Roundtable on Sustainable Palm Oil

New Planting Procedure

SUMMARY OF ASSESSMENT REPORTS AND MANAGEMENT PLANS

PT MUKOMUKO AGRO SEJAHTERA
Sei Teramang Estate

Bengkulu, Indonesia

2021

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1. GENERAL DESCRIPTION AND BACKGROUND

1.1. General Description

PT Mukomuko Agro Sejahtera (MMAS) is an oil palm plantation company located in Musi Rawas Regency, South Sumatra Province which is part of the SIPEF group of companies (*Société Internationale de Plantations et de Finance*) or also known as PT Tolan Tiga Indonesia (PT TTI) which manages several oil palm and rubber plantations and their processing industries, all of which are on the island of Sumatra, while the tea plantations are in West Java Province. The management area for oil palm nucleus plantations, plasma and village plantation scheme (KMD) in the Provinces of North Sumatra, Bengkulu and South Sumatra is 97,305.00 ha[1)]. SIPEF has been a member of the Roundtable on Sustainable Palm Oil (RSPO) since 2005[2)] and is committed to sustainable production according to RSPO standards.

In order to expand the oil palm plantation business in Mukomuko Regency, Bengkulu, PT MMAS has acquired the plantation of PT Asririmba Wirabhakti, which has a HGU permit covering an area of 1,770 ha. Currently PT MMAS manages the nucleus plantations: (1) Air Majunto Estate and (2) Malin Deman Estate and plasma plantations: Sungai Tenang Sejahtera Cooperative which is adjacent to Air Majunto Estate, Sejahtera Bersama Plantation Cooperative and Air Buluh Plantation Cooperative, all of which are adjacent to PT MMAS' nucleus plantation. In 2010, PT MMAS underwent an HCV identification by *Indonesian Sustainable Palm Oil* and a New Planting Assessment by BSI Group Singapore Pte Ltd[3)]. This new acquisition area will later become a new estate with the name Sei Teramang Estate (STGE). **Figure 2** presents the orientation map of the STG Estate HGU area (Formerly PT Asririmba Wirabhakti) and **Figure 3** is a map of the location of the entire PT MMAS plasma and nucleus plantation, and the location of the STG Estate.

The initial activities of PT MMAS STG Estate in the HGU permit area included intensive socialisation and data collection on community lands or preparation for the Compensation for Planting Growth (GRTT) process, as well as environmental and social studies involving external and internal parties, including AMDAL, Social Impact Assessment, land tenure internal study and mapping of internal boundaries. PT MMAS management has made a commitment that in the HGU permit area land clearing will only be carried out if the New Planting Procedure (NPP) process from RSPO is completed.

Based on "Peta Kawasan Hutan dan Perairan" (National Forestry Map) of Bengkulu Province in 2012, it refers to the Decree of the Minister of Forestry No. 784 / Menhut-II / 2012, dated 27 December 2012, indicating that the HCV assessment area in the PT MMAS HGU STGE permit area was entirely in Other Use Areas (APL). The acquisition area that becomes the object of the NPP is a plantation area with a licence to use business rights (HGU) No. No: 43, Date: June 18, 1997 on behalf of PT Asririmba Wirabhakti. The sale and purchase transaction as stated in the deed of "Conditional Sale and Purchase Agreement" (between PT Asririmba Wirabhakti and PT Mukomuko Agro Sejahtera

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1) **Source: https://www.rspo.org/file/acop2017/submissions/sipef%20group-ACOP2017.pdf**

2) **Source: https://www.rspo.org/members/156/SIPEF-Group**

3) https://www.rspo.org/file/New%20Planting%20assessment%20of%20PT%20Mukomuko%20Agro%20Sajahtera%20by%20BSI.pdf

based on the Notary Deed of Lince Hutahayan, SH, Number: 06, August 13, 2018. The area of the HGU for PT MMAS STGE is 1,770 ha based on the permit, and based on an update of internal GIS analysis of 1,750.12 ha, which will be used as calculation variables to be consistent with the spatial data used in this assessment. The difference in the area of the HGU permit based on GIS analysis and legal documents usually occurs in the process of digitising and/or projecting the area from a physical map to digital data, where the HGU permit issued in 1997 was never updated until the takeover process.

PT MMAS (ex PT Asririmba Wirabhakti) is located in two sub-districts, namely: (1) Pondok Suguh District and (2) Teramang Jaya District with a total of nine villages, namely: (i) Batu Ejung, (ii) Pondok Baru, (iii) Brangan Mulya, (iv) Nanggalo, (v) Mandiangin Jaya, (vi) Bunga Tanjung, (vii) Teramang Jaya and (vii) Pasar Bantal in Teramang Jaya District and (ix) Air Bikuk in Pondok Suguh District.

The area around the PT MMAS STGE is a plantation area managed by the company and the community. It is adjacent to a residential area on the Trans-Sumatra axis road that has been built for more than 25 years, and has mostly been used for community cultivation, especially rubber. Before that, it was a forest concession area (HPH) of a company and had also been converted into plantations. The effective area managed by the former PT Asririmba Wirabhakti is only 354.48 ha, that had been planted with oil palm and conservation areas, while the remaining 1,395.64 ha were used by the community for the cultivation of plantations, rubber, mixed gardens, fields, rice fields and settlements/villages. Therefore, considering this situation, the management of PT MMAS will only manage an effective area of 354.48 ha as the nucleus estate and the land that has been controlled and used by the community will be included in the plasma scheme.

The oil palm plantation management plan consists of replanting using heavy equipment from planting to harvesting, with trucks being used regularly that are classified as 'High Intensity' and 'High Risk'. Although most of the HGU area has been fragmented and mostly managed by the community as oil palm plantations, there are still some plots that will be preserved and function as a refuge for the remnants of rare, threatened and endangered (RTE) species that are highly dependent on forest habitats.

Based on the Map Designation of Forest Areas and Waters of Bengkulu Province in 2012, which refers to the Decree of the Minister of Forestry No. 784 /Menhut-II / 2012, it is indicated that the HCV assessment area in the PT MMAS STGE HGU permit area is entirely in Other Use Areas (APL). It is not included in the peat moratorium area, based on the 2017 National Peat Hydrological Unit Map and Map Determination Function of the National Peat Ecosystem 1 of 2017 No. 130 /MenLHK/Setjen/PKL.0/ 2/2017, as well as the Stipulation of the 2018 Revised XV PIPPIB Map No. 8599/MenLHK-PKTL/IPSDH/PLA.1/12/2018. **Figure 1** shows the location of PT MMAS STGE in the status of forest area function.

In terms of the physiographic unit, the area of the HGU permit for STG Estate PT MMAS is within the Southern Eastern Plains and Hills unit (RePPProT 1990) and is included in the Sumatra 21a Southern Mainland Sumatra biogeographic sub-unit area (MacKinnon 1997). The area also falls within the Sumatran Lowland Rain Forests ecoregion (code IM0158) (WWF 2016). The Land System Macro Scale Map (RePPProt 1990) shows that the HGU permit area for the STG Estate PT MMAS and AOI are dominated by the Teweh Land System (TWH) and a small portion of Bakunan (BKN) classified as *Tropudults, Dystropepts, Eutropepts* and *Tropaquepts, Tropofluents, Eutropepts*.

The PT MMAS STGE HGU permit area and its surroundings are a cultivation mosaic area that has been cultivated for more than 25 years. Accessibility is open with road networks leading to settlements, the centre of Pondok Suguh District and the centre of Teramang Jaya District. In addition, there is a provincial road connecting Bengkulu Province and West Sumatra Province. It can be concluded that the study area is not an isolated area.

The land cover in the PT MMAS STGE area in 2018 was dominated by oil palms cultivated by the community and companies covering an area of 1,488.31 ha or 85% of all concession permits. The rest is divided into rubber plantations (0.45%), rice fields (3.43%), open land (1.76%), settlements (0.23%), scrub (7.01%), swamp areas (0, 88%) and a little remaining medium density secondary forest (1.21%).

The area around and inside the PT MMAS STGE HGU permit area is included in the river basin (WS) Ketahun Watershed Management Centre (BPDAS), Teramang watershed (DAS), Teramang Kecil sub-watershed with several catchment areas, namely: (1) Air Solang River, (2) Air Temuan River, (3) Air Tunggang River, (4) Teramang Kecil River with their river channels, (5) Brangan Mulya River, (6) Tanjung Bunga River, (7) Gajah Mati River, (8) Teramang Jaya Swamp with its trenches, (9) Pelaban Deras River and (10) Terentang River. They are connected to the Teramang Kecil River, which has a depth ranging from 3-6 m and a width between 6-10 m. It is estimated that the river, channels and ditches are around 49.17 km long covering around 13.74 ha.

Bengkulu Province has many conservation areas outside the national park, which are scattered in various locations with a total area of 50,639.6 ha. In terms of function, these conservation areas have the status of a natural tourism park (TWA) of 27,630 ha, a hunting park (TB) covering an area of 16,962 ha, a nature reserve (CA) 4,299.6 ha and a large forest park (Tahura) 1,748 ha. A number of nature reserves are recorded in 24 areas, while TWA are in three areas. Meanwhile, the area of Bengkulu Province, which is included in the Kerinci-Seblat National Park is 412,324.6 ha, and is the closest conservation area to the HGU of PT MMAS STGE.

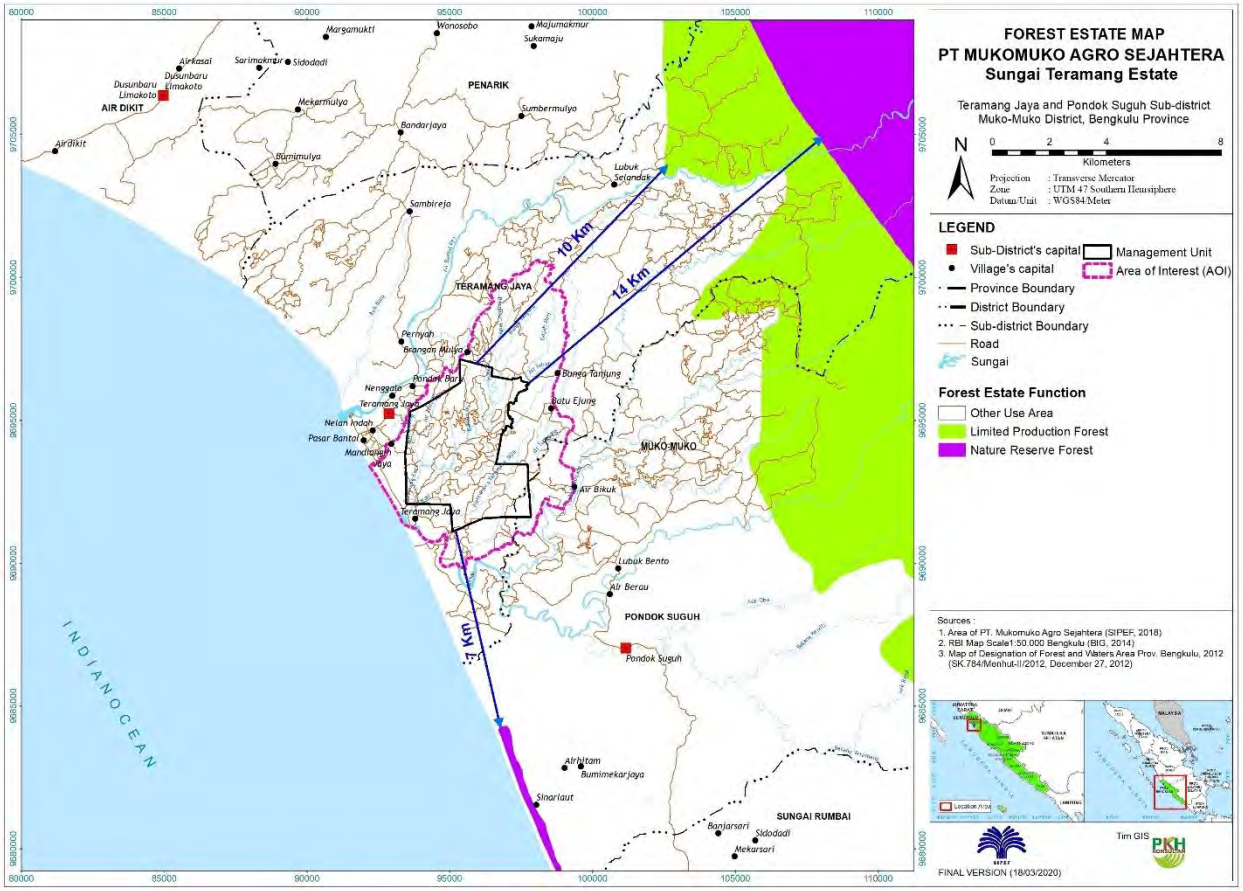


Figure 1. Status of Forest Area around PT MMAS STGE HGU Permit

1.2. Proposed new planting

The proposed area for NPP using the legal limit of the HGU area of 1,770 ha. From the HCV assessments that have been carried out, HCV 1, HCV 4, and HCV 5 have been identified, covering an area of 126.98 ha of the entire HGU permit area, of which 28.67 ha are in the effective planted area. In the rest of the forest and on the river banks that are still vegetated, one endangered (EN) species is found, namely the langur (*Presbytis melalophos*), and three species with Vulnerable (VU) status, namely the sun bear (*Helarctos malayanus*), monkey (*Macaca nemestrina*) and bearded pig (*Sus barbatus*). The habitat of this wildlife contains river banks and swamp areas which are also HCV 4 areas. For flora, there is one species that is included in the EN category, namely meranti ketuko (*Shorea pauciflora*). Rivers and their banks are important for the livelihood of local communities for clean water needs.

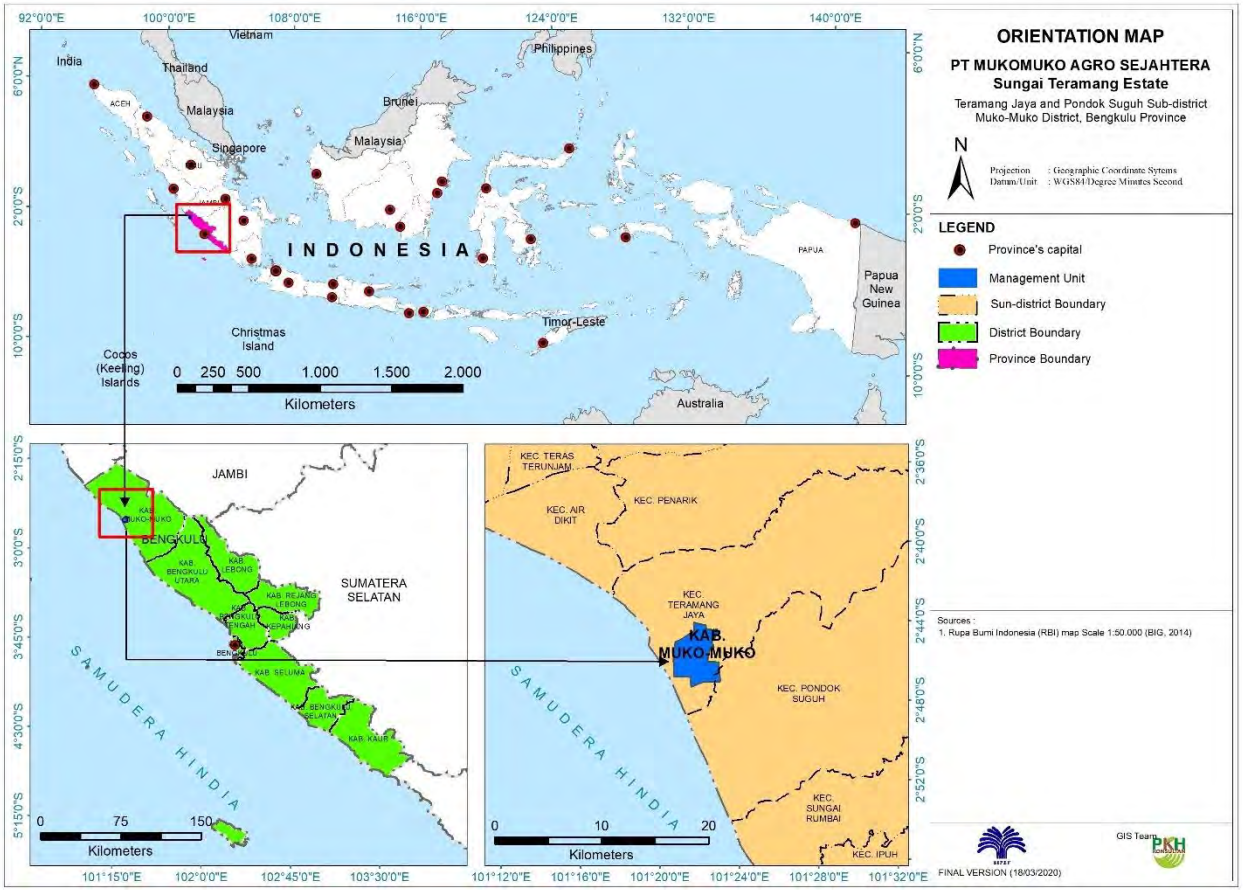


Figure 2. Orientation Map of the HGU Area, PT MMAS STGE (formerly PT Asririmba Wirabakti)

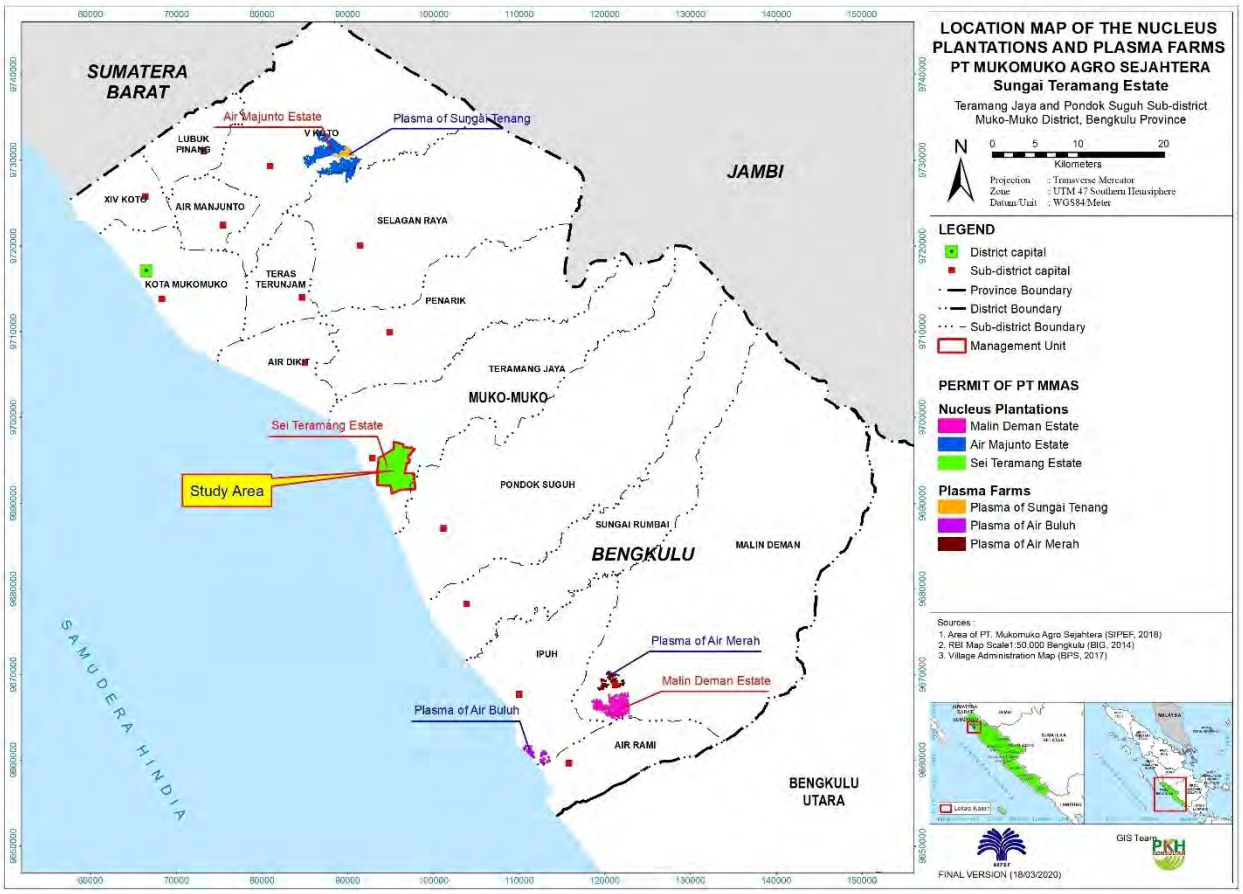


Figure 3. Map of the area of the nucleus and plasma plantation permits, PT MMAS

From the total HGU area of 1,750.12 ha, there is a high conservation area of 126.98 ha which is divided into 28.67 ha in the effective area (nucleus) and 98.31 ha in land controlled by the community (plasma). This area will be managed as an area set-aside from oil palm for conservation, as determined by the HCV assessment approved by the HCVRN. There are no areas with high carbon stock (HCS) as per the HCSA assessment, the total area of PT MMAS STGE which has the potential to be developed into an oil palm plantation is 1,541.08 ha, with an allocation for the nucleus plantation plan of 325.81 ha and the plasma plantation plan or KMD scheme covering 1,177.28 hectares. **In the nucleus plantation area, there are already 325.81 ha of replanted oil palms, while in the plasma area there are 1,177.28 ha of planted oil palm. Especially in areas controlled by the community, all of area in the form of mixed rubber farming, bare land, and shrubs covering an area of 37.99 ha is planned to be developed into new oil palm plantations. The area that could be developed will follow the company's Sustainable Policy and the RSPO NPP**. There are also 82.06 ha consist of village community plantation (KMD) and rice field. The total area of KMDs is 22.10 ha, and the rice field is 59.96 ha. The management of PT MMAS decided to exclude the rice field for new development and considered as a land for community. The entire planting plan area is mineral soils, not including HCV areas or existing local community lands in the form of KMD, and not directly adjacent to protected/conservation forest areas. Information on new development plan in the STG Estate PT MMAS area is presented in **Table 1** and **Figure 4**.

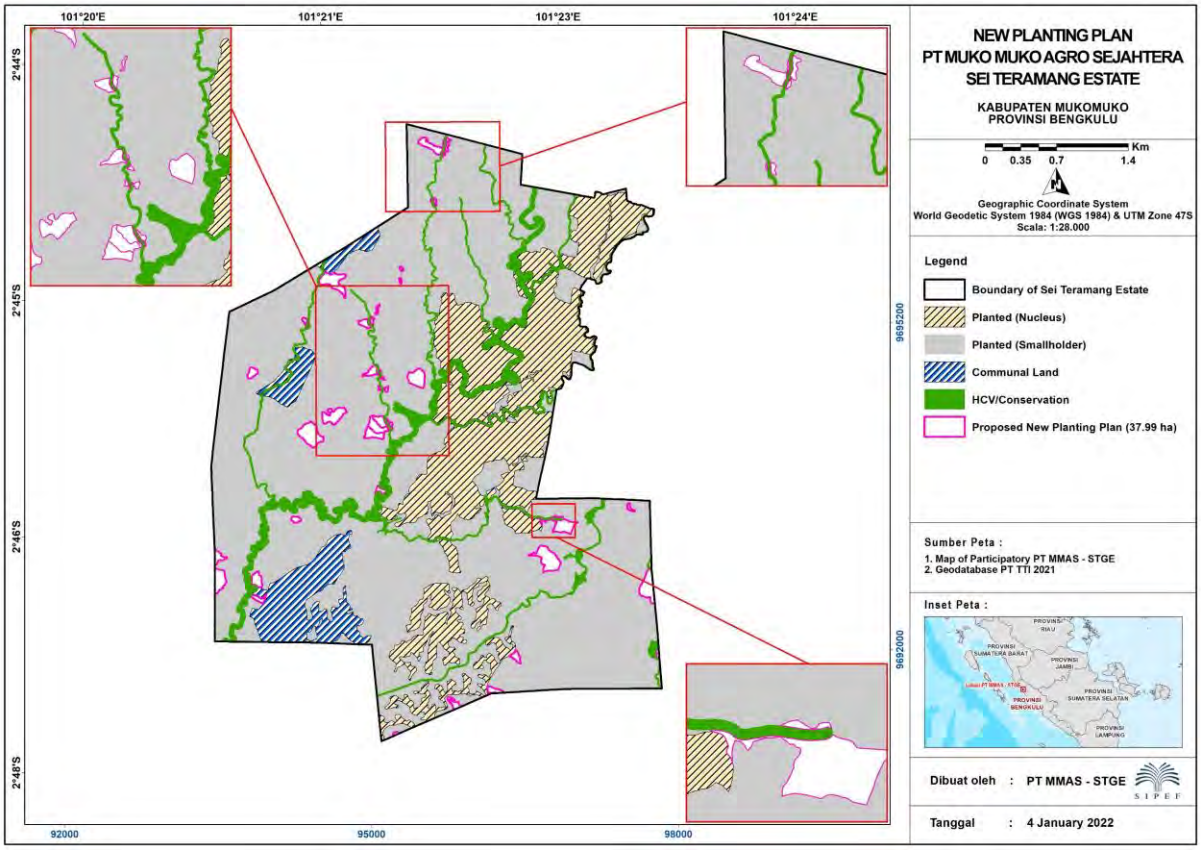


Figure 4. Plan for the new planting period at PT MMAS STGE in 2021

Table 1. New Development Plan at PT MMAS STGE in 2021

No	Plantation	Planted	Proposed new planting 2022	HCV/konservasi	Communal Land	Total
1	Inti (nucleus)	325.81	-	28.67	82.06	1,750.12*
2	Smallholder	1,177.28	37.99	98.31		

**Note: HGU areas 1,770.00 ha, after delineated it was become 1,750.12 ha*

The management of MMAS already replanted for the entire of nucleus area in 2021, and no further replanting plan is made until today for the smallholder palm oil-occupied land. The management of MMAS have a plan to convert the smallholder-occupied land into plasma plantations, and will do necessary replanting when the negotiation process to join the PT MMAS STGE plantation plasma scheme is completed and approved by the community

2. ASSESSMENT PROCESS AND METHOD

2.1. Social and Environmental Impact Assessment (SEIA)

2.1.1. *Implementation of SEIA and Assessor Credentials*

Environmental Management and Monitoring Efforts in the STG Estate PT MMAS area were carried out by Survindo Link and finalised in October 2019. **Table 2** shows the UKL / UPL (RKL / RPL L PT) drafting team at PT MMAS STGE led by Drs Yunofrizal.

Table 2. SEIA (RKL / RPL) team Composition of PT MMS AMDAL STGE and their expertise

Position	Evaluator	Qualifications
Team leader and environmental expert	Drs Yunofrizal	AMDAL B + Certificate of Competence
Geophysicist	Budi Harlianto,S.Si, MSc	AMDAL B + Certificate of Competence

Implementation of the Social Impact Assessment (SIA) for PT MMAS STGE was completed in September 2019 by a team of consultants from PT Perencana Karya Hijau, led by Sigit B. Setyanto. **Table 3** shows the composition of the drafting team.

Table 3. Composition of PT MMS AMDAL STGE compilers and their expertise

Name	Position	Expertise
Sigit Budhi Setyanto	Team Leader	Socio-Cultural Field
Fadhli	Member	Socio-Cultural Field
Wibowo A. Djatmiko	Member	Social-Environmental Sector
Riswan Zein	Member	Social-Environmental Sector and GIS
Harry Kurniawan	Member	Social-Environmental Sector and GIS

2.1.2. *SEIA Implementation Methods*

The SIA study was conducted April 2018 - September 2019. The methods or techniques used in the SIA process consisted of:

1) **Literature Study**: This method is used to gain an understanding of the social and environmental context of the identification area. It is carried out at an early stage before going to the field, and then at the results analysis stage.
2) **Dialogue**: This method is used to identify the parties, explore issues that are impacted, explore hopes, ideas and aspirations to find solutions to the issues that occur. It is carried out through meetings both formal and non-formal and with specific topics (FGD)
3) **Field Observation**: This method is used to understand first-hand the facts on the ground, which are indications of the occurrence of social issues and impacts.
4) **In-depth Interview**: In order to explore and get a deeper understanding of the issues that arise, in-depth interviews are carried out with selected key figures who become respondents. They are selected based on their knowledge, or they are actors or those who have felt a direct impact.

5) **Triangulation**: The methods above are carried out in an integrated manner to mutually verify the issues, opinions and ideas that arise.
6) **Social-Learning Cycle**: SIA is not a one-time linear process but a cyclical process, which functions as social learning processes to respond to environmental changes that occur.

The stages of the SIA activities are carried out by referring to the reference to *'A Comprehensive Guide for Social Impact Assessment'* (2006).

1) Study preparation and pre-assessment

This activity aims to collect basic information (both spatial and non-spatial), either in the form of information and data sourced from publications (study reports, journals, books, statistical data, etc.) or through communication with parties deemed to have the information, knowledge, or experience related to social issues in the study location (socio-cultural community, community and demographic history, history of social conflicts, regional development, government policies and plans, etc.).

The activities of identifying community profiles and potential key stakeholders, determining the scope of the study, establishing methods, and designing social surveys were carried out through an FGD process, which was attended by all team members and led by the team leader. If needed, the team could invite the relevant company or other related parties as a resource.

2) Field Activities

This activity aims to collect data and information and assess social impacts directly in the field. The sequence of activities in the field is as follows:

a) **Opening Meeting |** This activity is intended to convey the objectives of SIA, the scope of activities, compile a fieldwork team, and agree on a schedule of daily activities. In this activity, basic training activities (introduction) were also carried out on SIA: background, aims and objectives, concepts, and how to identify them.
b) **Social Mapping and Stakeholder Participation |** This activity aims to identify: (1) key parties who will be or have been affected (either positively or negatively) or will have or have had an impact (both positive and negative) on the presence and operations of the Company or Management Unit, (2) key parties who can facilitate/support or significantly or potentially hinder the presence and operations of the Company or the Management Unit and (3) a portrait of life (socio-cultural and socio-economic) of the community in and around the managed area.
c) **Field Observation |** This activity aims to collect and explore information relating to primary social impacts directly in the field. The SIA Team will divide itself into three sub-teams, namely: Socio-Cultural and Community Empowerment Team, the Socio-Economic and Rural Development Team, and the Manpower and Social Relations Team. Each sub-team consists of 2-3 people (involving counterparts from the Company and local communities), led by an expert from PT Perencana Karya Hijau (PKH).
d) Focus Group Discussion | The FGD aims to gather information and opinions from the participants, as well as clarify, confirm, complement and deepen the interim findings in the field, in the form of a brainstorming discussion on several recorded social issues, both positive and negative.
e) **Analysis and identification records in the field |** This activity aims to process and analyse data and information obtained from field activities to then compile them into an "identification note" containing temporary findings in the field (social issues, prediction of social impacts), drawing conclusions, along with justification or the argument to be submitted to the Plantation Management Unit and Company

management. In this activity, the results of interim findings were clarified and data/information was still needed.

f) **Closing Meeting |** This activity aims to convey interim results in the form of brief information on social portraits, social issues, and prediction of social impacts to the Management Unit. The purpose of this activity is so that the Company Management Unit gets the main substance of the identification results and can follow up on important or urgent matters, not having to wait until the SIA Result Report is complete.

3) Identification, Analysis and Prediction of Social Impacts

This activity aims to process and analyse more comprehensively and in-depth all results from the field, and confirm, clarify and revise in special cases, based on the opinion of the Company or the Management Unit. The results are then presented back to the Management Unit for input and improvement. Social impact analysis and prediction activities were carried out at the PT PKH Studio in Medan. Meanwhile, if necessary, presentations/exposures can be made at the office of the Company Management Unit.

4) Report Writing (Draft)

This activity is in the form of a writing workshop, where all members of the SIA Team meet, discuss, study together, and test the results of the analysis and mapping, to then compile a report. Reports are prepared in an accountable and systematic format, but also coherent and simple, accompanied by visual presentations, so that the plantation Management Unit and the Company can easily read and understand them. The output of this stage is a Draft Report. Furthermore, the Draft Report is sent to the Management Unit or Company to be examined, given input, and corrected if there are errors in the data and information found. Then the Draft Report document is sent back to the PT PKH SIA Team for refinement.

5) Report Writing (Final)

This activity is focused on including relevant suggestions from the Company, and from other parties deemed important, to be included as part of the Final Report. The output of this stage is the Final Report.

2.2. HCV assessment

2.2.1. HCV Assessment and Assessor Credentials

The HCV assessment at PT MMAS STGE, was carried out by an independent consultant from PT PKH, April 2018 - July 2019, and received satisfactory status in January 2021. **Table 4** shows the composition of the HCV assessment team at PT MMAS STGE.

Table 4. PT MMAS STGE HCV Assessment Team

Name	Position	Expertise	Experience
SIGIT BUDHI SETYANTO (ALS15024BS) Full Licence	Team Leader (Expert HCV 5 &6)	Socio-cultural assessment of HCV, community empowerment, conflict mitigation, participatory mapping, FPIC, CSR, soil science, environment & fertilisation.	Assessment and verification work in Indonesia, Malaysia and Papua New Guinea. Language: Indonesia, English, Java, Madura and Malay

Name	Position	Expertise	Experience
RISWAN ZEN	Member (HCV 4 & GIS)	GIS and Remote Sensing, and HCV Assessment for environmental services, participatory mapping and forest science	Assessment and sustainability audit in Indonesia, Malaysia, Papua New Guinea and Africa. Language: Indonesia, English, Batak, and Malay
HARRY KURNIAWAN	Member (HCV 4 & GIS)	GIS and Remote Sensing and HCV Assessment for environmental services, participatory mapping and forest science	Assessment and verification work in Indonesia Language: Indonesia, English, Batak, Java, and Malay
WIBOWO AGUNG DJATMIKO	Member (HCV 1,2, & 3)	HCV Assessment for ecology, biodiversity, participatory mapping and forestry science	Assessment in Indonesia and Malaysia. Trainer for HCV 1,2 and 3. Language: Indonesia, English, Java and Sunda
IHSAN NUR HARAHAP	Member (HCV 1,2, & 3	Assistant HCV assessor for environmental ecology, biodiversity and forestry science and GIS	Assessment in Indonesia, Language: Indonesia, English, Batak and Malay
FADHLI	Member (HCV 5&6)	Socio-cultural assessment of HCV, participatory mapping, FPIC, CSR, and forestry science	Assessment in Indonesia, Language: Indonesia, English, Minang and Malay

2.2.2. HCV Implementation Methods

The HCV Assessment process is carried out in stages including the latest HCV assessment manual, namely the Common Guidance HCVRN 2013 and the 2018 HCV Toolkit which are described as table 5 below:

Table 5. HCV Assessment process and timeline PT MMAS STGE.

Stages	Objectives	Locations	Time
Pre-field work			
***Pre- assessment* and work preparation**	• Initial data and information collecting from the company, and identify the potency and indication of HCV's attribute from secondary sources (report, journal, book, statistical data, basic maps) and source person. • Understanding the landscape context through data and spatial analysis. • Capturing the local and regional conservation issue and the potential threat of HCVs existence. • Methodology set up and formulizing survey plan, operational field team, and field activity timeline	PT Perencana Karya Hijau office, Medan	10 - 22 April 2018
Field work			
Scoping	• To convey the intent, purpose and expected outcome of the HCV assessment plan • To obtain data and information as well as the	Meeting room at Regional Office PT MMAS (SIPEF),	25 - 26 April 2018

	main problems directly from representatives of the community and government officials • To verify information from the desk study results. • To identify the main issues that should be covered during the assessment • To make contact with stakeholders and community representatives and arrange a schedule for visits to the village. • Visits to sub-district offices, villages and visits to and around the plantation area.	Sumber Sari village, Air Dikit, Mukomuko	
		Visits to Pondok Suguh sub district, Air Bikuk village, and Batu Ejung village	25 April 2018
		Visits to Teramang Jaya sun district, Brangan Mulya village, Nanggalo village, Mandiangin Jaya village, Pasar Bantal village and Teramang Jaya village and continue to ex-PT AW office for interviewing ex-PT AW staff	26 April 2018
Main Assessment			
Informal Opening meeting, and Participatory mapping interna*l*	• To communicate the intent, purpose and expected outcome of the HCV assessment plan to local management and staff • To build PT MMAS's management work team for HCV team and counterpart. • clarify the potential HCV areas identified from previous pre assessment. • To interview and apply the triangulation cross check with relevant sources • To identify threats and potential threats to HCVs	Meeting room at Regional Office PT MMAS (SIPEF), Sumber Sari village, Air Dikit, Mukomuko	6 September 2018
Field survey	• To Carry out data collection, field checks and verify the presence of HCV attributes or elements • Visits to government agencies • To identify and mapping the indicative boundaries of HCV areas	**Social team:** visits to Licensing Office, Agriculture office, and Enviromental office of Mukomuko Government.	07 September 2018
		Air Bikuk village, Batu Ejung village, and visit to ex- PT AW office	08 September 2018
		Document Review at Mess SIPEF Regional, Sumber Sari village, Air Dikit, Mukomuko	09 September 2018
		Environmental team: Field visit both inside and surround the concession	07-09 September 2018
Opening meeting, Basic Training for HCV	• To communicate the intent, purpose and expected outcome of the HCV assessment plan to local management and staff • Workshop and short training on HCV with	Meeting room at Regional Office PT MMAS (SIPEF),	10 September 2018 Jam: 07.30-09.30

	management units and local staff • To build management unit's understanding of HCVs: background, purpose and objectives, concepts, HCV types, key attributes or elements, and identification methods • To obtain additional data and information regarding the status of development plans and plantation management • To get support from the management unit for HCV assessment field survey	Sumber Sari village, Air Dikit, Mukomuko	
Field Survey II	To continue field survey to visits villages and important objects inside and surround the concession	Nanggalo village, Brangan Mulya village and Teramang Jaya village	10 September 2018
		Field visit both inside and surround the concession	11 September 2018
		Villages: Bunga Tanjung, Nenggalo & Mandiangin Jaya	12 September 2018
		Pondok Baru village	13 September 2018
Pre-Closing meeting	To present, share and discuss the draft result of HCV assessment to management and public consultation preparation	Meeting room at Regional Office PT MMAS (SIPEF), Sumber Sari village, Air Dikit, Mukomuko	13 September 2018
Stakholder consultation I	• To disseminate the HCV assessment objective and draft results to stakeholders through a workshop. The stakeholders comprised of community leader, local government, and CSO • To collect inputs and additional data and verify and clarify the HCV attributes, get inputs for potential and current threat to HCV • Interview and *Focus Group Discussion* (FGD) with key stakeholder. • To compile inputs to develop recommendation and options for HCV management and monitoring.	Club House, Regional Office PT PT MMAS (SIPEF), Sumber Sari village, Air Dikit, Mukomuko	13 September 2018
Closing meeting	To present, share and discuss the draft result of HCV assessment to management and find the data gap	Meeting room at Regional Office PT MMAS (SIPEF), Sumber Sari village, Air Dikit, Mukomuko	14 September 2018
Post-field			
Analysis and Reporting	Carry out data analysis including spatial and atributal data of HCV assessment to develop a report of assessment according to template format and systematic. The report is also developed according to science norms, systematic and simple to use by management unit and other users.	PT Perencana Karya Hijau office	September 2018 – May 2019

Stakholder consultation II	• To disseminate. the final HCV assessment results to the stakeholders • Presentasi dan menyampaikan hasil identifikasi NKT final kepada stakeholder (community leaders, local government, and CSO) • To compile inputs and additional data and verify and clarify the HCV attributes, and potential and current threat to HCV. • To compile inputs to develop recommendation and options for HCV management and monitoring	Club House, Regional Office PT PT MMAS (SIPEF), Sumber Sari village, Air Dikit, Mukomuko	9 Jully 2019
Quality Panel review	Review process by the Quality Panel of HCVRN	Review by Quality panel HCVRN	August 2019
		Report revision	March 2020
		Report Re-submission I	June-August 2020
	Additional consultation and confirmation to stakeholders to respond the QP HCVRN reviews	Visits 7 villages and meet relevant stakeholders	1-6 July 2020

2.2.2.1. Pre-Assessment

Pre-conditions that have been met by management unit according to Manual /toolkit issued by HCVRN, as follows:

1. Commitment to environmental and social safeguards
STG Estate, PT MMAS as a subsidiary of SIPEF group has a policy that regulate commitment for environment and social safeguards. A complete policy is expressed in *"SIPEF SUSTAINABLE APPROACH"* and *"SIPEF RESPONSIBLE PLANTATIONS POLICY"* can be accessesed at link : https://www.sipef.com/hq/sustainability/sustainable-approach/ and https://www.sipef.com/hq/sustainability/policies/responsible-plantations-policy/ The SIPEF group policy states commitments in terms of social and environmental protection, including: *"The operations of the SIPEF group are part of a larger natural and social environmental landscape. Long- term relationships are formed between them and the local community. A Free, Prior and Informed Consent (FPIC) process is critical to the long-term success of any new operation. Job and business opportunities become available as operations run smoothly and grow. Regular consultations with communities related to operations will be carried out".* https://www.sipef.com/hq/sustainability/positive-social-impacts/ *"The SIPEF Group recognizes that, in addition to its legal and commercial obligations, it also has a responsibility towards the communities and environment in which the Group operates. The Group is committed to protecting the environment by maintaining healthy and sustainable agricultural policies in accordance with the Principles and Criteria of the Roundtable Sustainable Palm Oil (RSPO), which covers a wide range of environmental and social issues, such as transparency, legal compliance, best agricultural practices, responsible land development. and continuous improvement ".* https://www.sipef.com/hq/sustainability/corporate-policies/`

1. Commitment to moratorium on any land clearing or land preparation until the HCV assessment has been completed
PT MMAS through the SIPEF group also has a policy written in the 'SIPEF RESPONSIBLE PLANTATIONS POLICY' which states: *"Responsible development of new operations"* or is responsible for the development of new operations (plantation development). Will be subject to a High Conservation Value (HCV) assessment procedure prior to the Free, Prior and Informed Consent (FPIC) Process of affected communities and following the New Planting Procedure (RSPO NPP). https://www.sipef.com/hq/sustainability/sustainable-approach/
2. Demonstrated legal right over or permission to explore the location permit and Area of Interest
PT MMAS informed that it had carried out a sale and purchase transaction (take over) and showed a copy of the Right to Use Business Certificate (HGU) No: 43, Date: 18.06.1997 on behalf of PT Asririmba Wirabhakti covering an area of 1,770 Ha in Mukomuko Regency for the 'Sei Teramang Estate' area (STG Estate) which is located in Pondok Suguh and Teramang Jaya Sub districts. The sale and purchase transaction are stated in the deed of "Conditional Sale and Purchase Agreement" (between qq PT Asririmba Wirabhakti and PT Muko Muko Agro Sejahtera, based on the Notary Deed of Lince Hutahayan, SH, Number: 06, August 13, 2018.
3. FPIC Process has been initiated with full disclosure of the proposed project with all potentially affected communities and stakeholders and the process for negotiation and consent going forward has been agreed, with representatives appointed through a fair process
PT MMAS informed that it had carried out a series of formal and non-formal socialization processes by assigning internal staff to make visits to several important relevant stakeholders at the sub district, sub districts and villages level to inform the take-over process and plans for the management of the ex-PT Asririmba Wirabhakti oil palm plantation for STG Estate, PT MMAS.

Initial data and information provided by PT MMAS are sufficient for the next scoping study stage, with the following considerations: (1) The operational takeover process has been agreed, (2) Commitment to environmental protection and social and prohibit new land clearing in the HGU concession, which majority of the land has been planted, until HCV identification is complete or has been finalized, (3) FPIC process has been initiated with formal socialization in the villages, as well as informal socialization to relevant stakeholders (4) Several villages around the former PT Asririmba Wirabhakti are also close to PT MMAS estates, and some of villages already join the Village Plantation Schame (KMD) which is a plasma partners of SIPEF group, (5) PT MMAS previously had relationships with several stakeholders in the villages around the former PT Asririmba Wirabhakti plantation. (6) Information from PT MMAS stated that it had carried out informal outreach activities to the Regional Government through related agencies, sub districts and villages, (7) There was information on PT MMAS internal initial identification before the takeover was carried out, and (8) Partially analysis carried out by the assessment team and PT MMAS management results the STG Estate concession is excluded from moratorium designation for new development, and that area is located in non-forest state area (other purpose area).

PT MMAS informed that the KMD is one of several CSR programs for villages in the operational area of the SIPEF group in the Mukomuko District area since the 2000s. One of the goals of KMD is to encourage village independence to be able to manage 'Village Enterprises' (BUMDes) through good oil palm plantations that involve the community in a transparent manner and provide lessons on how to grow oil palm for the needs of the global market. The SIPEF Group as a global company strives to ensure transparency in the supply chain for the production of the commodities it offers so that the results can be traced to production sites in nucleus, plasma, smallholder plantations and KMD.

2.2.2.2. Scoping Study

The Scoping Study is carried out by the Team Leader and two senior Team Members with a background of expertise in social, mapping and environmental aspects. The series of activities in the Scoping Study began with an opening meeting with operational staff in the field (site area), carried out by presenting the objectives of the activity, providing an overview and basic analysis of the results of the desk study from the consultant and the process mechanism for the stages of assessment activities from beginning to end based on the guidance from HCVRN. This is followed by sharing information and questions and answers as well as reviewing documents or information available in the site area. The opening meeting ends by agreeing on a tentative activity schedule, companion, person in charge (PIC), transportation, accommodation and other relevant activities until the Scoping Study is complete. This activity is very important so that the consultant and internal staff have the same perception and frequency in carrying out assessment activities tocompletion.

Field visits to sub district and village offices to consult Village Heads and relevant Key Stakeholders to explain the detailed HCV Assessment plan (and other identification), and to seek approval for identification activities represented by village and sub district entities. In addition, the Initial Participatory Mapping was carried out in villages that have an important role, such as those with the largest area in theconcession.

The activity was continued with a quick visit to the former PT Asririmba Wanabhakti office, the HGU concession area and its surroundings to share information with former employees and observe important locations such as land cover, vegetated area spots, swamps, rivers, agroforestry and others relevant area. The initial assessment ended with a closing meeting for discussion of results and requests for documents and relevant information available in the site area. The schedule of Scoping Study at STG Estate, PT MMAS is presented in **Table 6.**

Table 6. Schedule of Scoping Study at STG Estate, PT MMAS

Activities	Activities Discriptions	Timeline
Opening Meeting of Scoping Study	Desk study completing documents and sharing information / consultation with internal staff of PT MMAS (site area)	25 April 2018
Visits to sub district and village agencies	Visits to Pondok Suguh Sub district, Air Bikuk Village, Batu Ejung, Bunga Tanjung and Pondok Baru	25 April 2018
	Visits to Teramang Jaya Sub district, Nanggalo Village, Brangan Mulya, Mandiangin Jaya, Bantal and Teramang Jaya Markets and to the Office for interviews with former PT Asririmba Wirabhakti employees.	26 April 2018
Visits & preliminary observations of land cover	Conducting observations in and around the HGU concession area	25-26 April 2018
Visits / meetings with the community	Sharing information with several village community leaders and conducting initial participatory mapping at the avalaible villages, namely Brangan Mulya, Mandiangin Jaya and Teramang Jaya Villages.	25-26 April 2018

The determination of the villages for scoping studies and initial participatory mapping was referred to the results of overlaid analysis between concession boundary map and villages map from Statistic Offices (BPS). The list of initial consultations with PT MMAS management, and relevant stakeholders at the sub districts and villages around the concession is presented in **Table 7.**

Table 7. List and summary of initial stakeholder consultation in the scoping study in PT. MMAS.

No.	Name/Date & Method	Position & Role	Entity	Concern and Recommendation
1	Trinovera Adji Setyadji Gindo Gultom **Date:** 25 April 2018 **Place:** Regional Office SIPEF **Methods:** Presentation, Consultation, Information sharing, Interview and Initial Participatory Mapping	ENC Regional, Staf ENC Regional Staf ENC Regional	PT MMAS	• Information regarding PT Asririmba Wirabhakti's taking-over, PT MMAS has made initial identification prior to take-over and is aware that most of the HGU permit area is managed by the community. PT MMAS has carried out initial notification and informal socialization to the related offices, sub-districts and surrounding villages and will continue to carry out intensive socialization. PT MMAS opens opportunities for sharing and communication with related parties to plan cooperation with the community using several existing schemes of the SIPEF group partnership program. • To reduce the anxiety of the community who managed the land in the HGU permit, PT MMAS is committed wil not to manage the area that has been occupied and managed by the community until a joint decision is made. PT MMAS will only manage the plantation which is controlled directly by the company covering an area of 371 hectares. the HGU area covering 2 sub-districts and 8 villages, while Pasar Bantal village has been confirmed is excluded and outside the concession.
2	**Abdul Hadi, S** **Date:** 25 Maret 2018 **Place:** Sub district office **Methods:** Presentation, Consultation, Information sharing, Interview and Initial Participatory Mapping	Sub-district head	Sub District Pondok Suguh.	• The sub-district has received information from PT MMAS instead of coming from the Regional Government Offices. The sub-district allows for field visit activities, it is expected to meet with the village authorities at the first, and while visiting the community, it is expected to involve the village staff so that the stakeholders met are right on target. • Pondok Suguh Subdistrict, which is a division of Teramang Jaya Sub district, is only a small part of the HGU area of the former PT Asririmba and is part of the Air Bikuk Village area.

3	**H. Jonaidi, S Ap** **Date:** 26 April 2018 **Place:** Sub district office **Methods:** Presentation, Consultation, Information sharing, Interview and Initial Participatory Mapping	Sub District Head	Teramang Jaya Sub Sub district	• The sub-district has received information from PT MMAS instead of coming from the Regional Government Ofifces. The sub-district allows for field visit activities, it is expected to meet with the village authorities at the first, and while visiting the community, it is expected to involve the village staff so that the stakeholders met are right on target. • Information related to the ethnic area of 'Orang Minang Pesisie Barek', that in the Mukomuko Regency area there are no longer customary lands and communal lands. Most of HGU concession area has been occupied and managed by the community. In the future management, hopefully the community will be often to be outreached and informed. The sub-district always supports the wishes of the village and its community as long as it is good. • For smoothing assessment activities please contact the villages directly.
4	**Alwi** **Date:** 25 April 2018 **Place:** Village Office **Methods:** Presentation, Consultation, Information sharing, Interview and Initial Participatory Mapping	Village Head	Air Bikuk village.	• The village just got to know information from PT MMAS as well as verbal information from the sub-District. The village understood of PT MMAS activities, and it is hoped that if they entering the village area may be accompanied by assistants from the village. • So far there has been a relationship with PT MMAS regarding the workforce of PT MMAS and also at PT Asririmba Wirabhakti. • Some of the community's oil palm farms are inside the ex-PT Asririmba's HGU. It is expected for the clarity on the status of community's oil palm farms inside the HGU concession area while PT Asririmba be taken over by PT MMAS. Hopefully there is a solution that will provide benefit for both parties. • The village does not yet have a KMD program from SIPEF, it is expected such scheme at the Air Bikuk village as well

5	**Buyung Bujang** **Date:** 25 April 2018 **Place:** Sub district office **Methods:** Presentation, Consultation, Information sharing, Interview and Initial Participatory Mapping	Village Head	Batu Ejung village	• The village just got information from PT MMAS as well as verbal information from the sub-District. Batu Ejung Village is an expansion village from Bunga Tanjung Village and is directly adjacent to the HGU area. • The village understood of PT. MMAS activities and it is hoped that if they entering the village area may be accompanied by villagers • There is already a relationship with PT MMAS regarding the workers of PT MMAS and former PT Asririmba Wirabhakti. The village already have the KMD program from SIPEF and have a good relationship with PT MMAS. • Most of the community's oil palm farms are inside the ex-PT Asririmba's HGU. It is expected for the clarity on the status of community's oil palm farms inside the HGU concession area while PT Asririmba be taken over by PT MMAS. Hopefully there is a solution
6	**Arbik Frengki** **Date:** 25 April 2018 **Place:** Village Secretary house **Methods:** Consultations, Sharing, interview & initial participatory mapping	Village secretary	Bunga Tanjung village	• The village just got information from PT MMAS as well as verbal information from the sub-District. Bunga Tanjung Village was the main village before it was split into Batu Ejung and now the village is not directly adjacent to the HGU area. • The village understood of PT MMAS activities, and it is hoped that if they entering the village area may be accompanied by assistants from the village. So far there has been a relationship with PT MMAS regarding the workforce of PT MMAS and former PT Asririmba. • Village has a KMD program, although now it is not directly adjacent to PT MMAS, but Bunga Tanjung Village is adjacent to other plantations of the SIPEF group. • Some of the community's oil palm farms are inside the ex-PT Asririmba's HGU. It is expected for the clarity on the status of community's oil palm farms inside the

				HGU concession area while PT Asririmba be taken over by PT MMAS. Hopefully there is a solution that will provide benefit for both parties.
7	Suadi **Date:** 25 Maret 2018 **Place:** Village office **Methods:** Consultations, Sharing, interview & initial participatory mapping	Village secretary	Bunga Tanjung village	• The village just got information from PT MMAS as well as verbal information from the sub-District. Bunga Tanjung Village was the main village before it was split into Batu Ejung and now the village is not directly adjacent to the HGU area. • The village understood of PT MMAS activities, and it is hoped that if they entering the village area may be accompanied by assistants from the village. So far there has been a relationship with PT MMAS regarding the workforce of PT MMAS and former PT Asririmba. • Village has a KMD program, although now it is not directly adjacent to PT MMAS, but Bunga Tanjung Village is adjacent to other plantations of the SIPEF group. • Some of the community's oil palm farms are inside the ex-PT Asririmba's HGU. It is expected for the clarity on the status of community's oil palm farms inside the HGU concession area while PT Asririmba be taken over by PT MMAS. Hopefully there is a solution that will provide benefit for both parties from the e initial socialization carried out by PT MMAS. • Pondok Baru is an expansion village from Perenyah Village. Most of the residents did not know the boundaries of the former PT Asririmba HGU and did not know whether their oil palm farms were included or not in the HGU area. Some residents proposed for land certification to the Land Office, but it was rejected since the area is included in the HGU concession area • Pondok Baru village already has KMD and has a good relationship with PT MMAS. • Shared information and results of discussion will be conveyed to the

				villagers. It is expected for the clarity on the status of community's oil palm farms inside the HGU concession area while PT Asririmba be taken over by PT MMAS. Hopefully there is a solution that will provide benefit for both parties
8	**Safrianas** **Date:** 26 April 2018 **Place:** Village Office **Methods:** Consultations, Sharing, interview & initial participatory mapping	Village Head	Nanggalo village	• The village just got the information from PT MMAS as well as verbal information from the sub-District. The village already has KMD and has a pretty good relationship with PT MMAS. The village understood of PT MMAS activities, and it is hoped that if they entering the village area may be accompanied by assistants from the village. • Village institution hands over all decisions regarding the existing occupied and community palm oil area to each family who managed the lands. It is expected that the community can become a partner in plasma farms scheme because the farms will be managed better and will get more yields.
9	**Ali Syarman** **Date: 26 April 2018** **Place:** Village Head house **Methods:** Presentation, Consultation, Information sharing, Interview and Initial Participatory Mapping	Village Head	Brangan Mulya village	• The village just got information from PT MMAS as well as verbal information from the sub-District. • The village understood of PT MMAS activities, and it is hoped that if they entering the village area may be accompanied by assistants from the village • There is a relationship with PT MMAS regarding workers at PT MMAS and the former PT Asririmba. Most of the community's oil palm farms are inside the HGU of the former PT Asririmba. • Brangan Mulya Village does not yet have a KMD program from SIPEF, it is expected such scheme as well • There is a priority program from the Ministry of Agrarian Spatial Planning / National Land Agency, in the form of Acceleration of Complete Systematic Land Registration (PTSL) but it cannot be carried out due to the land status in the HGU concesssion, but there are already exist farms and houses with legal land certificate (SHM) , one of which is owned

				by a district senate member. This situation triggers the community demanding to be able to have land certification as well,
10	**Hermanto** **Date: 26 April 2018 Place:** Village office **Methods:** Presentation, Consultation, Information sharing, Interview and Initial Participatory Mapping	Village General Staff	Mandiangin Jaya village	• The village just got the information from PT MMAS as well as verbal information from the sub-District. The village is previously part of Pasar Bantal Village. Previously there was a relationship with PT MMAS regarding the KMD' program from the SIPEF Group, but now KMD seems to be a problem after the division of the village, it is hoped that a new KMD can be pursued for Mandiangin Jaya Village. Most of the villagers support the take- over and there are solutions related to community oil palm farms in the HGU area. • The purpose of the activity is for good and the village understood of PT MMAS activities, and it is hoped that if they entering the village area may be accompanied by assistants from the village.
11	**Unsani** **Date: 26 April 2018** **Place:** Kades house **Methods:** Presentation, Consultation, Information sharing, Interview and Initial Participatory Mapping	Village General Staff	Mandiangin Jaya village	• The village just got the information from PT MMAS as well as verbal information from the sub- District. The village is previously part of Pasar Bantal Village. Previously there was a relationship with PT MMAS regarding the KMD' program from the SIPEF Group, but now KMD seems to be a problem after the division of the village, it is hoped that a new KMD can be pursued for Mandiangin Jaya Village. Most of the villagers support the take- over and there are solutions related to community oil palm farms in the HGU area. • The purpose of the activity is for good and the village understood of PT MMAS activities, and it is hoped that if they entering the village area may be accompanied by assistants from the village. • 'Desa Pasar Bantal' just got information during the scoping study visit. The village actually is a main village which part of it was divided to new Mandiangin

				Jaya Village, and causing the villages is no longer directly bordered with the HGU area. Previously there was a relationship with PT MMAS regarding the KMD program from the SIPEF Group. • For the management of 'KMD Pasar Bantal', there are indeed obstacles related to the joint management of KMD with Mandiangin Jaya Village. It is expected in the future that Pasar Bantal village will also has such scheme with new separated KMD. • Desa Pasar Bantal' is not adjacent to the HGU because it is located on the beach, where most of the villagers work as fishermen. The village does not object to an assessment activity.
12	**Abdul Kadir** **Date: 25 April 2018** **Place:** BPD's house **Methods:** Presentation, Consultation, Information sharing, Interview and Initial Participatory Mapping	Village Representative Body	Teramang Jaya village	• The village got the information from PT MMAS as well as verbal information from the sub-District. Teramag Jaya is an original village and mother of Air Bikuk villagers who migrated before. After the subdistrict division process, Air Bikuk Village now part of Pondok Suguh sub- District. • The relationship with the former PT Asririmba is only related to a small part of the workers who are the families of the residents of Teramang Jaya Village. The village does not yet have a VillageCommunity Farm (KMD) 'program from the SIPEF Group. If there is an opportunity, hopefully, the development of KMD can be pursued at the village as well. • Most of the villagers asked to be given intensive socialization related to taking over and it is expected a good solution on the existing community oil palm farms inside the HGU area, including for the irrigating rice fields and community irrigation dam. Shared information, results of discussion will be conveyed to the Village Head

Initial data and information provided by PT MMAS as well as information from external stakeholders encountered in the scoping study are: (1) the existing of PT MMAS plantations adjacent to the former PT AW concession, and PT

MMAS have strong relationships with the surrounding villages related to the KMD partnerships program in several villages. The partnership program is also a key recommendation for PT MMAS to accommodate expectations from villages which yet have the KMD scheme (among others due to village expansion), (2) There is an internal identification document developed by PT MMAS prior to expropriation of PT AW, and there is a partial analysis which states that the HGU license of former PT AW is not included in moratorium designation for new development area, and that area is located in non-forest state area (other purpose area), (3) Some of the village stakeholders expressed support for PT AW's take over, because they were deemed not to have adequate relations with the surrounding villages. A source from the sub district stated that: *"… PT AW is very lacking or poor in establishing communication with the Village, sub-district and Government… especially regarding administrative and legality interests which must be reported regularly",*

(4) The Teramang Jaya sub district and Pondok Suguh sub districts along with the villages around the STG Estate area granted a permission to carry out HCV Identification activities and other identification activities.

Recommendations: (1) The management of PT MMAS or PT Tolan Tiga Indonesia (SIPEF) should disseminate a legal document stating the takeover process has been carried out and there is a binding official stipulation,

(2) Conducting formal socialization to the villages and documented so that activities can be continued to the Full Assessment stage in September 2018

2.2.2.3. Full Assessment

2.2.2.3.1. Area of Interest (AoI) boundaries

The determination of the wider landscape boundary / Area of Interest (AoI) in the HCV assessment is made based on several considerations, including: (1) The boundaries of the former PT AW concession that dedicated for STG Estate PT MMAS have been defined, (2) The boundaries of the existing hydrological system (watershed or sub-watershed boundaries), (3) The connectivity of forest cover around the assessment area. The STG Estate basically is fragmented vegetation area and dominated by oil palm areas owned by companies and communities, (4) Community oil palm farms inside the HGU concession majority owned by villagers who are directly adjacent to the HGU concession area (as a direct beneficiary) which includes: (i) Batu Ejung Village, (ii) Pondok Baru Village, (iii) Brangan Mulya Village, (iv) Nanggalo Village, (v) Mandiangin Jaya Village, (vi) Bunga Tanjung Village and (vii) Teramang Jaya Village, Teramang Jaya sub District and (viii) Air Bikuk Village, Pondok Suguh sub District and (5) Additional consideration of the KMD which is a partner of PT TTI / SIPEF and the potential for KMD in future.

The determination of the AoI boundary was made using the hydrological unit approach that shown all the study identification area is located within the Teramang watershed under the BPDAS Ketahun management (WS Ketahun) in accordance with the Minister of Public Works and Housing Regulation No. 4 of 2015. The Teramang watershed has several sub-watersheds, namely the Teramang Kecil sub-watershed, the Lubuk Panjang sub-watershed, the Berau sub-watershed and the Batang Teramang sub-watershed. Most of landscape / AOI area is located in the Teramang Kecil Sub-watershed, except for areas in the western part which is the Berau Sub-watershed. Based on its position to the watershed / sub watershed boundary, AOI is located in the downstream part of the watershed which is close to the outlet / sea as the final discharge from a watershed and is the lowest area of the Teramang watershed. The map of the wider landscape boundaries is presented in **Figure 5.**

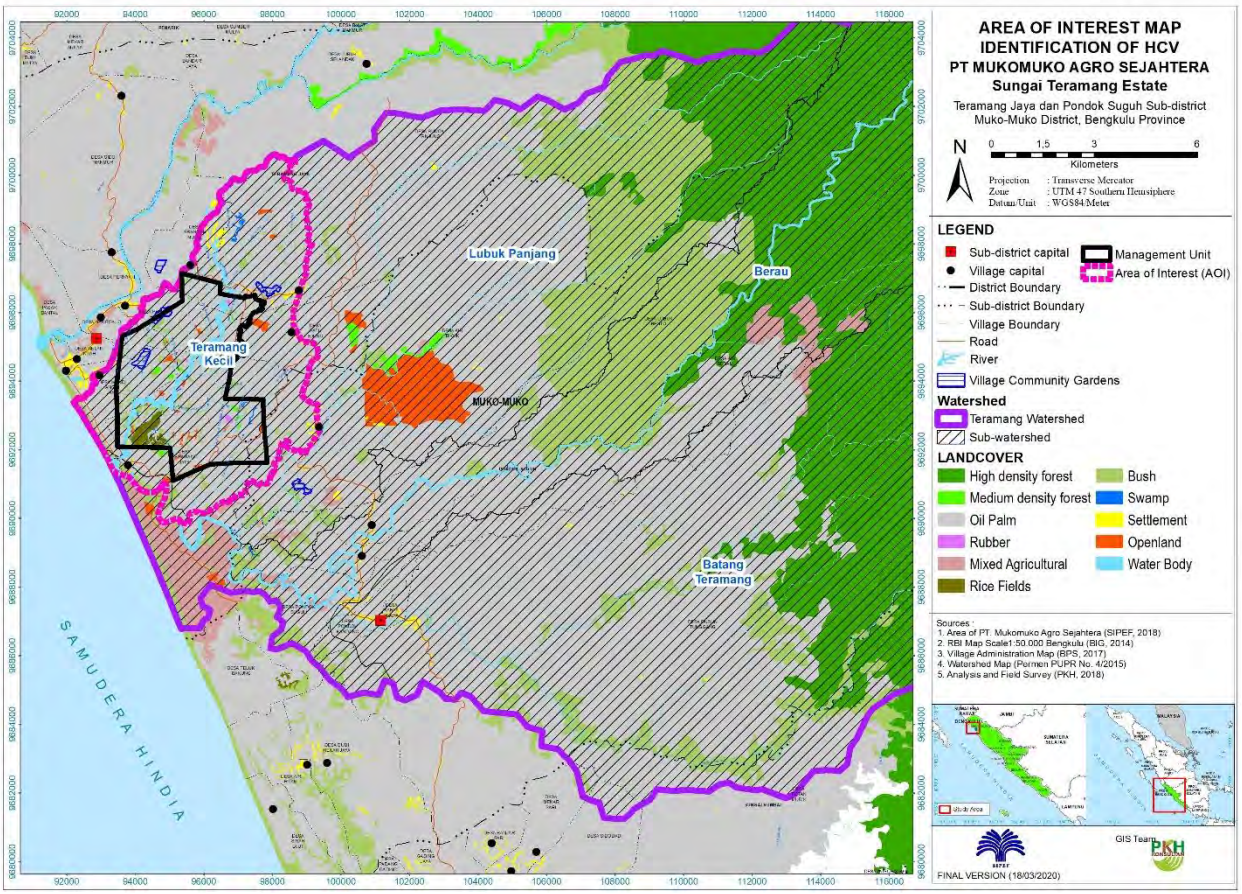


Figure 5. Map of wider landscape boundaries / AoI in the STG Estate, PT MMAS

Land cover | Land cover over the concession is mostly cultivation mosaic area, only a few patches of forest spread sporadically as shown in **Figure 6.** The description of land cover within the STG Estate PT MMAS includes:

(1) Low-medium density forest; is a forest that grows and develops in dry land habitats forming lowland forests which is human intervention occurred. The density is 10% -40% (low) to 41% -70% (medium).

(2) Agricultural Land; is an area cultivated for plantations and cultivation, consists of:
   (a) Mixed agricultural land; complex arrangements of fields and villages, which may also contain oil palm farms.
   (b) Rubber farms; is an area that has been cleared for rubber farms.
   (c) Oil palm farms; is an area of oil palm at any stage of development (for example, land open for planting, already planted, or old oil palm).
   (d) Wet land in the form of rice fields planted with rice continuously, two or three times a year depending on the rice variety, without rotating crops with other crops.

(3) Bare land; is an area without cover either natural, semi-natural or artificial,

(4) Settlement Areas; is an area that is used for the local community residentials.

(5) Swamp; extensive and permanent areas of fresh water or brackish water on land

(6) Shrubs; is an area with various types of natural vegetation or homogeneous types of natural vegetation with sparse to dense density. This area is dominated by low natural vegetation with an average height of 0.5-2 m, some are woody and sometimes swampy.

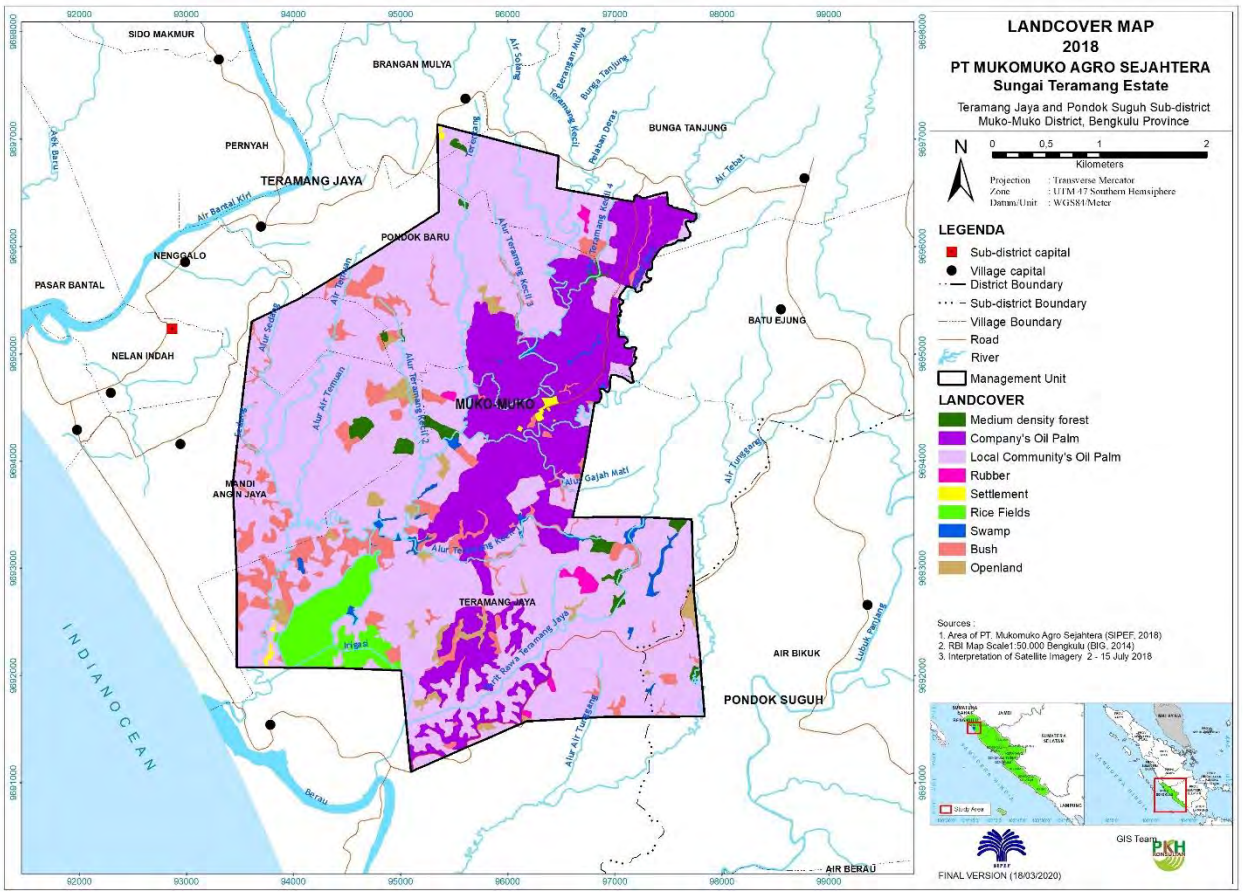


Figure 6. Land cover in 2018 in the PT MMAS HGU area

Land Use Planning | Based on Function Forest State Areas and Waters Designation of Bengkulu Province in 2012, it refers to the Decree of the Minister of Forestry No. 784 / Menhut-II / 2012, dated 27 December 2012, indicating that the HCV assessment area in the PT MMAS HGU STG Estate area is entirely in Other Purpose Areas (APL), and is not included in the moratorium area for peat development which refers to the Peat Hydrological Unit Map National 2017 (Decree of the Minister of Environment and Forestry No. 129 / MenLHK / Setjen / PKL.0 / 2/2017, dated 28 February 2017), the National Peat Ecosystem Function Map year 2017 (Decree No. 130 / MenLHK / Setjen / PKL.0 / 2/2017, dated 28 February 2017), and the revised XV Indicative Map for Suspension of New Permits (PIPPIB) year 2018 (Decree No. 8599 / MenLHK-PKTL / IPSDH / PLA.1 / 12/2018, Dated 17 December 2018).

Hydrology | The area around and inside the STG Estate, PT MMAS is included in the River Basin BPDAS Ketahun, Teramang Watershed, Teramang Kecil Sub-watershed with several rivers, namely: (1) Sungai Air Solang, (2) Sungai Air Temuan, (3) Sungai Air Tunggang, (4) Sungai Teramang Kecil, (5) Sungai Brangan Mulya, (6) Sungai Tanjung Bunga, (7) Sungai Gajah Mati, (8) Rawa Teramang Jaya with its trenches, (9) Sungai Pelaban Deras, and (10) Sungai Terentang which is connected to the Sungai Teramang Kecil. The rivers and channels that cross the STG Estate PT MMAS area are estimated to be around 49.17 km covering an area of around 13.74 hectares. Riverr depth in average ranging from 3-6 m and a width between 6-10 m.

Land System | The physiographic unit of the STG Estate HGU permit area, PT MMAS is within the Southern Eastern Plains and Hills unit (RePPProT 1990) and is included in the Sumatra biogeographic sub-unit area 21a Southern Mainland Sumatra (MacKinnon 1997). The area also laid on the Sumatran Lowland Rain Forests ecoregion (code IM0158) (WWF 2016). Based on the Land System Map (RePPProt 1990) it shows that the STG Estate area, PT MMAS

and AOI are dominated by the Teweh Land System (TWH) and a small portion of Bakunan (BKN) classified as Tropudults, Dystropepts, Eutropepts and Tropaquepts, Tropofluents, Eutropepts.

Topography and elevation | Based on the SRTM Digital Elevation Model (DEM) Image with a spatial resolution of 30 meters, the topography of the STG Estate area, PT MMAS is located with an altitude between 0 - 85 m asl, while the slope classes in this area are mostly between 0-25% with dominance of class slope 0-15%

Biographical Zones and Conservation Areas | Bengkulu Province has many conservation areas outside the national park, which are scattered in various locations with a total area of 50,639.6 ha. In terms of function, each of these conservation areas has the status of a natural tourism park (TWA) of 27,630 ha, a hunting park (TB) covering an area of 16,962 ha, a nature reserve (CA) 4,299.6 ha and a large forest park (Tahura) 1,748 Ha. The number of natures reserves itself is recorded at 24 areas and TWA 3 areas. Meanwhile, the area of Bengkulu Province which is included in the Kerinci-Seblat National Park is 412,324.6 ha, which is the closest conservation area to the HGU STG Estate area, PT MMAS.

2.2.2.3.2. Environmental Aspects Methodology

Environmental method | Identification of HCVs in the STG Estate HGU Permit area, PT MMAS uses the Common Guidance for the Identification of HCV (Brown et.al., 2013), the HCV Assessment Manual (HCVRN, 2013) and the Guidelines for the Identification of High Conservation Value Areas in Indonesia (Konsorsium HCV Toolkit Indonesia, revised, 2008) as a reference. A step-wise screening approach is used to align the required information according to the reference scale. The reference scale for identification of HCV 1-3 includes global, regional and national levels, then ground truthing is carried out. The implementation of HCV identification includes pre-assessment, field data collection, stakeholder consultation, analysis and mapping of HCVs to report preparation.

Identification of flora and fauna begun with determining the location of the samples) at the location to be assessed. Samples were determined by stratified random sampling, while the number of observation points was determined based on expertise judgment by considering habitat representation based on unspoiled land cover conditions (such as medium and low-density secondary forest and shrubs) in the study site. The total number of visiting points consider habitat representation, but if the availability of information and location descriptions tends to be the same at several observation points in the same habitat type, then the number of points visited is simply observed. At each location, opportunistic scan sampling was used to identify flora and fauna samples by recording as many flora and fauna encounters as possible in the path traversed by the observer.

Data collection of animal encounters is carried out either directly using the naked eye or using binoculars, or indirectly, usually in the form of sounds and traces left by the animals. All animal encounters in the field will be validated with several animal identification guidebook references. Each group of flora and fauna will have varying degrees of difficulty in identification, for easiness in determining important areas of flora and fauna as well as the broader ecosystem, key species indicator or umbrella species approach will be used. Especially for flora and fauna groups that have limited adaptability to change, for example, a widely used example is using bird groups as an indicator of species (BirdLife International 2013).

The hydrological and environmental service identification survey was carried out by analysing the area in terms of spatial planning, landscape, topography and watershed location. Furthermore, field surveys and interviews were carried out with respondents at selected locations, such as locations of springs, rivers, river boundaries conditions, land clearing locations and several locations that represented water system conditions in plantations. The use of secondary data and literature can be seen in **Table8**.

Table 8. Data and information collected and analysed in pre-assessment

Topic	Sources of main information data
HCV 1	• Map of the boundaries of the identified area • Map of conservation areas in Sumatra (SK no 863 & 866 / Menhut-II / 2014) • List of Protected Plant and Animal Species (MenLHK Regulation no P.20, P.92, and P.106 / MenLHK / Setjen / Kum.1 / 6/2018) • Endemic Bird Area Factsheet: Sumatra and Peninsular Malaya (BirdLife International 2012) • Important Bird Areas in Asia: Key Sites for Conservation (Birdlife International 2004) • IUCN Red List of Threatened Species ver 2019-1 (IUCN 2019) • Appendices I, II and III, valid from 04 October 2017 (CITES 2017) • Map of tiger distribution in Sumatra (IUCN 2012) • Sun bear distribution map in Sumatra (IUCN 2012) • Distribution map of 'hoops' langurs in Sumatra (IUCN 2019)
HCV 2	• Map of the boundaries of the identification area • Map of Bengkulu forest area (SK no 784 / Menhut-II / 2012, and SK no 5984 / Menhut-IV / BRPUK / 2014) • Intact Forest Landscape Map (IFL - WWF 2016) • Ramsar area in Indonesia, source: http://www.ramsar.org • Landsat 8 OLI 126/62 imagery (USGS, 9 December 2014) • Sentinel 2 T47MQS imagery (15 July 2018) • Sentinel 2 T47MQS imagery (14 August 2018)
HCV 3	• Map of the boundaries of the identification area • Indicative Map for the Suspension of New Licensing (PIPIB) revision XV (SK no 8599/MenLHK-PKTL/PISDH/PLA.1 / 12/2018), Bengkulu Province. • Map of land systems at scale 1: 250,000 (RePPProt, 1989) • Landsat 8 OLI 126/62 imagery (USGS, 9 December 2014) • Sentinel 2 T47MQS imagery (15 July 2018) • Sentinel 2 T47MQS imagery (14 August 2018) • Ecology of Sumatra's ecosystem. (Anwar, et al., 1984)

Environmental fieldwork results

Similar to stages in social HCVs, the process of identifying environmental HCVs is also carried out by integration of certain stages. The resource person provided information on aspects of biodiversity related to the presence of animal and plant species in the identification location, information on changes that had occurred in the landscape and threats to the existence of biodiversity. **Table 9** provides a summary of the consultations with several key stakeholders.

Table 9. List and summary of consultations with key stakeholders regarding the environment around STG Estate, PT MMAS

Stakeholder Name / Date	Position / Role	Entities / Interaction	Main concern and recommendation
1. Bapak Abdullah Date, time and place: During field visit	Coordinator of former PT AW employees and important resource persons related to	Eks PT Asririmba Wirabhakti	• Pondok Baru Village was split from Perenyah Village in 2008 • The boundaries of the former PT AW HGU are unclear but some of them are part of the

	mapping, roads and plantation conditions	**Methods:** Participatory Mapping and depth interviews	Pondok Baru village area. • The main livelihoods in the oil palm plantation sector, starting from farmers, harvesters, transporters and maintenance, FFB collectors and FFB agents and suppliers. • Agents generally have regular farmers; in fact, they have generally been given a down payment for maintenance and purchase of fertilizer or family needs which will later be deducted with the payment of FFB according to market prices and without loan interest • The names of rivers, villages, land boundaries, land occupation by the community, important places have all been recorded and illustrated on the available sketch maps
2. Eko Sulistyo, Abd. Gofur dan M. Siburian, Date, time and place: During field visit	PT MMAS E & C Dept staff / field guides	Internal PT MMAS **Methods:** Participatory Mapping and depth interviews	• Ensure the HCV area which will be determined and delineated for the company • Sharing of information for management and monitoring as a new additional area for the PT MMAS unit. • Assisting in completing the required documents and preparing the documents needed in the future. • Also note and identify the potential of flora and animals
3. E B Sitorus dan Rifki Kurnia Date, time and place: During field visit	PT MMAS E & C Dept staff / field guides	Internal PT MMAS **Methods:** Participatory Mapping and depth interviews	• Ensure the HCV area which will be determined and delineated for the company • Sharing of information for management and monitoring as a new additional area for the PT MMAS unit. • Assisting in completing the required documents and preparing the documents needed in the future. • Also note and identify the potential of flora and animals

4. Eko Sulistyo, Abd. Gofur dan M. Siburian, Date, time and place: During field visit	Former PT AW harvest Spv, an important resource related to mapping, roads and plantation conditions. Field guides	Karyawan eks PT Asririmba Wirabhakti / Warga desa Bunga Tanjung **Methods:** Participatory Mapping and depth interviews.	• The presence of animals and plants in the identification area. • Not understanding animals and plants, for a long time while working in the farms, I have never seen animals, only heard from other workers such as snakes and monkeys. There are birds, but they also don't understand their names. • Forest fires are rarely heard in the farms area, if there is, you can confirm that the farms to the community. • The names of rivers, villages, land boundaries, land occupation by the community, important places have all been recorded and illustrated on the available sketch maps
5. Sugeng Prantio dan Rudiyanto Tanggal: 12 Sept 2018 Tempat: Kantor Regional SIPEF Date: 12 Sept 2018 Place: SIPEF Regional Office	Biodiversity Mgr & Staff Biodiversity & Environmental Expert	PT SIPEF Biodiversity Indonesia **Methods:** Maps review, sharing and depth interviews	• The former PT AW HGU area, which is located west of the main road and directly in contact with the village and has been converted into community plantation areas (oil palm, rubber and others), is certainly quite difficult for animal life because it is quite disturbed by human activities. • Regarding the potential of existing animals, among others: Sun Bears (Helarctos malayanus) with the status of VU (Vulnerable / vulnerable), are predicted to only be a 'home ring' area and not a territory. • For the bearded boar / mountain boar (Sus barbatus) with VU status, at certain times there is also the potential to be present in groups. Likewise, the monkey (Macaca nemestrina) VU status also exists and is still frequently encountered. The hoop langur

			(Presbytis melalophos) and the crooked langur (Trachypithecus cristatus) which have NT status can also be found. Monkeys (Macaca fascicularis) and the cat kuwuk (Prionailurus bengalensis) with LC status are also numerous and easy to find. For types of snake eagle (Spilornis cheela), Brontok eagle (Nisaetus cirrhatus), malay cynic (Loriculus galgulus), Kapasan striped (Rhipidura javanica), red neck honey bird (Anthreptes rhodolaema) with LC status is also predicted to still exist. • Water monitor lizard (Varanus salvator), reticulated python (Malayopython reticulatus), drum snake (Python curtus), building snake (Ophiophagus hannah), Sumatran spoon snake (Naja sumatrana) whose LC status is also predicted to be found. Meanwhile, estuarine crocodiles (Crocodylus porosus) which also have LC status are still quite a lot in the estuary, but it is possible to enter the tributaries to look for food. • Determining the HCV area and later enriching the cover along the river is a good decision, environmentally it will protect the function of the river and will become an area for animal distribution and shelter. The important point is public education on environmental sustainability

2.2.2.3.3. Sosial Fieldwork

Social Methodology | The HCV assessment on the STG Estate HGU permit, PT MMAS is a 'Rapid and Ex-ante Assessment[4)], which means that assessments and information extractions are carried out quickly, and more on predictions based of the changes tendency to occur than on accurate factual data based. The data collection methods used in the social and cultural assessment include: (1) Participatory identification of key elements of current and historical land use forms, the extent of community rights and special customary management areas related to the existence of areas that are still considered important by the community through FGDs at the village or community level and followed by field observation activities to determine the location or position of those lands, (2) Socio-economic studies to explore data and information regarding sources of household income, types of basic needs and ways to meet basic needs and other needs.

Interviews and field observations used purposive sampling method by determining respondents / sources with relevant criteria obtained from a participatory mapping process and complimented by a 'snowball sampling' method. From the interview, the first resource person will be asked to show references to other sources who have relevant information specifications. Sampling in the identification included all villages that were administratively included in the PT MMAS Sei Teramang Estate location permit and relevant important stakeholders at the district government level. The number of resource persons is growing and representing the regional level who can qualitatively be accounted for by the representation of stakeholders / social groups.

The process of collecting data and information is carried out by prioritizing the principle of FPIC (Free, Prior and Informed Consent) and gradually through the process of Stakeholder Mapping and Participatory mapping through Focus Group Discussions, and in-depth interviews with relevant key stakeholders to obtain information directly from the community. Stakeholder mapping is carried out in one of the internal opening meeting sessions with company staff to obtain important stakeholder information from nearby villages who have had social relationship with the company, other stakeholders type was obtained after Participatory Mapping is done in the villages where in-depth interviews will be conducted.

The next stage, to obtain exhaustive information, a focus group discussion (FGD) was held in an adequate and relevant place and interspersed with participatory mapping on the working paper map. Through these processes, data and information on potential areas that might have HCV elements can be determined and mapped spatially. Given the snowball sampling method has a limitation representation of the sampling size to the population, identification process is carried out in all villages, this is also related to the standard fulfilment of the FPIC process which requires assessment of all villages within the location permit area.

Data collection also considers several references and secondary data. Data related to population, demographic, socio-economic and main livelihoods obtained from the latest publication of the Central Statistics Agency (BPS). Other secondary data information such as spatial data related to the distribution of settlements, river networks, watershed boundaries, land systems, peat distribution, geology, DEM-SRTM data and Sentinel-2 imagery as well as information on ethnicity, cultural heritage and others obtained through related websites and other relevant publications. The data and information collected and analysed for the field of social identification are presented in **Table 10**.

4) Colantiano (2008) dalam Aris Bahariyono, Penilaian Dampak Sosial, TFT, 2016.

Table 10. Data and information collected and analysed for the field of social identification at PT MMAS STGE

HCV	Type data and information	Data Source
HCV 4	Water catchment boundaries map	Environment and Forest Ministry/ KLHK (2017)
	Land system map	RePPProt (1990)
	Rivers network map	Geospatial Information Agency (2017)
	Peat Hydrologic Unit map	Environment and Forest Ministry/ KLHK (2017)
	Hotspot data	https://firms.modaps.eosdis.nasa.gov https://global.forestwatch.org
	Digital Elevation Model 30 meter, SRTM	USGS (www.earthexplorer.usgs.gov)
	Erosion risk level	Forest and Natural Conservation Research and Development Centre (FORDA), Bogor.
HCV 5	Settlement distribution map	Geospatial Information Agency (2017)
	Muko-muko District in Figure 2018	BPS Mukomuko (2018)
	Pondok Suguh sub-district in Figure 2018	BPS Mukomuko (2018)
	Teramang Jaya sub-district in Figure 2018	BPS Mukomuko (2018)
HCV 6	Settlement distribution map	Geospatial Information Agency (2017)
	Muko-muko District in Figure 2018	BPS Mukomuko (2018)
	Pondok Suguh sub-district in Figure 2018	BPS Mukomuko (2018)
	Teramang Jaya sub-district in Figure 2018	BPS Mukomuko (2018)
	Nationality, Tribes, Religions and Languages of Indonesian	BPS, (2011)
	World Heritage sites	UNESCO (www.whc.unesco.org)

Results of social fieldwork | STG Estate, PT MMAS will always ensure all activities are in accordance with the principles of FPIC. The plantation development plan for the former PT AW, which has mostly been managed by the community in the surrounding villages, will continue to carry out further socialization regarding the plan to develop a partnership plantation scheme in the HGU area. PT MMAS previously had relationships with several villages related to partnership programs in 5 villages that had 'Village Community Farms' namely Desa Pasar Bantal / Desa Mandiangin Jaya, Desa Nenggalo, Desa Air Bikuk, Desa Bunga Tanjung and Desa Pondok Baru.

PT MMAS is committed that during the socialization and operational process there will be no pressure either physically or psychologically, freely in expressing relevant opinions, even if there is no indication of coercion, intimidation, luring or the like ***(free).*** Companies prioritize the negotiation process and give freedom of time to think and continue to help provide information until it is understood ***(prior).*** Initial information about the STG Estate oil palm plantation development plan has been adequately disseminated and will continue to be carried out as needed until the community understands ***(informed).***

Summary of FGD, Interview and Discussion | Summary notes of consultations with key stakeholders of Local Government agencies, sub-districts and villages. The summary of consultations with key stakeholders includes:

a) PT MMAS is expected immediately to adjust any changes on legality and administration due to taking over of PT Asririmba Wirabhakti,

b) The future status of land / oil palm farms managed by the community for more than 20 years inside the HGU license area,
c) The socialization process is running smoothly and the main problem are related to the community oil palm farms within the HGU license area,
d) The existence of Village Plantation Scheme (KMD) that have been running well,
e) Location and types of animals and plants is informed including how the community utilized it,
f) Information related to demographics, ethnicity, education, health, concerns and expectations of the community.
g) Community needs for more intensive follow-up socialization from PT MMAS regarding future management plans, rivers and buffers management should involving the community,
h) It is expected to have a Village Plantation Scheme (KMD), the flagship program of the SIPEF Group, for villages that still yet have such scheme **Table 11** provides a summary of the consultations with key stakeholders from local government agencies, sub districts and villages.

Table 11. List and summary of consultations with key stakeholders of STG Estate, PT MMAS

No.	Name, Date and Method	Position / Role	Entity	Attention and recommendation
1	Edi Kasman Date: 7 Sept 2018 Place: Investment, Licensing and Manpower Services office	Head Office Method: Consultations & Sharing information	Investment, Licensing and Manpower Services, Mukomuko Regency	• All ex. former PT AW employees have received severance pay and have been disbursed and employees who are willing to join have signed a new work contract. • The Investment Office hopes that PT MMAS in terms of administrative reports and others related to Government agencies is expected to be orderly, unlike the previous management of PT AW which was unresponsive and had no communication relationship at all.
2	Erry Siagian Date: 7 Sept 2018 Place: Agriculture & Plantation Services, Mukomuko Regency office	Plantation unit Assistance Method: Consultations & Sharing information	Agriculture & Plantation Services, Mukomuko Regency	• It was informed and suggested to PT MMAS that for the process of taking over the PT AW HGU land, it is better to conduct socialization again to the community by involving government agencies, sub districts and villages. • Within the former PT AW HGU area which is managed by the community, there is already a KMD partnership from PT SIPEF / TTI Group. this will later have something to do with the

				ownership of the village community, which in fact cannot have any other ownership in the HGU. • Certainly, what is more interesting is actually the plasma negotiations (partnership) and KMD, the community will be more profitable, the partnership plantations in the next 25 years may be owned by them after the agreement process with the company is completed. • Technically, most of the people in Mukomuko are not able to plant properly and are not standardized, most of them only plant and are left with poor management so that the production is not satisfactory, at least the oil palm plantations can produce 3,000 kg FFB/Ha/month.
3	Fernandi Date: 7 Sept 2018 Place: Environmental Services, Mukomuko Regency office Method: Consultations & Sharing information	Kepala Bidang Penataan dan Peningkatan Kapasitas,	Environmental Services, Mukomuko Regency.	• Take over there will be changes in the entity, it is emphasized so that the legality of the documents as a whole is changed as soon as possible, both the assessment identification documents, the UKL and UPL documents. The addendum was re-created in accordance with government regulations in PP 23 regarding the environment as the new management, manage well the existing social, ecosystem and environmental aspects. • Attention is needed regarding the former PT AW HGU permit, which was originally cocoa commodity now turned into palm oil, whether there has been a change in the conversion permit, because this permit is the basis for other licensing processes. • PT AW UKL and UPL reports were

				last received by the Environment Agency, in the first semester of 2017.
4.	Bapak Abdullah H, Date and Place: During field visit	Humas / Employee's coordinator	Eks PT Asririmba Wirsbhskti Metode: Consultations, Sharing, interview & participatory mapping	• The community hopes that land managed by the community can be excluded from the HGU permit, so that residents can make a SHM certificate • Pondok Baru Village was split from Perenyah Village in 2008 • The boundaries of the former PT AW HGU are unclear but some of them are part of the Pondok Baru village area. • The main livelihoods can be said to be mostly in the oil palm farms sector, starting from farmers, harvesters and maintenance, FFB collectors and FFB agents. • FFB agents generally already have regular farmers, in fact, generally they have been given a down payment for maintenance and purchase of fertilizers or family needs which will later be deducted with the payment of FFB according to the market price without interest. • The name of the river, village, lubuk, land boundary, land occupation by the community, important places have all been recorded and described on the sketch map.
5	Air Bikuk village: Alwi Syahrir Masrul Amrur & Agusudin Date: 8 Sept 2018 Time: 13.00 -finish Place: Village office	Head of village Head of BPD Kasi Pelayanan Community leaders	Village community's representative Method: Consultations, Sharing, interview, FGD & participatory mapping	• Still using the river as a place to look for fish as an additional source of family intake, there is a fish pond in the HGU area called Lubuk Resam which is located around the finding (intersection of the three) Teramang Kecil River with the right-hand intersection of the Gajah Mati River. • There is a statement that PT MMAS has indeed purchased land from PT AW and only manages

				what has been managed and will provide sustainability for existing community cultivated lands, If the community wants to sell their land, PT MMAS should be ready to accommodate or buy the land, if the community sells their land, as above, and wants to make plasma, PT MMAS should be ready to realize this desire both in terms of plasma and selling the whole. • The boundaries of the HGU area are not clearly known so there is a perception that all community oil palm farms are included in the HGU area.
6	Batu Ejung Village: Buyung Bujang Zulkardi Ahmad Royadi Darlis Noradi Date: 8 Sept 2018 Time: 13.00 -finish Place: Head of village house	Head of village Head of BPD Kasi Pelayanan Community leaders	Village community's representative Method: Consultations, Sharing, interview, FGD & participatory mapping	• Batu Ejung Village was a village that was expanded from Bunga Tanjung Village in 2008, Bunga Tanjung Village had PAD from the KMD and at the time of the expansion, Batu Ejung Village did not get any share of the KMD. Then, the village does not have PAD because it does not have KMD. Therefore, it is hoped that KMD can be set up. • The boundary of the HGU area is not clearly known so there is a perception that all community oil palm farms are included in the HGU area, for that later the border with the village should be marked and if there is a measurement involving the village team. • It is expected that local residents will give priority to employment, previously there were around 30 people working at PT AW. • About 80% of the people in Batu Ejung Village depend on oil palm farms and 20% consist of traders, rice farmers and civil servants and there are around 15 FFB collectors, most of whom are

				sold to PT Daria Dharma Pratama.
7	Eks. PT Asririmba Wirabhakti Abdullah H. M. Siburian & Abdul Gofur Sutrisno Bustanul, Pirno S, M. Mardian & A Rofik Date: 09 Sept 2018 Time: 13.30 – finish Place: Plantation office	Humas Harvesting Spv, Harvesting admin and Driver	Representative of ex worker of PT Asririmba Wirabhakti Method: FGD, Interview and participatory mapping	• PT MMAS take over PT AW and commitment to continue offering old employees to join and severance pay rights from PT AW have been accepted by all employees. • The employees also helped with participatory mapping of the locations of rivers where the water was still good and could still be used and places for fishing… one of them was Lubuk Resam. • Providing instructions for commensurate locations with good cover, damaged and planted by the community. • Information on animals that have been encountered. • Places that are still sacred and graves are not in the HGU. • Former PT AW employees are willing to be guides during field visits
8	Brangan Mulya Village: Ali Sarman M. Ali Nurman Fonika Alfianti Sri Winarti Rahmadi Date: 10 Sept 2018 Time: 13.30 – finish Place: Plantation office	Head of village Head of BPD Village secretary Kasi Pemerintahan Community leaders	Village community's representative Method: Interview & participatory mapping	• The concern is that cultivated land is within the HGU permit and functions as a source of livelihood for the community. The results of the oil palm plantation have been able to send children to university level. • In oil palm plantation, the community is not only planted with oil palm, but there are several plants such as: rubber, some forest timber plants, fruits such as durian, petai and cocoa and areca trees which are used as boundaries between community lands. • The boundaries of the company's HGU area are not clearly known so there is a perception that all community farms are included in the HGU area, besides that some people cannot apply for SHM certificates to the BPN but there

				are council members who have SHM in the HGU permit. Please help so that people can have SHM. • Previously, rivers and creeks could still be used to meet household needs, now rivers that cross the village can be confirmed to have household waste, then managed later by the company involving the community
9	Teramang Jaya village: Safii Suhada Afrizal Abdul Kadir M. Jais Herman Busran Suryatin Arwi Sandra Date: 10 Sept 2018 Waktu: 13.00 – selesai Place: Kantor Desa	Head of village Head and members of BPD Head of sub-village secretary Kasi Pemerintahan Community leaders	Village community's representative Method: Interview, FGD & participatory mapping	• The communities of Teramang Jaya Village admitted that they did not know about the boundaries of the PT AW company HGU area because there was no good interaction between the community and the company. • According to the community, the compensation made by PT AW which is located in Teramang Jaya and Air Bikuk is compensation for plants on the land and not compensation for land. The plant that was compensated for was Damar Hitam. • Part of PT AW's land is in Teramang Jaya Village, and there is land that was cultivated by the villagers' ancestors and there is a community rice field area within the HGU so that the community cannot get assistance from the government due to this situation. • The compensation process that had been carried out by PT AW in 1991 was to pay the overall tax on the land it owned, which was 1,770 Ha although only 371 Ha of land was utilized by the company. • The people of Teramang Jaya Village hope to be employed in a company that has purchased PT AW, because in the future the community believes that there

				will be factories and other facilities that require labor so that the Teramang Jaya community can work as employees. • The people of Teramang Jaya Village want the company's consistency in the future by not disturbing the community cultivated land located in the HGU area and only using 371 Ha of land.
10	Nenggalo village: Safrianas Sahirudin & Ijusmanila Darmin Rozi Saputra Alkausar Wahyu Lilis Marianti Guvendrik Sapriata Date: 12 Sept. 2018 Time: 08.00 -finish Place: Village's office	Head of village Head and members of BPD Ka. Pembangunan, keuangan & Pemerintahan Head of sub-village secretary Kasi Pemerintahan Community leaders	Village community's representative Method: Interview, FGD & participatory mapping	• Many villagers still don't know about the takeover activity. • The village has about 300 families, and has 2 hamlets with the main livelihood of cultivating oil palm. • The community hands everything over to each family who owns land within the HGU. The hope is that the community can become partners in plasma plantations because the plantations will be managed better and will get more yields. • The boundaries of the HGU are not clear, but it seems that there are no sacred sites or graves, all of which have become oil palm plantations. People looking for fish is just a hobby to fill their time and for family • consumption. For a place to find fish, each person looks for his own place, there is no special place.
11	Desa Mandiangin Jaya Hanasrum Wazarhadi Risin Supratman Tismulyanti Hermanto Dedi Nopian Devia Yusriani Tri Sandani Ali Akbar	Head of village Head of BPD Ka. Keuangan, Perencanaan, Pelayanan & Pemerintahan Head of sub-village secretary Community leaders	Village community's representative Method: Interview, FGD & participatory mapping	• Concerns that the community land that is included in the HGU is problematic and it is hoped that the company can help the community so that community land is excluded and what is the solution so that they can make a certificate. • For Mandiangin villages that don't have KMD, please help so that the village can have KMD • How much is the GRTT problem on the market? What is the future

	Date: 12 Sept 2018 Time: 11.00 - finish Place: Village's office			process? • Community land within the PT AW HGU area is not integrated but fragmented. • The community also asked the village head to issue an SKT but the residents' land was included in the PT AW HGU, the village party could not issue the SKT because of this HGU. • There is a Teramang Kecik river, there is also a river that is quite large, the Berau river, it is hoped that the company will also help outreach other villages so that people in the upstream area do not throw household waste and agrochemical waste into the river, because Teramang Jaya village is downstream. • It is a village that was developed from the village of Pasar Bantal in 2008 • One solution is that community land can be turned into plasma so that later it can be certified. • It is hoped that the company will conduct more in-depth, clear and solution socialization regarding community cultivated land.
12	Bunga Tanjung village: Kabri Syafrudin Edi Firmansyah Arbik Frengki Zulkifli Firdaus Abdullah Date: 12 Sept 2018 Time: 15.00 -finish Place: Head of village house	Head of village Head & member of BPD Ka. Pemerintahan Head of sub-village secretary Community leaders Ex PT. Asririmba Community Relationship	Village community's representative Method: Interview, FGD & participatory mapping	• It is hoped that there will be in-depth socialization related to plasma procedures and others • The residents' hopes for workers from nearby villages have priority. • Hopefully there will be CSR funds for the community. • Previously, in Batu Ejung Village, there was a 'sungsang river'. Now the springs have receded and are depleted due to the clearing of oil palm land upstream of the river. • The former PT AW employees were accepted as a whole as PT MMAS employees, only 3 people resigned and continued to receive

				severance payment • The area of Bunga Tanjung village after the division was not included in the HGU area, only Batu Ejung Village was included in the HGU area. • The original tribe of the community is the Barek coastal Minang. there are 4 clans, each of which has a customary leader who plays a role in managing the problems of the children of their clan, especially customs, marriage etc. for permanent administration by the village government. • The benefits of KMD are very beneficial for the village. • For community land there is no problem in GRTT as long as it is what the residents want. Some residents have heard of the land problems planned by PT MMAS
13	Pondok Baru village: Zainal Suadi Arjum Abdullah Date: 13 Sept 2018 Time: 08.30 -finish Place: Village's office	Head of village BPD members Farmers Ex PT. Asririmba Community Relationship	Village community's representative Method: Interview, FGD & participatory mapping	• It is hoped that the land that is managed by the community can be removed from the HGU, so that residents can make a SHM certificate • Pondok Baru Village was split from Perenyah Village in 2008 • The boundaries of the former PT Asririmba HGU are unclear but part of it is part of the Pondok Baru village area. • The main livelihoods can be said to be mostly in the oil palm farm sector, starting from farmers, harvesters and maintenance, FFB collectors and FFB agents. • Agents generally already have regular farmers, in fact, generally they have been given a down payment for maintenance and purchase of fertilizers or
14	Pak Marjuki Date: 12 Sept 2018 Place: Sipef	Community leaders fo Sub district Teramang Jaya	Village community's representative	• For residents of the villages around the PT MMAS HGU area for community toilets, there are already bathrooms, but some have

	Regional office		Method: Interview, FGD & participatory mapping	complained that the water is dry. • From 1990 there were still bathing in the river, for 2018 only a few people bathed in the river. There are still many fish in the river, they are fishing as a hobby for family consumption • For lubuk that is still under the PT AW camp, there is 'Lubuk Temuan' where the Gajah Mati river meets, 'Lubuk Resam' in the Teramang Kecil river above 'Lubuk Temuan', there is another 'Lubuk Ketayu' in the Gajah Mati river. • According to community perceptions, those who spoke a lot in the public consultation were only dominated by village officials, not from the community themselves who spoke out expressing their aspirations. In Teramang Jaya Sub district, around 90% of the community wants to sell their land, only for Nenggalo Village and Pasar Bantal Village, maybe they have little interest in selling it even though there is a small area of residents affected by PT MMAS. • Lack of interest in selling the land because of its extensive ownership and is well managed, but it needs to be tried

PT MMAS (PT TTI / SIPEF Group) offered a partnership scheme management to the STG Estate area which been occupied and managed by the community with total area of 1,139.46 hectares. PT MMAS, STG Estate is actively conducting door-to-door socialization to every farmer who managed the land in the HGU area by involving competent resource persons from the respective village communities to identify land managed by the community. The provisional results of the follow-up socialization include:

1) There is a paddy field area of about 75.80 Ha or 5.4% and a residential area of around 15.30 Ha or 1.1% of the area managed by the community, while there is around 217.20 Ha or 15.5% of the community farms ownership have not been detected is not detected yet.
2) Ownership that has been detected is in 15 villages with the highest 5 villages (number of owners and area size) of: (a) Air Bikuk Village: 177 farmers covering 267.30 Ha or around 19.1%, (b) Pasar Bantal Village: 88 farmers covering 151.10 Ha or about 10.8%, (c) Pondok Baru Village: 59 farmers covering 128.10 Ha or about 9.2%, (d) Brangan Mulya Village: 52 farmers covering 106.40 Ha or about 7.6% and (5) Nenggalo

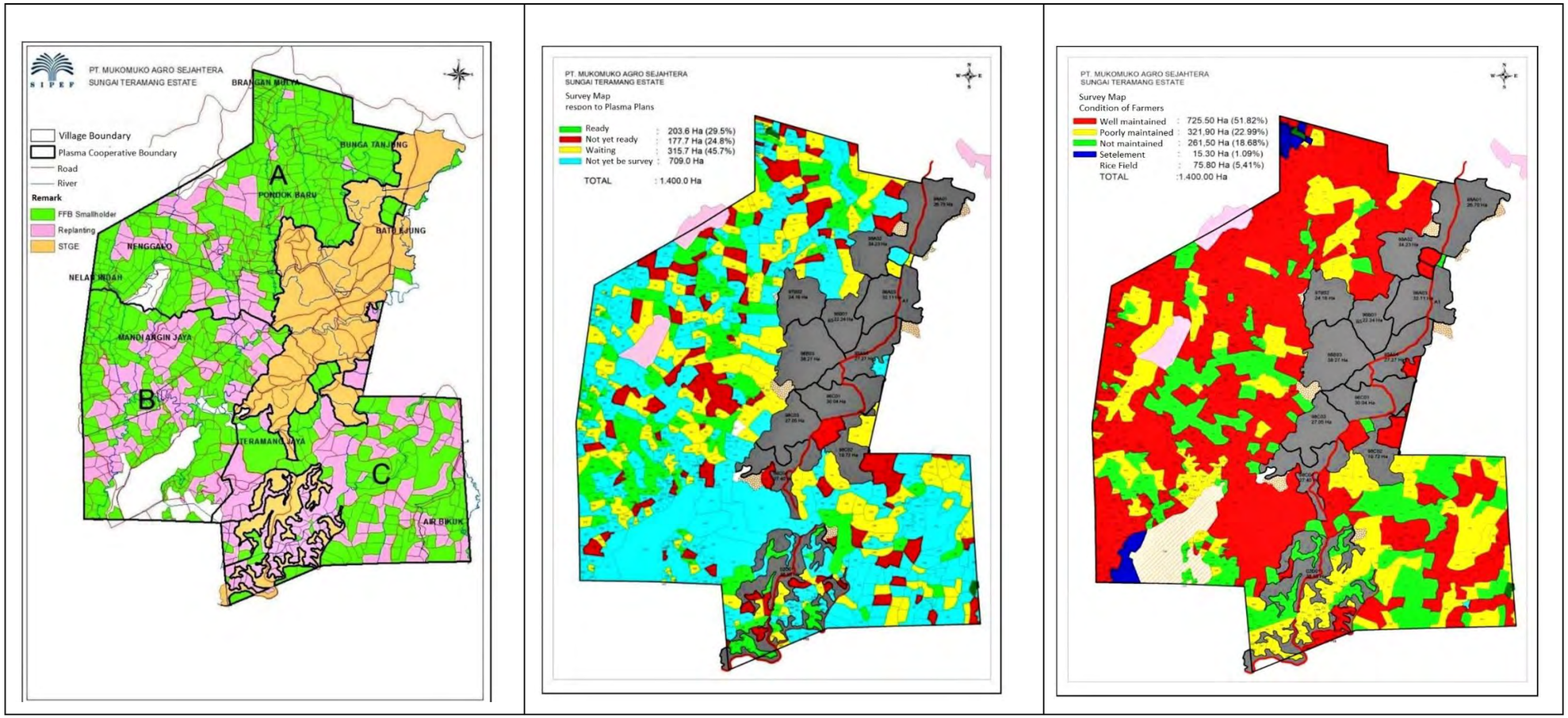
Village: 45 farmers covering 81.20 Ha or about 5.8%.

3) The conditions of community oil palm plantations inside the HGU area include: (1) maintained around 725.5 ha or 51.8%, (2) poorly maintained around 321.9 ha or 23.0% and (3) untreated conditions around 261.5 ha or 18.7%.
4) During the socialization and field survey, come situations found: (1) Have not met directly with the farmers who managed area of 703.0 Ha or 50.2%, (2) Farmers are willing to join the program from PT MMAS is managed the land of 203.5 Ha or 14.5%, (3) Farmers are waiting for a further information managed the land of 177.7 Ha or 12.7%, and (4) Farmers that willing to explore on the offered program is managed the land of 315.7 Ha or 22.6%.

PT MMAS is still continuing to socialize and identify the remain farmers that managed the land. Regarding the strategy / development program plan in and around the HGU area, the company through the SIPEF Group has and implements programs including: (1) Partnership, in the form of Village Plantation Scheme, full management and plasma, (2) Allocation of certified seedlings for partners and (3) Purchase of fruit / FFB (self- help), all of which must follow the RSPO scheme. As an RSPO member, PT MMAS in the follow-up socialization also provides explanations related to plantation management which is also in accordance with RSPO / ISPO standards. **Figure 7** presents (1) a map of the Partnership's Cooperative Plantation Allocation Plan, (2) a map of the response of smallholders and (3) a map of the condition of the oil palm plantation owned by smallholders inside the HGU STG Estate, PT MMAS

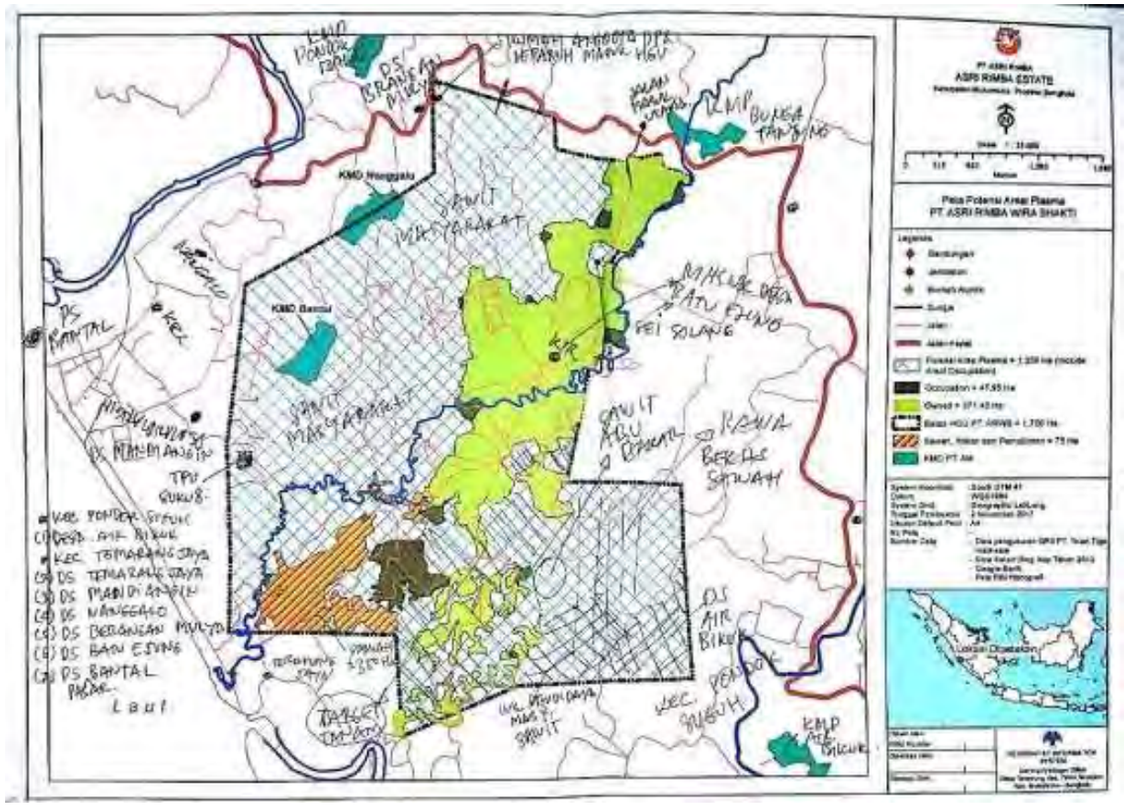
Participatory Mapping | During consultations and meetings with stakeholders in the villages, participatory mapping was carried out on the prepared sketch maps, and some information was obtained about important places for the community and efforts were made to describe them in sketches. The sketch results were discussed with the team to try to find these important locations to be mapped. **Figure 8** presents a sketch of the results of the participatory mapping and consultation activities during the assessment and a map of the results of field work from the sketch mapping results of participatory mapping in the villages around the HGU permit.

Through the Participatory Mapping activities, some certain information was obtained included: (1) villages and sub-districts covered by the location permit, (2) information on regency road access, village roads, production roads, alternative roads and river access as well as the names of the rivers, (3) information on important places such as secondary forest areas, community gardens, old tombs, cultivation areas, natural resources that are still being used, and (5) information on land ownership and other information.

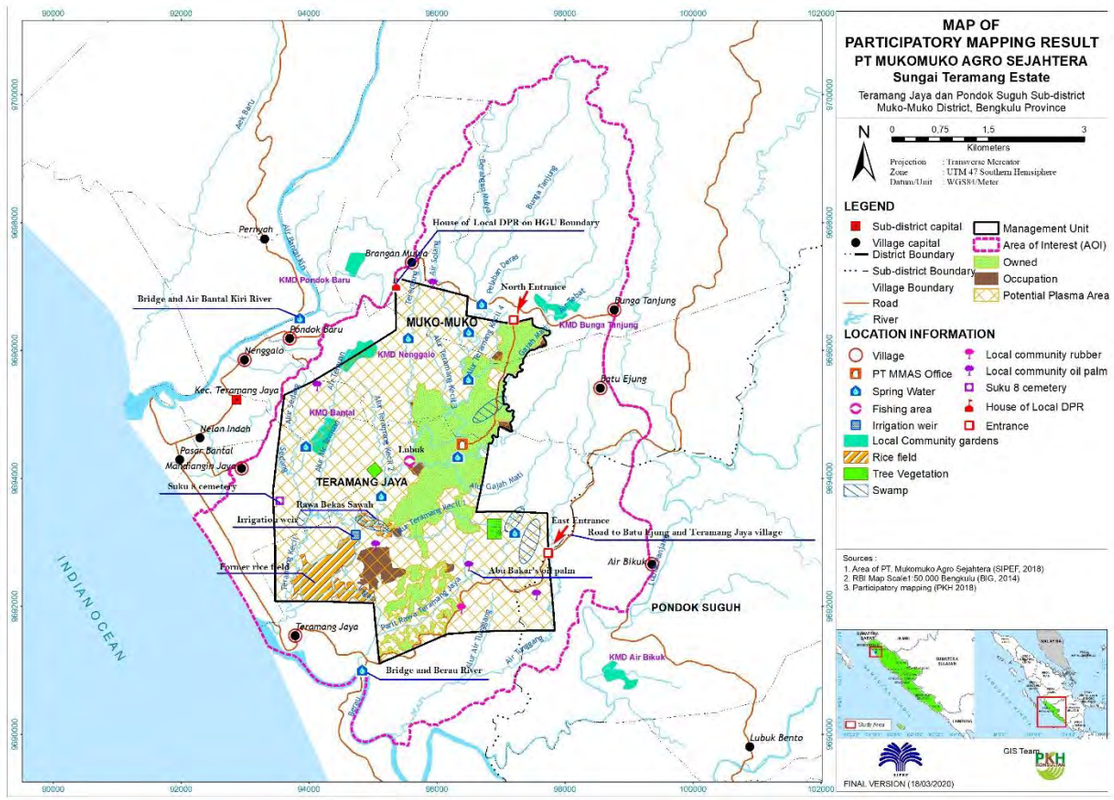


Map of Plasma Cooperative Distribution Plan | Map of the communities respons to Plasma Plans | Map of the Farmer Condition in the STGE area PT MMAS

Figure 7. Map of the results of advance socialization in STGE PT MMAS



Sketch of Participatory Mapping Result



Map of fieldwork status

Figure 8. Sketch of Participatory Mapping result and Field work result in the HGU area of STG Estate PT MMA

2.2.2.4. Assessment of Potential Threats

Threat assessment is carried out by applying the IUCN Threat Classification Scheme approach (based on Salafsky et al., 2008). This approach was developed to make it easier to identify threats and their sources. After identifying threats and their sources, an assessment of the level of impacts and risks that will arise for each location and any HCV elements is then carried out. Then, weighting is done to assess which threats are prioritised as a reference for the preparation of the Management and Monitoring Plan.

2.2.2.5. Public Consultation

Consultation with the public is actually carried out with the parties in each stage of HCV identification as described above. Two main approaches are used, namely interviews and formal meetings through FGD and participatory mapping.

The parties involved in the consultation consisted of three groups, namely: 1) Local communities, 2) Organisations or institutions that represent the government and its communities such as village and sub-district government agencies, and 3) District government.

2.3. Soil and Topography Studies

2.3.1. Conducted soil study and assessor credentials

The description of soil type and topography in the PT MMAS STGE area was carried out internally by Company management and also quoted from the HCV assessment. The description of soil types at STGE was prepared by the Agronomy Section of PT MMAS, led by Sukardi who acted as manager of Agronomy for PT MMAS in July 2020.

2.3.2. Method

Information on soil types is obtained based on data from the Indonesian Exploration Land Resources map (bbsdlp.litbang.deptan.go.id), and the 1: 250,000 scale land unit map published by PUSLITTANAK Bogor. Then, from the types found in the PT MMAS STGE area, detailed physical and chemical characteristics of the soil were explained by referring to several soil science literature resources.

2.4. Carbon Stock Assessments and Estimates of GHG Emissions

2.4.1. Implementation of Carbon Stock and GHG emissions assessment, and Assessor Credentials

The implementation of carbon stock and GHG emission assessments was carried out in May - September 2020. The carbon stock preparation team and GHG emissions assessment can be seen in **Table 12**.

Table 12. Composition of the drafting team for the assessment of carbon stock and GHG emissions at PT MMAS STGE

Name	Role	Relevant expertise
Ryan Karida Pratama	Team leader	Hydrology, soil and water conservation, land cover change, remote sensing, GIS, carbon stock assessment, HCS Patch Analysis (*Registered Practitioner*)
Riswan Zen	Ecosystem, environmental services, and *HCS Patch Analysis*	Hydrology, forest ecology, watershed management, remote sensing, spatial analysis, *HCS Patch Analysis (Registered Practitioner*)
Heidei Putra Hutama	Spatial analysis and mapping	Spatial analysis, *remote sensing, carbon stock assessment*, *HCS Patch Analysis*
Zakaria Al Anshori	Vegetation inventory and identification of plant species	Identification of flora, forest ecology, *carbon stock assessment*
M. Ahda Agung Arifian	Vegetation inventory and identification of plant species	Identification of flora, forest ecology, *carbon stock assessment*
Priyo Dwi Utomo	Vegetation inventory and identification of plant species	Identification of flora, forest ecology, *carbon stock assessment*
Sigit Budhi Setyanto	FPIC and participatory mapping	Socio-economic, social impact, FPIC verification, socio-cultural, participatory mapping
Fadhli	FPIC and participatory mapping	Socio-economic, social impact, FPIC verification, socio-cultural, participatory mapping
Wibowo Agung Djatmiko	Biodiversity and fauna	Identification of flora and fauna, ecological landscape, wildlife conservation, ecosystem management

2.4.2. Method

The GHG assessment report was conducted according to the RSPO GHG Assessment for New Development procedure version 3, and combined with a carbon stock assessment based on the HCS Approach Toolkit 2.0: Putting No Deforestation into Practice, 3 May 2017. The assessment was followed by the *HCS Forest Patch Analysis Decision Tree* process according to the HCS toolkit 2017.

2.4.2.1 Carbon Stock Assessment Methods and Procedures

Inventory Plots
Each plot contains 2 centred circular plots with an area of 0.05 ha and 0.01 ha. All trees <15 cm DBH were measured in the smaller sub-plots, while trees > 15 cm DBH were measured for the entire larger plot.

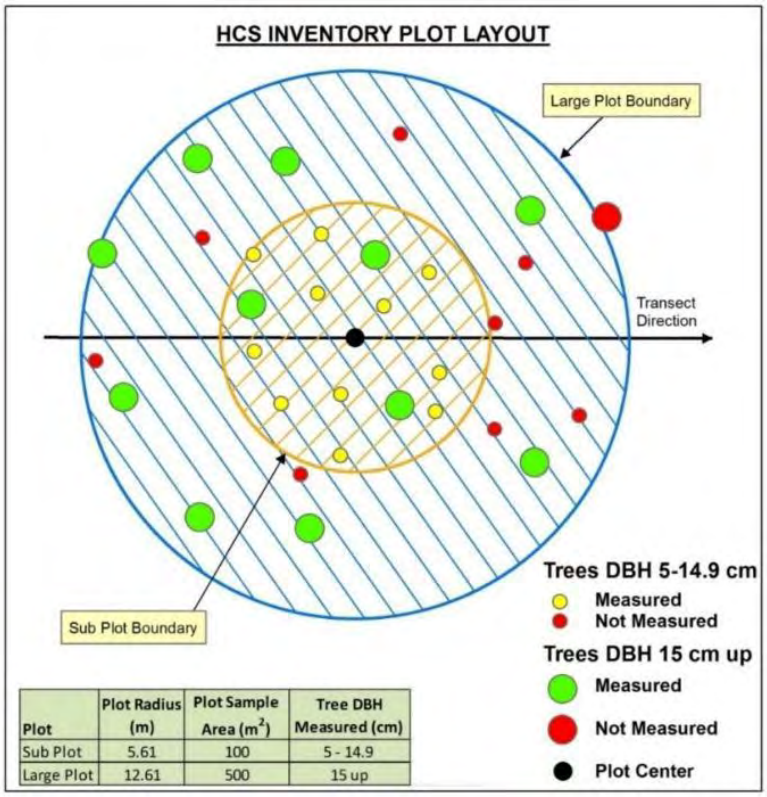


Figure 9. Layout of HCS Inventory Plot

Carbon Calculation
The standard method for calculating carbon is to use allometric equations. Parameters calculated are the estimation of total biomass and carbon mass per plot, average strata of total biomass and carbon mass per ha, as well as the average diameter class strata.

Stems per hectare are calculated from the plot size. The equation is:

Stems/ha = (Number of trees in plot)/(Plot size (ha))

Tree biomass was calculated for living trees with a diameter> = 5 cm DBH using the Allometric Equation method. The following equation for wet tropical forest (Chave, et al., 2005) is used.

This equation relates the diameter, total tree height, and wood density of a particular species to estimate the Above Ground Live Biomass (AGLB) per tree measured in forest plots. The resulting AGLB is the total biomass of stems, canopy, and leaves in kilogram units.

$$AGLBi = 0.0776[\rho i\ D2iHi]0.940$$

AGLB = Biomass above the surface (kg)
D = Diameter at chest height/1.3m above surface. (cm)
H = total tree height (m)
ρ = density (gr/cm3)

Chave, et. al. (2005) found that the tree biomass estimation error was approximately ± 5%.

Palm plant biomass:
The equation for calculating palm biomass:

Palm biomass (tonnes) = [(specific gravity) / D2 * 40000 * (palm height)]

Where the density of the palm is assumed to be 0.247 tonnes/m3

Carbon content of Palm Trees and Plants
The C fraction of the biomass is calculated in tonnes of carbon (Mg C). The equation used for the emission of carbon content from trees and palms is:

Mass of carbon (tonnes) = biomass * carbon conversion factor

The conversion factor is 0.47 based on IPCC standards.

Carbon Mass per hectare
The carbon mass per hectare in each plot is:

Total carbon (tonnes/ha) = Σ (Tree carbon)/(plot size (ha))

A separate volume calculation is carried out to estimate the volume of trees in the sub-plot because they are different in size from the main plot.

Analysis of Estimated Carbon Precision and Significance Differences Between Strata

Precision Carbon Estimation
The level of precision expected in estimating carbon stocks is 90% confidence level, with intervals within 10% of the average carbon stock/ha at each stratum.
The 90% confidence interval (CI) was calculated for each land cover of the calculated carbon mass per ha in each plot using the standard formula:

$$CI = t\alpha / 2 \cdot s / \sqrt{n}$$

Where: t = student's t value
α = determination of the level of confidence

s = standard deviation of the sample
n = sample size

Significant Differences between Strata

Two tests were carried out to assess the significance of the differences between strata:

1) Anova test to determine whether there are significant differences between strata for carbon estimation
2) Scheffe's multiple pair comparison test was performed to determine which groups differed significantly. Scheffe's test is a statistical method for comparing multiple strata.

2.4.2.2. GHG Emission Assessment Methods and Procedures

Net GHG emissions (Net GHG) are calculated by adding up the emissions released during the land clearing process, crop production, and also subtracting them from the uptake by plant stands and from conservation areas. The sources of emissions and absorption of GHG are described in **Table 13**.

Table 13. Sources of GHG emissions and sequestration

Source		Note
Emissions	Land cover conversion	CO2 emissions from land clearing
	Fertilisation and transport	N2O and CO2 emissions from inorganic fertilisation and organic matter, and their transportation
	Fuel consumption	Emissions from fuel
	POME effluent	Methane produced from PKS waste
Sequestration	Oil palm plants	The absorption of CO2 by oil palms includes land cover.
	Conservation area	Absorption of CO2 by plant biomass in the conservation area

In PT MMAS STGE there is no peat soil.

2.5. Land Use Change Analysis

2.5.1. *Accessor Credentials*

The Land Use Change Analysis (LUCA) at PT MMAS STGE was carried out by PT Perencana Karya Hijau and led by Riswan Zein, S.Hut, M.Si. The complete composition of the LUCA drafting team as table below:

Table 14. Composition of the LUCA PT MMAS STGE Analysis Team

Name	Qualification	Position
Riswan Zein	S. Hut, Msi (Forestry and PSL)	Project Leader
Harry Kurniawan	S. Hut (Forestry)	GIS and Field Data
Heidei Putra Hutama	S. Hut (Forestry	GIS and Remote Sensing
Sigit B Setyanto	Ir. (Land and Social)	Participatory Land Mapping
Fadli	SS (Social)	Social Data Aspects
Wibowo A Djatmiko	Ir, MS (Forestry)	Dendrologist and Fauna

2.5.2. *LUCA method*

LUCA is conducted following RSPO Remediation and Compensation Procedures (2015) which includes relevant cut-off dates to identify land clearance prior to HCV assessment and the NPP completion. LUCA for PT MMAS STGE has five cut-off dates (**Table 15**). In addition, one cut-off (March 2021) has been added in the analysis for describing the current land cover (validity < 1 year).

Table 15. Temporal satellite imagery data for land cover analysis in the PT MMAS STGE HGU permit area

No.	Cutoff - Year	Data Citra Satelit
1	2005	Landsat 7 – LE07_L1TP_126062 – Date 29 September 2005
2		Landsat 7 – LE07_L1TP_126062 – Date 27 November 2005
3	2007	Landsat 5 – LE05_L1GS_126062 – Date 5 August 2007
4	2009/2010	Landsat 5 – LE05_L1TP_126062 – Date 13 October 2009
5		Landsat 5 – LE05_L1GS_126062 – Date 02 February 2010
6	2014	Landsat 8 – LC08_L1TP_126062 – Date 20 May 2014
7	2018	Sentinel 2 – L1C_T47MQT_A015988 – Date 15 July 2018
8		Sentinel 2 – L1C_T47MQS_A016417 – Date 14 July 2018
9		Landsat 8 – LC08_L1TP_126062 – Date 9 December 2018
10	2021	Landsat 8 – LC08_L1TP_126062 – Date 4 March 2021

The methods used in the Land Use Change Analysis (LUCA) at PT MMAS STGE include:

1) Review of secondary data and relevant reports including HCV reports, AMDAL reports, SIA reports, soil analysis reports, HCS fund reports;
2) Collection of satellite images for each land cover cutoff. In the land cover change analysis, four types of satellite images were used, namely (i) Landsat 5 TM with 30 m spatial resolution and (ii) Landsat 7 ETM + with 30 m spatial resolution, (iii) Landsat 8 OLI with 30 m resolution, (iv) Sentinel-2A with 20 m resolution.
3) Image composites and image mosaics. Image composites were performed by combining band 11, 8, 4 in the Sentinel-2A image, band 6, 5, 3 in the Landsat 8 OLI-TIRS, and band 5,4,2 in the Landsat 5 TM and 7 ETM+ image to obtain a pseudo-natural color.
4) Image processing used is Radiometric Correction and Geometric Correction. Radiometric corrections are carried out on all Landsat satellite images to eliminate noise contained in these satellite images. Meanwhile, geometric correction is performed on the Landsat 7 satellite image to correct the position/coordinates of the image data according to the actual position.

5) Land cover segmentation analysis was carried out using visual interpretation with manual digitization on the screen of satellite imagery. To distinguish between land cover types, this method considers the color, texture, shape, location, size of objects seen in satellite imagery.
6) Land cover classification will be carried out after (segmentation) objects in satellite imagery that are separated from each other. Determine the land cover strata and vegetation coefficient according to the **Table 16**.

Table 16. Land cover class according to RSPO RaCP

Type of land cover	Description	Vegetation Coefficient
Primary forest	Forest that has not been disturbed by humans. This land type was not found	1
Secondary forest	Forests that grow and develop in disturbed dryland habitats	0.7
Agroforestry/ mixed rubber plantation	Dry land planted with annual crops (trees), and rubber combined with annual crops. This land type was not found.	0.4
Rubber plantation	Land planted with rubber trees in the form of wide, homogeneous, and regular cropping patterns, both managed by individuals and companies.	0
Open land	Land without cover, both natural and semi-natural, whose existence is not the result of engineering and/or the result of direct engineering by humans.	0
Oil palm plantation	The land is planted with oil palm in the form of a widespread and regular cropping pattern, which is industry-oriented.	0
Settlement	Man-made land cover in the form of buildings that are mainly used for urban dwellings.	0
Bush	The land cover is in the form of plants that grow naturally with an average height of 0.5-2 m; some are woody, some are not.	0
Scrub	Dry land area that is overgrown with a variety of heterogeneous and homogeneous natural vegetation that is sparse to dense. The area is dominated by low (natural) vegetation.	0
Water body	All naturally occurring bodies of water (including natural lakes/ponds, rivers, sea waters, swamps)	0

7) Field verification was made with the following activities: a) Validation of land cover data was carried out during the ground truthing of 529 points; b) The compilation of information related to the history of the land cover, including carrying out participatory mapping and document review; c) Identification of possible loss of social HCVs through discussion and interviews; and d) Identification of possible loss of areas prohibited from clearing by RSPO or government regulations such as riparian zones, high steep land and peat.

2.6. Community Engagement and FPIC / FPIC

2.6.1. Implementing the FPIC Process and assessor credentials

The implementation of FPIC is aimed at: (1) Fulfilling and enforcing the rights of indigenous peoples and/or local communities, (2) Respecting and protecting the traditions and customs of indigenous and/or local communities in the utilisation of their potential and assets, (3) Ensuring that the operations of the Company side by side with their territory provide direct benefits to indigenous peoples and/or local communities, (4) Making it a prerequisite for Company executors to receive compensation and incentives from Company operations and (5) Reviewing and updating the social conditions surrounding the latest HGU permits, the implementation of plans management and internal social monitoring of the Company. The study was carried out from April 2018 - September 2019. The FPIC Assessment drafting team is presented in **Table 17**.

Table 17. List of Personnel for the Identification of PADIATAPA/FPIC Assessment at PT MMAS STGE

Nama	Posisi	Keahlian
Sigit Budhi Setyanto	Team Leader	Socio-cultural assessor
Fadhli	Member	Socio-cultural assessor
Wibowo A. Djatmiko	Member	Socio-environmental assessor
Riswan Zein	Member	Socio-environmental assessor and GIS
Harry Kurniawan	Member	Socio-environmental assessor and GIS
Ihsan Nur Harahap	Member	Socio-environmental assessor
Jarian Permana	Member	Socio-environmental assessor
Bugi Kurniadi	Member	Socio-environmental assessor
Razi Aulia Rahman	Member	Socio-environmental assessor

2.6.2. Method

The implementation of the FPIC Assessment refers to the *Free, Prior and Informed Consent: Guide for RSPO members* (2015) document, which shows the stages of carrying out activities, with a flowchart in the community engagement process to obtain approval in line with the RSPO standard requirements.

The activity stages are as follows:

1) Pre-implementation to collect preliminary data and information from the Company, as well as secondary data to determine the landscape context of both social and environmental issues
2) Community engagement to disseminate plantation development plans and assessment plans that will be carried out later, including HCV, HCS and SIA. In this stage, contact is made with the community and other stakeholders, and a schedule is arranged for visits to the villages. Discussions with stakeholders at the village level were carried out through interviews and initial participatory mapping in order to capture issues at the landscape level, how the community understands the current situation, and future plans for the place where they live.
3) Workshop with the Company to confirm the results of field visits to the community and harmonise understanding of the aims and objectives of HCSA and HCV identification. The meeting also discussed the Company's commitment to the principles of FPIC
4) FGD with the community to convey the process of planning the HCV, HCS and SIA assessment, activities and outputs, as well as the role and rights of the community in

the assessment process. The information gathered in the FGD included land use, land tenure, water and food security for the community, important sites for the community, as well as issues of concern to the community and its hopes.

5) Participatory Mapping is carried out jointly with community members and village government representatives to clarify potential HCV and HCS areas resulting from initial community engagement. Additional information is collected on the presence of HCV and HCS attributes or elements. The results of the participatory mapping scheme describe: (a) boundaries, (b) land use such as settlements, production areas, protected areas, (c) landscapes such as mountains, hills, lakes, rivers, (d) important places such as old villages, graves and historical sites.

3. SUMMARY OF FINDINGS

3.1. SEIA Findings and Results

From the results of the SIA study conducted on the plantation development plan at PT MMAS Sei Teramang Estate, information was obtained about the positive and negative impacts of a series of plantation development activities on the community, and socially in general.

1) Socialisation activities, land measurement and land compensation

Positive impact:

- Communities in nine villages around PT MMAS STGE at the beginning of the construction carried out by PT Asririmba Wirabhakti (PT AW) in 1994 did not receive the initial socialisation about the plantation plan and PT AW immediately got an HGU, after which the compensation process was only carried out. The process carried out by PT MMAS STGE received appreciation and the community received new learning.
- The process of socialisation, measurement and compensation was carried out, and the village team and some of the community received direct learning, related to measurement procedures and land compensation process mechanisms. These were carried out in synergy by the Company team and the village team, also providing new learning, especially in the measurement process. This is because the area and shape of the land is known via GPS and it will be outlined in the minutes.
- In the socialisation, there is new learning and information about various forms of cooperation/partnerships offered by STGE in the management of community oil palm plantations, including: KMD, Full Management Plasma Partnership and the Independent Plasma Program.

Negative impact:

- Potential to create negative perceptions of development plans, because many other companies have not shown commitment to their plans. If the socialisation does not meet the principles of FPIC, then the community members will be upset. FPIC is the right of the community to get clear and complete information (informed) before (prior) a development investment activity is carried out in their area, and based on the information obtained, they freely express their consent (free) or refusal.
- Land compensation will reduce the land owner's assets (natural assets). In addition, if the condition of the land assets is problematic in terms of boundaries or ownership status, it will trigger conflict.

2) Land Clearing Activities

Positive impact:

- In the land clearing stage, most companies use the services of a competent third party/contractor and, of course, local human resources, which also becomes a lesson for local residents.
- Reliable contractors can predict the damage from land clearing activities according to environmental principles, otherwise it could cause potential environmental pollution in water and soil management.

Negative impact:

Incidents of miscommunication between the company and the contractor can sometimes result in the latter breaking into community land areas that have not been measured or compensated for, resulting in potential conflicts.

3) Recruitment of workers

Positive impact:

- PT MMAS STGE continues to employ former PT AW employees and former employees continue to receive their rights when they leave PT AW. This situation has had a positive impact on former PT AW employees who are all residents of the surrounding villages, and also a positive impact on PT MMAS, which continues to employ them.
- The potential future impact on the recruitment of local workers will also have a positive impact on the consistency of the Company's existence.

Negative impact:

Recruitment without selective procedures will have a negative influence and the potential for social jealousy in the community.

4) Nurseries, planting and maintenance

Positive impact:

The stages of seeding, planting and maintenance will provide learning at least knowledge about pests, plant diseases and others in oil palm cultivation,

Negative impact:

The local workforce will compare if the treatment during planting and maintenance of the nucleus and plasma plantations is different, and have positive aspirations if they are treated in the same manner.

5) Making production roads

Positive impact:

- Construction of production roads by contractors who recruit local workers also provides potential income through wages.
- Production roads also have the potential to open up or facilitate the accessibility of village roads.

Negative impact:

Poor production roads have the potential to trigger high costs or losses due to FFB not being transported.

6) Harvesting

Positive impact:

- Knowledge about harvesting methods in cultivating oil palm will be learned.
- The results of the plasma will provide positive aspirations for the Company as foster father and partner for the results obtained.
- There will be potential future investment from smallholdings.

Negative impact:

The potential will be traded to other parties who have large capital.

7) Transport of FFB

Positive impacts:

- FFB transportation will run well, if production roads are supportive.
- There will be potential for plasma cooperative businesses to transport FFB.

Negative impact:
If the roads are not maintained, there will be public anxiety about good road access and also about air quality due to dust.

All oil palm plantation development planning activities in the study area will have positive and negative impacts. When viewed from human capital, all activities have a positive impact; this is because the entire community gets new lessons in plantation cultivation and the community's workforce is absorbed. When viewed from social capital, there are several activities that have a positive or negative impact. This is because, if the socialisation and recruitment are not carried out transparently or do not meet the principles of FPIC, there will be a negative impact on social issues and, if done transparently and fulfilling the principles of FPIC, it will have a positive impact.

Based on the information obtained, the local community gets clear and complete information about oil palm plantation development activities in the study area and the community can freely express their consent or reject it. From the socialisation, measurement and compensation processes that have been carried out, the village apparatus and part of the community get direct learning, especially of the measurement procedure and the land compensation process mechanism, which are all carried out in synergy by a team from the Company and the village team.

When viewed from financial capital, all activities have a positive impact; this is because people receive compensation for growing plants (GRTT) on their land, and get new income by working for the Company. The development of oil palm plantations, that are required by regulation to allocate at least 20% for plasma plantations, will also increase financial assets in the form of community owned plasma oil palm plantations.

When viewed from natural capital, socialisation activities, land measurement and land compensation will have a positive or negative impact. This is because, if the community only owns one piece of cultivated land and it is sold, it will have a negative impact on social issues. But conversely, if the community owns other land it will have a positive impact on social issues. In addition, if the condition of the land assets is problematic in terms of boundaries or ownership status, it will trigger horizontal land conflicts in the community, but the issues can be discussed to find a social asset solution. When viewed from physical capital, the oil palm plantation development plan activities in the study area will have a positive impact, where infrastructure such as roads and bridges are relatively better.

Social Issues and Social Sustainability

Concerning the results of the field visits and consultations with several stakeholders around the plantation and PT Mukomuko Agro Sejahtera plantation development plan, there are some notes on the following issues:

1. **Poor relations and interactions between PT AW and related agencies |** During a visit to the Manpower and Licensing Office, it was stated that: *"…. In terms of legality, PT Asririmba Wirabhakti was not an orderly administration and the service only knew about PT AW management at the time of takeover by PT MMAS."* The poor relationship of PT AW, at least, poses a risk to PT MMAS in managing the plantation takeover. Several

informants even had the perception that oil palm plantation management was considered the same, including PT MMAS in the future.

2. **HGU permit for takeover of PT AW's HGU area |** After the takeover process, PT AW left several problems in nine villages in two sub-districts, which were villages in the PT MMAS location permit, and the problem was still not clear. The community is worried that if their land is taken over by PT MMAS, the HGU from BPN for PT AW covers an area of 1,770 ha while the managed area is only 371 ha. The community wants a statement from PT MMAS so that the remaining 371 ha will be issued by PT MMAS that will be handed over by the community.
3. **Perceptions and wishes of the community |** According to several sources, stakeholders in nine villages in two sub-districts said that:
    a) The community wants a statement letter in black and white about the purchase of the land from PT MMAS. The letter needs to state that PT MMAS has indeed purchased the land from PT AW and not purchased the HGU. The letter must be shown to the community so that there is no concern from the community about the sustainability of their cultivated land.
    b) If the community sells their land and wants to partner or make plasma, PT MMAS should be ready to realise this desire, both in terms of plasma and selling the whole thing.
    c) In the buying and selling process that occurred between PT MMAS and PT AW, there are still areas cultivated by the community in the HGU locations that have been purchased from PT AW. Until now, not all certificates for community land have been issued by BPN; only a small part has been certified in the PT AW HGU. This has caused concern for the community that PT MMAS will take their land without any compensation process. The community is worried about a conflict with PT MMAS because of the overlapping 70-80% land that the community has managed, claimed by PT AW, which is now included in the HGU covering an area of 1,770 ha, and there is also a rice field area that is included in the PT AW HGU.

       This means that the community does not get assistance from the agricultural office because the area is included in PT AW's HGU, so that there are community rice fields that are no longer managed because there is no cost.
    d) PT AW carried out the process of issuing the HGU area without confirming it with the surrounding community, so it has become a problem now, and the community is having difficulty making their land certificates.
4. **Community expectations |** According to several sources, stakeholders expect that:
    a) PT MMAS and the local government will issue a letter regarding the limits of the sale and purchase so that it can be used as a guide for the community in the future;
    b) The community is still waiting for further socialisation in connection with the PT MMAS partnership plan in an area outside the 371 ha that has been managed by the community;
    c) It is hoped that a KMD flagship program from the SIPEF group will be set up for villages that do not yet have such, like other villages that have been successful.
5. **Overlapping Tax Payment Processes |** There was an overlap in tax payments in PT AW's HGU where the Company had to pay taxes covering an area of 1,770 ha while what was taken over was only 371 ha of land managed by PT AW, and people in several supporting villages said that they also paid their land tax to the local government. This is a problem because tax payments are made by both parties, the community and the Company, and in a public consultation held by PT PKH on September 14 2018, the National Land Agency

was not present. So, there was no solution to either problem regarding these matters, the community HGU and overlapping tax payments.

3.2. Findings and Results of the HCV Assessment

3.2.1. National and Regional Context

In 2013, it was estimated that the forest area in Indonesia was around 82,487,000 ha, ranked 11th in the world and first in Southeast Asia, but currently the annual rate of deforestation is estimated to be the highest in the world. While the rate of deforestation on the island of Sumatra in the quarter century between 1985 and 2007 saw more than 12 million ha of the forest cover destroyed, less than 30% now remains. Less than 40% of Sumatra's primary forest remained in the 2000s. The rate of deforestation at that time was an average of 2.5% per year, the worst occurring in lowland areas and hilly forests that have high diversity (CEPF, 2001).

Sumatra is the fifth largest island in the world, with a length of 1,800 km and a width of 400 km. Extending in the west from north to south lies the Bukit Barisan range, while the east coast is dominated by lowland forest and swamps. This difference in topography causes differences in the nature of the rivers that flow on the two sides of Sumatra. Rivers that empty into the west coast tend to be short and swift, while those that empty into the east coast are long and winding. Geological history, geographical position, area size, and relatively wet climatic conditions throughout the year have made Sumatra rich in plant species diversity. This ultimately contributes to animal diversity, so that Sumatra is known as one of the world's biodiversity hotspots, with the corpse flower (*Amorphophallus titanum*) and the endemic sun bear (*Helarctos malayanus*) designated as the flora and fauna mascots of Bengkulu Province.

Bengkulu Province is of global concern regarding the impact of global climate from climate change centres, due to the influence of water conditions and the topography of the area, which is the initial location for the formation of rain clouds. The relative absence of islands in Bengkulu waters where the four ocean currents meet is an area where evaporation occurs and forms rain clouds that become the rainy or dry season and affect the world's climate. The ocean currents 'Season of the Year' move from the waters of Aceh Province to West Sumatra and end in Bengkulu waters or move from northwest to southeast. The current meets the Indonesian cross-flow moving from the south of Java Island. The Indonesian monsoon flows from the Sunda Strait and the South Equatorial currents originating from the Indian Ocean. From the meeting of these currents, water swirls and forms a fairly large rain cloud. The pattern of rain cloud formation is unusual and is not as simple as it is in other areas.

In the regional context, based on the regional regulation of Mukomuko Regency No 6 of 2012 concerning the RTRW of the Mukomuko Regency for 2012-2032, the study area is in the Plantation Area and Settlement Area (**Figure 10**). When viewed based on the area in the study area, the Plantation Area is 1,426.2 ha or 82% of the study area, while the area of Settlement Area is 323.9 ha or 18% of the study area.

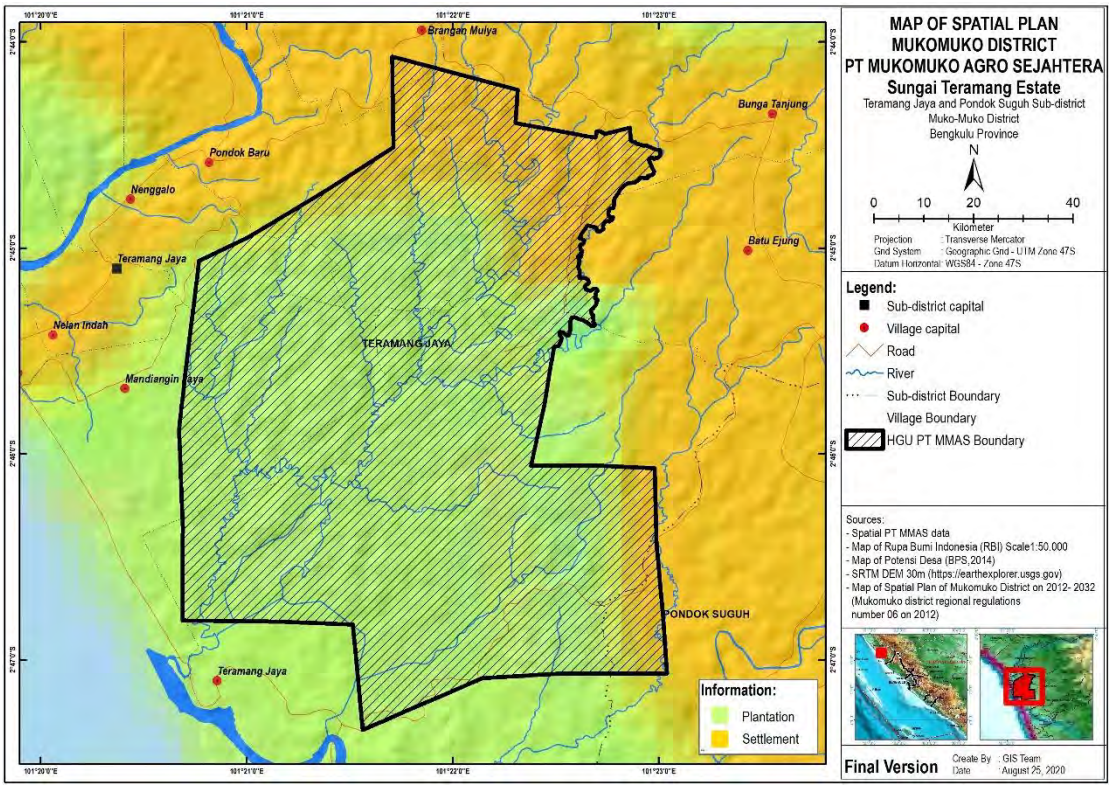


Figure 10. Map of PT MMAS STGE HGU permit on the 2012-2032 RTRWK map, Mukomuko Regency

List of legal documents and regulatory permit related to new development area of PT. MMAS STGE as below:

1. Izin Usaha Perkebunan/IUP (Operational Business Permit) approved by Bupati Mukomuko Nomor 121/year 2012 tentang Pemberian Izin Usaha Perkebunan (IUP) atas nama PT Asririmba Wirabhakti for areas 1,700 ha.
2. Updated 'Izin Usaha Perkebunan/IUP' (Operational Business Permit) approved by Bupati Mukomuko no. 503/2/KPTSP/IUP/IX/2014, dated 15 September 2014 atas nama PT. Mukomuko Agro Sejahtera for areas 1,700 ha.
3. Land Title issued by Badan Pertanahan Nasional (National land Authority) with reference no. 68/HGU/BPN/94 and land title certificate no. 43 for total areas 1,770 ha.
4. Renewal SEIA - Izin Lingkungan (AMDAL): Approved by "Dinas Lingkungan Hidup Kab. Mukomuko No. 660/1138/D.13/X/2019, dated 28 October 2019 tentang Addendum RKL – RPL an. PT. Mukomuko Agro Sejahtera.
5. Izin Lingkungan approved by Dinas Penanaman Modal, Pelayanan Perizinan dan Tenaga Kerja Kab. Mukomuko no. 503/14 / D.10 / IL / XI / 2019 dated 11 November 2019.
6. Based on overlapping with 'Peta Kawasan Hutan dan Perairan' (National Forest Map) as regulated in SK. Menhut no. 784/Menhut-II/2012 which indicated that status of PT. MMAS STGE is non forest area, namely: "Areal Penggunaan Lain / APL".
7. Based on PIPPB map Rev. XV as regulated in Forestry Ministry Decree no. 8599/MenLHK-PKTL/IPSDH/PLA.1/12/2018 that PT. MMAS STGE is not located in forest area and peat land.

3.2.2. Landscape Context

Based on the Map Designation of Forest Areas and Waters of Bengkulu Province in 2012, it refers to the Decree of the Minister of Forestry No. 784 / Menhut-II / 2012, dated 27 December 2012, indicating that the HCV assessment area in the PT MMAS STGE HGU permit area is entirely in Other Use Areas (APL). It is not included in the peat moratorium area based on the Establishment of the Peat Hydrological Unit Map National 2017 (see **Figure 11**), as well as the Determination of the Revised XV PIPPIB Map for 2018 (see **Figure 12**). The closest peat hydrological unit areas, namely the Selangkanan and Aek Bakal Kecil River hydrological units, are 17 km to the northwest of the study area. The closest conservation area to the study area is Kerinci Seblat National Park, which is 14 km northeast, while the closest protected area is the Gunung Masurai protected forest, about 61 km to the east.

The area around and within the PT MMAS STGE HGU permit area is included in the BPDAS Ketahun River Basin, Teramang Watershed, Teramang Kecil Sub-watershed with several catchment areas, namely: (1) Air Solang River, (2) Air Temuan River, (3) Air Tunggang River, (4) Teramang Kecil River with their river channels, (5) Brangan Mulya River, (6) Tanjung Bunga River, (7) Gajah Mati River, (8) Teramang Jaya Swamp with its trenches, (9) Pelaban Deras River and (10) Terentang River which is connected to the Teramang Kecil River, which has a depth ranging from 3-6 m and a width between 6-10 m. It is estimated that the rivers, channels and ditches are about 49.17 km long and cover about 13.74 ha.

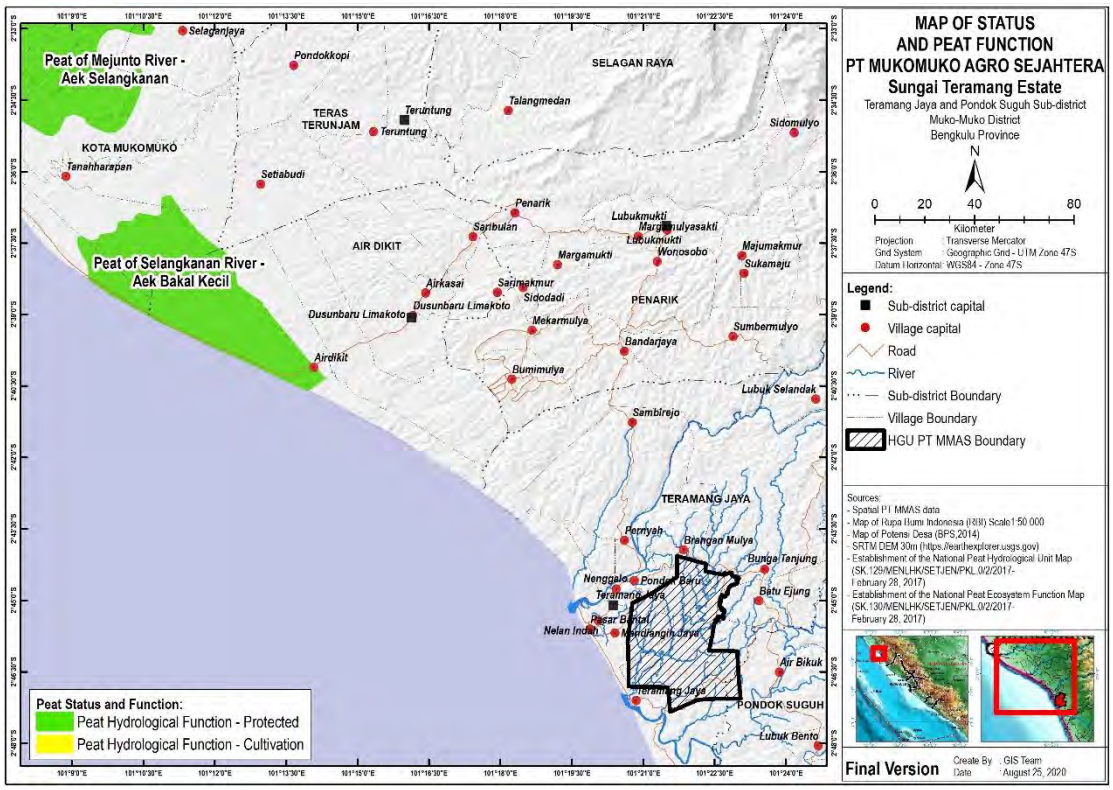


Figure 11. Map of peat hydrological unit in the PT MMAS STGE HGU permit area

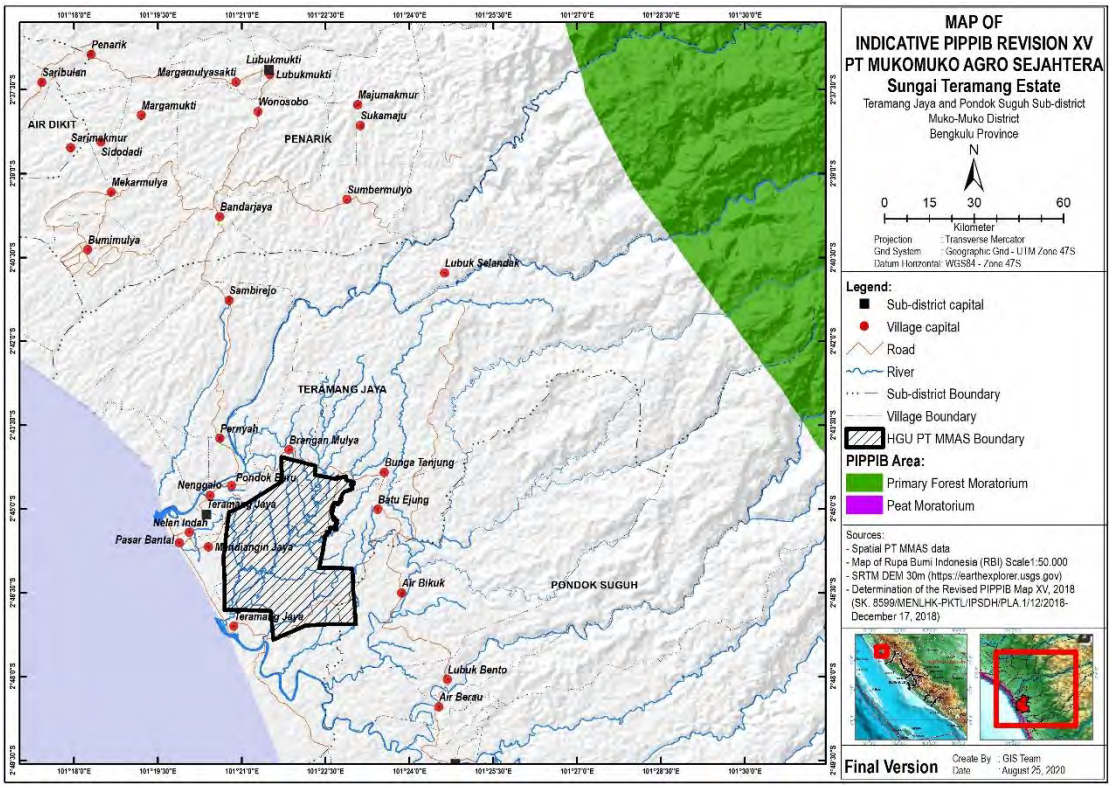


Figure 12. Peat Moratorium Map (PIPIB revision XV) in the PT MMAS STGE HGU permit area

The climate regime, especially temperature, rainfall, sunshine and humidity are the physical environments that are important production factors for the development of oil palm plantations. Based on the map of the results of the distribution of agro-climates, the Oldeman climate classification in Bengkulu Province has four types of climate, namely types A1, B1, C1, and D1. Of the 19,788 km2 area of Bengkulu, the majority of climate type A1 reached 83.9%, climate type A1 was 4.8%, climate type C1 was 1.2% and climate type D1 was 0.1%. The districts of Mukomuko and Bengkulu City have two types of climate, namely A1 and B1.

In terms of physiographic units, the area of the PT MMAS STGE HGU permit is within the Southeastern Plains and Hills unit (RePPProT 1990) and is included in the Sumatran biogeographic sub-unit area 21a Southern Mainland Sumatra (MacKinnon 1997). The area is also within the Sumatran Lowland Rain Forests ecoregion (code IM0158) (WWF 2016), which is presented in **Figure 13**. The ecoregion includes humid lowland forests in Sumatra and its satellite islands, such as Simeulue, Nias and Bangka. Sumatra's lowland rainforests are among the most threatened by extinction. Until 1985, this forest was only about a third of its original area. And between 1985-1997, it lost an average of 2,800 km² per year. Currently, Sumatra's lowland rainforests are practically only remaining in relatively large national parks and conservation areas (WWF 2016).

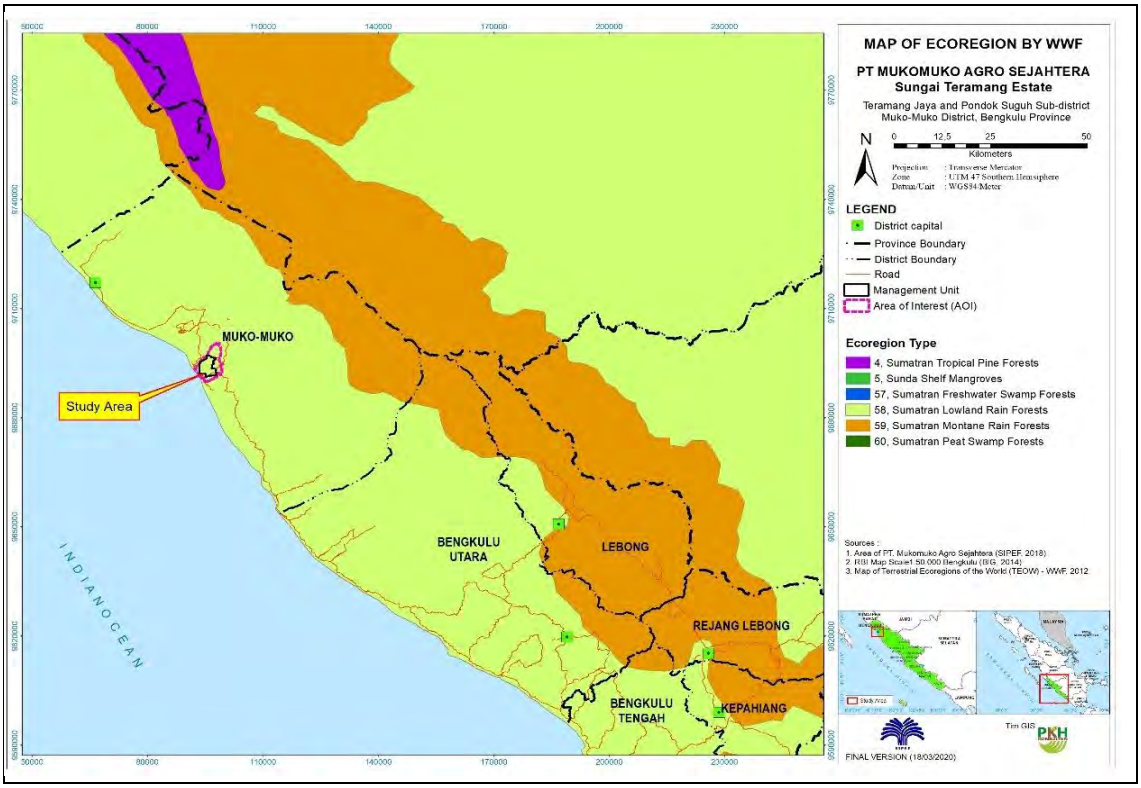


Figure 13. Position of PT MMAS STGE HGU Permit on the Ecoregion Map

Bengkulu Province itself has many conservation areas outside the national park, which are scattered in various locations with a total area of 50,639.6 ha. In terms of function, each of these conservation areas has the status of a natural tourism park (TWA) of 27,630 ha, a hunting park (TB) covering an area of 16,962 ha, a nature reserve (CA) 4,299.6 ha, and a forest park (Tahura) 1,748 ha. The total area of the nature reserve itself is recorded as 24 areas, and 3 TWA areas. Meanwhile, the area of Bengkulu Province which is included in the Kerinci-Seblat National Park area is 412,324.6 ha.

The area of the PT MMAS STGE HGU is outside the important bird areas, Endemic Bird Areas (EBA) and Important Bird Areas (IBA), Intact Forest Landscape (IFL), Ramsar sites and other conservation areas. To the west of the important areas for birds, respectively are IBA No: 35 Mount Dempo and IBA No 36 Bukit Kaba and EBA No: 158 Sumatra and the Malay Peninsula. These areas mainly cover the slopes and the top of the Bukit Barisan Selatan Mountains, an area with mountainous forest cover and a small amount of low first land forest, and almost all of which have been covered by the Kerinci Seblat National Park (TNKS) forest area. several conservation areas.

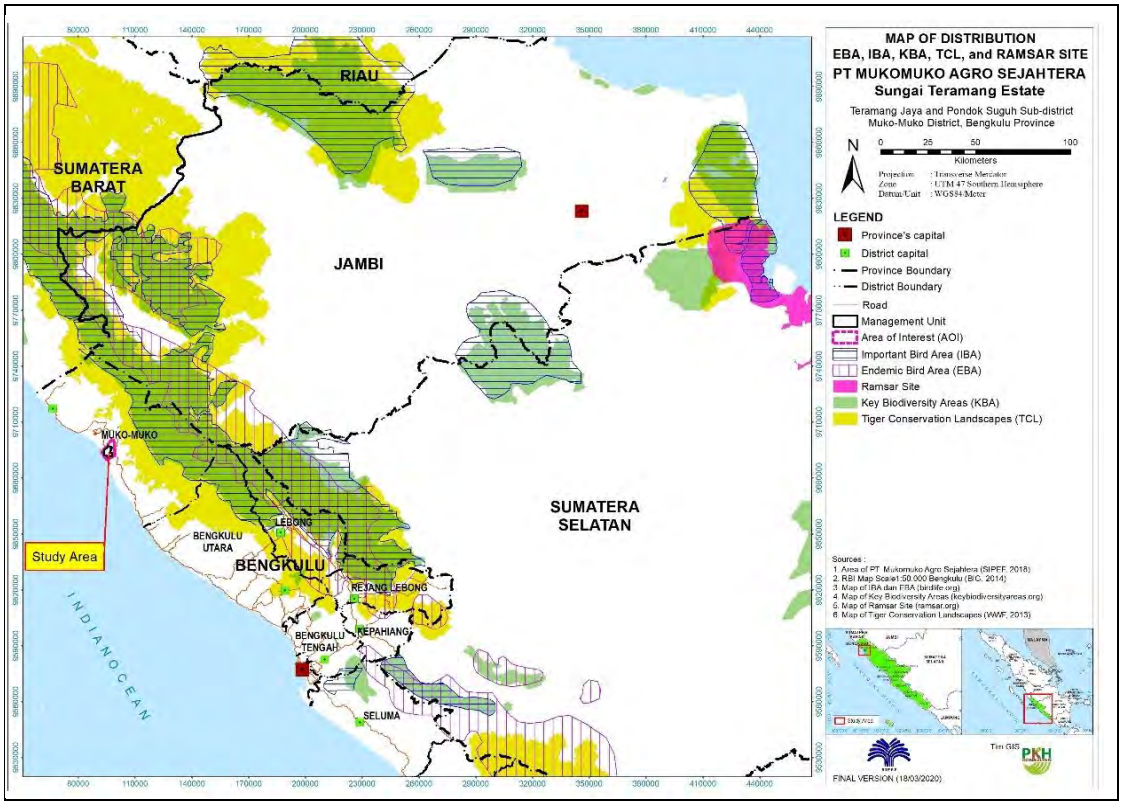


Figure 14. Map of IBA, EBA, Ramsar Sites, IFL and Conservation Areas around the PT MMAS STGE HGU

Based on the indicative distribution map of sun bears (*Helarctos malayanus*) and Sumatran tigers (*Panthera tigris sumatrae*) published by IUCN, for the areas along the west coast of Bengkulu where the PT MMAS STGE HGU area is located, it can be seen that the HGU area is outside the last distribution area of Sumatran tigers, especially those in the forest area of Kerinci-Seblat National Park. This tiger home range is also a sun bear distribution area.

Based on the government administration of the PT MMAS STGE HGU area is located in Pondok Suguh District and Teramang Jaya District, Mukomuko Regency. In total there are eight village administrative areas that are included in the PT MMAS STGE HGU permit, namely: (i) Air Bikuk village, (ii) Bunga Tanjung village, (iii) Pondok Baru village, (iv) Batu Ejung village, (v) Nanggalo village, (vi) Mandiangin Jaya village, (vii) Teramang Jaya village, and (viii) Brangan Mulya village (**Figure 15)**. The results of the analysis of the study area of the village administration area, show that Teramang Jaya village has the largest administrative area in the study area, around 53.1%; Pondok Baru village is about 17.8%, and Mandiangin Jaya village is around 13.3%. Based on population, Bunga Tanjung village has the largest population, 2,300 people, and Brangan Mulya village has the smallest population, 290 people. Of the 2,554 heads of households (KK) in the two sub-districts, 75.2% (1,889 heads of families) are farmer families with the main commodity being oil palm.

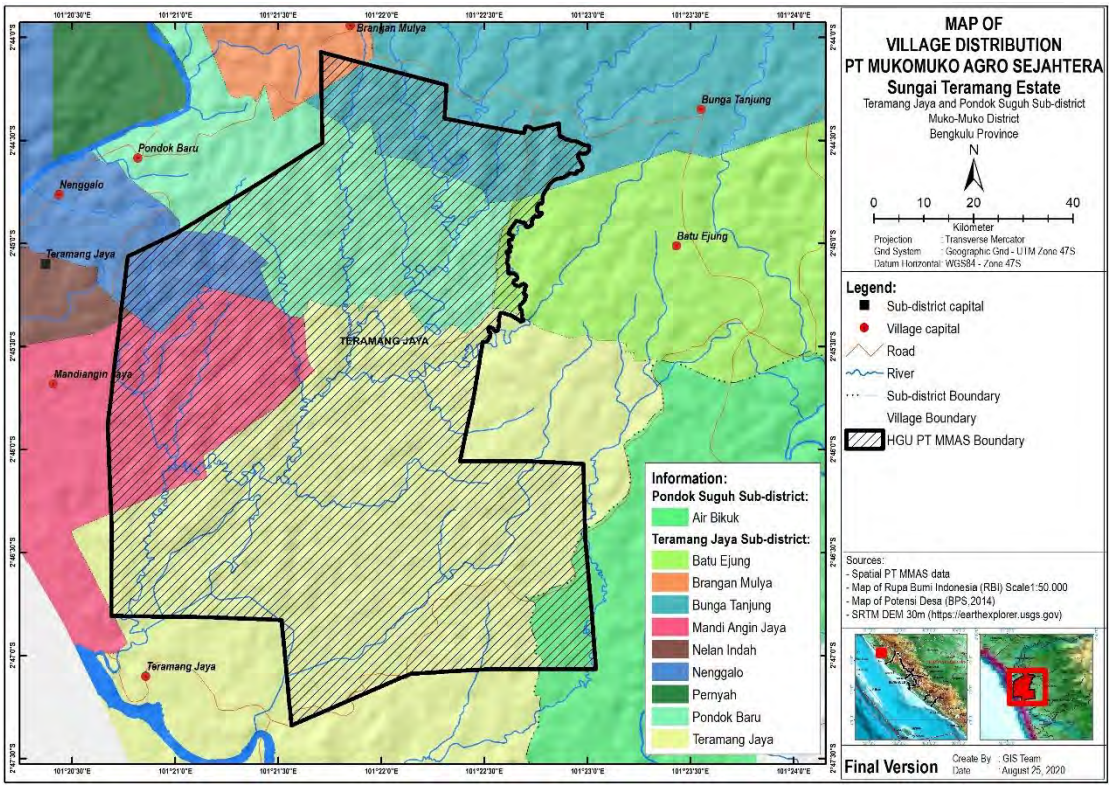


Figure 15. Map of distribution of villages around the PT MMAS STGE HGU Permit.

The villages around the study area are still dominated by local communities, whose ethnicity is known as “Orang Minang Pesisir Barek”and who belong to Malay families. According to the customs and culture of the people in Pondok Suguh and Teramang Jaya Districts, they are all aligned with the people of Pesisir Selatan, West Sumatra Province.

The entire local community around the study area is Muslim and there are no rituals or offerings to sacred areas/places or object offerings. The main livelihood of the local community is oil palm farmers. In addition, other livelihoods are traders and civil servants. In general, each family has multiple livelihoods, namely oil palm farmers on their own land and working in oil palm companies.

3.2.3. Results of HCV Assessment and Justification

Based on the results of the HCV assessment in the PT MMAS STGE area, three types of HCV were found, namely HCV 1, HCV 4, and HCV 5. A summary of findings is presented in **Table 18**.

Table 18. Summary of HCV findings at PT MMAS STGE

HCV	Definition	Summary Description and Justification		
		There is/are	Potential	There is/are not
1	Concentrations of biodiversity including endemic species, and rare, threatened or endangered (RTE) species, that are significant at global, regional or national levels	**There are**		
2	Mosaics of large landscape-level ecosystems and ecosystems that are significant at the global, regional or national level, and contain the majority of populations of naturally occurring			**There are not**

HCV	Definition	Summary Description and Justification		
		There is/are	Potential	There is/are not
	species capable of surviving in natural patterns of distribution and abundance			
3	Rare, threatened or endangered ecosystems, habitats or refuges			There are not
4	Basic ecosystem services in critical conditions, including protection of water catchments and control of erosion of vulnerable soils and slopes	There are		
5	Places and resources that are fundamental to meeting the basic needs of local people or indigenous peoples (e.g. for livelihoods, health, nutrition, water), identified through engagement with the population or indigenous peoples concerned	There are		
6	Places, resources, habitats and landscapes that have global or national cultural, archaeological, or historical significance, or cultural, economic or religious/sacred values of great importance to local people or indigenous peoples, identified through the involvement of these residents or indigenous peoples			There are not

1) HCV 1 - Biodiversity Concentration

Based on the results of the preliminary desktop analysis and scoping study, the identification area is an area that has become cultivated, where residential areas and infrastructure have been built since the early 1990s. It is far from the areas of biodiversity concentration, but it is possible that sun bears (*Helarctos Malayanus*) still exist there.

In the identification area there is no conservation area, so there is also no connection from the aspect of natural vegetation stands. Everything is separated by cultivation areas, especially Company or community oil palm plantations and community fields, as well as residential areas, and public facilities, including the Trans Sumatra road access to the east of the HGU area. This condition is also not sufficient to indicate the presence of high biodiversity in the identification area.

Based on the results of field identification for fauna species, in the area of the PT MMAS STGE HGU, at least 18 mammal species, 61 bird species and 10 reptilian species were found. However, based on information from sources and the community, there are still several other species of animals that have been found in the concession area, and some of them have the status of being threatened by extinction. By using the IUCN RedList database as a reference, most animal and plant species found and identifiable in the PT MMAS STGE HGU area, have the status of Least Concern (LC, quite safe); with three species with the status of Vulnerable (VU) namely the sun bear (*Helarctos malayanus*), monkey (*Macaca nemestrina*) and the bearded pig (*Sus barbatus*), and one species with the status of Endangered (EN) namely the mitred leaf monkey (*Presbytis m. melalophos*) None of them are Critically Endangered (CR). There are three types of flora which fall into the EN category, namely the meranti ketuko (*Shorea pauciflora*).

Observations made by SIPEF environmental staff and consultant analysis showed an indication that the existence of bears is caused by connectivity from other places to the PT MMAS

concession area. This is via the border of two rivers, namely the Brangan Mulya and the Bunga Tanjung on the northern border of the STGE area, which then flow to the Teramang Kecil River within the HGU concession. These rivers still have relatively good vegetation conditions on the boundaries. In the PT MMAS STGE HGU area, HCV 1 was found, in the form of clusters of riparian scrub areas that still remain in the HGU, and are home to important animal species.

HCV 1 areas are identified. There are concentrations of biodiversity including endemic species and rare, threatened or endangered species that are significant at global, regional or national levels. **Table 19** provides a summary of the presence of HCV 1 in the STG Estate, PT MMAS HGU area.

Table 19. Summary of HCV 1 presence in the STG Estate, PT MMAS HGU area

Qualified Situations as HCV 1	Indications
A high overall species richness, diversity or uniqueness	**Absent |** The identification area is a cultivation area dominated by community oil palm farms and plantations and is directly adjacent to the village which is a settlement that has been built with various infrastructure
Populations of multiple endemic or RTE (*rare, threatened or endangered*) species	**Present |** There are still sun bears (*Helarctos malayanus*), Southern pig-tailed macacaque (*Macaca nemestrina*) and bearded wild boar (*Sus barbatus*), black- crested Sumatran langur (*Presbytis melalophos*)
Important populations or a great abundance of individual endemic or RTE species	**Absent** | No endemic species and RTE species were recorded
Small populations of individual endemic or RTE species, in cases where the national, regional or global survival of that species is critically dependent on the area in question	**Absent |** No endemic species and RTE species were recorded
Sites with significant RTE species richness	**Absent |** There is no natural ecosystem large enough to serve as habitat for many RTE species.
Particularly important genetic variants, subspecies or varieties	**Absent |** There is no important genetic variants, subspecies or varieties

The presence and area of HCV 1 is presented in **Table 20** and the map of the presence of HCV 1 in the Management Unit (HCVMA) and the surrounding landscape of PT MMAS STGE is presented in **Figure 16**.

Table 20. Presence and area of HCV 1 Management Unit and in the AoI STGE PT MMAS landscape

HCV 1	Management Unit				AoI Area	
	HGU Area		Planted by PT AW*)			
	Ha	%	Ha	%	Ha	%
Teramang Kecil River	59.54	3.40	18,00	5.08	79.00	1.81
Berau River	-	-	-	-	39.22	0.90
Teramang Jaya Swamp Trench	5.96	0.34	0.01	0.00	10.13	0.23
Parit Rawa Teramang Jaya Trench	4.63	0.26	-	-	4.63	0.11
Lubuk Resam Forest	3.32	0.19	-	-	3.32	0.08
Total NKT 1:	**73.45**	***4.19***	**18.01**	***5.08***	**136.29**	***3.13***
HGU Area / Planted / Landscape:	**1,750.12**		**354.48**		**4,373.67**	

Description: *) The planting area of former PT Asririmba Wirabhakti

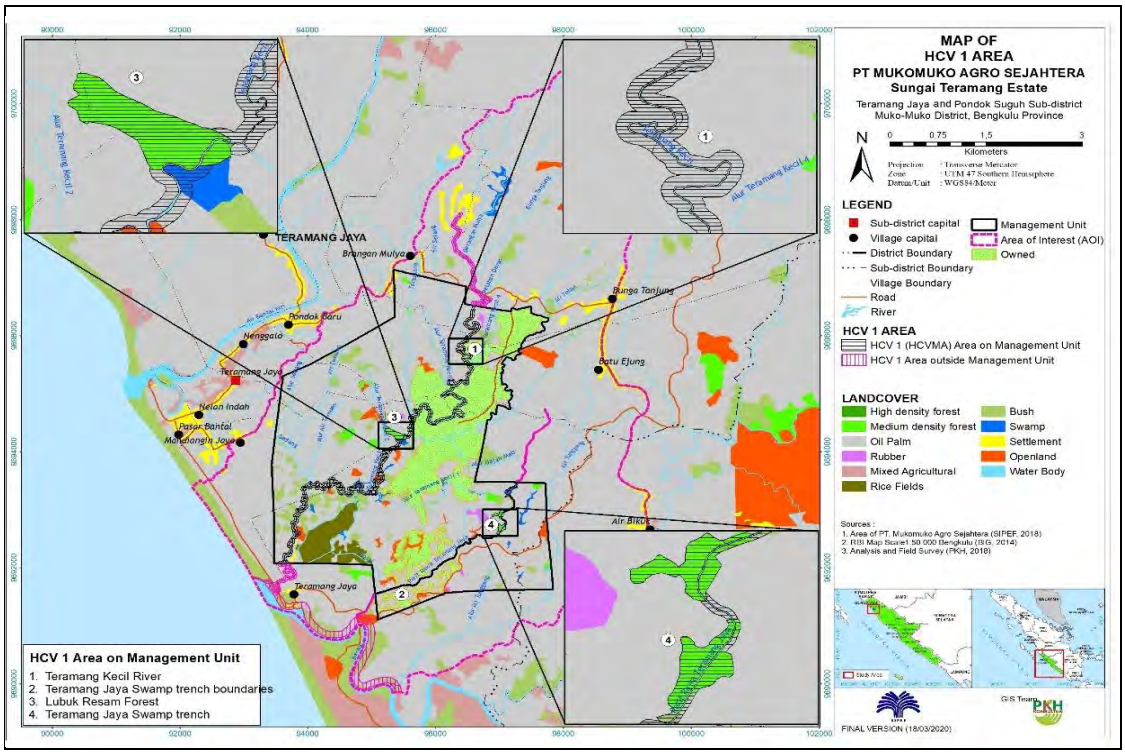


Figure 16. Map of the presence and area of HCV 1 areas in the PT MMAS STGE HGU

2) HCV 2 - Ecosystems and Mosaics at Landscape Level

No HCV 2 areas are identified. STG Estate, PT MMAS area is not part of a landscape ecosystem, a large landscape containing a mosaic of ecosystems, or an intact forest landscape that is significant at global, regional or national levels. **Table 21** provides a summary of indications for the presence of HCV 2 in the PT MMAS Sei Teramang Estate location permit.

Table 21. Indications of the presence of HCV 2 in the STG Estate, PT MMAS HGU area

Qualified Situations as HCV 2	Indications
Large areas (e.g., could be greater than 50,000ha, but this is not a rule) that are relatively far from human settlement, roads or other access	**Absent |** The identification area is in a cultivation mosaic with built-in residential areas that are open and crossed by the national axis road.
Smaller areas that provide key landscape functions such as connectivity and buffering	**Absent |** The identification area is quite far and there is no connection and far enough from the protection buffers area

Large areas that are more natural and intact than most other such areas and which provide habitats of top predators or species with large range requirements	**Absent |** There are no areas that are more natural or more intact

The HGU area of STG Estate, PT MMAS is an area that has been developed, located on the edge of the road across the West Sumatra coast, this area is a mosaic of agroforestry farms, rubber farms and oil palm farms / plantations. The condition around the HGU area is generally in the form of farm lands, alternating with the land for settlements of village communities that have been built. There was no extensive intact forest cover found. The IFL / Intact Forest Landscapes map closest to the forest area of Kerinci Seblat National Park (TNKS) about 14 km to the northeast. Along this distance, the dominant land cover is oil palm farms / plantations. There was also no relatively intact forest cover found within the HGU area, which has an important function to connect the surrounding forests or natural ecosystems as **figure 17** below.

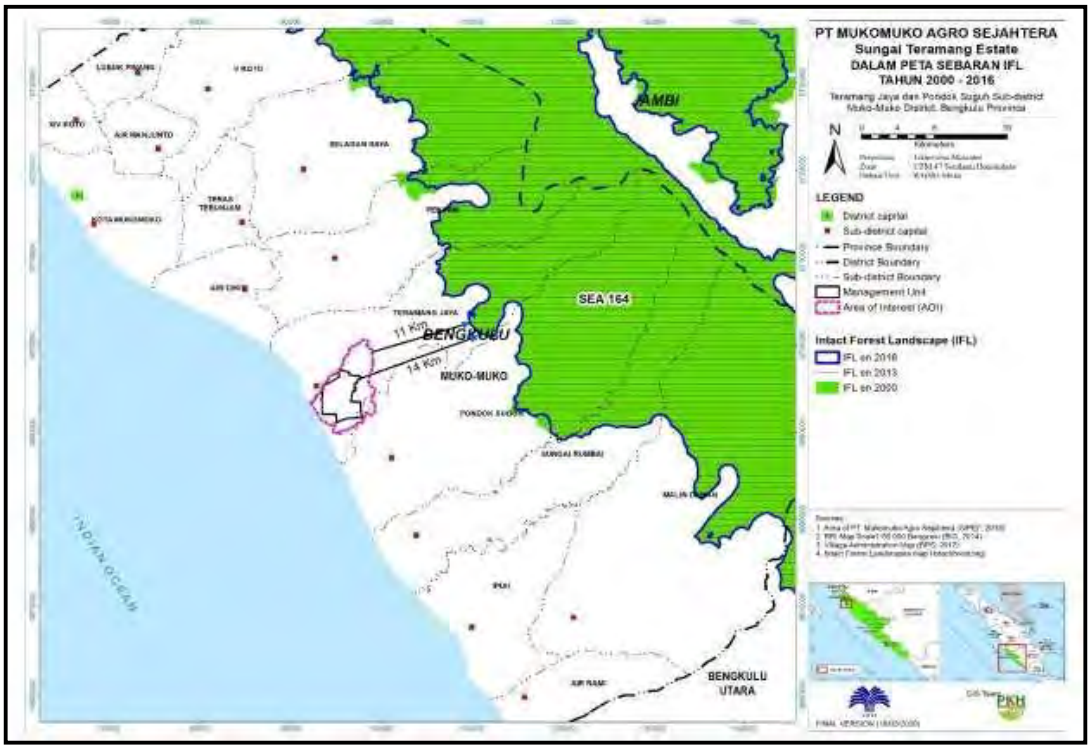


Figure 17. Distance of the STG Estate, PT MMAS HGU area to the nearest IFL

3) HCV 3 - Endangered or Threatened Ecosystems

No HCV 3 areas are identified. STG Estate, PT MMAS area is not part of a landscape that has rare ecosystems or habitats, or rare, threatened or endangered sanctuaries. **Table 22** provides a summary of indications for the presence of HCV 3 in the STG Estate, PT MMASHGU area.

Table 22. Indication of the presence of HCV 3 in the PT MMAS HGU area

Qualified Situations as HCV 3	Indications
Naturally rare because they depend on highly localised soil types, locations, hydrology or other climatic or physical features	**Absent|** The analysis uses Table 8.3.2, which lists rare and endangered ecosystems in Sumatra, and Table 8.3.4 on how to identify HCV 3 using a precautionary approach. Most of the HGU area is included in the Teweh land system (TWH), with a small part on the west side entering the Bakunan land system (BKN). The TWH (Teweh) land system is not included as a land system that has rare ecosystems in the lowland region of Sumatra, while the BKN (Bakunan) land system can contain several ecosystems that are threatened with extinction. In the HGU STG Estate PT MMAS area, there is no forest ecosystem that needs to be preserved, most of which have been converted into agricultural lands in the form of agroforestry or rice fields.
Anthropogenically rare, because the extent of the ecosystem has been greatly reduced by human activities compared to them historic extent,	
Threatened or endangered (e.g. rapidly declining) due to current or proposed operations	
Classified as threatened in national or international systems	

4) HCV 4 - Areas Providing Basic Environmental Services

Based on the findings and analysis, the PT MMAS STGE HGU permit area identified HCV 4 (Ecosystem Services) areas in the form of riverbanks and swamps and their borders which function to control surface water runoff and act as natural drainage channels. River borders, creeks and channels in some places still contain tree crops and oil palm and scrub that can function as erosion-retaining cover as well as buffer streams, creeks and channels. The rivers are the identification area. Mainly the Teramang Kecil River with its significant width can act as a natural firebreak, while other rivers can at least provide a source of water to extinguish a fire, in the event of a fire.

HCV 4 areas are identified: In the HGU STG Estate area, PT MMAS is a part of the landscape which is an area that functions as a basic ecosystem service as a water provider and flood control for the community including protection of water catchments, control of soil erosion and vulnerable slopes. **Table 23** provides a summary of the presence of HCV 4 in the study area.

Table 23. Summary of HCV 4 presence in the HGU area of STG Estate PT MMAS

Qualified Situations as HCV 4	Indication
Managing extreme water flow events, including vegetated riparian buffer zones / intact floodplains	**Present |** There are several streams and channels along with their buffer which have the function of controlling surface water runoff and asnatural drainage channels.
Maintaining downstream flow regimes	**Present** | The identification area is located in the Teramang watershed, Teramang Kecil sub-watershed in a low-lying area close to the downstream so that rivers, creeks, streams and swamps as well as floodplains have a role and contribution to the fluctuation of the river flow system downstream.

Maintaining water quality characteristics	**Present |** Some rivers buffer is already having tree crops and oil palm and shrubs that can function as erosion-resisting cover as well as buffering rivers, streams and channels.
Fire prevention and protection	**Present |** The rivers in the identification area, especially the Teramang Kecil river with a significant width and can function as natural firebreaks, while other rivers can at least provide a source of water to extinguish fires in the event of a fire.
Protection of vulnerable land, aquifers, or the fisheries	**Present |** Rivers, streams and channels still provide the function of natural resources as a source of fish to be caught by local communities
Provision of clean water supply; and natural ecosystems that play an important role in stabilizing steep slopes.	**Present |** There are still some people who use river water, tributaries and river channels at certain times in the dry season. The public daily water is supplied from dug well water. The identification area is located on the flat area, there is no steep area with a slope above 40%.
Protection against wind, and regulation of humidity, rainfall, and other climatic elements.	**Absent |** Most of the identified areas are mostly oil palm plantations. There is no natural ecosystem that has the function of regulating the climatic elements
Pollination services, for example exclusive pollination of subsistence food crops	**Absent |** There are no natural ecosystems that can support pollination services, most of the identified areas are mostly oil palm plantations.

The presence of HCV 4 area is presented in **Table 24** and the map of the presence of HCV 4 in the Management Unit and landscape of AoI HGU STG Estate, PT MMAS is presented in **Figure 18.**

Table 24. Presence and area of HCV 4 in the Management Unit and landscape of PT MMAS STGE AoI

HCV 4	Manajemen Unit				Kawasan AoI	
	HGU Area		Planted PT MMAS*)			
	Ha	%	Ha	%	Ha	%
Air Solang River	0.31	0.02	-	-	0.55	0.01
Air Temuan River	0.70	0.04	-	-	0.75	0.02
Air Tunggang River	0.17	0.01	-	-	1.92	0.04
Gajah Mati River	1.16	0.07	0.66	0.19	3.25	0.07
Teramang Kecil River	5.37	0.31	1.17	0.33	12.37	0.28
Terentang River	0.40	0.02	0.001	0.00	0.43	0.01
Teramang Kecil 1 River channel	0.75	0.04	0.19	0.05	0.75	0.02
Teramang Kecil 2 River channel	0.40	0.02	-	-	0.40	0.01
Teramang Kecil 3 River channel	0.33	0.02	0.05	0.01	0.33	0.01
Teramang Kecil 4 River channel	0.27	0.02	0.13	0.04	0.31	0.01

HCV 4	Manajemen Unit				Kawasan AoI	
	HGU Area		Planted PT MMAS*)			
	Ha	%	Ha	%	Ha	%
Teramang Jaya Swamp trench	1.13	0.06	-	-	1.78	0.04
Air Solang River border	2.98	0.17	-	-	5.37	0.12
Air Temuan River border	6.84	0.39	-	-	7.38	0.17
Air Tunggang River border	0.99	0.06	-	-	17.86	0.41
Gajah Mati River border	7.09	0.40	4.61	1.30	21.37	0.49
Teramang Kecil River border	59.54	3.40	18.00	5.08	79.00	1.81
Terentang River border	6.90	0.39	0.04	0.01	7.62	0.17
Teramang Kecil 1 River flow border	4.06	0.23	1.27	0.36	4.06	0.09
Teramang Kecil 2 River flow border	3.90	0.22	-	-	3.90	0.09
Teramang Kecil 3 River flow border	3.26	0.19	0.47	0.13	3.26	0.07
Teramang Kecil 4 River flow border	1.99	0.11	0.81	0.23	2.44	0.06
Teramang Jaya Swamp trench border	5.96	0.34	0.01	0.00	10.13	0.23
Remaining Lubuk Resam Forest	3.32	0.19	-	-	3.32	0.08
Teramang Kecil 1 River swamp channel	2.02	0.12	-	-	2.02	0.05
Teramang Kecil 4 River swamp channel	1.30	0.07	1.25	0.35	1.30	0.03
Teramang Jaya Swamp trench	4.63	0.26	-	-	4.63	0.11
Air Tunggang River swamp	1.23	0.07	-	-	1.23	0.03
Berau River	-	-	-	-	17.85	0.41
Bunga Tanjung River	-	-	-	-	0.57	0.01
Pelaban Deras River	-	-	-	-	0.24	0.01
Berangan Mulya River	-	-	-	-	0.62	0.01
Berau River border	-	-	-	-	39.22	0.90
Bunga Tanjung River border	-	-	-	-	5.65	0.13
Pelaban Deras River border	-	-	-	-	2.33	0.05
Berangan Mulya River border	-	-	-	-	6.17	0.14
Berangan Mulya Swamp	-	-	-	-	11.49	0.26
Total HCV 4:	**126.98**	**7.26**	**28.67**	**8.09**	**281.84**	**6.44**
HGU Area / Planted / Landscape:	**1,750.12**		**354.48**		**4,373.67**	

Description: *) The planting area of former PT Asririmba Wirabhakti

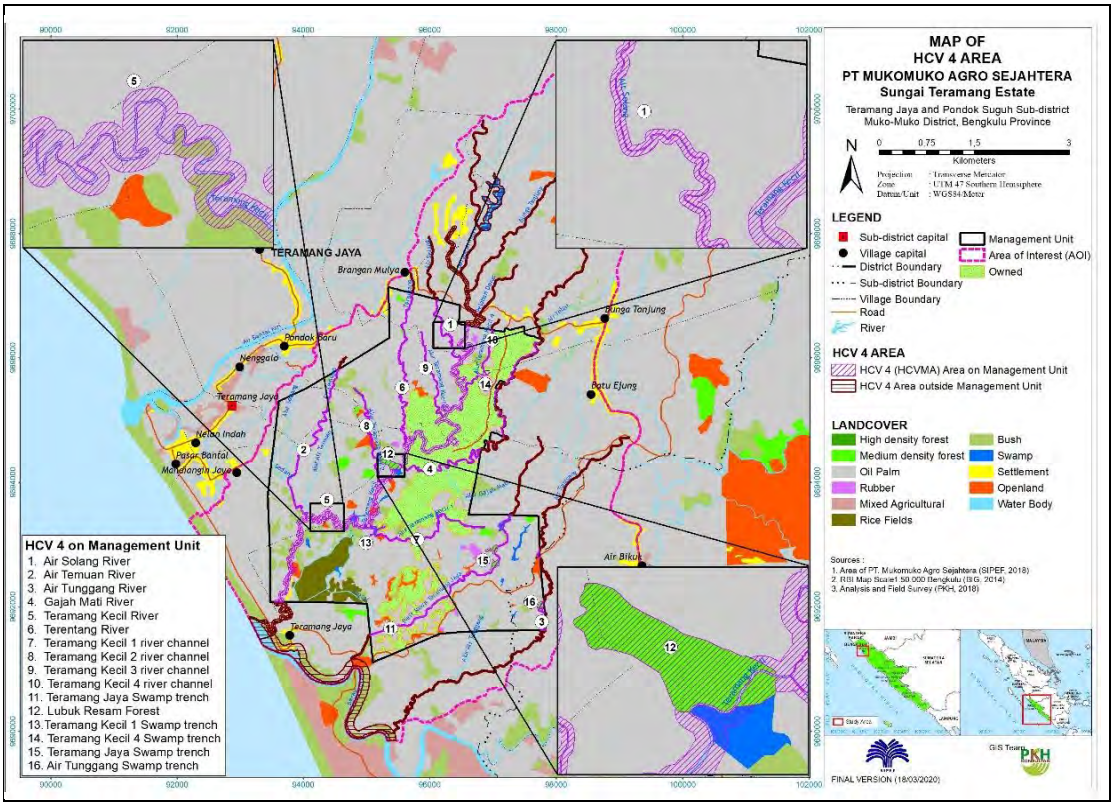


Figure 18. Map of the presence of HCV 4 areas in the PT MMAS STGE HGU

5) HCV 5 - Natural Resources Critical to Meeting Basic Needs of the Community

In the PT MMAS STGE HGU permit area there are sites and resources that are fundamental to meeting the basic needs of local communities or indigenous peoples (for example as sources of livelihoods, protein and water), which are identified through engagement with communities or indigenous peoples. The identification results show that most of the local people are no longer dependent on forest resources to meet their daily needs. Besides, there are still several rivers, creeks and channels that are still being used by some people in the surrounding villages, which are used as areas to catch fish for their hobby and as a source of family water during the dry season. Almost all of the basic needs of the people in the surrounding villages are obtained by buying from the market or from shops or kiosks in the village environment. Traveling traders routinely go around selling various basic necessities, such as: meat, fish, certain vegetables and fruits. Apart from that, some families still use part of their land for cultivation, such as: cassava, sweet potato and papaya in part of the land around the settlement. In Teramang Jaya Village, there are still rice fields even though some of them have been converted into oil palm plantations.

HCV 5 areas are identified: In the HGU STG Estate PT MMAS area there are sites and resources that are fundamental to meeting the basic needs of local communities or indigenous peoples (for example as sources of livelihood, protein and water). Identification is carried out through engagement with communities. A summary of the presence of HCV 5 is presented in **Table 25.**

Table 25. Summary of HCV 5 presence in the HGU area of STG Estate PT MMAS

Qualified Situations as HCV 5	Indications
Hunting and trapping grounds (for game, skin and furs)	**Absent |** There are no people who hunt and gather in areas where the majority are cultivated areas. Hunting that is still carried out by a small part of the community is only opportunistic or a hobby. There is no special place for hunting.
NTFPs such as nuts, berries, mushrooms medicinal plants, rattan	**Absent |** Non-timber forest products (NTFP) can be said to have disappeared
Fuel for household cooking, lighting and heating	**Absent** | Energy for family lighting is generally obtained from national electricity grid. Society does not need heating. Most of the people have used government's subsidy gas fuel
Building materials (poles, thatching, timber)	**Absent** | Most of the building materials are made from modern building materials such as: cement, iron, mild steel, aluminium, glass, roof tiles and zinc. Building materials are quite easy to buy at the local market
Fodder for livestock and seasonal grazing	**Absent** | There are no seasonal grazing activities, and animal feeds such as grass is obtained from buying or collected from around the yards or oil palm plantations.
Water sources necessary for drinking water and sanitation	**Present** | Family drinking water is generally obtained from wells (dug / drilled) and bottled water, each house has a bathroom for bathing, washing and toilet purposes. However, there are still some residents who use river water for washing purposes.
Items which are bartered in exchange for other essential goods, or sold for cash which is then used to buy essentials including medicine or clothes, or to pay for school fees	**Absent** | Oil palm FFB income is the community's leading commodity which is sold to buy essential goods and other necessities. Besides, it is the result of rubber tapping that has been superior.

The presence of HCV 5 areas is presented in **Table 26** and the map of the presence of HCV 5 and HCV 5 management is in **Figure 19**.

Table 26. Presence and area of HCV 5 in the PT MMAS STGE HGU

HCV 5	Management Unit				AoI Area	
	HGU Area		Planted Ex PT AW*)			
	Ha	%	Ha	%	Ha	%
Air Solang River	0.31	0.02	-	-	0.55	0.01
Air Temuan River	0.70	0.04	-	-	0.75	0.02
Air Tunggang River	0.17	0.01	-	-	1.92	0.04
Gajah Mati River	1.16	0.07	0.66	0.19	3.25	0.07
Teramang Kecil River	5.37	0.31	1.17	0.33	12.37	0.28
Terentang River	0.40	0.02	0.00	0.00	0.43	0.01

HCV 5	Management Unit				AoI Area	
	HGU Area		Planted Ex PT AW*)			
	Ha	%	Ha	%	Ha	%
Teramang Kecil 1 River channel	0.75	0.04	0.19	0.05	0.75	0.02
Teramang Kecil 2 River channel	0.40	0.02	-	-	0.40	0.01
Teramang Kecil 3 River channel	0.33	0.02	0.05	0.01	0.33	0.01
Teramang Kecil 4 River channel	0.27	0.02	0.13	0.04	0.31	0.01
Teramang Jaya Swamp groove	1.13	0.06	-	-	1.78	0.04
Berangan Mulya River		-		-	0.62	0.01
Berau River		-		-	17.85	0.41
Bunga Tanjung River		-		-	0.57	0.01
Pelaban Deras River		-		-	0.24	0.01
Total HCV 5:	**10.97**	**0.63**	**2.21**	**0.62**	**42.11**	**0.96**
HGU Area/ Planted / AoI:	**1,750.12**		**354.48**		**4,373.67**	

Description: *) The planting area of former PT Asririmba Wirabhakti

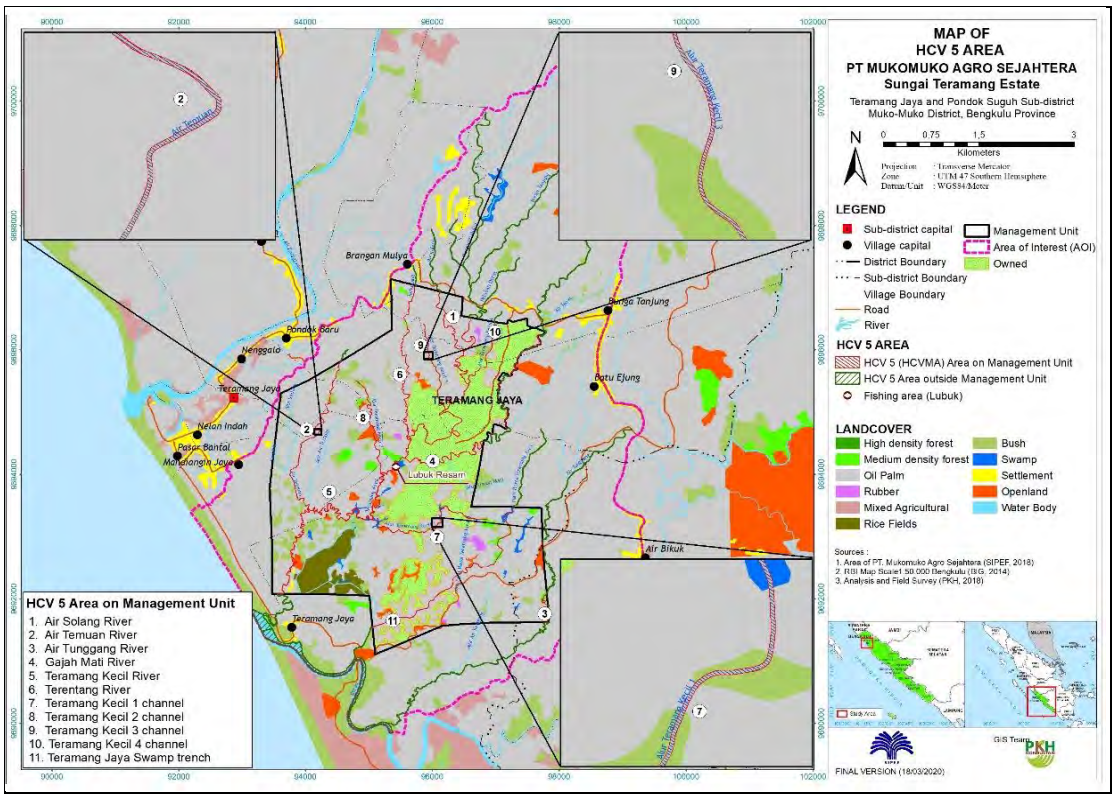


Figure 19. Map of the presence and area of HCV 5 areas in the PT MMAS STGE HGU

6) HCV 6 - Areas or places important for the cultural identity of local communities

No HCV 6 areas identified: In the HGU STG estate area, PT MMAS does not have any sites, resources, habitats and landscapes that have cultural, archaeological or historical significance at the global or national level and or have cultural, ecological, economic or religious significance / sacred culture that is critical to the traditional culture of the local community or indigenous peoples who are identified through interactions with the local community or related indigenous peoples. Indications of the absence of HCV 6 are presented in **Table 27.**

Table 27. Summary of HCV 6 absence in the HGU area of STG Estate PT MMAS

Qualified Situations as HCV 6	Indications
Sites recognised as having high cultural value within national policy and legislation	**Absent** | around the HGU area, there are no sites recognized by national policies and legislation that have high cultural value.
Sites with official designation by national government and/or an international agency like UNESCO	**Absent** | there is only has one site listed by UNESCO in the tentative list in Sumatra island. The site is called "Kerinci Seblat National Park". The location is very far from the company location permit[8)]
Sites with recognised and important historical or cultural values, even if they remain unprotected by legislation	**Absent** | around the HGU area, there are no sites that have historical value and important cultural values for the community.
Religious or sacred sites, burial grounds or sites at which traditional ceremonies take place that have importance to local or indigenous people	**Absent |** Important places that have religious values are no longer available because the majority of local people in Mukomuko Sub district have long embraced Islam. The HCV identification area comes from the Minang and Malay tribes, where in general the customs of the community are the same, both in terms of wedding ceremonies and other celebrations. The Malay tribe that lives in the villages around the PT MMAS oil palm plantation area characterizes the Minang Melayu custom which is heavily influenced by Islamic culture.
Plant or animal resources with totemic values or used in traditional ceremonies.	**Absent** | there are no plants and animals that have totemic value anymore for traditional ceremonies. Based on an in-depth analysis using supporting references (Toolkit, 2008), communities in the villages in the PT MMAS area have no longer carried out their ancestral rituals and have long been left behind.

3.2.4. HCV summary

In the PT MMAS HGU area, there are three categories of HCV, namely HCV 1, HCV 4 and HCV 5. Important elements of HCV 1 were identified as species with Least Concern (LC, quite safe) status both fauna and flora, with one species having the status of Endangered (EN), namely the langur (*Presbytis melalophos*) and three species with Vunerable status (VU), namely the sun bear (*Helarctos malayanus*), monkey (*Macaca nemestrina*) and bearded pig (*Sus barbatus*). The habitat of this wildlife contains river borders and swamp areas which are also HCV 4 areas. For flora species, there are three species that fall into the EN category, namely meranti ketuko *(Shorea pauciflora).*

Important elements of HCV 4 are in the form of riverbanks, streams and swamps covering 126.98 ha or around 7.26% of the HGU area; 28.67 ha or 7.86% of the area planted by former PT Asririmba Wirabhakti; and 281.84 ha or around 6.44% of the AoI landscape area.

An important element of HCV 5 is a river for drinking water at certain times and for the benefit of toilets, and as a source of fishing grounds. Information on the location and area of HCV areas in the STGE HGU area is presented in **Table 28**, while the HCV area distribution map is presented in **Figure 20**.

Table 28. Summary of HCV areas under AoI management unit and landscape of PT MMAS STGE HGU permit area

Conservation Value	Name	Management Unit				AoI Landscape	
		HGU		Planted PT MMAS*)			
		Ha	%	Ha	%	Ha	%
Peat	Peat	-	-	-	-	-	-
HCV 1**	Teramang Kecil River border	59.54	3.40	18.00	5.08	79.00	1.81
	Teramang Jaya Swamp border channel	5.96	0.34	0.01	0.00	10.13	0.23
	Sisa Hutan Lubuk Resam	3.32	0.19	-	-	3.32	0.08
	Teramang Jaya Swamp channel	4.63	0.26	-	-	4.63	0.11
	Berau River border	-	-	-	-	39.22	0.90
Total NKT 1:		**73.45**	**4.20**	**18.01**	**5.08**	**136.29**	**3.12**
HCV 4	Air Solang River	0.31	0.02	-	-	0.55	0.01
	Air Temuan River	0.70	0.04	-	-	0.75	0.02
	Air Tunggang River	0.17	0.01	-	-	1.92	0.04
	Gajah Mati River	1.16	0.07	0.66	0.19	3.25	0.07
	Teramang Kecil River	5.37	0.31	1.17	0.33	12.37	0.28
	Terentang River	0.40	0.02	0.001	0.00	0.43	0.01
	Teramang Kecil 1 River channel	0.75	0.04	0.19	0.05	0.75	0.02
	Teramang Kecil 2 River channel	0.40	0.02	-	-	0.40	0.01
	Teramang Kecil 3 River channel	0.33	0.02	0.05	0.01	0.33	0.01
	Teramang Kecil 4 River channel	0.27	0.02	0.13	0.04	0.31	0.01
	Teramang Jaya Swamp border trench	1.13	0.06	-	-	1.78	0.04
	Air Solang River border	2.98	0.17	-	-	5.37	0.12
	Air Temuan River border	6.84	0.39	-	-	7.38	0.17
	Air Tunggang River border	0.99	0.06	-	-	17.86	0.41
	Gajah Mati River border	7.09	0.40	4.61	1.30	21.37	0.49
	Teramang Kecil River border	59.54	3.40	18.00	5.08	79.00	1.81
	Terentang Sempadan River	6.90	0.39	0.04	0.01	7.62	0.17
	Teramang Kecil 1 River border channel	4.06	0.23	1.27	0.36	4.06	0.09
	Teramang Kecil 2 River border channel	3.90	0.22	-	-	3.90	0.09

Conservation Value	Name	Management Unit				AoI Landscape	
		HGU		Planted PT MMAS*)			
		Ha	%	Ha	%	Ha	%
	Teramang Kecil 3 River border channel	3.26	0.19	0.47	0.13	3.26	0.07
	Teramang Kecil 4 River border channel	1.99	0.11	0.81	0.23	2.44	0.06
	Sempadan Parit Rawa Teramang Jaya	5.96	0.34	0.01	0.00	10.13	0.23
	Remaining Lubuk Resam Forest	3.32	0.19	-	-	3.32	0.08
	Teramang Kecil 1 River swamp channel	2.02	0.12	-	-	2.02	0.05
	Teramang Kecil 4 River swamp channel	1.30	0.07	1.25	0.35	1.30	0.03
	Teramang Jaya Swamp trench [parit]	4.63	0.26	-	-	4.63	0.11
	Air Tunggang River swamp	1.23	0.07	-	-	1.23	0.03
	Berau River	-	-	-	-	17.85	0.41
	Bunga Tanjung River	-	-	-	-	0.57	0.01
	Pelaban Deras River	-	-	-	-	0.24	0.01
	Berangan Mulya River	-	-	-	-	0.62	0.01
	Berau River border	-	-	-	-	39.22	0.90
	Bunga Tanjung River border	-	-	-	-	5.65	0.13
	Pelaban Deras River border	-	-	-	-	2.33	0.05
	Berangan Mulya River border	-	-	-	-	6.17	0.14
	Berangan Mulya Swamp	-	-	-	-	11.49	0.26
Total NKT 4:		**126.98**	**7.26**	**28.67**	**8.09**	**281.84**	**6.44**
HCV 5 **)	Air Solang River	0.31	0.02	-	-	0.55	0.01
	Air Temuan River	0.70	0.04	-	-	0.75	0.02
	Air Tunggang River	0.17	0.01	-	-	1.92	0.04
	Gajah Mati River	1.16	0.07	0.66	0.19	3.25	0.07
	Teramang Kecil River	5.37	0.31	1.17	0.33	12.37	0.28
	Terentang River	0.40	0.02	0.00	0.00	0.43	0.01
	Teramang Kecil 1 River channel	0.75	0.04	0.19	0.05	0.75	0.02
	Teramang Kecil 2 River channel	0.40	0.02	-	-	0.40	0.01
	Teramang Kecil 3 River channel	0.33	0.02	0.05	0.01	0.33	0.01
	Teramang Kecil 4 River channel	0.27	0.02	0.13	0.04	0.31	0.01
	Teramang Jaya Swamp trench	1.13	0.06	-	-	1.78	0.04
	Berangan Mulya River		-	-	-	0.62	0.01
	Berau River		-	-	-	17.85	0.41
	Bunga Tanjung River		-	-	-	0.57	0.01
	Pelaban Deras River		-	-	-	0.24	0.01
Total NKT 5:		**10.97**	**0.63**	**2.21**	**0.62**	**42.11**	**0.96**
Local Community Lands:	KMD Bantal	14.51	0.26	-	-	14.51	0.33
	KMD Nenggalo	7.59	0.14	-	-	13.93	0.32

Conservation Value	Name	Management Unit				AoI Landscape	
		HGU		Planted PT MMAS*)			
		Ha	%	Ha	%	Ha	%
	KMD Bunga Tanjung	-	-	-	-	11.34	0.26
Total Local Community Lands:		**22.10**	**0.26**	**-**	**-**	**39.78**	***0.91***
Total Net Area:		**126.98**	**7.26**	**28.67**	**8.09**	**281.84**	**6.44**
Total MU PT MMAS STGE HGU		**1,750.12**		-	-	-	-
Total MU Planted PT MMAS STGE HGU		**-**	**-**	**354.48**		**-**	**-**
Total AoI Wider Landscape		**-**	**-**	**-**	**-**	**4,373.67**	

Description: *) The planting area of former PT Asririmba Wirabhakti
**) HCV 1 and HCV 5 share the same area as HCV 4.

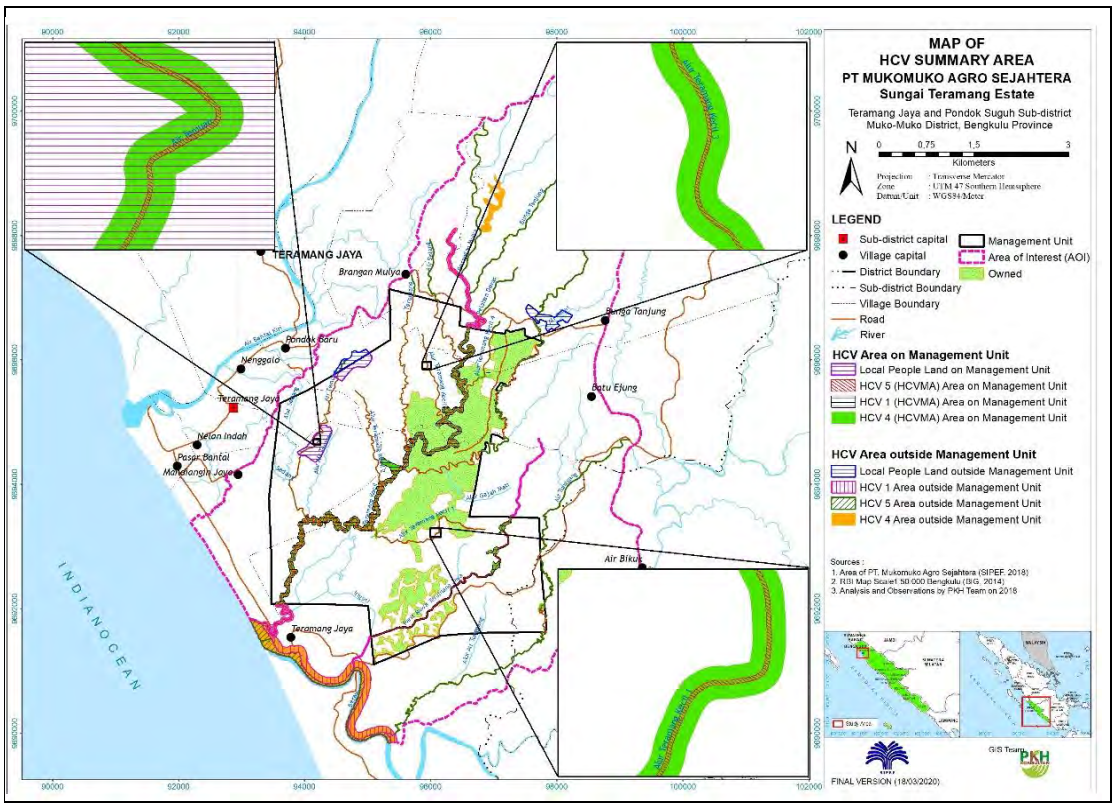


Figure 20. Map of distribution of HCV areas in the PT MMAS STGE HGU area

3.2.5. Public Consultation

Final consultations and interviews were conducted by inviting representatives from the sub-district /village, district, government agencies and related institutions to present the results of the final analysis, with the aim of obtaining a final input. The final public consultation was conducted on 9 July 2019, and the summary notes of the final consultation are presented in **Table 29**.

Table 29. Summary of Final Consultations with PT MMAS STGE Key Stakeholders

No.	Interviewee Name	Position/role & entity	Main concerns and recommendations	Response
1	**Mr Siagian**	**Plantation Department, Mukomuko District**	• The local government, through the Plantation Sub-Service Office, expresses its appreciation to PT MMAS for identifying environmental and social HCVs prior to carrying out operations. • For this reason, it is necessary to follow up on the management and monitoring plan, both from the AMDAL and the identification results. • Ensuring delineation before opening involves the community at least through the village team, so the GRTT process is well-executed, transparent, problem-free and documented. • Discussions with the community are very much needed in sustainable plantation development. It is hoped that the socialisation process will continue to be carried out more intensively. If necessary, we will be ready to support if necessary. • For replanting managed by PT MMAS, an area of 371 hectares should be discussed with the Agriculture Service/Plantation Sub-Office, because it is related to regulations and this HCV document can also be used as a reference • PT MMAS (ex PT AR) IUP is not entirely manageable, and the community also legally cannot control it because of the status of the HGU land. One solution is that what PT MMAS can implement is in the form of plasma or a partnership so that it can benefit both parties.	• Note: At the time of HCV identification, PT Asririmba's AMDAL could not be shown, information from PT MMAS, as the old management of PT Asririmba Wirabhakti is still working on it. The AMDAL was carried out in the 2000s, before the Mukomuko District was formed so the documents were in the main district. Information from the Environmental Office of Mukomuko Regency, is that PT Asririmba had reported the RKL and RPL several years ago but did not continue this up to now. • PT MMAS is in consultation with the Department of Environment to seek a new AMDAL for STGE integrated with PT MMAS. • Thank you for your input about the joint management with the community by building partnership gardens.
2	**Mr Fernandi**	**Environmental Services**	• Appreciation for PT MMAS, in managing the watershed (river border) later, it is hoped that the community will continue to be involved so that they can see and monitor, and provide education to the community. • Recommendations for plants on riverbanks, as a means of environmental protection as well as community learning, should be discussed with residents so that there is a sense of care and involvement, and the plants are expected to provide economic benefits to the community.	• PT MMAS is opening discussions with the community and other institutions related to plants, which are expected to be a learning experience, have environmental benefits and provide economic value.

No.	Interviewee Name	Position/role & entity	Main concerns and recommendations	Response
			• The takeover by PT MMAS can be used as a pilot project for other companies for environmental and social management in the plantation sector.	
3	**Buyung Bujang**	**Village Head, Batu Ejung Village**	• Most of the riverbanks in the community gardens are no longer there and have already been planted. How will this be managed? • For community needs, they can ask for bore well assistance, because of drought and water shortages, so the hope is for cooperation with the community. • Don't let PT MMAS be like the previous PT Asririmba Wirabhakti, without involving the community. Suddenly there was an HGU; indeed, at that time it was still in the "Orde Baru" era..	• The continuation of the conversion to oil palm plantations is expected to understand the border function, including restraining the rate of direct water runoff into rivers carrying soil or waste material. Management of gardens near rivers is expected to reduce/not use fertilisation and pesticides, because these materials will run off into the river.
4	**Rifki**	**BPD Member, Batu Ejung Village**	• Maximum river boundaries, regarding the length and width of water bodies, according to Perpres 32, what are the provisions? • It is hoped that the processing will still involve the community. • Environmental issues in the companies in Mukomuko are all related to environmental issues, watershed, flora/fauna, so it is hoped that the implementation of the former PT Asririmba can be carried out as well as possible. • Before the work begins, it is hoped that the community will not miss out on communication and PT MMAS management will be a good pilot project at the district level.	• Consultant recommendations are based on Presidential Decree No.32 / 1990, Permen PU No.63 / 1993, PP No.26 / 2008 and PP No.38 / 2011. • The width of the river border is also based on the survey in the above field regarding: (1) river embankment/no, (2) location in urban/residential areas, (3) width of the river (determination of large or small rivers) and (4) river depth.
5	**Kadri**	**Bunga Tanjung Village**	• What is the width of the river border? In the field, the boundary conditions are only 5 metres.	• According to the regulations, the small river has a border of about 50 m.
6	**Safrudin**	**BPD Bunga Tanjung Village**	• Community-related activities must involve the community, especially in determining the width of river boundaries, such as the Air Sungsang River in Bunga Tanjung Village; upstream there is no border and this impact downstream. • The hope is that the area is 371 ha, so will it be measured again? Is there community land, so that operations go well?	• We recommend that if there is no border, it is hoped that the management of the community garden will be understood as explained. • 371 ha managed by the Company will not be re-measured, because the area previously managed by the Company has already been fixed.

No.	Interviewee Name	Position/role & entity	Main concerns and recommendations	Response
			• Detailed documentation of all consultations should be presented as a report.	
7	**Herdi Resmiyanto**	**BPD Brangan Mulya Village**	• Brangan Mulya Village is a village that is in contact with the beach, and there is irrigation which is disposed of finally by PT MMAS, so please pay attention to the discharge of waste water to prevent water pollution to the irrigation area (agriculture) at the bottom. • Cooperate with the community for the best solution and to solve existing problems.	• Thank you for the information and advice, and please pay attention to the Company.

3.3. Findings and Results of Soil and Topography Studies

3.3.1. Topography and Slope

Based on the SRTM Digital Elevation Model (DEM) Image with a spatial resolution of 30 metres, the topography of the PT MMAS STGE HGU permit area is between 0 - 85 MASL. Information on the physiographic elevation of the land in the PT MMAS STGE HGU permit area is presented in **Table 30** and the physiographic map of the land in the PT MMAS STGE HGU permit area is presented in **Figure 21**.

Table 30. Physiographic elevation of land in the PT MMAS STGE HGU permit area

Elevasion	Management Unit (MU)	
	Area (ha)	%
0-5 MDPL	118.06	6.75
10-15 MDPL	325.30	18.59
15-20 MDPL	337.77	19.30
20-25 MDPL	277.32	15.85
25-30 MDPL	195.98	11.20
30-35 MDPL	144.86	8.28
35-40 MDPL	96.39	5.51
40-45 MDPL	53.25	3.04
45-50 MDPL	22.76	1.30
50-55 MDPL	5.05	0.29
5-10 MDPL	173.34	9.90
55-60 MDPL	0.03	0.00
60-65 MDPL	-	-
65-70 MDPL	-	-
70-75 MDPL	-	-
75-80 MDPL	-	-
80-85 MDPL	-	-
Grand Total:	**1,750.12**	**100.00**

Source: 30-metre SRTM data analysis

Based on the SRTM Digital Elevation Model (DEM) image with a spatial resolution of 30 metres, the slope class in the PT MMAS STGE HGU permit area is dominated by 0-8% slope class, information on slopes in the PT MMAS STGE HGU permit area is presented in **Table 31**, and the slope map is presented in **Figure 22**.

Table 31. Slopes in the PT MMAS STGE HGU permit area

Slope (%)	Management Unit (MU)	
	Area (ha)	%
0-8 %	561.33	32.07
8-15 %	554.20	31.67
15-25 %	504.68	28.84
25-45 %	129.90	7.42
Grand Total	**1,750.12**	

Source: *30-metre SRTM data analysis*

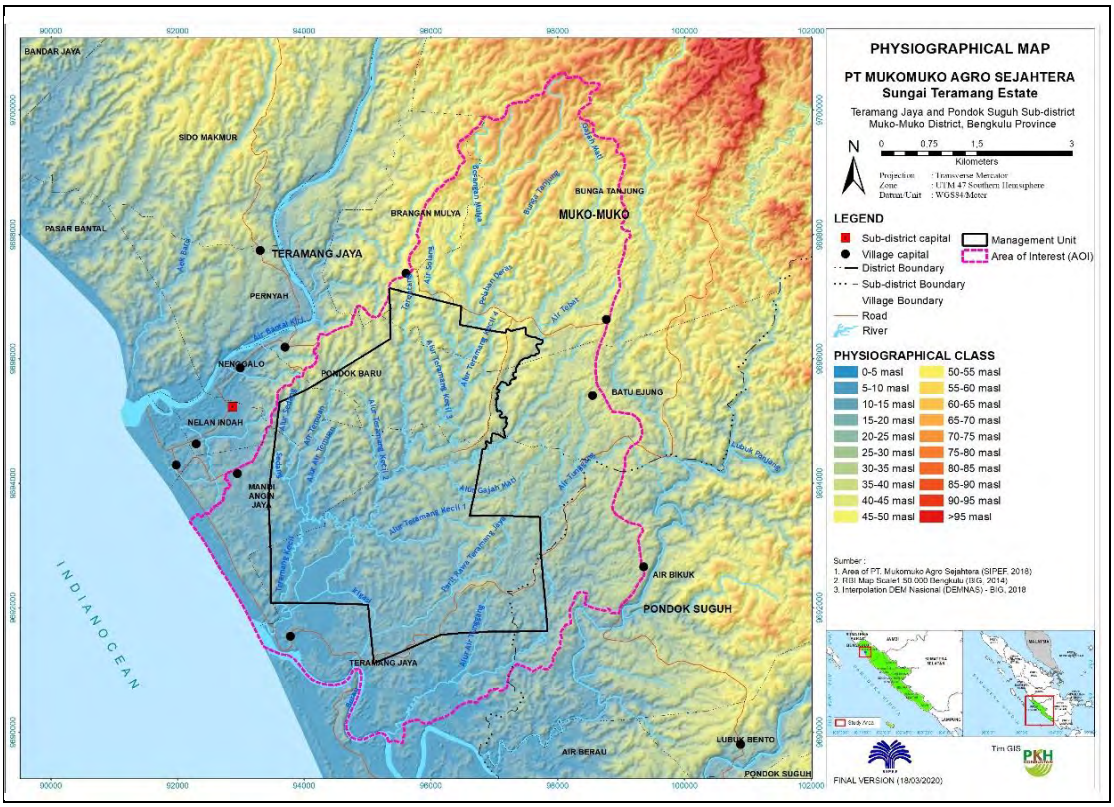


Figure 21. Physiographic Map of Land in the PT MMAS STGE HGU permit area

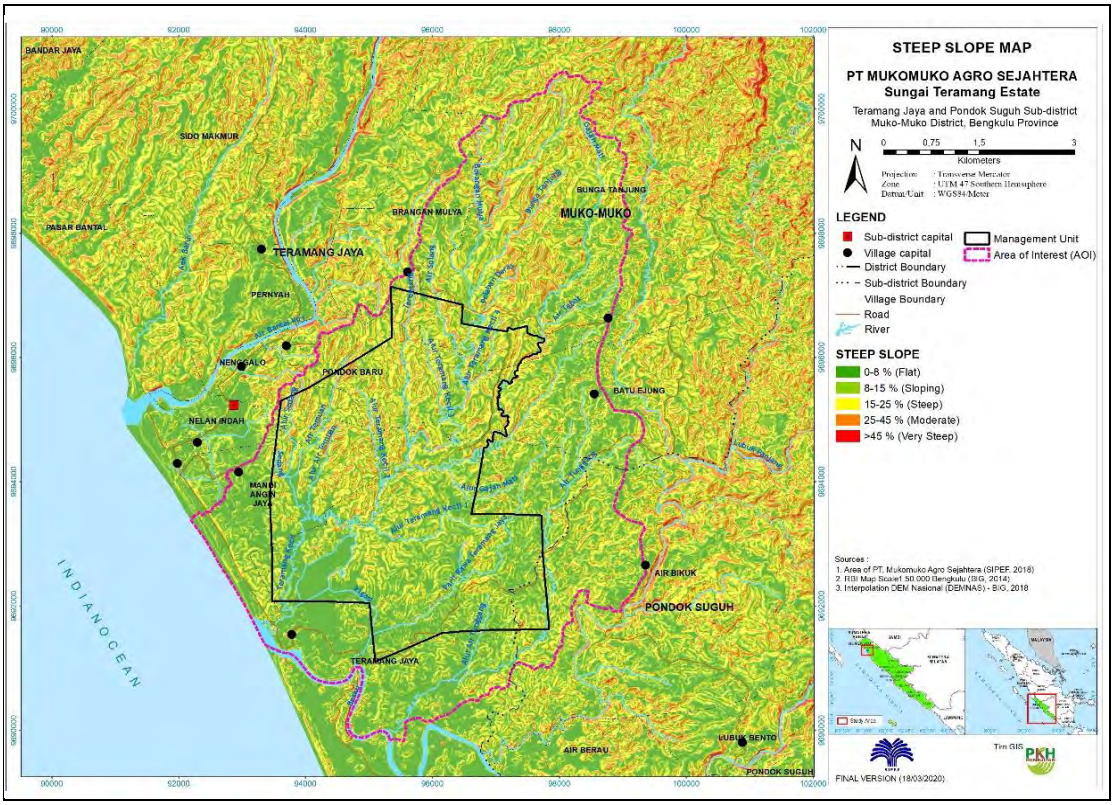


Figure 22. Map of the Land Slope in the PT MMAS STGE HGU permit area

3.3.2. Land Survey

Based on data on the properties and characteristics obtained from direct observation in the field, and referring to secondary data from the soil map of the Centre for Agricultural Land Resources (BBSDLP), in the PT MMAS STGE area can be classified into two types of soil. namely: **Hapludalfs** and **Dystrudepts**; main material in the form of alluvium; sub-landform in the form of Teras Marin; and the reliefs are wavy to undulating.

Hapludalfs is soil that has a kandic horizon and base saturation of less than 35% at a depth of 125 cm below the upper limit of the kandic horizon. **Dystrudepts** is a soil that has a cambic horizon, whose upper limit is within 100 cm and lower limit is at a depth of 25 cm or more, has base saturation of less than 60% on one horizon or more between 25 cm and 75 cm depth from the mineral soil surface, and has a humidity regime.

Refering to Soil Taxonomy – USDA: The United States Department of Agriculture states that Hapludalfs are included in the Order of Ultisols while Dystrudepts is included in the Order of Inceptisols.

Order of the Ultisols; Hapludalfs

The word ‘ultisols’ comes from the Latin ‘ultimus’ which means the last or the most eroded soil and shows the effect of the last washing. Ultisols are soils that are in temperate to tropical areas having argillic/kandic horizons on fragipan with a thick clay layer. Ultiosols have problems in utilisation such as soil acidity, high Al saturation, low cation exchange capacity and base saturation, and very low levels of weathered minerals. This is because the rate of weathering and formation of ultisols goes faster in humid climates with high temperatures and high rainfall, so that the soil undergoes a very intensive washing process (very sensitive to erosion). Ultisols include low productivity soils because their physical and chemical properties are less supportive of plant growth, including acidic pH, relatively high solubility of

Al, Fe and Mn, which can bind P elements to become insoluble and not available to plants. From the analysis of ultisols soil data from various regions in Indonesia, it shows that the soil is characterised by a very acidic soil reaction (pH 4.1 - 4.8). The top layer of organic matter content is thin (8 - 12 cm), generally low to moderate. The C/N ratio is low (5 - 10). Apart from the P content, the N content is also relatively low.

Order of the Inceptisols; Dystrudepts

The word 'inceptisols' comes from the Latin 'inceptum' or beginning or it can be called young soil because its formation is rather rapid, as a result of weathering of the parent material. This immature soil has a weaker growth profile than mature soil, and still has properties similar to the parent material. It is classified into moderately weathered and washed soil. Inseptisols are young soils and begin to develop their profile with a rather slow horizon formation as a result of alteration of the parent material. The horizons do not show any intensive weathering. The clear accumulation horizon of clay and iron and aluminum oxides does not exist in this soil. Its profile is more developed compared to ultisols. Soils that were previously classified as andosols and brown soil can be included in the inceptisol soil type.

Most inceptisols have cambic horizon B which undergoes soil genesis processes such as physical, biological, chemical and mineral weathering processes. This change results in a cubic angled or blob structure. The soil characteristics of inceptisols are:

1. Rather thick soil solum, which is 1-2 metres
2. Black or grey to dark brown colours
3. Dust, dusty loam, loam textures
4. Crumb structure, loose consistency soil, pH 5.0 - 7.0
5. High organic matter content 10% - 30%
6. Medium to high nutrient content
7. Medium to high soil productivity.

Inceptisols thrive in a variety of climatic conditions except arid conditions. Soil moisture regimes also range from soils with poor drainage to soils with good drainage on steep slopes.

3.4. Findings and Results of Carbon Stock Assessment and GHG Emissions

3.4.1. Evaluation of Carbon Stocks

All of the PT MMAS STGE HGU permit areas are mineral soils with a dominant mosaic of agricultural cultivation. Carbon stocks in each land cover can be seen in **Table 32**, and the distribution of carbon stock is presented in **Figure 23**.

Table 32. Carbon Stocks at PT MMAS STGE by Land Cover.

Land Cover	Area (ha)	Carbon stock*) (tC/ha)	Total Carbon Stock (tC)	HCV area	Area to be new developed
Shrubland	20.73	46	953.58	2.45	18.28
Grassland/Bareland	14.34	5	71.7	1.98	12.36
Rubber farming (community)	7.35	75	551.25	0.00	7.35
Oil Palm Community**)	1289.77	59.29	76470.46	93.88	0.00
Oil Palm Company	352.19	59.29	20881.35	28.67***)	0.00
Rice field	61.89	8.5	526.07	0.00	0.00
Settlement	3.85	5	19.25	0.00	0.00
Total	1750.12		99473.66	126.98	37.99

*) AGB and BGB based on RSPO default values
**) occupied and currently managed by community
***) existing palm oil along the riverbank and will be restored

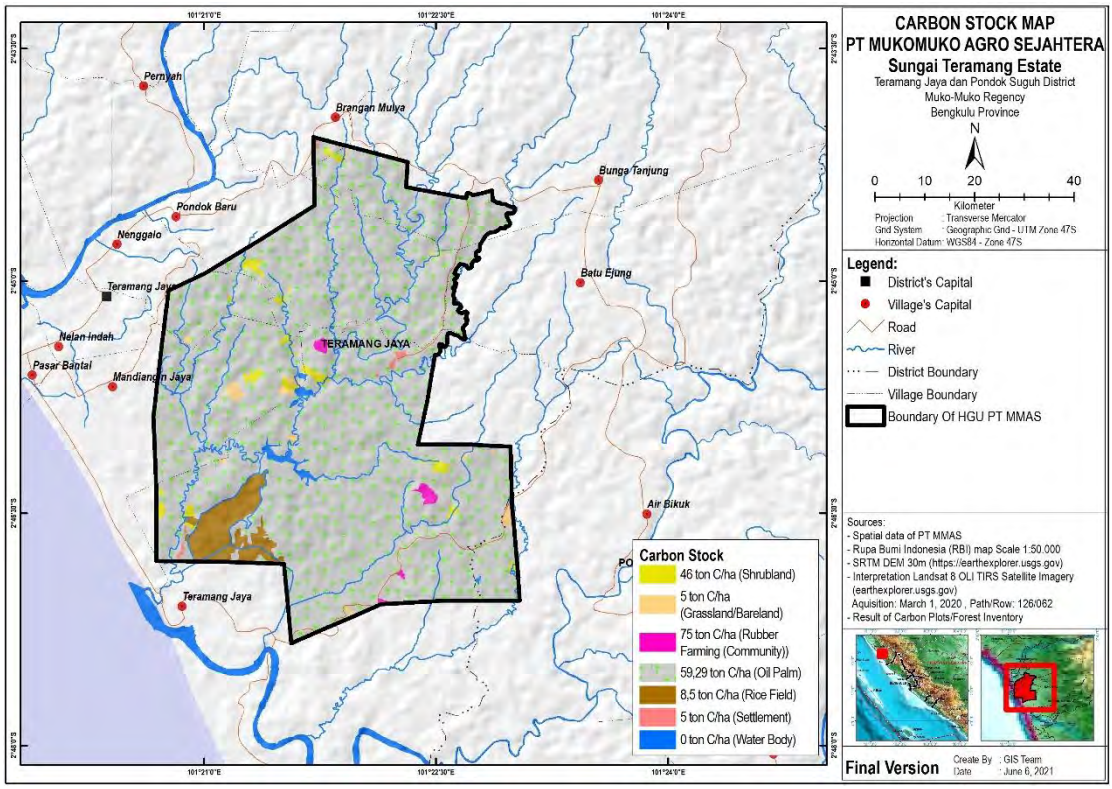


Figure 23. Carbon Stock Map inside STGE, PT MMAS

3.4.2. GHG Calculation Results

3.4.2.1. Scenario Test

Three scenarios are defined to estimate GHG emissions, namely:

(1) Scenario 1, all conservation areas including HCV, and HCS areas are not cleared for new oil palm development. The area to be managed is the core area that has been replanted, and the area controlled by the community consists of shrubs, shrubs/open land, and unproductive community rubber covering an area of 37.99 Ha. Reserve

areas in the form of oil palm which are currently controlled by smallholders are not included in the management.

(2) Scenario 2, all conservation areas including HCV and HCS category areas are not cleared for new oil palm development. The areas to be managed are core areas that have been replanted and new development areas derived from community-controlled reserves, both in the form of oil palm and non-oil palm, will be developed under management with a nucleus-plasma scheme. Areas of oil palm will be replanted. The plant is equipped with a methane capture facility.

(3) Scenario 3, all conservation areas including HCV and HCS category areas are not cleared for oil palm development. The areas to be managed are core areas that have been replanted and new development areas derived from community-controlled reserves, both in the form of oil palm and non-oil palm, will be developed under management with a nucleus-plasma scheme. Areas of oil palm will be replanted. The mill is not equipped with a methane capture facility.

Table 33. Land clearing area for each scenario

Land Cover	Developed for oil palm (ha)		
	Scenario 1	Scenario 2	Scenario 3
Shrubland	18.28	18.28	18.28
Grassland/Bareland	12.36	12.36	12.36
Rubber farming (community)	7.35	7.35	7.35
Oil Palm	0	1115.36	1115.36
Total	**37.99**	**1153.35**	**1153.35**

3.4.2.2. Projected GHG Emissions

Table 34. Projected GHG emissions with 3 scenarios

	S1	S2	S3
Field emissions & credit	t CO_2e	t CO_2e	t CO_2e
Land clearing	213.24	9911.52	9834.33
Crop sequestration	-337.11	-10234.46	-10234.46
Fertilisers	9.56	290.32	290.32
N2O	11.96	324.73	324.73
Field fuel	6.73	204.20	204.20
Conservation credit	-71.68	-317.45	-317.45
Total	***-167.27***	***178.86***	***178.86***
Mill emissions & credit	t CO_2e	t CO_2e	t CO_2e
POME	176.46	1997.19	5357.25
Mill fuel	2.21	67.11	67.11
Purchased electricity	1537.46	2022.98	2022.98
Total	***1716.13***	***4087.27***	***7447.34***
Total emissions, tCO_2e (field and mill)	***1549***	***4266***	***7626***

Scenarios 1 will be chosen because they will have a significant emission reduction impact, both through operations in the field and at the mill. All the identified HCV area along the riverbank will be restored and enriched to provide more carbon sequestration area. Methane capture facilities may still needed in the future to anticipate large waste management from other third party fruit source This is in accordance with the sustainability policy of the SIPEF group, which will not open and develop HCV and SKT/HCS areas, to adhere to the principle of efficiency, will foster good relations with the community, and will commit to building a mill waste treatment facility with methane capture, as other large capacity factories in the SIPEF group operated.

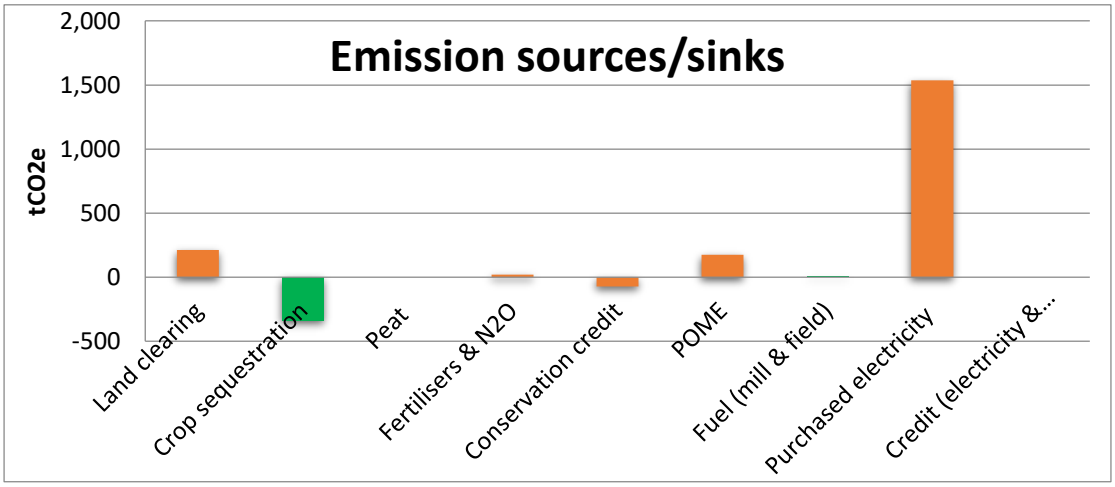


Figure 24. Summary of GHG emissions for PT MMAS STGE plantation development plan Scenario 1.

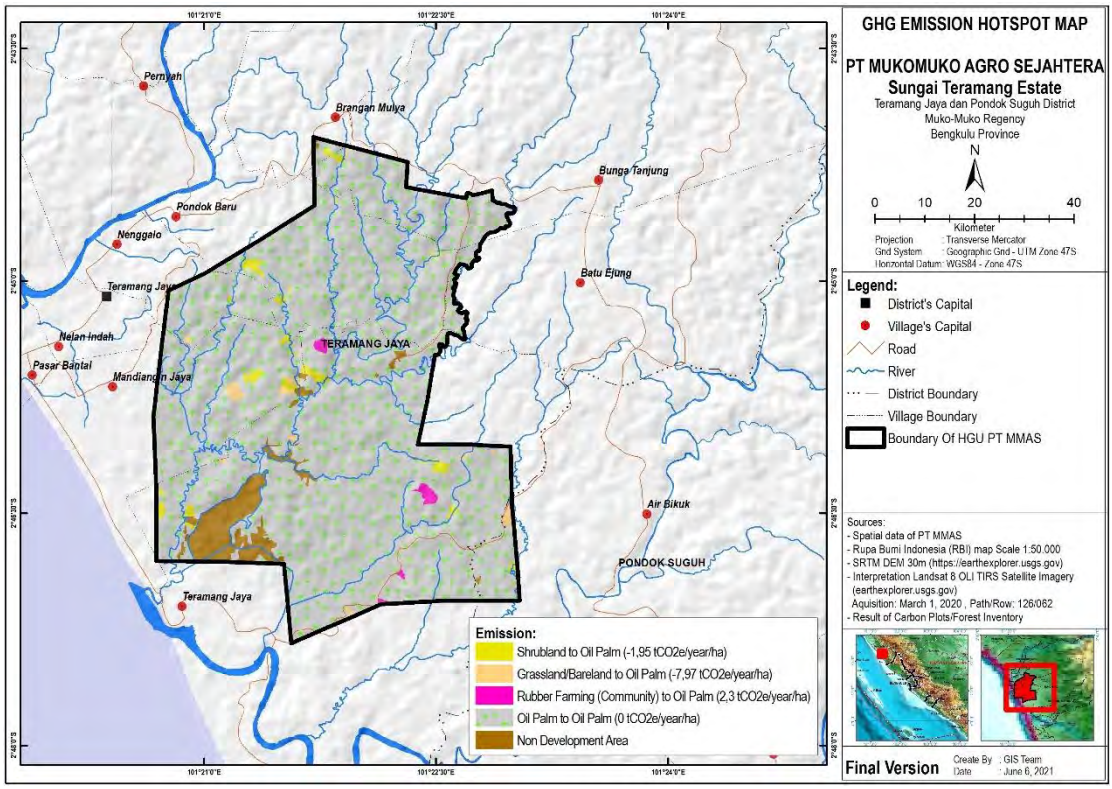


Figure 25. GHG Emission on New Development Plan Scenario 1 STGE PT MMAS

3.5. LUCA Findings and Results

On a landscape scale, the area around PT MMAS STGE was a transmigration development program area in the former concession area for forest management rights (HPH) in the 1969-2009 period. Rubber plants developed around 1980 from the community rubber program. The results of the cultivation of rubber have begun to be felt, so the community has started to penetrate forest areas - especially areas close to villages that were logged by companies with HPH. Commodities planted by the community are generally the same as those cultivated by neighbouring companies in terms of market access. Around 1983, the government developed the Transmigration Core People's Plantation (PIR) program with rubber plants. Around the 2000s, with the presence of several oil palm plantation companies and their plasma programs, providing lessons on oil palm cultivation, triggered the rapid development of community oil palm cultivation, and some communities also converted their rubber plantations into oil palm plantations independently.

The former PT Asririmba (PT MMAS) HGU area was part of the HPH concession area of the family company that owns PT Asririmba. In the early 1990s, it was converted to patchouli, then cocoa, and in 1994, it switched to oil palm plantations until obtaining a permit. The results of the analysis of land cover in the HGU permit area cover an area of 1,750.12 ha, from satellite imagery data starting in 1997 (when PT AW received the HGU permit) with plantation development and oil palm planting. The acquisition of PT AW by PT MMAS management occurred in 2018, so that the management of the HGU area in the 1997-2018 period was under the former management of PT Asririmba Wirabhakti (AW). The area actually controlled and managed by PT AW was only ± 354.48 ha, while the rest was under the control and management of the local community. Satellite images used for the analysis of land cover changes are presented in **Table 15**.

Complete information on the results of land cover analysis from 2005, 2009/2010, 2014, 2018, and 2021 is presented in **Table 35** as well as trend graphs in **Figure 26**. Maps of land cover analysis results of land cover interpretation based on the period of a year are presented in series in **Figure 27** to **Figure 32**.

Table 35. Results of Land Cover Analysis for 2005, 2007, 2010, 2014, 2018, and 2021 in the HGU STGE area of PT MMAS

Land cover	Year 2005*		Year 2007		Year 2010		Year 2014		Year 2018		Year 2021	
	(ha)	(%)	(ha)	(%)	(ha)	(%)	(ha)	(%)	(ha)	(%)	(ha)	(%)
Low-Medium Density Forest	172,50	9,86	114,10	6,52	100,43	5,74	18,04	1,03	12,79	0,73	0,00	0,00
Rubber farm	255,90	14,62	160,16	9,15	89,51	5,11	39,14	2,24	9,97	0,57	7,35	0,42
Community Palm Oil	644,74	36,84	687,04	39,26	738,96	42,22	857,99	49,02	1128,84	64,50	1289,77	73,70
Company Palm Oil	345,66	19,75	348,85	19,93	348,85	19,93	348,85	19,93	348,85	19,93	352,19	20,12
Open Land	38,62	2,21	60,78	3,47	57,05	3,26	51,66	2,95	24,41	1,39	5,64	0,32
Settlement	3,67	0,21	3,67	0,21	3,67	0,21	3,96	0,23	3,96	0,23	3,85	0,22
Swamp	33,98	1,94	29,79	1,70	21,58	1,23	16,19	0,92	15,19	0,87	0,00	0,00
Rice Fields	50,89	2,91	59,96	3,43	59,96	3,43	59,96	3,43	59,96	3,43	61,89	3,54
Bush	204,15	11,66	285,76	16,33	330,10	18,86	323,69	18,50	115,50	6,60	8,70	0,50
Shrub	-	-	-	-	-	-	30,64	1,75	30,64	1,75	20,73	1,18
Area (ha)	**1750.12**		**1750.12**		**1750.12**		**1750.12**		**1750.12**		**1750.12**	

*PT MMAS became RSPO member in 2005

In 2005, the community's oil palm began to dominate around 644.75 ha or 36.8% (up 29.5%) and Company plantations around 345.66 ha or 19.8% (up 3.8%). Many of the community rubber gardens had been converted to only around 255.89 ha or 14.6% (down 30.9%), as well as forest with moderate density only 172.50 ha or 9.9% (down 6.0%). Conversion to oil palm plantations appears to have continued with the increase in scrub by around 204.15 ha or 11.7% (up 6.3%). Information from internal and external sources from surrounding villages states that PT AW was only able to carry out limited GRTT to the location it had planted, then there was neglect of the community planting in its HGU permit. Public interest in planting oil palm increased dramatically after the presence of several oil palm plantation companies in the Mukomuko district.

In 2007, the community oil palm still increased around 687.05 ha or 39.26% (up 5.4%) and company plantations increased to around 348.85 ha or 19.9% (up 0.1%). Conversion of community rubber still continued to 160.15 ha or 9.1% (down 5.47%), forest area also decreased to 114.10 Ha or 6.52 % (down 0.78%). Conversion to oil palm plantations appears to have continued with the increase in the scrub around 285.76 ha or 16.33% (up 4.67%).

In 2010, the community oil palm dominated around 738.96 ha or 42.2% (up 2.96%) and company plantations stayed at 348.85 ha or 19.9% until 2018. Conversion of community rubber plantations has continued until only around 89.5 ha or 5.1% (down 4.04%), meanwhile the forest area also decreased to 100.43 ha or 5.7% (down 4.2%). %). Conversion to oil palm plantations appears to have continued with the increase in the scrub around 330.99 ha or 18.9% (up 2.58%).

In 2014, dominated by community oil palm, it increased to around 857.99 ha or 49.0% and company plantations remained around 348.85 ha or 19.9%. Conversion of community rubber plantations continued until they were around 39.14 ha or 2.2%.

In 2018, when it was taken over by the SIPEF group, dominated by community oil palm plants, it increased significantly to around 1,128.84 ha or 64.5% and Company plantations remained around 348.85 ha or 19.9%. Conversion of community rubber plantations was still ongoing until only around 9.97 ha or 0.5% (down 1.9%), as well as moderate density forest remaining 12.79 ha or 0.7%. Conversion to oil palm plantations appears to have continued in line with the decline in previously unplanted bush to 155.50 ha or 6.6%. This area, especially the remaining forest, is very small and fragmented so it tends to be lost. Since obtaining the HGU permit, PT Asririmba Wirabhakti was only able to plant around 348.85 ha or 19.9%, while the community planted up to 1,128.84 ha or 64.5% in the HGU area, and it is still ongoing.

In 2021, community oil palm plants, it increased significantly to around 1,289.77 ha or 73.7%. The total area of rubber farm (7.35 ha or 0.42%), settlement (3.85 ha or 0.22%), scrub (20.73 ha or 1.18%), and bush (8,70 ha or 0.5%) declined this period. while the total area of rice fields (61.89 ha or 3.54%) has increased this period.

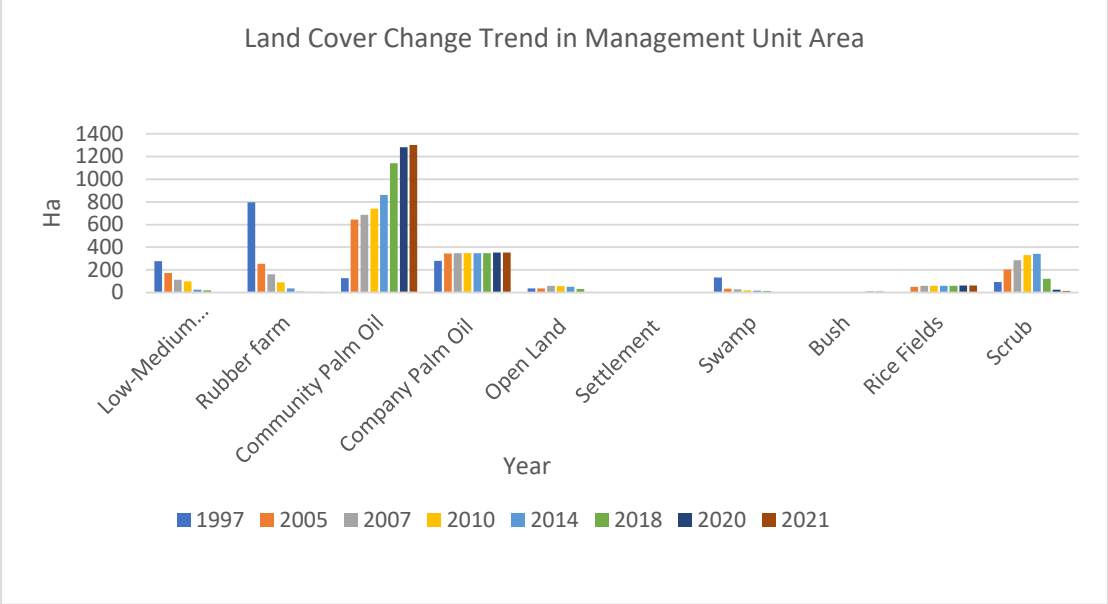


Figure 26. Graph of land cover change trends in 1997, 2005, 2010, 2014, 2018 and 2021 in the HGU permit area of PT MMAS STGE

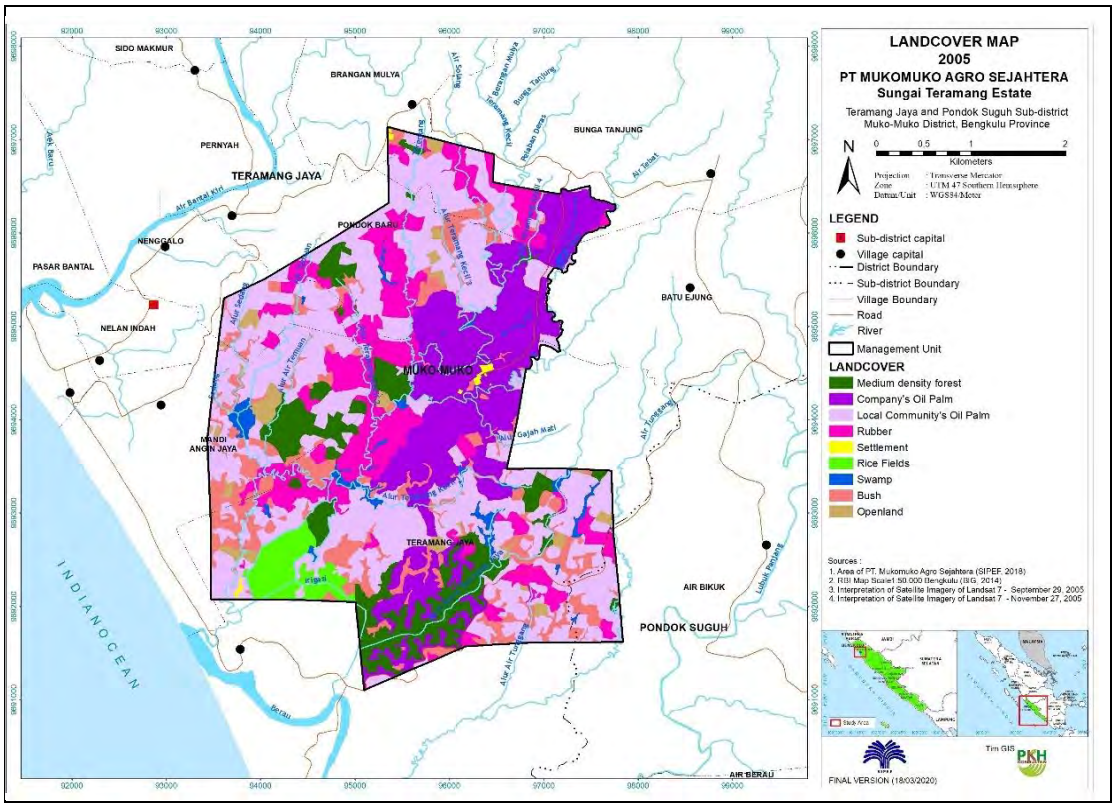


Figure 27. Map of the results of the 2005 satellite image interpretation land cover analysis

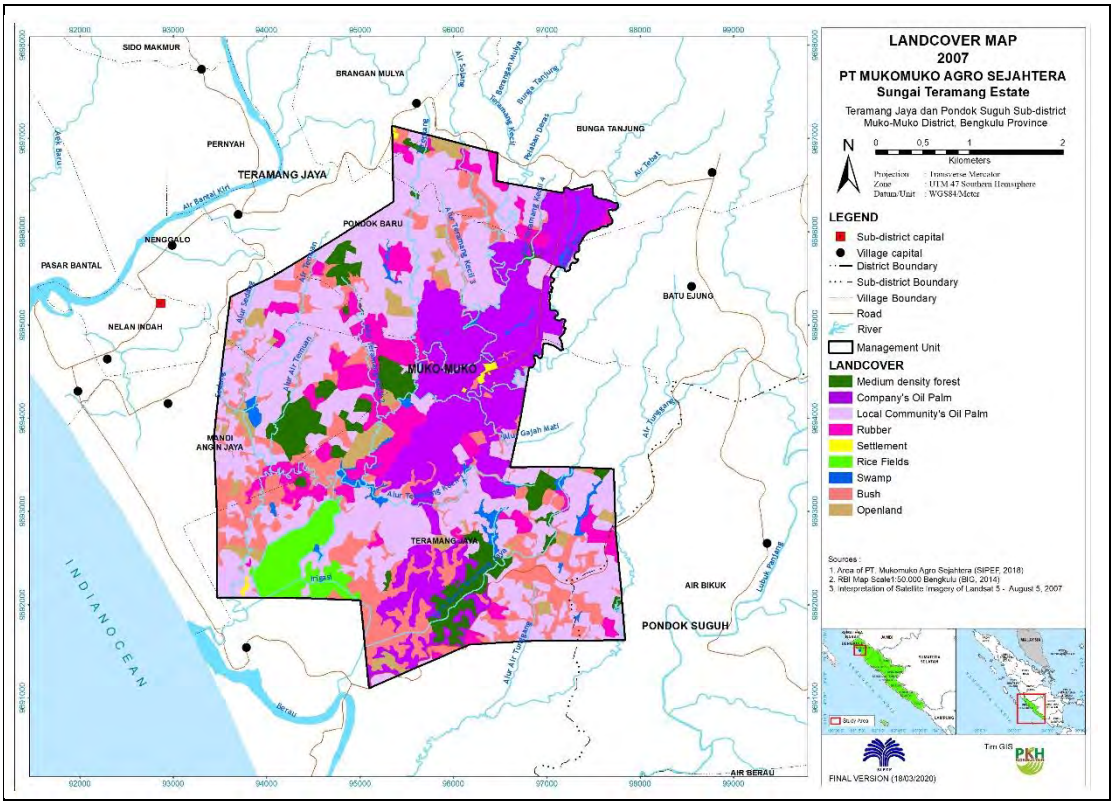


Figure 28. Map of the results of the 2007 satellite image interpretation land cover analysis

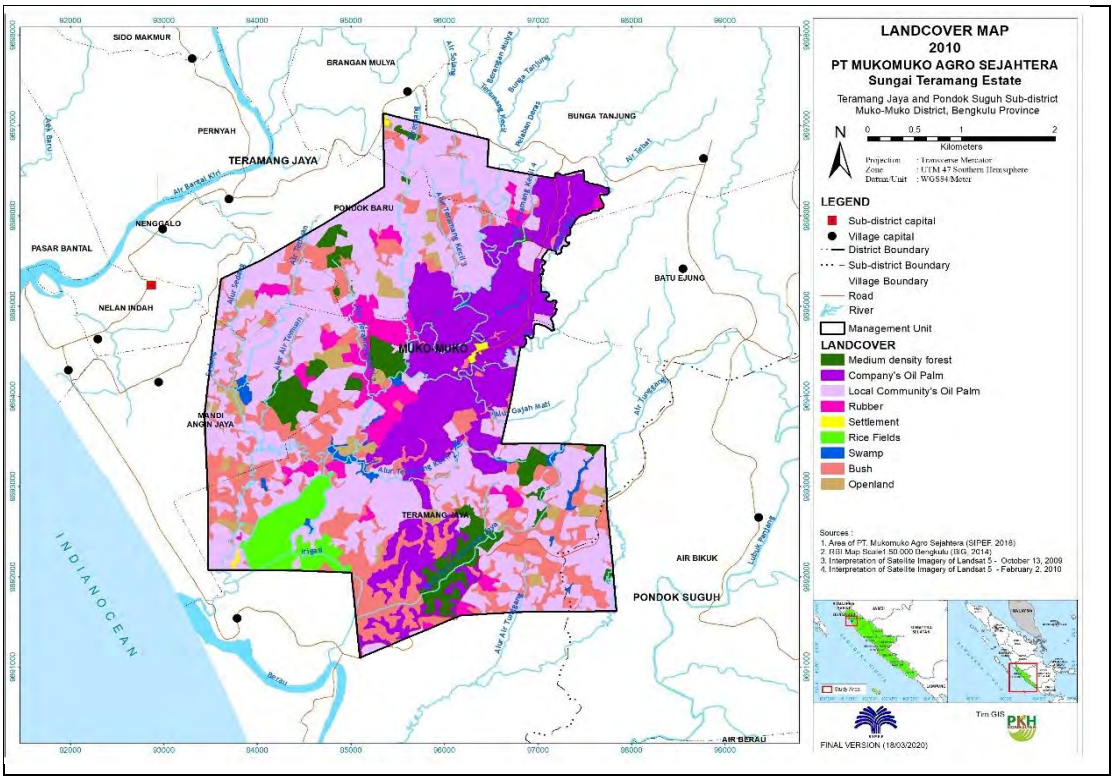


Figure 29. Map of the results of the 2010 satellite imagery interpretation of land cover analysis

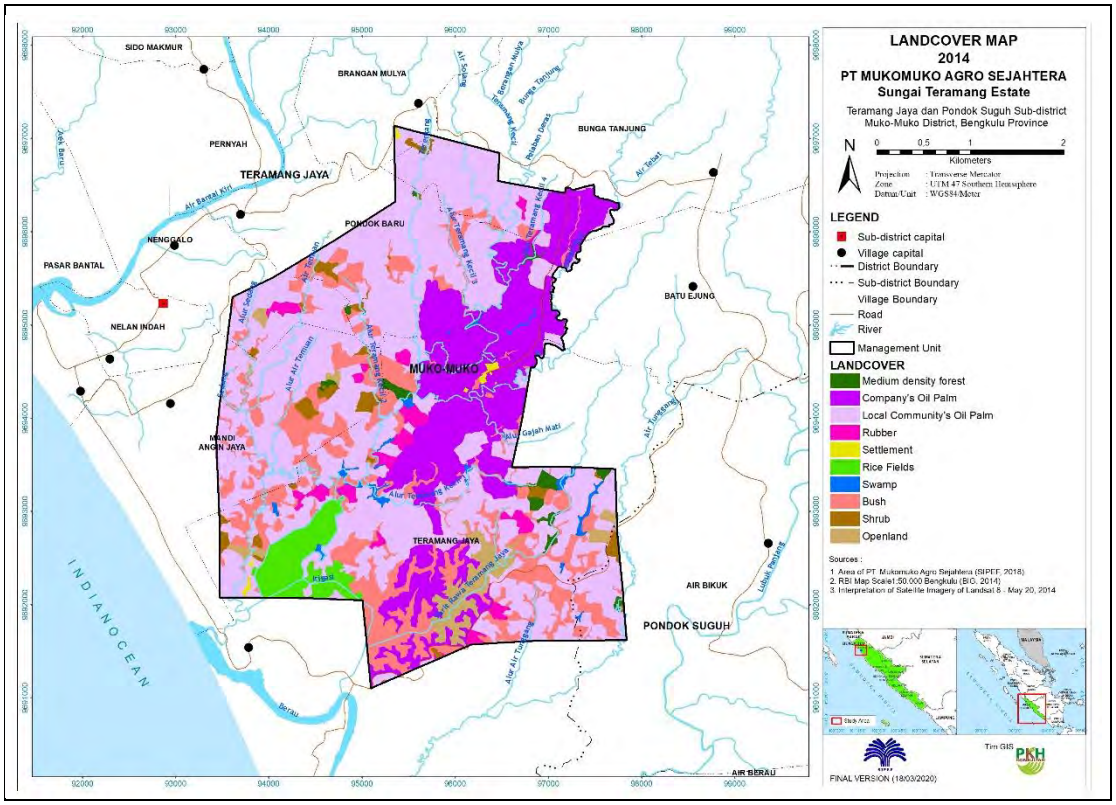


Figure 30. Map of the results of the analysis of satellite imagery interpretation of land cover in 2014

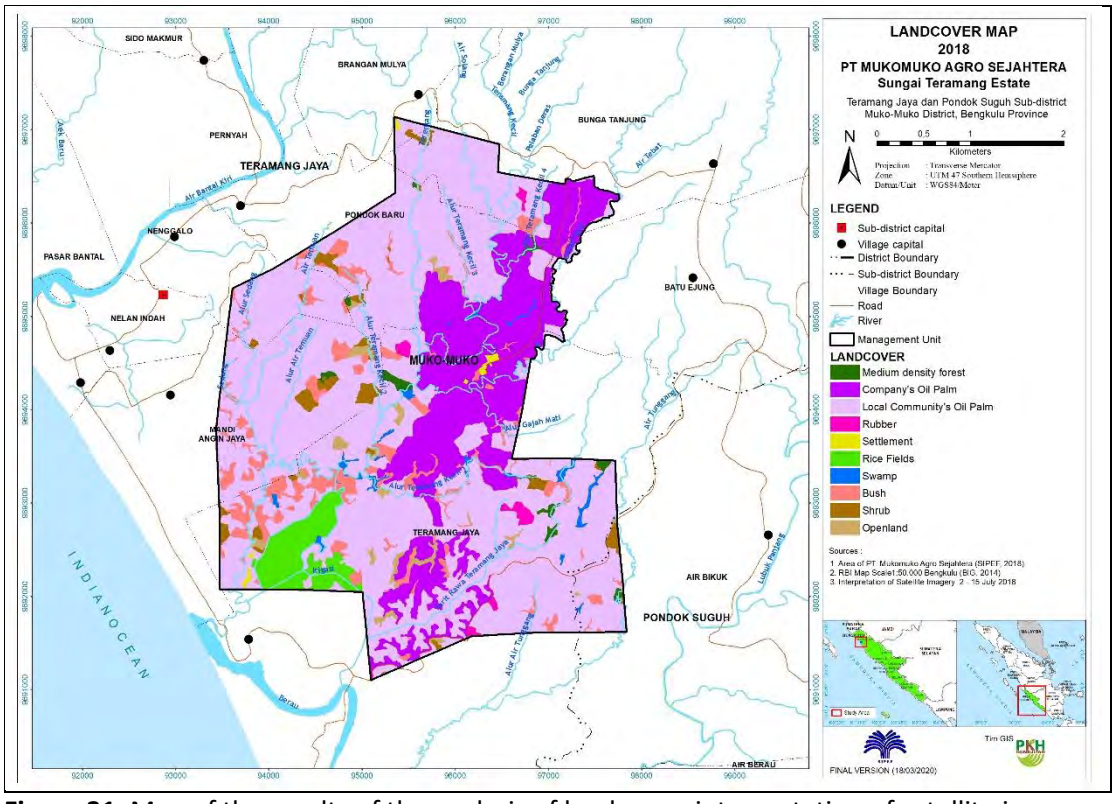


Figure 31. Map of the results of the analysis of land cover interpretation of satellite imagery in 2018

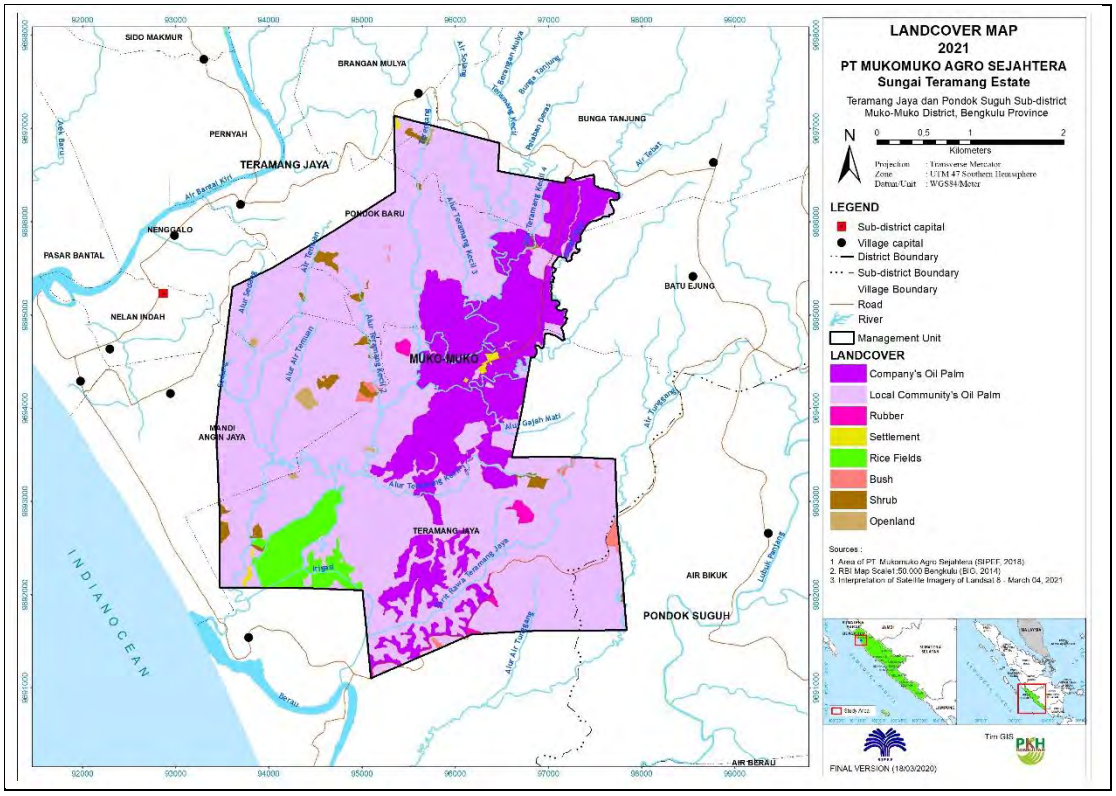


Figure 32. Map of the results of the analysis of land cover interpretation of satellite imagery in 2021

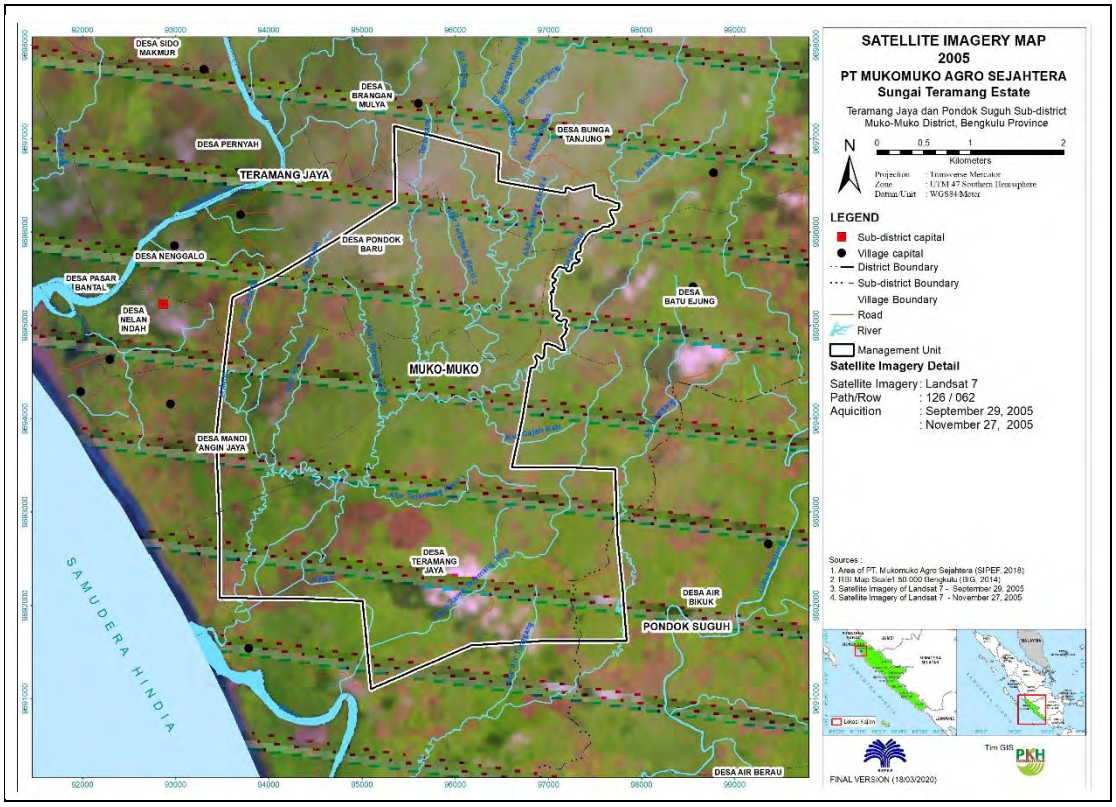


Figure 33. Map of the satellite imagery in 2005

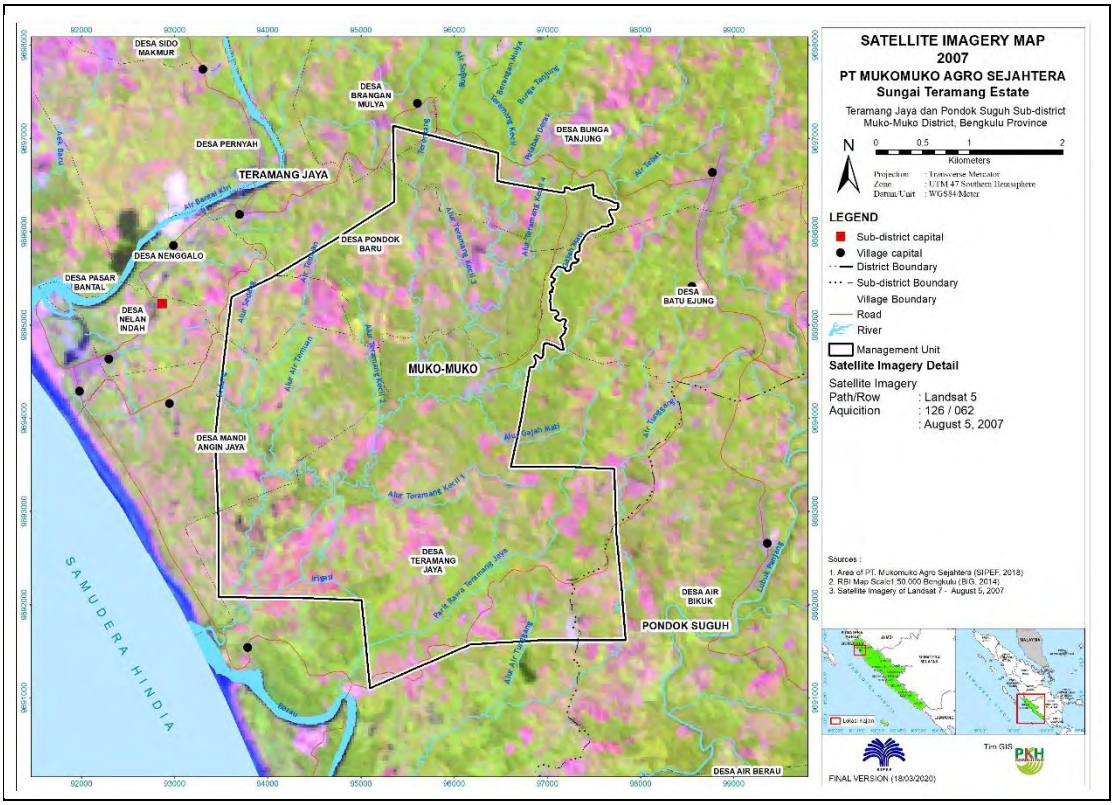


Figure 34. Map of the satellite imagery in 2007

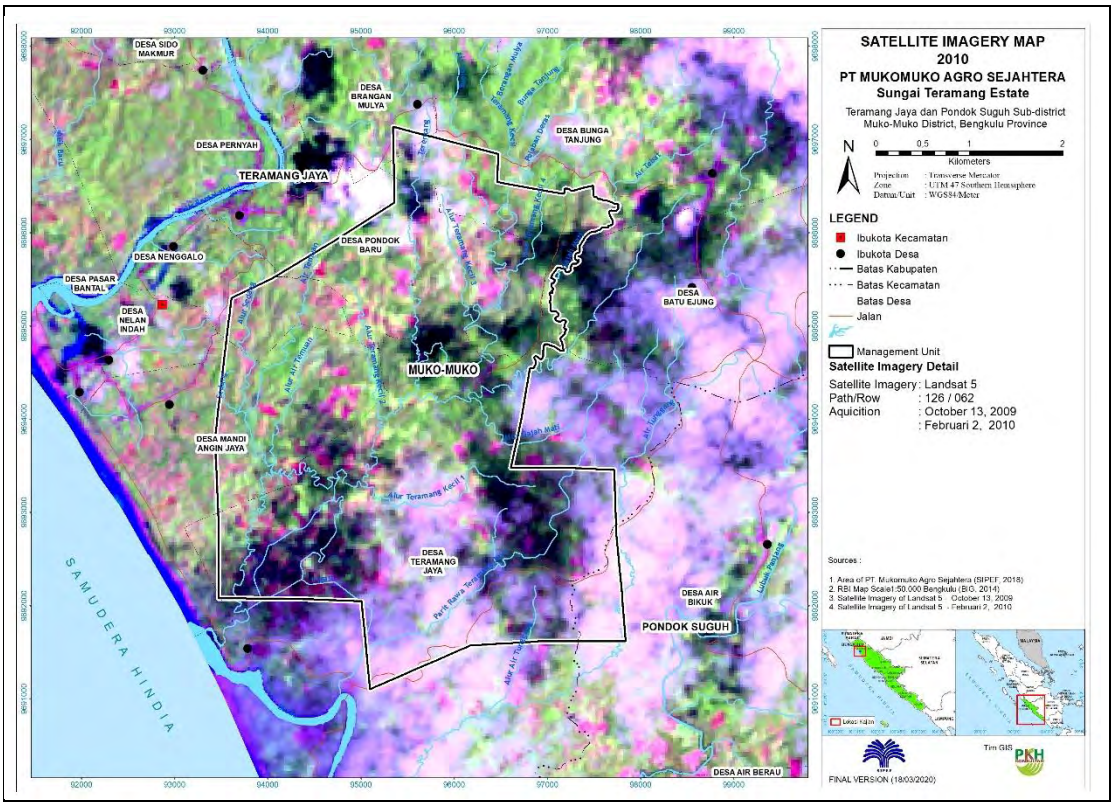


Figure 35. Map of the satellite imagery in 2010

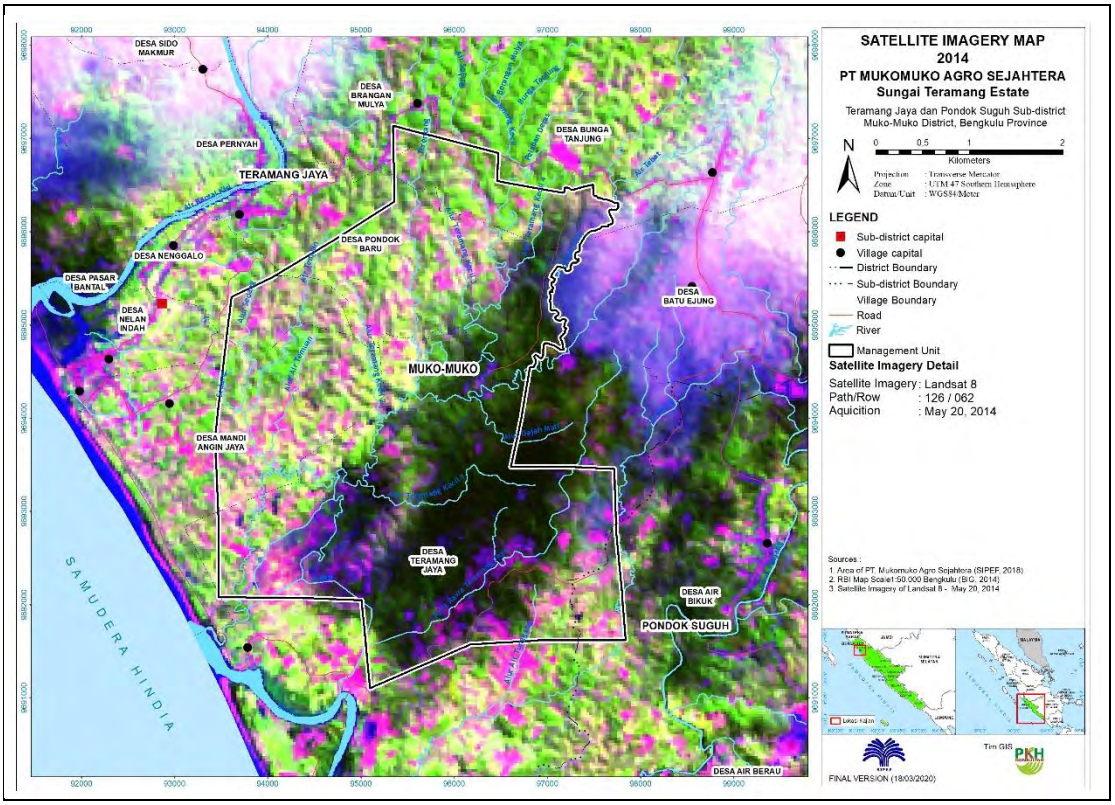


Figure 36. Map of the satellite imagery in 2014

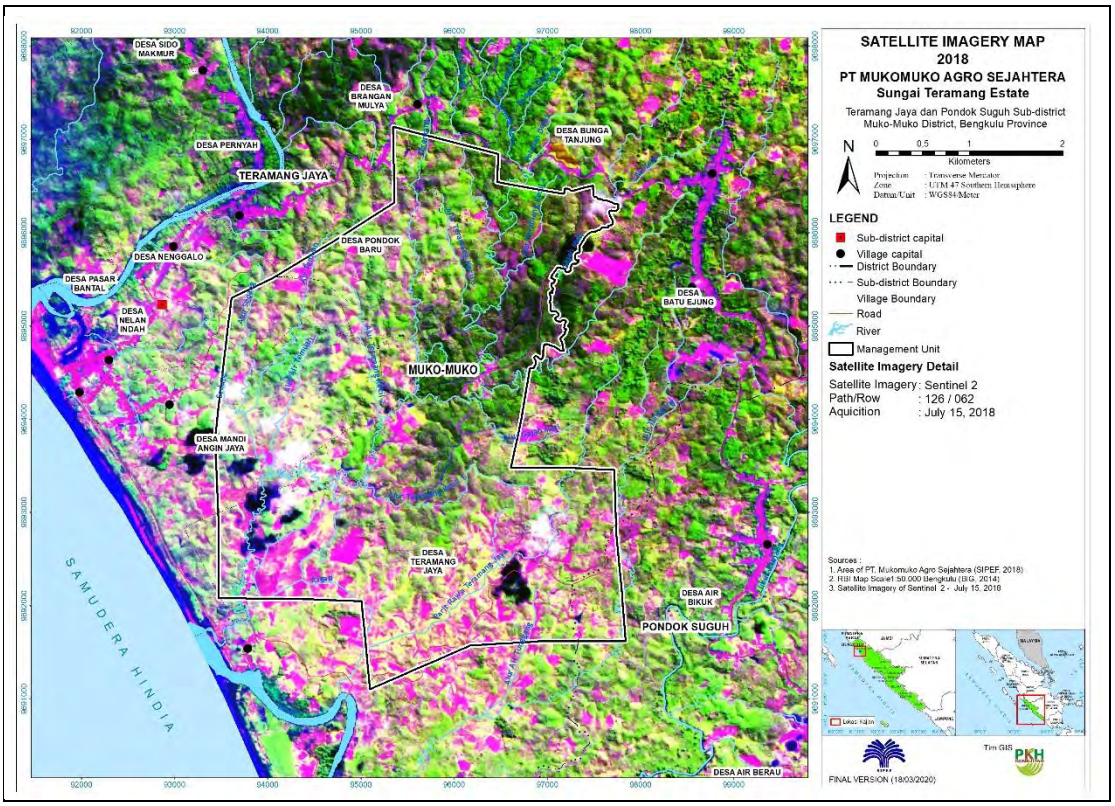


Figure 37. Map of the satellite imagery in 2018

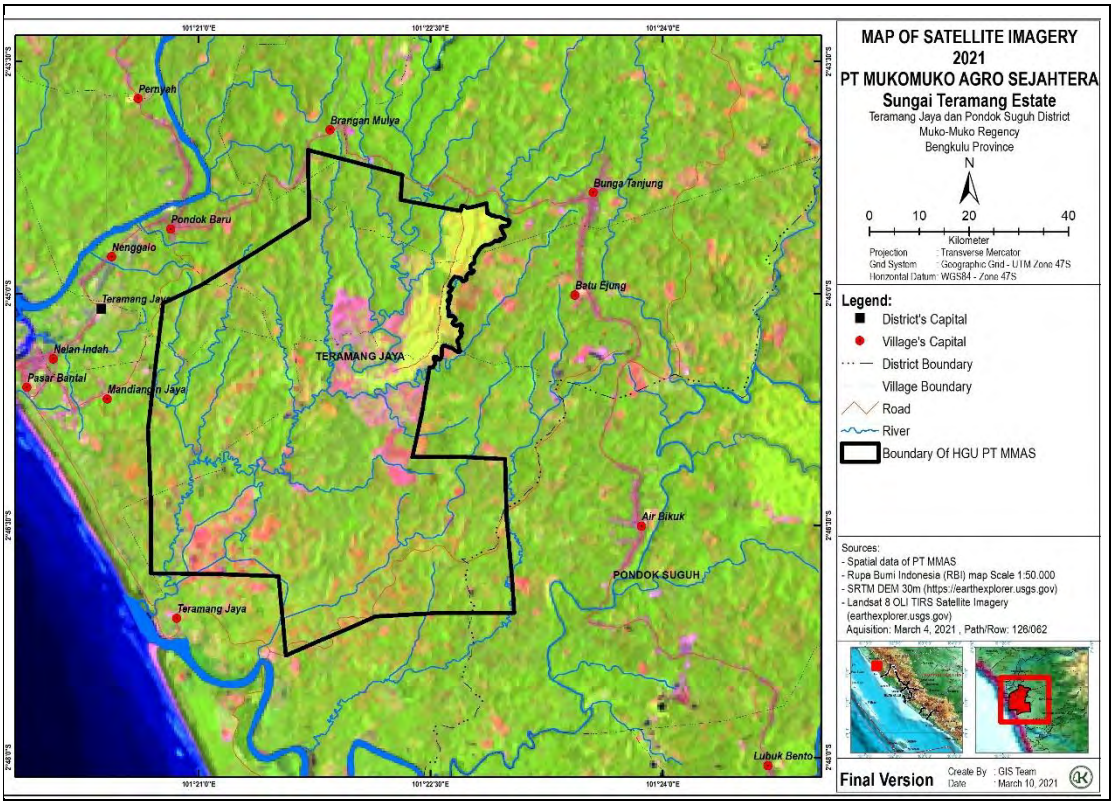


Figure 38. Map of the satellite imagery in 2021

3.6. Community Engagement and FPIC Process Findings and Results

PT MMAS carried out a takeover of the study area (HGU Sei Teramang Estate) in 2018, and has carried out a series of activities on oil palm plantation development through FPIC principles, such as: having carried out a series of formal and informal initial socialisation processes by assigning internal Company staff to several important relevant stakeholders at the Regional, District and Village Government levels. The purpose of the socialisation was to provide information on the takeover process of the study area and the oil palm plantation management plan. A series of follow-up socialisations were conducted by PT MMAS on the study area, namely (1) Mapping community lands (land tenure), (2) Socialising HCV studies, (3) Socialising SIA studies), and (4) Socialising the High Carbon Stock Approach (HCSA) assessment.

Other activities that have been and are ongoing are related to the harmonious relationship between PT MMAS and surrounding villages, namely the development of plasma plantations and the absorption of local labour. Since obtaining the HGU permit, PT Asririmba Wirabhakti had only been able to plant around 354.48 ha, and the rest was planted by the community. After the takeover process was carried out, PT MMAS offered cooperation for the community's oil palm plantation area through a partnership scheme. PT MMAS has conducted outreach on the partnership scheme to each land owner and farmer management, carried out in a non-formal, “door-to-door” manner.

Findings regarding land tenure

PT MMAS has conducted land tenure mapping in the study area. The purpose of community land mapping is to identify and record land owners and land uses. It is considered important

to determine with whom the FPIC process must be carried out so that agreement is reached. Mapping of land tenure has been done covering an area of 1,400 ha, on 720 community land plots from 15 villages around the study area. In addition, PT MMAS also prepared a questionnaire to find out the response and condition of community gardens in the study area.

The land tenure study is conducted with land owners, using a “door-to-door” socialisation process in the study area according to the principle of FPIC (without coercion). PT MMAS will follow up on communities who apply for and give permission for land mapping. Community land mapping is carried out by measuring the area of land in the field accompanied by the land owners, village teams, Company teams and neighbouring land owners to provide an explanation of the land boundaries. The results of the mapping of community lands, the response to the plasma plan, and the condition of the community oil palm plantations are presented in **Figures 39 – Figure 41**

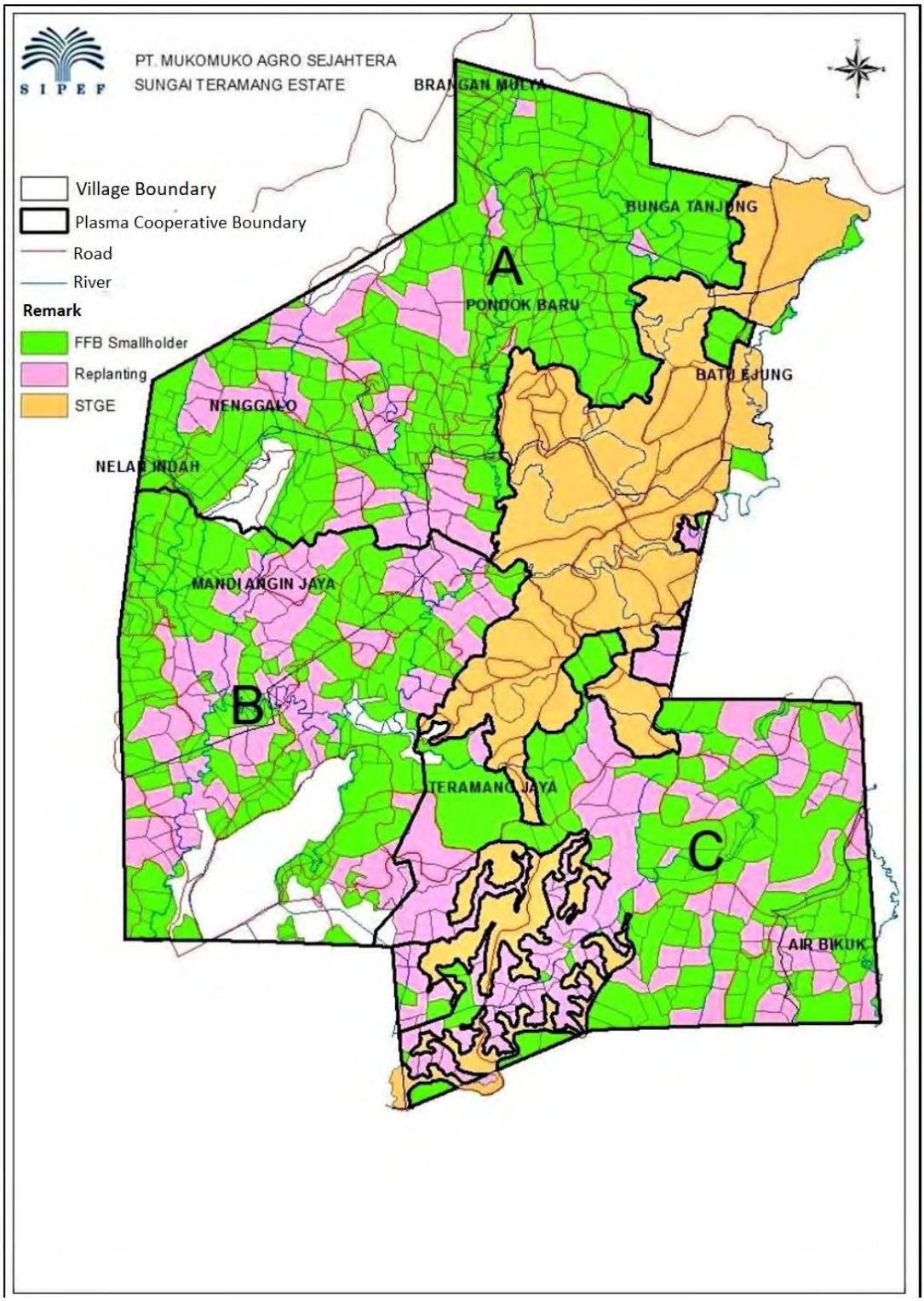


Figure 39. Map of community land mapping and partnership scheme program plan

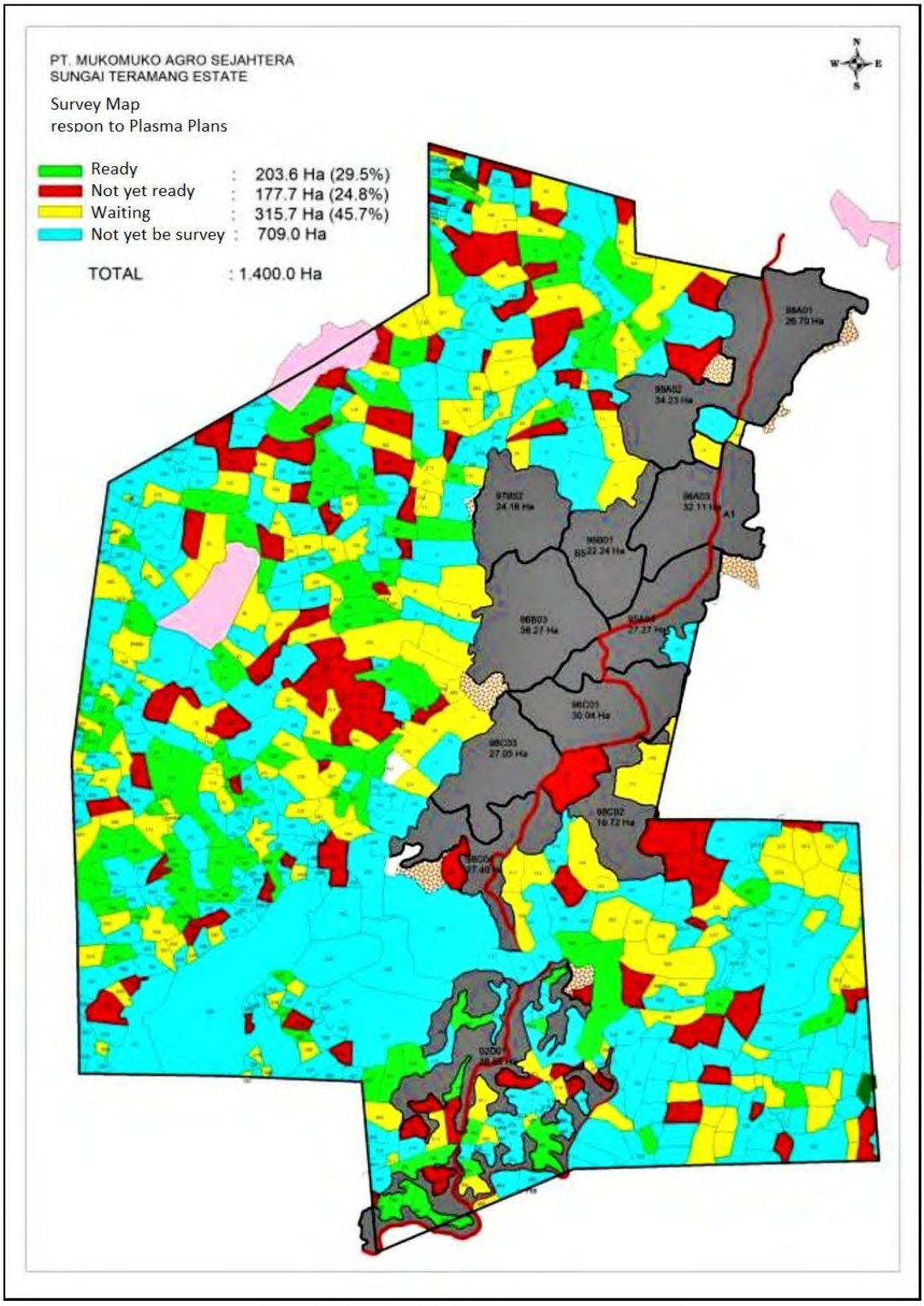


Figure 40. Map of community response to the partnership scheme program plan

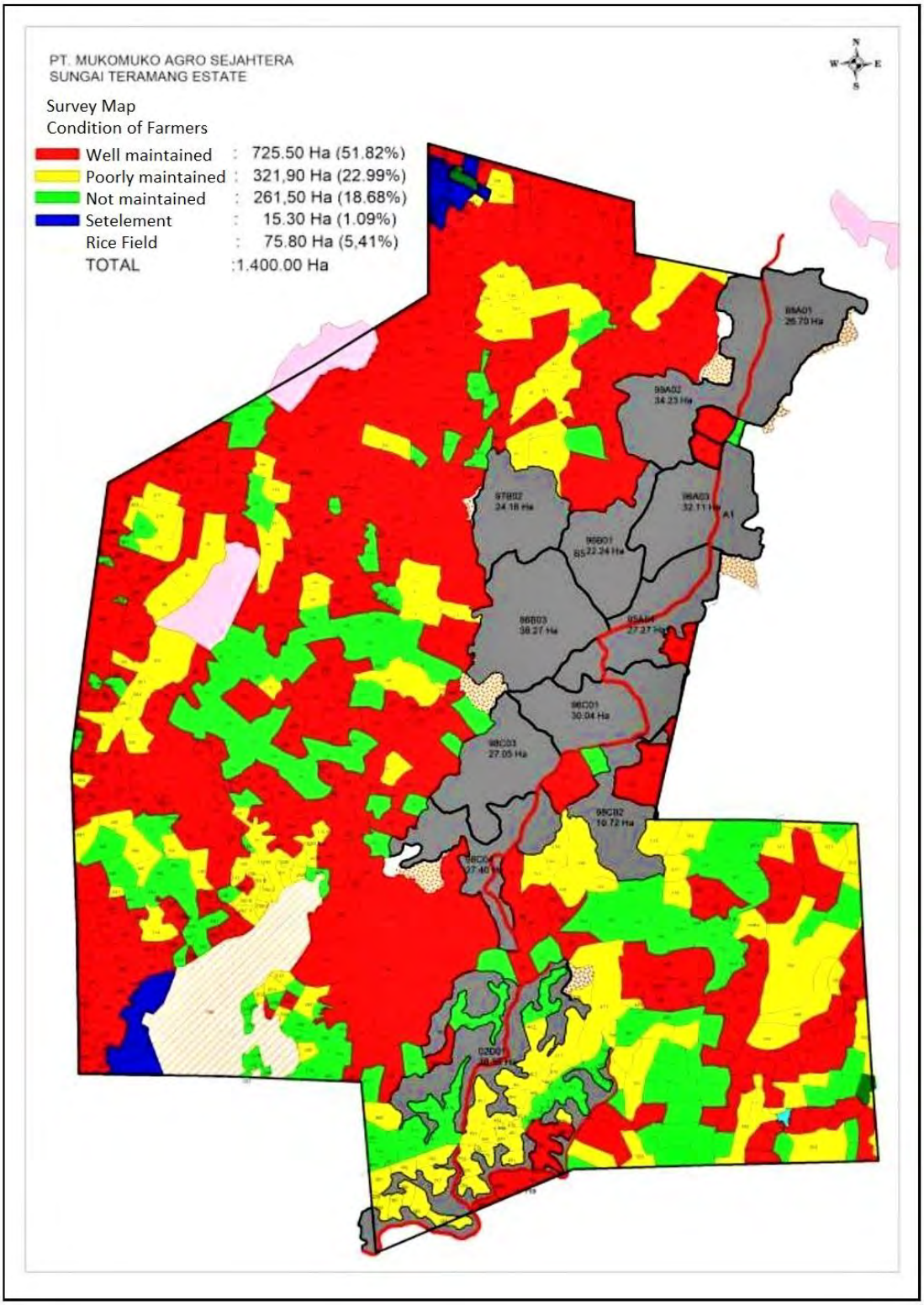


Figure 41. Map of the condition of community oil palm plantations in the study area

FPIC process prior to assessment activities

PT MMAS has carried out a series of outreach, starting at the sub-district and village levels, regarding information on the takeover osf the study area and plans for the partnership scheme program. Furthermore, socialisation was carried out at the community/land

owner/farmer management level. PT MMAS has conducted an HCV, an SIA study, and updated the RKL and RPL. All studies and activities are socialised to the public. The socialisation of the HCV and SIA studies was conducted on September 13-14 2018 and July 9 2019 at the sub-district and village levels.

Description of community engagement activities and participatory mapping

The socialisation and licensing activities regarding the takeover of the HGU area and the consequences and options, as well as the socialisation of the HCV and HCSA assessments, have been carried out by PT MMAS. Permission has been received from the village head who was appointed as the community representative. This is evidence that the principles of FPIC in conducting HCV and HCSA assessments have been met. The HCV and HCSA assessment teams have verified and confirmed to the village head and the community the socialisation and licensing of the HCV and HCSA assessments conducted by PT MMAS. During verification and confirmation, the assessment team also asked for community involvement in the HCV and HCSA assessments in the study area. Several villages sent representatives to be involved in these assessments.

The results of interviews, participatory mapping, and field checks identified that the community's land was managed mainly with land cover in the form of oil palm and rice fields, while unmanaged land was covered with forested land, scrub (former fields), scrub (areas to be planted with oil palm), and the PT MMAS oil palm plantation. The results of participatory mapping and the area of land used by the community are presented in **Figure 42** and **Table 36**.

Table 36. Extent and classification of community lands in the study area

Land cover	Number of Hectares	% of total concession
Palm oil plantations (community)	1,271.8	95.4%
Rice fields	61.9	4.6%
Total	**1,333.7**	**85.4%**

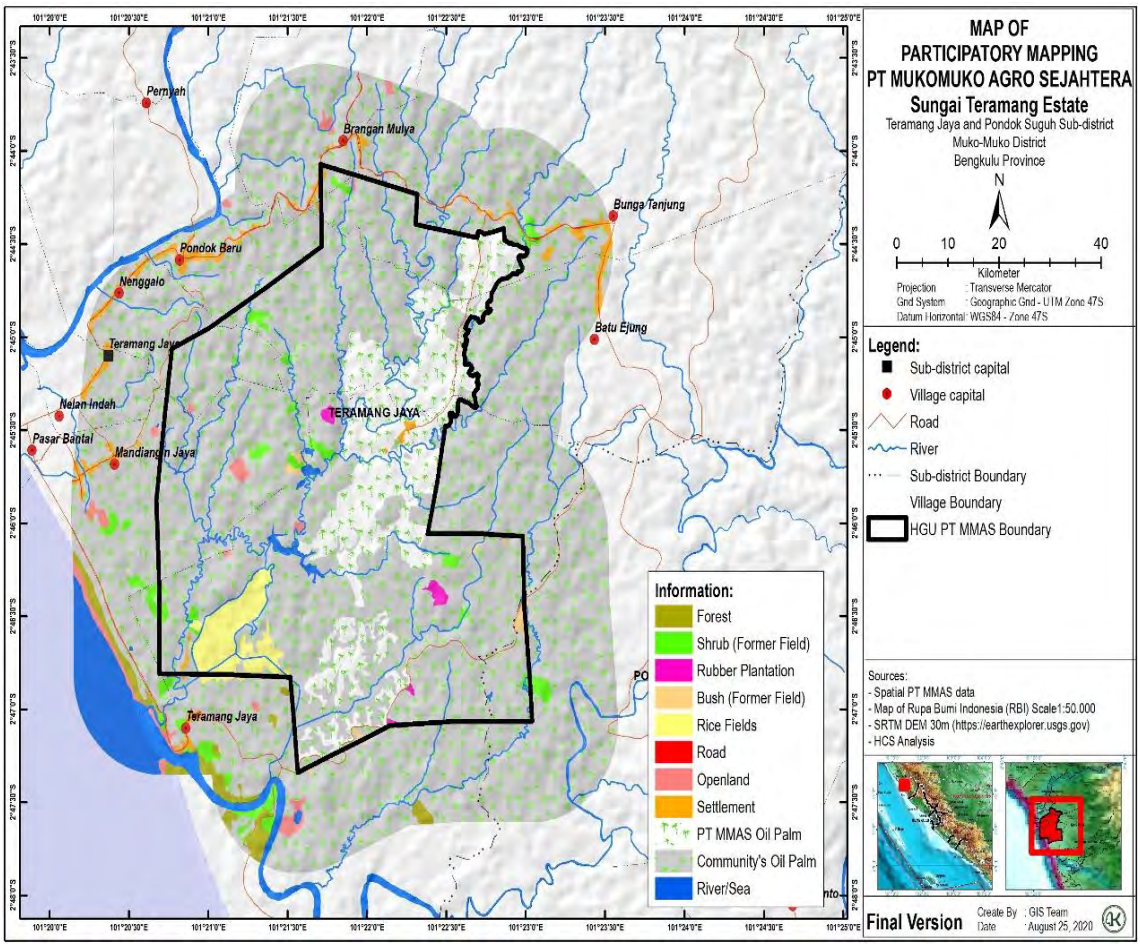


Figure 42. Map of the results of participatory mapping in the villages and sub-districts around the study area

Summary of findings from the community engagement and FPIC processes

Verification of the fulfilment of FPIC principles is carried out in two stages, namely examining company documents (document review) regarding socialisation and land acquisition plans and interviews as well as FGDs with communities and village/kelurahan and government agencies. Below is a brief description of the results of the verification process on the fulfilment of FPIC principles.

Free - refers to checking and ensuring that the will of the community to release or not release the land they cultivate is completely voluntary. In interviews and FGDs, the community stated that they had never received coercion, threats, intimidation, seduction or lures from PT MMAS STGE or other parties in the process of socialisation and land acquisition.

Communities are given the freedom to make choices, whether to release their cultivated land for oil palm plantation development or not. It can be concluded that the socialisation conducted by PT MMAS STGE fulfils the Free element of FPIC.

Prior - refers to checking and ensuring that PT MMAS STGE conducts outreach and asks for permission from the local community before starting its operational activities.

The following is a series of activities that have been carried out by PT MMAS STGE before starting the process of land acquisition and plantation development, namely (i) conducting socialisation at the district level, (ii) conducting socialisation at the village level, (iii) taking a personal approach to requesting permission from the community villages accompanied by the village team, (iv) conducting public consultations on HCV, HCSA and UKL/UPL (AMDAL), and (v) organising formal socialisation to which all interested parties are invited. It can be concluded that the socialisation process by PT MMAS STGE has fulfilled the Prior element of FPIC.

Informed (Getting enough information) - refers to checking and ensuring what information the Company has conveyed to the local community in the socialisation activities that have been carried out so far, and assessing whether the information is complete, objective and accurate so that it can be taken into consideration for the community to be able to make good decisions.

The submission of information by PT MMAS STGE is carried out in both formal and informal ways. Through the village government, the Company officially invited the community to attend a meeting to explain the plantation development plan, including the land acquisition procedure (GRTT). Non-formal socialisation was delivered through the door-to-door visits of the PT MMAS STGE teams to villages that had land to be released as nucleus plantations. It can be concluded that the socialisation process carried out by PT MMAS STGE has fulfilled the informed element of FPIC.

Consent (Decision of acceptance or refusal) - refers to checking and ensuring that the community expresses their consent or refusal to release land to PT MMAS STGE to be developed into an oil palm plantation, based on sufficient knowledge of the possible risks to be faced and the benefits that will be received.

During the socialisation, PT MMAS STGE gave the land owners/cultivators freedom to decide whether to release their land or not. The community basically agreed to the presence of the Company, and was willing to release the land according to the negotiations between PT MMAS STGE and the community. Those who released their land have received compensation at the value agreed by PT MMAS STGE and the community. Meanwhile, for people who are refusing to release their land because negotiations have not been completed, PT MMAS STGE will respect their decision. PT MMAS STGE provides access for the community to enter and leave their gardens. Until this activity was carried out, PT MMAS STGE was still continuing the process of approach, outreach and negotiation. It can be concluded that the socialisation process by PT MMAS STGE has fulfilled the Consent element of FPIC.

Socialisation and FPIC permits related to the implementation of the HCSA and HCV assessments have been carried out by PT MMAS STGE have been given approval by the communities. The assessment team has verified and confirmed the permits with the communities. This is done in order to ensure that the communities around the study area truly understand and agree with the series of stages of the HCSA and HCV assessments conducted by the assessment team.

4. SUMMARY OF MANAGEMENT PLAN

4.1. Team Responsible for Development Plans

PT MMAS STGE under the management and policies of the SIPEF group is committed to carrying out management and monitoring functions of this new plantation development plan, following the provisions of the RSPO Principles and Criteria. This is stated in the "SIPEF RESPONSIBLE PLANTATIONS POLICY" which states: "*Responsible development of new operations*" or responsible new plantation development, will be subject to an HCV assessment procedure prior to the FPIC process with affected communities, and following the RSPO NPP. Then it is regulated in the SOP on New Development Areas which contains land clearing procedures, starting from obtaining an HGU permit to the land clearing stage.

The team that is responsible for managing and monitoring the impact of the activities of opening new planting at PT MMAS STGE can be seen in **Figure 43**.

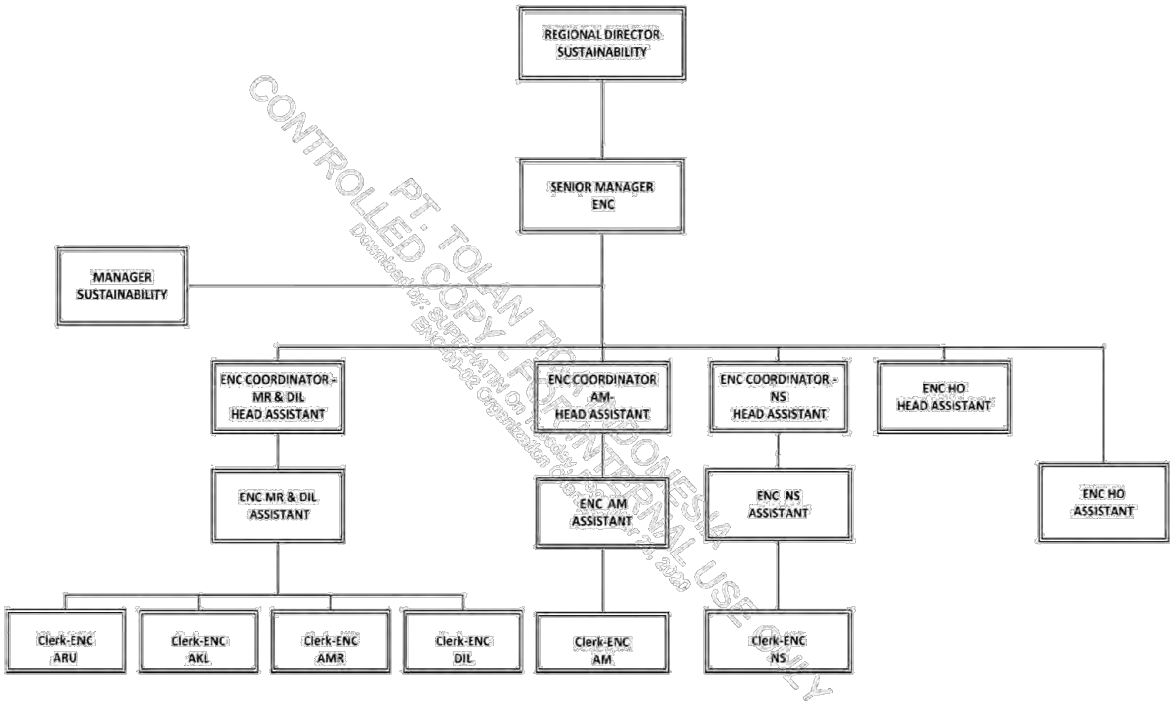


Figure 43. The team responsible for the management and monitoring of new planting development at PT MMAS STGE

4.2. Social and Environmental Management Plan (SEIA Management Plan)

The Social Management and Monitoring Plan is made based on the results of the identification of the SIA; recommendations for social management and monitoring by the Company are presented in **Table 37**. Meanwhile, environmental impact management as stated in the RKL-RPL document is presented in **Table 38**. In accordance with the adaptive social nature of management principles, all management recommendations must come from the various parties involved in the management of the area where the Company is located.

Table 37. Matrix of Management and Monitoring Plan for External Communities Around PT MMAS STGE Plantation

No.	Social Issue	Current Status	Recommendation	Output
1	The poor relationship between PT Asri Rimba and related agencies	PT Asri Rimba was very bad at government administration in terms of the development process of the company. The new government knew PT Asri Rimba's management and said that all ex-employees of PT Asri Rimba Wirabhakti (ARW) were being received by PT Muko Muko Agro Sejahtera (MMAS) between PT ARW and PT MMAS, but only 3 people resigned to join PT MMAS and made statements regarding this employment.	PT MMAS then must coordinate continuously with important stakeholders, namely the central government, village government and other instruments, so that the takeover process runs optimally.	The related department welcomed the takeover by PT MMAS because in terms of the administrative process in the SIPEF group subsidiary companies it seemed very good. In addition, the SIPEF group encourages the economy in related villages.
2	The Takeover of the PT Asri Rimba HGU permit	The location permit of PT Asri Rimba, which has been taken over by PT Muko Muko Agro Sejahtra, has caused various dilemmas that are affecting the surrounding community, because they cannot make their land certificates which are included in the PT Asri Rimba HGU which is in the BPN HGU covering an area of 1770 ha, even though the area purchased in the takeover by PT MMAS is only 371 ha. The residents asked the Company to issue HGU on the community land. The local community appreciates that the area being managed is only 371 ha, and the area outside must be removed from the HGU. The community asked the Company to assist in making certificates for the land outside the 371 ha.	In order to disseminate information about the problem of land taken over by the Company, it must be continued so that there is no miscommunication between the village and other parties, because PT MMAS only manages 371 ha of land, not 1770 ha in total. The community's fear about the land takeover by PT MMAS is not true. The existing programs by PT MMAS are immediately disseminated to the public both in terms of buying and selling, and regarding the plasma scheme. For the issue of making community certificates, it is also necessary to disseminate information to the public because the certificates are related to the government, namely BPN.	The community welcomed the takeover carried out by PT MMAS.
3	Overlapping Tax Payment Process	The process of paying taxes by the Company and the community is still ongoing until now in the HGU of PT Asri Rimba's BPN covering an area of 1770 ha.	There needs to be firmness from the Management of PT MMAS regarding the payment of taxes covering an area of 1770 ha to BPN, because in this case double payment is happening, from both the public and the Company.	Payment of these taxes should be done by the party that must be responsible.

No.	Social Issue	Current Status	Recommendation	Output
4	Allocation and capacity building of staff/PIC for social and environmental issues.	It is still necessary to allocate social and environmental staff as PICs who handle these issues specifically and intensively and have adequate capacity.	Recruit and allocate staff as PICs, and provide opportunities to increase their capacity by participating in training and carrying out their duties specifically for social and environmental issues.	The Company has adequate social and environmental specialized PIC staff who can support the operation of sustainable oil palm plantation development.

Table 38. Matrix of Environmental Management and Monitoring Plan for the Merger of PT MMAS Oil Palm Plantations

Environmental Impact managed	Source of Impact	Environmental Management Period	Monitoring Time and Frequency
Increased Soil Erosion	Land clearing which changes the land cover vegetation factor (C). Road construction, supporting facilities construction activities and land preparation activities change the factors of slope (S) and slope length (L). Nursing, planting primary crops, and maintaining full yielding plants (TBM) and cultivating yielding plants (TM) change the soil cover vegetation factor (C) and the specific soil conservation action factor (P). The above factors make up the modifying factors for erosion in the plantation environment.	Erosion and sedimentation control structures were built during the construction phase and their maintenance was continued during the oil palm operation stage.	Monitoring of erosion, land cover crops, areas of > 40% slope, conditions of waterways and soil particle deposition ponds in oil palm plantations are carried out at the end of the rainy season and at the end of the summer each year. It is necessary to record rainfall as supporting data.
Decreasing Water Quality	1. Rainwater runoff, whose volume increases and carries soil particles eroded due to land clearing activities, road construction, construction of supporting facilities, land preparation, nurseries, planting of main crops, maintenance of immature plants and mature plants, has high turbidity with high amounts of suspended solids (TSS) and water dissolved solids (TDS) 2. Domestic wastewater generated from oil palm plantation employee settlements. This water is predicted to have	At the construction stage and continued at the oil palm plantation operation stage.	Monitoring starts at the operation stage with a frequency of once a year.

Environmental Impact managed	Source of Impact	Environmental Management Period	Monitoring Time and Frequency
	suspended solids, dissolved solids, high BOD5 and COD with substantial oil and fat content, with a potential of 150 liters per employee per day. 3. Wastewater treatment equipment (workshop) for oil palm plantations. This water is predicted to have high suspended solids and dissolved solids with a sizable oil content originating from workshops and equipment maintenance.		
Decreased Soil Fertility	1. Soil erosion due to land clearing, maintenance of immature plants (TBM), maintenance of mature plants (TM), cleaning and structuring of plantation land and repairing garden roads. 2. Harvesting the fresh fruit bunches (FFB) of oil palm is estimated to also reduce soil fertility due to the presence of nutrients such as N, P and Mg. 3. Hazardous waste that is generated during the maintenance of immature plants (TBM) and mature plants (TM).	Starting at the construction stage (immature plant maintenance) and continuing at the plantation operation stage, especially in the maintenance of productive plants.	River water quality monitoring is carried out from the pre-construction stage and continues at the construction and operation stages of oil palm plantations. Monitoring frequency is every 6 months.
Vegetation Change	The source of the impact of vegetation change comes from activities to clear land for road construction, construction of supporting facilities, preparation of garden land, nurseries, planting of main crops, maintenance of immature plants (TBM) and cultivation of mature plants (TM).	Management begins at the plantation construction stage and maintenance continues at the operational stage. Especially for the socialization activities carried out at the preparation/construction stage of oil palm plantations.	Monitoring of vegetation structure and diversity is carried out once a year at the end of each dry season. Monitoring the continuity of land clearing activities (vegetation clearance) with oil palm planting activities is carried out once a year at the end of the calendar year.
Wildlife Disturbance	The impact on wildlife is an indirect impact that is negative in nature, originating from changes in vegetation as a foraging habitat, protected habitat and habitat for breeding of wild animals. Secondary forest/scrub as wildlife habitat will be lost from cover vegetation over an area of 6,298 ha due to land clearing activities.	The wildlife management period starts from the pre-construction, and continues in the construction and operation stages.	Monitoring of wildlife is carried out at the pre-construction stage, during garden construction and continues annually at the operation stage.

Environmental Impact managed	Source of Impact	Environmental Management Period	Monitoring Time and Frequency
Disturbance of Water Biota	The negative impacts of water biota originate from indirect (secondary) impacts, due to changes in the water quality of the Air Majunto, Air Tenang, Air Sangkilm, Air Ipuh, Air Buluh and Air Hitam rivers.	The management period starts at the plantation construction stage and continues at the oil palm plantation operation stage.	Water biota monitoring is carried out starting at the construction stage and continuing during plantation operations. Monitoring frequency is carried out every 6 months.
Opening up job opportunities	In the pre-construction stage, the activities come from recruiting workers for land clearing, mobilizing tools and materials. In terms of construction resistance, it comes from the activities of recruiting workers for road construction activities, building supporting facilities, preparing plantation land, nurseries, planting main crops and maintaining immature plants. In the operation phase, the sources come from the activity of recruiting workers for the operation of supporting facilities, harvesting and transporting plantation products.	Management is carried out at the construction stage and then continued at the operational production stage.	This monitoring is carried out from the pre-construction stage and continued at the construction stage and the PT MMAS oil palm plantation operation stage, with a monitoring frequency of once a year.
Increase in Community Income	PT MMAS oil palm plantation activities have a direct impact on community income as employees of PT MMAS oil palm plantations, administrators and members of PT MMAS plasma plantation cooperatives, and payment for materials and services for construction and maintenance of plantation infrastructure.	Management is carried out at the pre-construction stage and continues at the construction and operations stages of oil palm plantations.	Monitoring starts at the pre-construction stage and continues during the construction phase and the operation stage with a monitoring frequency of once every year.
The emergence of social conflict	Sources of the social conflicts that become negative perceptions for the community are: 1. Activities to acquire core land that do not have an agreement with the owner or the owner's heirs; 2. PT MMAS oil palm plasma plantation activities that are not unanimously agreed upon by the community, specifically the land ownership system, transparency in plantation operational costs and the percentage of plantation yield sharing;	The implementation of environmental management is carried out at the pre-construction and construction stages, and continued at the operations stage.	Monitoring is carried out starting from the pre-construction stage and continuing during the operations stage of the PT MMAS oil palm plantation, with a frequency of monitoring once every year.

Environmental Impact managed	Source of Impact	Environmental Management Period	Monitoring Time and Frequency
	3. Labour recruitment activities are predicted to be less open and less pro-local; 4. The decline in the quality of river water that is used by the community for bathing, washing and latrines, due to running water which carries eroded soil particles, residual fertilizers and pesticides, due to land clearing activities, road construction, construction of supporting facilities, land preparation, nurseries, planting of main crops, plant maintenance, operation of supporting facilities, harvesting, and transportation of garden products; 5. Misunderstanding of the concept of cooperation between cooperatives and PT MMAS; 6. Damaged or closed roads or community accessibility to the social and economic environment.		
Decline in Public Health	The impact of health status comes indirectly due to decreased environmental sanitation, which results from a decrease in the quality of water originating from five plantation employee settlements and waste water runoff from oil palm plantations which carries eroded soil particles, fertilizer residue, and pesticides from plantation maintenance activities. The risk of work accidents is due to heavy equipment mobilization activities, plantation transportation vehicles, oil palm harvesters and plantation maintenance of both immature and mature plants, also changes in the prevalence of disease in the environment.	The management of community health impacts starts at the pre-construction stage and is implemented during the construction and operation stages of oil palm plantations.	Monitoring time is carried from the construction stage and continues during the operational stage of PT MMAS's oil palm plantations, with a frequency of once every year.

4.3. HCV and HCS Management and Monitoring Plans

Management and Monitoring Plans for HCV and HCS areas are intended to provide general guidance to management units in implementing threat protection, maintaining and strengthening the function of HCV and/or HCS areas.

An HCV Management Plan and Monitoring Plan will also be implemented immediately by considering: (a) Aspects of species protection, including managing conflicts between animals and humans, creating corridors between fragmented habitats, and enriching habitats, (b) Strengthening communication links with neighbouring companies to develop management plans and action plans for HCV protection and (c) Involving local communities, because the interests and benefits of the presence of HCV are in the interests of and benefit all parties.

In line with the management of HCV, companies need to build an institutional/management unit by training or recruiting staff with the necessary qualifications to ensure the achievement of HCV management objectives. Strengthening staff capacity in management identification, monitoring and evaluation, among others entails: (a) Monitoring training, for example the basics of animal identification, water quality measurement, stakeholder engagement and implementation of procedures and policies already available in the Company.

Threat assessment is carried out by applying the IUCN Threat Classification Scheme approach (based on Salafsky et al., 2008). **Table 39** provides a summary of the results of the threat assessment to conservation value.

Table 39. Summary of threats assessment to conservation value in the HGU STG Estate, PT MMAS

Conservation Value	Summary of significance values in the HGU Area	Main Threat
HCV 1	Population of endemic fauna and flora species or RTE species	Hunting the remaining animals
		Water runoff carries agrochemical residues
		Logging and cutting of remaining trees and loss of connectivity with potential habitats outside of the identified area
		Decrease in the quality and quantity of the remaining area of the existing habitat due to poor cultivation by converting boundaries to cultivated areas
		Land fires and microclimate
	The potential for the Sun Bear home range, although not found	Conflict with the remaining wild animals which has a detrimental impact on all parties
HCV 4	Basic environmental services related to the management of water contained in streams, tributaries and river channels and their boundaries	Decrease in water quality due to contamination from agrochemical residues
		Conversion / land clearing at river boundaries, tributaries and river channels
HCV 5	The existence of rivers as a source of water and a place to find fish	Decreasing water quality due to contamination from agrochemical residues
		Decreasing water quality due to household waste and plastic waste
		Conversion / clearing of land at river boundaries
		Construction / repair of ditches and canals

Management and monitoring recommendations that need to be considered in preparing a complete Management and Monitoring Plan document for identified HCVs are presented in **Table 40**.

Table 40. HCV Management and Monitoring Plan in the HGU STG Estate, PT MMAS

HCV	Threats	Management Recommendations	Monitoring Recommendations	PIC
1	• Reduced animal population due to hunting • Fragmented animal habitat • Land fires, • Reduced habitat quality	• Reducing chance for animal hunting and preparing alternatives to meet the needs of the community / workers Maintaining river boundaries as corridors so that the habitat is not fragmented • Maintaining the integrity of the habitat, among others by establishing HCV areas and routine security patrols • Establish an environmental team, especially from the local community and training provision, including efforts to manage wildlife conflicts and fire management • Install fire control towers	• Regular monitoring in every 3 months to presence of animal species. • Record any incidents of hunting, damage or reduction in habitat area and fires (at least once in a week).	ENC team and Estate Manager
4	Riparian river buffers conversion	• Regular socialization to the surrounding community regarding the boundaries of the HCV area and the important functions of the HCV • Collaboration and cooperation with the community, government (from village to regional level), and NGOs in relation to river conservation and protection programs • Socialization and assistance to Land clearing contractors regarding the boundaries of HCV areas to avoid over-clearing • Restore and enrichment the riverbanks with natural vegetation include for existing palm oil on the riverbanks	• Documentation of outreach activities with relevant stakeholders • Monitoring the boundaries and extent of HCV areas regularly. • Documenting the land clearing process	ENC team and Estate Manager
	Occupation on rivers riparian buffer for production and disposal of production facility waste	• Installation of a sign board to restrict or prohibit the application of chemicals in riparian areas (river boundaries) and to socialize agrochemical applications to spraying employees • Restore and enrichment the	• Measure the sedimentation rate at the water quality monitoring location • Check water quality regularly (at least every 6	ENC team and Estate Manager

		riverbanks with natural vegetation • Implementing land-based soil and water conservation activities, such as making 'rorak' or terraces (if needed) • Application of best practice management to maintain water quality such as: maintaining river boundaries, not conducting spraying / fertilizing activities near river areas / water bodies. • Making of Water point and cover crop to minimize erosion	months) at water monitoring points (river inlets), both visually and in laboratory tests	
	River boundaries damage	• Vegetation enrichment on the riverbanks and degraded steep areas (enrichment with native tree species and / or those with deep and strong roots and thick canopy is recommended) • Strengthening steep river boundaries prone to landslides using civil (short term) and vegetative (long term) technical approaches. • Maintaining the integrity of all areas through area gazetting and routine security patrols. • Make clear marking of HCV area boundaries and accompany land clearing contractors when there is land clearing	• Monitor the growth of the enrichment area (% growth) • Record the number of high landslide or erosion locations • Carry out regular patrols • Monitor boundaries and extent of HCV areas, especially during land clearing. • Documenting the land clearing process	ENC team and Estate Manager
5	Waste and household waste degrades river water quality	• Encourage internal village parties to make 'village rules' or village laws on the use and maintenance of rivers. • Encourage village internal parties and companies around the village to form a monitoring team for commensurate areas and river flows.	• Carry out regular patrols • Measure river water quality	ENC team and Estate Manager
Local Community Land - Development of Community Plantation Scheme (Kebun Masyarakat Desa / KMD)		• Encouraging increased capacity of potential human resources from village residents to take part in KMD • Encourage villages to developed active KMD organizations and administrators	• Monitor KMD operations on a regular basis • Documenting the results of routine monitoring as material for improvement in	Estate Manager

	• Routinely hold meetings and in-house training related to KMD management and management • Strive to make internal annual reports for KMD management in each village • Accompanying the internal inspection process by the Audit Board of the KMD organization	every routine meeting	
Community Plantation Scheme within the HGU area. • Management of community farms within the HGU, which will have a negative impact on environmental management at the AOI area level. • Opening opportunities for partnerships with farmers with options according to company experience	• Continue intensive outreach directly to community groups at the hamlet level until a decision is made for partnership options with community oil palm farms within the HGU area • Opening dialogues, information sharing and discussions with village key stakeholders by inviting them to visit company partnership programs in other plantations by preparing external key stakeholders who have felt the success of programs from the SIPEF Group	• Monitor the progress of the socialization process and review the wishes of the community so that it is in line with company programs. • Documenting all socialization processes properly.	Estate Manager

Cross-cutting Recommendations

Management and monitoring of HCV requires collaboration of stakeholders from internal PT MMAS management or at the SIPEF Group level, the local government with related agencies and village institutions and their communities as well as with other parties at the wider landscape level involved. Strengthening the capacity and mentoring related stakeholders are the priority topic in the management and monitoring of conservation areas. **Table 41** presents the management intervention across sectors.

Table 41. Cross-cutting recommendations

Establishment of Conservation Area	Socialization and Engagement For Conservation Areas Management	Capacity Building
• Field delineation, verification, and conclude the definitive conservation areas • Marking the clear boundaries of conservation areas	○ Internal company plantations and those managed by the community ○ Surrounding community (village, sub district and relevant public) ○ Government agencies / offices	Conservation area monitoring training (basic identification, measurement of water quality and matters related to sustainability)

Signboards instalment around the conservation areas		Consistent application of standard operating procedures and policies for monitoring Conservation areas

4.4. Management Plan for GHG Emission Mitigation

The management plan is aimed at minimising GHG due to the opening and operation of plantations and factories in the future. In general, GHG emission mitigation includes:
1) Periodic monitoring of carbon stocks and GHG. Carbon stock in the form of a conservation area is carried out through satellite imagery and a permanent plot is made for vegetation observation and analysis.
2) Regulating the use of fuel in all aspects of plantation operations and support activities
3) Regulation and control of fertiliser and pesticide use, including dosage and method of use.

Table 42. Mitigation efforts and monitoring of GHG emission reduction at PT MMAS STGE

Source of emissions	Mitigation efforts	Monitoring Plan	PIC	Time
Land Clearance	• PLTB policy implementation Carry out an orderly SOP for land clearing and new planting /replanting • Socialisation to contractors to avoid conservation areas (HCV-HCS) • Regular land clearing	Data collection and reports	ENC Department and Plantation Department	Annually
Damaged conservation area	• Rehabilitation of degraded (disturbed) conservation areas. • Implementation of HCV and HCS management plans Extension of protection of HCV-HCS areas	Data collection and reports	ENC Department	Annually
Transport and heavy equipment	• Routine maintenance of vehicles and heavy equipment. • Training and counselling on how to drive efficiently and not waste fuel Repair plantation transport roads and limit vehicle loads • Not using a vehicle over 7 years old	Emission tests for vehicles and heavy equipment Data collection and reports	ENC Department and Plantation Department	Every year
Fertiliser	• Regulation of fertiliser use and dosage • Use of organic matter (empty bed, ash, compost) • Efficient use of fertilisers only during the dry season In riparian areas; planting fertilizer instead of spreading it	Data collection and reports	ENC Department and Plantation Department	Every month
Use of electricity for housing and offices	• Education and culture for saving electricity • Limitation on the use of electric power every month	Data collection and reports	ENC and General Operations	Every month
Mill operations	• Routine maintenance of boilers and generators • Use of biogas to replace fossil fuels	Perform emission (air quality) tests on chimney Data collection and reports	Department of Mill Operations	Every 6 months

Mill waste	Construct a methane capture facility Make a land application before the methane capture is complete	Data collection, monitoring of waste ponds and reporting of waste profiles	Department of Mill Operations	Every month for waste quality Every year for LA and methane capture

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Sukardi.2020. Jenis Tanah di HGU Sei Teramanng Estate. PT Mukomuko Agro Sejahtera, Sei Teramang Estate.

4. INTERNAL RESPONSIBILITY

The oil palm grower (PT Mukomuko Agro Sejahtera) signs to confirm that the necessary assessments have been done and completed in accordance with the relevant RSPO procedure. The assessors (PT Perencana Karya Hijau) confirm that the information in the reports has been accurately interpreted in the NPP report.

Signed for and on behalf of PT Mukomuko Agro Sejahtera

Hamdani
ENC Senior Manager
Date : 21 June 2021

Signed for and on behalf of PT Perencana Karya Hijau

Date: 21 June 2021

Acceptance of Responsibility for Management Plan

The outcomes of all assessment reports have been accepted by the Management of PT. Mukomuko Agro Sejahtera and will be applied in developing and managing PT Mukomuko Agro Sejahtera as outlined in the management and monitoring plans presented in this report.

Management of PT Mukomuko Agro Sejahtera

Hamdani
ENC Senior Manager

Organisational Information and Contact Persons

Contact details of the company are as follows:

Company Name	PT Mukomuko Agro Sejahtera
Address	Forum Nine Building, 10th floor, Jl. Imam Bonjol 9, Medan. North Sumatra
Location for proposed NPP	Sub District of Pondok Suguh and Sub District of Teramang Jaya, Mukomuko District, Bengkulu
Contact Person	Hamdani
Position	EnC Senior Manager
Email	hamdani@sipef.com
Telephone	+62 61-41060020
Status Business Permit	HGU licence No 43, Year 1997 take over from PT Asririmba Wirabhakti according to Certificate of Takeover transaction No 06 dated 13 August 2018
Total Area of HGU Licence	1,770.00 ha (After delineation: 1,750.12 ha)
Total areas of proposed new planting	37.99 ha