

CAN FOREST CONSERVATION AND LOGGING ACTIVITIES BE RECONCILED FOR SUSTAINABLE FUTURE? A CASE OF DERAMAKOT FOREST RESERVE IN BORNEO

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ABSTRACT

Sabah has a long history in the timber industry. While no doubt that logging is a significant source for local economies, it can also contribute to deforestation and forest degradation. Due to the critical importance of timber to human society has led to active logging activities that fail to consider the long-term impact on the forest ecosystems and all who depend on them. The forest in Sabah was fast depleting and the only option was to manage it sustainably or risk losing this economic resource. Because of this, Deramakot Forest Reserve was chosen for sustainable forest management by the Forest Department in Sabah with technical help from the German Agency for Technical Cooperation (GTZ). This paper identifies the success of Deramakot Forest Reserve in becoming the first and longest tropical rainforest in the world to receive the Forest Stewardship Council (FSC) gold standard in forest management, how their Forest Management Plan (FMP) has to produce ecologically sustainable timber and taking into consideration the needs of indigenous people who live within the area and today is one of the most diverse wildlife sanctuaries in world.

Keywords: conservation; sustainability; forest management; Deramakot; eco-tourism; logging

INTRODUCTION

Can logging activities ensure the prospect of the world's tropical forests and sustaining the richness of diversity of plants and animals? In the past, this idea would always catch arguments between the 'loggers' who seen as the main actor in deforestation while the conservationist who were branded as ignorant idealists for jeopardizing the economy as well as shutting off job opportunities to the local. Fortunately, these views are changing now and more people are finding outcomes that offer real improvements for conservation and seek to harvest in an ecologically-friendly and appropriate way.

The forest in Borneo, particularly in Sabah that located in the northern part of the island, is home to the world's oldest tropical rainforest. It is also abundant in biodiversity compared to many other areas, which include 15,000 types of flowering plants, 3,000 types of trees, 221 types of mammals, and 420 types of resident birds in Borneo (WWF,2018). Moreover, it is also the solitary natural habitat for the highly endangered Orang Utan and many of the endemic forest genus like the Pygmy Elephant, Sumatran Rhinoceros and Clouded Leopard.

Logging in Sabah

The logging had started in Sabah as early as 1879. During that time, it was concentrated on lowland areas, with production methods limited to individuals or animal energy and traditional equipment (Forestry Department Sabah, 1995). However, the starting of more mechanized equipment in 1962 has given a new revolution to the logging scenario in Sabah, which had seen an upsurge of timber production, the logging industry becoming intensified and massively growth to be the second biggest export commodity after tobacco.

Sadly, the high production number surpassing the revival capacity of the forest, worse by the damaging conventional harvesting practices and has caused in lessened production capacity of the remaining forest stands (Kleine & Heuveltop, 1993). Sabah State Government recognized that the forest in Sabah was fast depleting, and the only option that they had was to manage its forests sustainably or risking the loss of their state's biggest asset forever.

The situation goes along with the increase of the world's community awareness on the damage to the environment and logging tropical forests back in the 1990s. This has led to the point that most of the big players in the world boycotting tropical forest products (Forestry Department Sabah, 1995). Thus, during the Rio World Earth Summit held in 1992, the world front-runners positively corresponded and pronounced their commitment for a Sustainable Development Agenda to safeguard appropriate social-economic progress and that the environment is given proper attention in the growth processes. Consequently, the world leaders agreed to give their consent on logging in the tropical forest, nevertheless with a stringent enforcement condition in practicing sustainable forest management (Mannan, Awang, Radin, Abi, Lagan, 2002). Malaysia also part of the countersigner to the International Tropical Timber Organization to denote their obligation to the balanced forest management and the State Forest Policy was rationalized with the National Forest Policy to apply efficient plan to ensure the forestry position as one important stake in Sabah's economy while protecting its environment as well as the state's rich biological resources (Lagan, Mannan & Matsubayashi, 2006). The Forestry Department was in charge of coming up with the appropriate approach and execute it to achieve the target of having sustainable forest management in their permanent forest reserves. Thus, Deramakot Forest Reserve was selected as the experiment ground to implement the model of sustainable forest management that would be practiced to more forest reserves in Sabah.

DERAMAKOT FOREST RESERVE

Deramakot Forest Reserve is situated in the region of Sandakan, about 3 hours flight from Kuala Lumpur, the capital city of Malaysia. Getting to the forest reserve was a challenge in itself as one need to taking up to six hours, preferably using 4WD vehicles as the dirt roads were inaccessible during the wet season. The forest reserve involves a single connecting zone of 55 083 hectares of forest (Mohamed, Sollmann, Bernard, Ambu, Lagan, Mannan, Hofer & Wilting, 2013) and a Class II forest reserve (commercial forest reserve) operated as part of the Permanent Forest Estate by the Sabah Forestry Department.

The Deramakot Sustainable Forest Management project begins in 1989 with the assistance of the German Government via Deutsche Gesellschaft für Technische Zusammenarbeit (GTZ) financially and technically. The idea was to build up an ideal sustainable forest management model that would focus especially on timber sustainability (Forestry Department Sabah (2005). At the same time, the model should also be able to take into consideration the local communities who are living in close vicinity to forests and utilizing it for their subsistence needs. Apart from the ability to provide clean water, the forest also expected to provide non-timber forest products as well as important materials for buildings, tools including medicinal plants for cash incomes to the communities (Mohamed et al., 2013; Mannan et al., 2002).

Sustainable Forest Management Model

About the Deramakot website (www.deramakot.sabah.gov.my), the model went into three phases, which started with the implementation of training programs encouraging resource-compatible logging techniques. These training programs involve everyone in the entire forestry process, together with those decision-makers. Then followed by the next phase that introducing compulsory standards and benchmarks in timber harvesting by including the required standards in all contracts signed with concessionaires. This phase comes with expected long term work, where the high need of intensive national and international marketing efforts to educate and monetize the value of sustainably harvested forest products, which the prices should reflect the effort and costs that went into sustainable forest management (Kissing. J, personal communication, July 10, 2018).

According to Lagan et al. (2006), managing Deramakot Forest Reserve can be considered as the most crucial part of making Deramakot a success in becoming a sustainable forest. Moreover, the management work needs to be carefully done in line with the standard set for sustainable management in the tropical and ecological forest. It was stated that (1) not more than 20,000 m³ are to be harvested each year (the annual allowable cut), while (2) 1,000 ha must be civilculturally trimmed, (3) 200 ha to be transferred out on degraded sites as part of the rehabilitation planting plans, (4) harvesting should adhere reduced-impact logging guidelines, (5) ongoing research and development (6) include eco-tourism in the plan implementation (Lagan et al., 2006).

Today we saw research and reports published had proven that efficiency and quality of forest management depended greatly on the quality of timber harvesting operation. It came in a time where the global community demanded that logging in tropical rainforests should be allowed only if these forests were managed and used sustainably (Varangis, Crossley & Braga, 1995; Havelund & Saharudin, 1999; Huth & Ditzer, 2004). The situation also had grown so well that right after the Earth Summit in Rio de Janeiro, Brazil back in 1992 where world leaders were agreed to put forward a Sustainable Development Agenda to guide socio-economic development and help safeguard the environment show an apparent shift in timber-buyers awareness on the impact of logging to rainforests and biodiversity and subsequently had begun to support the movement by only demand for sustainable timber-harvesting.

DERAMAKOT ACHIEVEMENTS

Currently, the supervision practice of the Forest Reserve in Deramakot conforms to the Forest Stewardship Council (FSC) standard, which was known to be the most rigorous requirements

to achieve the status of sustainable forest management. The practices were audited by firms accredited with the FSC to be able to issue the FSC-certificate and Deramakot has successfully earned the title since July 1997 (Forestry Department Sabah, 2005). Moreover, the organization practice also conforms to the International Tropical Timber Organisation (ITTO) guidelines and with Malaysia's National Standard, the Malaysian Criteria and Indicator (Trockenbrodt, Imiyabir & Josue, 2002).

Deramakot Forest Reserve also proudly showed to the world that they had succeeded in becoming the first natural tropical rainforest in the world to be certified as "well-managed" by the Forest Stewardship Council. To add to the success story, this 55,507 hectares' forest has also gotten the unusual honour for being the longest certified rainforest in the world by the Forest Stewardship Council (FSC), which mentioned earlier since July 1997. The current certification was awarded since 2014 and will be valid until 2019. (www.forest.sabah.gov.my).

This success has not only giving a good reputation for the practices in Sabah Forestry but also becoming a promotional instrument in injecting the idea of sustainable forest management towards policymakers and political leaders alike. Apart from presenting the various aspects of good forest management in practice, Deramakot also served as an important conservation and education tool in changing the public perception of forest management in Sabah and Malaysia generally. According to Mannan et al. (2002), Kissing, J, personal communication, (July 10, 2018), since gaining recognition and certification from a high prestige bodies like FSC as a well-managed forest, Deramakot Forest Reserve and Sabah Forestry has frequently chosen to be the host for educational visits from local and international university students and researchers, policymakers, nongovernmental organizations (NGOs), international TV productions and many more that have special interest in forestry.

WILDLIFE TOURISM OPPORTUNITIES

Not only benefit to the forest as a whole, but the practices applied by Deramakot forest reserve in sustaining its forest area have also shown a very positive impact on their wildlife. The plan has close about three-quarters of the reserve vicinity to block any disturbance, especially from human beings on forest activities to encourage plant progression and making the area a huge sanctuary for wildlife to thrive better (Lagan et al., 2006).

Part of the requirements set by the Forest Stewardship Council on the criteria in ensuring sustainable forestry (principle #9) is known as the documentation of high conservation value forest (HCVF) are highlighting the importance of wildlife (Mannan et al., 2002). Study done by Matsubayashi, Lagan, Majalap, Tangah, Sukor & Kitayama (2007); Alfred, Ahmad, Payne, Williams & Ambu (2010); Goossens, Sharma, Othman, Rodrigues, Sakong, Ancrenaz, Ambu, Jue, O'Neill, Bruford and Chikhi (2016) showed the medium to large mammals are very prominence in production forests like Deramakot that applied reduced-impact logging practices. Their studies also show that Deramakot endures a better number and species of these animals, and guarding them will enhance the drive in conserving the entire ecosystem components.

Endangered Wildlife Sightings

Having the forest to be managed properly and at the same time leaving most of the areas to be undisturbed for wildlife natural habitats and pathways has given great opportunities for researchers and visitors to various wildlife sightings during their stay in the Deramakot Forest Reserve. Many studies have been done from all these years to validate the existence of wildlife, which some are considered as part of the endangered species listed by the Sabah Wildlife Department.

The study done by Lagan et al. (2006) had shown a very promising number of Orangutans population in Deramakot Forest Reserve as well as the significant existence of natural saltlicks for the conservation of large mammals, as 80% of the medium to large mammals of Sabah were recorded and shown in Table 1.

Table 1: Medium to large mammals founded in Deramakot (Lagan et al., 2006)

1. Moon rat (<i>Echinosorex gymnurus</i>) ^a
2. Slow loris (<i>Nycticebus coucang</i>)
3. Western tarsier (<i>Tarsius bancanus</i>)
4. Red leaf monkey (<i>Presbytis rubicunda</i>)
5. Silvered langur (<i>Presbytis cristata</i>) ^a
6. Proboscis monkey (<i>Nasalis larvatus</i>)
7. Long-tailed macaque (<i>Macaca fascicularis</i>)
8. Pig-tailed macaque (<i>Macaca nemestrina</i>) ^a
9. Bornean gibbon (<i>Hylobates muelleri</i>)
10. Orangutan (<i>Pongo pygmaeus</i>) ^a
11. Pangolin (<i>Manis javanica</i>) ^a
12. Long-tailed porcupine (<i>Trichys fasciculata</i>) ^a
13. Common porcupine (<i>Hystrix brachyuran</i>) ^a
14. Thick-spined porcupine (<i>Thecurus crassispinis</i>) ^a
15. Sun bear (<i>Helarctos malayanus</i>) ^a
16. Yellow-throated marten (<i>Martes flavigula</i>)
17. Malay badger (<i>Mydaus javanensis</i>) ^a
18. Oriental small-clawed otter (<i>Aonyx cinerea</i>) ^a
19. Malay civet (<i>Viverra zibetha</i>) ^a
<i>a</i> Species recorded at natural saltlicks

A much recent study done by Goossens et al. (2016), through samples that were enclosed and scientifically explored for elephant feces between Octobers to November 2007, Deramakot Forest (North Kinabatangan) samples showed there were about 33 pygmy elephants around the reserve area. Another study that was carried out by Ishigea, Miyab, Ushioc, Sadob, Ushiodae, Maebashie, Yonechi, Lagan and Matsubayashie (2017) had collected 14 water samples between 22-25 August 2016 from 4 natural saltlicks in Deramakot Forest Reserve area to inspect the existence of mammalian eDNA using the metabarcoding approach as well as by camera traps. From their study, there were six endangered species, Asian Elephant (*Elephas Maximus*), Bearded Pig (*Sus Barbatus*), Bornean Orangutan (*Pongo Pygmaeus*), Bornean Banteng (*Bos Javanicus lowi*) and few others were detected and had given a good record to wildlife sighting opportunities in RIL (Reduced Impact Logging) forest area.

CONCLUSION

Reduced-impact logging and certification are very effective in not only better forest management but also in wildlife protection. This has proven from the achievements of Deramakot Forest Reserve throughout all these years. Deramakot was once damaged and unselective logging that had contributed to the disturbance of the forest environment, contaminating the rivers and other problem that facilitates other destructive agents. With much better management, complying with the requirements standard by the FSC, thus applying a very active reduced-impact logging (RIL), had demonstrated that Deramakot produced better forest sustainability, quality timber harvesting, and effective wildlife conservation.

Numerous studies and reports also showed that Deramakot sustains much better populations of wildlife, including the most endangered one, like the Orangutan and Clouded leopard (Ishegea et al., 2017). This defined that good management of Deramakot by not only sustaining the forest but also maintaining the contiguity of these animals in their natural habitat. And as the forest and animals are very significant in our ecosystem, guarding and protecting these animals especially the endangered one, will add the energy in the entire ecosystem components. Deramakot had proven that logging activities could sustain the forest while conserving the wildlife as long as good management is in practice. The success of both Deramakot and sustainable forest management in Sabah has also been due to drastic changes in forest policy and the constant pledge of the State Government. Any policy changes today will undeniably have far-reaching consequences on future forestry. With such commitment from the forestry department, the government, its partners and other stakeholders, the future of Deramakot as sustainable forest management in Malaysia remains an optimist.

Today, the forestry department and management of Deramakot Forest Reserve continues to examine all possible future developments at Deramakot with precision and care. Taking into account improving the reserve's financial capability, maintaining a consistent level of management accountability and expertise, as well as preservation and public availability of all knowledge relating to forest management and wildlife conservation gained from research and reports.

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