agricultural activities with sustainable forestry, can provide alternative livelihoods for the communities, reducing their dependency on timber extraction. Exploring participation in carbon trading schemes is another option that could generate long-term financial support while aligning with global efforts to reduce carbon emissions. Additionally, the reliance on forest resources by the local population is a challenge that must be addressed. While forest resources provide essential livelihoods, over-reliance risks overexploitation, which could degrade the forest ecosystem. Encouraging the cultivation of non-timber forest products (NTFPs) such as medicinal plants, rattan, or honey can offer alternative income streams. These products can be harvested sustainably without threatening the health of the forest, thereby reducing the community's dependence on timber and preventing deforestation.

### ***Infrastructure Limitations: Roads and Water Supply***

Infrastructure limitations, particularly the lack of adequate road access and water supply, pose significant challenges to the implementation of social forestry initiatives. Many of the communities involved in forest management are in remote areas with poor road access. This isolation not only makes it difficult for communities to engage with markets but also hinders the efficient transportation of goods, limiting the economic potential of eco-tourism and agroforestry. Improving road infrastructure would allow communities to access broader markets, increasing their economic opportunities while reducing their dependence on unsustainable forest activities. In addition to roads, the lack of reliable water supply creates challenges for both daily life and agricultural activities. Implementing sustainable water systems extensively to all villagers, such as gravity-fed water pipes, would improve daily water needs and agricultural productivity, and may reduce the need to rely on forest resources for survival.

### ***Human-Wildlife Conflicts***

Deramakot is home to a variety of wildlife species, and human-wildlife conflicts present an ongoing challenge. As local communities expand their agricultural activities, wildlife encroachment on farmlands becomes a more significant problem. Crops are often damaged or destroyed by wild animals, which disrupts the livelihoods of farmers and creates tension between conservation efforts and community interests. The AKI Kuamut initiative, which aims to mitigate human-wildlife conflicts on pygmy elephants, is a step in the right direction, but more needs to be done. Expanding this initiative, coupled with strategies such as creating wildlife corridors and using non-lethal deterrents to protect crops, can help reduce these



conflicts. Educating local communities on wildlife behaviour and engaging them in wildlife monitoring could also foster better understanding and coexistence with the animals in their surroundings.

### ***Community Engagement and Modern Technology Integration***

One of the ongoing challenges in social forestry is maintaining long-term community engagement. Although local communities have been involved in forest management through the Free, Prior and Informed Consent (FPIC) process, ensuring consistent participation over the long term is difficult. Economic pressures, social changes, and limited incentives can erode community involvement over time. To sustain engagement, improving communication and providing incentives that make conservation an attractive and beneficial activity for communities is crucial. Profit-sharing mechanisms, such as the distribution of income from cooperative projects at year-end, can provide financial motivation. Furthermore, involving community members in the decision-making process and rewarding active participants can foster a deeper sense of ownership and commitment to forest conservation. Lastly, the integration of modern technology into forest management is essential for improving monitoring and ensuring sustainability. However, the challenge lies in providing adequate training to community members on the use of advanced tools such as drones, remote sensing, and forest management software. By focusing on building the technical capacity of the local population, Deramakot can modernise its forest management practices.

### **3.3 Recommendations**

Looking ahead, several strategies can further enhance the success of social forestry in Deramakot as stated in Table 1.

Table 1 Strategies to enhance success of social forestry in Deramakot.

Recommendations	Description
Diversifying Livelihood Opportunities	Introducing eco-tourism, agroforestry, or sustainable small-scale industries (e.g., bamboo crafts, medicinal plant processing) to provide additional income streams and reduce dependency on forest resources.
Capacity Building and Education	Offering continuous education and training programs on sustainable forestry practices, wildlife monitoring, and business development for managing eco-friendly enterprises.
Improved Human-Wildlife Conflict Management	Expanding strategies for human-wildlife conflict management, such as non-lethal deterrents and wildlife corridors, to improve coexistence between communities and wildlife.
Adoption of Modern Technology	Introducing drones, remote sensing, and mobile apps for forest monitoring, with training for the community to

	enhance their role in forest management and illegal logging detection.
Community-led Conservation Projects	Encouraging community-led projects like habitat restoration and species monitoring, empowering locals to take leadership in conservation efforts.

By implementing these future strategies, Deramakot can further strengthen its model of sustainable forest management, ensuring continued benefits for both the forest and the local communities. Through these combined efforts, Deramakot will remain a global leader in harmonizing environmental conservation and socio-economic development.

#### 4.0 CONCLUSION

Today, we learn about the background and progress of social forestry in the Deramakot Forest Reserve and how the Social Impact Assessment evaluated the impact of DFR's forestry activities on the local community. However, there are several important points to highlight as lessons learned about social forestry from Deramakot, viz:

- a) The establishment of the DFR Social Forestry Committee provides a platform for the local community to voice their grievances to the DFR management, and to be solved amicably. Similar committee is recommended to be set up in other SFMLAs with community inside/adjacent to forest reserve.
- b) Various forestry & CSR activities can be done by DFR Management and other Private and NGOs to the communities. Let DFR have sufficient and continuous budget to assist the local communities in social forestry activities while protecting the forest reserve.
- c) SIA resulted that the most important aspect for the Balat and Kuamut local communities to develop and brought to the main stream of government development is to fully construct the existing but very bad quality soil road from Balat to Kuamut. The road connection is a must, for the 6 villages to have cheaper transportation cost, either to market their farm or any products, to deal with various village/personal administrative or requirement, and so on.
- d) SIA must be conducted by accredited professionals to acquire appropriate results which is beneficial for the management planning of any forest areas which has an influence to local communities. SIA should also help to answer various questions inquired during forest auditing for forest certification.

## REFERENCES

- Buscher, M. & Urry, J. (2009). Mobile Methods and the Empirical. *European Journal of Social Theory*, 12(1), 99-116. doi:10.1177/1368431008099642
- Forest Stewardship Council. (2022). The FSC National Forest Stewardship Standard of Malaysia.
- Forest Stewardship Council. (2023). FSC Principles and Criteria for Forest Stewardship, Bonn, Germany.
- Government of Sabah. (1968). Forest Enactment 1968 (pp. 37). Kota Kinabalu: Government Printing.
- Government of Sabah. (2002). Town and Country Planning Ordinance 1950 (pp. 1-50). Kota Kinabalu: Government Printing.
- Government of Sabah. (2003). Handbook on EIA in Sabah (Second Edition). In D. o. E. Conservation (Ed.). Kota Kinabalu: Department of Environmental Conservation.
- Howitt, R. & Lunkapis, G. J. (2010). Coexistence: Planning and the Challenge of Indigenous Rights. In J. Hillier & P. Healey (Eds.), *The Ashgate Research Companion to Planning Theory: Conceptual Challenges for Spatial Planning* (pp. 109-133). Surrey, UK: Ashgate, Gower and Lund Humphries.
- IFC. (2012). IFC Performance Standards on Environmental and Social Sustainability. Washington, DC: World Bank Group.
- Institute of Tropical Forestry and Forest Products. (2012). Guidelines and Procedures for Social Impact Assessment and Monitoring of Forest Management Operations (Peninsular Malaysia) (pp. 33): Universiti Putra Malaysia.
- Kollert, W. & Lagan, P. (2007). Do certified tropical logs fetch a market premium? A comparative price analysis from Sabah, Malaysia. *Forest Policy and Economics*, 9(7), 862-868.
- Lunkapis, G. J. (2010). Land Use and Natural Resources (LUNaR) Governance: A Case Study of Sabah, Malaysia. Macquarie University, Sydney.
- Malaysian Timber Certification Council. (2020). Malaysian Criteria and Indicators for Sustainable Forest Management. [www.mtcc.com.my](http://www.mtcc.com.my)