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:

Team Leader	:	Tirza Pandelaki
SPKS Management Team	:	Mansuetus Darto, Marselinus Andri, Sabarrudin, Mochtar
		(SPKS Sekadau), Albertus Darius (SPKS Sanggau), Andi
		Valen, Eko Sukamto, Wehelmus Wedianto
Senior Advisors	:	Aida Greenbury and Grant Rosoman
Technical Experts	:	Adi Bahri, Amir Mahmud, M.Sumantri

Acknowledgements:

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.

Table of Contents

The Te	am	ii
Summa	aryi	ii
Table c	of Contentsir	v
Sectior	n I: Introduction	1
1.1.	Why is the HCS-HCV Approach important in forest resource management?	2
1.2.	Objectives and benefits of the simplified HCS-HCV Approach implementation for independent smallholders in Indonesia	3
1.3.	Trialling locations	4
1.4.	Methodology	5
Sectior Kalima	n II: High-Carbon-Stock Approach (HCSA) for Forest Management in Four Villages in West ntan	5
2.1.	Summary of the current status of Forest Resources in Four Villages in West Kalimantan	8
2.2.	Summary of HCS in the Four Villages in West Kalimantan1	1
2.3.	Benefit of HCS-HCV Approach	6
2.4.	Forest Resource Management Plan	7
2.5.	Land Tenure	2
2.6.	FOREST RESOURCES	6
2.6.1.	Forest Utilisation in General	5
2.6.2.	Notes on Forest Resources Threat4	1
2.6.3.	List of Flora and Special Fauna40	5
2.7.	INSTITUTION FOR FOREST RESOURCE MANAGEMENT	9
2.7.1.	Institution and Traditional Forest Resource Government and Management in Setawar and Embala	k e
2.7.2.	Forest Resource Management Institutions in Gunam and Marita50	C
2.7.3.	Proposing Customary Forest Legality	1
2.7.4.	Initiating and Strengthening Forest Resource Management Institution in the Four Villages 52	
2.8.	INCENTIVES AND BENEFITS TO SUPPORT COMMUNITY FOREST CONSERVATION AND MANAGEMENT	3
Sectior followi	n III: Feedback for the Simplified HCS-HCV Approach Improvement for Smallholders ng Trial Implementation	4
Sectior	n IV: Closing Remarks and Recommendation	6
Th	ne approach and its challenge (Key Takeaways)	7
Re	ecommendations	7
Annova	79	

Annexes 78



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 m³ in 2003 to 4.85 million m³ 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 m³, and rose to 24.67 million m³ 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.

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.

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 plantations.⁵ into oil palm 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

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 <u>https://www.bps.go.id/indicator/54/131/4/luas-</u> <u>tanaman-perkebunan-menurut-provinsi.html</u> and <u>https://www.bps.go.id/indicator/54/131/1/luas-</u> <u>tanaman-perkebunan-menurut-provinsi.html</u>, (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 maintaining the lands' and original functions. The communities of the four villages recognise four types of lands: 1) traditional shifting cultivation land; 2) 'regular forest' lands, 3) Tembawang⁶ (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 bv 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 environmentprotection-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:

- 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;
- 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	2
government	
Other community figure	1
Representative of smallholder	2
group	
Youth representative	1
Women representative	2
Representative of plantation	2
workers	
Trader, middleman, products	2
buyers	

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

- 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).

- 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.

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

Table 1 Type of forest by function and tenure

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 tembawang forests, should or be maintained as forest in a sustainable manner. Thus, the proposed HCS forests should be prioritised within the customary, sacred food-source protection, and 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.

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

Table 2 Names and classification of forest in the four villages

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

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 thefield check in 2021

	Land cover classification change ¹⁶	Village Area (ha)			
No	(change from indicative map classifications of 2020 following field check of 2021)	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.

	Land cover classification change ¹⁶	Village Area (ha)			
No	(change from indicative map classifications of 2020 following field check of 2021)	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 map¹⁷ 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 map¹⁸.

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.

- 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.

- 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.

		Area (ha)			
No	Type of land cover	Indicative	Percentage	Existing	Percentage
		HCS 2020	(%)	2021	(%)
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

 Table 4 Classification of land cover in Gunam

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.

		Area (ha)				
No	Type of land cover	Indicative	Percentage	Existing	Percentage	
		HCS 2020	(%)	2021	(%)	
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	

Table 5 Land cover classification in Teringkang forest in Gunar	Table 5 Land co	ver classification	in Teringkang	forest in Gunam
---	-----------------	--------------------	---------------	-----------------

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.

Strategy/ Program	Activity	Indicator of Success	Actor
 Establish an institution responsible for management and protection of Teringkang Customary Forest Designate Teringkang Customary Forest as a protected customary forest 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 Form an institution responsible for managing and protecting Teringkang customary forest at village level The institution should be made as a part of the indigenous peoples' institution endorsed by the village government. Implement incentives and benefits for applying HCS- HCV. 	 Academic paper as the basis for designation of Teringkang Customary Forest Documents regarding norms of Teringkang customary forest management Establishment of Teringkang Customary Forest Management Institution 	 Gunam Village Government Gunam Village Customary Institution Beruak and Gunam Community Elders Parindu Subdistrict government Tourism Office Sanggau District government

Table 6 Management Plan for	Toringkang	customary	forest in	Gunam
I able o Management Flam for	теннукану	customary	IOLEST III	Uullalli

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.

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

Table 7 Management Plan for village tembawang forest in Gunam

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

		Area (ha)					
No	Type of land cover	Indicative	Percentage	Existing	Percentage		
		HCS 2020	(%)	2021	(%)		
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		

Table 8 Land cover classification in Marita

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.

		Area (ha)				
No	Type of land cover	Indicative	Percent	Existing	Percent	
		HCS 2020	(%)	2021	(%)	
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	

Table 9 Land cover classification in Tawang Nioh

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.

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

Table 10 Management plan of Tawang Nioh Protected Forest in Marita

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.

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

Table 11 Management Plan for tembawang forest in Marita

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.

		Area (ha)					
No	Type of land cover	Indicative	Percentage	Existing	Percentage		
		HCS 2020	(%)	2021	(%)		
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		

Table 12 Land cover classification of Embala Village lands

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.

		Area (ha)					
No	Type of land cover	Indicative	Percentage	Existing	Percentage		
		HCS 2020	(%)	2021	(%)		
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 13 Land cover classification of Besar Forest

Table 14 Land cover classification of Mungu Baung Forest

		Area (hectare)				
No	Type of land cover	Indicative	Percentage	Existing	Percentage	
		HCS 2020	(%)	2021	(%)	
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	

		Area (hectare)					
No	Type of land cover	Indicative	Percentage	Existing	Percentage		
		HCS 2020	(%)	2021	(%)		
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 15 Land cover classification of Uma Forest

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 [<i>belian</i> (status: rare), shorea, <i>omang, jenang,</i> <i>keladan</i> (rare), <i>pontai</i> (rare), <i>omang</i> (rare), borneo tallow nut (rare) and <i>pawos</i> in Besar Forest]	Strengthen forest management, particularly utilisation of valuable timber/tree.	 Rearrange, disseminate, and enforce customary-based rules and sanctions. Establish forest ranger team and ensure they perform their job well Breed rare tree species seedling and replant trees 	Non-rare timber/tree species	Customary institution, village government and smallholders.
2	Rattan [<i>nas, kajak, lowa, sigu,</i> <i>marau, joroyat,</i> and <i>tungkas</i> in Besar Forest]	Strengthen forest management, particularly valuable rattan utilisation	 Rearrange, disseminate, and enforce customary-based regulations and sanctions. Establish forest ranger team and ensure they perform their job 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	Actor
3	Vegetables	Make	- Conduct	Youth being able	Customary
	[nibong/nibok, engkoruh	documentation	traditional	to identify as	institution,
	(savoury flavour),	of species of	activity/event	well as	village
	porongak, sumpak kala,	vegetation and	introducing the	understand and	government,
	sumpak jeroyan, lobaek,	fruit plants	plants/vegetation.	maintain the	women group.
	pakis, rebung, melinjo,	serving as	- Plant crops around	local native	
	(sayoury flayour	and traditional	the houses	species of	
	substitute) kontak and	medicines to be	- Record regularly-	n and practice	
	<i>rubber</i> ²³ in Besar Forest]	used by youth.	used	their functions.	
	Fruits [<i>mentawa,</i>	, ,	plant/vegetation		
	rambutan, kemayau,		species		
	durian]				
	[medicinal plants): singam				
	leaf (left-side stomach				
	pain), kentut leaf (common				
	cold), panau root and leaf,				
	forest ginger leaf (eve care				
	medicine). <i>ierak</i> leaf (eve				
	care medicine), kayu rukap				
	leaf (eye care medicine),				
	<i>umbak batu</i> leaf (hand				
	muscle sprain) in Besar				
	Forest]				
4	Animal (maat: door, mouse door	- Strengthen	- Develop	No decrease in	Customary
	(medicine:	management	regulations and	forest fauna	village
	porcupine fur (blockage of	particularly	sanctions		government.
	blood vessels), junglefowl	animal	regarding fauna		oil palm
	spur in Besar Forest).	utilisation.	utilisation.		smallholder.
		- Make	- Establish forest		
		documentatio	ranger team and		
		n of fauna	ensure they		
		species	perform their job.		
			- Record species of		
			regularly-used		
			fauna.		
5	River water and river (in	Strengthen	- Protect trees along	Clean river water	Customary
	Muna and Empaong]	river	riparian area	and availability	institution,
		management	- Rearrange,	of fish	village
		(from upstream	disseminate and		government,
		lu downstream)	enforce		on paim smallholders
		uuwiisti ediii),	customary-based		smannoiuers.

²³ forest rubber

No	Type of Ecceptial Pacource	Strategy/	Activity	Indicator of	Actor	
NU	Type of Essential Resource	Program	Activity	Success	Actor	
		including riparian area and fishing activity	regulations and sanctions. - 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 <i>tembawang</i>]	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.

		Area (hectare)					
No	Type of land cover	Indicative	Percent	Existing	Percent		
		HCS 2020	(%)	2021	(%)		
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		

Table 17 Land cover classification of Setawar Village lands

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).

		Area (hectare)					
No	Type of land cover	Indicative	Percent	Existing	Percent		
		HCS 2020	(%)	2021	(%)		
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		

Table 18 Classification of land cover in Engkulong Forest

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 of forest customary 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.

		Area (ha)				
No	Type of land cover	Indicative	Percentage	Existing	Percentage	
		HCS 2020	(%)	2021	(%)	
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	

Т	ahla	19	Land	COVER	classification	in	lundak	Fores	+
I	anie	13	Lanu	Cover	Classification	111	JUHUAK	FOLES	ιL

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*.

		Area (hectare)					
No	Type of land cover	Indicative	Percentage	Existing	Percentage		
		HCS 2020	(%)	2021	(%)		
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		

Table 20 Land cover classification of Geradok Forest

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.

Type of essential resource	Strategy/ Program	Activity	Indicator of Success	Actor
Timber/tree (<i>keladan, belian,</i> shorea at Engkulong; jelutong, shorea, <i>empropat,</i> <i>ngoris, rambin</i> at Garadok; <i>keladan</i> 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. 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 <i>jeronang</i> <i>pulut</i> and <i>jelay</i> 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. 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, <i>terutung</i> or wild durian, and <i>kelampai</i> at Engkulong, chempedak, <i>mentawai and terutung</i> 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. 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. 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

Table 21 Management	Plans for essentia	l resources in	Setawar Village	
		n resources m	Secural village	
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; <i>tembawang</i> 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. 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.

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

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 land²⁴; 4) yard²⁵; 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

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.

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

Table 22 Tenure of land and natural resources in Gunam

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.

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	Private land	Household garden
plantation, rice field,		
and regular forest		
	Private land	Farmland and plantation to support domestic
		income.
Nucleus oil palm	PTPN 13's HGU	PTPN concession area
plantation	Concession	
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 Stateowned 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

[&]quot;kepemilikan", while "tenure" refers to

[&]quot;*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.

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

Table 24 Tenure of land and natural resources in Embala Village

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.

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

Table 25 Tenure of land and natural resources in Setawar Village

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.

То avoid confusion concerning categorisation of farmers and Davak 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 Subvillage).

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.

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

Table 26 Threats to forest resources in Gunam

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.

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

Table 27 Threats to forest resources in Marita Village

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.

Type of important resources	Notes on Uses and Threat
Timber/tree	- Lack of control over timber utilisation
	- Scarcity of certain local trees used for building material
	- 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
	 Iraditional 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
	- River overflowing certain locations (most because of sedimentation or
	increased run-off after rains, due to forest conversion to plantations)
Customary/community	The sites are not well-maintained
ceremonial site	

Table 28 Threats to forest resources in Embala Village

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 abovementioned 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.

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

Table 29 Threats forest resources in Setawar Village

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

²⁹ Empaong and Emapaong Muna Sub-villages customary rules consisting of introduction, five chapters (prohibition, customary forest utilisation,

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

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 officials government 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 sub-district the 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 management resource 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 unit is or established by village government and customary institution the under 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.
 - Forest area mapping including all customary forest, tenure and customary use, boundary delineation of ownership (both individual and community) around the forest.
 - 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

- 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 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 process in a mapping results with the community.
	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. The following are proposed changes to the stages following the trial implementation of the Simplified HCS-HCV Approach for smallholders:



Stage 1 Preparation







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.

- 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.
- 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).
- 3. Preparing technical team (experts) and local expert team as the representatives to involve in the participatory mapping process.
- 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

	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	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:
TREASE PROVIDE TREASE	 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. Representation: At the socialisation stage, it is crucial to ensure that the early
MUSYAWARAH PERENGANAAN PERLINDUNGAN AREA HUTAN SKT-NKT SKT-NKT Management and an and a parameter Management and an and a parameter Management and a parameters	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.
	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

	 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. 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. Output of the socialisation stage is minutes of first meeting (extension). 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, understand the landscape and livelihoods of the community through the social mapping process.
Stage 3 Social Mapping	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.
	 Social mapping should aim to: 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

	 for the community including how the community uses their resources and area, threat, and opportunity of management. 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. the result of social mapping (draft of social mapping findings) will be presented by social mapping expert team to the village meeting participants. the result of social mapping (draft of social mapping findings) will be presented by social mapping expert team to the village meeting participants. the result of social mapping (draft of social mapping findings) will be presented by social mapping expert team to the village meeting participants. This process is deemed a knowledge exchange and elaboration of things overlooked by the community that need to be discussed. 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]	There might be a similar or different perception of important areas between outsider (non-customary/village community) and the local community in a village. 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.



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 areas³¹ that are a starting point for preparing for further planning and management.

Outputs of this stage include:

- 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.
- (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.
- (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.

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



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).

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.

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.

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.

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:












	XXXXX	Scrub (Ha in 2020)	1250.36	
		High-density forest	5,48	
		Oil palm	91,43	
	Update (ha in 2021 following	Open land	47,24	
	verification)	Scrub	224,49	
		Urban	8,84	
		Young regenerating forest	872,88	
<section-header><image/></section-header>	 In this stage, the results of the result and field check result, a monitoring plan by smallholde activities at this stage: 1. Describing function/utilisa essential resources, whi development. The table be resource. 2. Inventorying conflict poten while identifying relevan resolution. 3. Developing management Output of the process is miregarding forest and other ess by the community. In addition also serve as the guideline for level on forest and other est utilisation, and sanction or process. 	e previous stages, including inc are crucial documents to deve ers and the community. The fo ation, threats, and jointly plane ch are agreed to be inclu elow is revision of the previous ntial and developing the neces at parties to conduct nego plan for forest protection. Finute of third meeting conta ential area management that a to serving as the FPIC evidence r issuing regulation at commu- essential management conta phibition.	licative map, s lop forest ma ollowing are the ned programs ded in mana s version relat ssary conflict r tiation or ot aining agreem are likely to be e the minute of unity or villag ining plannin	social mapping nagement and aree important a related to the agement plan ed to essential resolution plan ther forms of ment and plan e implemented of meeting can be government ag, protection,



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/harve sting ritual sites		Land availability/the cultural sites are maintained		Well- maintained cultural sites	Pomang, smallholde rs, 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.
	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: 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. 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:
	 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;
	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 <i>tembawang</i> , regular forest (<i>bawas</i>) and sacred areas.

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.





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 from programs government, Corporate Social company's 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 its own activities without run depending on an external party.
- Form and strengthen a forest resource C. management institution. The institution organization that or manages important forest resources is established among the oil palm smallholder community. The institution land ensures that management including any oil palm expansion and management conducted by smallholders adopts principles sustainability 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 а 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 wellmaintained.
- 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.



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	
	00110011011	0.00.000	0		

High Conservation Value	Presence		
	Voc	No	Description
HCV 1 Biodiversity	163	NO	
Endemic vegetation and	v		Vagatation spacios
animal species	~		 Meranti batu (Shorea platyclados): IUCN EN, CITES X, P106 X;
 Rare vegetation and animal 	х		Vegetation species
species			 Meranti batu (Shorea platyclados): IUCN EN, CITES X, P106 X; Tapang (Koompassia excelsa): IUCN CD, CITES X, P106 X; Beringin (Ficus benjamina): IUCN LC, CITES X, P106 X; Ubah Tree (Syzygium lineatum): IUCN X, CITES X, P106 X; Tapah Tree (Merremia peltata): IUCN X, CITES X, P106 X; Guro/Ulin Tree (Eusideroxylon zwageri): IUCN VU, CITES X, P106 X; Kompah Tree (Dyera costulata): IUCN LC, CITES X, P106 X. Wildlife species Bornean clouded leopard (Neofelis diardi spp. borneo): IUCN EN; CITES App I; P106 Yes. Southern pig-tailed macaque (Macaca
Migrated wildlife species		v	nemestinia): IOCN VO, CITES X, P106 X.
(present at a certain of time)		^	
HCV 2 Ecosystem and Mosaic at		x	
landscape level			
 Large intact landscape or 		х	
ecosystem			
HCV 3 Ecosystem and Habitat	x		
Rare, endangered, or nearly extinct ecosystem	x		Ecosystem of Teringkang customary forest is a habitat to <i>meranti batu</i> (Shorea platyclados). Conservation status of this species according to IUCN is Endangered.
ls it a riparian area or close to	N N		A year crucial execution convice along the river
 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. 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. In addition to River Ensabal, Gunam Village has
			other large rivers. One of them is kiver Enkajau as the

High Conservation Value	Presence		Description
(HCV)	Yes	No	Description
			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. <i>Tembawang</i> forest serves as the food and fruit estate to the extended family members. Fruits (as one of the NTFPs used by the community to meet their needs for food) include <i>durian</i> , lanzone, starfruit, <i>rambutan</i> , <i>mentawak</i> , 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. The community meets the needs for carpentry and house building materials from several vegetation species, such as <i>meranti, belian</i> (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		 Teringkang customary forest is protected by Gunam Village community. The forest is considered sacred /protected by the community/indigenous people institution in Gunam. 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

Uigh Concernation Value (UC)()	Presence		Description	
High Conservation Value (HCV)	Yes	No	Description	
HCV 1 Biodiversity				
 Endemic vegetation and 	х		Vegetation species	
animal species			1. Meranti batu (Shorea sp): IUCN EN	
			2. Keladan wood (Dryobalanops sp.): IUCN CR	
 Rare vegetation and animal spacios 	х		Vegetation species	
species			2. Tapana (Koompassia excelsa): IUCN CD	
			3 Pulai (Alstonia scholaris): IUCN LC	
			4 Uhah Tree (Syzyajum lineatum): IUCN X	
			5. Ramin Tree (Gonvstvlus bancanus): IUCN CR	
			6. Belinio Hutan Tree (Eusideroxylon zwageri):	
			IUCN LC	
			7. Rattan (<i>Eremospatha</i> sp.)	
			Animal species	
			1. Bornean clouded leopard (<i>Neofelis diardi</i> spp.	
			borneo): IUCN EN	
			2. Southern pig-tailed macaque (Macaca	
			nemestrina): IUCN VU	
			3. Asiatic softshell turtle (Amyda cartilaginea):	
 Wigrated animal species (procent at a cortain of time) 		x		
HCV 2 Ecosystem and Mosaic at		×		
landscape level		Â		
 Large intact landscape or 		х		
ecosystem				
HCV 3 Ecosystem and Habitat	x			
 Rare, endangered, or nearly 	х		Ecosystem in Tawang Nioh forest is a habitat to	
extinct ecosystem			meranti batu (Shorea sp). Conservation status of	
			this species according to IUCN is Endangered. In	
			(Druchalanans sp.) Conservation status of this	
			species according to ILICN is Critically Endangered	
HCV 4 Ecosystem service			species according to rock is critically Endangered.	
 Is it a riparian area or close to 	x		A very crucial ecosystem service along the river.	
riparian area?			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.	
			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,	
			parts of community fields	
			In addition to River Ensabal, Marita Village has 10	
			other rivers, including Mipuk and Sebaner.	
HCV 5 Community needs				

Annex 2d Conservation Status of HCVs at Marita Village

Uigh Concernation Value (UCV)	Presence		Description
High Conservation Value (HCV)	Yes	No	Description
 Is there any area providing ecosystem services? 	х		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. <i>Tembawang</i> forest serves as fruit estate to the extended family members. Fruit (as one of the NTFPs used by the community to meet their needs for food) include <i>durian</i> , lanzone, <i>belimbing darah</i> , <i>rambutan</i> , <i>mentawak</i> , and chempedak. The fruits are harvested from <i>tembawang</i> forest. Another NTFP to harvest is rattan in the regular forest.
 Is the area used to harvest timber for house building material? 	Х		The community harvest timber for domestic needs at the young forest owned by household. They use rubber tree and other young trees as firewood. The community meets the needs for carpentry and house building materials from several vegetation species, such as <i>meranti, ubah</i> wood, <i>jelutong</i> wood (<i>Dyera costulata</i>), <i>pras</i> wood, <i>yotu</i> 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. Pulau Benuang area is a small forest area (or <i>pulau</i> in local language). The small forest is located in between the community's oil palm and rubber plantations. <i>Pedagi</i> 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

High Conservation Value (HCV)	Presence		Information	
	Yes	No		
HCV 1 Biodiversity				
 Endemic vegetation and animal species 	x		Vegetation species 1. Meranti batu (Shorea platyclados): IUCN EN, CITES X, P106 X;	
 Rare vegetation and animal species 	x		 Vegetation species Meranti batu (Shorea platyclados): IUCN EN, CITES X, P106 X; Belian: information from local community Keladan: information from local community Pontai: information from local community Omang: information from local community Tengkawang: information from local community Tengkawang: information from local community Southern pig-tailed macaque (Macaca nemestrina): IUCN VU, CITES X, P106 X. Deer: information from local community Thick-spined porcupine and long-tailed porcupine: information from local community Tragulus: information from local community Muntjac: information from local community Eagle: information from local community 	
 Migrated animal species (present at certain time) 		x		
HCV 2 Ecosystem & Mosaic of		x		
landscape level				
 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 <i>belian, keladan,</i> <i>pontai, omang,</i> and <i>tengkawang</i> 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. 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. 	Х		Forests in Embala, particularly Besar Forest, contains vegetables, plants, and fruits. The vegetables include	

Annex 3d Conservation status of HCVs at Embala Village

Uigh Concernation Value (UCV)	Presence		Presence		Information	
High Conservation value (HCV)	Yes	No	information			
			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. The rattan species include nas, kajak, lowa, sigu, marau, joroyat, and tunakas.			
Is the area used to harvest timber for house building material?	Х		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 <i>tembawang</i> forests. 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

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

Annex 4e Conservation Status of HCVs at Setawar Village

Lligh Concernation Value (UCV)	Pres	ence	Description			
High Conservation value (HCV)	Yes	No	Description			
			 Empagu, River Setawar estuary, Setawar Tiang Toras, Gintong Village (outside the forest) 			

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 regenera ting forest	Rimba Besar Dori Ntaant	Botuh nungol	
2	Embala	0.044894	110.385357	431604	4962	30/07/2021 13:48:17	Scrub	Young regenera ting forest	Rimba Besar Dori Ntaant		
3	Embala	0.045104	110.384773	431539	4986	30/07/2021 13:51:52	Young regenerati ng forest	Medium density forest	Rimba Besar Dori Ntaant		
4	Embala	0.045271	110.381714	431199	5004	30/07/2021 14:21:56	Young regenerati ng forest	Medium density forest	Rimba Besar Dori Ntaant		
5	Embala	0.045313	110.382571	431294	5009	30/07/2021 14:16:42	Young regenerati ng forest	Medium density forest	Rimba Besar Dori Ntaant		
6	Embala	0.045359	110.384224	431478	5014	30/07/2021 13:55:59	Scrub	Young regenera ting forest	Rimba Besar Dori Ntaant		
7	Embala	0.045451	110.38419	431474	5024	30/07/2021 13:57:39	Scrub	Young regenera ting forest	Rimba Besar Dori Ntaant		
8	Embala	0.045499	110.382975	431339	5029	30/07/2021 14:08:52	Young regenerati ng 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		

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

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 regenerati ng forest	Medium density forest	Rimba Besar Dori Ntaant		
24	Embala	0.054946	110.381167	431138	6074	30/07/2021 11:58:34	Young regenerati ng forest	Medium density forest	Rimba Besar Dori Ntaant		
25	Embala	0.055066	110.381688	431196	6087	30/07/2021 11:47:05	Young regenerati ng forest	Medium density forest	Rimba Besar Dori Ntaant		
26	Embala	0.055267	110.382083	431240	6109	30/07/2021 11:38:51	Young regenerati ng forest	Medium density forest	Rimba Besar Dori Ntaant		
27	Embala	0.055691	110.382142	431247	6156	30/07/2021 11:31:10	Young regenerati ng forest	Medium density forest	Rimba Besar Dori Ntaant		
28	Embala	0.055791	110.382694	431308	6167	30/07/2021 11:22:04	Young regenerati ng forest	Medium density forest	Rimba Besar Dori Ntaant		
29	Embala	0.055942	110.382418	431277	6184	30/07/2021 11:26:55	Young regenerati ng 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 regenera ting 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_202 0	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 regenerati ng forest	Low density forest	Padagi		
4	Gunam	0.185102	110.381204	431143	20461	04/08/2021 15:27:39	Young regenerati ng forest	Young regenera ting forest	Padagi		
5	Gunam	0.195074	110.392041	432348	21563	04/08/2021 12:09:52	Scrub	Young regenera ting forest	Rimba HA Teringkang		
6	Gunam	0.195139	110.392423	432391	21570	04/08/2021 11:53:17	Young regenerati ng forest	Low density forest	Rimba HA Teringkang		
7	Gunam	0.195149	110.392226	432369	21571	04/08/2021 10:00:34	Scrub	Young regenera ting 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 regenerati ng 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 regenera ting 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 regenerati ng forest	Low density forest	Rimba HA Teringkang		
19	Gunam	0.196379	110.393606	432523	21707	04/08/2021 10:33:18	Young regenerati ng forest	Low density forest	Rimba HA Teringkang		
20	Gunam	0.196424	110.393635	432526	21712	04/08/2021 10:35:15	Young regenerati ng forest	Low density forest	Rimba HA Teringkang		

No	Village	Latitude	Longitude	y_proj	x_proj	Ltime	Indicativ e HCS_202 0	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 regenera ting 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 regenera ting forest			
10	Marita	0.159883	110.334333	17632.28804	425932. 546	11/08/2021 11:31:55	Young regenera ting forest	Low density forest	Tembawan g Kerampun g	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 regenera ting forest	Tawang Niuh	Tawang Niuh		
No	Village	Latitude	Longitude	y_proj	x_proj	Ltime	Indicativ e HCS_202 0	Update 2021	Concession Issuance Status	Remark	Company Name	Customa ry 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, Iamiding	PT. AGRO ANDALA N	
2	Setawar	- 0.093219	111.025426	9989696	502829	25/08/2021 11:55:12	Young regenera ting forest	Low density forest	HGU PT Agro Andalan	Timber	PT. AGRO ANDALA N	HA Rimba Engkulon g
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 ANDALA N	HA Rimba Engkulon g
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 Engkulon g
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 ANDALA N	HA Rimba Engkulon g
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 Engkulon g
7	Setawar	-0.09258	111.027555	9989767	503066	25/08/2021 14:07:09	Medium density forest	High density forest		Timber		HA Rimba Engkulon g

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

18 5	Setawar	-0.09073	111.02904	9989972	503231	25/08/2021 13:57:41	Medium density forest	High density forest	Durian Tanah	HA Rimba Engkulon g
19 5	Setawar	- 0.090415	111.030886	9990006	503437	25/08/2021 13:25:17	Medium density forest	High density forest	Timber	HA Rimba Engkulon g
20 5	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 Engkulon g
21 5	Setawar	- 0.090346	111.03064	9990014	503409	25/08/2021 13:29:27	Medium density forest	High density forest	Timber	HA Rimba Engkulon g
22 5	Setawar	- 0.089941	111.029667	9990059	503301	25/08/2021 13:33:57	Medium density forest	High density forest	Timber	HA Rimba Engkulon g
23 5	Setawar	- 0.073715	111.014497	9991823	501725	24/08/2021 14:53:26	Scrub	Young regenera ting forest	Customary event, shorea and keladan	HA Rimba Geradok
24 5	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_202 0	Update 2021	STATUS	Remark	Company Name	Customa ry 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 regenerati ng 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 regenerati ng 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 regenerati ng forest	Scrub		Forest		
10	Setawar	- 0.141929	110.998182	9984313	499798	25/08/2021 12:00:49	Young regenerati ng forest	Low density forest	HGU PT Agro Andalan	Nibung	PT. AGRO ANDALAN	

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 regenerati ng forest	Young regenera ting forest	HGU PT Agro Andalan	Dangau	PT. AGRO ANDALAN	
13	Setawar	- 0.139402	111.006279	9984592	500699	25/08/2021 17:07:12	Young regenerati ng 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 regenera ting forest		Farm		
16	Setawar	- 0.135844	111.003808	9984985	500424	25/08/2021 17:18:05	Young regenerati ng forest	Young regenera ting forest		River Guntong		
17	Setawar	- 0.073773	111.014651	9991836	501705	24/08/2021 16:54:10	Scrub	Young regenera ting 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		