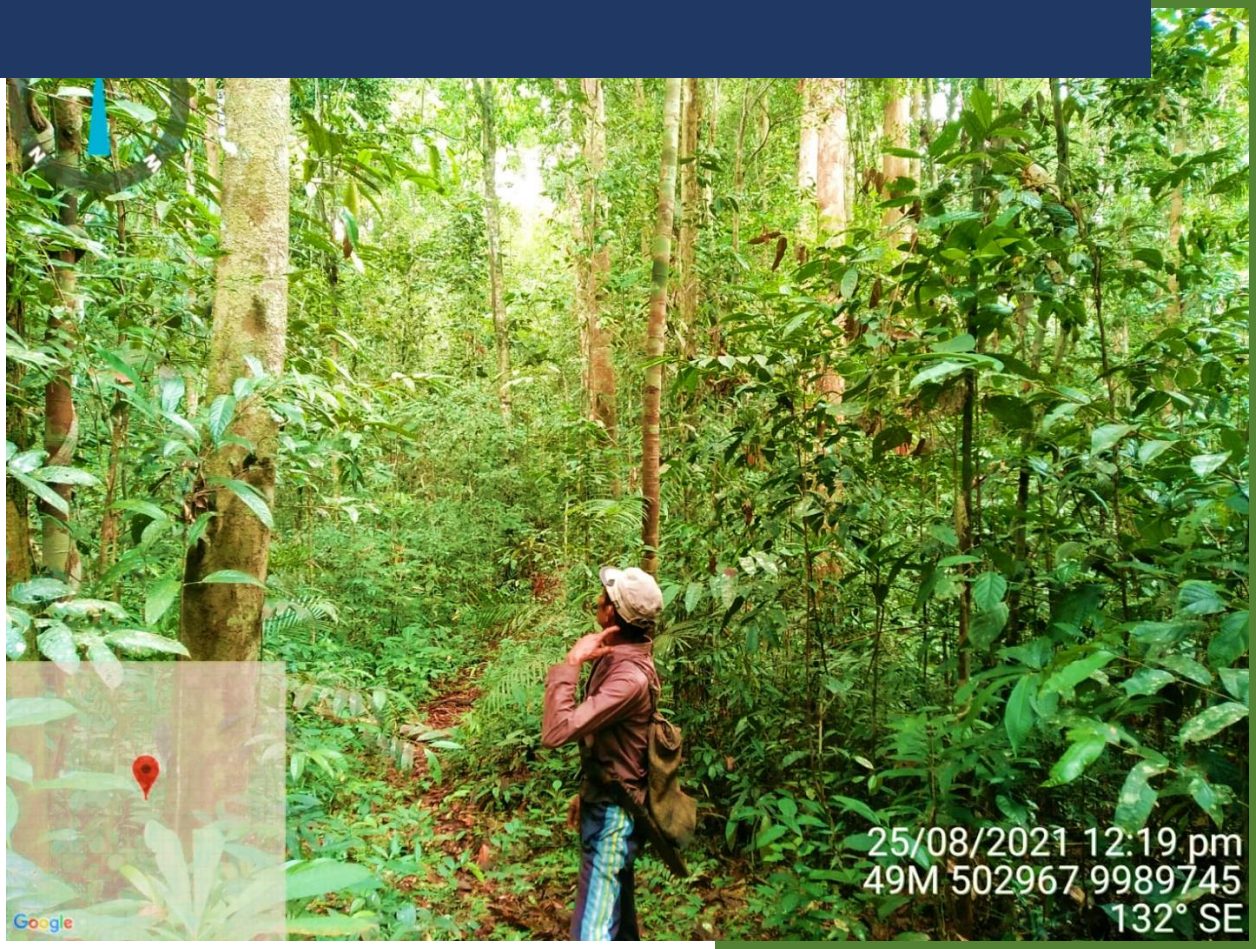
2021

# TRIALLING OF THE SIMPLIFIED HCS-HCV APPROACH FOR SMALLHOLDERS IN SANGGAU AND SEKADAU DISTRICTS, WEST KALIMANTAN, INDONESIA




**Oil palm Smallholders Union (SPKS)**

# The Team

This is a report of the trialling of the Simplified HCS/HCV Approach for Smallholders V.5. (Version 5) in Indonesia. The field work for the trial was carried out between July and September of 2021. The team was composed of:

| | | |
|---|---|---|
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We would like to extend our deepest gratitude to the following stakeholders, for without their support and engagement, the trialling would not be possible: smallholders, local communities, and government representatives of Embala, Gunam, Marita, and Setawar Villages, representatives of Sanggau and Sekadau District Governments, West Kalimantan, the *Ketemenggungan* (Indigenous Peoples' Group) of Hayo Poyo Tono Hibun (Chief Beatus Pius Onomuo) in Sanggau, Aisa Sileuw (information dissemination training facilitator), as well as the HCSA Secretariat and the HCSA Smallholder Working Group.

# Summary

This document is a report on the trialling of the Simplified High-Carbon-Stock-(HCS)-and-High-Conservation-Value (HCV) Approach for independent smallholders in Indonesia. The trials were carried out in four villages in West Kalimantan, Indonesia from August to September 2021. This activity aims at improving the existing HCS-HCV Approach, enabling smallholders with limited lands to identify protected areas using this approach so as to reduce deforestation risks. Philosophically speaking, 'simplified' means that this guideline attempts to simplify HCV and HCS approaches while maintaining the essentials of both concepts. The combination of the two is called the 'HCS-HCV Approach'.

The HCS-HCV Approach is a practical option of facilitating an agreement to strike a balance between oil palm plantation business and the protection of forest and the biodiversity depending on it. This report covers three-part outputs of the trialling based on forest management and monitoring planning. The first part elaborates the context of and importance of the HCS-HCV Approach for forest management and monitoring planning. The second part presents the implementation of HCS-HCV Approach methodology in the four simplified trialling locations. The third part contains feedback to improve the approach based on the experience from the field check, prior to wider implementation across Indonesia.

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# Section I: Introduction

## 1.1. Why is the HCS-HCV Approach important in forest resource management?

Corporate forest management has evidently failed to achieve sustainability, as indicated by the declining number of corporations managing natural forests and log production. According to Indonesia Statistics (2015), there were 404 Natural Forest Concession (*Hak Pengusahaan Hutan*/HPH) Companies in 2001, but had significantly shrunk to only 274 units. The drastic decline is also seen by timber production, from 10.01 million $m^3$ in 2003 to 4.85 million $m^3$ in 2013.[1]

Thus far, forest management has focused only on reaping the enormous profits from timber exploitation. Timber production soared sharply when the government eased investment during the reign of the former President Soeharto. According to Kartodihardjo and Jhamtani (2006), log production in 1965 was 5.83 million $m^3$, and rose to 24.67 million $m^3$ in 1980. This policy had negative social impacts on the local community, and even deemed 'a policy that paralyzes social capital'.[2] Furthermore, the policy has brought about a severe ecology crisis, hindering the sustainability of forest resources.

Following the decline and degradation of forest resources, the government promoted oil palm commodity investment. Development of oil palm plantations by major companies and smallholders has been rapid and at a massive scale. The extent of oil palm plantation area in Indonesia has grown rapidly, from 9.10 million ha in 2011 to 14.86 million ha in 2020.[3] This rapid expansion was also seen in West Kalimantan, where the planting area of 0.70 million ha in 2011 significantly increased to 2.04 million ha in 2020.

Smallholders followed the corporate practice of changing their lands into oil palm plantations. According to them, the rubber price is not worth their toil and time, meaning that value of rubber in the market was lower than that of oil palm, implying that the latter is more profitable than the smallholders.[4] Rice, another agricultural product, is only enough to meet their daily needs for carbohydrates. Therefore, smallholders prefer to change their lands into oil palm plantations.[5] Rural communities in West Kalimantan are one of several communities undergoing drastic change owing to oil palm plantation development. Traditionally, rural Kalimantan communities' cultivation practice includes collecting forest products, traditional shifting cultivation, and tapping rubber - all of which has been swiftly turned

[1] See Bahri AD, Kartodihardjo H, Rustandi E. 2015. Kondisi Hutan dan Pengusahaan Hutan. *Under* BPS. *Analisis Rumah Tangga Usaha Bidang Kehutanan dan Rumah Tangga Sekitar Hutan*. Jakarta (ID): BPS Jakarta. Pp. 33-36.

[2] See Kartodihardjo H, Jhamtani H. 2006. *Politik Lingkungan dan Kekuasaan di Indonesia.* Jakarta (ID): Equinox Publishing. Pp. 26-29 and 105-114.

[3] Data accessed from Statistics Indonesia https://www.bps.go.id/indicator/54/131/4/luas-tanaman-perkebunan-menurut-provinsi.html and https://www.bps.go.id/indicator/54/131/1/luas-tanaman-perkebunan-menurut-provinsi.html, (retrieved October 2021).

[4] The information is based on statements of smallholders from three villages in West Kalimantan.

[5] *Ibid.*

into oil palm monoculture plantation. The examples include four villages, i.e., Gunam, Marita and Embala Villages in Sanggau District and Setawar Village in Sekadau District.

Most of the smallholders in the four villages cultivate oil palm. However, they only change some land types into oil palm plantation, not all of them. The practice is deemed as an environmental protection effort done by the community.

The price of palm oil fresh fruit bunch (FFB) is steadily increasing. The smallholders face a dilemma as they have to choose between changing their lands into oil palm plantation and maintaining the lands' original functions. The communities of the four villages recognise four types of lands: 1) traditional shifting cultivation land; 2) 'regular forest' lands, 3) *Tembawang*[6] (indigenous Dayak agroforest and/or settlement) forests; and 4) indigenous, protection and/or sacred forests. Oil palm plantations will be developed in traditional shifting cultivation lands and regular forest land.[7] The tenure and ownership rights of both lands are held by individual community members, while indigenous, protected, and/or sacred forests fall into the indigenous peoples as communal traditional rights. As for *tembawang* forests, the ownership and tenure rights are held by extended family members. As land types 3 and 4 are communally owned they are highly unlikely to be converted into oil palm plantations.[8]

## 1.2. Objectives and benefits of the simplified HCS-HCV Approach implementation for independent smallholders in Indonesia

From the description above, it is important for the community and smallholders to plan for the future of their forest resources. The forest resource management may be planned through several approaches, one of which is the Simplified HCS-HCV Approach for independent smallholders. The HCS-HCV Approach has so far been implemented by large companies, and is being simplified so it can be adopted by smallholders as well. The approach introduced here is a more operational and effective for oil palm smallholder groups.[9]

The Simplified HCS-HCV Approach can be used by oil palm smallholders as a tool to plan land use and conservation. The appropriate HCS-HCV Approach will guide the smallholders to cultivate without causing deforestation in their rural landscape. Thus, smallholders will be encouraged to rehabilitate, protect, and utilise forests resources sustainably.

[6] For a description of Tembawang, see p6 below.

[7] The smallholders' preference changed because currently oil palm commodity has a brighter economic prospect than other agricultural products.

[8] To change a *tembawang* forest into other land uses or covers will require approval from all members holding the ownership rights. This forest falls into communal or extended family system ownerships.

[9] The HCS-HCV approach needs some improvements to be more operational and applicable to oil palm business at smallholder level. However, the principle of applying sustainable oil palm cultivation without causing deforestation while protecting and conserving forest resources is still upheld.

On the other hand, the implementation of Simplified HCS-HCV Approach by smallholders may serve as a foundation for other business actors, such as private sector and government, to accommodate the independent smallholders in oil palm commerce. Given the environment-protection-oriented plantation practiced by the smallholders, they should have been considered as equal key actors for fair plantation and partnership practices among the actors in the oil palm plantation sector.

## 1.3. Trialling locations

Trialling of the Simplified HCS-HCV Approach for smallholders was carried out in four villages, i.e., Setawar (Sekadau District), Marita, Gunam and Embala (Sanggau District) Villages, West Kalimantan.

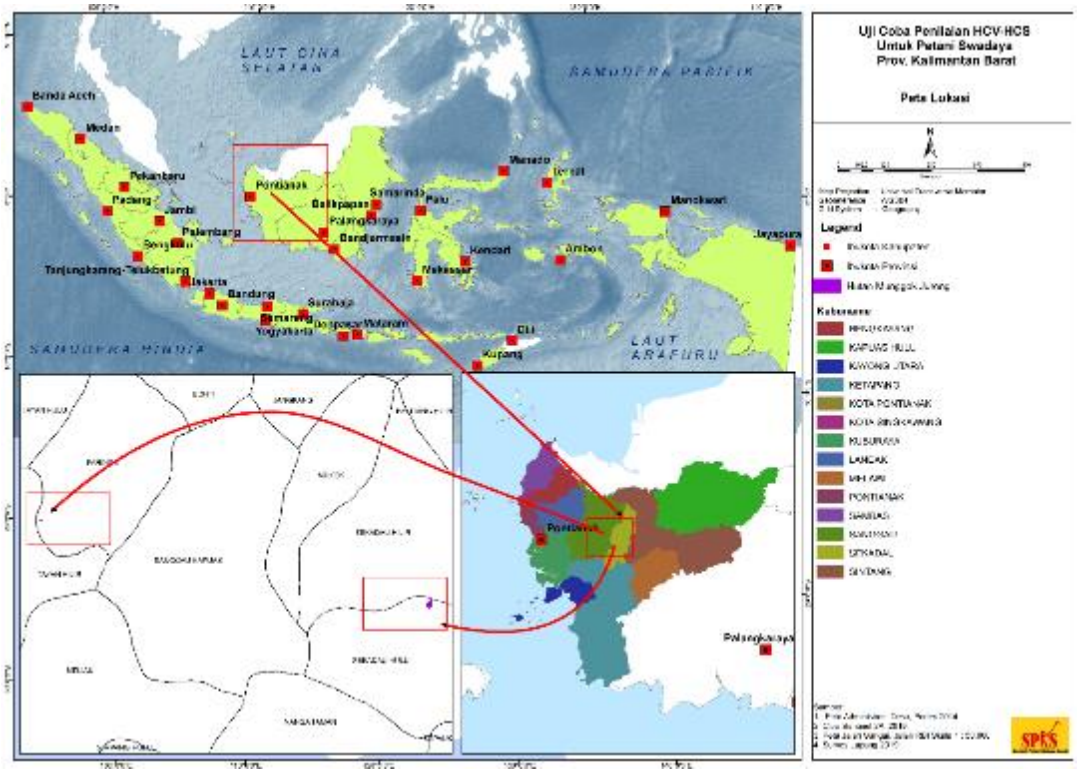
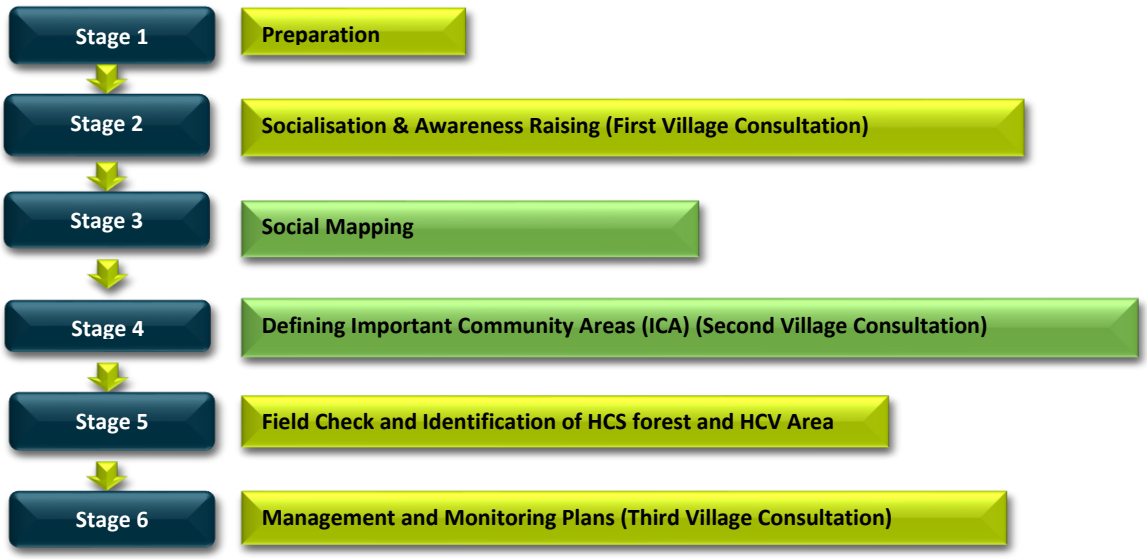



Figure 1 Location of trials of the simplified HCS-HCV Approach for smallholders

## 1.4. Methodology

The trialling of the Simplified HCS-HCV Approach for smallholders includes at least six stages as follows.




*In the preparation stage*, information relating to local community's locations and baseline data is gathered through a literature review. In addition, the initial information and agreement on the activity implementation were gained through discussions with local government, village government and local representatives.

*The socialisation and awareness-raising stage* was conducted through a three-part meeting with the local community. Due to the pandemic, the meetings were held with limited number of participants (30 persons at the maximum plus 10 members of an executive team) while observing health protocols. However, the attendance of the community representatives, such as indigenous officials, village government, smallholders, women, youth and other local figures were considered in this socialisation process.

*Primary data collection in social mapping* was carried out through Focus Group Discussions (FGDs) and in-depth interviews. The following secondary data was compiled as a prerequisite for social mapping:

1. Village's report (monographs/ general profile) and Village Medium-Term Development Plan;
2. Village Regulation documents on natural or forest resources;
3. Indicative HCS-HCV map;
4. Data or report of SPKS activities in the four targeted villages;
5. Data or profile of community, number of oil palm smallholders and number of registered SPKS members; and
6. Profile of indigenous peoples at village/community level.

FGDs and interviews were conducted by referring to the following list of participants (15 persons):

| List of Participant | Number |
|---|---|
| Indigenous leader | 2 |
| Representative of village government | 2 |
| Other community figure | 1 |
| Representative of smallholder group | 2 |
| Youth representative | 1 |
| Women representative | 2 |
| Representative of plantation workers | 2 |
| Trader, middleman, products buyers | 2 |

List of interviewees for in-depth interviews is as follows.

1. Smallholders: 1) smallholders with the largest lands; 2) smallholders with medium-size lands; 3) smallholders with the smallest lands; and 4) landless plantation workers.
2. Indigenous structural and institutional members directly appointed to manage forest resources (natural resources).
3. Women: 1) women smallholders who own farmlands; 2) women plantation workers who own farmlands; 3) women landless plantation workers; and 4) women forest users.
4. Traditional midwife/health worker.
5. Oil palm middleman/trader living in the village.
6. Other community members who use natural resources (ecosystem services).

After defining Important Community Areas (ICA) in the consultative discussions, checking and verification processes are carried out by employing land delineation from participatory mapping and direct field check methods to get confirmation of the land cover and HCS-HCV areas inside the ICA. Details of the proposed updated implementation stages are outlined in Section III of this report.

# Section II: High-Carbon-Stock Approach (HCSA) for Forest Management in Four Villages in West Kalimantan

## 2.1. Summary of the current status of Forest Resources in Four Villages in West Kalimantan

This section presents a brief description on some important terminologies related to forest resources in the four villages in West Kalimantan that contextualises the actual conditions in the field, and is intended to help better understand and correlate with the accounts on forest resources in the subsequent chapters. It is important to have a clear understanding from the beginning of terms regarding forest resources commonly used and understood by the community.

To local community, forest has a deep meaning. This goes the same to Dayak indigenous peoples who share a very close relationship with nature.

> *"Forest and us are inseparable. For many generations of our ancestors, we have forged a close relationship with all plants, and all stones of* ifa *and* komang,[10] *and nothing could come between us. We have many cultures and perform many traditional rituals to keep us close with our forests and nature. For this reason, we are called indigenous peoples; because we have a strong relationship with our nature. We are afraid of losing our forests and* tembawang*. Our today's generations must keep these forests and* tembawang*."*[11]

Some terms briefly described in this section are those used daily by the local community. They are directly related to forest resources and important activities linked to land resources management practiced by oil palm smallholders in the four villages. It is important to note that this section represents the current conditions in the field prior to the full implementation of the Simplified HCSA for Smallholders, including its incentives and benefits for forest protection.

*First, sacred forest, protection forest and customary forest*. These refer to a forest typology based on forest resource function and ownership. Sacred forest, protection forest and customary forest have functions that are protected and considered sacred to the community of the four villages. These forests are under the communal tenure and ownership of the villages under the authority of customary institution. Gunam Village has Teringkang Customary Forest which is deemed sacred. Marita Village has Tawang Nioh Protection Forest. The forest is considered to serve the protection function since it is characterised by swampy soil. Bornean river turtles, endemic to this area, inhabit this forest.

Embala Village has three protection forests (or *rimba* in local language), including: 1) Besar Forest; 2) Mungu Baung Forest; and 3*)* Uma Forest*.* In Setawar Village, there are also three protection forests: 1) Bukit Jundak Forest; 2) Engkulong Forest; and 3) Geradok Forest. All protection forests in both villages are specified under their own customary rules, and customary sanctions are to be imposed on those who break the rules.

*Second, tembawang forest,* which can be found across the four villages. Fruit trees are commonly found in *tembawang*. According to Aini *et al.* (2016) *tembawang* is a land

[10] Dayak worship ceremony leader

[11] Traditional Chief of Dayak Hibun, 2021

covered with wood and fruit trees, and was previously used for farming and longhouses that were abandoned by the village ancestors.[12] Momberg (2000) defines *tembawang* as a complex agroforestry system consisting of several elements, such as tree, scrub, seasonal vegetation and grass.[13] However, *tembawang* forest in the trial villages is dominated by fruit trees.

*Tembawang* is an agroforest which is a cultural heritage passed down by the ancestors. This forest is under the tenure and ownership of extended family or village (if its status is village property). Members of the extended family maintain the land as mixed forest of fruit trees. The change from *tembawang* forest into other land covers may only apply upon the approval from all of the family members.

*Third, regular forest or 'bawas'*. A land area that is considered as forest by the community if it is covered with trees forming a canopy. *Regular forest* refers to forested land other than sacred forest, protected forest, customary forest and *tembawang* forest. These four types of forests will be continuously maintained as forests by the community. Regular forest (or *hutan biasa* in local language) is a term used by community of Gunam and Marita Villages for forest in general, while in Setawar and Embala Villages, such forest is called *bawas*.

The tenure and ownership of regular forest or *bawas* belongs to individual smallholders. However, work taking place in regular forest or *bawas* is normally carried out communally with the support of individual smallholder owners. This forest serves as a reserve land for the individual smallholders as a part of community lands and can be used for food crop cultivation. For this purpose, the community could clear the forest by cutting the trees. Large trees are used as materials to build huts or houses. Upon clearing, the land is left unattended for seven to 14 days to let the land-clearing residues and weeds or shrubs dry. Two weeks later, the community would usually burn the land.

The burned land could then be farmed by smallholders. Smallholders usually cultivate food crops for around four to five years, including rice which is harvested from six to eight months. Tillage is carried out once a year, and in the fifth year (or five times the tillage period), smallholders move to another regular forest or *bawas* to cultivate another area of land. According to Sardjono *et al.* (2003), this practice is called traditional shifting cultivation.[14]

As time has gone by smallholders have acted rationally. High market demand for oil palm products has driven the community to expand their oil palm plantations. This is phasing out traditional shifting cultivation

[12] Y.S Aini, N. Santoso, and R. Soekmadi. 2016. Pengelolaan Tembawang Suku Dayak Iban di Desa Sungai Mawang, Puring Kencana, Kapuas Hulu, Kalimantan Barat, *Media Konservasi* Vol. 21 No. 2 August: 99-107.

[13] F. Momberg, Tembawang Di Kalimantan Barat, di H de Foresta, A Kusworo, G Michon and WA Djatmiko (ed.). 2000. Ketika kebun berupa hutan — Agroforest khas Indonesia — Sumbangan masyarakat bagi pembangunan berkelanjutan. International Centre for Research in Agroforestry, Bogor, Indonesia; Institut de Recherche pour le Développement, France; and Ford Foundation, Jakarta, Indonesia, Jakarta: MT Grafika Desa Putera.

[14] For more details, see Sardjono MA, Djogo T, Arifin HS, Wijayanto N. 2003. *Klasifikasi dan Pola Kombinasi Komponen Agroforestri*. [Learning Material]. Bogor (ID): World Agroforestry Centre (ICRAF). pp. 8-10.

culture. The community prefers to convert their traditional shifting cultivation land that has been used for four or five years into oil palm plantation. As a result, the number and areas of regular forests or *bawas* are declining. If this process continues, then a question remains as to where the food production would be coming from. This is important to know for overall land use planning and for the consideration of the introduction of agroforestry or intercrop planting.

Table 1 Type of forest by function and tenure

| No | Type of forest | Forest function to community | Tenure |
|---|---|---|---|
| 1 | Sacred forest | Sacred forest with religious value to the community | Village community through customary institution |
| 2 | Protection forest | Protecting forest and environment for the community | Village community, both through customary institution and village government |
| 3 | Customary forest | Serving as protection or sacred forest for the community | Village community through customary institution |
| 4 | *Tembawang* forest | Serving as food and fruit sources | Extended family |
| 5 | Regular forest or *bawas* | Providing land for traditional shifting cultivation | Individual or private |

The above table shows brief types of forests in the four villages based on tenure or ownership system. The typology is important to identify any possible land use changes, particularly potential change from forest into other land covers. Sacred forest, protection forest and customary forest are under the tenure or ownership of village community through customary institution or village government. These types of forest will be maintained under the umbrella term of forest.

*Tembawang* is a forest dominated by fruit trees under the tenure and ownership of extended family members. This forest may change into other land covers provided that all family members (owners) approve of the change, although such event is less likely to occur in practice. Regular forests or *bawas* is the land over most likely to change into other land cover because they are under individual land tenure and ownership, and there is an economic incentive to convert to profitable crops such as palm oil.

For the four villages, forest areas elaborated above are all located in non-forestry zone (*Area Penggunaan Lain*, hereinafter referred to as **"APL"**). The APL does not fall under the authority of the Ministry of Environment and Forestry (MoEF). The government has classified land status into state forest areas

and APL.[15] Identification of land status is important because there will be different legal consequences for areas located in either APL or state forest areas.

Discourse on oil palm states that the commodity development is deemed as a deforestation threat. The global discourse, however, does not reflect the reality in the four villages where the State has allocated their lands as APL but they have their own customary management and practices. Despite the fact that these forests are located in APL, they contain HCS forest and HCVs. Therefore, the assessment outputs of this social and spatial mapping is crucial for planning and management of forest resources in the four villages.

## 2.2. Summary of HCS in the Four Villages in West Kalimantan

Most smallholders in Indonesia behave rationally. Rational smallholders use rational economic considerations in selecting their agricultural commodities. They will choose commodity with high demand from commodity market. FFB is in great demand, which is indicated by the increasing size of oil palm plantation in Indonesia, including in West Kalimantan. Smallholders prefer to shift into and choose oil palm commodity in their agribusiness.

The next question is the extent of the development of forest resources in the four villages in West Kalimantan. This section will provide brief description on the development of forest resources in the four villages (Gunam, Marita, and Embala Villages in Sanggau District, and Setawar Village in Sekadau District). The communities may expand their oil palm plantations by converting the forests, which would bring about changes in their local natural resources.

**Table *1*** indicates that forest sustainability depends on the tenure system. Forests whose tenure and ownership belong to the community (indigenous people, customary institution, village community or extended family members), such as sacred, protected or *tembawang* forests, should be maintained as forest in a sustainable manner. Thus, the proposed HCS forests should be prioritised within the customary, protection, sacred and food-source functions for the local community. It implies that these sustainably-managed forests contain both HCS and HCV. As of now the land reserved as part of the shifting cultivation cycle (regular forest) is reserved for livelihood and food production, and further analysis needs to be done as to whether this category of land can be moved to a protected forest area once incentives and benefits can be adopted. See Table *2* below for names of forests in each of the four villages.

[15] As specified under the Regulation of Minister of Environment and Forestry No. 7/2021 on Forestry Planning, Forests Area Use Change and Forest Area Function Change, and Forest Area Use.

Table 2 Names and classification of forest in the four villages

| No | Type of forest | Forest function | Use | Tenure |
|---|---|---|---|---|
| A | Gunam Village | | | |
| 1 | Teringkang Customary Forest | Sacred and protected forest | Ecosystem services | Customary and village institutions |
| 2 | Tembawang forest | Cultural heritage forest | Source of food and fruit, NTFP | Extended family, village community |
| 3 | Regular forest | Reserve land | Timber forest product, reserve land for traditional shifting cultivation | Private/individual |
| B | Marita Village | | | |
| 1 | Tawang Nioh Protection forest | Protection forest | NTFP, ecosystem service | Villager community |
| 2<br>3 | Tembawang forest<br>Regular forest | Cultural heritage forest<br>Reserve land | Source of food and fruit, NTFP<br>Timber forest product, reserve land for traditional shifting cultivation | Extended family, village community<br>Private/individual |
| C | Embala Village | | | |
| 1 | Besar | Protected/customary forest | NTFP, limited timber use | Customary institution |
| 2 | Mungu Baung | Protected/customary forest | NTFP, limited timber use | Customary institution |
| 3 | Uma | Protected/customary forest | NTFP, limited timber use | Customary institution |
| 4 | Tembawang forest | Cultural heritage forest | Source of food and fruit, NTFP | Extended family, village community |
| 5 | Bawas (local name for regular forest in Gunam and Marita Villages) | Livelihood | Source of food, timber forest product, reserve land for traditional shifting cultivation | Private/individual |

| No | Type of forest | Forest function | Use | Tenure |
|---|---|---|---|---|
| D | Setawar Village | | | |
| 1 | Bukit Jundak | Protected/customary forest | NTFP, limited timber use | Customary institution |
| 2 | Engkulong | Protected/customary forest | NTFP, limited timber use | Customary institution |
| 3 | Geradok | Protected/customary forest | NTFP, limited timber use | Customary institution |
| 4 | Tembawang forest | Cultural heritage forest | Source of food and fruit, NTFP | Extended family, village community |
| 5 | Bawas (local name for regular forest) | Livelihood | Timber forest product, reserve land for traditional shifting cultivation | Private/individual |

**Table 2** above shows the names of forest cover in the four villages based on their function, use, and tenure. The classification of forest based on function, use and tenure above is important to identify potential sustainable protection and use by the community. In Gunam Village, Teringkang customary forest and *tembawang* forest will be maintained as forest (forest cover). As for regular forest, it can be changed into other functions, such as traditional shifting cultivation and oil palm plantation. In Marita Village, the functions of Tawang Nioh protection forest and *tembawang* forest will be maintained as forest (forest cover). As with the regular forest in Gunam Village, the reserve land function allows for it to be changed into other functions.

Table 3 Land cover classification changes based on indicative map of HCSA 2020 following the field check in 2021

| No | Land cover classification change[16] (change from indicative map classifications of 2020 following field check of 2021) | Village Area (ha) | | | |
|---|---|---|---|---|---|
| | | Gunam | Marita | Embala | Setawar |
| 1 | HDF-HDF | | | | 57 |
| 2 | MDF-HDF | 10 | 4 | 15 | 41 |
| 3 | MDF-MDF | - | 0 | 7 | 26 |
| 4 | LDF-HDF | 1 | 1 | 4 | |
| 5 | LDF-MDF | 16 | 6 | 47 | 75 |
| 6 | LDF-LDF | - | - | 4 | 50 |
| 7 | LDF-Scrub | | | | 2 |
| 8 | YRF-HDF | - | - | 12 | |
| 9 | YRF-MDF | - | 5 | 107 | |
| 10 | YRF-LDF | 79 | 311 | 107 | 255 |
| 11 | YRF-YRF | 58 | 62 | 14 | 136 |
| 12 | YRF-Oil palm | | | | 52 |
| 13 | YRF-Scrub | - | - | 11 | 110 |
| 14 | YRF-Urban | - | 1 | - | 3 |
| 15 | YRF-Open land | | | | 26 |
| 16 | Oil palm-LDF | | | | 52 |
| 17 | Oil palm-YRF | | | | 131 |
| 18 | Oil palm-Oil palm plantation | 221 | 495 | 376 | 241 |
| 19 | Oil palm-Urban | 13 | 27 | 8 | 20 |
| 20 | Oil palm-Open land | | | | 44 |
| 21 | Oil palm-Scrub | | | | 159 |
| 22 | Open land-LDH | | | | 341 |
| 23 | Open land-YRF | | | | 3 |
| 24 | Open land-Oil palm | 204 | 360 | 660 | 485 |
| 25 | Open land-Open land | 53 | 127 | 230 | 201 |
| 26 | Open land-Scrub | 233 | 519 | 551 | 755 |
| 27 | Open land-Urban | 24 | 65 | 34 | 102 |
| 28 | Scrub-Oil palm | 180 | 337 | 214 | 315 |
| 29 | Scrub-Open land | 50 | 42 | 44 | 167 |

[16] In the context of independent smallholders, rubber plantations cannot be clearly classified or demarcated, nor therefore the size of the areas easily determined (sometimes very small areas). This is because farmers generally apply a mixed cultivation system (rubber with fields, rubber with other crops), they are scattered, sometimes they are mixed with the palms, and sometimes in the *bawas* or regular forest. In tables rubber is generally classified as 'scrub'. Rubber is excluded from customary forest areas. As this trial was focusing on identifying and mapping HCS and HCV areas, it was limited by time and effort to separately classify rubber.

| No | Land cover classification change[16] (change from indicative map classifications of 2020 following field check of 2021) | Village Area (ha) | | | |
|---|---|---|---|---|---|
| | | Gunam | Marita | Embala | Setawar |
| 30 | Scrub-Scrub | - | 38 | 1 | 345 |
| 31 | Scrub-Urban | 8 | 47 | 21 | 80 |
| 32 | Scrub-HDF | | | | 18 |
| 33 | Scrub-YRF | 224 | 626 | 529 | 783 |
| 34 | Urban-Oil palm | 4 | - | - | |
| 35 | Urban-Open land | | | | 2 |
| 36 | Urban-Scrub | 3 | - | - | |
| 37 | Urban-YRF | | | | 1 |
| 38 | Urban-Urban | 12 | 24 | 19 | 1 |

**Table 3** shows land cover classification change in the four villages. The change is identified after verifying the HCSA 2020 indicative map[17] through revisions from the 2021 field check results. From the table, it is clear that reclassifications and changes of land cover into forest are significant. As for open land, this land cover has been reclassified into oil palm plantation for 204 ha in Gunam Village, 360 ha in Marita Village and 660 ha in Embala Village. The reclassification of scrub (including rubber) to oil palm plantation is also significant in the four villages. Both of these reclassifications are likely due to young palm oil plantations (<3 years old) being difficult to identify from satellite data. Forest area is also significantly increased, particularly from scrub to Young Regenerating Forest. Land cover changes or misclassified forest cover means forest cover increased in the four villages in relation to that identified by the indicative HCS map[18].

Five types of forest (

**Table *1***) in the four villages have been identified during HCS-HCV assessment. The land cover spatial verification field check involved using a combination of social mapping, ground verification and drone fly-over check, and additional spatial information from satellite images, and was conducted in detail in sacred forest, protection forest and customary forest. Therefore, forest cover density in each forest type has been checked.

Unlike other forest types, detailed identification and field verification of the extent and boundaries of *tembawang* forest and regular forest or *bawas* has yet to be conducted. The verified spatial information

[17] These changes are based on a comparison against two indicative HCS forest maps (refers to Ata Marie and ETH Maps)

[18] The trial was only able to carry out limited identification of rubber areas and rice fields. Limited field check results show that these two areas may be found mixed in scrub to young regeneration forest, or even with palm oil, as well as in *bawas* or regular forest areas.

only covers sacred forest, protection forest, and customary forest.

## 2.3. Benefit of HCS-HCV Approach

The Simplified HCS-HCV Approach serves as a tool for sustainable management of forest resources and oil palm plantation for smallholders. Smallholders in Gunam, Marita, Embala and Setawar Villages are yet to move to intensification regarding oil palm. In the past the community has preferred to re-clearing the lands to plant oil palms.[19] They used to change regular forest and/or traditional shifting cultivation land into oil palm plantation.[20] However, once the HCSA has been implemented by smallholders, including incentives and benefits, hopefully this can be changed.

Up until now the community prefers to expand their planting area for oil palm over applying intensive and sustainable oil palm management because they have limited capital to practice intensification in oil palm plantations. The increasing price of FFB in rural area has raised daily living costs. This is also followed by the increasing needs for goods and services required daily by the smallholders. As a result, smallholders cannot gain significant profit. Such situations should be anticipated by applying HCS-HCV Approach and Good Agricultural Practices (GAP).

The rural community in Sanggau and Sekadau Districts are highly dependent on their forest.

Considering the situation, it is important to encourage community to apply Simplified HCS-HCV Approach to their oil palm cultivation. The approach will make oil palm management sustainable while maintaining forest resources. The community will gain the following benefits when applying the HCS-HCV Approach.

1. By applying the HCS-HCV Approach, regular forest will be well maintained. Oil palm smallholder community will get incentive by applying HCS-HCV approach. The incentive is given by business actors to smallholders for protecting the forests. Regular forest (*bawas*) has been an important resource for the community, in which they can find firewood, medicines (planted herbs), wild game/animals, construction material and other NTFPs. Furthermore, regular forest also serves as a reserve land and part of the rotation for shifting cultivation for food crops.
2. HCS-HCV Approach ensures that forest resources essential for community are well maintained and the community will use the information from the HCS-HCV assessment result as the basis for forest resources management planning. One type of forest well-known to the community is, *tembawang* forest, as it serves as the source of food and fruit to local community. In addition, they may also find medicinal plants and animal

[19] Increasing agricultural production by expanding land is a form of extensification. It is different from intensive agriculture that uses high inputs to achieve higher outputs, such as improved genetics, optimal fertilizer use, pesticides, intensive management, etc.

[20] In Marita Village, it is agreed that smallholders are allowed to clear regular forest for food crop cultivation. After three or four years of cultivation, smallholder is allowed to replace the crops with oil palm.

protein in regular and *tembawang* forests.

3. HCS-HCV Approach guarantees that resources that indicate the identity of indigenous peoples and local community are maintained. Sacred and customary forests will be safely protected. In addition to forests, the HCS-HCV concept also requires protection for community's sacred sites.
4. HCS-HCV Approach can be used to encourage the community to at least: 1) establish a forest resource management organisation; 2) maintain and protect forest resources; 3) rehabilitate and restore forest resources; and 4) stimulate recognition of customary and protection forests.

## 2.4. Forest Resource Management Plan

It is important for oil palm smallholders to apply HCS-HCV Approach when managing forest resources and oil palm plantations. This allows them to sustainably manage important resources, particularly forest resources and oil palm. This section briefly describes forest resources management in the four villages (Gunam, Marita, Embala, and Setawar).

*a. Gunam*

Gunam covers an area of 3,412.12 ha (see **Annex 1** for Gunam Village Map). The updated data (the updated result of field check in August 2021) indicates that oil palm plantation has the largest proportion, covering an area of 2,142.35 ha (62.79%), while forest covers an area of 682.89 ha (20.01%). Young regenerating forest has the largest portion of forest cover (518.62 ha), while scrub covers an area of 444.38 ha (13.02%). See **Table 4** for details on land cover in Gunam.

Table 4 Classification of land cover in Gunam

| No | Type of land cover | Area (ha) | | | |
|---|---|---|---|---|---|
| | | Indicative HCS 2020 | Percentage (%) | Existing 2021 | Percentage (%) |
| 1 | High-Density Forest | | - | 10.46 | 0.31 |
| 2 | Medium-Density Forest | 10.34 | 0.30 | 9.12 | 0.27 |
| 3 | Low-Density Forest | 12.99 | 0.38 | 144.69 | 4.24 |
| 4 | Young Regenerating Forest | 213.01 | 6.24 | 518.62 | 15.20 |
| 5 | Oil Palm | 1,070.49 | 31.37 | 2,142.35 | 62.79 |
| 6 | Open Land | 1,479.07 | 43.35 | 112.57 | 3.30 |
| 7 | Scrub | 611.57 | 17.92 | 444.38 | 13.02 |
| 8 | Urban | 14.65 | 0.43 | 29.92 | 0.88 |
| **TOTAL** | | **3,412.12** | **100.00** | **3,412.12** | **100.00** |

There was a considerable change in classification of the land covers identified in the indicative HCS map 2020, including most significantly the change of oil pam areas from 1,070.49 ha to 2,142.35 ha. This is presumably due to misclassification by the indicative map (not identifying open land and scrub as oil palm) and some planting of open land to oil palm. Increase in forest area is also found particularly in young regeneration forests, from 213.01 ha (2020) to 518.62 ha (2021). As mentioned at the end of **Sub-Section 1.3**, detailed identification is yet to be conducted for *tembawang* and regular forests, meaning both forests are categorised as a combination of the LDF, YRF, S or OL land cover in each village, including Gunam.

Table 5 Land cover classification in Teringkang forest in Gunam

| No | Type of land cover | Area (ha) | | | |
|---|---|---|---|---|---|
| | | Indicative HCS 2020 | Percentage (%) | Existing 2021 | Percentage (%) |
| 1 | High-Density Forest | | - | 0.43 | 1.77 |
| 2 | Medium-Density Forest | 0.30 | 1.24 | 2.65 | 11.02 |
| 3 | Low-Density Forest | 2.78 | 11.55 | 14.61 | 60.72 |
| 4 | Young Regenerating Forest | 14.61 | 60.72 | 6.38 | 26.49 |
| 5 | Oil Palm | - | - | - | - |
| 6 | Open Land | - | - | - | - |
| 7 | Scrub | 6.38 | 26.49 | - | - |
| 8 | Urban | - | - | - | - |
| **TOTAL** | | **24.07** | **100.00** | **24.07** | **100.00** |

To Gunam villagers, Teringkang is one of the forests that will never change in function because it is deemed sacred to the indigenous peoples in the village. It is important to the community as it is believed to be where their ancestor spirits dwell. Teringkang is designated as a protected customary forest. In this case, it falls under the domain of Gunam customary institution that imposes customary law to safeguard it.

Teringkang covers an area of 24.07 ha. According to the updated data per August 2021, most of the forest (14.61 ha or 60.72%) is Low-density Forest (LDF).

Teringkang forest resources will be managed by the institution established by Gunam Village Government and Customary Institution. See **Table 6** for plans to implement by the institution.

Table 6 Management Plan for Teringkang customary forest in Gunam

| Strategy/ Program | Activity | Indicator of Success | Actor |
|---|---|---|---|
| - Establish an institution responsible for management and protection of Teringkang Customary Forest<br>- Designate Teringkang Customary Forest as a protected customary forest<br>- Designation should be made through village regulation and could be upgraded up to the level of district head decree or Sanggau District Regulation | - Form an ad hoc committee to prepare an academic paper on the designation of Teringkang as the customary forest of Katemenggungan Beruak<br>- Form an institution responsible for managing and protecting Teringkang customary forest at village level<br>- The institution should be made as a part of the indigenous peoples' institution endorsed by the village government.<br>- Implement incentives and benefits for applying HCS-HCV. | - Academic paper as the basis for designation of Teringkang Customary Forest<br>- Documents regarding norms of Teringkang customary forest management<br>- Establishment of Teringkang Customary Forest Management Institution | - Gunam Village Government<br>- Gunam Village Customary Institution<br>- Beruak and Gunam Community Elders<br>- Parindu Subdistrict government<br>- Tourism Office<br>- Sanggau District government |

Another type of forest identified by the community as important to maintain as forest is *tembawang*.[21] The village's *tembawang* serves as a source of food and fruit to the community. The community members harvest durian, lanzone, starfruit, chempedak and rambutan from the forest. *Tembawang* is passed down by community's local ancestors. To date, no specific management and rehabilitation effort is implemented for *tembawang* forest. Through the HCS-HCV Approach, the community is encouraged to rehabilitate *tembawang* forest (**Table 7**).

[21] Detailed spatial mapping is yet to be conducted in *tembawang* and regular forests.

Table 7 Management Plan for village *tembawang* forest in Gunam

| Strategy/ Program | Activity | Indicator of Success | Actor |
|---|---|---|---|
| - Designate the forest as a cultural heritage of Dayak Hibun indigenous peoples<br>- Replant trees and increase tembawang's biodiversity and number of trees.<br>- Establish an institution integrated with the institution for management and protection of sacred area or sacred forest including *tembawang* | - Replant fruit trees at tembawang areas<br>- Map and inventory the existing *tembawang* in Gunam Village | - Replanted trees in tembawang forest<br>- Documents regarding *tembawang* forest inventory, including its flora and fauna | - Gunam village government<br>- Gunam Customary Institution<br>- Beruak and Gunam Community elders<br>- Parindu Subdistrict government.<br>- Tourism Office |

The community or oil palm smallholders in Gunam Village are yet to develop management plan for regular forest. Regular forest serves as a reserve land to be used for traditional shifting cultivation and new area for planting oil palm. However, agroforestry rehabilitation can be conducted in this type of land through planting fruit trees of high economic value, such as durian, avocado, etc. Restoration of the natural forest includes important timber species, native fruits, medicinal trees or rattan. Land restoration is carried out through cutting or grafting techniques. Fruit trees are expected to yield fruits promptly, i.e., within three years. Further coordination with other partners who are carrying out trials of these approaches is needed.[22]

*b. Marita*

Marita Village covers an area of 9,205.71 ha (see **Annex 2** for Marita Village Map). Based on the updated data as per August 2021, the village area has 4,764.19 ha (51.57%) of oil palm plantation cover, while the rest includes scrub covering an area of 1,739.34 ha (18.89%) and forest of 1,854.88 ha (20.15%). The young regenerating forest has the largest forest area portion of 1,489.36 ha (16.18%). A large area of palm oil and scrub/YRF was misclassified in the indicative HCS map as open land.

[22] E.g. www.Jangkabenah.org

Table 8 Land cover classification in Marita

| No | Type of land cover | Area (ha) | | | |
|---|---|---|---|---|---|
| | | Indicative HCS 2020 | Percentage (%) | Existing 2021 | Percentage (%) |
| 1 | High-Density Forest | | - | 11.87 | 0.13 |
| 2 | Medium-Density Forest | 11.87 | 0.13 | 9.74 | 0.11 |
| 3 | Low-Density Forest | 8.57 | 0.09 | 343.90 | 3.74 |
| 4 | Young Regenerating Forest | 412.99 | 4.49 | 1,489.36 | 16.18 |
| 5 | Oil Palm | 1,742.40 | 18.93 | 4,764.19 | 51.75 |
| 6 | Open Land | 5,204.12 | 56.53 | 803.95 | 8.73 |
| 7 | Scrub | 1,813.61 | 19.70 | 1,739.34 | 18.89 |
| 8 | Urban | 12.16 | 0.13 | 43.35 | 0.47 |
| **TOTAL** | | **9,205.71** | **100.00** | **9,205.71** | **100.00** |

Tawang Nioh Forest in Marita Village is to be maintained and no change is to be made to its forest cover. Tawang Nioh is a swamp forest mostly located in Setawar and has served as a protected forest for the village community. The community agrees to protect the forest since it is classified as swamp forest. Unlike Teringkang forest that is protected under customary institution, no institution is currently authorised to protect Tawang Nioh resources.

Table 9 Land cover classification in Tawang Nioh

| No | Type of land cover | Area (ha) | | | |
|---|---|---|---|---|---|
| | | Indicative HCS 2020 | Percent (%) | Existing 2021 | Percent (%) |
| 1 | High-Density Forest | - | - | 10.82 | 12.16 |
| 2 | Medium-Density Forest | 10.81 | 12.16 | 3.24 | 3.64 |
| 3 | Low-Density Forest | 6.21 | 6.98 | 18.78 | 21.12 |
| 4 | Young Regenerating Forest | 24.79 | 27.88 | 48.95 | 55.04 |
| 5 | Oil Palm | - | - | - | - |
| 6 | Open Land | 5.95 | 6.69 | - | - |
| 7 | Scrub | 41.18 | 46.30 | 7.16 | 8.05 |
| 8 | Urban | - | - | - | - |
| **TOTAL** | | **88.95** | **100.00** | **88.95** | **100.00** |

Tawang Nioh forest covers an area of 88.95 ha. The majority (55.04%) of Tawang Nioh forest area is covered by young regenerating forests of 48.95 ha, while some parts are High-Density Forest (HDF - 12.16 ha). As Tawang Nioh is important to the local community, the community, village government and customary institution have agreed to make Tawang Nioh a protected forest. However, no institution is currently authorised to protect and manage the forest. Therefore, Marita Village community will establish an institution responsible for

protection and management of Tawang Nioh. See

**Table** *10* for Tawang Nioh management plan in Marita.

The institution is a part of the HCS-HCV Approach implementation and will determine the norms or regulations on forest resource management in Marita. The management principles will be based on the HCS-HCV Approach.

Table 10 Management plan of Tawang Nioh Protected Forest in Marita

| Strategy/ Program | Activity | Indicator of Success | Actor |
|---|---|---|---|
| - Form an institution responsible for management and protection of Tawang Nioh Protected Forest.<br>- Designate Tawang Nioh Protected Forest as customary forest or protected forest.<br>- Designation should be made through village regulation and could be upgraded up to the level of district head decree or Sanggau District Regulation. | - Establish an ad hoc committee tasked with preparing an academic paper on the designation of Tawang Nioh Protected Forest as a Marita customary forest.<br>- Establish an institution responsible for management and protection of Tawang Nioh Protected Forest at village level.<br>- The institution should be made a part of indigenous people institution endorsed by village government.<br>- Implement incentives and benefits for applying HCS-HCV. | - Academic paper as the basis for designation of Tawang Nioh Protected Forest<br>- Documents regarding norms of Tawang Nioh protection forest management<br>- Tawang Nioh Protected Forest Management Institution. | - Marita Village Government;<br>- Marita Village Customary Institution<br>- Community elders of Marita Village<br>- Parindu Subdistrict Government<br>- Tourism Office<br>- Sanggau District Government |

*Tembawang* is another forest to be protected and maintained by the community. The village's *tembawang* serves as a source of food and fruit to the community. The community harvest durian, lanzone, starfruit, chempedak and *rambutan* from the forest. *Tembawang* is passed down by the community's local ancestors. To date, no specific management and rehabilitation effort has been implemented for their *tembawang* forest. Through the HCS-HCV Approach, the community is encouraged to rehabilitate the *tembawang* forest.

Table 11 Management Plan for *tembawang* forest in Marita

| Strategy/ Program | Activity | Indicator of Success | Actor |
|---|---|---|---|
| - Designate the forest as cultural heritage of Dayak Hibun indigenous people<br>- Regenerate trees or expand tree diversity and numbers for *tembawang*<br>- Establish an institution integrated with institution that manages and protects sacred forest or sacred areas. | - Replant fruit trees in tembawang forest.<br>- Map and inventory all existing tembawang in Marita Village<br>- Implement incentives and benefits for applying HCS-HCV | - Replanted trees in *tembawang* forest<br>- Documents regarding inventory of *tembawang* forest, including its flora and fauna | - Marita Village Government;<br>- Marita Village Customary Institution<br>- Community figures of Marita Village<br>- Parindu Sub-district Government<br>- Tourism Office |

*c. Embala*

Embala covers an area of 9,595.43 ha (see **Annex 3** for Embala Village Map). The majority (58.50% or 5,486.77 ha)) of Embala Village area is covered by oil palm plantation. Compared with the HCS indicative map, the forest area as determined through the field check in this village is considerably larger across all classes, including 216 ha (2.3%) of High-Density Forest in 2021. The increase most likely has come from the corrected HCS 2020 data, or some of the medium-density forest may have transitioned into a high-density one. Young regenerating forest area is also classified as much larger, currently covering 1,055.55 ha (11.25%) in 2021. In Embala, the percentages of open land and scrub areas are quite high, with considerable areas misclassified in the indicative map compared to the field check results in 2021. See **Table *12*** below for further details.

Table 12 Land cover classification of Embala Village lands

| No | Type of land cover | Area (ha) | | | |
|---|---|---|---|---|---|
| | | Indicative HCS 2020 | Percentage (%) | Existing 2021 | Percentage (%) |
| 1 | High-Density Forest | - | - | 215.76 | 2.30 |
| 2 | Medium-Density Forest | 205.42 | 2.14 | 265.40 | 2.83 |
| 3 | Low-Density Forest | 60.95 | 0.64 | 316.99 | 3.38 |
| 4 | Young Regenerating Forest | 551.85 | 5.75 | 1,055.55 | 11.25 |
| 5 | Oil Palm | 3,845.19 | 40.07 | 5,486.77 | 58.50 |
| 6 | Open Land | 3,403.86 | 35.47 | 898.82 | 9.58 |
| 7 | Scrub | 1,493.01 | 15.56 | 1,274.54 | 13.59 |
| 8 | Urban | 35.16 | 0.37 | 81.60 | 0.87 |
| **TOTAL** | | **9,595.43** | **100.00** | **9,379.67** | **100.00** |

*Rimba* (protection forest) has an essential function for Embala Village community, particularly to those of Empaong and Empaong Muna Sub-villages. The three protection forests (Besar, Mungu Baung and Uma) are the major sources to meet the community's need for timber forest products as well as non-timber forest products, such as rattan and fruit. Besar Forest covers an area of 344.26 ha, with the majority (52.90%) of its area covered by high-density forest of 182.10 ha.

Table 13 Land cover classification of Besar Forest

| No | Type of land cover | Area (ha) | | | |
|---|---|---|---|---|---|
| | | Indicative HCS 2020 | Percentage (%) | Existing 2021 | Percentage (%) |
| 1 | High-Density Forest | - | - | 182.10 | 52.90 |
| 2 | Medium-Density Forest | 175.83 | 51.07 | 128.79 | 37.41 |
| 3 | Low-Density Forest | 35.87 | 10.42 | | - |
| 4 | Young Regenerating Forest | 99.53 | 28.91 | 33.38 | 9.70 |
| 5 | Oil Palm | - | - | - | - |
| 6 | Open Land | - | - | - | - |
| 7 | Scrub | 33.03 | 9.59 | - | - |
| 8 | Urban | - | - | - | - |
| **TOTAL** | | **344.26** | **100.00** | **344.26** | **100.00** |

Table 14 Land cover classification of Mungu Baung Forest

| No | Type of land cover | Area (hectare) | | | |
|---|---|---|---|---|---|
| | | Indicative HCS 2020 | Percentage (%) | Existing 2021 | Percentage (%) |
| 1 | High-Density Forest | - | - | 9.66 | 29.26 |
| 2 | Medium-Density Forest | 9.66 | 29.26 | 16.66 | 50.49 |
| 3 | Low-Density Forest | 3.46 | 10.48 | | - |
| 4 | Young Regenerating Forest | 13.57 | 41.11 | 6.37 | 19.31 |
| 5 | Oil Palm | - | - | - | - |
| 6 | Open Land | 0.31 | 0.94 | - | - |
| 7 | Scrub | 6.01 | 18.20 | 0.31 | 0.94 |
| 8 | Urban | - | - | | - |
| **TOTAL** | | **33.00** | **100.00** | **33.00** | **100.00** |

Table 15 Land cover classification of Uma Forest

| No | Type of land cover | Area (hectare) | | | |
|---|---|---|---|---|---|
| | | Indicative HCS 2020 | Percentage (%) | Existing 2021 | Percentage (%) |
| 1 | High-Density Forest | - | - | 10.88 | 24.46 |
| 2 | Medium-Density Forest | 10.88 | 24.44 | 24.07 | 54.08 |
| 3 | Low-Density Forest | 3.16 | 7.11 | | - |
| 4 | Young Regenerating Forest | 20.95 | 47.07 | 9.45 | 21.23 |
| 5 | Oil Palm | - | - | - | - |
| 6 | Open Land | 0.10 | 0.23 | - | - |
| 7 | Scrub | 9.41 | 21.15 | 0.10 | 0.23 |
| 8 | Urban | - | - | | - |
| **TOTAL** | | **44.50** | **100.00** | **44.50** | **100.00** |

Table 16 Management Plan for essential resource in Embala Village

| No | Type of Essential Resource | Strategy/ Program | Activity | Indicator of Success | Actor |
|---|---|---|---|---|---|
| 1 | Timber/tree [*belian* (status: rare), shorea*, omang, jenang, keladan* (rare), *pontai* (rare), *omang* (rare), borneo tallow nut (rare) and *pawos* in Besar Forest] | Strengthen forest management, particularly utilisation of valuable timber/tree. | - Rearrange, disseminate, and enforce customary-based rules and sanctions.<br>- Establish forest ranger team and ensure they perform their job well<br>- Breed rare tree species seedling and replant trees | Non-rare timber/tree species | Customary institution, village government and smallholders. |
| 2 | Rattan [*nas, kajak, lowa, sigu, marau, joroyat,* and *tungkas* in Besar Forest] | Strengthen forest management, particularly valuable rattan utilisation | - Rearrange, disseminate, and enforce customary-based regulations and sanctions.<br>- Establish forest ranger team and ensure they perform their job<br>- Record data on rattan collection and utilisation | Non-rare rattan species | Customary institution, village government, smallholders and women. |

| No | Type of Essential Resource | Strategy/ Program | Activity | Indicator of Success | Actor |
|---|---|---|---|---|---|
| 3 | Vegetables [*nibong/nibok, engkoruh* (savoury flavour), *porongak, sumpak kala, sumpak jeroyan, lobaek, pakis, rebung, melinjo,* sweet potato*, kouh* (savoury flavour substitute), *kontak*, and *rubber*[23] in Besar Forest] Fruits [*mentawa, rambutan, kemayau, durian*] [medicinal plants): *singam* leaf (left-side stomach pain), *kentut* leaf (common cold), *panau* root and leaf, *pekolas* root and leaf, forest ginger leaf (eye care medicine), *jerak* leaf (eye care medicine), *kayu rukap* leaf (eye care medicine), *umbak batu* leaf (hand muscle sprain) in Besar Forest] | Make documentation of species of vegetation and fruit plants serving as sources of food and traditional medicines to be used by youth. | - Conduct traditional activity/event introducing the plants/vegetation.<br>- Plant crops around the houses<br>- Record regularly-used plant/vegetation species | Youth being able to identify as well as understand and maintain the local native species of plants/vegetation, and practice their functions. | Customary institution, village government, women group. |
| 4 | Animal (meat: deer, mouse deer, squirrel), (medicine: porcupine fur (blockage of blood vessels), junglefowl spur in Besar Forest). | - Strengthen forest management, particularly animal utilisation.<br>- Make documentation of fauna species | - Develop customary-based regulations and sanctions regarding fauna utilisation.<br>- Establish forest ranger team and ensure they perform their job.<br>- Record species of regularly-used fauna. | No decrease in number of the forest fauna | Customary institution, village government, oil palm smallholder. |
| 5 | River water and river (in Muna and Empaong] | Strengthen river management (from upstream to downstream), | - Protect trees along riparian area<br>- Rearrange, disseminate and enforce customary-based | Clean river water and availability of fish | Customary institution, village government, oil palm smallholders. |

[23] forest rubber

| No | Type of Essential Resource | Strategy/ Program | Activity | Indicator of Success | Actor |
|---|---|---|---|---|---|
| | | including riparian area and fishing activity | regulations and sanctions.<br>- Establish forest ranger team and ensuring they perform their job | | |
| 6 | Sacred sites for indigenous ceremonies [Ompu damouk (Empaong), Pelumpor (Nala), and Ayao (Nala) in *tembawang*] | Revitalise equipment and area for indigenous ceremonies. | Install "sacred equipment", identify and set up boundary signboard in sites used for indigenous ceremonies. | Sites used for indigenous ceremonies are well-maintained | Customary institution, village government, oil palm smallholders. |
| 7 | Cultivation land (food) | Designate sustainable food crop cultivation land at village level | Identify and map food crop cultivation land in village | Allocation map for food crop cultivation land designated by village government | Customary institution, village government, oil palm smallholders. |

*d. Setawar*

Setawar covers an area of 5,563.54 ha (see **Annex 4** for Setawar Village Map). Much of the village area is covered by oil palm of 2,018.78 ha (Table *17*). Similar to other village lands, considerable areas of oil palm appear to have been misclassified in the indicative HCSA maps as open lands. The village has three protected forests, i.e., Jundak, Engkulong and Geradok Forests. Engkulong is the customary forest for Benawas Indigenous Peoples. Engkulong Forest covers an area of 177.31 ha located in three sub-villages, namely Setawar, Sejaong and Bres. Each of the three sub-villages has their own institution and rules regarding Engkulong Forest management. Setawar sub-village community are prohibited to harvest timber from Engkulong Forest. However, Sejaong and Bres communities are allowed limited timber harvesting in Engkulong Forest for personal purposes, such as construction material. Timber trade activity is prohibited. Any violation is subject to customary institution sanctions.

Table 17 Land cover classification of Setawar Village lands

| No | Type of land cover | Area (hectare) | | | |
|---|---|---|---|---|---|
| | | Indicative HCS 2020 | Percent (%) | Existing 2021 | Percent (%) |
| 1 | High-Density Forest | 50.57 | 0.91 | 165.98 | 2.98 |
| 2 | Medium-Density Forest | 174.09 | 3.13 | 97.55 | 1.75 |
| 3 | Low-Density Forest | 43.35 | 0.78 | 564.88 | 10.15 |
| 4 | Young Regenerating Forest | 602.61 | 10.83 | 1,052.89 | 18.92 |
| 5 | Oil Palm | 1,247.35 | 22.42 | 2,018.78 | 36.29 |
| 6 | Open Land | 2,193.99 | 39.44 | 447.25 | 8.04 |
| 7 | Scrub | 1,250.36 | 22.47 | 1,185.65 | 21.31 |
| 8 | Urban | 1.22 | 0.02 | 30.54 | 0.55 |
| **TOTAL** | | **5,563.54** | **100.00** | **5,563.54** | **100.00** |

Engkulong forest covers an area of 177.31 ha, where the majority (67.68%) of the area is covered by high-density forest of 120.01 ha. Total forest cover is 176.71 ha. The remainder includes open land (0.25 ha), scrub (0.33 ha) and oil palm (0.04 ha) (

**Table *18***).

Table 18 Classification of land cover in Engkulong Forest

| No | Type of land cover | Area (hectare) | | | |
|---|---|---|---|---|---|
| | | Indicative HCS 2020 | Percent (%) | Existing 2021 | Percent (%) |
| 1 | High-Density Forest | 31.30 | 17.65 | 120.01 | 67,68 |
| 2 | Medium-Density Forest | 89.02 | 50.21 | 9.72 | 5,48 |
| 3 | Low-Density Forest | 11.43 | 6.45 | 37.45 | 21,12 |
| 4 | Young Regenerating Forest | 35.66 | 20.11 | 9.53 | 5,37 |
| 5 | Oil Palm | 0.13 | 0.07 | 0.04 | 0,02 |
| 6 | Open Land | 0.24 | 0.14 | 0.24 | 0,13 |
| 7 | Scrub | 9.54 | 5.38 | 0.33 | 0,19 |
| 8 | Urban | | - | | - |
| **TOTAL** | | **177.31** | **100.00** | **177.31** | **100,00** |

Engkulong Forest is rich in flora and fauna. Fauna in Engkulong includes Müller's gibbon, long-tailed porcupine, thick-spined porcupine, mouse deer, wild boar, hornbill, macaque, maroon leaf monkey, southern pig-tailed macaque, hedgehog, deer (extinct) and muntjac. Flora in Engkulong includes *keladan* (rare), *belian* (extinct), shorea, and rattan (*segak, luwak, jerong kuku, entai, soru, lalis marau and wipata*). Some edible fruits include *chempedak*, terutung (forest *durian*) and *kelampai*.

To date, local community is prohibited to harvest timber for commercial purpose from Engkulong Forest, but are allowed to harvest non-timber forest products (NTFP) from the

forest. Timber harvesting for trading purpose is subject to penalties. The penalties take form of fines of 5 *laksa* (*tail – a unit of customary fine*) in accordance with the customary rules. One *laksa* equals 11 *poku* (1 *poku* = IDR5,000). The money will be distributed to: (1) customary leader (1 *laksa*) for IDR50,000 x 5 = IDR250,000; and (2) customary *tail* for IDR30,000 x 5 = IDR150,000. For feast, the penalty is in the form of 60 kilograms of pork, 10 *gantang* (1 *gantang* = 3.125 kg) of rice, 1 chicken, 3 *tempayan* (1 *tempayan* = 7 L) of traditional liquor, 2 kg of glutinous rice and three eggs.

Bukit Jundak Forest (or is also called Gintong Forest) located in Sidap Village is the customary forest of Jawant Dayak Indigenous Peoples. Bukit Jundak Forest covers an area of 96.93 ha. Gintong Forest is designated to be used by Gintong villagers. The community is allowed to harvest timber from the forest in limited number and not for trading purpose. Bukit Junda Forest is protected by customary institution. Any violation by the community members is subject to customary penalty.

Hunting is allowed for Gintong Village community. There are rules for resource collection and sanction for any violation of the rules in Jundak Forest. Any violation of the rules is subject to customary penalty. The penalty takes form of fines (16 *poku* x 3 *singkap*/plates). *Poku benua* (equals 3 customary plates) is imposed on community members, while *poku agung* (equals 4 plates) is imposed on community leaders. The *poku* consists of: (1) body: 1 chicken, 1 egg, and 1 crock of *tuak*/traditional liquor (IDR200,000); (2) head: IDR80,000; and (3) *tail*: IDR50,000. Head and tail parts will be imposed depending the level of violation. Jawant Indigenous Peoples have written rules and penalty stipulated by the indigenous leader.

Customary elders expect that Gintong community will be allowed to continuously harvest timber from Bukit Jundak Forest for construction material. In addition, Bukit Jundak becomes a tourism site and encircled by agribusiness roads, but is prohibited for cultivation. Given the challenges to forest sustainability from population growth and timber harvesting, a new management plan will need be established.

Table 19 Land cover classification in Jundak Forest

| No | Type of land cover | Area (ha) | | | |
|---|---|---|---|---|---|
| | | Indicative HCS 2020 | Percentage (%) | Existing 2021 | Percentage (%) |
| 1 | High-Density Forest | 19.27 | 19.88 | 40.25 | 41.53 |
| 2 | Medium-Density Forest | 66.56 | 68.67 | 51.13 | 52.76 |
| 3 | Low-Density Forest | 5.55 | 5.73 | 5.47 | 5.64 |
| 4 | Young Regenerating Forest | 5.47 | 5.64 | 0.07 | 0.08 |
| 5 | Oil Palm | | - | | - |
| 6 | Open Land | | - | | - |
| 7 | Scrub | 0.07 | 0.08 | | - |
| 8 | Urban | | - | | - |
| **TOTAL** | | **96.93** | **100.00** | **96.93** | **100.00** |

Located in Sejaong, Garadok Forest is a swamp forest that covers an area of 28.19 ha. Garadok Forest is protected under Sejaong Customary Institution. The forest is home to fauna and flora/trees that can be utilised by Sejaong Village community. The fauna includes wild boar, catfish, deer, stump-tailed macaque, maroon leaf monkey, jungle fowl and Bornean clouded leopard Flora/tree grown and used by the community includes shorea, *empropat*, *ngoris*, *rambin* (rare), *purang*, *bajakah* (red) and rattan (*luwi*). The rattan includes *danan, pata, lalis, luwak*, and *gotah*.

Table 20 Land cover classification of Geradok Forest

| No | Type of land cover | Area (hectare) | | | |
|---|---|---|---|---|---|
| | | Indicative HCS 2020 | Percentage (%) | Existing 2021 | Percentage (%) |
| 1 | High-Density Forest | | - | 0.03 | 0.12 |
| 2 | Medium-Density Forest | 0.16 | 0.56 | 1.73 | 6.15 |
| 3 | Low-Density Forest | 2.26 | 8.02 | 15.68 | 55.61 |
| 4 | Young Regenerating Forest | 13.64 | 48.37 | 10.52 | 37.33 |
| 5 | Oil Palm | 0.22 | 0.80 | | - |
| 6 | Open Land | 1.39 | 4.92 | | - |
| 7 | Scrub | 10.52 | 37.33 | 0.22 | 0.80 |
| 8 | Urban | | - | | - |
| **TOTAL** | | **28.19** | **100.00** | **28.19** | **100.00** |

The applicable customary rules regulate a prohibition on land use change and timber harvesting. Rules concerning land use change were challenged when several community members asked for a certain area of Garadok Forest to be converted into oil palm plantation, and the result of the proposal was rejected, upholding the customary rules. The community is allowed to hunt the fauna and harvest NTFP. They are also allowed a limited timber harvest. Rules concerning timber harvesting in Garadok Forest include: 1) permit from Mr. Jakim (as the customary chief in Sejaong) is required; 2) only for Sejaong community; and 3) one timber is worth compensation of IDR25,000 (then). Land use change for plantation and other purposes is prohibited. Any violation is subject to penalty of three *laksa* and customary feast. Three *laksa* equals 33 plates and 1 bowl of *singkawang* and *patah besi*. The feast requires approximately 20 kg of pork and three chickens.

Table 21 Management Plans for essential resources in Setawar Village

| Type of essential resource | Strategy/ Program | Activity | Indicator of Success | Actor |
|---|---|---|---|---|
| Timber/tree (*keladan, belian*, shorea at Engkulong; jelutong, shorea, *empropat, ngoris, rambin* at Garadok; *keladan* and Shorea at **Garadok Forest**) | Strengthen customary-based forest management jointly with village government, particularly for timber/tree utilisation | - Rearrange, disseminate and enforce customary-based rules and sanctions.<br>- Establish a forest ranger team and ensuring they perform their job. | Both non-rare and rare timber/tree species can be replanted | Customary institution, village government, oil palm smallholders. |
| Rattan (rare species of rattan include *jeronang pulut* and *jelay* at **Engkulong Forest**) | Strengthen customary-based forest management jointly with village government, particularly for rattan utilisation | - Rearrange, disseminate and enforce customary-based rules and sanctions.<br>- Establish a forest ranger team and ensure they perform their job. | Non-rare, Non-extinct and rare rattan species can be replanted. | Customary institution, village government, oil palm smallholders, women group. |
| Fruits (chempedak, *terutung* or wild durian, and *kelampai* at Engkulong, chempedak*, mentawai and terutung* at **Bukit Jundak Forest**) | Develop wild fruit benefits for local food-based healthy diet model | - Introduce and promote fruit as healthy food to women and children. | Wild fruits being regularly consumed by the community. | Customary institution, village government, oil palm smallholders, women group. |
| Animals (tragulus, wild boar, hedgehog, deer at **Engkulong Forest**; wild boar, deer, pangolin at **Bukit Jundak Forest**). | Strengthen customary-based forest management jointly with village government, particularly for animals' utilisation | - Develop customary-based rules and sanctions regarding animal utilisation.<br>- Establishing forest ranger team and ensure they perform their jobs, including those related to animal. | No decrease in number of the existing animals in the forest. | Customary institution, village government, oil palm smallholders. |
| Water source, river water, and river (water source at **Bukit Jundak Forest**, River Kerabat, River Barang, River Musok and River Nyalin) | Strengthen river management (from upstream to downstream) based on customary jointly with village administrative for fishing and sand mining activities. | - Develop Customary-based rules and sanctions regarding river.<br>- Establish a forest ranger team and ensure they perform | Clean river water and fish are available for utilisation. | Customary institution, village government, oil palm smallholders |

| Type of essential resource | Strategy/ Program | Activity | Indicator of Success | Actor |
|---|---|---|---|---|
| | | their jobs, including those related to rivers. | | |
| Indigenous/community ritual site (Bale and Burus B Hill. at Bukit Jundak Forest; Lindung Lake at Kerabat Riparian Area, Beransit; Empagu in Setawar Estuary, Setawar; Tiang Toras at Gintong; *tembawang* Adau at Sejaong) | Delineate boundaries of community/customary ritual sites. | Identify boundaries of customary ritual area and zones, as well as installing the signboard. | Ritual sites are well maintained. | Customary institution, village government, oil palm smallholders. |
| Community land (rice field, rubber and oil palm plantation). | Resolve overlapping land conflict using conflict management. | - Develop social, economy and spatial mapping on the overlapping land.<br>- Form a stakeholders' dialogue forum. | No violation against community, and land is handed over to the community. | Customary institution, village government, oil palm smallholders |

## 2.5. Land Tenure

Land and natural resource in the four villages was formerly under communal tenure. The presence of private and state-owned (PTPN) oil palm plantations has introduced the concept of private ownership. The concept is driven by local development through oil palm, by both community nucleus plantation (PIR-Bun) and Primary Cooperative Credit for Members (KKPA). This private ownership concept here is important, so that 1) a company can conduct land consolidation for plantation; 2) implementation of plasma scheme or KPPA is possible through private or individual ownership.

*a. Gunam*

Land tenure in Gunam village is classified into six categories according to land uses, including: 1) *pedagi (a place or site of worship where offering and prayer to the deities are made)*; 2) *Teringkang* and *tembawang* forests; 3) village land[24]; 4) yard[25]; 5) oil palm and rubber plantations, food crop cultivation land, and regular forest; and 6) nucleus oil palm plantation. There are three types of land and natural resource tenure holders in this village, including (1) PTPN XIII; (2) individual or family; and (3) communal ownership under customary institution. PTPN XIII runs an oil palm plantation in Gunam Village under a

[24] Village land is part of rural areas and managed by village government. It is including 'Urban' land cover classification.

[25] Included in 'Open Land' or 'Urban' land cover classification

'Rights to Cultivate' permit (HGU), whereas individual and family members use the lands in several ways. Lands under communal tenure and ownership include *pedagi* and customary forest.

Table 22 Tenure of land and natural resources in Gunam

| Object of tenure | Type of land tenure | Function and benefit |
|---|---|---|
| *Pedagi* | Local community through customary institution | A place of worship |
| Teringkang forest | Local community through customary institution | Protection forest and sacred place to the community |
| Village land | Private land | Community settlement |
| Home garden | Private land | Household garden |
| Oil palm and rubber plantations, paddy field and regular forest | Private land | Farmland and plantation to support domestic income. |
| Nucleus oil palm plantation, | PTPN 13's HGU Concession | PTPN concession area |
| *tembawang* forest | Communal tenure | Source of fruits |

*b. Marita*

Marita's landscape is dominated by various mixes of plantations. Marita's land and natural resources are under 1) PTPN XIII concession, 2) individual tenure, and 3) communal and family tenures. PTPN XIII has possession of the nucleus oil palm plantation resources. Individual or community members have possession of plasma and independent oil palm plantations, rubber plantations, food crop cultivation land and regular forest. Communal tenure of family and community members includes *tembawang* and Tawang Nioh forests.

Table 23 Tenure of land and natural resources in Marita

| Object of tenure | Type of land tenure | Function and benefit |
|---|---|---|
| *Pedagi* | Local community through customary institution | Place of worship |
| Tawang Nioh forest | Village community | Protection forest and sacred place to the community |
| Village-owned land | Private land | Community settlement |
| Oil palm and rubber plantation, rice field, and regular forest | Private land | Household garden |
| | Private land | Farmland and plantation to support domestic income. |
| Nucleus oil palm plantation | PTPN 13's HGU Concession | PTPN concession area |
| *Tembawang* forest | Communal tenure | Source of fruits |

Not only has palm oil changed the rural landscape, it also has altered the tenurial system and control. The commodity also brought about huge economic benefits to the community as it can provide direct input to local smallholders. Therefore, it is understood that they are feeling disadvantaged.

> *"I once led a project for acquiring community lands. I was a village head at that time, just like a head of Neighbourhood Unit (RW). We were motivated because PTP promised development and advancement for our village. But now we realised we have been deceived. We handed over our family lands to them, but only small was given back to us. Every adult family member is given a plot of nearly 2 ha. I believe palm oil programmes can be done by community with assistance from companies, not by handing over our lands to them." (told by Mr. Untung)*.

*c. Embala*

In Setawar, there are three types of land and natural resource tenure holders: 1) company; 2) individual; and 3) communal tenure by indigenous peoples.[26] State-owned company (PTPN XIII) has possession of nucleus oil palm plantation. Individual tenure (private land) covers plasma and independent oil palm plantation resources, rubber plantations, food crop cultivation land and regular forest or *bawas*. The customary institutions (two sub-villages) provides the representation for the communal tenure of forest land and resources of: 1) Besar, 2) Mungu Baung and 3) Uma. *Tembawang* forest belongs to extended family tenure.

[26] In Indonesian, "ownership" refers to "*kepemilikan*", while "tenure" refers to "*penguasaan*". Making a distinction between the two is essential, considering they, as far as Indonesian customary law is concerned, are different concepts. See Shohibuddin M. 2009. *Metodologi Studi Agraria: Karya Terpilih Gunawan Wiradi pp. 109-110.*

Table 24 Tenure of land and natural resources in Embala Village

| Object of tenure | Type of land tenure | Function and benefit |
|---|---|---|
| Forests of 1) Besar, 2) Mungu Baung, and 3) Uma. | Communal tenure through customary institution | Protection forest with limited timber harvesting activity. |
| Village land | Private land | Community settlement location |
| Home garden | Private land | Household garden |
| Oil palm and rubber plantations, rice field, regular forest (*bawas*) | Private land | Farmland and plantation to support of domestic income |
| Nucleus oil palm plantation | PTPN 13's HGU Concession | PTPN cultivation area |
| *Tembawang* forest | Family | Sources of fruits |

*d. Setawar*

In Setawar, there are three types of land and natural resource tenure holders: 1) company; 2) individual; and 3) communal tenure by indigenous peoples. There are two oil palm companies operating in this village, i.e., PT Multi Prima Entekal (MPE) and PT Agro Andalan (Agro). Both companies operate under the oil palm plantation partnership mechanism - the KPPA model.

Community oil palm plantation land is distributed into two parts, i.e., nucleus (70%) and plasma (30%). There are about seven individual local community members who are in partnership with MPE to manage a total area of 40 ha, and 254 community smallholders partnering with Agro whose total area covers 707.797 ha (including nucleus and plasma plantation).

Individual tenure (private land) covers plasma and independent oil palm plantation, rubber plantation, food crop cultivation land and regular forest or *bawas*. Communal tenure by indigenous peoples covers Engkulong, Bukit Jundak and Garadok Forests.

Table 25 Tenure of land and natural resources in Setawar Village

| Object of tenure | Type of land tenure | Function and benefit |
|---|---|---|
| 1) Engkulong Forest, 2) Bukit Jundak Forest and 3) Garadok Forest | Communal tenure through customary institution | Protection forest with limited timber harvesting activity. |
| Village land | Private land | Community settlement location |
| Home garden | Private land | Household garden |
| Oil palm and rubber plantations, rice field, regular forest (*bawas*) | Private land | Farmland and plantation to support of domestic income |
| Nucleus oil palm plantation | 1) PT Multi Prima Entekal and 2) PT Agro Andalan | Private company concession |
| *Tembawang* forest | Family | Sources of fruits |

## 2.6. FOREST RESOURCES

### 2.6.1. Forest Utilisation in General

In general, there are two types of forest resource tenure and ownership holders, including 1) customary institution and extended family members; and 2) individual. Sacred forest, protection forest and customary forest belong to communal tenure and ownership of village community under customary arrangement. As for *tembawang*, the forest is possessed by extended family. Regular forest or *bawas* belongs to individual tenure.

Resource management of regular forest or *bawas* requires special attention. Regular forest or *bawas* is a forest or land resources essential in ensuring livelihood system, by providing land for the community to practice traditional shifting cultivation. However, it is problematic since this type of forest is subject to land cover change in order to meet the community's need for food. Forest cover change into other functions may lead to deforestation practice. In fact, the deliberate change is the prolonged culture for Dayak people.

To avoid confusion concerning categorisation of farmers and Dayak indigenous peoples and use of their forests, particularly in the four villages in this trial, a standardised terminology has been adopted for regular forest or *bawas*. We will refer to the definition issued by the World Agroforestry Centre (ICRAF) for regular forest. ICRAF, as stated by Sarjono *et al.* (2003), has identified the type of forest utilised by the community as lands for traditional shifting cultivation (TSC).[27]

[27] M.A. Sardjono, T. Djogo, H.S. Arifin, N. Wijayanto. 2003. Klasifikasi dan Pola Kombinasi Komponen Agroforestri: Bahan Ajar 2. Bogor: ICRAF Bogor, Indonesia.

Figure 2 Sacred site (place of worship), or *pedagi*, located in regular forest in Marita Village.
Notes: a *pedagi* structure (left) and a *pedagi* in the form of stones (right)

Regular forest or *bawas* is forest land under individual tenure and ownership, implying that this type of forest lacks resource planning and management. Based on the output of social mapping conducted through in-depth interview with smallholders in four villages that found specific purposes and uses, it is concluded that it is possible to carry out some forest management planning for regular forest or *bawas*.

Figure 3 Bawas land cleared for traditional food crop cultivation

Figure 5 Female smallholder relaxing after clearing the land using burning method

Figure 4 Condition of regular forest cover that also serves as a pedagi area in Marita Village

Fruit tree species introduction can be implemented in forest management planned for regular forest or *bawas*. Fruit trees are preferred by the community because they have a higher economic value compared to timber. However, the regular forest may also be converted into oil palm plantation because the commodity also has a higher economic value than timber or NTFPs (and fruit trees).

Based on description on forest resources in the four villages, an inventory of the potential protection forest, sacred forest and customary forest has been made. From the description, it is known that the four villages also have other potential forest resources, i.e., *tembawang* forest and regular forest (*bawas)*. The assessment of HCS-HCV requires detailed spatial mapping of *tembawang* forest and regular forest. The identification of the two types of forest is essential for the completion of detailed mapping of the existing forest potential at community level.

Detailed forest resource mapping can ensure that community's livelihood activities taking place around or within HCS forest and HCV areas are in accordance with protection of the forest in identified conservation areas. This is to avoid conflict between protection of HCS and HCV forest resources and community rights to meet their basic needs and livelihood.

Regular forest or *bawas* is a land covered by timber or fruit trees, or is being farmed as part of the shifting cultivation cycle. *Bawas* is under the tenure and ownership of individual community members. The owner may define its use and function. Regular forest or *bawas* may be maintained as a forest or potentially converted into other land cover including oil palm plantation. In addition, regular forest is tradeable. In brief, the owner of *bawas* has full authority to manage and transfer the ownership of the forest.

Regular forest or *bawas* is a forested land that is the most vulnerable to conversion into other land use. Some practices that have happened include the conversion of regular forest into traditional shifting cultivation, and then following this into oil palm areas. This is a result of high market demand for oil palm products. However, resource management of (all types of) forest potentially includes restoration of open land or scrub found in regular forest into forest cover.

One of the prerequisites and incentives for land rehabilitation or natural forest restoration is economic value gained from the rehabilitated or restored land such as the commodity production from fruit trees or NTFPs or timber from the forest. Smallholders or community members are interested in planting fruit with high economic value such as durian, avocado, etc. Currently, the available simple technologies can help plants to produce fruit faster, i.e., cutting and grafting. Planting fruit trees using cutting and grafting methods will accelerate fruit production to three to four years.

Land rehabilitation by implementing a model where regular forest serves as source of food, fruit, or protein can potentially be applied by the rural community. Fruit trees are unlikely to cut down by the community because they are deemed the source of fruit. Fruits have thus far been sourced from

*tembawang* forest. *Tembawang* forest yield (fruits) is used to for domestic or communal consumption. There is a sort of prohibition on trading fruit produced from *tembawang* forest. Food and protein sourced forest is potentially to have high economic value because the fruit and protein produced are commodities traded at market.

Forest resources management in the four villages will be briefly described in this section.

*a. Gunam*

Gunam's protection forest is *Teringkang* forest which is sacred to the village community. The customary institution prohibits any destructive activity in *Teringkang* forest. People are not allowed to cut the trees and harvest NTFP from the forest. To date, no customary rule is in place regulating the forest. The community believes that anyone cutting trees at *Teringkang* forest will plagued by misfortune.

*Tembawang* forest serves as the source of fruits. The forest tenure is under the extended families of Gunam people. In Gunam, there are three *tembawang* forests located in three sub-villages, i.e., Kampung Beruak forest (Beruak Sub-village), Kampung Pulau Mpoh forest (Pulau Mpoh Sub-village) and Kampung Seranai forest (Seranai Sub-village).

A very important admission is made by one of Gunam Village community, concerning the initial expectation on palm oil when the first time the commodity came to the village.

> *"We admit that palm oil came to the Gunam Village upon request from the community. We wanted our area to be advanced and develop, just like our neighbouring villages and transmigration villages. We also admit that many forests have been converted into palm oil plantations. However, to date, we are still and will be maintaining customary forests, Teringkang Forest, and our* tembawangs*."* (Mr. Pius, former Chief of Hayo Community).

*b. Marita*

Protection forest in Marita Village is Tawang Nioh that is a swamp forest. To date, because no customary rule is in place regulating the forest, the community took an initiative and has agreed to use Tawang Nioh as the source of NTFP, such as rattan and medicinal plants.

*Tembawang* forest serves as a source of different fruits. The forest tenure is under the extended families of Marita people. Kampung Kerampung forest is one of the *tembawangs* in the village. Regular forest is forest-covered land, including both old and young forests. The regular forest in Marita serves as the source of timber to the forest owners as well as reserved land for traditional shifting cultivation.

*c. Embala*

Forest resources in Embala Village are subject to communal tenure. The forests include Besar, Mungu Baung and Uma. All these forests are protection forests in which the community is allowed a limited harvest of timber and in general, the community is allowed to harvest NTFP such as rattan, fruits, and medicinal plants. *Tembawang* forest serves as the source of fruit. In Embala Village there are 36 *tembawang* forests.

Normally, community also recognises *bawas*, also known as regular forest, as areas that can be converted into farmlands or remain idle during specific period, allowing bush or even small regenerative woody plants to grow. In terms of ownership, a *bawas* is owned and controlled by individuals or families. Sometimes, rubber trees can also be found although in a small intensity."

*d. Setawar*

Protection forest resources in Setawar are subject to communal tenure. The forests include Engkulong, Bukit Jundak and Garadok. All these forests are protection forests in which the community is allowed a limited harvest of timber and in general, the community is also allowed to harvest NTFP such as rattan, fruits, and medicinal plants.

*Tembawang* is categorised as a forested area with fruit trees (group-owned fruit plantation: under tenure or ownership of family or village). In Setawar, there are 16 *tembawangs* distributed in Setawar, Sejaong and Gintong Sub-villages. The *tembawang* is subject to the tenure held by extended family or the family's elder residing in the main house.

Other than *tembawang*, community also knows *bawas* as areas that normally are called farmlands. Sometimes rubber trees are also found although in a small intensity. At certain times, once cultivation is done, they are normally left idle and then turn into bush or even regenerate similar to regenerating forests. In terms of ownership status, a *bawas* is owned and controlled by individuals or families.

### 2.6.2. Notes on Forest Resources Threat

The forest resources outlined above are important to the rural community in the four villages. The expansion of oil palm plantation is threatening these essential resources. The important resources to the communities in the four villages include timber, animal protein resources and fruit resources, timber sources and NTFP such as rattan, medicine and ecosystem service (e.g., river water). Some of these forest resources are threatened. The forests in question include customary forest, sacred forest and protection forest. *Tembawang* forest and regular forest are threatened as well. A brief description of the threats in each village is described below.

Community gains timber resources for household needs from regular forest. However, they could dwindle further if overused. Currently, regular forest can also be reserve land for traditional shifting cultivation, but potentially threatened by conversion into oil palm area.

Table 26 Threats to forest resources in Gunam

| Type of important resources | Notes on Uses and Threats |
|---|---|
| Timber resources<br>1. Firewood from rubber tree.<br>2. Timber for construction material.<br>3. Timber for furniture<br>4. Trees serving as honeybee habitat. | Community gains timber resources for household needs from regular forest. However, they could dwindle further if overused. Currently, regular forest can also be reserve land for traditional shifting cultivation, but potentially threatened by conversion into oil palm area. |
| Rattan | Forest ecosystem is currently declining due to overharvesting and poor forest management, and as the forest itself is the main habitat to rattan, this is threatening the rattan. |
| Fruits grown in *tembawang* forest include *durian,* chempedak, lanzone, mangoes, sour mangoes, *rambutan*, *belimbing darah*. | Needs for fruits are met from *tembawang* forest. *Tembawang* faces relatively low threats as the forest is a cultural and customary heritage left by the ancestor for the next generation. |
| Fauna<br>1. Wild boar, domestic pig, wood mouse, civet, snake, pangolin, hedgehog, lizard.<br>2. Pangolin, hedgehog, snake. | Most of the animals used as the community's source of protein inhabit the forest. When the habitat deteriorates due to overharvesting trees, new roads or fragmentation from clearance for plantations and farming, the animal population will decrease or suffer from disturbances.[28] |
| Water source, river water and river (water is sourced from 10 rivers in Gunam Village, particularly River Ensabal and River Engkajau) | Threats against river water resources come from: 1) the use of poison (*tobak*) for fishing; and 2) electrofishing. These fishing methods have threatened river ecosystem as well as sediment from land clearing for palm oil and misuse of pesticides. |
| Customary or community ceremonial sites. The ceremony takes place at a *pedagi* and every village has a *pedagi*. | Threats against ceremonial site or *pedagi* come from: 1) cultural change in young generation; and 2) the *pedagi* is located within private land. |

Threats against natural resources, particularly forest, are also faced by Marita Village community. However, there is a difference between Marita and Gunam in their perspectives on their forest resources, particularly *Teringkang* customary forest to Gunam Village community and Tawang Nioh, the protection forest for the Marita Village community. Gunam community views *Teringkang* as a customary sacred forest. It means that *Teringkang* customary forest is protected due to its spiritual nature, where spirits of the ancestors and kings of Dayak Hibun are believed to dwell. This belief has implications for the status of the forest. Anyone who breaks customary rules, such as cutting trees, harvesting plants and hunting,

[28] Loss of habitats to several wildlife species is due to poaching by community and outsiders. This brings the threat of the loss of important species. For this reason, poaching is prohibited although challenges often come, i.e., because these habitats provide food to certain wildlife species.

will be subject to customary sanction and misfortune.

Marita Village community has agreed that Tawang Nioh protection forest, a swamp forest, is to be protected. There are two arguments underlying the protection of the forest. Firstly, Tawang Nioh is a swamp forest that has some spots where there are active mires or peat swamp. Any object or human can get drowned in them. Currently, the community has agreed not to harvest timber from Tawang Nioh. Unfortunately, no authorised institution has been established to enforce such rules. It means that despite the agreement about the prohibition of timber harvesting, some Marita community members still harvest some timber for building a house.

Secondly, the community assumes that, currently, there is no technology available to manage a swamp forest. According to them, potential land cover change of Tawang Nioh from forest into oil palm plantation can occur when adequate oil palm cultivation knowledge and technology have been mastered. To avoid such occurrence, the community (particularly oil palm smallholders in the village), indigenous officials, and village government will designate Tawang Nioh as a customary forest.

Table 27 Threats to forest resources in Marita Village

| Type of important resources | Notes on Uses and Threats |
|---|---|
| Timber resource<br>1. Firewood from rubber tree.<br>2. Timber for construction material.<br>3. Timber for furniture<br>4. Trees serving as honeybee habitat. | The remaining forests in Marita Village include Tawang Nioh protection forest and regular forest. The regular forest has been reserved for traditional cultivation for food crops, but is threatened by subsequent conversion into oil palm plantations. |
| Rattan | Forest ecosystem is currently declining due to overharvesting and poor forest management, whereas the forest itself is the main habitat to rattan. |
| Fruits grown in *tembawang* forest includes: *durian,* chempedak, lanzone, mango, sour mango, rambutan, *Baccaurea angulata*. | Needs for fruits are met from *tembawang* forest. *Tembawang* faces relatively low threats as the forest is a cultural and customary heritage left by the ancestors for the next generation. |
| Fauna<br>1. Wild boar, domestic pig, wood mouse, civet, snake, pangolin, porcupine, lizard.<br>2. Pangolin, porcupine, snake. | Most of the animals used as a community's source of protein inhabit the forest. When the habitat deteriorates as a result of land clearing and fragmentation as well as over-hunting, the animal population will decrease or suffer from disturbances. |
| Water source, river water, and river | Threats against river water resource come from 1) the use of poison (*tobak*) for fishing; 2) electrofishing. These fishing methods have threatened river ecosystem. |
| Customary or community ceremonial sites. The ceremony takes place at a *pedagi*, and every village has a *pedagi*. | Threats against the ceremonial site or *pedagi* come from: 1) cultural change to young generation; 2) the *pedagi* is located within private land. |

In Embala Village, there are several resources that are important to the villagers. Through the existing community institution, the community has agreed to improve forest resource management and protection practices. Such practices will adopt the HCS-HCV Approach. It will be important to follow up on actions to mitigate the potential threats to the community's essential resources. See Table *28* for threats to forest resources in Embala Village.

Table 28 Threats to forest resources in Embala Village

| Type of important resources | Notes on Uses and Threat |
|---|---|
| Timber/tree | - Lack of control over timber utilisation<br>- Scarcity of certain local trees used for building material<br>- Certain rattan species are rare due to overharvesting and lack of customary rules. |
| Vegetation/plant | - Herbs and spices for cooking obtained from forest are being replaced by industry-made seasonings which weakens the local knowledge and valuing of these resources.<br>- Traditional knowledge of traditional medicine has decreased since this medicine has been replaced by industry-made medicine/health workers (doctors/midwives). |
| Fauna | - Scarcity of certain animal species due to uncontrolled hunting |
| River water and river | - Fishing with poison<br>- River overflowing certain locations (most because of sedimentation or increased run-off after rains, due to forest conversion to plantations) |
| Customary/community ceremonial site | The sites are not well-maintained |

Disturbances also threaten Setawar Village important forest resources, particularly the customary forests (Garadok, Engkulong and Bukit Jelinda). The threats are mainly related to the utilisation of timber forest products. Despite the customary rules concerning these three forests, timber utilisation practices have not been well controlled.

Table *29* outlines threats to forest resources in Setawar Village. In addition to the above-mentioned essential resources, another forest resource that is likely to be threatened is their regular forest or *bawas*. The community is preferring to change *bawas* into an oil palm area. The preference is the result of high market demand and more competitive product prices.

Table 29 Threats forest resources in Setawar Village

| Type of important resources | Notes on Uses and Threat |
|---|---|
| **Garadok Forest**<br>Important timber species: *keladan, belian,* shorea in Engkulong*; jelutong,* shorea*, empropat, ngoris, rambin*. | - Lack of control over timber utilisation<br>- Scarcity of certain local trees used for building material (e.g., keladan) |
| *Engkulong Forest*<br>Rare rattan species: *jeronang pulut,* and *jelay*<br>Fruit species: chempedak*, terutung* (wild durian).<br>Fauna species: tragulus, wild boar, porcupine, deer. | - Overexploitation that causes certain rattan species to become rare<br>- Scarcity of certain fauna species due to over-hunting and lack of control over animal hunting, e.g., deer hunting. |
| **Bukit Jundak Forest**<br>Fruit species: chempedak*, mentawai* and *tarutung*.<br>Fauna species: wild boar, deer, pangolin | - Fruit trees regeneration is neglected as they are supposed to grow on their own.<br>- Scarcity of certain fauna species due to lack of control over animal hunting, e.g., rare pangolin hunting in Bukit Jundak |
| Water source, river water, and river (the water is sourced from River Bukit Jundak, River Kerabat, River Barang, River Musok and River Nyalin) | - Fishing with poisons<br>- Overexploitation of sand |
| Community/customary ceremonial sites (Bale and Bukit Burus B. at Bukit Jundak Forest; Lake Lindung at Kerabat riverbank, Beransit; Empagu at River Setawar estuary, Setawar; Tiang Toras at Gintong; *tembawang* Adau at Sejaong) | Location is not well maintained |
| Land tenure (paddy field, rubber and oil palm plantations) | - Overlapping of community land and corporate's HGU concession<br>- Agrarian conflict |

### 2.6.3. List of Flora and Special Fauna

Based on social mapping and assessment in the four villages, there are several flora and fauna species found in these areas. The flora and fauna have functions, benefits, and conservation status. This section will present several specific flora and fauna species found in the four villages and these species briefly described in the **Table 30** below. The inventory of flora and fauna was conducted through interviews with the community and via direct observation on the ground. This information is important to obtain an overview of High Conservation Values (HCV) in the four villages. See **Annex 1d**, **Annex 2d**, **Annex 3d**, and **Annex 4e** for brief descriptions of result of the HCV assessment in the four villages. The description also mentions the status of conservation according to the IUCN.

Table 30 Important flora and fauna species in the four villages

| No | Village | Biodiversity | |
|---|---|---|---|
| | | **Flora** | **Fauna** |
| 1 | Gunam | 1. *Meranti batu* (*Shorea platyclados*),<br>2. *Tapang* (*Koompassia excelsa*),<br>3. *Beringin* (*Ficus benjamina*),<br>4. *Ubah* tree (*Syzygium lineatum*),<br>5. *Tapah* tree (*Merremia shorea*),<br>6. *Guro/Ulin* tree (*Eusideroxylon zwageri*),<br>7. *Kompah* tree (*Dyera costulata*),<br>8. *Tengkawang* (*Shorea macrophylla*) | 1. Bornean clouded leopard (*Neofelis diardi* spp. Borneo),<br>2. Southern pig-tailed macaque (*Macaca nemestrina*). |
| 2 | Marita | 1. *Meranti batu* (*Shorea asp*),<br>2. *Kayu keladan* (*Dryobalanops* sp.),<br>3. *Tapang* (*Koompassia excelsa*),<br>4. *Pulai* (*Alstonia scholaris*),<br>5. *Ubah* tree (*Syzygium lineatum*),<br>6. *Ramin* (*Gonystylus bancanus*),<br>7. *Belinjo hutan* (*Eusideroxylon zwageri*),<br>8. Rattan (*Eremospatha* sp.)<br>9. *Tengkawang* (*Shorea macrophylla*) | 1. Bornean clouded leopard (*Neofelis diardi* spp. Borneo),<br>2. Southern pig-tailed macaque (*Macaca nemestrina*),<br>3. Asiatic softshell turtle (Amyda cartilaginea). |
| 3 | Embala | 1. *Meranti batu* (*Shorea platyclados*)<br>2. *Ulin* tree (*Eusideroxylon zwageri*)<br>3. *Keladan* wood (*Dryobalanops* sp.)<br>4. *Tengkawang* (*Shorea macrophylla*)<br>5. *Omang*: information from local community<br>6. Pontai: information from local community | 1. Southern pig-tailed macaque (*Macaca nemestrina*): IUCN VU, CITES X, P106 X.<br>2. Deer: information from local community<br>3. Thick-spined porcupine and long-tailed porcupine: information from local community<br>4. Porcupine: information from local community<br>5. Tragulus: information from local community<br>6. Muntjac: information from local community<br>7. Eagle: information from local community |
| 4 | Setawar | 1. *Meranti batu* (*Shorea platyclados*)<br>2. *Ulin* tree (*Eusideroxylon zwageri*)<br>3. *Keladan* tree (*Dryobalanops* sp.)<br>4. *Tengkawang* (*Shorea macrophylla*) | Southern pig-tailed macaque (*Macaca nemestrina*) |

## 2.7. INSTITUTION FOR FOREST RESOURCE MANAGEMENT

Forest resource management in the four villages focuses on the protection forest, sacred forest and customary forest. These three types of forest belong to communal tenure of indigenous peoples under their customary institution. Of the four villages, only Embala and Setawar that have established institutions and norms for forest resource management, although their institutions are not yet optimised. As for Gunam and Marita, the villages have yet established any structured norms and institutions.

### 2.7.1. Institution and Traditional Forest Resource Government and Management in Setawar and Embala

*a. Setawar Village*

In Setawar Village, forest resource management is run by a special institution, namely the Forest Ranger Team. The village has three teams that manage the forests of Engkulong, Bukit Jundak and Garadok. In *Engkulong Forest*, the local community is allowed to harvest timber for building materials but only a limited amount. However, it is prohibited from cutting trees for commercial purpose. Violation of the prohibition is subject to sanctions. See section on Engkulong Forest above for further details of customary fines.

The forest resource management rules also apply *to Bukit Jundak Forest*. The community is allowed to use the forest resources wisely. For instance, they can harvest timber from Bukit Jundak Forest as needed, but not for commercial purposes. Resource harvesting in Bukit Jundak is regulated under the relevant rules, as well as sanctions for any violation. See section on Jundak Forest above for the details of customary fines. Head and tail parts of *poku* will be imposed depending on the level of violation. Jawant people have written rules and a penalty decreed by the indigenous leaders.

*In Garadok Forest,* the applicable rules only cover a land use change prohibition and timber harvesting. Rules concerning land use change was challenged when several community members asked for a certain area of Garadok Forest to be converted into oil palm plantation. The request is driven by the presence oil palm company at Setawar. However, the request has never been approved, and Garadok Forest remains unchanged.

Rules concerning timber harvesting in Garadok Forest include: 1) permit from Mr. Jakim is required; 2) only for Sejaong Village community; and 3) one timber is worth compensation of IDR25,000 (then). Garadok Forest landuse change for plantation and other purposes are prohibited. Any violation is subject to penalty of 3 *laksa* and customary feast. Three *laksa* equals 33 plates and 1 bowl of *singkawang* and *patah besi*. The feast requires 1 *rinti* (approximately 20 kilograms) of pork and 3 chickens. Back then, there was a community member violated the rules by doing farming within Garadok Forest, and sanction was imposed. Animal hunting and NTFP (e.g., rattan) harvesting in Garadok are allowed.

*b. Embala Village*

In Embala Village, use of timber from forest is allowed for social and limited other purposes. The customary institution has issued rules regarding the forest use, including customary sanctions for any violation, and the establishment of forest ranger team. The customary rules do not apply only to the forest but also the river.[29] The rule on customary forest use regulates: 1) tree cutting for public or social purposes; 2) permitted animal hunting for the communities of Empaong and Empaong Muna Sub-villages, without causing damage nor any commercial aspects; 3) community of Empaong and Empaong Muna Sub-villages are allowed to use the forest products (rattan, fruits), without cutting trees nor any commercial elements, and are required to replant as compensation. The customary rule also prohibits activities carried out in the forest, including 1) cutting trees/vegetation; 2) harvesting rattan and/or any forest products with economic value; 3) poisoning and electrofishing in rivers within the customary forest; 4) non-community members of Empaong and Empaong Muna Sub-villages are prohibited from getting into/harvesting the forest products.

Customary sanction imposed on any offender is a fine of 3 tails per individual/family. One tail (20 *singkep*) includes 5 *toka* (25 or 30 kilograms) of pork, 1 rooster, 5 or 10 litres of *tuak*/traditional liquor, 20 kilograms of rice, 1-2 kilograms of coffee, salt, flavour enhancer, and 60 small *singkawang* bowls or 30 large bowls, or in total is worth IDR3,200,000. In addition, there are also 1) *pangkeras* or substitute (for example, tree cutting is fined with the amount of the timber price) or IDR150,000; and 2) statement letter from the offender stating that he/she will not do it again. The next violation penalty will be doubled (IDR300,000).

### 2.7.2. Forest Resource Management Institutions in Gunam and Marita

Gunam and Marita are bordering villages with similar landscapes. Both villages are yet to have institutions responsible for forest management similar to what are in Setawar and Embala Villages. Based on participatory social mapping and community discussions, Gunam and Marita communities agree to implement integrated forest management with the HCS-HCV Approach.

The HCS-HCV Approach applies to forest resource management, including areas important to the community. These areas include Teringkang customary forest (Gunam Village) and Tawang Nioh protection forest (Marita Village). The HCS-HCV Approach is also applicable to regular forests and *tembawang* forest. The implementation of HCS-HCV Approach aims to restore areas covered by scrub or open lands. Both these land cover types have potentially to be rehabilitated or restored into forest.

The HCS-HCV Approach implementation can encourage the community to rehabilitate or

[29] Empaong and Emapaong Muna Sub-villages customary rules consisting of introduction, five chapters (prohibition, customary forest utilisation, utilisation procedure, sanctions, and closing remarks) and six articles were stipulated on 27 June 2020.

restore a new forest. This new forest can be land covered by agroforest that provides source of food with fruit and protein to the community. Forests serving as the source of food will be maintained and protected by the community as it is the case of *tembawang* forest. The forest is maintained not only because of communal ownership but it serves as the source of fruits to the community. The new forest can also be restored natural forest that provides timber and NTFPs.

Forest management with the HCS-HCV Approach needs an institutional structure that consists of an organization and its rules of the game. An institution responsible for forest management accommodates various groups of community, particularly smallholder groups. Community groups to be involved include women, youth, village government officials and customary institution.

### 2.7.3. Proposing Customary Forest Legality

As mentioned in sub-chapter 1.2., sacred forest, protection forest and customary forest in the four villages are situated within APL areas. Despite the fact that those three types of forest are under the authority of customary institution, they are yet to be legally recognised as customary forest by district government. On 25 April 2017, Sanggau District government issued the District Regulation No. 1/2017 on Recognition and Protection of Indigenous People.

Scope of the regulation includes recognition of the indigenous people existence, position, land, recognition and protection, rights and obligation, and institution. In brief, the regulation recognises indigenous peoples' entity, institution and land. Recognition of indigenous people land also covers certain areas, such as forest and sites with spiritual value to the indigenous people.

Through the regulation, important forests in three villages (Gunam, Marita and Embala Villages) can pursue customary forest recognition and legality from Sanggau District government. The regulation encourages the grassroots community to propose recognition and protection of indigenous people. The government will establish a committee at sub-district level. The community from some villages can jointly propose recognition and protection of indigenous people land rights through the committee at sub-district level. This mechanism gives opportunity for indigenous peoples' rights recognition across villages in a sub-district.

The results of HCS-HCV assessment can support the rural community in proposing for recognition and protection of indigenous peoples. The recognition and protection include customary forest or protection forest within HCS-HCV areas. The areas eligible for being a customary forest as stipulated under Sanggau District Regulation No. 1/2017 include: 1) Teringkang customary forest in Gunam (and small part in Palem Jaya Village); 2) Tawang Nioh protection forest in Marita (small part in Gunam); and the forests of 3) Besar, Uma and Mungu Baung in Embala.

Meanwhile, customary forest in Setawar Village has been regulated under Sekadau District Regulation No. 8/2018 on the

Recognition and Protection of Indigenous People. In general, the Sekadau District Regulation No. 8/2018 has a more open arrangement for the administration of indigenous peoples' rights recognition, compared to Sanggau District Regulation No. 1/2017. Indigenous people in Sekadau District could propose for recognition of their rights in a unit of indigenous people (a customary institution), unlike that in Sanggau District which should go through the sub-district government. Thus, indigenous people in Sekadau District can propose directly to the Sekadau District Head.

Achieving legal status for customary forest will provide chances to maintain the protection function of the proposed customary forest. The protection comes from formal legality based on the customary areas and customary forest. Therefore, customary forest which has been recognised and protected under the District Head Decree must not be changed into another function by the indigenous people or a company. Thus, the HCS and HCV of customary forest are well maintained and sustainable.

### 2.7.4. Initiating and Strengthening Forest Resource Management Institution in the Four Villages

Based on the social mapping, the four villages have potential to establish and develop an institution or reinforce the existing institution. Gunam and Marita require new institutions that are integrated and coordinated with the existing customary institution, village administration and farmer group organisation. The institutions will stimulate active participation from smallholder group at village level. As for in Embala and Setawar Villages, reinforcement of the existing forest resource management institution is required.

There is a role of the village government regulating 1) the community's prosperity; 2) village development; and 3) government. Then, pursuant to the Village Law No. 6/2014, village government is able to establish an institution (unit) of business and village business through the Village-owned Enterprise (BUMDES). In addition, it is also possible for the village government to establish a unit aiming at developing the community's welfare, village development, and village government.

According to the law, the existing mechanism may accommodate the forest resource management institution development, including in the form of a unit established by village government or BUMDES. BUMDES is a profit-oriented organisation or business at village level. Meanwhile, the forest resource management institution the four villages need to have three functions at the same time: ecological function or forest protection, social function of rural smallholder community, and collaborative economic function that sustains the rural forest resources.

For instance, a unit has been established by the village government in Gunam whose job and function are to manage some oil palm plantations owned by the village government. The unit manages oil palm plantations whose profit will partly go to the

administrators of Gunam, i.e., head of community unit (RT), head of sub-village (RW), indigenous leaders, and other people at village level. This example shows that the village government has opportunity to establish their own unit responsible for forest resource management.

While the units or institutions are formally endorsed by the village government, they cover representatives from various community elements, particularly smallholders. The institutions are the result of coordination among customary institutions and village government from each village. The forest resource management institution or unit is established by village government and customary institution under the coordination of village (rural areas) government. The institution is responsible for the community through two institutions (customary institution and village government).

The following are tasks and functions that can be included in a forest resource management institution or unit:

A. Short Term:
    1. Implementation of a management plan.
    2. Forest area mapping including all customary forest, tenure and customary use, boundary delineation of ownership (both individual and community) around the forest.
    3. Capacity building for smallholders through training in Good Agricultural Practices, water/river management, and other NTFPs management.
B. Long Term: Management and restoration of essential areas
    1. Promoting the village regulation development on village forest protection
    2. Promoting the designation of customary forest status.
    3. Establishing partnership with a company.
    4. Forest area management as an education forest.

## 2.8. INCENTIVES AND BENEFITS TO SUPPORT COMMUNITY FOREST CONSERVATION AND MANAGEMENT

During the village consultation processes at stages 2 and 4, and the stage 6 on management and monitoring, incentives and benefits that support forest conservation and management are discussed. There is recognition given that if the community and smallholders are expected to protect and conserve their HCS forest and HCV areas as part of NDPE implementation to meet commodity market expectations, then they will need to receive some incentives and benefits. This is an equity issue to ensure the burden of forest protection is not placed only on the community and the smallholders but also supply chain partners and other stakeholders with an interest in the protection.

The management, monitoring and incentive and benefit plan to protect and conserve HCS-HCV forest areas should include the sustainable and traditional harvest of forest products to support the welfare and livelihoods of local people. The incentive and benefit plan must be designed to address any loss or reduction of possible income

and/or the daily needs of the local people that are usually fulfilled by the forest, and that cannot be substituted by other new economic activities such as GAP, ecotourism, additional NTFP harvest etc.

Consultation and discussion on incentives and benefits focuses on the needs of the village and smallholders to enable them to achieve the maintenance, protection and restoration of the HCS forest and HCV areas. This includes consideration of what incentives and benefits would be required to support the conservation of *tembawang* and regular/*bawas* forest areas.

Incentives and benefits discussed with the communities and recorded by the field teams during the trial in the four villages include:

- Support for legal recognition of customary land rights and legal protection of the forest
- Support for village and smallholder institutional strengthening,
- Support for Good Agricultural Practices (GAP) for smallholder palm oil plantation,
- Financing of 'Forest Guards or 'Forest Rangers' to provide care, monitoring and management of protected forest areas,
- Support for forest interpretation and training activities to record and pass on the customary and cultural knowledge and practices related to the forest to young generations,
- Support for ecotourism activities,
- Support for improved market access links and pricing for village commodities, and
- Other (according to the needs of the community).

During the next phase of the trial activities the incentives and benefits as well as a supporting financing mechanism I planned to be applied together with the implementation of forest protection and forest management and monitoring.

# Section III: Feedback for the Simplified HCS-HCV Approach Improvement for Smallholders following Trial Implementation

| Point to Consider | Description |
|---|---|
| Stages of Implementation | Initially, the implementation of HCSA consisted of four stages. However, during the trial implementation it was proposed to increase to six stages. This would affect the contents of a stage module and time of implementation. Revision from initial version into the updated version is based on some considerations where some activities were 'hidden' in the stage 1 whereas they should have played an important role in community participation. In addition, the social mapping activity was initially carried out at the preparation stage. However, if the activity was carried out at that stage, we would have no chance to discuss the results of social mapping with the community as part of the validation and verification process. To the contrary, identification process is better carried out during the determination of Important Community Areas (ICA). The results of social mapping should have been important information to support the process of ICA designation since the process requires the social mapping result to be verified by and carried out jointly with the community. The social mapping result is not simply a supporting narrative in a report, but rather to confirm and validate the participatory mapping results via the full participation from the community as a main requirement of this process. The absence of confirmation process means the absence of knowledge exchange process that should be carried out during the presentation and discussion of social mapping results with the community.<br><br>It is important to note that this is the operational stage of the HCS-HCV Approach implementation. Therefore, prior to implementation, an information dissemination effort should be considered by introducing this approach to public through electronic media or public discussion on what the HCSA is doing in support of oil palm smallholders when they implement this simplified HCS-HCV Approach.<br><br>The following are proposed changes to the stages following the trial implementation of the Simplified HCS-HCV Approach for smallholders: |


Initial Version
Stage 1
Preparation
Stage 2
Socialization & Awareness Raising (First Village Consultation)
Stage 3
Field Check and Identification of HCS Forest and HCV Area
Stage 4
Management and Monitoring Plans (Third Village Consultation)
Updated Version
Stage 1
Preparation
Stage 2
Socialisation & Awareness Raising (First Village Consultation)
Stage 3
Social Mapping
Stage 4
Defining Important Community Areas (ICA) (Second Village Consultation)
Stage 5
Field Check and Identification of HCS forest and HCV Area
Stage 6
Management and Monitoring Plans (Third Village Consultation)

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| Stage 1 Preparation<br>  <br>  <br>  | The most important part in preparation is gaining approval of the village community and village government for the HCS-HCV Approach implementation. The process to obtain the approval was carried out through village visit and coordination meeting (usually for few times) to get initial understanding (at village officials/government level) on the joint activity with HCSA Approach for the HCS-HCV Approach implementation by smallholders. The following are several points on what to conduct during the preparation stage.<br><br>1. Contacting and approaching village officials and local stakeholders: coordination with the village aims at introducing Simplified HCS-HCV Approach for smallholders. In the process, potential important village resources will be explored while identifying some resource protection initiatives conducted by the village government and community. During the coordination process, the village government is usually in the **'asking'** position on what incentive and benefit they will get from the approach here. When an agreement is achieved, result of the process will be minutes of the coordination meeting with the village government.<br>2. Preparing information dissemination material (including on land cover categories of HCS & HCV, indicative map, as well as land cover, land use and the village administration map).<br>3. Preparing technical team (experts) and local expert team as the representatives to involve in the participatory mapping process.<br>4. Short Training: this part is an addition to the preparation process. The purpose of this training is that the module of the Simplified HCS-HCV Approach is well understood prior the implementation. Output of the training is that the established technical and local teams could run every stage properly and correctly. Some recommended trainings include training on module application, participatory mapping preparation training, training on field verification and recording procedure and implementation by technical team in cooperation with the local team. The establishment of the village team should consider substantial and technical aspects, where the potential team members should have knowledge on their villages, including forests and other |

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|  | resources, and be involved in forest-related daily activities. Training is suggested to run for a total of 3 days but it depends on the community's available time how this is scheduled. |
| Stage 2 Information Dissemination and Awareness Raising<br>  <br>  | This stage is intended to inform the stakeholders about the HCSA and provide relevant materials to the community. Some important information on issues to disseminate to the participants, deal with the HCS-HCV Approach that has been adapted by HCSA for smallholders and legal aspects related to HCS-HCV Approach implementation in Indonesia. Some issues to note on the process are:<br><br>1. Timeline: When disseminating information, it is important to set up a proper timeline so that the process and expected output can be achieved from the session. Afternoon and night-time are commonly the most frequently preferred time for meetings in the village. Most of participants are smallholders and other workers who have spare time in the afternoon or night.<br>2. Representation: At the socialisation stage, it is crucial to ensure that the early coordination process encourages the representatives of parties to attend. Representatives of women, youth, customary administrators, government of each village, and smallholders are expected to attend the information dissemination meeting.<br>3. Sometimes, dissemination of information only one day prior is not enough to deliver all materials. So, it requires few days for information dissemination with appropriate themes. For example, HCSA guideline topic (including direction of management and expected output) and relevant regulations requires one separate meeting, as is the case with GAP information dissemination. As for the participation process and |

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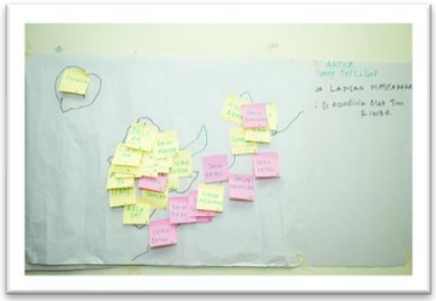
|  | learning on social and participatory mapping, this topic needs at least one meeting. The participation process is important to give an understanding of the implementation technique and the requirement related to participatory mapping, including initial introduction of the indicative map, tools, and field verification. This is important so that the process produces a forest management plan that is required by and appropriate for the community.<br><br>If the information dissemination proceeds well, the meeting participants have the right to make a decision on whether or not the process is continued or rejected. If they agree to continue, the next stage is the social mapping process.<br>Output of the socialisation stage is minutes of first meeting (extension).<br>To note, if either a CSO, NGO, or an external organization initiate the process, it means they are an 'external party' of the community, so our understanding is limited to the information gather in the stages of the Simplified HCS-HCV Approach for smallholders. It is unlikely that the assessment team will have a proper knowledge of the community and its landscape, and thus the next step is to (together with the community), understand the landscape and livelihoods of the community through the social mapping process. |
| Stage 3 Social Mapping<br>  | The social mapping stage is a separate step that was initially part of the preparation stage. The social mapping process is conducted by a technical expert and requires participation of each community representative through FGD and in-depth interviews.<br><br>Social mapping should aim to:<br>• map potential conflict of interest among actors, resource potentials, land boundaries, different land use area boundaries, land use narrative (which is later used to adjust he existing indicative map), important resources, and important areas |

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|  | for the community including how the community uses their resources and area, threat, and opportunity of management.<br>• compile any documentation results (recordings, photos, notes) including those shown as a PPT (Power Point) presented by the Social mapping team in case it is needed for clarifications.<br>• the result of social mapping (draft of social mapping findings) will be presented by social mapping expert team to the village meeting participants.<br>• the result of social mapping (draft of social mapping findings) will be presented by social mapping expert team to the village meeting participants.<br><br>This process is deemed a knowledge exchange and elaboration of things overlooked by the community that need to be discussed.<br>Significant findings consider the boundaries of land ownership, which is usually overlooked by the community, e.g., forest location, and plantation and other areas that are considered important by the community, and areas that overlap with company concession or other property rights. Output of the stage is the social mapping result confirmed by the meeting participants. |
| Stage 4 Define [Important Community Areas]<br>  | There might be a similar or different perception of important areas between outsider (non-customary/village community) and the local community in a village.<br>Important Community Areas (ICA) are areas deemed important or valuable to the entire community for supporting their livelihood and serving as sacred sites, which should be safeguarded[30]. Thus, to define ICA, the process is separated from preparation process. In the preparation stage (stage 1) a land cover map and land tenure map of each village should be available for the whole Area of Interest (AOI). |

[30] Important Community Areas include customary forest, sacred forest, protected forest, tembawang and other areas that need to be in the management and monitoring plan.

| | |
|---|---|
|  <br>  <br>  | During this stage, the indicative map will be overlaid with the findings from social mapping expert team. The process results in arguments and agreement on the important areas that serve as the source of community livelihood, and for which a development plan needs to be prepared. The next process is the development of participatory map through presentation of indicative map to sketch or delineate the important locations along with the participants. The participants and the technical team, assisted by facilitator, will be directed to reach the agreement on the important areas[31] that are a starting point for preparing for further planning and management.<br><br>Outputs of this stage include:<br>(1) Indicative map harmonised with the social mapping information and participatory map (in the form of sketch or revised delineation of the indicative map – see Map 2 below) as the base synchronised HCS-HCV and landcover map for field check.<br>(2) Minutes of the second meeting. The minute of meeting is valid evidence dealing with essential resource agreement and essential area that will be managed by every party in the future.<br>(3) Memorandum of Understanding containing deals of many parties to continue the process of assessment implementation of the Simplified HCS-HCV Approach for smallholders and at the same time serves as supporting evidence of FPIC.<br><br>At this stage, the narrative on potential conflict on boundaries, ownership or tenure, and utilisation (including ways of utilisation) may come up. Therefore, agreement concerning the boundaries, and resolution of boundary and ownership conflict needs to be achieved at management and monitoring planning. |

[31] Some important areas are only identified as the process unfolds, such as tembawang and bawas/regular forest areas. Thus, the ICA needs to be an iterative process (one that builds bit by bit).

| | |
|---|---|
| Stage 5 Field Check and Verification HCS Forest<br>  | At this stage, verification means checking resource locations, border, and important area locations to determine whether or not their boundaries overlap with HGU concession or other land cover. The findings from the ground are sometimes unpredictable. On the indicative map, the landscape in question might be forest or mixed forest (such as rubber), but in fact, the community carry out cultivation within the forest (i.e., regular forest held for shifting cultivation).<br><br>In addition to the indicative map, it is also recommended to use a drone for the delineation process to get clear and clean images and help ease area delineation and land cover definition, as well as time efficiency. However, using a drone is sometimes more expensive (including the expert fees) than GPS tracing.<br><br>The implementation at this stage employs combination of methods to verify the land cover, Important Community Areas, and HCS forest/HCV areas within the Area of Interest in the four villages using: the HCSA 2020 indicative map, 2009 6 and 7 spot imageries by both Peatland Restoration Agency (Badan Restorasi Gambut/BRG), Participatory Mapping Network (Jaringan Kerja Pemetaan Partisipatif/JKPP), as well as actual field checks using the Simplified HCSA-HCV Smallholder Toolkit Field Check form. An SPKS drone image from 2020 is also used to obtain a picture of Setawar.<br><br>For the technical and local teams, it is important to understand how to fill out the checklist properly since it has to be done manually. The verification team often did not have the opportunity to take photo documentation. For example, rain or steep terrain that is hard to go through are the reasons why the picture was only taken from the forest border (for instance, the swamp forest during the wet season cannot be accessed or the entry path is lost so that the local team could hardly trace or even had to search for a new path). The situation affected the time taken and the amount of photo documentation.<br><br>There are at least two points to consider during verification process. |

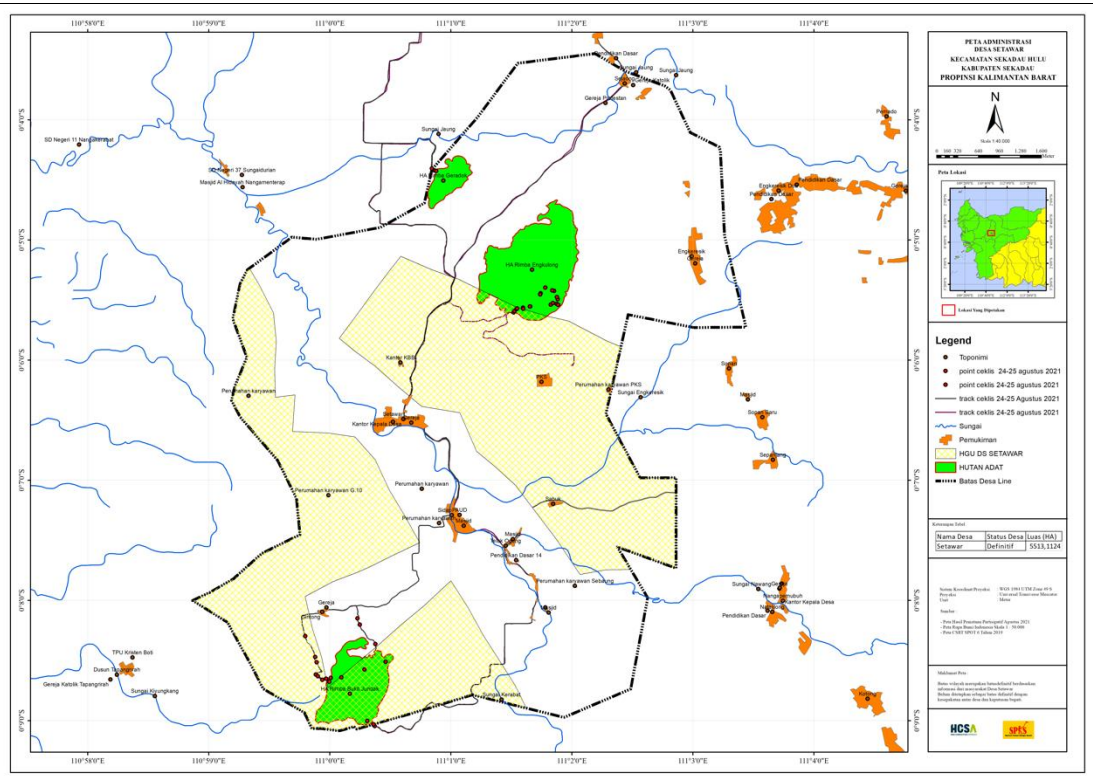
(1) If there is an entry to the spot, field check at close range (visual) is possible.
(2) If forest access is difficult (with swamp area, heavy rain, flooding), the mapping team will explore delineation process from map pictured by drone, assisted by the community that will point out the locations on the map in which they usually find sources of food, medicine, or certain animals, as well as the boundaries of the area.

The benefit of a field check is that we can directly observe the location, important resources used by the community and mark the locations using GPS, as well as complete the verification process against the baseline synchronised HCS-HCV map. If we are lucky, we can find certain animal prints (such as bear, cat or junglefowl) and have the opportunity to identify or take a closer look the biodiversity mentioned by the community, such as certain types of trees on the area.

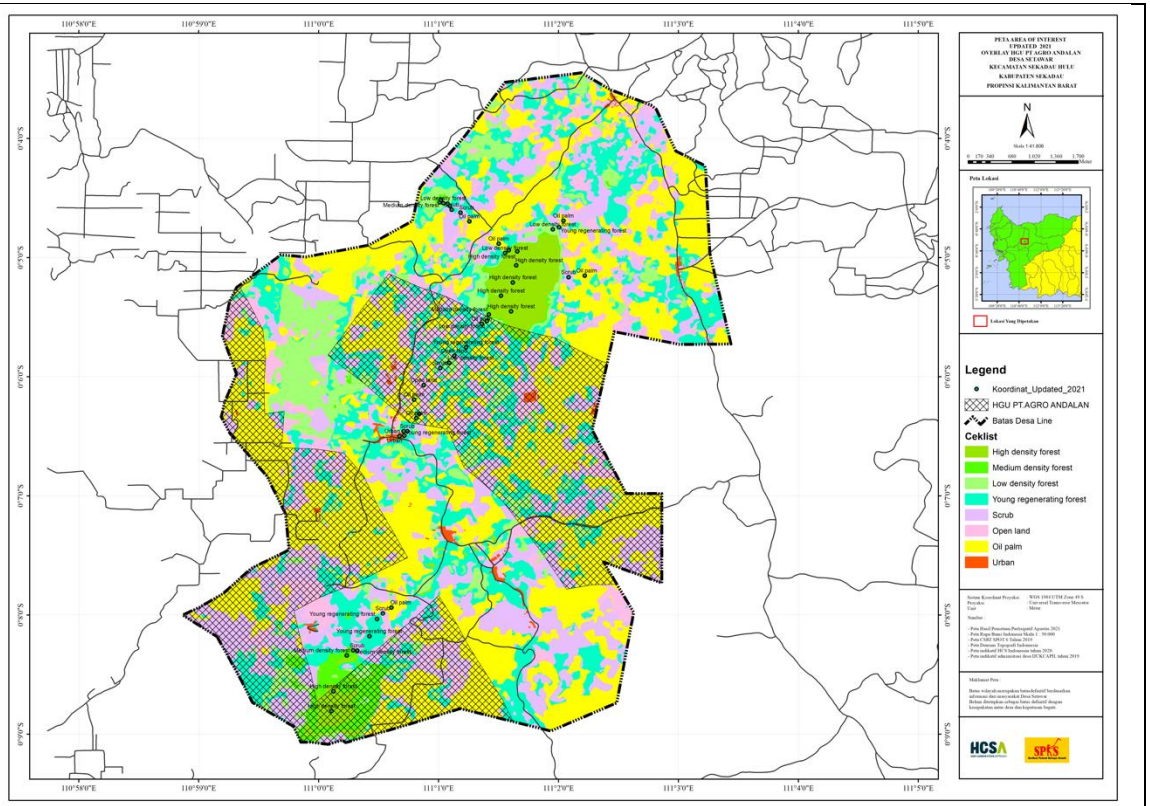
In addition, it is necessary to consider the use of simple tools that are easy to use by verification team. During the field check process, the field team should bring at least a GPS, camera, checklist, stationary, tape measure and cellular phone with GPS and camera applications (e.g., SW Map or other relevant applications). Since to bring all these items can be quite 'burdensome', it might be useful to consider developing an (offline) application for a smartphone that contains the checklist with camera features and the ability to mark coordinates that can integrate with the main server later (with review and saving processes before sending the data). For instance, SPKS uses Kobo Toolbox to survey smallholders and draw polygons of smallholders' plantations. It may be useful to consider employ such tool to facilitate the field check.

Another thing to note for the field check is that the checklist does not include carbon accounting just tree size estimation, so it may require further interpretation by expert or justification when the carbon accounting results are questionable.

Examples of participatory maps are as follows:

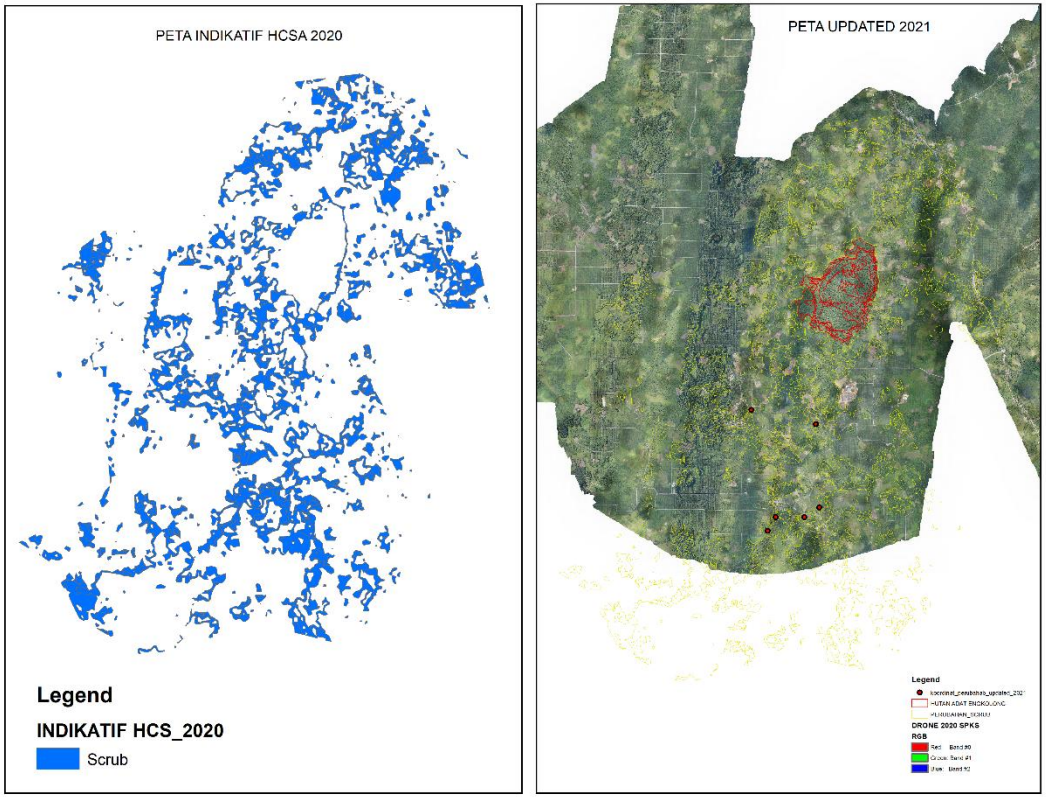



Map 1 Setawar Village administrative area, Important Community Areas (3 forests), and HGU concessions

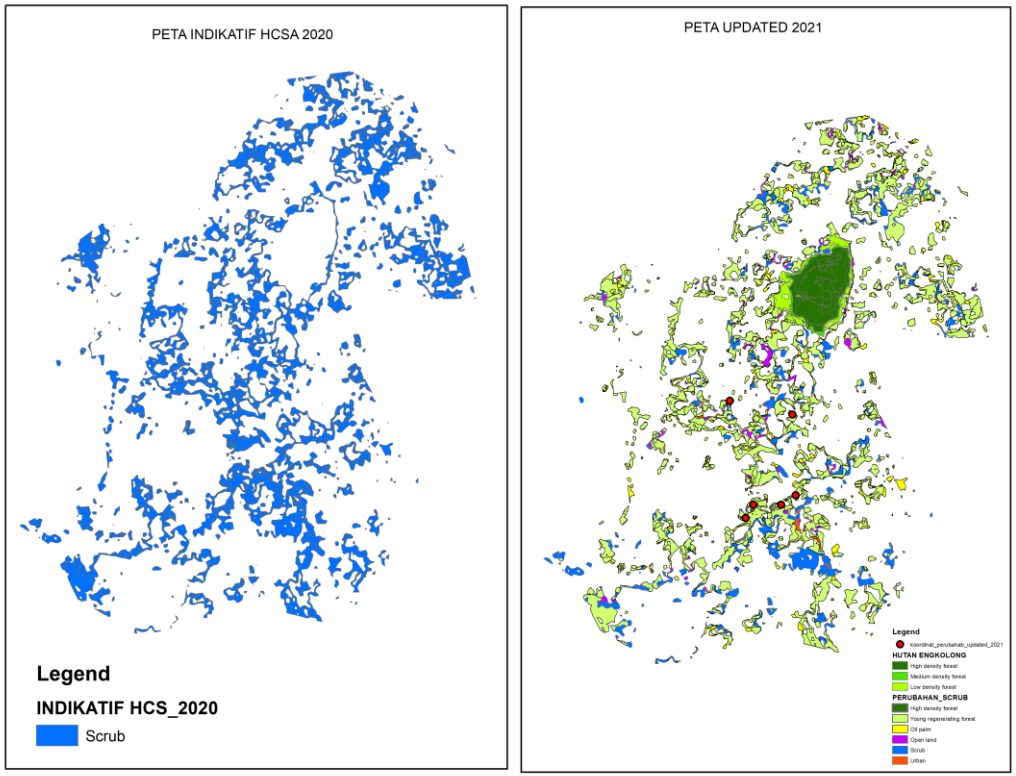



Map 2 Showing indigenous forest cover within the Area of Interest/AOI and classification of the HCS cover and HGU concession

Use of different methods could produce different results. Several differences are found by comparing the updated map of Setawar Village using participatory process and field verification compared to the 2020 HCSA indicative map. The image below shows a comparison map for scrub areas.




Map 3 Changes in scrubs, shown comparing HCSA 2020 indicative map and drawing using drone as an updated map of HCSA 2021.




Map 4 Scrub on the 2020 HCSA indicative map is interpreted as HDF, MDF, YRF or even oil palm. The zoomed in image below from drone shows the issue


Area marked with star sign is one of the examples of interpretation differences from the 2020 HCSA indicative map. Based on the 2021 participatory mapping, the area should be medium density forest instead of scrub. The table below shows the area difference resulted from the existing interpretation.

<table>
<tr>
<td></td>
<td>
<table>
<tr><td>XXXXX</td><td>Scrub (Ha in 2020)</td><td>1250.36</td></tr>
<tr><td rowspan="6">Update (ha in 2021 following verification)</td><td>High-density forest</td><td>5,48</td></tr>
<tr><td>Oil palm</td><td>91,43</td></tr>
<tr><td>Open land</td><td>47,24</td></tr>
<tr><td>Scrub</td><td>224,49</td></tr>
<tr><td>Urban</td><td>8,84</td></tr>
<tr><td>Young regenerating forest</td><td>872,88</td></tr>
</table>
</td>
</tr>
<tr>
<td>Stage 6 Management and Monitoring Plan<br>  </td>
<td>In this stage, the results of the previous stages, including indicative map, social mapping result and field check result, are crucial documents to develop forest management and monitoring plan by smallholders and the community. The following are three important activities at this stage:<br>1. Describing function/utilisation, threats, and jointly planned programs related to the essential resources, which are agreed to be included in management plan development. The table below is revision of the previous version related to essential resource.<br>2. Inventorying conflict potential and developing the necessary conflict resolution plan while identifying relevant parties to conduct negotiation or other forms of resolution.<br>3. Developing management plan for forest protection.<br><br>Output of the process is minute of third meeting containing agreement and plan regarding forest and other essential area management that are likely to be implemented by the community. In addition to serving as the FPIC evidence the minute of meeting can also serve as the guideline for issuing regulation at community or village government level on forest and other essential management containing planning, protection, utilisation, and sanction or prohibition.</td>
</tr>
</table>

The following is revised table of essential resource identification and management directive based on the agreed important areas.

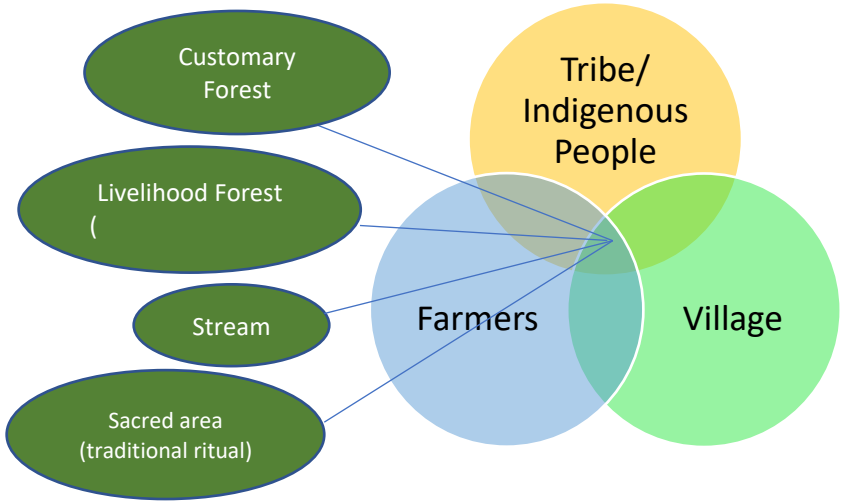
## Important Resources Identification

| List of Resources | | | Management and Monitoring Plan | | | |
|---|---|---|---|---|---|---|
| **Important Resources** | **Function** | **Threat** | **Programme** | **Activity** | **Indicator** | **Actors** |
| Cultural site *(pedagi)* | Ceremonial/harvesting ritual sites | | Land availability/the cultural sites are maintained | | Well-maintained cultural sites | *Pomang*, smallholders, *kadat*, etc. |

See **Section II** for example of the inventory of important resources as well as their management direction and plan.

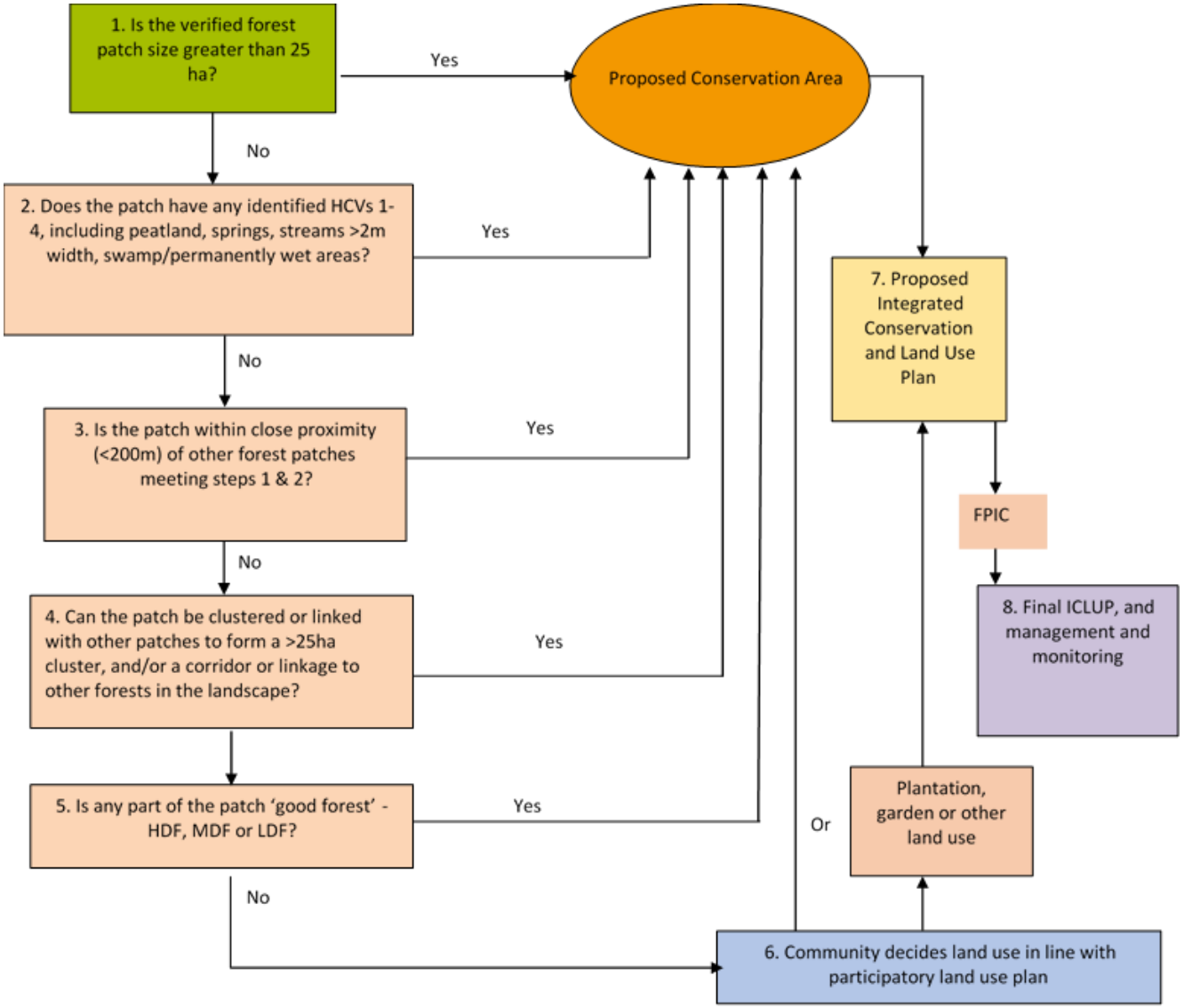
| General Feedback | |
|---|---|
| Simplicity | Module outlines should be simplified so that the readers (technical team, local team, and facilitators) can understand the key purpose and main elements of the module.<br><br>It is also recommended to create a pocketbook or manual containing simple technical information including introduction and techniques to identify HCS-HCV areas, technical terminology, tools, materials, and the procedure for implementation. |
| Terminology | Changing technical terminology with understandable terms or adding an operational definition. A glossary of technical terms used in the modules should be developed and incorporated here or appended separately in form of practical technical guideline for smallholders[32]. |
| Implementation of HCS-HCV | Implementation of the HCS-HCV Approach can be done through the following initiatives:<br>• Institutional initiative of smallholders, community, or at village level: institutions for smallholders, community or village that are committed to forest protection can collaborate with a facilitating organisation that has experience or a partnership with HCSA to implement the Simplified HCS-HCV Approach.<br>• Assistance initiative: the assisting organisation or appropriately experienced private sector may build a partnership with the HCSA to initiate the implementation of the HCS-HCV Approach jointly with institutions of smallholders, community or the village with potential for forest protection on their land. |
| Conflict Resolution | The conflict resolution mechanism and conflict resolution management unit in Area of Interest is highly dependent on the typology of the existing or emerging conflict. Thus, the process will be different from one region to another unless the conflict typology is similar, in which the similar conflict resolution mechanism may be able to be applied. For example, in trial HCS-HCV Approach implementation in four villages, the territorial border of the village, family or individual is identified as the conflict typology. The proposal for conflict resolution can be done through a series of stages, namely: |

[32] Technical terms including those used in forestry, abbreviations and the operational way/ technical instruction for verification and identification (if needed for a field guide)

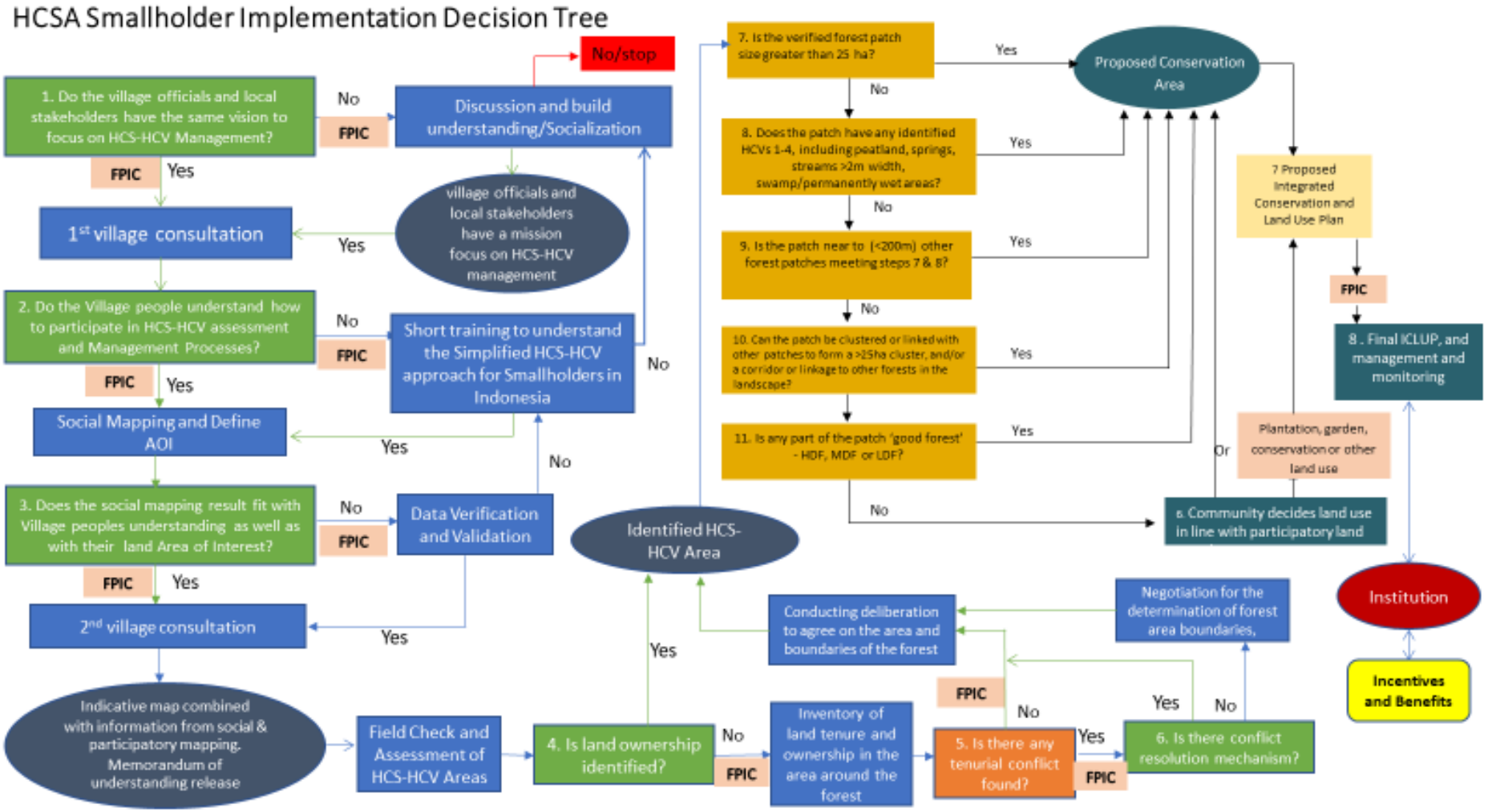
| | |
|---|---|
| | 1. A participatory inventory of land ownership and tenure around forest area, that is facilitated by indigenous leaders or village government;<br>2. A participatory negotiation for delineation of forest area boundaries, and land tenure and ownership around the forest, including a shared field demarcation process to jointly walk, mark and agree on the positions of the boundaries;<br>3. Conducting a meeting to agree on the area and boundaries of forest facilitated by the village head, sub-village head, and village indigenous leader. |
| Institution and Beneficiaries (incentives and Benefits) | Beneficiaries of the simplified HCS-HCV Approach implementation should be a member of the community i.e., indigenous people, smallholders, and village community members in general. The institution for incentive and benefit management should also represent the three parties. Incentive and benefit management should also consider the form of protection, rehabilitation or restoration, monitoring of each important area that had been agreed for protection, such as customary forest areas, village *tembawang*, regular forest (*bawas*) and sacred areas.<br>  <br> |

| | |
|---|---|
| Forest Protection and Management Plan | HCSA introduces a decision-tree tool to guide decision making on forest areas - otherwise called 'patch analysis decision-tree' of Simplified HCS forest. The FPIC component of the Decision-Tree is only identified as at the end prior to defining the conservation areas in the ICLUP. To make it clearer that FPIC is part of all stages, following the trial implementation, the proposed new framework has FPIC from stage one and via the awareness and socialisation stage. If information is well delivered and consent is achieved during the socialisation stage, it can proceed with the next step. In addition to FPIC implementation, the updated framework also emphasises the conflict resolution process before proceeding with the management planning. This is important to allow clear management area boundaries and prevent from any conflict or dispute. |

## Patch Analysis of HCSA (initial version)



# Update Decision Tree



# Section IV: Closing Remarks and Recommendation

## The approach and its challenge (Key Takeaways)

This is not the end, but just the beginning of something big and good. This is about the implementation of an approach as the framework that can be used by smallholders to protect forest and support the community's rights and livelihood. There are some points to consider during the process.

1. Make it a common priority and urgent process of all parties in the community, including local government, customary community, and interested Indonesian stakeholders in general.
2. It is important to consider the parties that can apply this approach and the extent of impact and benefits they will receive, as well as their level of preparedness when the approach is implemented in a community.
3. It is also important to add the SWOT framework to the assessment so that not only general needs, but also the community's specific needs are considered. By mapping the threats, strengths, opportunities, and weaknesses in this way, at the end of the process it will produce good and sustainable forest protection practices.

## Recommendations

There are some important recommendations as follows:

a. Develop an HCS-HCV assessment method that is easier to use by the village community and oil palm smallholders. This includes the development of field manuals that serve as the guideline for the community to implement the HCS-HCV assessment. The manuals will aid in community capacity building through training in HCS-HCV assessment for oil palm smallholders.

b. Form and strengthen an oil palm smallholder organisation. The organisation has so far accommodated programs from government, company's Corporate Social Responsibility (CSR) program, or other independent institutions, such as CSRs/NGOs. The oil palm smallholder organisation has typically yet to become an independent institution to run its own activities without depending on an external party.

c. Form and strengthen a forest resource management institution. The institution or organization that manages important forest resources is established among the oil palm smallholder community. The institution ensures that land management including any oil palm expansion and management conducted by smallholders adopts sustainability principles and introduces the concepts in the HCS-HCV Approach. In addition, the institution should plan and implement *participatory* forest resource management and protection. In addition to forest resource management and protection, the institution serves as facilitator for capacity building of smallholder groups. The institution also manages any incentive funds obtained for implementing the HCS-HCV Approach.

d. At the next phase of the Simplified HCSA-HCV Approach for Smallholder

implementation, incentives and benefits as well as a financing mechanism and local institution to manage the funds, are planned to be trialled through being integrated with forest resource management and monitoring.

e. Conduct inventorying of all forest resources, in addition to customary forest, protection forest and sacred forest. Communities all over Indonesia have different forest categories depending on values, uses and tenure. For example, *Tembawang* forest is a cultural forest heritage of Dayak indigenous peoples in West Kalimantan. The forest has major current and potential as source of livelihood and is a complex agroforestry system. Unfortunately, there was insufficient time to map and field check *tembawang* forest. A similar situation is also seen for regular forest or *bawas*. It is recommended that participatory mapping includes all land cover types. In the case of these four villages detailed inventory is still required for *tembawang* and *bawas* forests. Data and information of the two forests will lead to the identification of problem roots and their resolution. Thus, planning for the management and protection of these two forest types will be more able to protect the forests and community rights and livelihoods.

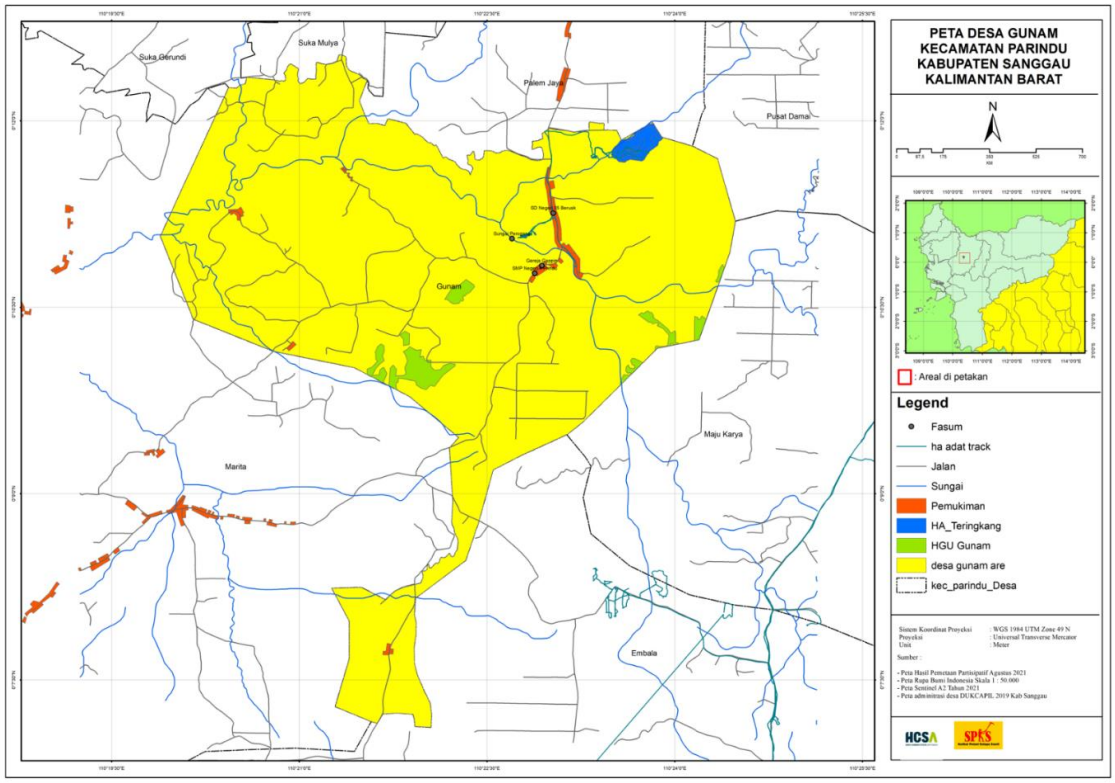
f. Protection forest, sacred forest, and customary forest contain HCS forest and HCVs. These three types of forests can be legally proposed as customary forest within the local government framework. The objective is that the local government legally recognises and protects the forests, so that the HCS forest and HCV areas will be well-maintained.

g. To achieve equitable cooperation between smallholders who protect forests and the private sector players in the landscape, it requires private the sector's commitment to assist the smallholders to sustainably protect the forests. Private sector (or other sectors) can commit to assisting oil palm smallholders to protect and restore their forests by rehabilitating or restoring forest on potential lands.

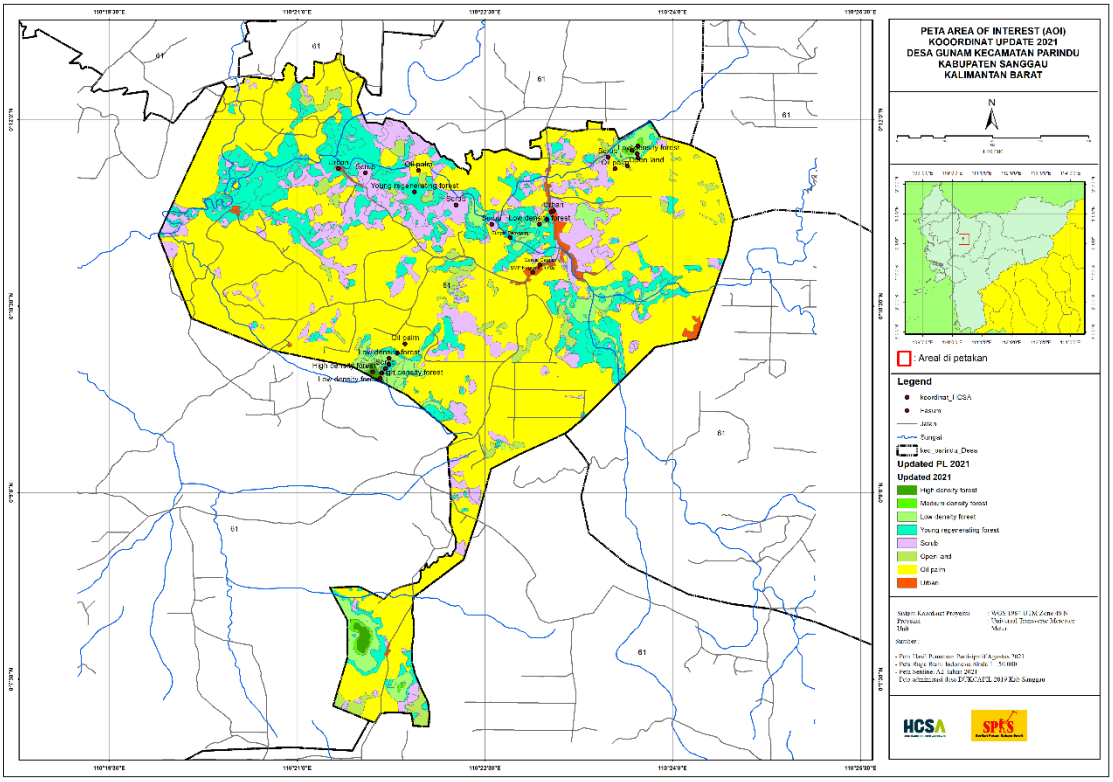
# Annexes

# Annex 1 Gunam Village

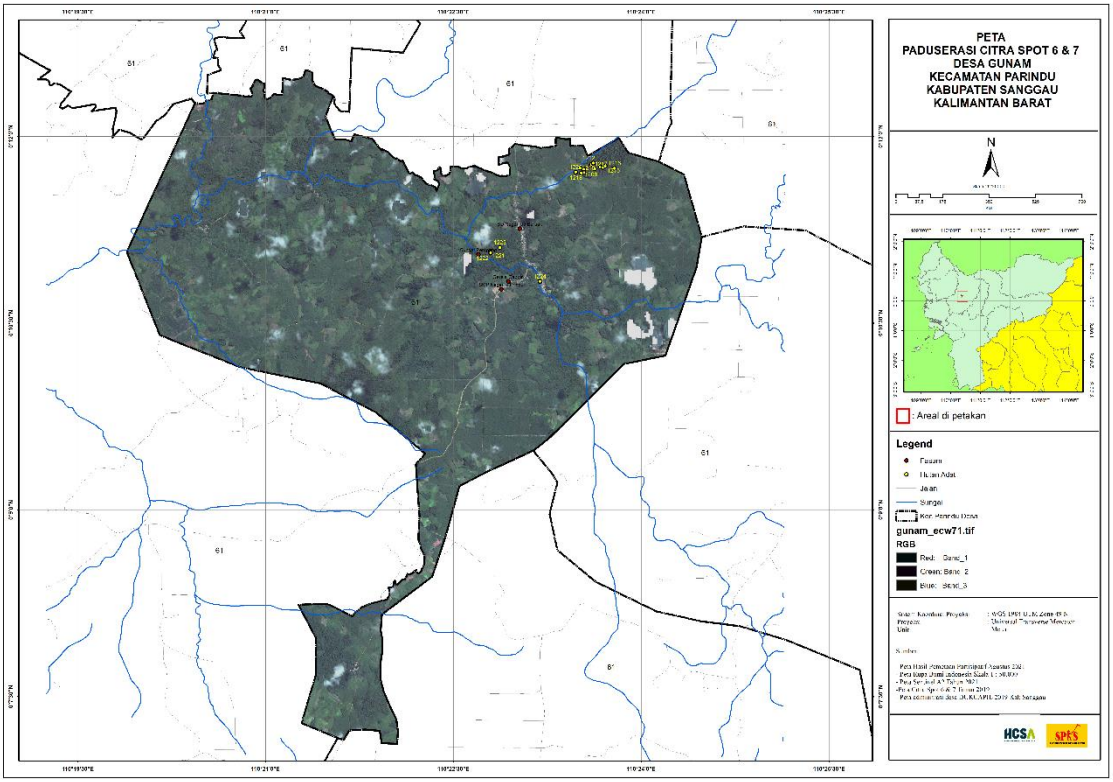
## Annex 1a Map of Gunam Village Administrative Area



## Annex 1b Updated HCSA 2021



## Annex 1c Land Cover in Gunam Village



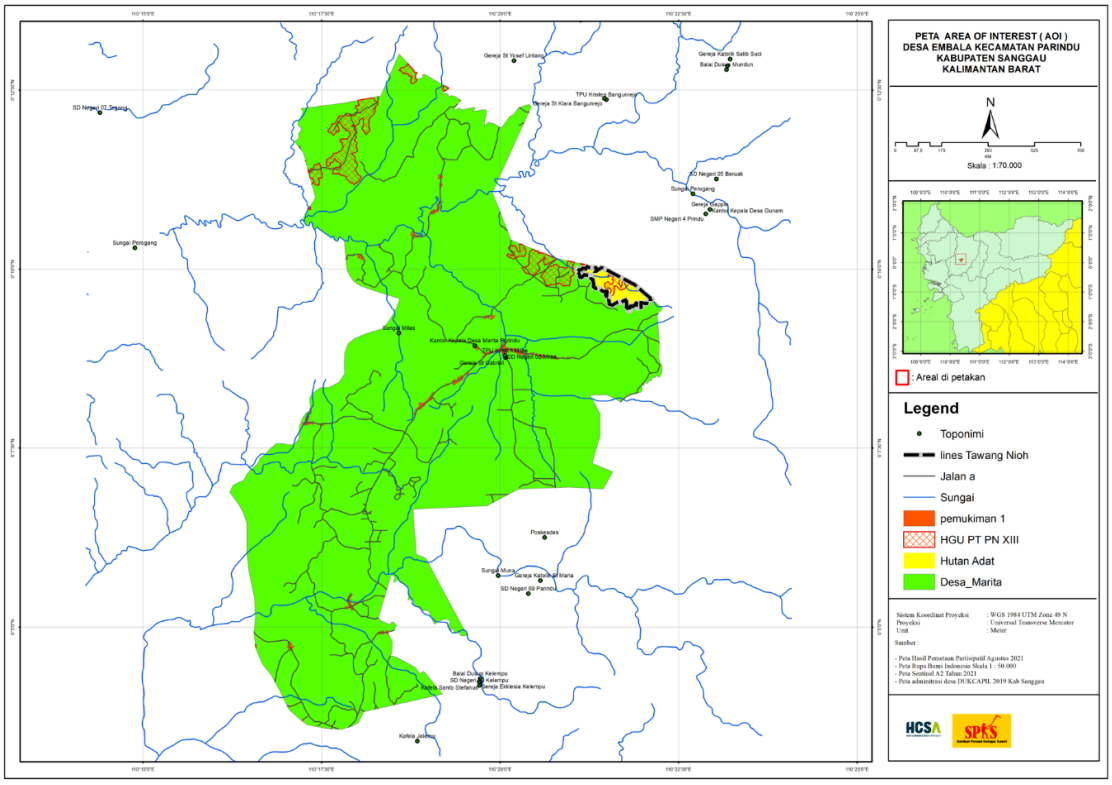
Annex 1d Conservation Status of HCVs at Gunam Village

| High Conservation Value (HCV) | Presence | | Description |
|---|---|---|---|
| | Yes | No | |
| **HCV 1 Biodiversity** | | | |
| ● Endemic vegetation and animal species | x | | **Vegetation species**<br>1. *Meranti batu* (*Shorea platyclados*): IUCN EN, CITES X, P106 X; |
| ● Rare vegetation and animal species | x | | **Vegetation species**<br>1. *Meranti batu* (*Shorea platyclados*): IUCN EN, CITES X, P106 X;<br>2. *Tapang* (*Koompassia excelsa*): IUCN CD, CITES X, P106 X;<br>3. *Beringin* (*Ficus benjamina*): IUCN LC, CITES X, P106 X;<br>4. *Ubah* Tree (*Syzygium lineatum*): IUCN X, CITES X, P106 X;<br>5. *Tapah* Tree (*Merremia peltata*): IUCN X, CITES X, P106 X;<br>6. *Guro/Ulin* Tree (*Eusideroxylon zwageri*): IUCN VU, CITES X, P106 X;<br>7. *Kompah* Tree (*Dyera costulata*): IUCN LC, CITES X, P106 X.<br><br>**Wildlife species**<br>1. Bornean clouded leopard (*Neofelis diardi* spp. borneo): IUCN EN; CITES App I; P106 Yes.<br>2. Southern pig-tailed macaque (*Macaca nemestrina*): IUCN VU, CITES X, P106 X. |
| ● Migrated wildlife species (present at a certain of time) | | x | |
| **HCV 2 Ecosystem and Mosaic at landscape level** | | **x** | |
| ● Large intact landscape or ecosystem | | x | |
| **HCV 3 Ecosystem and Habitat** | **x** | | |
| - Rare, endangered, or nearly extinct ecosystem | x | | Ecosystem of Teringkang customary forest is a habitat to *meranti batu* (*Shorea platyclados*). Conservation status of this species according to IUCN is Endangered. |
| **HCV 4 Ecosystem services** | | | |
| - Is it a riparian area or close to riparian area? | x | | A very crucial ecosystem service along the river. River Ensabal is the sub-watershed of Kapuas watershed. This watershed is a unique landscape of water sources as it is the longest river in Indonesia with 1,143 km length.<br><br>River Ensabal River has essential meaning to Gunam community. It serves as the source of water to meet the domestic needs such as dish washing, bathing, fish protein needs, and irrigation to a few community fields.<br><br>In addition to River Ensabal, Gunam Village has other 9 rivers. One of them is River Enkajau as the other large river in addition to Ensabal. There are |

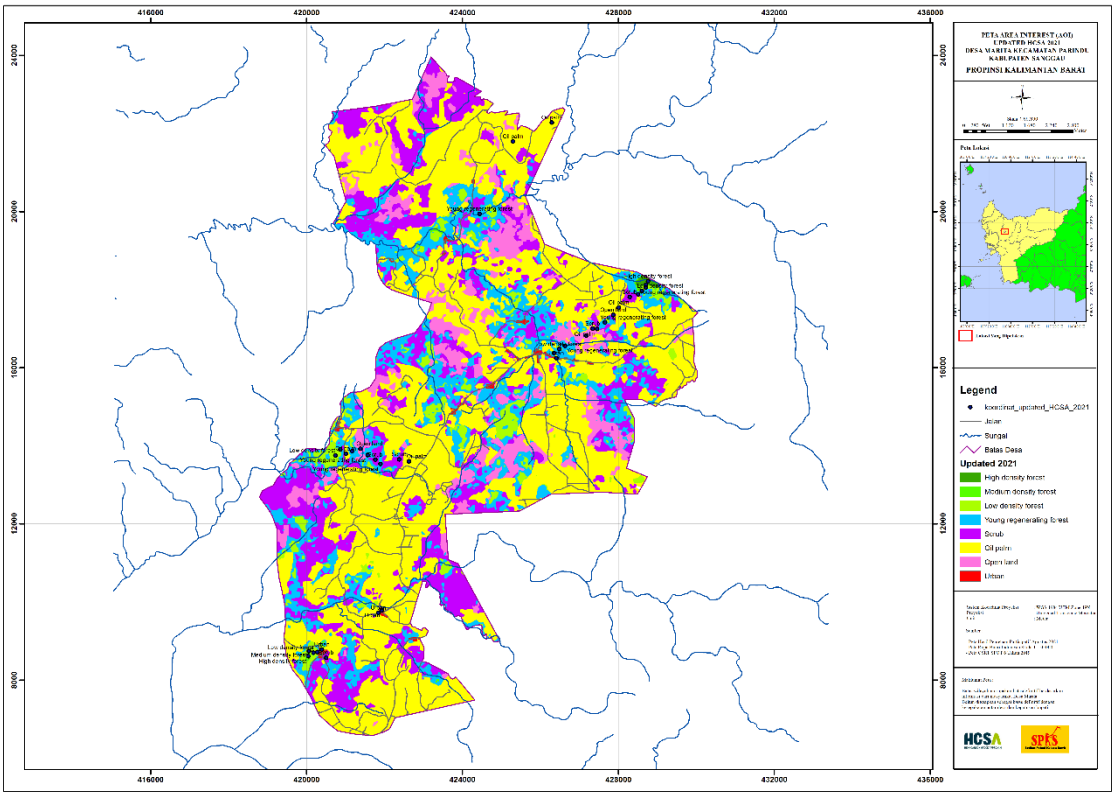
| High Conservation Value (HCV) | Presence | | Description |
|---|---|---|---|
| | Yes | No | |
| | | | 10 rivers in total in Gunam. They can protect forest ecosystem, particularly young forests in Gunam. |
| **HCV 5 Community needs** | | | |
| - Is there any area providing ecosystem services? | x | | The main ecosystem service providers are Teringkang customary forest and Ensabal sub-watershed. |
| - Area for non-timber forest product (NTFP) harvesting, including food and medicine. | x | | Forest plays important role to Gunam Village community livelihood. *Tembawang* forest serves as the food and fruit estate to the extended family members.<br>Fruits (as one of the NTFPs used by the community to meet their needs for food) include *durian,* lanzone, starfruit, *rambutan*, *mentawak*, chempedak. The fruits are harvested in this forest. Another NTFP to harvest is rattan in young and old forests. |
| - Is the area used to harvest timber for house building material? | x | | The community harvest timber for domestic needs at the young forest owned by household. They use rubber tree and other young trees as firewood.<br><br>The community meets the needs for carpentry and house building materials from several vegetation species, such as *meranti, belian* (rare) and other trees with large diameter. |
| **HCV 6 Cultural value** | | | In Gunam administrative area, there are two sacred sites. |
| Is the area sacred or customary forests? | x | | 1. Teringkang customary forest is protected by Gunam Village community. The forest is considered sacred /protected by the community/indigenous people institution in Gunam.<br>2. *Pedagi* is a sacred site used for spiritual ceremonies to ask for the success of the community and family. Gunam has some *pedagis*, but the major *pedagis* are 1) *Pedagi* in Abai Manap Sub-village; 2) *Pedagi* in Pulau M'poh Sub-village; and 3) *Pedagi* Buto Kasim, Buto Suleman. |

# Annex 2 Marita Village Administrative Area

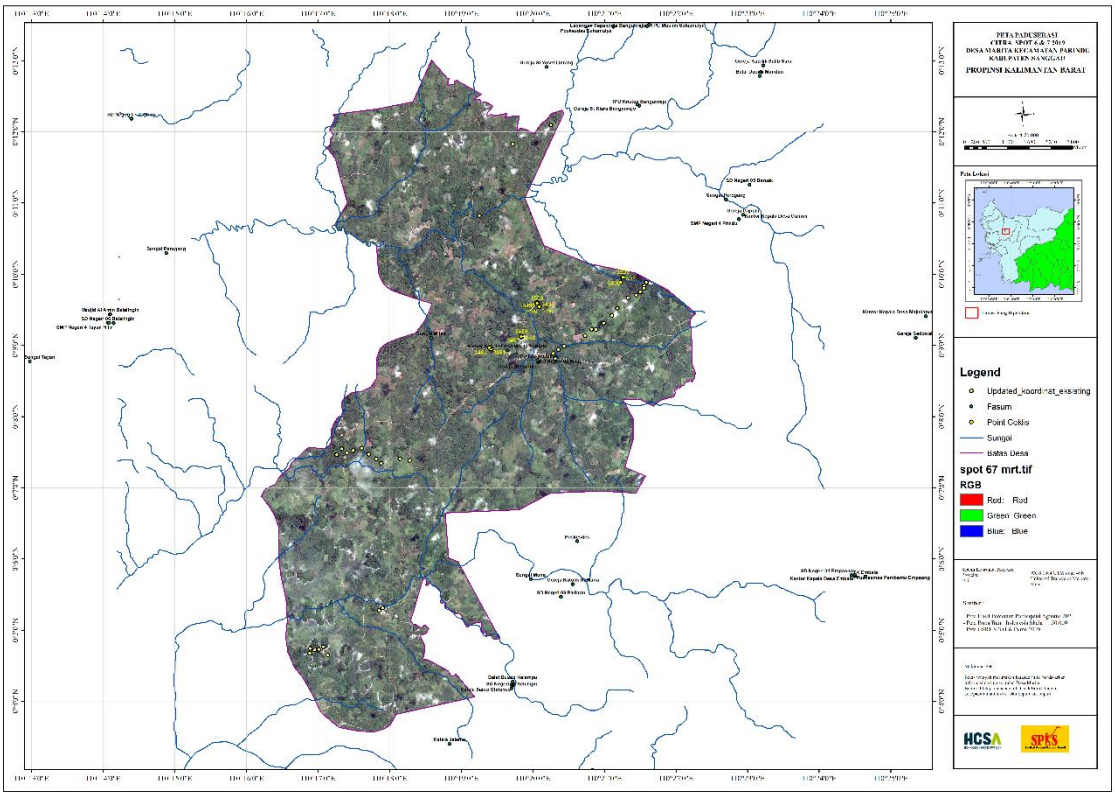
## Annex 2a Map of Marita Village Administrative Area



## Annex 2b Updated HCSA 2021



## Annex 2c Land Cover in Marita Village



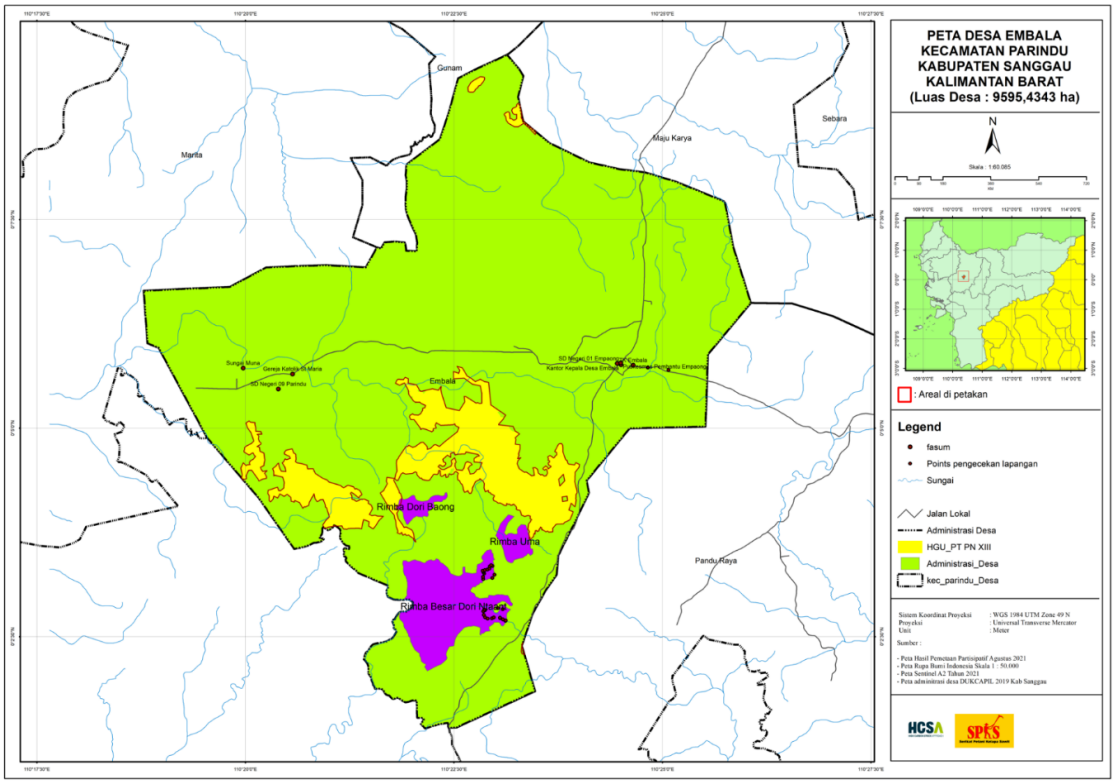
Annex 2d Conservation Status of HCVs at Marita Village

| High Conservation Value (HCV) | Presence | | Description |
|---|---|---|---|
| | Yes | No | |
| **HCV 1 Biodiversity** | | | |
| ● Endemic vegetation and animal species | x | | **Vegetation species**<br>1. *Meranti batu* (*Shorea sp*): IUCN EN<br>2. *Keladan* wood (*Dryobalanops* sp.): IUCN CR |
| ● Rare vegetation and animal species | x | | **Vegetation species**<br>1. *Meranti batu* (*Shorea sp*): IUCN EN<br>2. *Tapang* (*Koompassia excelsa*): IUCN CD<br>3. *Pulai* (*Alstonia scholaris*): IUCN LC<br>4. *Ubah* Tree (*Syzygium lineatum*): IUCN X<br>5. *Ramin* Tree (*Gonystylus bancanus*): IUCN CR<br>6. *Belinjo Hutan* Tree (*Eusideroxylon zwageri*): IUCN LC<br>7. Rattan (*Eremospatha* sp.)<br><br>**Animal species**<br>1. Bornean clouded leopard (*Neofelis diardi* spp. borneo): IUCN EN<br>2. Southern pig-tailed macaque (*Macaca nemestrina*): IUCN VU<br>3. Asiatic softshell turtle (Amyda cartilaginea): IUCN VU |
| ● Migrated animal species (present at a certain of time) | | x | |
| **HCV 2 Ecosystem and Mosaic at landscape level** | | **x** | |
| ● Large intact landscape or ecosystem | | x | |
| **HCV 3 Ecosystem and Habitat** | **x** | | |
| ● Rare, endangered, or nearly extinct ecosystem | x | | Ecosystem in Tawang Nioh forest is a habitat to *meranti batu* (*Shorea sp*). Conservation status of this species according to IUCN is Endangered. In addition to *meranti batu*, there is also *keladan* (*Dryobalanops* sp.). Conservation status of this species according to IUCN is Critically Endangered. |
| **HCV 4 Ecosystem service** | | | |
| ● Is it a riparian area or close to riparian area? | x | | A very crucial ecosystem service along the river. River Ensabal is the sub-watershed of Kapuas watershed. This watershed is a unique landscape of water sources as it is the longest river in Indonesia with 1,143 km length.<br><br>River Ensabal has essential meaning to Marita Village community. It serves as the source of water to meet the domestic needs such as dish washing, bathing, fish protein need, and irrigation to small parts of community fields.<br><br>In addition to River Ensabal, Marita Village has 10 other rivers, including Mipuk and Sebaner. |
| **HCV 5 Community needs** | | | |

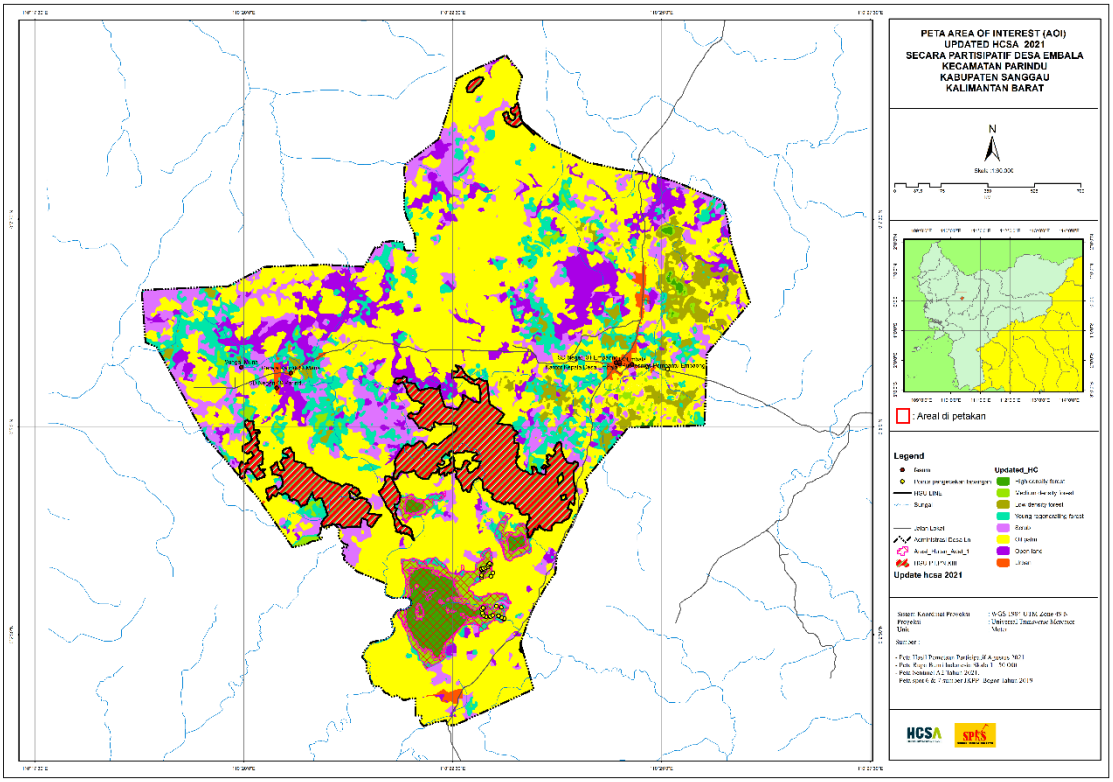
| High Conservation Value (HCV) | Presence | | Description |
|---|---|---|---|
| | Yes | No | |
| ● Is there any area providing ecosystem services? | x | | The main ecosystem service providers are Tawang Nioh forest and River Mipuk. |
| ● Area for non-timber forest product (NTFP) harvesting, including food and medicine. | x | | Forest plays important role for Marita Village community livelihood. *Tembawang* forest serves as fruit estate to the extended family members.<br><br>Fruit (as one of the NTFPs used by the community to meet their needs for food) include *durian,* lanzone*, belimbing darah, rambutan, mentawak*, and chempedak.<br><br>The fruits are harvested from *tembawang* forest. Another NTFP to harvest is rattan in the regular forest. |
| ● Is the area used to harvest timber for house building material? | X | | The community harvest timber for domestic needs at the young forest owned by household. They use rubber tree and other young trees as firewood.<br><br>The community meets the needs for carpentry and house building materials from several vegetation species, such as *meranti, ubah* wood, *jelutong* wood (*Dyera costulata*), *pras* wood, *yotu* wood, and other trees with large diameter. |
| **HCV 6 Cultural value** | | | |
| Is the area sacred or customary area? | X | | In the Marita administrative area, there are several sacred sites.<br>1. Pulau Benuang area is a small forest area (or *pulau* in local language). The small forest is located in between the community's oil palm and rubber plantations.<br>2. *Pedagi* is a sacred site used for spiritual ceremonies to ask for the success of the community and family. |

# Annex 3 Embala Village

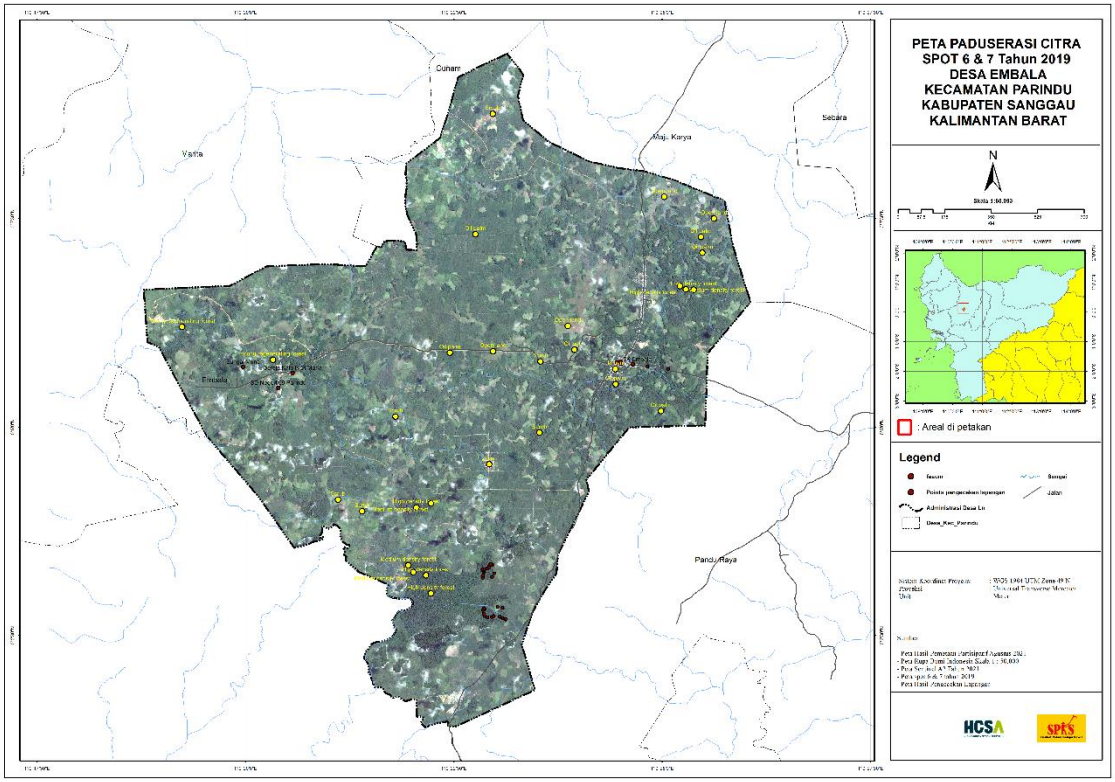
## Annex 3a Map of Embala Village Administrative Area



## Annex 3b Updated HCSA 2021



## Annex 3c Land Cover in Embala Village



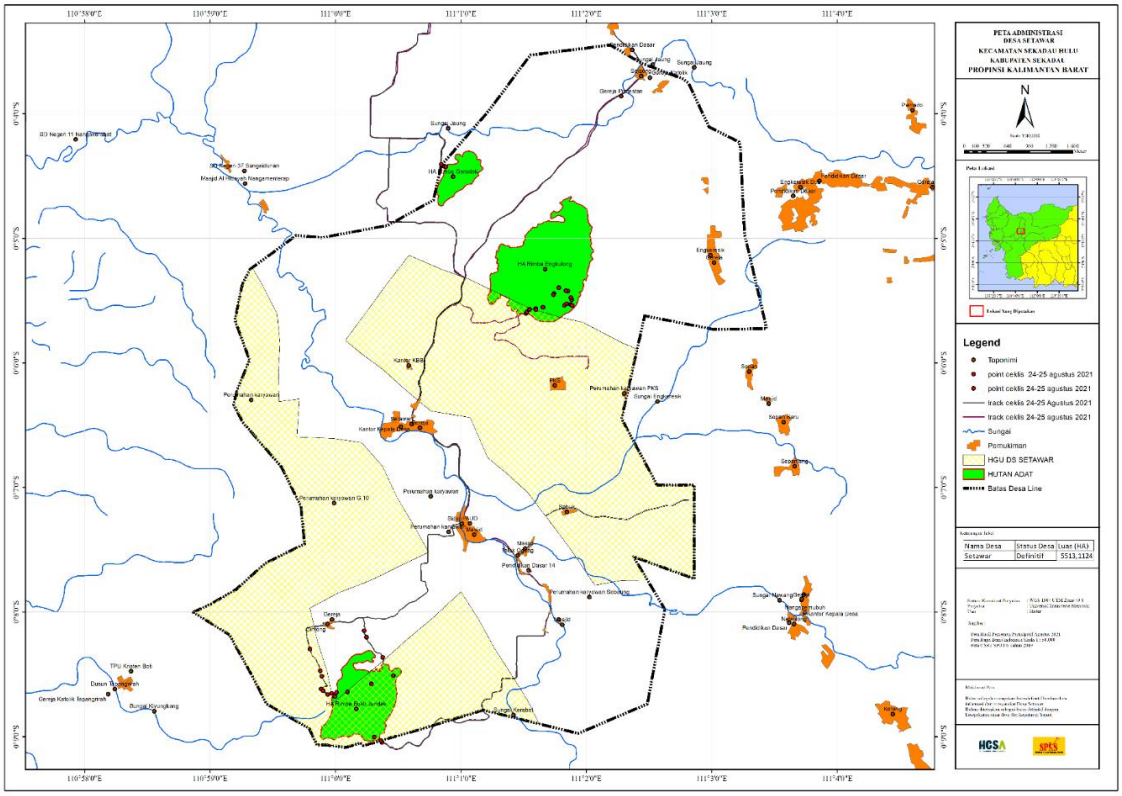
Annex 3d Conservation status of HCVs at Embala Village

| High Conservation Value (HCV) | Presence | | Information |
|---|---|---|---|
| | Yes | No | |
| **HCV 1 Biodiversity** | | | |
| ● Endemic vegetation and animal species | x | | **Vegetation species**<br>1. *Meranti batu* (*Shorea platyclados*): IUCN EN, CITES X, P106 X; |
| ● Rare vegetation and animal species | x | | **Vegetation species**<br>1. *Meranti batu* (*Shorea platyclados*): IUCN EN, CITES X, P106 X;<br>2. *Belian*: information from local community<br>3. *Keladan*: information from local community<br>4. *Pontai*: information from local community<br>5. *Omang*: information from local community<br>6. *Tengkawang*: information from local community<br>**Animal species**<br>1. Southern pig-tailed macaque (*Macaca nemestrina*): IUCN VU, CITES X, P106 X.<br>2. Deer: information from local community<br>3. Thick-spined porcupine and long-tailed porcupine: information from local community<br>4. Porcupine: information from local community<br>5. Tragulus: information from local community<br>6. Muntjac: information from local community<br>7. Eagle: information from local community |
| ● Migrated animal species (present at certain time) | | x | |
| **HCV 2 Ecosystem & Mosaic of landscape level** | | **x** | |
| ● Large intact landscape or ecosystem | | x | |
| **HCV 3 Ecosystem and Habitat** | **x** | | |
| ● Rare, endangered, or nearly extinct ecosystem | x | | Besar customary forest is one of the remaining ecosystems in which rare trees and animals grow and inhabit. Based on the information from local community, the rare trees include *belian, keladan, pontai, omang*, and *tengkawang* in Besar Forest. |
| **HCV 4 Ecosystem services** | | | |
| ● Is it a riparian area or close to riparian area? | X | | In Embala Village, there are 19 rivers, including Empaong, Muna, Temurus, Balaikolik, Serumbang, Mapay, Rerang, Garong, Tempayang Besar, Tempayan Kecil, Roti, Stamput, Palahorut, Lobaksereang, Sedoya, Labak, Sebuduh Kecil, Sebuduh Besar, and Aru.<br>Rivers are the spot for fish catching, drink water (boiling needed), bathing, washing, and swimming. |
| **HCV 5 Community needs** | | | |
| ● Is there any area providing ecosystem services? | X | | All customary forests, mainly those in Besar Forest, and the rivers located inside them: [(1) Mungguetaant/ Doritaant; (2) River Keladan and River Katak; (3) Tangkurik; (4) Mapay; (5) River Magang; and (6)River Utak keladan |
| ● Area for non-timber forest product (NTFP) harvesting, including food and medicine. | X | | Forests in Embala, particularly Besar Forest, contains vegetables, plants, and fruits. The vegetables include |

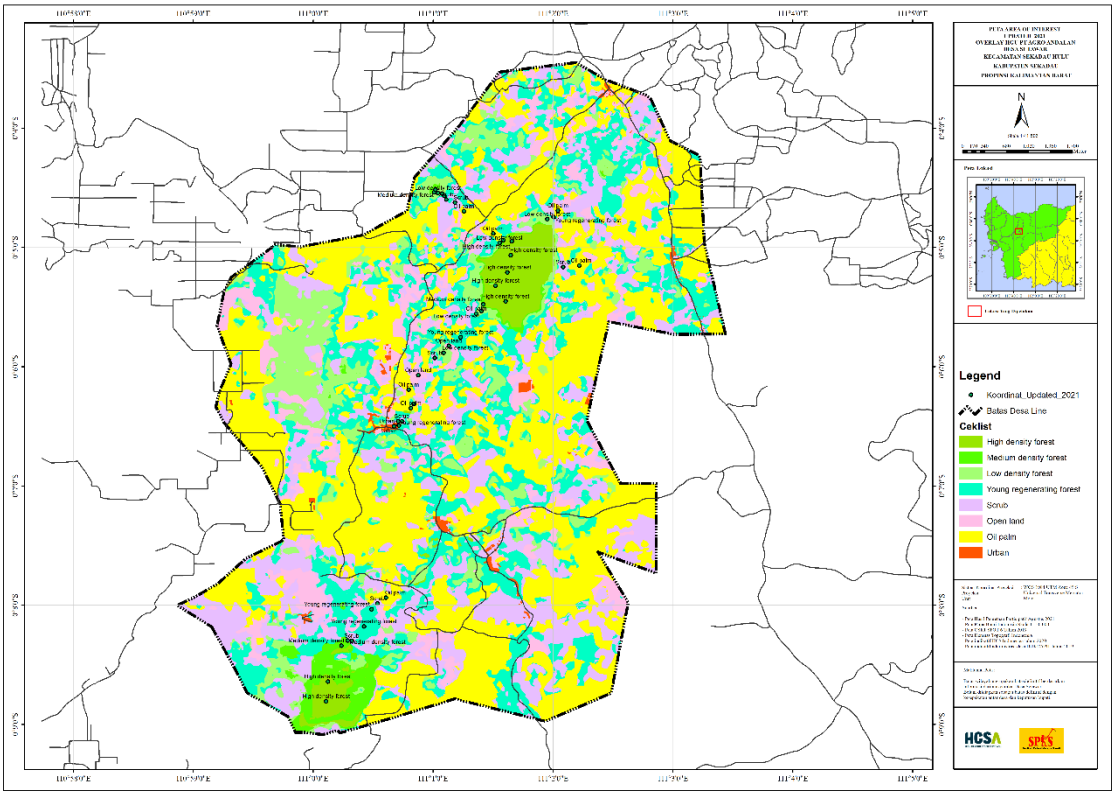
| High Conservation Value (HCV) | Presence | | Information |
|---|---|---|---|
| | Yes | No | |
| | | | *nibong/nibok, engkoruh* (savoury flavour), *porongak, sumpak kala, sumpak jeroyan, lobaek, pakis, rebung, melinjo*, sweet potatoes, *kouh* (flavour enhancer substitute), *kontak*, and rubber. Medicinal vegetation includes *singam* leaf (left-side stomach pain), *kentut* leaf (common cold), *panau* root and leaf, *pekolas* root and leaf, forest ginger leaf (eye care medicine), *jerak* leaf (eye care medicine), *kayu rukap* leaf (eye care medicine), and *umbak batu* leaf (hand muscle sprain). The fruits include *mentawa, rambutan, kemayau,* and *durian*.<br>The rattan species include *nas, kajak, lowa, sigu, marau, joroyat,* and *tungkas*. |
| ● Is the area used to harvest timber for house building material? | X | | To date, timber for house building material is regulated under customary rules. Referring to the rules, tree cutting is allowed only for certain village-related purposes or village community, and in certain number of timbers. |
| **HCV 6 Cultural value** | | | |
| Is the area sacred or customary forests? | X | | Sacred areas: Ompu damouk (Empaong), Pelumpor (Nala), and Ayao (Nala) located at *tembawang* forests.<br>Customary forests: Besar, Mungu Baung, Uma, Mungu Jurung, Menangis, and Gonang |

# Annex 4 Setawar Village

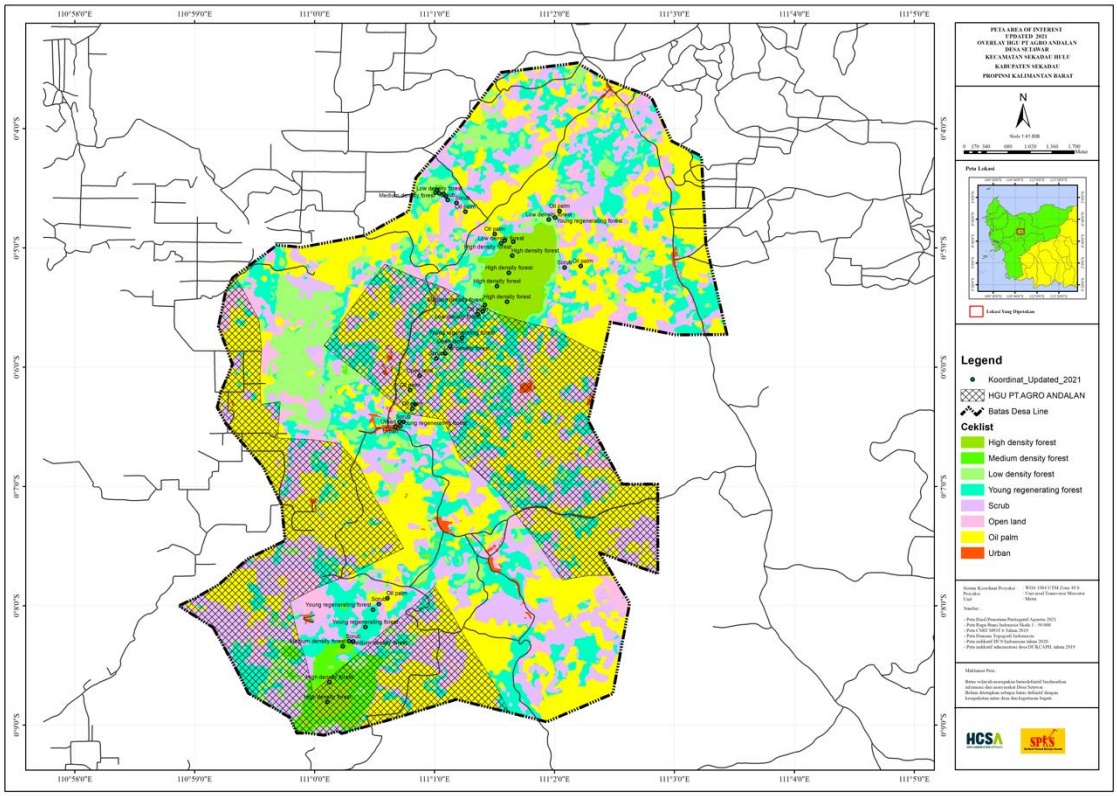
## Annex 4a Map of Setawar Village Administrative Area



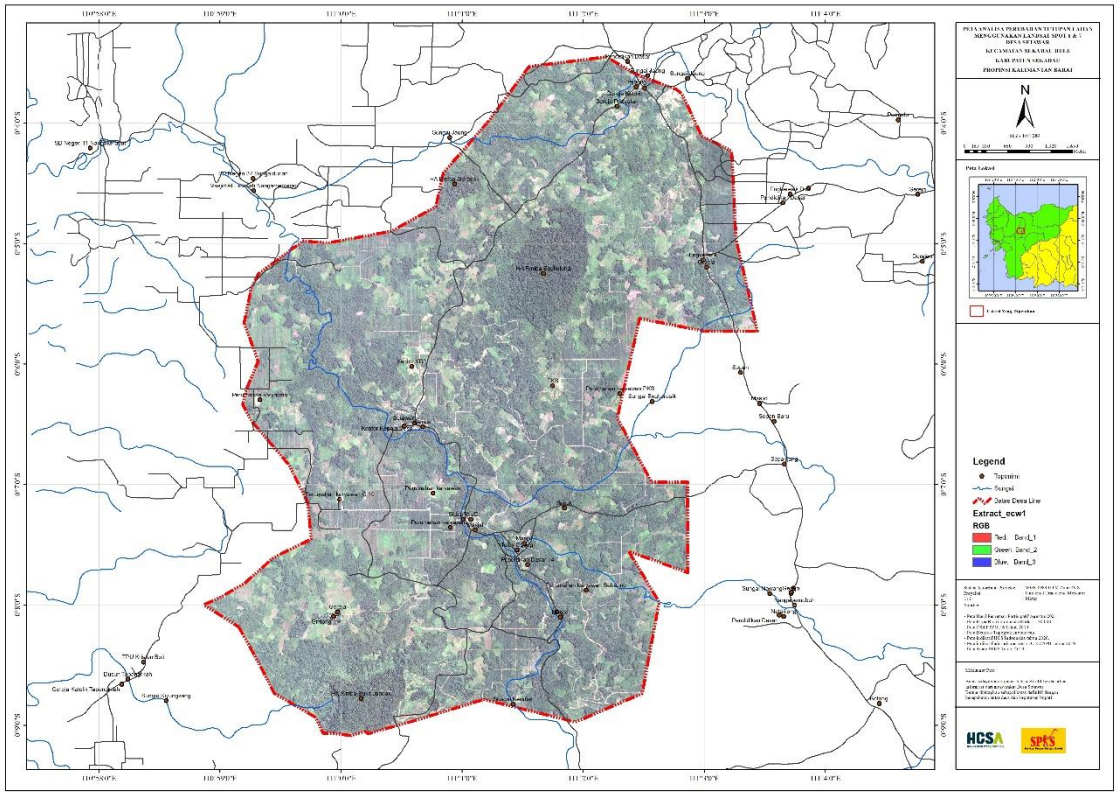
## Annex 4b Updated HCSA 2021



## Annex 4c Updated HCSA 2021 overlay with HGU



## Annex 4d Land Cover in Setawar Village



Annex 4e Conservation Status of HCVs at Setawar Village

| High Conservation Value (HCV) | Presence | | Description |
|---|---|---|---|
| | Yes | No | |
| **HCV 1 Biodiversity** | | | |
| ● Endemic vegetation and animal species | x | | **Vegetation species**<br>1. *Meranti batu* (*Shorea platyclados*): IUCN EN, CITES X, P106 X; |
| ● Rare vegetation and animal species | x | | **Vegetation species**<br>1. *Meranti batu* (*Shorea platyclados*): IUCN EN, CITES X, P106 X;<br><br>**Animal species**<br>1. Southern pig-tailed macaque (*Macaca nemestrina*): IUCN VU, CITES X, P106 X. |
| ● Migrated animal species (present at a certain time) | | x | |
| **HCV 2 Ecosystem & Mosaic of landscape Level** | | **x** | |
| ● Large intact landscape or ecosystem | | x | |
| **HCV 3 Ecosystem and Habitat** | **x** | | |
| ● Rare, endangered, or nearly extinct ecosystem | x | | Ecosystem of Engkulong Forest, Bukit Jundak and Garadok Forests are habitats to *meranti*. |
| **HCV 4 Ecosystem services** | | | |
| ● Is the area riparian or close to riparian area? | x | | Rivers in Setawar include Kerabat, Barang, Musok, and Nyalin, and small rivers such as Mas, Tado, Gintong, Sidap, and Setangkal.<br>River Kerabat is used for clothes washing, fishing (for consumption), sand mining, boat transportation, and playing/swimming. River Musok is used by PT Agro. Water spring is located at Bukit Jundak. |
| **HCV 5 Community needs** | | | |
| ● Is there any area providing ecosystem services? | x | | The main ecosystem service providers are Teringkang customary forest and Ensabal sub-watershed |
| ● Area for non-timber forest product (NTFP) harvesting, including food and medicine. | x | | ▪ Fruits at Engkulong Forest: chempedak*, terutung* (wild *durian*) and *kelampai*.<br>▪ Food at Bukit Jundak: *sengkubak* (flavour enhancer substitute), *tariat* leaf, and mushroom.<br>▪ Medicine at Bukit Jundak: Ginseng and *kayu petak bumi* |
| ● Is the area used to harvest timber for house building material? | x | | Trees/vegetations harvested from Engkulong Forest are *keladan, belian, meranti,* and *rattan* (*segak, luwak, jerong kuku, entai, soru, lalis marau* and *wipata*). *Keladan* tree is rarely found. There is no more *belian* tree left in the forest. No particular area designated for harvesting activity. Trees allowed to cut depend on their sizes. |
| **HCV 6 Cultural value** | | | |
| Is the area sacred or customary forests? | x | | Sacred locations are as follows.<br>1. Bale Rimba Bukit Jundak, Sidap<br>2. Bukit Burus B., Rimba Bukit Jundak, Sidap<br>3. Lake Lindung at Kerabat riparian area, Beransit (outside the forest) |

| High Conservation Value (HCV) | Presence | | Description |
|---|---|---|---|
| | Yes | No | |
| | | | 4. Empagu, River Setawar estuary, Setawar<br>5. Tiang Toras, Gintong Village (outside the forest) |

## Annex 5 Table of the Updated 2021 HCSA Identification Result based on delineation result, drone data, and field check

| No | Village | Latitude | Longitude | proj_X | Proj_Y | Ltime | Indikative HCS_2020 | Update HCSA 2021 | Customary Forest | Remark | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | Embala | 0.044814 | 110.385305 | 431599 | 4954 | 30/07/2021 13:42:50 | Scrub | Young regenerating forest | Rimba Besar Dori Ntaant | Botuh nungol | | |
| 2 | Embala | 0.044894 | 110.385357 | 431604 | 4962 | 30/07/2021 13:48:17 | Scrub | Young regenerating forest | Rimba Besar Dori Ntaant | | | |
| 3 | Embala | 0.045104 | 110.384773 | 431539 | 4986 | 30/07/2021 13:51:52 | Young regenerating forest | Medium density forest | Rimba Besar Dori Ntaant | | | |
| 4 | Embala | 0.045271 | 110.381714 | 431199 | 5004 | 30/07/2021 14:21:56 | Young regenerating forest | Medium density forest | Rimba Besar Dori Ntaant | | | |
| 5 | Embala | 0.045313 | 110.382571 | 431294 | 5009 | 30/07/2021 14:16:42 | Young regenerating forest | Medium density forest | Rimba Besar Dori Ntaant | | | |
| 6 | Embala | 0.045359 | 110.384224 | 431478 | 5014 | 30/07/2021 13:55:59 | Scrub | Young regenerating forest | Rimba Besar Dori Ntaant | | | |
| 7 | Embala | 0.045451 | 110.38419 | 431474 | 5024 | 30/07/2021 13:57:39 | Scrub | Young regenerating forest | Rimba Besar Dori Ntaant | | | |
| 8 | Embala | 0.045499 | 110.382975 | 431339 | 5029 | 30/07/2021 14:08:52 | Young regenerating forest | Medium density forest | Rimba Besar Dori Ntaant | | | |
| 9 | Embala | 0.045527 | 110.381199 | 431142 | 5032 | 30/07/2021 14:27:56 | Medium density forest | High density forest | Rimba Besar Dori Ntaant | | | |

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 10 | Embala | 0.045986 | 110.380963 | 431115 | 5083 | 30/07/2021 14:31:39 | Medium density forest | High density forest | Rimba Besar Dori Ntaant | | | |
| 11 | Embala | 0.046737 | 110.38087 | 431105 | 5166 | 30/07/2021 14:37:12 | Medium density forest | High density forest | Rimba Besar Dori Ntaant | | | |
| 12 | Embala | 0.046923 | 110.381217 | 431144 | 5187 | 30/07/2021 14:58:55 | Medium density forest | High density forest | Rimba Besar Dori Ntaant | | | |
| 13 | Embala | 0.047066 | 110.381063 | 431126 | 5203 | 30/07/2021 14:56:49 | Medium density forest | High density forest | Rimba Besar Dori Ntaant | | | |
| 14 | Embala | 0.047152 | 110.384733 | 431535 | 5212 | 30/07/2021 13:22:58 | Scrub | Young regenera ting forest | Rimba Besar Dori Ntaant | | | |
| 15 | Embala | 0.047377 | 110.383744 | 431425 | 5237 | 30/07/2021 13:17:20 | Open land | Oil palm | | | | |
| 16 | Embala | 0.053155 | 110.380839 | 431106 | 5849 | 30/07/2021 12:28:11 | Scrub | Oil palm | | | | |
| 17 | Embala | 0.053357 | 110.382661 | 431304 | 5898 | 30/07/2021 11:05:58 | Oil palm | Oil palm | | | | |
| 18 | Embala | 0.053574 | 110.380821 | 431100 | 5922 | 30/07/2021 12:21:50 | Young regenerati ng forest | Medium density forest | Rimba Besar Dori Ntaant | | | |
| 19 | Embala | 0.054033 | 110.383086 | 431352 | 5973 | 30/07/2021 11:14:20 | Scrub | Young regenera ting forest | Rimba Besar Dori Ntaant | | | |
| 20 | Embala | 0.054255 | 110.381049 | 431125 | 5997 | 30/07/2021 12:16:27 | Low density forest | High density forest | Rimba Besar Dori Ntaant | | | |
| 21 | Embala | 0.054509 | 110.380914 | 431110 | 6025 | 30/07/2021 12:14:01 | Low density forest | High density forest | Rimba Besar Dori Ntaant | | | |

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 22 | Embala | 0.054702 | 110.380824 | 431100 | 6047 | 30/07/2021 12:10:20 | Low density forest | High density forest | Rimba Besar Dori Ntaant | | | |
| 23 | Embala | 0.054837 | 110.380753 | 431092 | 6061 | 30/07/2021 12:04:56 | Young regenerating forest | Medium density forest | Rimba Besar Dori Ntaant | | | |
| 24 | Embala | 0.054946 | 110.381167 | 431138 | 6074 | 30/07/2021 11:58:34 | Young regenerating forest | Medium density forest | Rimba Besar Dori Ntaant | | | |
| 25 | Embala | 0.055066 | 110.381688 | 431196 | 6087 | 30/07/2021 11:47:05 | Young regenerating forest | Medium density forest | Rimba Besar Dori Ntaant | | | |
| 26 | Embala | 0.055267 | 110.382083 | 431240 | 6109 | 30/07/2021 11:38:51 | Young regenerating forest | Medium density forest | Rimba Besar Dori Ntaant | | | |
| 27 | Embala | 0.055691 | 110.382142 | 431247 | 6156 | 30/07/2021 11:31:10 | Young regenerating forest | Medium density forest | Rimba Besar Dori Ntaant | | | |
| 28 | Embala | 0.055791 | 110.382694 | 431308 | 6167 | 30/07/2021 11:22:04 | Young regenerating forest | Medium density forest | Rimba Besar Dori Ntaant | | | |
| 29 | Embala | 0.055942 | 110.382418 | 431277 | 6184 | 30/07/2021 11:26:55 | Young regenerating forest | Medium density forest | Rimba Besar Dori Ntaant | | | |
| 30 | Embala | 0.05999 | 110.388536 | 431958 | 6631 | 03/08/2021 10:24:15 | Medium density forest | High density forest | Rimba Uma | | | |
| 31 | Embala | 0.094924 | 110.417863 | 435222 | 10492 | 30/07/2021 16:34:21 | Scrub | Young regenerating forest | | Padagi | | |
| 32 | Embala | 0.095394 | 110.413763 | 434765 | 10544 | 30/07/2021 17:03:44 | Open land | Scrub | | S.Muna | | |
| | | | | | | | | | | | | |

| No | Village | Latitude | Longitude | Proj_X | Proj_Y | Ltime | Indicative HCSA_2020 | Update HCSA 2021 | Remark | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | Gunam | 0.180579 | 110.386537 | 431736 | 19961 | 04/08/2021 16:25:42 | Urban | Scrub | Sungai Engkajau | | | |
| 2 | Gunam | 0.184374 | 110.379979 | 431006 | 20380 | 04/08/2021 14:28:22 | Low density forest | Medium density forest | Padagi | | | |
| 3 | Gunam | 0.184608 | 110.379904 | 430998 | 20406 | 04/08/2021 14:15:51 | Young regenerating forest | Low density forest | Padagi | | | |
| 4 | Gunam | 0.185102 | 110.381204 | 431143 | 20461 | 04/08/2021 15:27:39 | Young regenerating forest | Young regenerating forest | Padagi | | | |
| 5 | Gunam | 0.195074 | 110.392041 | 432348 | 21563 | 04/08/2021 12:09:52 | Scrub | Young regenerating forest | Rimba HA Teringkang | | | |
| 6 | Gunam | 0.195139 | 110.392423 | 432391 | 21570 | 04/08/2021 11:53:17 | Young regenerating forest | Low density forest | Rimba HA Teringkang | | | |
| 7 | Gunam | 0.195149 | 110.392226 | 432369 | 21571 | 04/08/2021 10:00:34 | Scrub | Young regenerating forest | Rimba HA Teringkang | | | |
| 8 | Gunam | 0.1952 | 110.391302 | 432266 | 21577 | 04/08/2021 12:13:33 | Open land | Scrub | Rimba HA Teringkang | | | |
| 9 | Gunam | 0.195589 | 110.392394 | 432388 | 21620 | 04/08/2021 10:15:15 | Young regenerating forest | Low density forest | Rimba HA Teringkang | | | |
| 10 | Gunam | 0.195612 | 110.393835 | 432548 | 21622 | 04/08/2021 11:44:42 | Low density forest | Medium density forest | Rimba HA Teringkang | | | |
| 11 | Gunam | 0.195713 | 110.396464 | 432841 | 21633 | 04/08/2021 11:28:03 | Scrub | Young regenera | Rimba HA Teringkang | | | |

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | ting forest | | | | |
| 12 | Gunam | 0.195732 | 110.391874 | 432330 | 21635 | 04/08/2021 09:52:55 | Scrub | Young regenerating forest | Rimba HA Teringkang | | | |
| 13 | Gunam | 0.195827 | 110.394904 | 432667 | 21646 | 04/08/2021 10:56:34 | Low density forest | Medium density forest | Rimba HA Teringkang | | | |
| 14 | Gunam | 0.195899 | 110.394558 | 432629 | 21654 | 04/08/2021 10:52:25 | Medium density forest | High density forest | Rimba HA Teringkang | | | |
| 15 | Gunam | 0.196041 | 110.395223 | 432703 | 21670 | 04/08/2021 11:02:54 | Low density forest | Medium density forest | Rimba HA Teringkang | | | |
| 16 | Gunam | 0.196064 | 110.393325 | 432491 | 21672 | 04/08/2021 10:28:51 | Low density forest | Medium density forest | Rimba HA Teringkang | | | |
| 17 | Gunam | 0.19607 | 110.393315 | 432490 | 21673 | 04/08/2021 10:29:14 | Low density forest | Medium density forest | Rimba HA Teringkang | | | |
| 18 | Gunam | 0.196236 | 110.393387 | 432498 | 21691 | 04/08/2021 10:31:19 | Young regenerating forest | Low density forest | Rimba HA Teringkang | | | |
| 19 | Gunam | 0.196379 | 110.393606 | 432523 | 21707 | 04/08/2021 10:33:18 | Young regenerating forest | Low density forest | Rimba HA Teringkang | | | |
| 20 | Gunam | 0.196424 | 110.393635 | 432526 | 21712 | 04/08/2021 10:35:15 | Young regenerating forest | Low density forest | Rimba HA Teringkang | | | |

| No | Village | Latitude | Longitude | y_proj | x_proj | Ltime | Indicative HCS_2020 | Update 2021 | Customary Forest | Remark | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | Marita | 0.149445 | 110.323389 | 16474.73953 | 424748.4785 | 11/08/2021 11:05:39 | Scrub | Low density forest | Pulau Bandungk | Pulau Bandungk | | |
| 2 | Marita | 0.149585 | 110.334551 | 16534.76002 | 425950.7618 | 11/08/2021 14:37:55 | Open land | Scrub | | | | |
| 3 | Marita | 0.149765 | 110.334731 | 16554.65617 | 425970.7932 | 11/08/2021 14:29:33 | Scrub | Young regenerating forest | | | | |
| 4 | Marita | 0.15196 | 110.330675 | 16797.30005 | 425519.4401 | 11/08/2021 10:35:46 | Scrub | Low density forest | Padagi | | | |
| 5 | Marita | 0.151979 | 110.330718 | 16799.40012 | 425524.2253 | 11/08/2021 10:36:03 | Scrub | Low density forest | Padagi | | | |
| 6 | Marita | 0.15197 | 110.330651 | 16803.26904 | 425520.9983 | 11/08/2021 10:28:37 | Scrub | Low density forest | Padagi | Padagi | | |
| 7 | Marita | 0.152052 | 110.330724 | 16807.46935 | 425524.8933 | 11/08/2021 10:36:29 | Scrub | Low density forest | Padagi | | | |
| 8 | Marita | 0.152093 | 110.330654 | 16810.78559 | 425521.3324 | 11/08/2021 10:36:50 | Scrub | Low density forest | Padagi | Sungai Nipuk | | |
| 9 | Marita | 0.159348 | 110.334376 | 17613.93884 | 425931.3213 | 11/08/2021 11:52:05 | Scrub | Young regenerating forest | | | | |
| 10 | Marita | 0.159883 | 110.334333 | 17632.28804 | 425932.546 | 11/08/2021 11:31:55 | Young regenerating forest | Low density forest | Tembawang Kerampung | Tembawang kerampung | | |

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 11 | Marita | 0.165753 | 110.354475 | 18303.97018 | 428243.198 | 11/08/2021 12:52:44 | Scrub | Low density forest | Tawang Niuh | Tawang Niuh | | |
| 12 | Marita | 0.165983 | 110.354359 | 18347.28186 | 428155.0903 | 11/08/2021 12:58:38 | Scrub | Young regenerating forest | Tawang Niuh | Tawang Niuh | | |
| | | | | | | | | | | | | |
| ***No*** | ***Village*** | ***Latitude*** | ***Longitude*** | ***y_proj*** | ***x_proj*** | ***Ltime*** | ***Indicative HCS_2020*** | ***Update 2021*** | ***Concession Issuance Status*** | ***Remark*** | ***Company Name*** | ***Customary Forest*** |
| 1 | Setawar | -0.093388 | 111.025324 | 9989673 | 502818 | 25/08/2021 11:42:40 | Oil palm | Oil palm | HGU PT Agro Andalan | Batas sawit, Keladan, lamiding | PT. AGRO ANDALAN | |
| 2 | Setawar | -0.093219 | 111.025426 | 9989696 | 502829 | 25/08/2021 11:55:12 | Young regenerating forest | Low density forest | HGU PT Agro Andalan | Timber | PT. AGRO ANDALAN | HA Rimba Engkulong |
| 3 | Setawar | -0.092946 | 111.025708 | 9989727 | 502861 | 25/08/2021 12:12:28 | Low density forest | Medium density forest | HGU PT Agro Andalan | Crested fireback | PT. AGRO ANDALAN | HA Rimba Engkulong |
| 4 | Setawar | -0.092895 | 111.026637 | 9989732 | 502964 | 25/08/2021 12:32:59 | Medium density forest | High density forest | | Ubah Wood dan viper | | HA Rimba Engkulong |
| 5 | Setawar | -0.092843 | 111.025799 | 9989738 | 502871 | 25/08/2021 12:13:17 | Low density forest | Medium density forest | HGU PT Agro Andalan | Emang wood | PT. AGRO ANDALAN | HA Rimba Engkulong |
| 6 | Setawar | -0.092729 | 111.026626 | 9989751 | 502963 | 25/08/2021 12:17:59 | Medium density forest | High density forest | | Yellow shorea, akar kerombang, kdd rimba, | | HA Rimba Engkulong |
| 7 | Setawar | -0.09258 | 111.027555 | 9989767 | 503066 | 25/08/2021 14:07:09 | Medium density forest | High density forest | | Timber | | HA Rimba Engkulong |

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 8 | Setawar | -0.092568 | 111.027589 | 9989768 | 503070 | 25/08/2021 14:07:05 | Medium density forest | High density forest | | Wood | | HA Rimba Engkulong |
| 9 | Setawar | -0.092348 | 111.031451 | 9989770 | 503547 | 25/08/2021 13:00:44 | Young regenerating forest | Young regenerating forest | | Timber | | |
| 10 | Setawar | -0.092337 | 111.031445 | 9989794 | 503499 | 25/08/2021 13:00:50 | Young regenerating forest | Low density forest | | Timber | | HA Rimba Engkulong |
| 11 | Setawar | -0.092315 | 111.030426 | 9989796 | 503386 | 25/08/2021 12:51:43 | Medium density forest | High density forest | | Keladan Wood | | HA Rimba Engkulong |
| 12 | Setawar | -0.092193 | 111.031251 | 9989810 | 503477 | 25/08/2021 12:57:34 | Low density forest | Medium density forest | | Timber | | HA Rimba Engkulong |
| 13 | Setawar | -0.092192 | 111.031238 | 9989810 | 503476 | 25/08/2021 12:57:30 | Low density forest | Medium density forest | | Timber | | HA Rimba Engkulong |
| 14 | Setawar | -0.092083 | 111.030725 | 9989822 | 503419 | 25/08/2021 12:53:55 | Medium density forest | High density forest | | Timber | | HA Rimba Engkulong |
| 15 | Setawar | -0.091553 | 111.03138 | 9989881 | 503492 | 25/08/2021 13:06:18 | Medium density forest | High density forest | | Timber | | HA Rimba Engkulong |
| 16 | Setawar | -0.091267 | 111.03128 | 9989912 | 503481 | 25/08/2021 13:08:17 | Medium density forest | High density forest | | Timber | | HA Rimba Engkulong |
| 17 | Setawar | -0.090898 | 111.028973 | 9989953 | 503224 | 25/08/2021 13:58:25 | Medium density forest | High density forest | | Timber | | HA Rimba Engkulong |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 18 | Setawar | -0.09073 | 111.02904 | 9989972 | 503231 | 25/08/2021 13:57:41 | Medium density forest | High density forest | | Durian Tanah | | HA Rimba Engkulong |
| 19 | Setawar | -0.090415 | 111.030886 | 9990006 | 503437 | 25/08/2021 13:25:17 | Medium density forest | High density forest | | Timber | | HA Rimba Engkulong |
| 20 | Setawar | -0.090347 | 111.030635 | 9990014 | 503409 | 25/08/2021 13:29:23 | Medium density forest | High density forest | | Timber and River Kayu Rayo | | HA Rimba Engkulong |
| 21 | Setawar | -0.090346 | 111.03064 | 9990014 | 503409 | 25/08/2021 13:29:27 | Medium density forest | High density forest | | Timber | | HA Rimba Engkulong |
| 22 | Setawar | -0.089941 | 111.029667 | 9990059 | 503301 | 25/08/2021 13:33:57 | Medium density forest | High density forest | | Timber | | HA Rimba Engkulong |
| 23 | Setawar | -0.073715 | 111.014497 | 9991823 | 501725 | 24/08/2021 14:53:26 | Scrub | Young regenerating forest | | Customary event, shorea and keladan | | HA Rimba Geradok |
| 24 | Setawar | -0.07367 | 111.014326 | 9991857 | 501594 | 24/08/2021 14:50:54 | Oil palm | Oil palm | | Oil palm | | |
| | | | | | | | | | | | | |

| No | Village | Latitude | Longitude | y_proj | x_proj | Ltime | Indicative HCSA_2020 | Update 2021 | STATUS | Remark | Company Name | Customary Forest |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | Setawar | -0.150054 | 111.005154 | 9983523 | 500563 | 24/08/2021 10:40:41 | Medium density forest | Medium density forest | HGU PT Agro Andalan | Mediun, keladan, kabaca, resak | PT. AGRO ANDALAN | HA Rimba Bukit Jundak |
| 2 | Setawar | -0.14463 | 110.999916 | 9984014 | 499991 | 25/08/2021 15:20:30 | High density forest | High density forest | | Forest | | HA Rimba Bukit Jundak |
| 3 | Setawar | -0.144206 | 110.999483 | 9984061 | 499942 | 25/08/2021 12:41:52 | Medium density forest | Medium density forest | | Pedagi | | |
| 4 | Setawar | -0.144075 | 111.000127 | 9984075 | 500014 | 25/08/2021 15:08:53 | Medium density forest | Medium density forest | | Forest | | HA Rimba Bukit Jundak |
| 5 | Setawar | -0.144026 | 111.001599 | 9984081 | 500178 | 25/08/2021 15:35:50 | Medium density forest | High density forest | HGU PT Agro Andalan | Riam | PT. AGRO ANDALAN | HA Rimba Bukit Jundak |
| 6 | Setawar | -0.143863 | 110.99834 | 9984085 | 499829 | 25/08/2021 13:32:39 | Young regenerating forest | Low density forest | HGU PT Agro Andalan | Medang | PT. AGRO ANDALAN | |
| 7 | Setawar | -0.143616 | 110.998074 | 9984126 | 499786 | 25/08/2021 12:22:20 | Young regenerating forest | Low density forest | HGU PT Agro Andalan | TUGU | PT. AGRO ANDALAN | |
| 8 | Setawar | -0.142945 | 111.004768 | 9984200 | 500531 | 25/08/2021 16:12:12 | Low density forest | Medium density forest | HGU PT Agro Andalan | Lubang Macan | PT. AGRO ANDALAN | HA Rimba Bukit Jundak |
| 9 | Setawar | -0.14435 | 110.998963 | 9984203 | 499948 | 25/08/2021 13:36:13 | Young regenerating forest | Scrub | | Forest | | |
| 10 | Setawar | -0.141929 | 110.998182 | 9984313 | 499798 | 25/08/2021 12:00:49 | Young regenerating forest | Low density forest | HGU PT Agro Andalan | Nibung | PT. AGRO ANDALAN | |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 11 | Setawar | -0.141852 | 111.007685 | 9984321 | 500855 | 25/08/2021 16:44:03 | Medium density forest | Medium density forest | HGU PT Agro Andalan | dam | PT. AGRO ANDALAN | HA Rimba Bukit Jundak |
| 12 | Setawar | -0.141193 | 110.997991 | 9984394 | 499776 | 25/08/2021 11:42:17 | Young regenerating forest | Young regenerating forest | HGU PT Agro Andalan | Dangau | PT. AGRO ANDALAN | |
| 13 | Setawar | -0.139402 | 111.006279 | 9984592 | 500699 | 25/08/2021 17:07:12 | Young regenerating forest | Scrub | | Farm | | |
| 14 | Setawar | -0.138297 | 110.996606 | 9984714 | 499622 | 25/08/2021 11:30:45 | Scrub | Scrub | HGU PT Agro Andalan | Farm | PT. AGRO ANDALAN | |
| 15 | Setawar | -0.136708 | 111.004123 | 9984890 | 500459 | 25/08/2021 17:15:17 | Scrub | Young regenerating forest | | Farm | | |
| 16 | Setawar | -0.135844 | 111.003808 | 9984985 | 500424 | 25/08/2021 17:18:05 | Young regenerating forest | Young regenerating forest | | River Guntong | | |
| 17 | Setawar | -0.073773 | 111.014651 | 9991836 | 501705 | 24/08/2021 16:54:10 | Scrub | Young regenerating forest | | Swamp | | HA Rimba Geradok |
| 18 | Setawar | -0.073728 | 111.014461 | 9991852 | 501607 | 24/08/2021 14:54:27 | Open land | Oil palm | | Oil palm | | |