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A Description of *Dayak Iban's* Traditional Knowledge on Customary Forest Management in West Kalimantan, Indonesia

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Abstract. Deforestation and land tenure conflict are two of the biggest threats happening in Borneo and Kalimantan. Dayak Iban has been affected by the negative impacts of these threats, considering they are forest dwellers dependent on forest resources as their primary living resources. This study is aimed to describe the traditional knowledge and customary law of the Iban people on managing their customary forest and its resources sustainably. This study was carried out in Sungai Utik Hamlet, where a small Iban community inhabits the Kapuas Hulu Regency with diverse ecosystems and forest resources. This study has applied an inductive approach and in-depth interviews to obtain information from three informants and the results were described qualitatively. The Iban community in Sungai Utik is demonstrated to have customary laws on managing customary forests and practicing swidden cultivation to meet their food needs. The community has a way to pass the traditional knowledge to the next generations through traditional schools. Through preserving traditional knowledge, the Iban community proved to be able to survive and adapt in this modern era. The implementation and integration of traditional and modern forest management would protect the forest from threats and improve the community's well-being significantly.

1. Introduction

Deforestation and land tenure conflict are the two biggest threats frequently happening in Borneo Island and Kalimantan (Indonesia's region on Borneo Island) [1–3]. Borneo Island is one of the largest islands in the world after Greenland and New Guinea that consists of diverse ecosystems and natural resources [4,5]. Deforestation has been happening in Kalimantan since 1973 and had caused the loss of vast forested areas. In 2010, it was estimated that only 35% -- 40% of forest area remained in Kalimantan. The high cases of deforestation are mainly caused by land-use change for palm oil plantations, industrial plantations, infrastructure development, illegal logging, and mining [1]. Deforestation also causes land tenure conflict among local government, the private sector, and the indigenous people. This conflict



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could happen if there are no clear boundaries and recognition between state land, private land, and customary land. The government loosened regulations and gave permits unilaterally to private companies to exploit the natural resources on unrecognized customary land which caused the indigenous community to lose their primary livelihood resources [6–8].

Palm oil concessions have been introduced to Kapuas Hulu Regency since 2000 and potentially drove the deforestation and land tenure issues in Western and Northwestern areas of the regency [3]. Contradicting with the issues, Kapuas Hulu Regency has been declared as a conservation regency in 2003 and is home to numerous indigenous communities in Borneo, including the Iban, who rely on forest resources [9]. However, following the current trends, high rates of deforestation and massive threats to ecosystems have caused the degradation of indigenous traditional ecological knowledge. Changes of lifestyle also caused the young generations to not recognize their traditional knowledge and the importance of customary land [10].

Currently, Kalimantan is populated by more than 15 million people, most came from the three largest groups, Dayak, Malay, and Chinese [11]. Dayak people is the largest ethnic group in Kalimantan with 405 sub-ethnic groups identified. Dayak Iban is one of the largest ethnic groups in Kalimantan dispersed in the Northwestern area of Borneo, including Malaysia and Brunei Darussalam [4,11,12]. Dayak people still considers the presence of forests essential for their health (clean air and water from the provisioning of ecosystem services), cultural, and spiritual aspects [13]. The Iban people are also known as forest dwellers who live dependently on forest resources [14]. They also have been known to have traditional knowledge and customary laws on managing their customary forest and its resources. This traditional knowledge has been passed down for generations and still exists today [15,16]. Thus, this study is aimed to describe the traditional knowledge and customary law of the Iban people on managing their customary forest and its resources sustainably.

2. Method

2.1. Study Site

This study was carried out in Batu Lintang Village, precisely in Sungai Utik Hamlet. Sungai Utik is located in Kapuas Hulu Regency, West Kalimantan, ± 70 km from Putussibau. Ecologically, Sungai Utik has diverse ecosystems and rich forest resources (the provisioning of ecosystem services and biodiversity) ranging from lowland forest to peatland forest with highest elevation reaching about ± 500 meters above sea level (masl). The customary forest in Sungai Utik is a corridor to two national parks in Kapuas Hulu Regency, Betung Kerihun National Park and Danau Sentarum National Park, and is also recognized as a part of the Heart of Borneo (HoB) project area [17,18]. The Iban community in Sungai Utik lives communally in a 216 meter length longhouse (*Rumah Panjaj*) that consists of 28 clusters and 18 separate single houses with 86 households as the community members.

2.2. Methods

The study used an inductive approach to obtain the trust from the community and observe their daily activities [19]. The first author stayed for over two months (December 2020 – February 2021) among the community to engage and learn about their culture and traditions and develop hypotheses about customary forest management. The author also interviewed three informants (selected following their status in the community), the community leader (*Tuai Rumah*), and two elders through in-depth interviews to investigate more about Iban's traditional knowledge on forest management [20]. All of the obtained information were described qualitatively to explain how the Iban community manages their customary forest.

3. Results and Discussion

This study has described and grouped the traditional knowledge of the Iban community in Sungai Utik on managing their customary forest into four aspects, i.e., the status of Sungai Utik Customary Forest, customary laws on managing the customary forest, swidden cultivation system, and cultural benefits.

The study has summarized the information gathered from the three informants and explained how the Iban community in Sungai Utik could survive and adapt to the modern era by preserving their traditional knowledge.

3.1. *The Status of Sungai Utik Customary Forest*

Sungai Utik Customary Forest (Figure 1) is the first recognized customary forest in Kapuas Hulu Regency through The Ministry of Environment and Forestry Decree No. SK.3238/MENLHK-PSKL/PKTHA/PSL.1/5/2020. This recognition is important to ensure the community's tenure and rights on utilizing and managing the forest resources. Following the decree, Sungai Utik Customary Forest has a size about $\pm 9,480$ ha that was divided into three zonations, protected forest area ($\pm 3,862$ ha), production forest area ($\pm 5,518$ ha), and another land-use area for settlement (± 100 ha). The customary forest has two important roles, production and protection. The production role is defined as the utilization of forest resources, for instance, a swidden cultivation system and the provisioning of ecosystem services (wood, water, food, materials to create handicrafts). The forest is a suitable habitat for many exotic, endangered, and endemic wildlife species and plants. This recognition would protect the forest and its biodiversity from threats from the outside of the community and monitored by the community through customary laws [15].

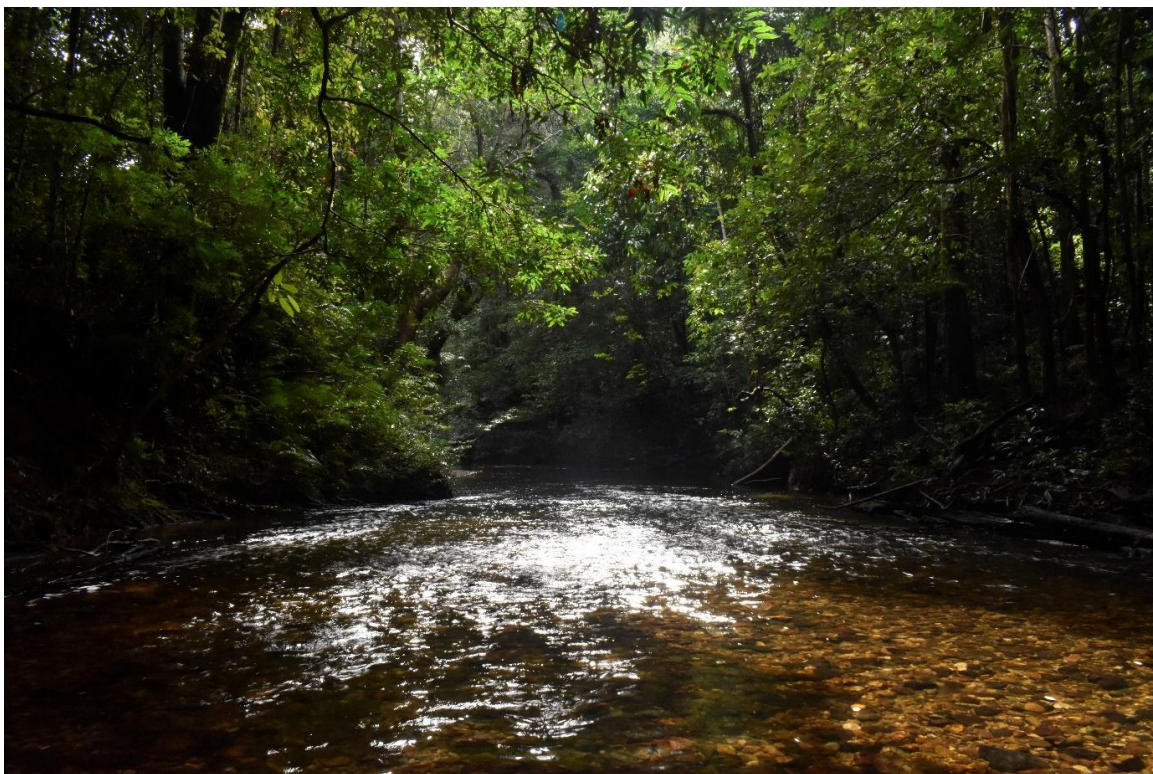


Figure 1. Sungai Utik Customary Forest.

3.2. *Customary Laws on Managing Customary Forest*

The Iban community in Sungai Utik has classified the customary forest into several zonations, production forest (*Damun*), protected forest, sacred forest/cemetery, old longhouse area (*Tembawai/Tembawang*), and cultivated land. The sacred forest and *Tembawai* are believed to be the places where ancestral spirits reside. Cutting down trees there is prohibited, but food-gathering and hunting are still allowed in these places. Every cluster is allowed to cut down up to 15 trees per year in the production forest area and is required to plant two for every single tree cut down. These trees are used to meet personal needs of woods for firewood, making tools, and building materials and are also

prohibited to be sold to other parties outside of the community. The community is also prohibited to hunt sacred wildlife species, for instances hornbills, orangutan, white-rumped shama, and other specific species. Customary sanctions and fines are implemented for every violation against the customary law [21].

3.3. *Swidden Cultivation System*

The swidden cultivation system that has been applied for centuries is proved to ensure food security and food resilience in the community through a community supported agriculture (CSA) [22]. The community has one cultivation period annually to plant foods, mainly rice, glutinous rice, and some other kinds of vegetables, such as potato, eggplant, cucumber, etc. Those cultivated goods are consumed only by the community, enough to fulfill every household's needs for a year depending on the harvest results. Every cluster has 1—3 ha of land depending on their ability to maintain the cultivated land. The slash-and-burn methods is used to open the land by burning a small determined area. This burning method starts with rituals and undergoes monitoring during the burning process to prevent the fire from expanding beyond the determined boundaries. The ash from the burning process would be used as fertilizer and mineral resources for the plants. The clusters will decide to shift their land when the ash concentration decreases and becomes insufficient to grow foods and will be rotating back to their previous land after 5—10 years. This system will allow the land to replenish its minerals by growing back shrubs and trees in that abandoned land for a certain time period [23]. Regularly, this cultivation process starts on August – September, with harvest on February – May, and harvest celebrations through rituals and *Gawai Dayak* on June [24].

3.4. *Cultural Benefits*

Most of Iban traditions draw inspirations from the forest, for instance, their traditional handicrafts and arts [15,16]. The tattoo patterns are inspired by the species in the forest, such as *Bunga Terong*, *Engkabang*, and *Gerama*. The Iban people are also skilled at designing fabric and wicker crafts, also by following patterns from forest resources, showing how much they are connected and relying on the forest. The Iban people considers rituals as ways to interact and communicate with ancestral spirits. They integrated this ritual into their daily activities, such as the cultivation process (planting, harvesting) and other traditional ceremonies. Rituals are mostly used to express gratitude, feed nature, or ask for permissions and protection from ancestral spirits. The community also established a traditional school, an original method of the Iban community in Sungai Utik to pass their culture, tradition, and knowledge to next generations. In the traditional school, children will learn directly from the elders by practicing farming, dancing, singing, rituals, etc., and listening to stories about their history and pride to be Iban people.

3.5 *Customary Forest Management*

Through preserving traditional knowledge, the Iban community in Sungai Utik has succeeded to survive and adapt in the modern era. The implementation of modern forest management methods could be introduced as long as it does not conflict with the traditional knowledge and customary laws. Modern forest management such as ecotourism activity could involve other related parties outside the community, such as the government and related NGOs to provide capacity for building, training, funding, and other things needed to initiate the program [25]. However, the local community should be the main initiator in managing the program as the authorized host of their ancestral land. The integration between traditional and modern forest management would further protect the forest and its resources from threats and would improve the well-being of the Iban community significantly [26].

4. Conclusion

The Iban traditional knowledge has been described into four aspects, i.e. the status of Sungai Utik Customary Forest, customary laws on managing the customary forest, a swidden agriculture system, and cultural benefits. This traditional knowledge is valuable to be preserved and used to maintain the forest

sustainably. The implementation of traditional knowledge to manage the forest could help to reduce the negative impacts of deforestation and land tenure conflicts if the customary forest were to be recognized by the government. Through preserving the traditional knowledge, the Iban community has succeeded to survive and adapt to this modern era. The implementation and integration of traditional and modern forest management would protect the forest from threats and improve the community's well-being significantly.

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