Roundtable on Sustainable Palm Oil

New Planting Procedure

SUMMARY OF ASSESSMENT REPORTS AND MANAGEMENT PLANS

PT AGRO MUARA RUPIT

(Phases III & IV)

South Sumatra, Indonesia

2021

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1. GENERAL DESCRIPTION AND BACKGROUND

1.1 General outline

PT Agro Muara Rupit (AMR) is an oil palm plantation company located in Musi Rawas Utara 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 plantation is in West Java Province. The area of the management of oil palm nucleus plantations, plasma and village community farms (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 for Sustainable Palm Oil* (RSPO) since 2005[2]) and is committed to sustainable production according to RSPO standards.

SIPEF management is planning the development of a new oil palm plantation which is an extension of the previously established PT AMR (Phase I and Phases II). This new expansion area will be developed in two phases, namely Phase III covering a licensed area of 1,303 hectares, and phase IV covering a licensed area of 4,200.82 hectares. The PT AMR Phases III & IV oil palm plantation development area is located in Musi Rawas Utara Regency, South Sumatra Province. Previously, PT AMR (phases I & II) had conducted a series of Social Environment Impact Assessments (AMDAL) and Social Impact Assessments as well as High Conservation Value (HCV) with the results of the study concluding: "PT. Agro Muara Rupit has complied with the RSPO New Planting Procedure (NPP) which has been effective since January 1, 2010 and stated that the Assessment Report and Plan document was comprehensive and complied with the RSPO New Planting Procedure. In the 'RSPO Notification of Proposed New Planting', 19 March 2014 for PT AMR I[3]) and 10 June 2014 for PT AMR II[4]).

Referring to the RTRW of South Sumatra Province based on Perda No: 11/2016, the PT AMR III & IV location permit area is allocated as a plantation area and horticultural crops. Furthermore, in the draft Regional Regulation RTRW North Musi Rawas Regency, the area of PT AMR III & IV location permits is allocated as a similar private plantation area. The area for the location permit for the new addition of PT AMR based on the Decree of the Regent of North Musi Rawas, No. 04/02 / KPTS / DPM-PTSP / 2017, Date: January 16 2018, regarding: Additional Location Permits for PT AMR's oil palm plantation development plan with an area of 1,303 ha (Phases III) and Regent Musi Rawas Decree No. 04/03 / KPTS / DPM-PTSP / 2018, Date: April 26 2018, Concerning: Addition of a Location Permit for PT AMR's oil palm plantation development plan with an area of 4,200.82 ha (Phase IV). Geographically, PT AMR III & IV is found within a box bound by the following latitude and longitude coordinates: Top Left: -2.543022 (South) 102.908138 (East) and Bottom Right: -2.659474 (South) and 103.0215321 (East). Administratively the area covers 3 districts, namely: (A) Kecamatan Rawas Ilir with (1) Beringin Sakti Village, (B) Nibung District with (2) Jadi Mulya Village and (3) Jadi Mulya I Village and (C) Karang Dapo District with (4) Karang Dapo Village, (5) Karang Village Dapo 1, (6) Rantau Kadam Village and (7) Biaro Lama Village. **Figure 1** and **Figure 2** and **Figure 3** present the orientation map and location permit map for PT AMR III & IV.

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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/3b%20PUBLIC%20NOTIFICATION_RSPO%20NPP%20PT_%20AGRO%20MUARA%20RUPIT%20(Indonesia).pdf
4) https://www.rspo.org/file/NPP-RSPO-AMR2-Eng-Revised.pdf

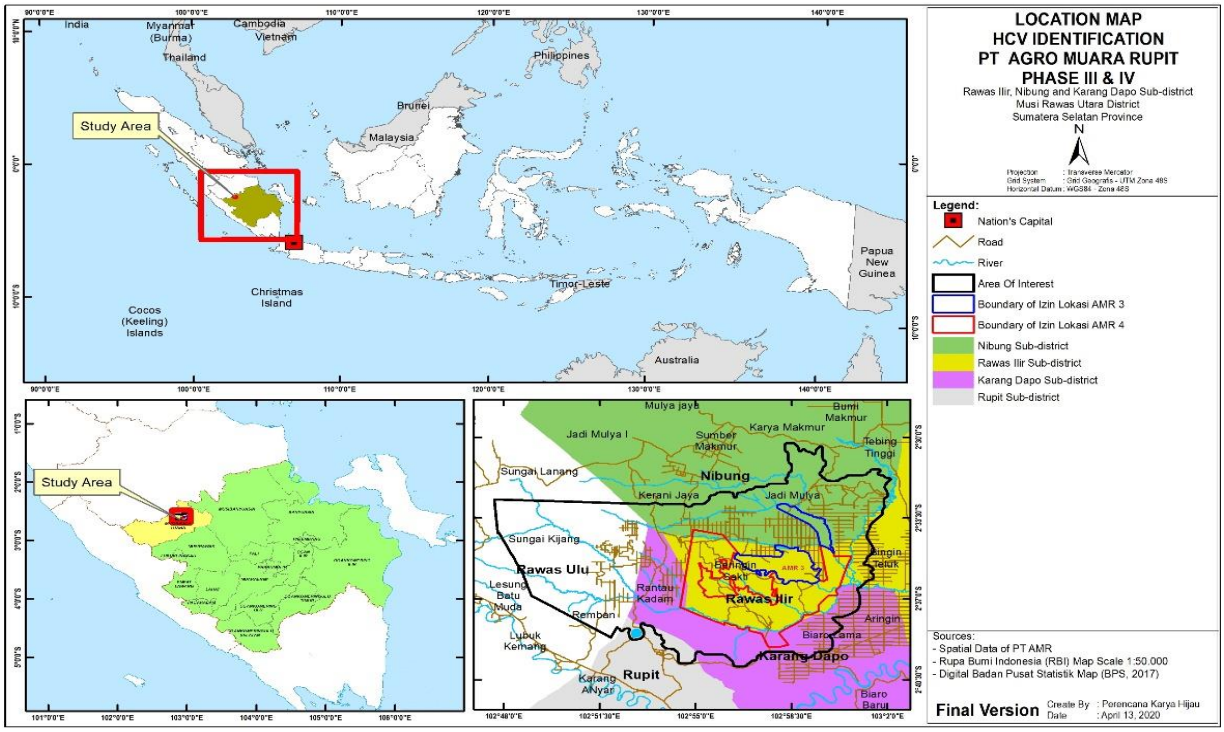

Figure 1 Orientation Map of the Location Permit Area at PT AMR III & IV

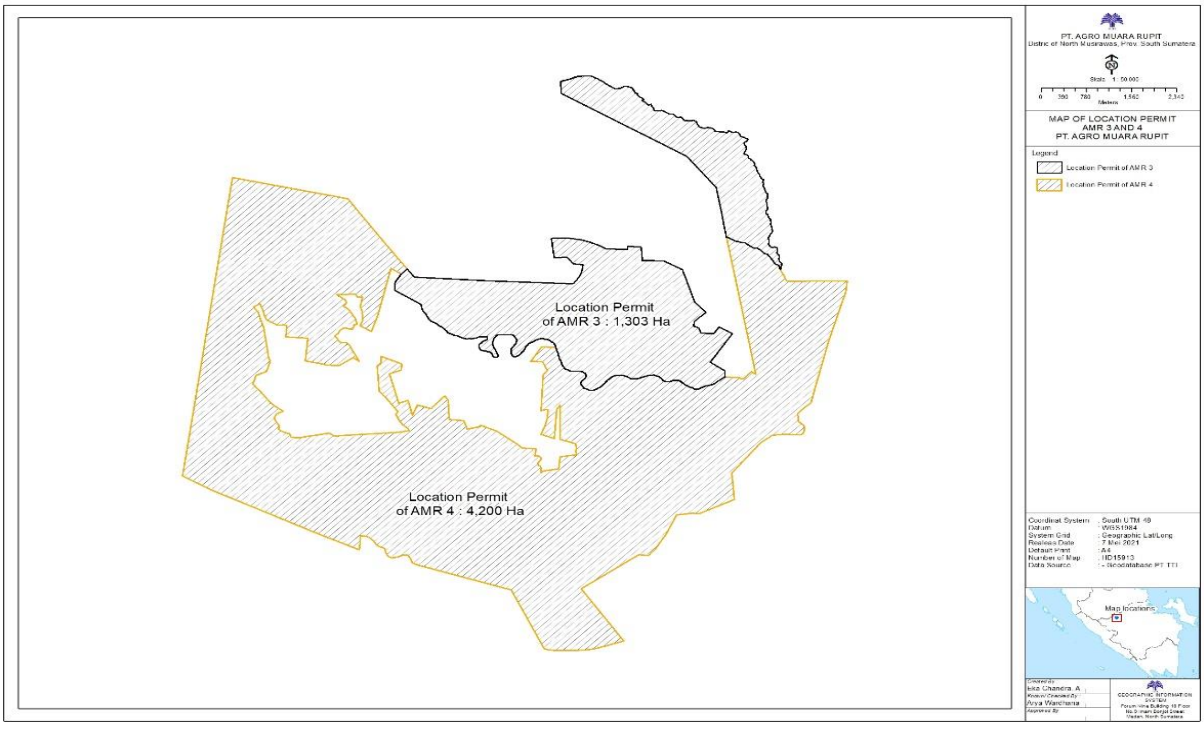

Figure 2 Map of PT AMR III & IV Location Permit Areas

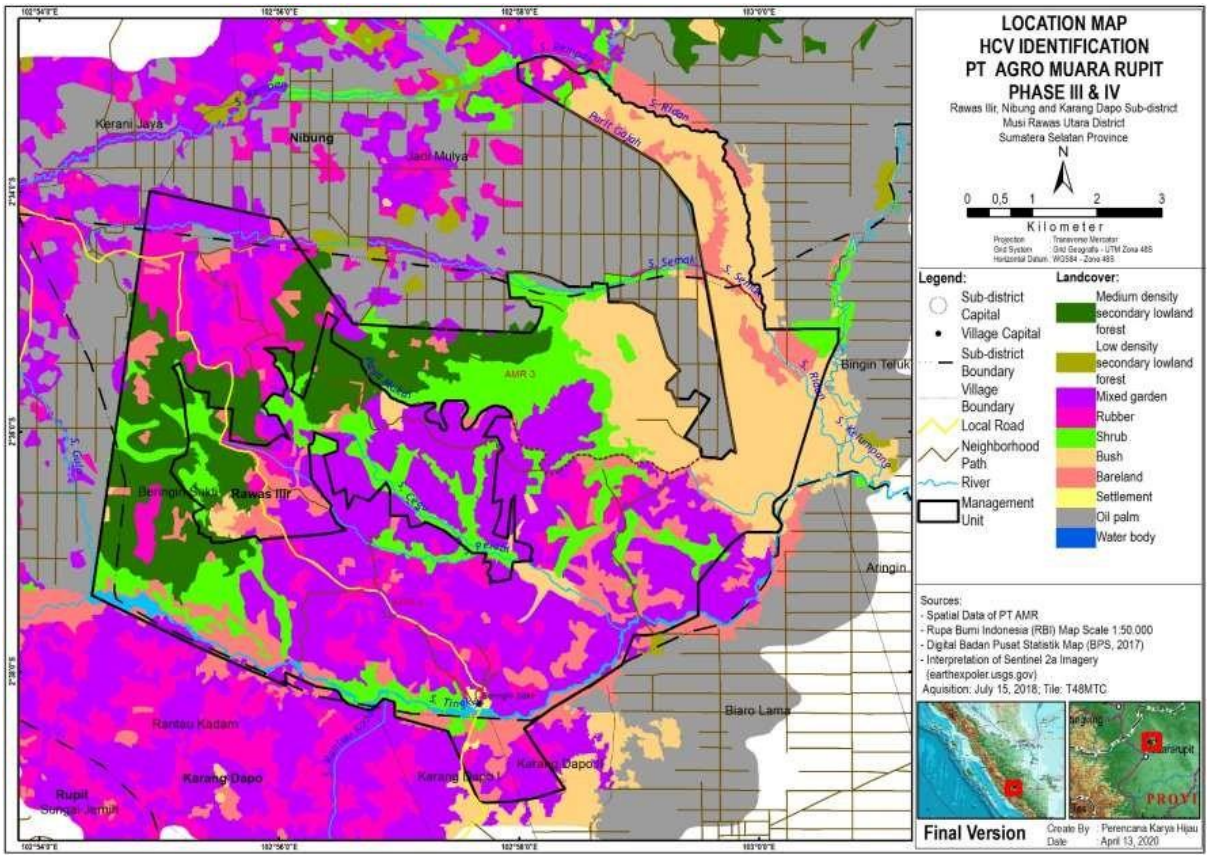

Figure 3 Location Permit Map

In principle, Regional Development in Indonesia follows the spatial planning policies set at the national, regional and regional scales. The National Spatial Plan (RTRWN) through Government Regulation Number 26/2008 and updated through Government Regulation Number 13/2017. The substances of the regulation are indication of the national zoning program as outlined in the spatial structure and spatial pattern. Based on the RTRWN, the area for location permits for PT AMR III & IV and its surrounding areas is designated for cultivation area and plantations. Likewise, what is stated in the Sumatra Island Spatial Plan (Presidential Decree No. 13/2012) the area is programmed as a cultivation area. Referring to the spatial plan (RTRW) of South Sumatra Province based on Provincial Decree No: 11/2016, the PT AMR III & IV location permit area has been allocated as a plantation area and horticultural crops. Furthermore, in the draft of Regency Spatial Plan Decree of North Musi Rawas Regency, the area of PT AMR III & IV location permits is allocated as a similar private plantation area. Figure 3 presents a map of PT AMR III & IV location permits on the RTWR map for 2016-2030 of South Sumatra Province.

In 2013, it was estimated that the forest area in Indonesia was around 82,487,000 ha, ranking 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). Until 2013, natural forest cover was only 82 million hectares or about 46% of Indonesia's land area5) . Meanwhile, the rate of deforestation on the island of Sumatra in the period 2009 to 2013 decreased forest cover by 1,266 ha, so that the remaining area was 24.3% of the land area of the island of Sumatra (FWI, 2014). Changes in primary forest in the area adjacent to the PT AMR III & IV location permit area are presented in Figure 4 which depicts the historical map of Intake Forest Landscape (IFL) in 2000, 2013 and 2016, the area of PT AMR III & IV location permits is outside the IFL area.

Sumatra is the fifth largest island in the world, with a length of 1,800 kilometres and a width of 400 kilometres. The Bukit Barisan Mountains are a mountain range on the western side of Sumatra extents from the north to the south of the island, 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 flow to the west coast tend to be short and swift, while those flow to 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.

More than 60% of Sumatra's economy comes from the exploitation of natural resources, such as coal, gas, oil and lime mines, and South Sumatra province has about half of Indonesia's coal resources and is the third largest exporter of liquefied natural gas in the world. Small-scale mining is estimated to involve around 20,000 gold miners in several areas. Manufacturing and infrastructure continue to increase and it is the third largest in Indonesia to obtain permits. Meanwhile, local communities in the agricultural sector, especially rice (as the main source of carbohydrates) have low yields and inadequate yields. Smallholders' mainstay commodities such as coffee and rubber have not yet supported their livelihoods significantly.

South Sumatra also has quite frequent ecological damage / disasters in the form of drought and floods that continue to haunt in every change of season and have damaged important ecosystems such as peat, and the damage of Musi watershed system. Ecological disasters affect the lives of farmers to switch careers into labourers or other careers which often lead to criminal acts due to the loss of their main source of livelihood.

Main references used in the HCV assessment are: (1) Common Guidance for The Identification Of High Conservation Values: A Good Practice Guide For Identifying HCVs Across Different Ecosystems And Production Systems, Brown, E., N. Dudley, A. Lindhe, Dwi R. Muhtaman, C. Stewart, and T. Synnott (eds.). 2013 (October), HCV Resource Network. Oxford, UK, (2) 'Consortium Revised HCV Toolkit Indonesia, Guide to Identifying High Conservation Value Areas in Indonesia. Tropenbos International Indonesia Program, 2008 for deeper investigation in the context of villages, and (3) Common Guidance for the Management and Monitoring of High Conservation Values. Brown, E. and M.J.M. Senior. 2014 (September). HCVRN. Oxford, UK.

PT AMR Phases III & IV additional location permit areas in the form of community-owned agricultural cultivation land (brownfield), PT AMR plans to carry out a series of processes to obtain management rights. Activities that have been and are being carried out by the Company include intensive socialization and data collection of community lands or preparation of the GRTT (Compensation for Planting Growth) process, as well as environmental and social studies (AMDAL / EIA), Social Impact Assessment, land tenure studies, assessments. High Conservation Value (HCV), High Carbon Stock Assessment (HCSA), Soil Assessment, Land Use Change Analysis (LUCA), and Green House Gas (GHG) Assessment.

The management of PT AMR Phase III & IV is committed that the location permit area will only be cleared land when the NPP process required by the RSPO is completed.

Based on Forestry Ministry map as regulated in 'SK. no. 733 / Menhut-II / 2014, dated 02 September 2014, indicates that the HCV assessment area in the PT AMR III & IV location permit area was entirely in Other Use Areas, and was not included in the peat moratorium area based on the Indicative Map for Suspension of New Permits (PIPIB) revision XIII. **Figure 4** shows the location of PT AMR III & IV in the status of forest

area function and Historical map of Intake Forest Landscape (IFL) in 2000, 2013 and 2016 as presented in **Figure 5.**

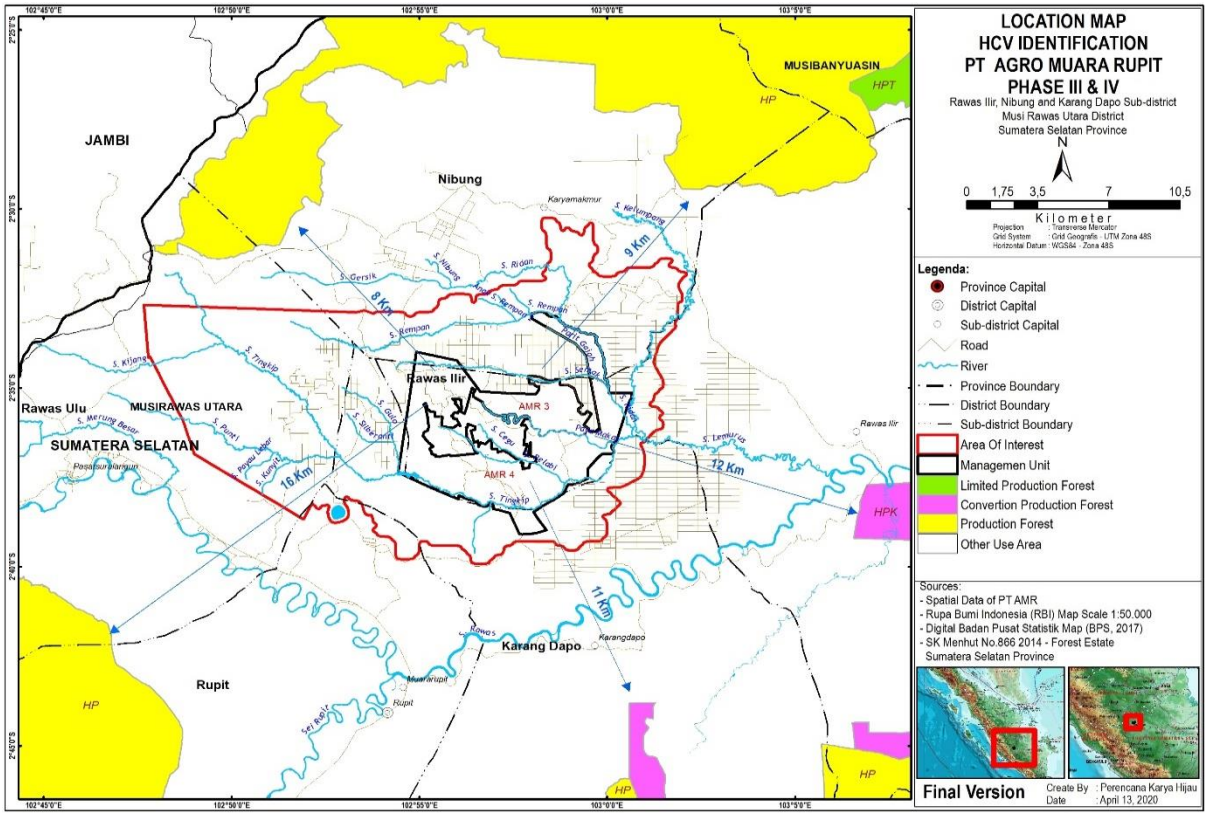

Figure 4 Map of the Status of the PT AMR III & IV location permit areas

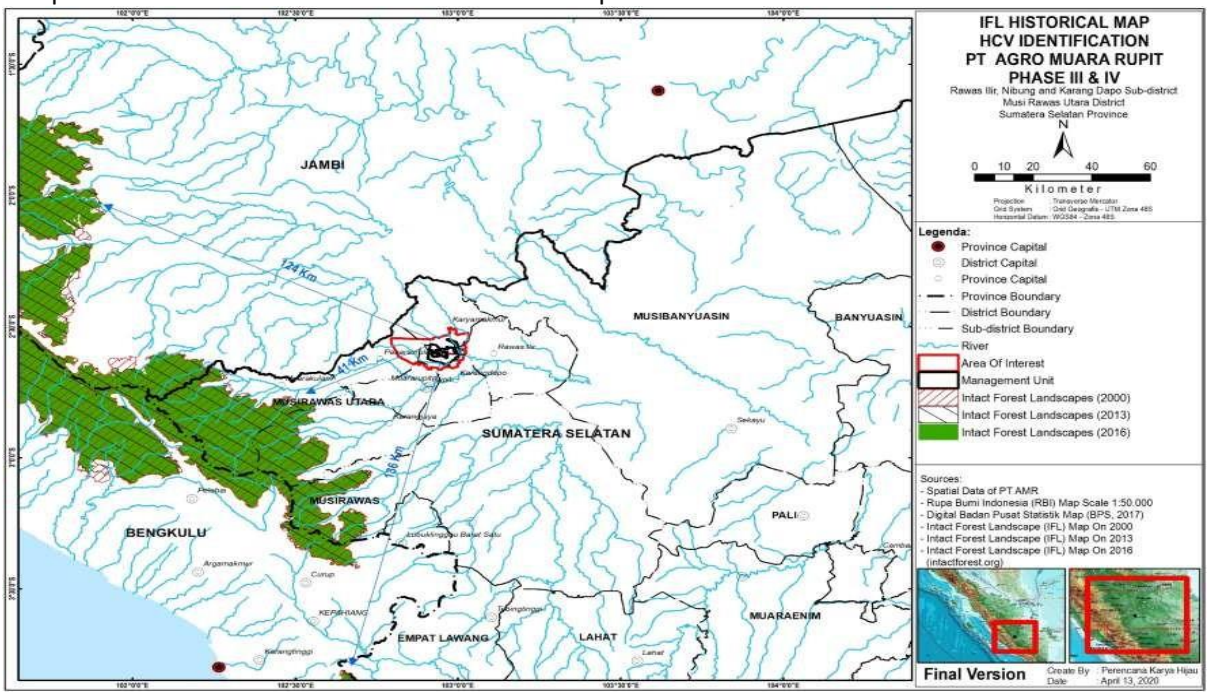

Figure 5 Historical map of Intake Forest Landscape (IFL) in 2000, 2013 and 2016

In terms of physiographic units, the PT AMR III & IV location permit area is within the Southern Eastern Plains and Hills unit (RePPProT, 1990). The Land System Macro Scale Map (RePPProt 1990), the land system in the PT AMR III & IV location permit area consists of 2 land systems, namely: MBI which dominates an area of 4,326.36 ha (78.61%) and MDW covering an area of 1,176.92 ha (21.39%). The AoI area consists of 3 land systems, namely MBI covering an area of 26,113.95 ha (91.95%), MDW covering an area of 2,148.71 ha (7.57%) and BLI covering an area of 138.74 ha (0.49%). Based on the USDA Soil Taxonomy System, 1982 and its equivalent according to the Classification System of the Bogor Soil Research Center, 1981, the types of soil in the PT AMR III & IV location permit area in the MDW land system are Troposaprists, Tropohemists (Organosol), MBI are Tropudults, Dystropepts, Haplortox (Latosol) and Beliti (BLI) are Fluvaquents, Tropaquepts, Tropaquepts (Regosol).

The area around and within the PT AMR III & IV location permit area is included in the Musi Watershed Area Unit (DAS), with the Rawas sub-watershed (100%). It is predicted that in the PT AMR III & IV permit area there is a river length of about 32.2 km which covers an area of about 78.6 hectares, with the largest river being the Tingkip River with a width of between 20-50 m, a depth of 2-6 m, along 12.5 km and an area of approximately 67.0 ha.

The AoI region is included in the biogeographic zone of Oriental Asia, where the flora of Sumatra is included in the West Malesia region together with Southern Thailand and Peninsular Malaysia (Anwar, 1984) and the Sumatra Biogeography Unit closest to the AoI region is Kerinci Seblat National Park which is the largest national park in Sumatra, with a distance of 41 km on the southwest side. In addition, the nearest protected forest area is the Unit I Banyuasin protected forest, which is 30 km away in the northeast. Referring to the Ecoregion Map made by WWF on a global scale (2012), the AoI is located in the ecoregion of the Sumatra lowland rain forest area.

1.2 New Planting Development Planning

The total surface area calculated during the assessments are Phase III: 1,302.45ha and Phase IV: 4,200.82 ha, totalling 5503.27 ha. The 0.0099% variance as compared to reported total licensed area (5503.82 ha) is assumed due to administrative error. All totals utilized within this report will be based on the GIS work made available to peer reviewers totalling 5503.27 ha.

From the HCV assessment that has been carried out, it has identified HCV 1, HCV 3, HCV 4, and HCV 5 covering an area of 1903.39 Ha in the management unit of PT AMR III & IV, which includes peat areas of 108.03 ha and community rice fields of 240.60 ha. High Conservation Value Areas in the form of remaining secondary forest, remaining peat forest, rivers and their borders as well as swamp areas, as well as areas important for the livelihoods of local communities (rice field development plan areas. Details of the identified HCV areas can be seen in **Table 18.**

In addition, there is an HCS conservation area of 103.2 ha, so that the total 2,006.6 ha will be managed as a set-aside conservation area, a combination of HCV areas and HCS areas, as determined by the HCV assessment approved by HCVRN and HCS assessment peer reviewed by HCSA. So the total area of PT AMR AMR III & IV, which has the potential to be developed into oil palm plantations, is 3496.7 hectares. This area for potential expansion will follow the Company's Sustainable Policy and the RSPO's New Planting Procedure (NPP). There will be no land clearing prior to the NPP process being completed and given the final long awaited green light. The entire planned planting area is mineral soil, excluding HCV

or HCS areas, and does not directly border protected / conservation forest areas. The total proposed for development 3418.21 ha in the PT AMR III & IVI & IV area is presented in **Table 1** and **Figure 6**.

Table 1 New Planting Plans at PT AMR III & IV 2022-2025

New Planting Plan (ha)				Sub total (ha)	Facility plan and mill (ha)	HCV/HCS (ha)	Total (ha)
2022	2023	2024	2025				
527.62	820.38	998.85	1071.36	3418.21	78.46	2006.60	5503.27

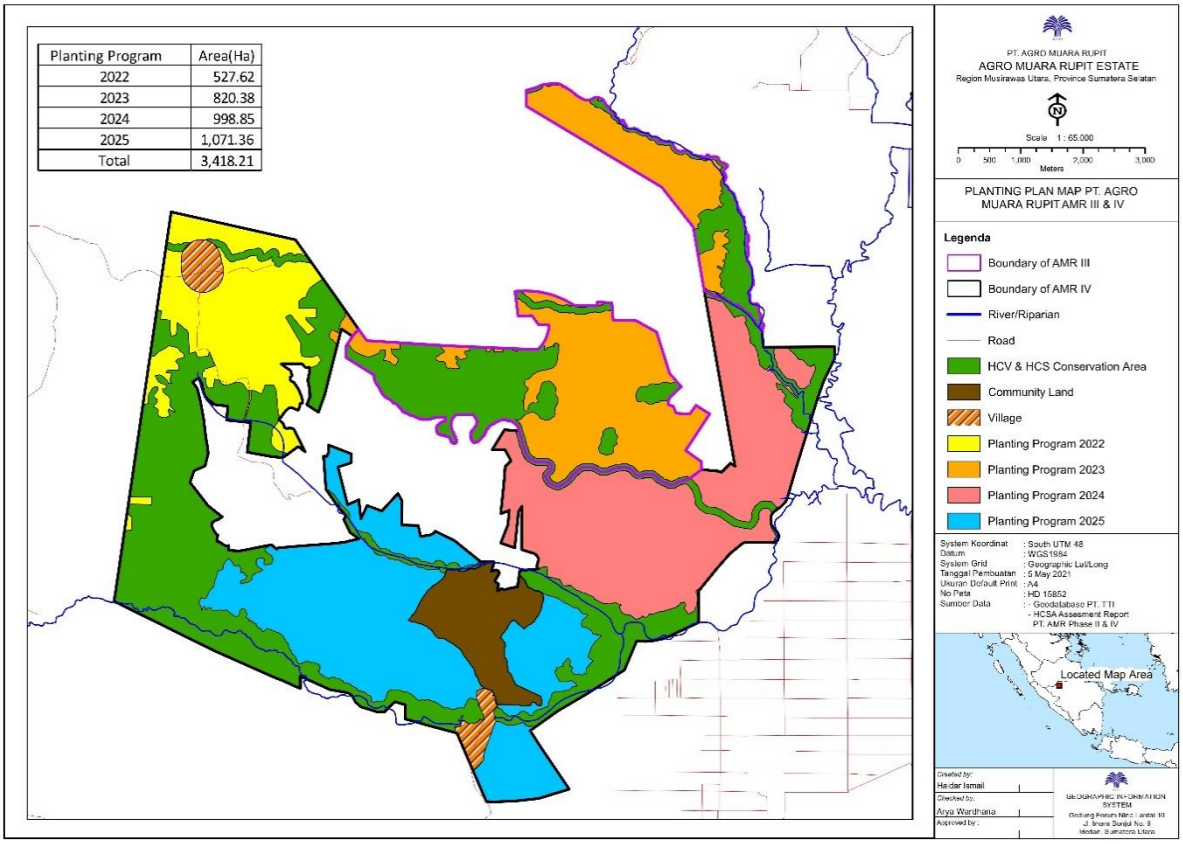

Figure 6 The planned new crop period at PT AMR III & IV 2022-2025

2. ASSESSMENT PROCESS AND METHOD

2.1 Social and Environmental Impact Assessment (SEIA)

2.1.1. Implementation of SEIA and Assessor Credentials

PT AMR's environmental impact analysis (AMDAL) was carried out by Survindo Link and finalized in September 2019. **Table 2** shows the PT AMR AMDAL drafting team led by Drs Yunofrizal.

Table 2 The composition of the members of PT AMR's AMDAL and their expertise

Position	*Evaluator*	*Qualifications and Role*
Team leader and environmentalist	Drs Yunofrizal	Environmental Impact Analysis (AMDAL B) + Certificate of Competence
Geophysicist	Budi Harlianto, SSi, MSc	Environmental Impact Analysis (AMDAL B) + Certificate of Competence
Environmental Chemist	Deni Agus Triawan, SSi, MSc	Environmental Impact Analysis (AMDAL A) + Certificate of Competence
Biologist	Dr Jarulis, SSi, Msi	Environmental Impact Analysis (AMDAL B) + Certificate of Competence
Socio-economic and Cultural Expert	Dr Ir. Satria Putra Utama, MSc	Environmental Impact Analysis (AMDAL A)
Forestry Expert	Eka Heriyanto Putra, S. Hut	Environmental Impact Analysis (AMDAL A)
Civilian Expert	Fransisca Diah Setyaningrum, ST	
Public Health Expert	Herly Ardiansyah	

The implementation of the Social Impact Assessment (SIA) for PT AMR was completed in December 2018 by a team of consultants, PT Perencana Karya Hijau, led by Sigit B. Setyanto. **Table 3** shows the composition of the drafting team.

Table 3 List of SIA Team Personnel at PT AMR Phase III & IV, Musi Rawas Regency

Name	Position	Expertise
Sigit Budhi Setyanto	Team Leader	Socio-Cultural Field
Fadhli	Member	Socio-Cultural Field
Wibowo A. Djatmiko	Member	Social-Environmental Field
Riswan Zein	Member	Social-Environmental Field and GIS
Harry Kurniawan	Member	Social-Environmental Field and GIS
Dwi Budi Siswantono	Member	Social-Environmental Assessor
Fakhri Sukma Afina	Member	Social-Environmental Field

2.1.2 SEIA Implementation Methods

The SIA study was conducted from 28 April 2018 - 30 September 2018. The methods or techniques used in the SIA process consist of:

1) **Literature review:** This method is used to gain an understanding of the social and environmental context of the identification area, carried out at an early stage prior to going to the field and at the results analysis stage;

2) **Dialogue:** This method is used to identify parties, explore issues that are impacted, explore hopes, ideas and aspirations to find solutions to issues that occur, carried out through meetings both formal and non-formal and with specific topics. (Focus Group Discussion - FGD);
3) **Field observation:** this method is used to understand firsthand facts on the ground that are indicative of the social issues and impacts that have occurred;
4) **In-depth Interview**: In order to explore and get a deeper understanding of the issues that arise, in-depth interviews are conducted with selected key figures who become respondents. The choice of respondents is based on the knowledge they have, or the actors or those who have experienced an impact directly.
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:** Social Impact Identification 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 Social Impact Identification activities are carried out by referring to the reference, '*A Comprehensive Guide for Social Impact Assessment*' (2006).

A. Study preparation and pre-assessment

This activity aims to collect basic information (both spatial and non-spatial information), either in the form of information 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, identifying 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 can invite the relevant Company or other related parties as a resource.

B. 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 (scoping), compile a field work team, and agree on a schedule of daily activities. In this activity, basic training activities (introduction) on Social Impact Identification were also carried out: background, aims and objectives, concepts, and how to identify them.
b) **Participatory Social and Stakeholder Mapping |** This activity aims to identify: (1) key parties who will or have been affected (both positive and negative) or will 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 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:

the 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 Kompassia Enviro Institute (KEI).

d) **Focus Group Discussion (FGD) |** This activity aims to gather information and opinions from participants, as well as clarify, confirm, complete and deepen the temporary findings from the field in the form of brainstorming discussions on several recorded social issues, both positive and negative.
e) **Analysis and identification records in the field |** This activity aims to process and analyze data and information obtained from field activities to then compile it into an "identification note" containing temporary findings in the field (social issues, prediction of social impacts), drawing conclusions, along with justification or argument, to be submitted to the Plantation Management Unit and Company management. In this activity, clarification of the provisional findings and completing the data / information that are still needed is carried out.
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 Social Impact Identification Result Report is complete.

C. Identification of Social Impacts, Analysis and Prediction of Social Impacts

This activity aims to process and analyze more comprehensively and in depth all results from the field, and confirm, clarify, 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. The social impact analysis and prediction activities were carried out at the PT KEI Studio in Medan. Meanwhile, if necessary, presentations / exposures can be made at the office of the Company Management Unit.

D. 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 format and systematically, but are 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 / Company to be examined, given input, and corrected if errors in the data or information are found. Subsequently, the Draft Report document is sent back to the SIA Team of PT KEI for refinement.

E. 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.

There are 14 key stakeholders who become sources in identifying social impacts. These key parties are the communities who give or receive influence from the existence of PT AMR's plantation development plans.

2.2 HCV assessment

2.2.1. HCV Assessment and Assessor Credentials

The HCV assessment at PT AMR III & IV was carried out by an independent consultant PT Perencana Karya Hijau which began in March 2018 - July 2019 and received satisfactory status in April 2021. **Table 4** shows the composition of the HCV assessment team at PT AMR III & IV.

Table 4 PT AMR III & IV HCV Assessment Team

Name	Position	Expertise	Experience
SIGIT BUDHI SETYANTO (ALS15024BS) Full License	Team Leader (HCV 5 & 6 expert)	HCV assessor on social-cultural, community capacity building, conflict mitigation, participatory mapping, FPIC, CSR, Soil science, fertilizers and environment	Assessment and verification work in Indonesia, Malaysia and Papua New Guinea. Language: Indonesia, English, Java, Madura and Malay
RISWAN ZEN	Member (HCV 4, GIS & Remote Sensing expert)	GIS and remote sensing science and application, HCV assessor mainly for environment services, participatory mapping, natural resource management and forestry	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, HCV assessor for environment services, mapping, and forestry	Assessment and verification work in Indonesia Language: Indonesia, English, Batak, Java, and Malay
WIBOWO AGUNG DJATMIKO	Member (HCV 1, 2 & 3)	HCV assessor for Ecology and Biodiversity, Expert in Biology, Dendrology, Forestry, Forest inventory, participatory mapping	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 for HCV 1 (Ecology, Biodiversity), Forestry and GIS	Assessment in Indonesia, Language: Indonesia, English, Batak and Malay
FADHLI	Member (HCV 5 & 6)	Assessor for HCV 4 and 5 participatory mapping, FPIC, CSR	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, the timeline and methodology as follows:

Table 5 Schedule of Implementation of PT AMR III & IV HCV Assessment Activities

Stage	Purpose	Location	Time
Pre-Assessment			
Pre-assessment and work Preparation	• Initial data and information collecting from the company, and identify the potency and indication of HCV's attributal 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, operasional field team, and field activity timeline.	PT Perencana Karya Hijau Office, Medan	PT AMR III, Early March 2018 PT AMR IV, mid-April - early May 2018
Scoping study			
Scoping	• To convey the intent, purpose and expected outcome of the HCV assessment plan. • To obtain data and information as well as the main problems directly from representatives of the community and government officials. • To verify information from the desk study results. • To dentify 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. • Stakeholder interview and FGD along with SIA identification	Opening meeting at PT AMR office, Visit Jadi Mulya, Beringin Sakti village and Nibung sub-district	PT AMR III, 26-27 March 2018
		Opening meeting at PT AMR office. Visit to villages: Jadi Mulya, Jadi Mulya I, Karang Dapo 1, Rantau Kadam, Biaro Lamo, Beringin Sakti, Karang Dapo Visit to sub district: Rawas Ilir, and Karang Dapo,	PT AMR IV, 04-07 May 2018
Main Assessment			
Opening meeting, Basic Training for HCV and Participatory internal mapping	• 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 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	PT AMR office meeting room	PT AMR III, 04 April 2018 PT AMR IV, 08 May 2018

Stage	Purpose	Location	Time
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. • To interview and appliy the triangulation cross check with relevant sources. • To identify threats and potential threats to HCVs. • Carried out HCS assessment by another team • Deep dive on SIA identification along with HCV 5 and HCV6 identification.	PT AMR III	
		The HCV 1, 2, 3 and 4 teams immediately made field visits.	04-08 April 2018
		HCV 5 and 6 teams Visit to Rawas Ilir Subdistrict, Meet with *Anak Dalam* Tribe, to Beringin Sakti Village and Jadi Mulya Village	05-07 April 2018
		PT AMR IV	
		The HCV 1, 2, 3 and 4 teams immediately made field visits	9-13 May 2018
		Visits to Beringin Sakti Village, Karang Dapo Village, Rantau Kadam Village, Karang Dapo 1 Village, Biaro Lamo Village, Jadi Mulya 1 Village and Jadi Mulya Village.	9-12 May 2018
Closing meeting	To present, share and discuss the draft result of HCV assessment to management unit and find the data gap	PT AMR office meeting room	PT AMR III, 9 April 2018 PT AMR IV, 14 May 2018
Stakeholder consultation I	• To disseminate the HCV asssesment objective and 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 attributtes, 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.	Meeting room of RM Sederhana, Muara Rupit	PT AMR III, 10 April 2018 PT AMR IV,15 May 2018
Post Assessment			
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 systematica. The report is also developed according to science norms, systematic and simple to use by management unit and other users.	Sederhana Restaurant Meeting Room, Muara Rupit	May 2018 - June 2019
Stakeholder consultation II	• To disseminate. the final HCV assessment results to the stakeholders • Presentation and convey the results of final HCV identification to stakeholders (community leaders, local government, and CSO). • To compile inputs and additional data and verify and clarify the HCV attributtes, and potential and current threat to HCV. • To compile inputs to develop recommendation and options for HCV management and monitoring	Sederhana Restaurant Meeting Room, Muara Rupit	10 July 2019

Stage	Purpose	Location	Time
Quality panel	Review process by the Quality Panel of HCVRN	Review by the Quality panel of the HCVRN	February 2020
	Additional field visits and consultation and confirmation to related villages to respond the QP HCVRN reviews	PT AMR III & IV	July 2020
		Report revised	April – August 2020
		Report re-submission II	August 2020
		Report re-submission III	January 2021

2.2.2.1. Pre-Assessment Phase

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
PT AMR as a subsidiary of SIPEF group has a policy that regulate commitment for environment and socialsafeguards. A complete policy is expressed in *"SIPEF SUSTAINABLE APPROACH"* and *"SIPEF RESPONSIBLEPLANTATIONS 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 tooperations 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 awide 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/
2. Commitment to moratorium on any land clearing or land preparation until the HCV assessment hasbeen completed
PT AMR 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/
3. Demonstrated legal right over or permission to explore the location permit and Area of Interest
PT AMR informed that it had obtained a 'Location Permit for Additional New Areas' based on the Decree ofthe Regent of North Musi Rawas, No. 04/02 / KPTS / DPM-PTSP / 2017, Date: January 16 2018, Regarding: Additional Location Permits for PT AMR's oil palm plantation development plan with

an area of 1,300 Ha (for Phase III) and Regent Musi Rawas Decree No. 04/03 / KPTS / DPM-PTSP / 2018, Date: 26 April 2018 Concerning: Additional Location Permits for PT AMR's oil palm plantation development plan with an area of4,200 Ha (for Phase IV), so that a total area of 5,500 Ha which is administratively located in **(A) Rawas Ilir District** in (1) Beringin Sakti Village, **(B) Nibung District** in (2) Jadi Mulya Village and (3) Jadi Mulya I Village, **(C) Karang Dapo District** in (4) Karang Dapo Village, (5) Karang Dapo 1 Village, (6) Rantau Kadam Villageand (7) Biaro Lama Village. Verification of the implementation permit for the HCV assessment has been carried out by the implementation team, the village government as the community representative has given permission to the implementing team to carry out an HCV assessment.
4. FPIC Process has been initiated with full disclosure of the proposed project with all potentially affected communities and stake-holders, and the process for negotiation and consent going forwardhas been agreed, with representatives appointed through a fair process
PT AMR III & IV informed that it had carried out a series of informal socialization processes at the local, district and village government levels for plans for developing and managing oil palm plantations. Formally,PT AMR III & IV's plantation development plan has been consulted in the process of obtaining a location permit to the district government, a government technical team has also conducted a study and provided recommendations on the plantation development plan as mentioned in the location permit. The location ofthe new permit (PT AMR III & IV) is just east and south of the previous permit (PT AMR I & II) which covers the same some villages and districts. Relations with all villages and districts are well established regarding the process of land acquisition and the development of PT AMR I & II's plasma plantations, whose ownership is spread across all PT AMR III & IV villages. Socialization to the community has also been carriedout by providing material about plantation development plans. Socialization to the community has also been carried out by providing subjects on plantation development plans.

Initial data and information provided by the company are sufficient to continue the identification stage to theScoping Study stage, because: (1) PT AMR III & IV's new location permit and maps are available, (2) PT AMR has previously had relations with villages around PT AMR. **Figure 7.** presents the basic map of the entire of PTAMR for 'Participatory Mapping' activities to facilitate the mapping process. (3) PT AMR I and PT AMR II havebeen built plasma plantations that are members of the Beringin Jaya Cooperative, formed in May 2013 with No. Legal Entity: 0942/BH/VII.4/2013. Until the end of December 2017, 577.00 ha of plasma plantations had been built for 206 members of plasma farmers. Most of the members of the cooperative are residents of villages in the identification area of PT AMR III & IV, (4) Information from PT AMR which states that it has carried out initial informal socialization activities to the Regional Government through related agencies, districts and villages. (5) Temporary partial analysis carried out by PT AMR internally and PT Perencana KaryaHijau consultants stated that 'PT AMR III & IV's new location permits do not belong to the moratorium area, forest area and all are in the APL (non-forest state) area.

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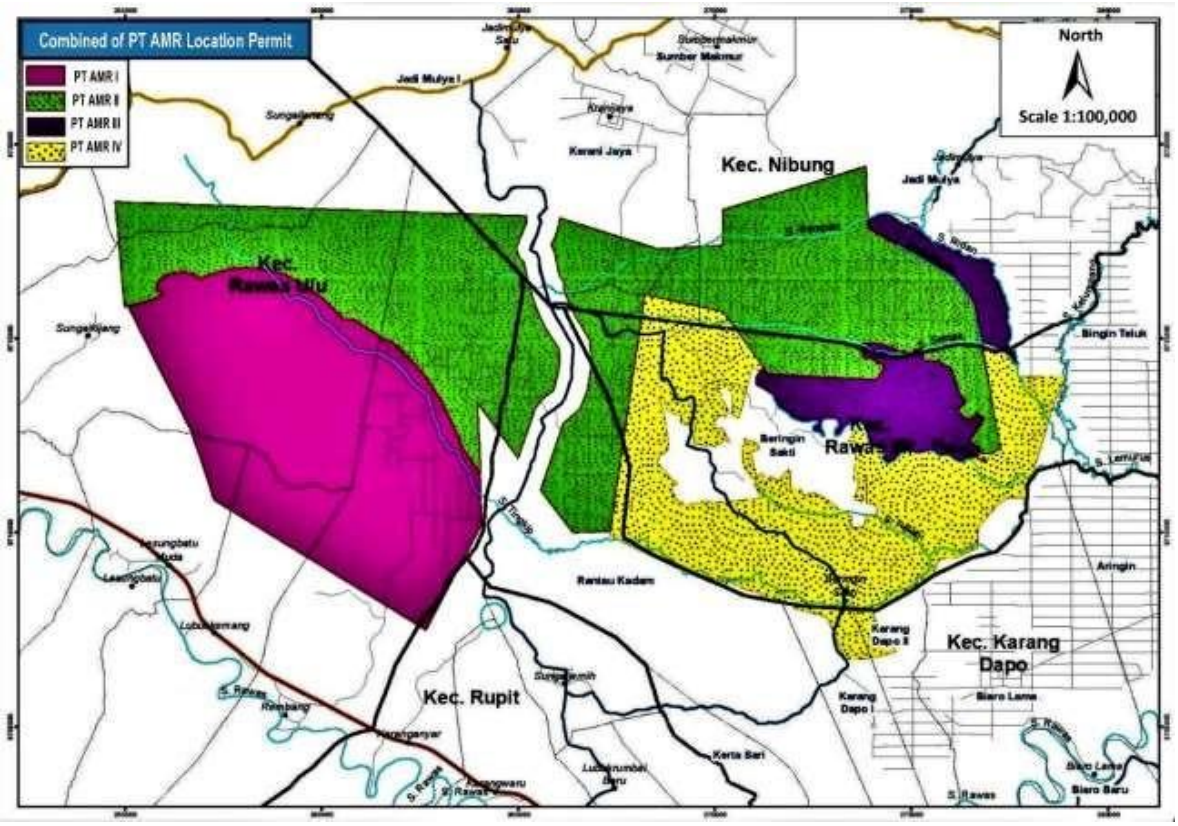


Figure 7 Combined permit area for Participatory Mapping

2.2.2.2. Scoping Study

The Scoping Study activity began with an opening meeting with operational staff in the field (site area), is 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 of the stages of the assessment activities from beginning to end based on guidance from the 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 ended by agreeing on a tentative activity schedule, companion, person in charge (PIC), transportation, accommodation and other relevant activities until the Scoping Study activity is complete. Thisactivity is very important so that the consultant and internal staff have the same perception and frequency in carrying out assessment activities to completion.

Field visits to consult with the district heads, village heads, relevant key community figures (key stakeholders)to explain the detailed HCV Assessment plan and to ask for approval represented by village and district entities. In addition to that, by sampling, 'Initial Participatory Mapping' was carried out in villages that had an important role, such as those with the largest area in the location permit. The activity was continued with a quick visit to the location permit area and its surroundings to observe important locations such as thick vegetation cover, swamps, rivers, mixed gardens and other relevant areas. The initial assessment ends with aclosing meeting for discussion of results and requests for documents and relevant information available at the company. The Schedule of Scoping Study Activities at PT AMR III & IV is presented in **Table 6.**

Table 6 Scoping study schedule

Activity	Description	Time
Opening Meeting ofScoping Study	Desk study, document profiling, information sharing and consultwith PT AMR III & IV internal staff *(site area)*	26 March 2018 04 May 2019
Sub-Districts and villages visits includesociety leaders.	**PT AMR Phase III:** **26- March:** Visit to Jadi Mulya village. **27- March:** Nibung District, call and arrange appointment with Rawas Ilir District and to Beringin Sakti village (consultation and initial participatory mapping)	26-27 March 2018
	PT AMR Phase IV: **5-6 May:** Visit to Jadi Mulya village, Jadi Mulya I village, KarangDapo I village, Rantau Kadam village, Biaro Lamo village and Beringin Sakti village. **7 May:** Visit to Karang Dapo District (consultation and initial participatory mapping with Customary Leader of Anak DalamTribe) and Karang Dapo village	5-7 May 2018
Ground truthing, initial observation forland cover	Field observation within PT AMR III and surrounding	26-27 March 2018
	Field observation within PT AMR IV and surrounding	5-7 May 2018

List of relevant initial consultations with external stakeholder of PT AMR III & IV, in districts and villagesaround PT AMR III & IV's location permit is presented in **Table 7.**

Table 7 Initial consultation with external stakeholders

No.	Name of resource person/Date of meeting	Position/Role	Social organization/group	Main concern and recommendation
1	Robinson Gultom, Romson Hasibuan,Rudy Manalu, Meldianto, Herry, Budi AP andStar	ENC Regional staff,ENC staff Estate Manager Estate Manager Finace assistance PT AMR Enviro.staffPT AMR Social staff	Internal PT AMR	• PT AMR III & IV location permits are former location permits for oilpalm plantation companies that were abandoned and given new permits to PT AMR. • Relation with all villages is quite good, many workers are involved in PT AMR plantation development (Phase I and II) • There are still unclear boundaries between villages, especially

				Beringin Sakti Village and Karang Dapo 1 Village. • The village boundaries are usually rivers, so the Rantau Kadam and Biaro Lamo Villages should not have been included, but it was still agreed to identify this HCV for the village coverage based on the Location Permit which mentions the 7 villages in 3 districts.
2	Date: 27 March 2018 Date: District office Stakeholder: Heri Martoni, Muso Hartono, Gino Suroyo dan Syahruddin Method: Consultation,sharing, interviews andinitial participatory mapping	Distric Secretary Public Safety Staff Public Servises StaffPublic Services Staff	Nibung District	• District head (Camat) is not available, information and letters will be delivered. • It is hoped that the activity will be successful and provide benefits to the community, because the price of rubber has gone down. The ex. transmigration in villages in Nibung District has partly succeeded in cultivating oil palm both plasma and independently. The hope is that the original villages (like Jadi Mulya village) can catch up with the former villages. transmigration. • In the future activities are expected to coordinate with the village authorities • Jadi Mulya, an old village, formerly known as Dusun Ridan (there is Sungai Ridan), part of the Rawas Ilir Sub-district, was divided into Jadi Mulya Village, Nibung Baru District almost simultaneously with Karang Dapo District (2001-2002). The presence of transmigration, Jadi Mulya Village was divided into Jadi Mulya I (immigrant) Village in 2012. • Bingin Teluk is the name of a village in Rawas Ilir sub-district, formerly known as Marga Bingin Teluk, a local community living inthe sub-districts of Rawas Ilir, Karang Dapo and Nibung with the Bingin Teluk dialect of Malay. • For land in the PT AMR area, there is still a land dispute between theAnak Dalam Tribe (SAD) in Tebing Tinggi Village and PT. PP Lonsum Indonesia covers an area of 1,400 hectares and if seen on the available map it does not belong to the PT AMR permit area. Customary / ulayat lands no longer exist, only

				customary land claimed by the Anak Dalam tribe because there were documents that were made during the 'Pesirah' era. • The area around PT AMR used to be a range area for the Anak Dalam tribe only to hunt and stop at non-permanent hamlets / groups to look for food. They cannot live in the area around PT AMRbecause most of them are watery / swampy.
3	Date: 27 Maret 2018Date: Village Head House Stakeholders: Afrizal, Marbawi, Syahrudd in Gino Suroyo Faizol Jauhari danSurmin Method: Consultation, sharing, interviews and initial participatory mapping	Village Head, Village Secretary Village staff Villege staff Member of Village Representative Body	Jadi Mulya Village	• The Village Head stated the same thing regarding the location permit which has not been given a copy from the district and the licensing office. Hope for PT AMR: *"... it is better if they regularly inform plasma members about the area and other relevant information about plasma plantations, I convey this because my villagers often have questions."* • Consultant's question: *"How is the relationship with PT AMR so far, especially with regard to the land compensation process in phase Iand phase II?"* The answer of the Village Secretary: *"... for land compensation matters so far it can be said that it is good according to the promised procedure ... the problem of land compensation is that many of the problems are cut off by neighboring land boundaries ... all can be resolved amicably well."* • The Village Representative Body added: *"... just a suggestion... usually the problem of compensation land being cut across neighboring boundaries is caused during the measurement process the land owner did not participate in the field... and entrusted everything to the village team and the land owner who was compensated... The limit is the most extensive... but because usually in one area they are still family members, it is easy to resolve... I hope that the owner of the neighboring land is a familywho understands to follow the measurement process.* The consultant's answer: *"... thanks for the information".*

				• Consultant's question: *"... so far, is there any land / land managed by adat or community or family so that ownership is communal and usually cannot be traded."* Surmin's answer, the village elder figure: *"... if the customary land / land to my knowledge doesn't exist, maybe the land / land belonging to the family originating from his parents has not been divided into "groups" but usually if it is sold it is also an agreement within* the family. *Maybe you also need to meet with the Anak Dalam Tribe Elders... because in the past this area was often visited by them to hunt or look for other forest products... but they don't live in this area".* The consultant asked for arrangements for the companion to be able to meet the tribal elders of the Anak Dalam. • Village Head: *"Activities for identification are welcome as long as it isin accordance with the regulations and notification is expected".* The consultant's answer: *"... PT AMR will inform you about the certainty of time, and it will be informed that the Consultant will conduct further outreach with the Team and will carry out a more complete participatory mapping".*
4.	Date: 27 Maret 2018 Place: Sederhana Resto Stakeholde rs: Cungh Wang, Syahrul, Ritarlim, Lukman Donles, Robiansyah danDedi, Method: Consultatio n,sharing, interviews andinitial	Village Head Hamlet Head I, Hamlet Head II, Hamlet Head III Village staff Member of Village Representa tive Body	Beringin Sakti Village	• The Village Head stated: *"The information on PT AMR's new location permit knows and has been discussed in the District and Regional Government, but does not yet have the official document ... pleasegive it a copy ... instead it only became clear after the socialization byPT AMR".* • The Village Representative Body added: *"later for further socialization, please make a map of the location permits for all PTAMR (phase I to phase IV)".* • Village Head: *"Activities for identification only... welcome... and hopefully using assistants from our villagers. When to complete Identification activities? It is hoped that the socialization will be more complete and we will inform community representatives to participate".* The consultant's answer: *"Surely PT AMR will give news, socialization by the consultant will definitely be done again and maybe*

	participator y mapping			*someone will stay a few days in the village including me ... and will do a more complete mapping".* • Consultant's question: *"Is there a boundary map between villages? This is necessary because… The basic village map used is the latestBPS map for 2016."* Village Staff Answer: *"The village boundary between Beringin Sakti Village and Karang Dapo 1 Village is not clear yet, the map made by the local government is not in accordance with our village's wishes… We are still using the TopdamMap.*
5.	Date: 05 April 2018 Place: District office Stakeholde rs: Suharto, Herman Method: Consultatio n,sharing, interviews andinitial participator y mapping	District Head New District Secretaryof Rawas Ilir	Rawas Ilir District	• In adding to the location permit for oil palm plantations, the companymust first conduct outreach to the community so that the community understands and especially in terms of GRTT, the community understands the process. • There are 4 oil palm companies in Rawas Ilir District, namely PT. Buana Sawit Sejahtera (BSS), PT. PP Lonsum Indonesia, PT GSL, and PT. SAP while there are 4 mining companies, namely PT Tri- ariani, PT Gorby, PT. BSL and mining companies whose operations are not yet active and only have licenses. • For customary land belonging to the clan or community, it is no longerin the area of Rawas Ili District, except as far as I know in Nibung District (division of Rawas Ilir District) there was a land claim belonging to the SAD community.
6.	Date: 05 April 2019 Place: Rawas Ilir Districtoffice Stakeholders: Bustomi Method: Consultatio n,sharing & interviews	Tribe Head of SAD community , Tebing Tinggi	SAD Community Tebing Tinggi	• The origin of the Anak Dalam Tribe (SAD) in Musi Rawas Utara traditionally used to move around looking for food so that it is difficultto show its origin. • The location of disputed land within the PT PP Lonsum permit area has been discussed and references to the President for resolution. • Make arrangements for further meetings
7	Date: 07 April 2018 Place: District office Stakeholders: Fajrin, Hadis Parman, Hatta. F dan Aditama	Environme ntal assist. Publict Savety Staff Publict Relation staff Staf	Karang Dapo District	• This assessment process is carried out before the activity is a good thing, with a good start it is hoped that in the future it will be betterand will provide the best benefits for all parties. • If you look at the location permit map, the area of the villages in Karang Dapo District seems small and is dominated by the village of Beringin Sakti.

	Nugraha Method: Consultatio n,sharing, interviews andinitial participator y mapping			• It is hoped that in coordination with the village, letters and information will be delivered to the District Head. • There are several 'bedeng' bordering Beringin Sakti Village (Kec, Rawas Ilir) in Karang Dapo I Village and Rantau Kadam Village, namely 'Bedeng': (1) Sungai Gulo, (2) Lubuk Panjang, (3) Bedeng Majawas, (4) 'Bedeng Bos' and (5) Pancur Dalam. • Between the borders of the Bedeng Beringin Sakti and 'bedeng' Rantau Kadam at the Lemurus River Estuary (the confluence of thetingkip river and the lemurus river) upstream of the river there is the Bedeng Lubuk Panjang in the Rantau Kadam village and the downstream Bedeng Beringin Sakti. The Bedeng Bos is on the edgeof Tebing Tinggi Hamlet, Rantau Kadam Village, Karang Dapo District. • There is PT Muratara Agro Sejahtera (MAS) or a company engaged in the sugarcane sector that has carried out land measurements and there is land compensation in Rantau Kadam Village

During the scoping study activity, the consultant had provided adequate information regarding the identification activity plan, about the objectives, timing, implementation team, community involvement in activities as well as information relevant to the identification activities. The initial participatory mapping process has been carried out in the related villages. Initial data provided by PT AMR III & IV and internal information as well as information from village stakeholders encountered in the Scoping Study activities include: (1) PT AMR III & IV plantation plans side by side with PT AMR's previous location permits which were already known to the community , (2) PT AMR has strong relations with the surrounding sub-districts and sub- districts / villages related to regular outreach, CSR, land acquisition and plasma plantation development involving village and sub-district teams, (3) District and village parties claim to have received information and socialization related to the PT AMR III & IV plantation development plan as well as giving permission to consultants to identify HCVs and (4) Several village stakeholders support, because so far almost all land acquisition processes have been running well, are transparent, procedural and prioritize negotiations until completion.

PT AMR III & IV is committed that during the socialization and operational processes there will be no pressureeither physically or psychologically, freely in expressing relevant opinions, even if there is no indication of coercion, intimidation, lure or something similar **(free).** Previously, PT AMR also prioritized the negotiation process and gave freedom of time to think and continued to help provide information until it was understood **(prior).** Initial information about PT AMR III & IV's oil palm plantation development plan has been adequately disseminated and will continue to be carried out as needed until the community understands **(informed).**

Based on the results of the scoping study, the assessor concludes that the assessment can proceed to the fullassessment stage with the following considerations:

- There was an initial outreach from PT AMR III & IV regarding the plantation development plan.
- There is approval from the community represented by the official village entity, namely the Village Head, to carry out an HCV assessment in the village area.
- There is an understanding from the community about the plan for HCV assessment activities, objectives, timing and implementation team for the assessment submitted by the assessment team during the scoping study.
- Recommendations regarding community involvement in assessment activities with relevant sources, initial consultation activities for the assessment.
- Physically, the study area is generally an area with a flat topography and most of it is managed by the community as mixed gardens, so that it has the potential to be developed into oil palm plantations. However, there are still a few remaining forests that have the potential to become HCV areas.
- The company plans to complete PT AMR's ANDAL and RKL / RPL permits related to the addition of location permits granted in Phase III & Phase III.

2.2.2.3. HCV Full Assessment - AoI Boundaries

The determination of the wider landscape boundary (AOI) in the HCV assessment is made based on several considerations, including: (1) The boundaries of PT AMR includes PT AMR Phase I and Phase II location permits(Estate AMR West and Estate AMR East), and location permits of PT AMR Phase III and Phase IV, (2) The boundaries of the existing hydrological system (watershed or sub-watershed boundaries), (3) The connectivityof forest cover and peat areas around the assessment area, and (4) HCV Management and Monitoring considerations where is the PT AMR III & IV location permit area is an additional development of previous AMR I & II, and will be managed in an integrated manner with the PT AMR I & II permit area.

Consideration of the hydrological unit approach according to the Regulation of the Minister of Public Works and Public Housing No: 04 / PRT / M / 2015, Date: March 15 2015, concerning: Criteria and designation of river areas, following the catchment of S. Ridan, S Rempan, S. Semak, S. Pelabi, S. Kelumpang, and S. Tingkip in the BPDAS Musi - Sugihan - Banyuasin - Lemau River Basin. All water catchments from these rivers are in the Rawas Sub-watershed with the main rivers namely the Tingkip River and the Kelumpang River. **Figure 8** presents a wider landscape boundaries and land cover map in the PT AMR III & IV location permit area as well as the AoI landscape covering an area of 28,401.40 ha. Satellite images used for land cover analysis in the HCV assessment are Landsat 8 OLI TIRS dated 10 September 2017 and Sentinel-2A dated 15 July 2018 as well as high resolution images from Google Earth which are presented in **Figure 9** which presents a description of land cover in the permit area. the location of PT AMR III & IV.

Table 8 Description of landcover

No	Land Cover Class and Definition accordingto SNI	Existence in Unit Management
1	**Water bodies:** All naturally occurring bodies of water (including natural lakes /ponds, rivers, sea waters, swamps)	Water bodies are found in the form ofrivers
2	**Low density secondary lowland forest:** Forests that grow and thrive in dry land habitats forming lowland forests, human intervention occurred. The density is 10% -40%..	*Not found*
3	**Medium density secondary lowland forest:**Forests that grow and develop in dry land habitats forming lowland forests, human intervention occurred. The density is 41% - 70% (moderate).	Medium density secondary lowland forests are found in the west and north of the PT AMR III & IV location permit area. This land cover is directly adjacentto PT AMR Phase I & II. Species that are often encountered are pumpkin *(Endospermum diadenum)*, mustang *(Cratoxylum formosum),* and mang *(Macaranga bancana).* At the time HCV assessment was carried out, most of thesecondary low-density forest was experiencing disturbance, that is, there were logging activities by local communities.
4	**Mixed garden:** Dry land planted with perennials (trees) combined with annual crops. Perennial plants or trees in questionare like fruit trees or other trees, while seasonal plants are like chilies and cassava.	Mixed garden is the most dominating land cover in the PT AMR III & IV location permit area. This land cover is found in the south or around the villageof Beringin Sakti. This land cover is dominated by rubber species *(Hevea brasiliensis)* and a small proportion of natural species such as mang *(Macaranga bancana),* lebanese *(Vitex pinnata),* pumpkin *(Endospermum diadenum),* and medang *(Litsea sp.).*
5	**Bare lan**d: Land without cover, either natural or semi-natural, which is not theresult of engineering and / or direct engineering by humans.	Bare land is found in the form of burnedland and land cleared by the communityfor the palm oil or or rubber development purposes.
6	**Rubber plantations:** Land planted with rubber trees, wide size homogeneous, andregular cropping patterns, both managed by individuals and companies.	Rubber plantations were found in the form of small fragments in the north and south of the PT AMR III & IV location permit area. Some rubber plantations are still managed intensivelyby their owners. The only species found was rubber *(Havea brasiliensis).*

7	**Oil palm plantations**: Land planted with oilpalm in **l**arge compact area and having regular cropping patterns, as well as industry-oriented**.**	Oil palm plantations identified in the PTAMR III & IV location permit area are community owned oil palm plantationsfrom the village of Beringin Sakti and Jadi Mulya village.
8	**Settlements / Village settlements:** Man- made land cover in the form of buildings which are mainly used as residences for residents in rural areas. Village settlement buildings are characterized by relatively low building density or density, made of permanent / durable building materials such as walls, roof tiles / concrete / zinc butmay also be non-permanent such as wooden walls and alang-alang roofs, and associated by using agricultural land such as rice fields, fields / moor, or mixed gardens and yards.	Settlements are found in the form ofbuildings where the people of the village of Beringin Sakti live.
9	Copse/bush: The land cover having plants that grow naturally with an average heightof 0.5-2 m, some are woody, some are not.	Bush cover is dominated by fern speciessuch as resam *(Dicranopteris linearis),* wire fern *(Lycopodium cernuum).* and kelakai *(Stenochlaina palustris)* are also found.
10	The vegetation formation or structure is a collection of shrubs with a height of between 50 cm to 2 m, which is dominatedby woody vegetation, interspersed with very short trees with a height of <= 5 m. Or:Dry land areas that have been overgrown with a variety of heterogeneous and homogeneous natural vegetation with sparse to dense density.	Scrub cover was found in the form of small fragments scattered sporadicallyin the PT AMR III and IV location permits. Most of the shrubs are found in low- lying areas and often burns during thedry season. The dominant species is mang (*Macaranga motleyana*)

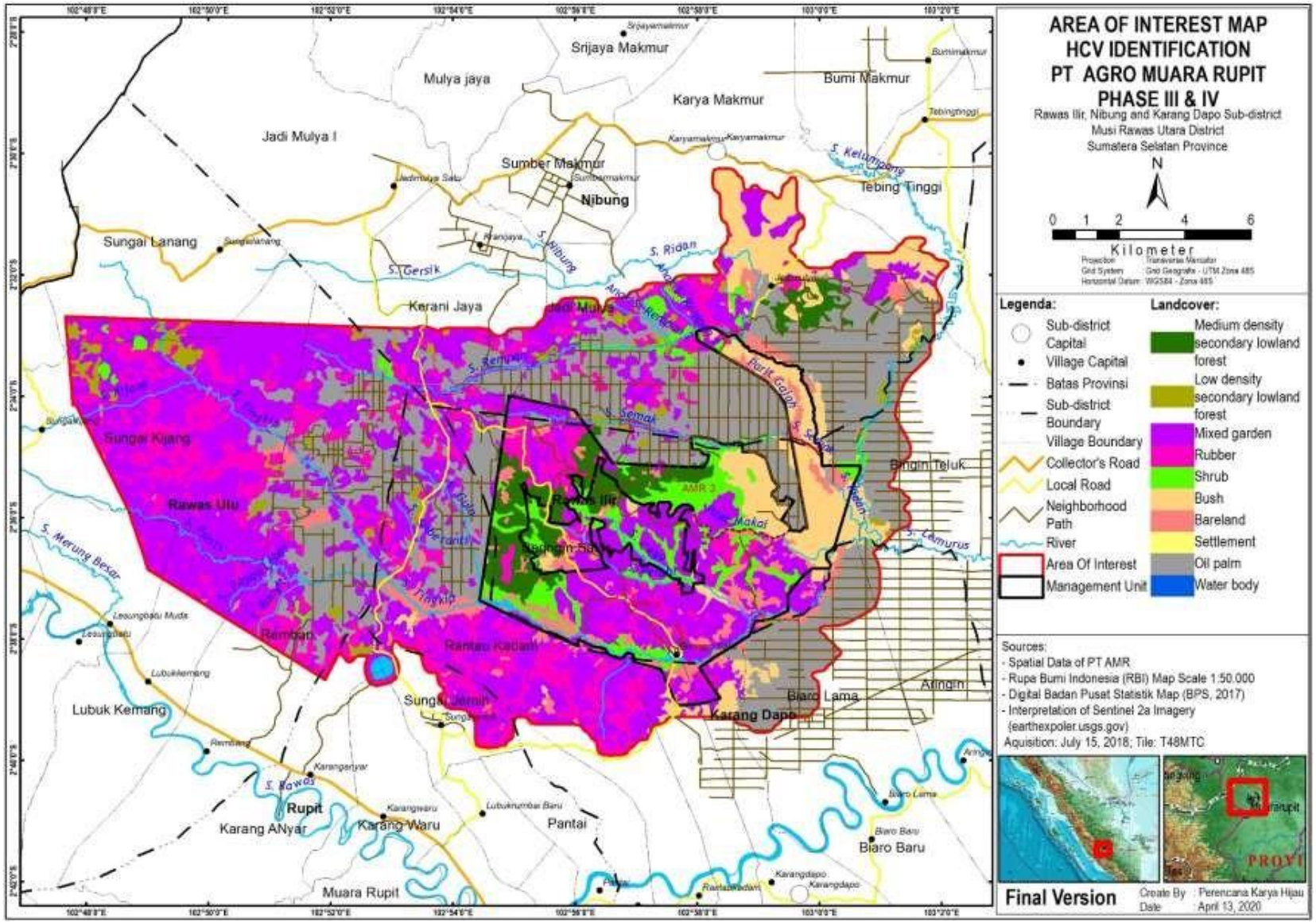


Figure 8 AOI Map showing wider landscape boundaries

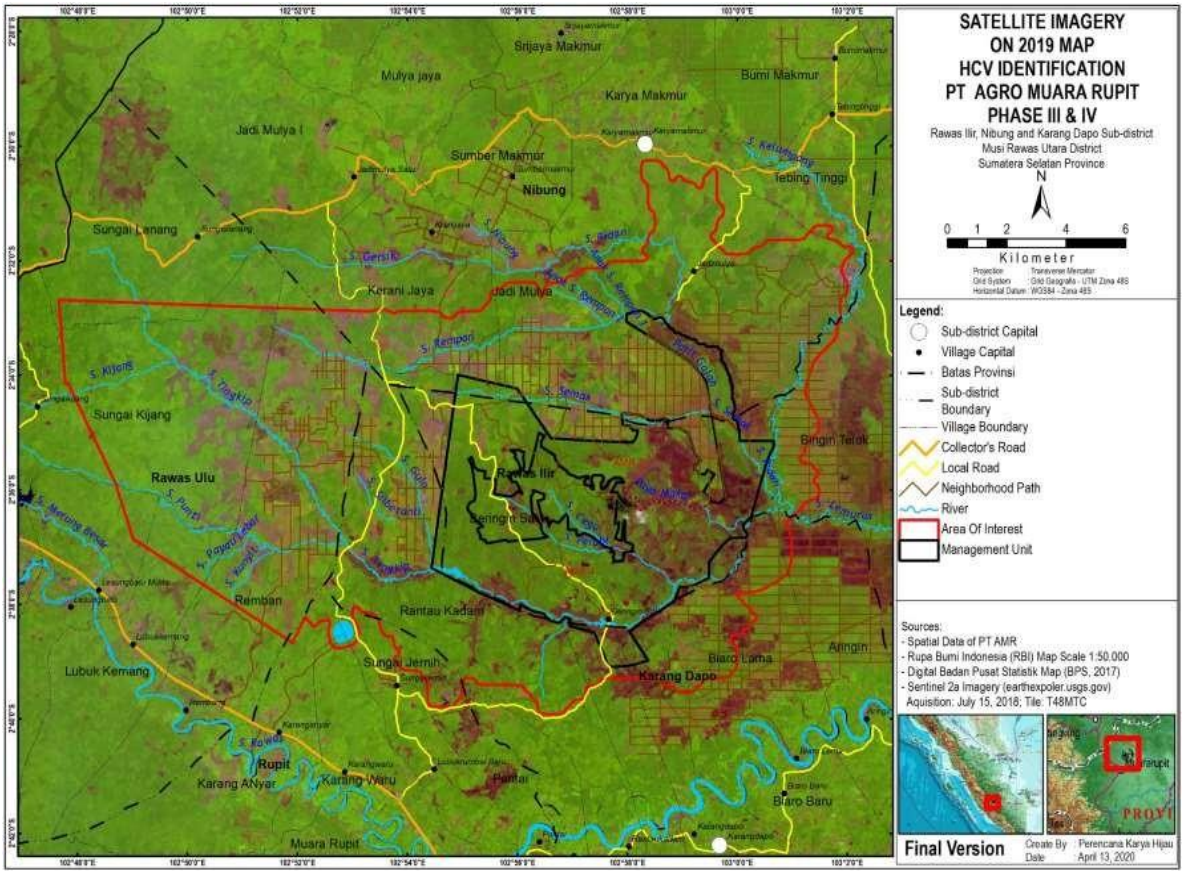


Figure 9 Sentinel-2A Satellite Image 2019 of AOI

Environmental Fieldwork

Environmental method | HCV identification in the PT AMR III & IV location permit area uses the Common Guidance for the Identification of HCV (Brown et.al., 2013), the HCV Assessment Manual (NKTRN, 2013) and the Guidelines for Identification of High Conservation Value Areas in Indonesia (Konsorsium Revised HCV Toolkit Indonesia, 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-truth 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 landcover 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 ofpoints 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, orindirectly, 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 havevarying 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. Especiallyfor 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 analyzing 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 border conditions, land clearing locations and several locations that represented water system conditions in plantations. Based on the description of the method used, the total sampling locations for environmental fieldwork were 80 locations. The use of secondary data and literature can be seen in **Table 9**.

Table 9 Data and information collected in pre-assessment stage

HCV	Data and Information type	Data source
HCV 1	• Study area boundary map	PT AMR
	• Map of Conservation area of Sumatra (Decree no 863 &866/Menhut-II/2014)	MoEF (2014)
	• List of protected flora and fauna (Decree of MoEF Minister noP.20, P.92, and P.106/MenLHK/Setjen/Kum.1/6/2018)	MoEF Minister decree No.106 year2018
	• *Endemic Bird Area Factsheet: Sumatra and Peninsular Malaya* • *Important Bird Areas in Asia: Key Sites for Conservation* • *Key Biodiversity Area*	BirdLife International (www.birdlife.org)
	• *IUCN Red List of Threatened Species* ver 2019-1 (IUCN 2019)	IUCN (www.iucnredlist.org)
	• *Appendices I, II and III, valid from 04 October2017* (CITES 2017)	CITES (2017)
	• Ramsar Area in Indonesia	Ramsar (www.ramsar.org)
	• Tiger distribution map of Sumatera (IUCN 2012) • Sunbear disribution map of Sumatera (IUCN 2012) • *Sumatra langur* distribution (IUCN 2019)	IUCN (www.iucnredlist.org)
	• Birds of Indonesia	Sukmantoro et.al., 2006
	• Birds FIeldquide	MacKinnon *et al.,* 2010
	• Flora species identification key in Sumatera	Ferry Slik (asianplant.net)
	• Satellite imagery of Sentinel-2 (acq. 5 July 2018 and 17 Nov 2018)	USGS (www.earthexplorer.usgs.gov)
HCV 2	• Study area boundary map	PT AMR
	• Map of Forest state of South Sumatera Selatan (Decree no. 784/Menhut-II/2012, dan no 5984/Menhut-IV/BRPUK/2014)	MoEF(2012 & 2014)
	• Map of *Intact Forest Landscape* (IFL – WWF 2016)	IFL (www.intactforests.org)
	• Ramsar areas in Indonesia,	Ramsar (www.ramsar.org)
	• Map of Protected areas of South Sumatra	BKSDA, 2018
	• Satellite imagery of Sentinel-2 (acq. 5 July 2018 and 17 Nov 2018)	USGS (www.earthexplorer.usgs.gov)
HCV 3	• Study area boundary map	PT AMR
	• Map of Indicatif Moratorium on New Licensing (PIPIB)	KLHK (2019)

	Rev. XIII	
	• Land system map scala 1:250.000 (RePPProt, 1989)	RePPProt, 1989
	• Ecology Ecosystem of Sumatera.)	Anwar, *et.al.*, 1984 , KLHK (2018)
	• Map of Sumatra Ecoregion	WWF, 2012 (wwf.org)
	• Satellite imagery of Sentinel-2 (acq. 5 July 2018 and 17 Nov 2018)	USGS (www.earthexplorer.usgs.gov)
	• Peta Kesatuan Hidrologis Gambut Sumatera	KLHK (2017)

Social Fieldwork

Social Methodology | The HCV assessment in PT AMR III & IV is a *'Rapid and Ex-ante Assessment'*[7] , which is an assessment with rapid information extracting, 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 thatwere administratively included in the PT AMR III & IV location permit and relevant important stakeholders atthe district government level. The number of resource persons is growing and representing the regional levelwho 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 andrelevant 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 dataand 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**. Field visits were carried out with the help of village heads, customary leaders, community leaders and company staff as location guides / area locations supported by spatial information overlaid with supporting reference maps.

Table 10 Data and information collected for the field social identification

HCV	Type of 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.
	Satellite imagery of Sentinel-2 (15 July 2018)	USGS (www.earthexplorer.usgs.gov)
	Satellite imagery of Landsat 8 OLI TIRS (10 Sept 2017)	USGS (www.earthexplorer.usgs.gov)
	Rainfall measurement data	PT AMR
	EIA Documents	PT AMR
	SIA document of PT AMR I & II	PT Sonokeling Akreditas Nusantara
	HCV identification document of PT AMR I & II	PT Sonokeling Akreditas Nusantara
	Settlement distribution map	Geospatial Information Agency (2017)
	Common Guidance for the Identification of HCV (Brown et al., 2017)	https://hcvnetwork.org/
	Common Guidance for the Management and Monitoring of HCV (Brown et al., 2018)	https://hcvnetwork.org/
HCV 5	Settlement distribution map	Geospatial Information Agency (2017)
	North Musirawas Regency in Figure 2018	BPS Musirawas Utara (2018)
	Rawas Ilir District in Figure 2018	BPS Musirawas Utara (2018)
	Karang Dapo District in Figure 2018	BPS Musirawas Utara (2018)
	Nibung District in Figure 2018	BPS Musirawas Utara (2018)
	SIA document of PT AMR III & IV	PT Perencana Karya Hijau (2018)
	SIA document of PT AMR I & II	PT Sonokeling Akreditas Nusantara
	HCV identification document of PT AMR I & II	PT Sonokeling Akreditas Nusantara
	Ethnicity and Fam	https://joshuaproject.net/people_groups/14529/ID
	Regional Development Work Plan 2019	The Government of Musi Rawas District

	Common Guidance for the Identification of HCV (Brown et al., 2017)	https://hcvnetwork.org/
	Common Guidance for the Management and Monitoring of HCV (Brown et al., 2018)	https://hcvnetwork.org/
HCV 6	Settlement distribution map	Geospatial Information Agency (2017)
	North Musirawas Regency in Figure 2018	BPS Musirawas Utara (2018)
	Rawas Ilir District in Figure 2018	BPS Musirawas Utara (2018)
	Karang Dapo District in Figure 2018	BPS Musirawas Utara (2018)
	Nibung District in Figure 2018	BPS Musirawas Utara (2018)
	SIA document of PT AMR III & IV	PT Perencana Karya Hijau (2018)
	SIA document of PT AMR I & II	PT Sonokeling Akreditas Nusantara
	HCV identification document of PT AMR I & II	PT Sonokeling Akreditas Nusantara
	Nationality, Tribes, Religions and Languages of Indonesian	BPS, (2011)
	World Heritage sites	UNESCO (www.whc.unesco.org)
	Common Guidance for the Identification of HCV (Brown et al., 2017)	https://hcvnetwork.org/
	Common Guidance for the Management and Monitoring of HCV (Brown et al., 2018)	https://hcvnetwork.org/

2.3. Land Use Change Analysis

2.3.1. Assessor Credentials

The LUCA analysis at PT AMR III & IV was carried out by PT Perencana Karya Hijau led by Riswan Zein, S. Hut, M.Si. The complete composition of the LUCA drafting team is:

Table 11 Composition of the LUCA Analysis Team of PT AMR III & IV

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)	Particapory Land Mapping
Fadli	SS (Social)	Social data aspects
Wibowo A Djatmiko	Ir, MS (Forestry)	Dendrologist and Fauna

2.3.2. LUCA Method

The methods used in the analysis of Land Use Change Analysis (LUCA) at PT AMR III & IV include:

1) GIS Analysis and Remote Sensing guided by the period of land clearing according to the RSPO RaCP guidelines. Prior to image analysis, some radiometric and geometric carried out to provide better image source for land cover classification. Image classification carried out by object-based interpretation.
2) Review of secondary data and relevant reports including HCV reports, AMDAL reports, SIA reports, soil analysis reports, HCS reports funds;
3) Defining land cover strata and vegetation coefficient according to the table below.

Land cover type	Description	Vegetation coefficient
Primary forest	Forests that have not been disturbed by humans. This land type was not found.	1.0
Secondary forest	Forests that grow and develop in disturbed dryland habitats	0.7
Agroforestry / mixed rubber farm	Dry land planted with perennial crops (trees), rubber and combined with seasonal crops.	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.	0.0
Open field	Land without cover, either natural or semi-natural, whose existence is not the result of engineering and / or the result of direct engineering by humans	0.0
Oil palm plantation	The land planted with oil palm plants is in the form of a wide stretch and an orderly cropping pattern, which is industry-oriented	0.0
Settlement		0.0
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.	0.0
Scrub	Dry land area that has been overgrown with a variety of heterogeneous and homogeneous natural vegetation with sparse to dense density. The area is dominated by low (natural) vegetation.	0.4
Water body	All naturally occurring bodies of water (including natural lakes / ponds, rivers, sea waters, swamps)	0.0

4) Field verification with the following activities: a) validation of land cover data was carried out during the ground truthing of 681 points; b) Compilation of information related to the history of land cover, including carrying out participatory mapping and document review; c) Identification of the possible loss of social HCVs through discussions and interviews; and d) Identification of possible loss of areas prohibited from clearing by RSPO or government regulations such as riparian zones, high slope lands and peat.

2.4 Carbon Stock Assessments and Estimates of GHG Emissions

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

The implementation of carbon stock and GHG emission assessment was carried out in June - September 2020. The carbon stock preparation team and GHG emission 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 AMR III & IV

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 procedures version 3, and combined with the carbon stock assessment based on the HCS Approach Toolkit 2.0: Putting No Deforestation into Practise, 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 Method and Procedure

Inventory Plots

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

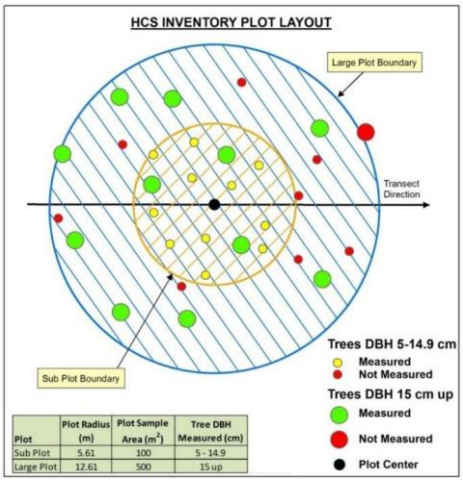


Figure 10 HCS Inventory Plot Layout

Carbon Calculation

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

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 above ground biomass (AGLB) per tree measured in forest plots. The resulting AGLB is the total biomass of stems, canopy and leaves in kg 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 = The total height of the tree (m)
ρ = Density (gr/cm3)

Chave, et. al. (2005) found that the estimated tree biomass 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 tonne / 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:

$$\text{Total carbon (tonnes / ha)} = \Sigma \text{ (Tree carbon)} / \text{(plot size (ha))}$$

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 Significant 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 mean carbon stock / ha at each stratum.

The 90% confidence interval (CI) was calculated for each land cover from the calculated carbon mass per ha in each plot using the standard formula:

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

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) The Anova test was conducted to determine whether there are significant differences between strata for carbon estimation.
2) Scheffe's multiple pair comparison test was conducted 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 are calculated by adding up the emissions released during the land clearing process, crop production, and also subtracting from the sequestration by crop stands and from conservation areas. The sources of emission and absorption of greenhouse gases (GHG) can be described in **Table 13**.

Table 13 GHG emission sources and sequestration

Source		Notes
	Land cover conversion	CO2 emissions from land clearing
Emission	Fertilization and transport	N2O and CO2 emissions from inorganic fertilization and organic matter and their transportation
	Fuel consumption	Emissions from fuel
	POME effluent	Methane produced from palm kernel shell (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

2.5 Soil and Topography Studies

2.5.1 Implementation of soil studies and the assessors' credentials

The Soil Mapping and Land Suitability Survey in the PT AMR III & IV area was carried out by the Faculty of Agriculture, Bogor Agricultural University in October 2019. The activity implementation team was chaired by Dr Ir. Heru Bagus B Pulunggono, MAgr with team members, namely:

Dr Dwi Putro Tejo Baskoro, M.Sc.
Dr Ir Syaiful Anwar, MSc.
Moh Zulfajrin, SP.
Novi Fajriani, SP.
Adhityo Guritno, SP.
Muhamad Sobirin, SP.
Mazlan
Rival Hardiawan

2.5.2. Method

1) Soil Survey Method
In the preparation activities, a number of data will be collected and studied regarding the Topographic Map (National DEM resolution 64 m2), Geological Map (1: 250,000), RePPProT Land Unit Map (1: 250,000), and Earth Map of Indonesia (scale 1: 50,000). The results of the interpretation of the basic information are written into the Work Map as a reference for field surveys. Soil observation planning in the form of soil observation paths and points are plotted in the Work Map.

Observations will be made every 20 ha (observations at a distance of 400 m x 500 m) to produce a semi-detailed level soil map at a scale of 1: 20,000, so that there will be about 160 drill points. To determine the distribution of soil types in the field, they will be observed and taken to analyze soil profile samples whose numbers are adjusted to soil variability found in the field. Soil profile samples are taken at each horizon / soil layer. To determine the condition of soil fertility, samples will be taken at 2 depths: 0 - 30 and 30 - 60 cm, the number of which is adjusted to the soil conditions in the field. Four samples of river water will be taken to determine the quality of water for agricultural use.

Considering that the survey area is generally an area with flat land forms, the main survey method used is a grid system, while for hilly areas it will be carried out in land units. Soil observations are carried out through drill observations to test soil variation and distribution. Soil profile observations are carried out to represent each type of soil encountered. Soil samples consist of fertility samples and soil profile samples. Fertility samples were taken from a depth of 0 - 30 cm and 30-60 cm, while profile soil samples were taken at each horizon / soil layer.

Observation of soil in the field is based on the Guidelines for Observation of Soil in the Field (Research Institute for Soil 2004). Observations that have been made in the field survey are 162 drill points with 32 soil fertility samples (16 points and 2 depths: 0 - 30 and 30 - 60 cm), 25 soil profile samples (8 points with an average of 4 layers), and 3 examples of river water.

2) Laboratory Analysis for Soil Properties
The analysis used to determine the properties of the soil is routine analysis, which includes analysis of the physical and chemical properties of the soil. The physical properties analyzed were soil texture, while the chemical analysis analyzed included pH (pH H2O and pH KCl), C-organic, N-total, available P, total P2O5 and K2O, interchangeable bases (K, Na, Ca, Mg), CEC cation exchange capacity (CEC), base saturation (KB), Al-dd and H-dd.

3) Data Analysis and Map Making
Data analysis includes processing field and laboratory data to determine soil fertility, soil characteristics and soil classification, and evaluation of land suitability. The making of the map refers to the technical guidelines for a semi-detailed soil survey and mapping at a scale of 1: 50,000 by the Center for Agricultural Land Resources Research and Development.

4) Land Suitability Evaluation
The determination of land suitability classes is carried out into class levels by evaluating the main limiting factors that exist. Basically, the land suitability class can be divided into 5 (five) classes as follows: (a) Very suitable (S1), (b) Quite appropriate (S2), (c) Marginally corresponding (S3), (d) Does not match at this time (N1), and (e) Does not match forever (N2). Furthermore, each land suitability class will be evaluated into a land suitability sub-class based on its limiting factors. Land suitability assessment is carried out at each Land Map Unit (SPT), which is the smallest management unit that has the same characteristics. In this study, land suitability assessment for oil palm plants was carried out using PPKS (2008) criteria.

2.6. Community Engagement and FPIC

2.6.1. Implementing the FPIC Process and assessor credentials

The implementation of FPIC is aimed at (1) fulfilling and upholding 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 utilization of their potential and assets, (3) ensuring that the operations of the Company side by side with their territory provides direct benefits to indigenous peoples and / or local communities, (4) becoming a prerequisite for Company executors to be able to receive compensation and incentives from Company operations and (5) Reviewing and updating social conditions surrounding the latest location permits, implementation of plans management and internal social monitoring of the Company. The study was carried out from March 2018- April 2019. The FPIC Assessment drafting team is presented in **Table 14**.

Table 14 List of personnel in the FPIC Assessment Team at PT AMR III & IV

Name	Position	Expertise
Sigit Budhi Setyanto	Team Leader	Socio-Cultural Field Assessor
Fadhli	Member	Socio-Cultural Field Assessor
Wibowo A. Djatmiko	Member	Social-Environmental Assessor
Riswan Zein	Member	Social-Environmental and GIS Assessor
Harry Kurniawan	Member	Social-Environmental and GIS Assessor
Dwi Budi Siswantono	Member	Social-Environmental Assessor
Fakhri Sukma Afina	Member	Social-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 implementing 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 village. Discussions with stakeholders at the village level are carried out through interviews and initial participatory mapping, in order to capture issues at the landscape level, and the community's understanding of the current situation and future plans for where they live.
3) Workshops are conducted to confirm the results of field visits to the community and harmonize 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) An FGD is done 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 data is collected, regarding the presence of HCV and HCS attributes or elements. The results of the participatory mapping scheme are used to configure: (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 carried out on the plantation development plan at PT AMR III & IV, information can be obtained about the positive and negative impacts of a series of plantation development activities on the community and socially in general.

1) Socialization activities, land measurement and land compensation

Positive impacts:

- Providing to the community lessons learned, the socialization process, measurements and compensation carried out. The village team and part of the community get direct learning, related to measurement procedures and land compensation process mechanisms carried out in synergy by a team from the Company and the village team.
- Plantation development based on regulations (at least 20% for plasma plantations) will also increase financial assets in the form of community owned plasma oil palm plantations.

Negative impacts:

- Potential to create negative perceptions of development plans, because many other companies have not committed themselves to their plans. If the socialization does not meet the principles of FPIC, then the community members will be reluctant. FPIC is the right of the community to obtain clear and complete information before a development investment activity is carried out in their area, and based on the information obtained, they freely express consent or reject it.
- 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 Activity

Positive impacts:

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

Negative impact:

Incidents of miscommunication between the Company and the contractor sometimes break into community land areas that have not been measured or compensated for, resulting in potential conflicts,

3) Recruitment of workers

Positive impact:

Recruitment of local workers has a positive effect on the consistency of the Company's existence.

Negative impact:

Recruitment without selection procedures will have a negative influence and be 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 basic 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 will have positive aspirations if they are treated the same.

5) Making production roads

Positive impacts:

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

Negative impact:

Poor production roads have the potential to trigger high costs or losses due to problems with the transportation of FFB.

6) Harvesting

Positive impacts:

- Learning knowledge about harvesting methods in cultivating oil palm.
- The results of the plasma will provide positive aspirations towards the Company as foster father and partner for the results obtained.
- Potential future investment from smallholdings.

Negative impact:

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

7) Transport of FFB

Positive impacts:

- FFB transportation will run well if production roads are supportive.
- There is potential for cooperative plasma businesses for transporting FFB.

Negative impact:

The roads are not maintained, causing public anxiety about good road access and also the poor air quality due to dust.

Social Issues and Social Sustainability

The results of field visits and consultations with several stakeholders around the plantation and PT Agro Muara Rupit III & IV's plantation development plan, there are several notes on issues as in **Table 15** below.

Table 15 Social issues from the PT AMR III & IV oil palm plantation development plan

Social Issue	Explanation
Village boundaries	Currently, there are still unilateral claims regarding the boundaries of the village of Beringin Sakti and neighboring villages.
Location Permit Information for PT AMR Phase IV	Stakeholders are not yet aware of the condition of the additional location permit information for PT
Evaluate better compensation process	Currently, there are still land claims due to land clearing by neighboring land owners.
Overlapping areas of the PT AMR Location Permit	The current condition indicates the overlapping area of the location permit of the PT SAM company that has carried out the compensation
The sustainability of the "clusters" that are still being managed	The current condition has identified the initial groups in the location permit.
Labor recruitment involving third-party contractors regarding recruitment procedures and working	The current situation is that the contractor's recruitment and operational procedures are still an obstacle for local residents.
Concerns about the decline in future labor requirements	Currently, there are concerns that the need for local labor will decline in the future.
Plasma Plantation	The current condition of the information on plasma plantations is not clear.
Concern over areas of HCS	The current situation is that there are still concerns that HCS locations can be used as conservation areas and cannot be compensated.
Clean water issue	Currently, there is a perception that the quality of river water from upstream has decreased.

3.2 LUCA Findings and Results

Since 1902, the South Sumatra region including Musi Rawas has been a landscape that was introduced to the cultivation of rubber plants brought by the Harrison and Crossfield Company, followed by the 'Societe Financiere des Caoutchoues' company from Belgium in 1909 and the United States company, 'Hollands Amerikaanse Plantage Maatschappij (HAPM)' in 1910. The Dutch East Indies government at that time did not regulate the opening and exploitation of smallholder rubber plantations, so rubber plantations expanded out of control. Then in 1969, the rubber development program was directed to encourage the rural economy, to improve the welfare of the community. The development of government-assisted projects was chosen by the community which planted new rubber traditionally, by clearing new land (forests) rather than rejuvenating existing old rubber areas, on the grounds that old rubber plantations were assets that could still be managed again at any time. In 1977, the rubber development program was carried out through four patterns, namely (1) the Community Core Company (PIR) Pattern, (2) the Project Implementation Unit (UPP) Pattern, (3) the Partial Assistance Pattern, and (4) the Large Plantation Development Pattern (PPB)[6], which certainly provided a breath of fresh air for the development of rubber in South Sumatra Province.

6) *Dr. Tirta Jaya Jenahar, 2010, 'Sejarah Perkembangan Karet di Indonesia' pada http://tirtajayajenahar.blogspot.com/2010/05/sejarah-perkembangan-karet-di-indonesia.html*

The historical chronology of the land in the PT AMR III & IV location permit area, based on informants from villages, stated that the location permit area used to be a roaming area for local residents and groups to open farms, especially those that could be reached via rivers or streams. In the vicinity of the PT AMR location permit area, there used to be many groups and community rubber plantations, in addition to the group's legacy there are also some 'run[7] which may now appear because they are often traversed; they look like streams or creeks. In the early 1980s, with a large number of wood buyers, it became an illegal logging area for the community and was then opened up to rubber trees. In the 1990s, PT IKP came into existence for the exploitation of timber resources and this gradually ended after the late 2000s. Other information from the sources, as well as evidence from satellite imagery, shows that in 1997 there was a large fire in the Musi Rawas area. Predictions are that one of the causes of forest degradation is the habit of local people using fire to clear land, and dry weather conditions that cause large fires.

The results of the analysis of land cover in the PT AMR III & IV location permit area, show that land cover in the form of secondary forest, both medium and low density, decreased significantly between 2005 and 2018. Decreased area of secondary forest land cover with medium density covers an area of 295.75 ha; low density secondary forest land cover will no longer be left in 2018 from the original area of 1268.23 ha. On the other hand, the area of land use for rubber plantations has increased quite rapidly. Meanwhile, the development of oil palm area is not significant in the location permit. However, land clearing efforts show an increasing trend in the 2014-2020 timeframe, and have been allowed to become bush and open land. Satellite images used in the land cover change analysis are presented in **Table 16.**

Table 16 Temporal satellite imagery data for land cover analysis in the PT AMR III & IV location permit area

No	Year	Satellite Image Data	Resolution	Acquisition Date
1	2005	Landsat 5–LT05_L1GS_Path Row 125062	30 metres	24-Nov-05
2	2007	Landsat 5–LT05_L1TP_Path Row 125062	30 metres	30-Aug-07
3	2009	Landsat 5–LT05_L1TP_Path Row 125062	30 metres	22-Oct-09
4	2014	Landsat 8–LC08_L1TP_Path Row 125062	30 metres	11-Apr-14
5	2017	Landsat 8–LC08_L1TP_Path Row 125062	30 metres	10-Sep-17
6	2017	Google Earth high resolution imagery	1 metre	Year 2017
7	2018	Sentinel 2-A Tile T48MTC*)	10 metres	15-Jul-18
8	2019	Sentinel 2-A Tile T48MTC	10 metres	07-Nov-19
9	2020	Landsat 8–LC08_L1TP_Path Row 125062**)	30 metres	20-Oct-20

Note:

*) Satellite images use Landsat acquisition on 10 Sept 2017 and Sentinel on 15 July 2018, because on landsat imagery the afterwards images are having cloud cover more than >20%.

**) Satellite images use Landsat acquisition on 20 Oct 2020, because the afterwards images are having cloud cover more than >20% and this report was done on April, so there is no images can use afterwards.

Radiometric correction is applied to the satellite imagaries through the histogram adjusting to restore better image quality. There is no Landsat 7 ETM used for image processing since stripping line issue. Geometric correction is carried out by image rectification and linear resampling only for Landsat 5 using national base map (Rupa Bumi Indonesia) as control points, while for Landsat 8 and Sentinel no need further correction when overlaid to the base map.

7. "Run" is an artificial creek channel to the river that in the past was made to help transportation via the river of farm products in the form of tapped rubber and other.

Complete information on the results of land cover analysis from 2005, 2007, 2009, 2010, 2014, 2018 and 2020 is presented in **Table 17** and maps of land cover analysis results from land cover interpretation based on the period of the year are presented in series in **Figure 11** to **Figure 17**.

Table 17 Results of Land Cover Analysis in 2005, 2007, 2009, 2010, 2014, 2018 and 2021 in the PT AMR III & IV location permit area

Land Cover*	2005	2007	2009	2010	2014	2018	2021
	Ha	Ha	Ha	Ha	Ha	Ha	Ha
Water body	78.50	78.50	78.50	78.50	78.50	78.50	78.50
Low density secondary lowland forest	1268.23	1261.17	1225.62	1248.44	1237.18	654.63	608.81
Medium density secondary lowland forest	950.37	937.98	906.13	882.01	820.04	0.00	0.00
Mixed garden	2074.29	2053.56	2025.00	1965.28	1772.05	1625.23	924.02
Open field	94.60	102.76	224.73	347.55	291.39	672.35	0.00
Rubber plantation	251.48	319.53	475.54	445.99	541.70	663.48	639.37
Oil palm plantation	0.00	0.00	0.00	0.00	41.22	42.48	118.87
Street	0.00	0.00	0.00	0.00	0.00	20.89	20.89
Settlement	8.93	8.93	8.93	8.93	8.93	9.57	9.57
Bush	615.21	620.52	138.16	133.27	129.96	957.10	2447.98
Scrub	161.70	120.35	420.71	393.33	623.57	779.02	655.28
TOTAL	5503.27	5503.27	5503.27	5503.27	5503.27	5503.27	5503.27

*) Land cover classification is based on SNI 7645-1: 2014 regarding land cover classification.
Source: Results of satellite image interpretation and analysis, 2020

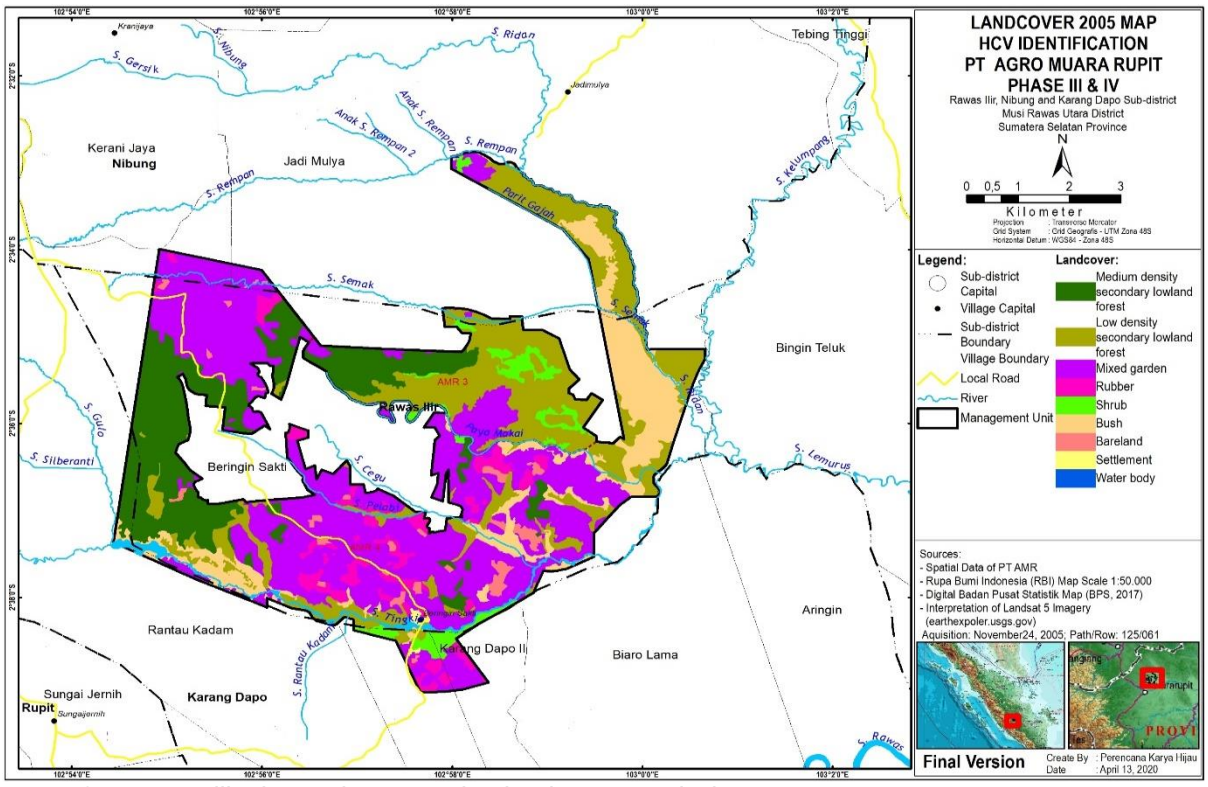


Figure 11 Map of 2005 satellite image interpretation land cover analysis

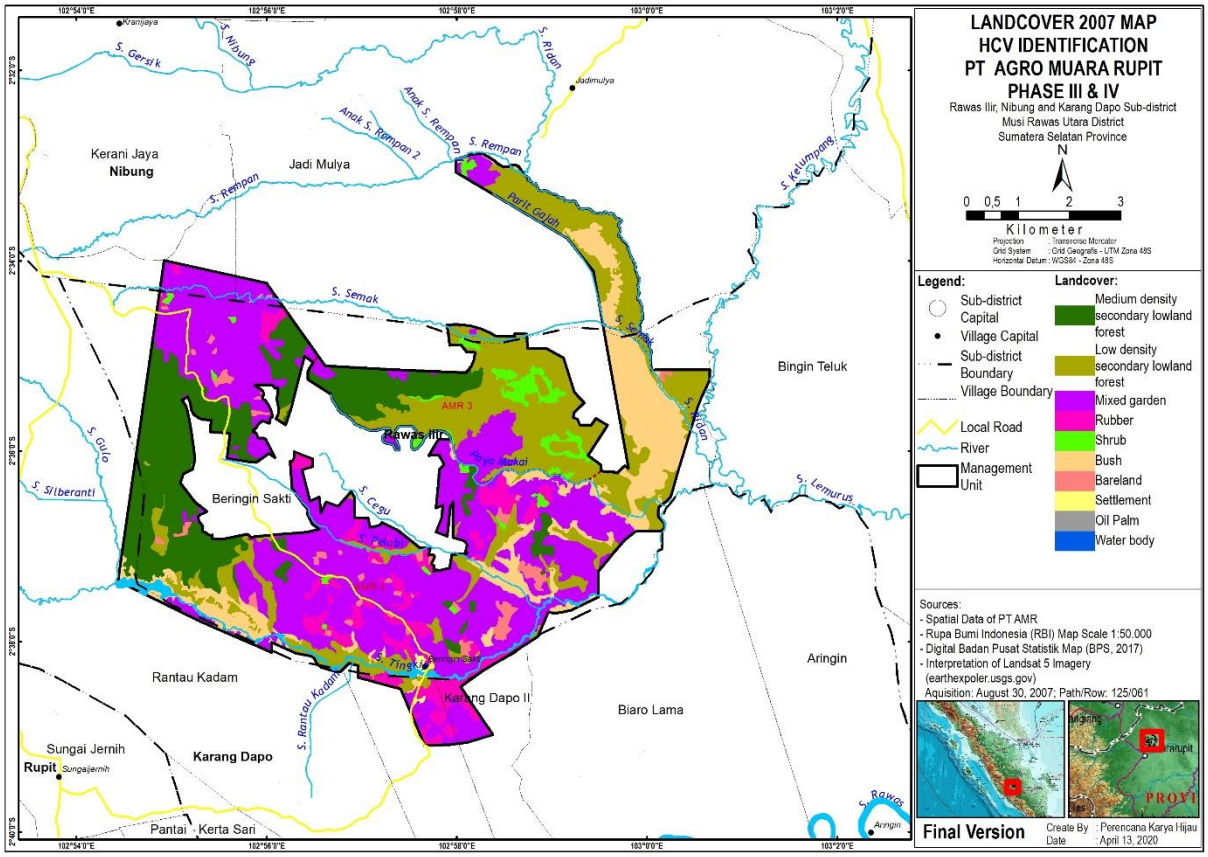


Figure 12 Map of the results of land cover analysis of satellite imagery interpretation in 2007

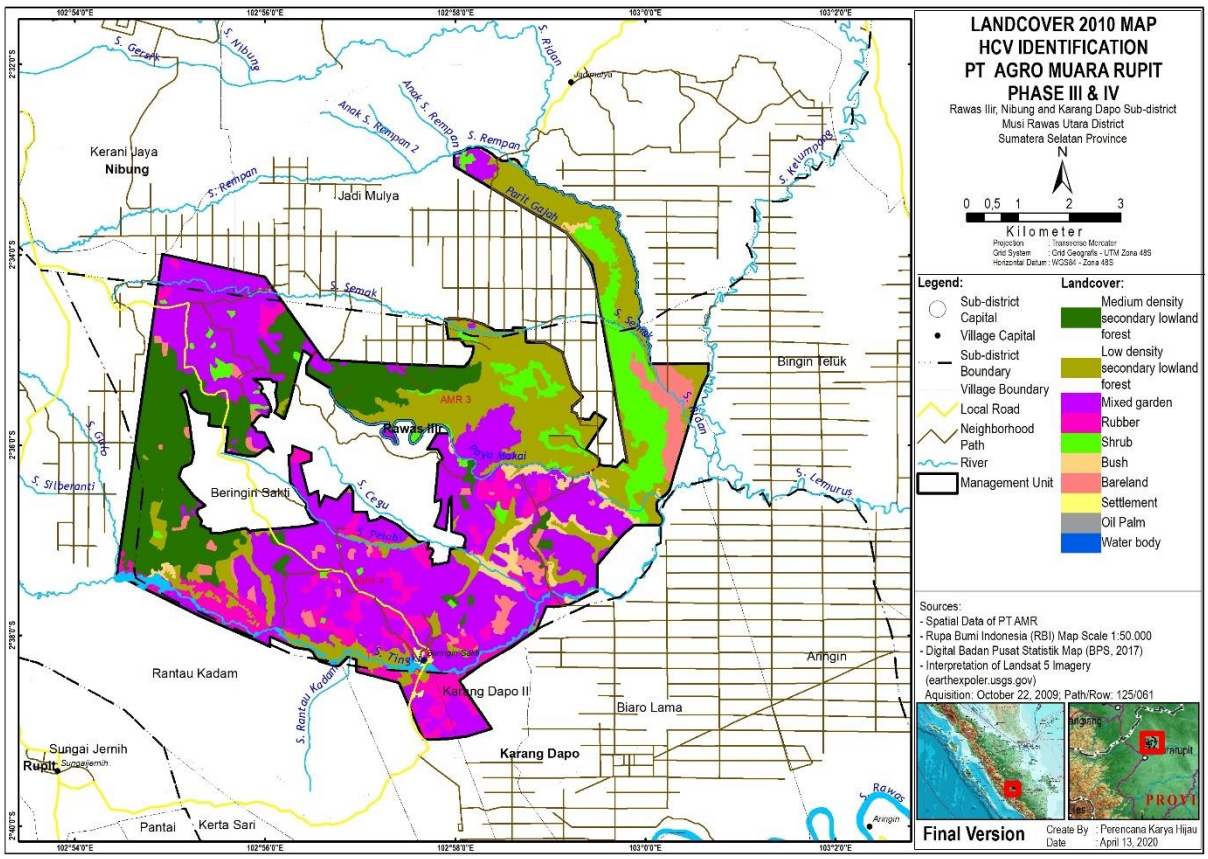


Figure 13 Map of the results of land cover analysis of satellite imagery interpretation in 2010

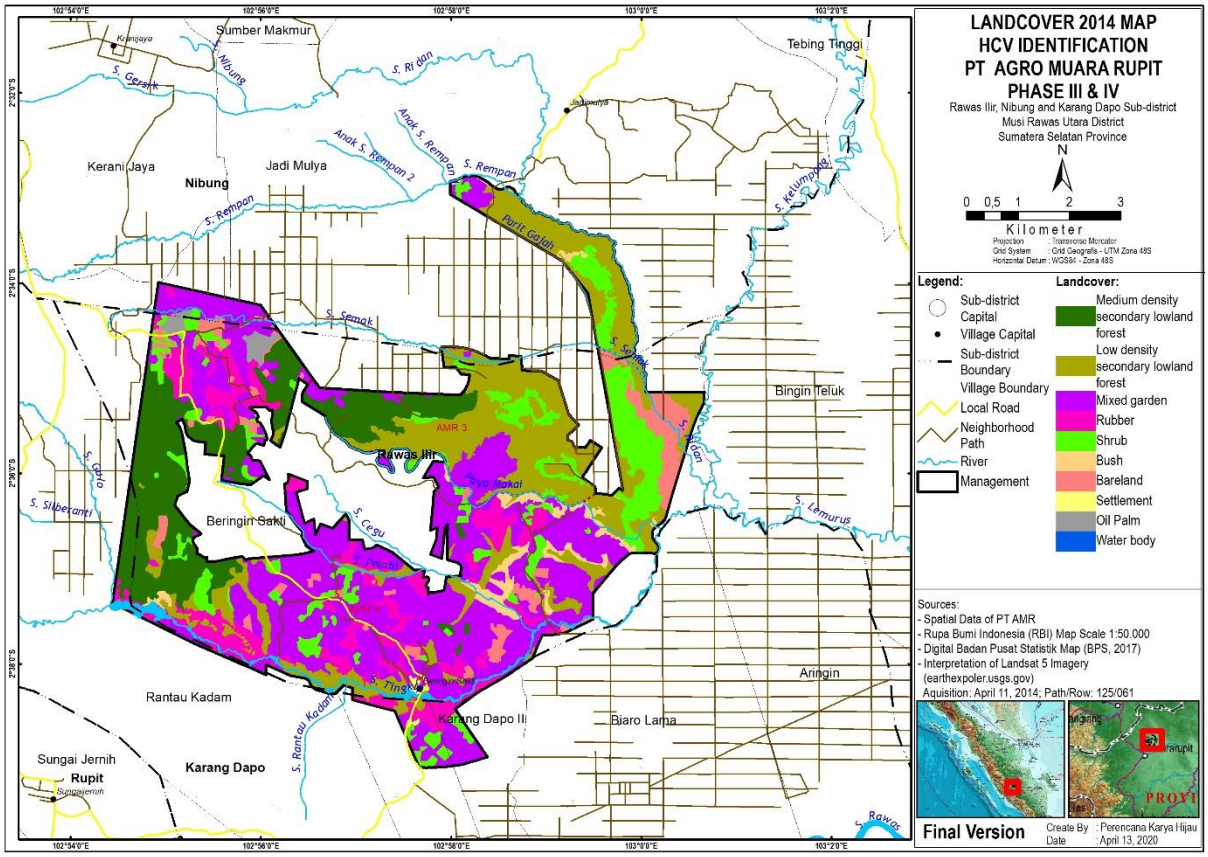


Figure 14 Map of the results of land cover analysis of satellite imagery interpretation in 2014

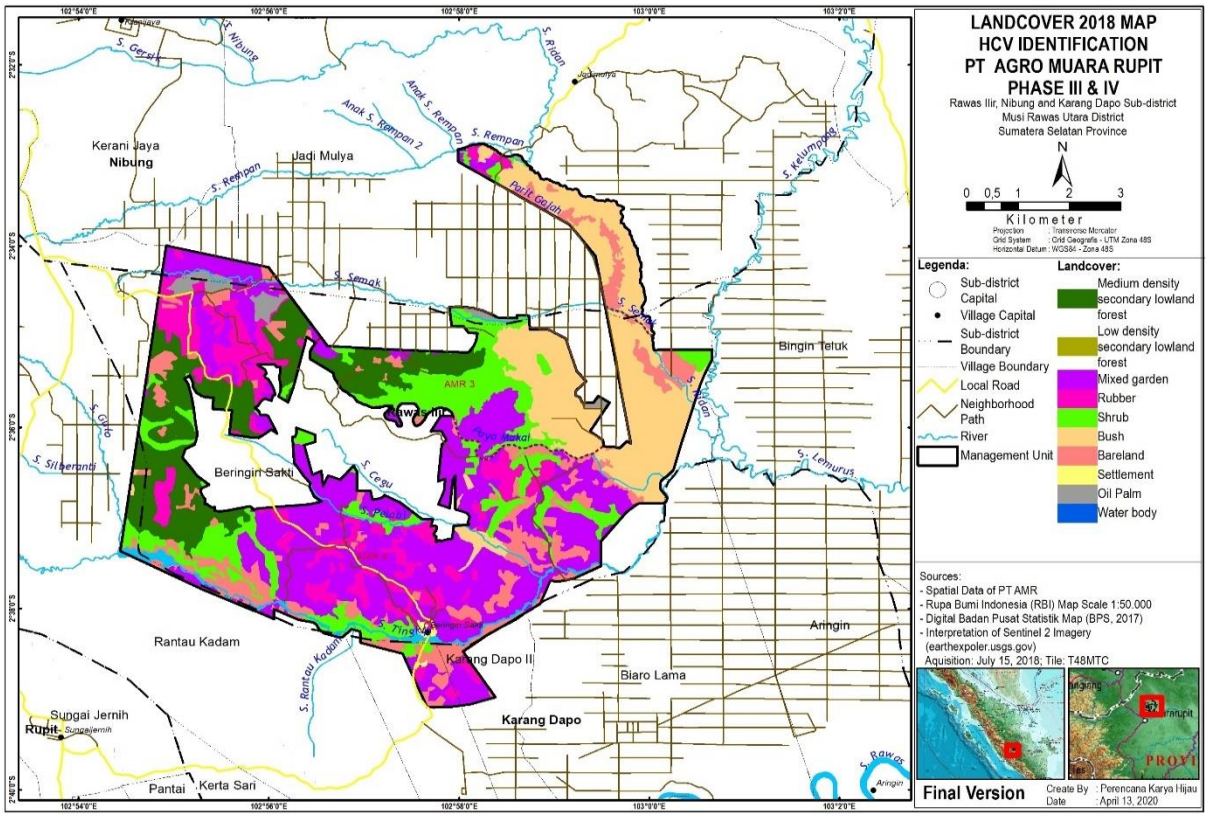


Figure 15 Map of the results of the analysis of land cover interpretation of satellite imagery in 2018

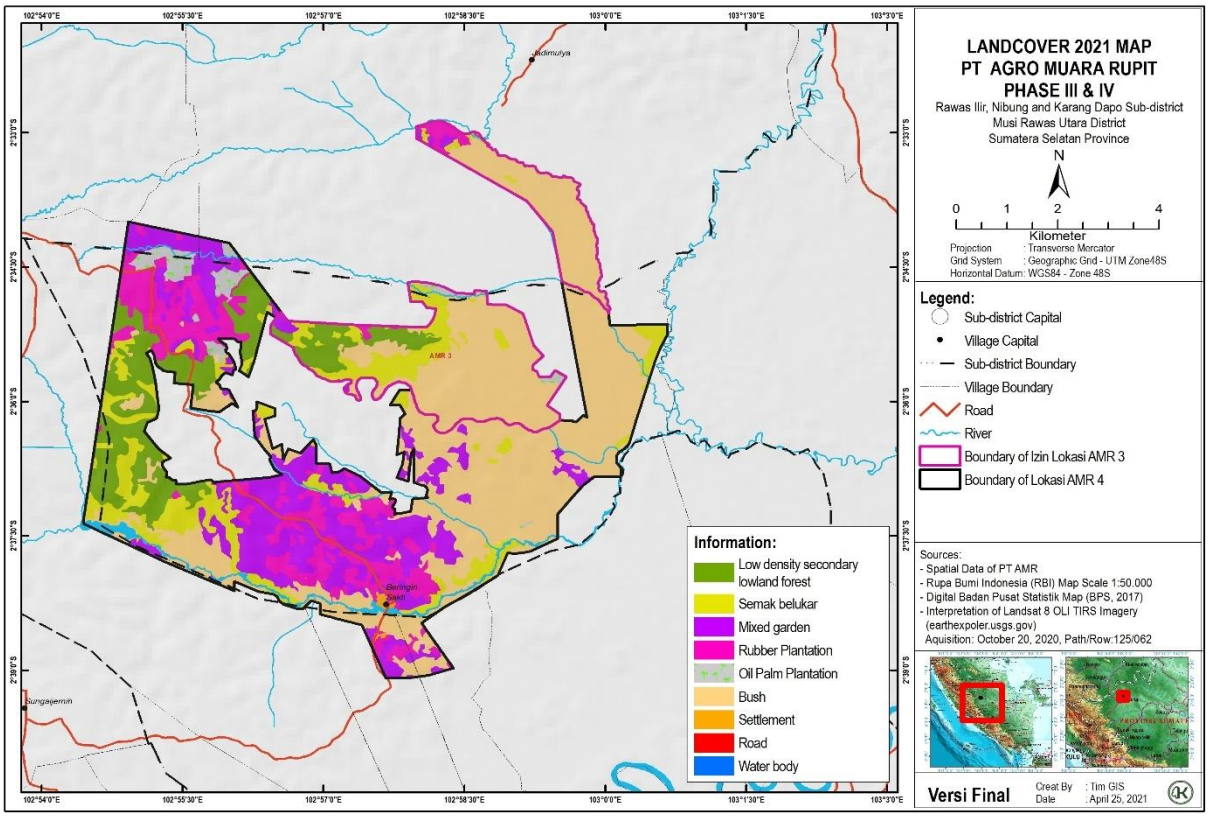


Figure 16 Map of the results of the analysis of land cover interpretation of satellite imagery in 2021

3.3. Findings and Results of the HCV Assessment

3.3.1. National and Regional Context

Indonesia with around 17,504 islands divided into 34 provinces is the largest and most populous country in Southeast Asia. In 2015, it is estimated that 55,272.9 thousand people lived on the island of Sumatra or around 21.6% of Indonesia's population with 255,461.7 thousand inhabitants. Meanwhile, South Sumatra Province has a population of 1,874.9 thousand people or about 0.73% of Indonesia's population in 472.8 thousand families, with an area of 19,919.33 km2 with 47 islands or about 1.04% of the total area of Indonesia, which covers 1,913,578.33. km2 with 17,504 islands.

In 2013, it was estimated that the forest area in Indonesia was around 82,487,000 ha, ranking 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[7)]. Meanwhile, the deforestation rate on the island of Sumatra in the period 2009 to 2013 decreased forest cover by 1,266 hectares, so that the remaining area was 24.3% of the land area of the island of Sumatra (FWI, 2014).

Sumatra is the fifth largest island in the world, with a length of 1,800 kilometers and a width of 400 kilometers. Extending in the west from north to south lies the Bukit Barisan mountain range, while the east coast is dominated by lowland forests 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 onto the west coast tend to be short and swift, while those that empty onto 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.

On the east coast of South Sumatra is the Sembilang National Park which is a fertile area with swamps, mangroves and peat forests and is also home to Sumatran tigers and elephants, Malayan tapirs and various species of birds. The 35 km long mangrove forest along the coast of the park is very important for fish and shrimp breeding as well as a source of food for local people. The 83,000 ha of Merang Peat Swamp Forest is also a peat swamp area that provides important carbon. More than 60% of Sumatra's economy comes from the exploitation of natural resources, such as coal, gas, oil and lime mines, and the province of South Sumatra has about half the coal resources in Indonesia and is the third largest exporter of liquefied natural gas in the world. Small-scale mining is estimated to involve around 20,000 gold miners in several areas. Manufacturing and infrastructure continue to increase and it is the third largest in Indonesia to obtain permits. Meanwhile, the local community in the agricultural sector, especially rice (as the main source of carbohydrates) has low and inadequate yields. Small farmers' mainstay commodities such as coffee and rubber do not yet support their livelihoods significantly.[8)]

Based on the Regional Regulation of the Province of South Sumatra No: 11/2016, Date: 24 October 2016, concerning: the Regional Spatial Plan (RTRWP) of the Province of South Sumatra[9)], the PT AMR III & IV location permit area is allocated as a plantation area and horticultural food crops. Furthermore, in the draft Regional Regulation RTRW North Musi Rawas Regency, the area of PT AMR III & IV location permits is allocated as a similar private plantation area.

8. http://old.programsetapak.org/id/where-we-work/south-sumatra/ processed
9. http://jdih.sumselprov.go.id/userfiles/PERDA%20NO.11%20THN%202016.pdf

Figure 17 presents a map of PT AMR III & IV location permits on the 2016-2030 RTWR map of South Sumatra Province.

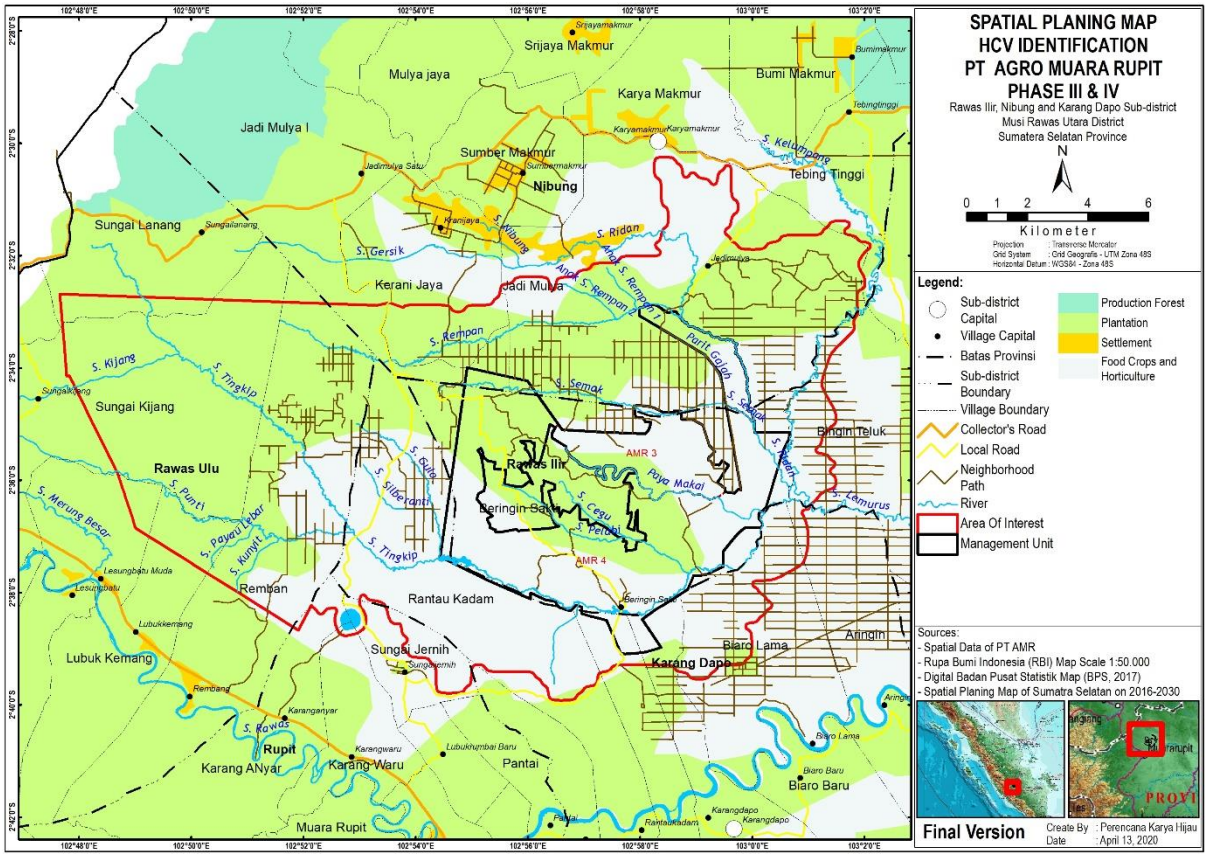


Figure 17 Map of PT AMR III & IV location permits on the 2016-2030 RTWR map, South Sumatra Province

3.3.2. Landscape Context

Based on the Map of the Function System for Forest and Waters of South Sumatra Province, and referring to the Decree of the Minister of Forestry No. 733 / Menhut-II / 2014, dated 02 September 2014, it is indicated that the HCV assessment area in the PT AMR III & IV location permit areas are entirely in Other Use Areas (APL) and is not included in the peat moratorium area, based on the Indicative Map for Suspension on New Permits (PIPIB) revision XIII. (see **Figure 18**).

Forestry areas around the AMR III & IV location permits are in the form of: (1) Protected Forest (HL) Unit I Banyuasin which is located in the northeast at a distance of 30 km and in the northwest at a distance of 16 km. (2) Permanent Production Forest (HP) is located in the northwest (8 km) and continues to the northeast (9 km), the southwest (16 km), and (3) Convertible Production Forest (HPK) is located in the south (11 km) and southeast (12 km). The Peat Moratorium Area (PIPIB revision XV) is in the APL in the southeast at the closest distance of about 4 km. Although it is declared as a peat moratorium area, the factual conditions in the field are that it has been intensively planted with oil palm by the company PT Buana Sriwijaya Sejahtera.

The area around and within the PT AMR III & IV location permit areas is included in the Musi Watershed Area Unit (DAS), with the Rawas Sub-watershed (100%). In general, rivers in the PT AMR location permit areas are large rivers and small rivers formed from wide and narrow topographic gaps, which empty and collect in a water flow and then form channels and rivers.

The existence of these river channels is very important to be preserved because of its important function for water supply and water absorption. The distribution of important rivers that cross the PT AMR III & IV location permit areas are namely the (1) Pelabi, (2) Rempan, (3) Ridan, (4) Semak (5) Kelumpang and (6) Tingkip, while important rivers are outside the permit areas in an identifiable area, namely the: (1) Cegu, (2) Gulo, (3) Kelumpang, (4) Kijang, (5) Turmeric, (6) Lemurus, (7) Payau Lebar, (8) Punti, (9) Rantau Kadam, and (10) Silaberanti. All of these rivers are catchments from the Rawas Sub-watershed. It is estimated that in the PT AMR III & IV permit areas there is a river length of about 32.2 km which covers an area of about 78.6 hectares with the largest river being the Tingkip River with a width of between 20-50 m, a depth of 2-6 m, a length of 12.5 km and an area of about 67 ha.

Based on the map of the results of the agro-climatic distribution of the Oldeman climate classification, the area of PT AMR III & IV is included in the climate type B1, which has consecutive wet months with an average rainfall >200 mm between 7-9 months, and dry months respectively with average rainfall <100 mm in less than 2 months.

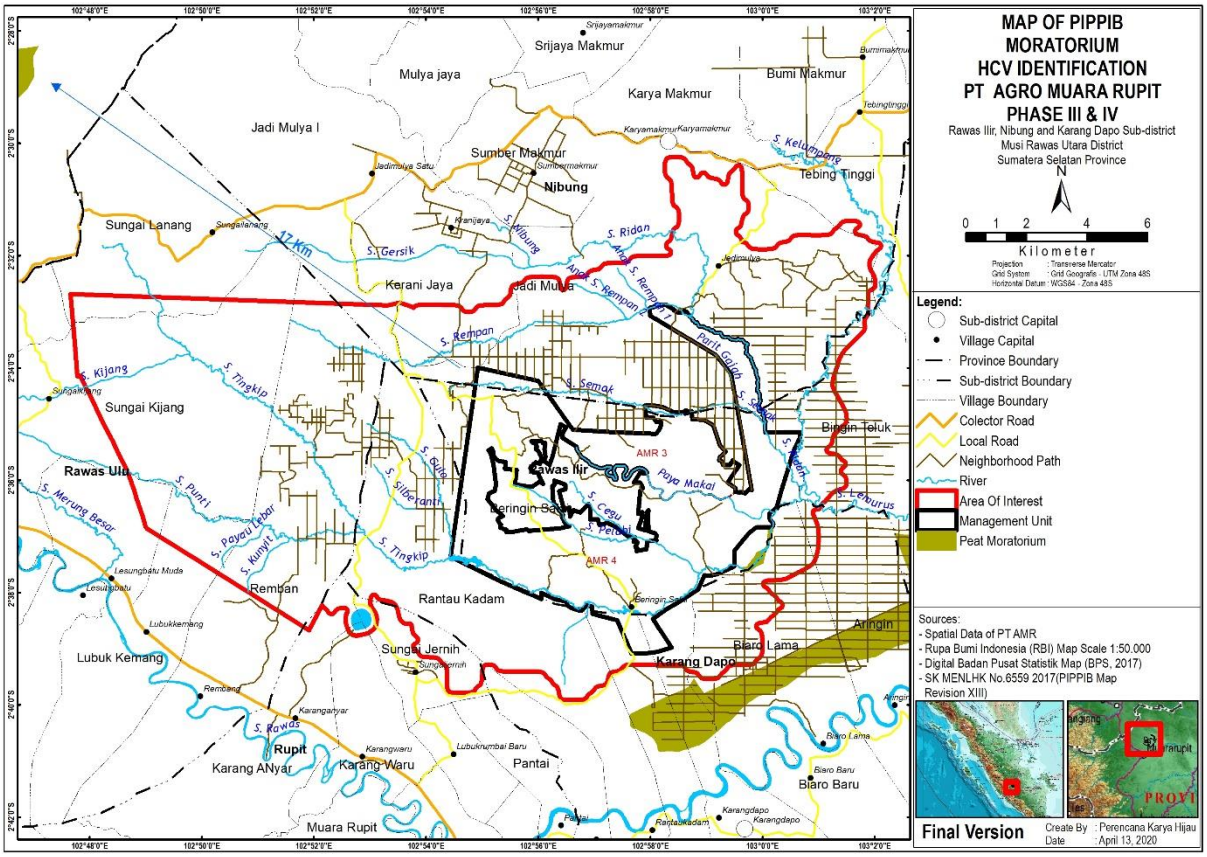


Figure 18 Peat Moratorium Map (PIPIB revision XV) in the PT AMR III & IV location permit area

In terms of physiographic units, the PT AMR III & IV location permit areas are within the Southern Eastern Plains and Hills unit (RePPProT, 1990); while the area is included in the sub-unit biogeography Sumatra 21a Southern Mainland Sumatra (MacKinnon, 1997). The area is also within the Sumatran Lowland Rain Forests ecoregion (code IM0158) (WWF 2015) as shown in **Figure 19**. The ecoregion includes humid lowland forests in Sumatra and its satellite islands, such as Simeulue, Nias and Bangka. These lowland rainforests in Sumatra are among the most threatened by extinction. By 1985, this forest was only about a third of its original area. Between 1985-1997, the forest lost an average of 2,800 km² / year. Currently Sumatra's lowland rainforests are practically only remaining in relatively large national parks and conservation areas (WWF, 2015). The results of the field survey indicate that the condition of the AoI area is mostly

in the form of cultivated land which is used by the community. However, in the AoI area there are still areas with natural vegetation land cover in the form of lowland forest with medium density and low density in the west.

The closest conservation area to the location permit areas is Kerinci Seblat National Park, which is 41 km to the southwest. In addition, the category of local protected areas that meet the legislation criteria is the presence of borders on several rivers flowing in the AoI area, such as the Gulo River, Kelumpang River, Pelabi River, Punti River, Rempan River, Ridan River, Semak River and Tingkip River.

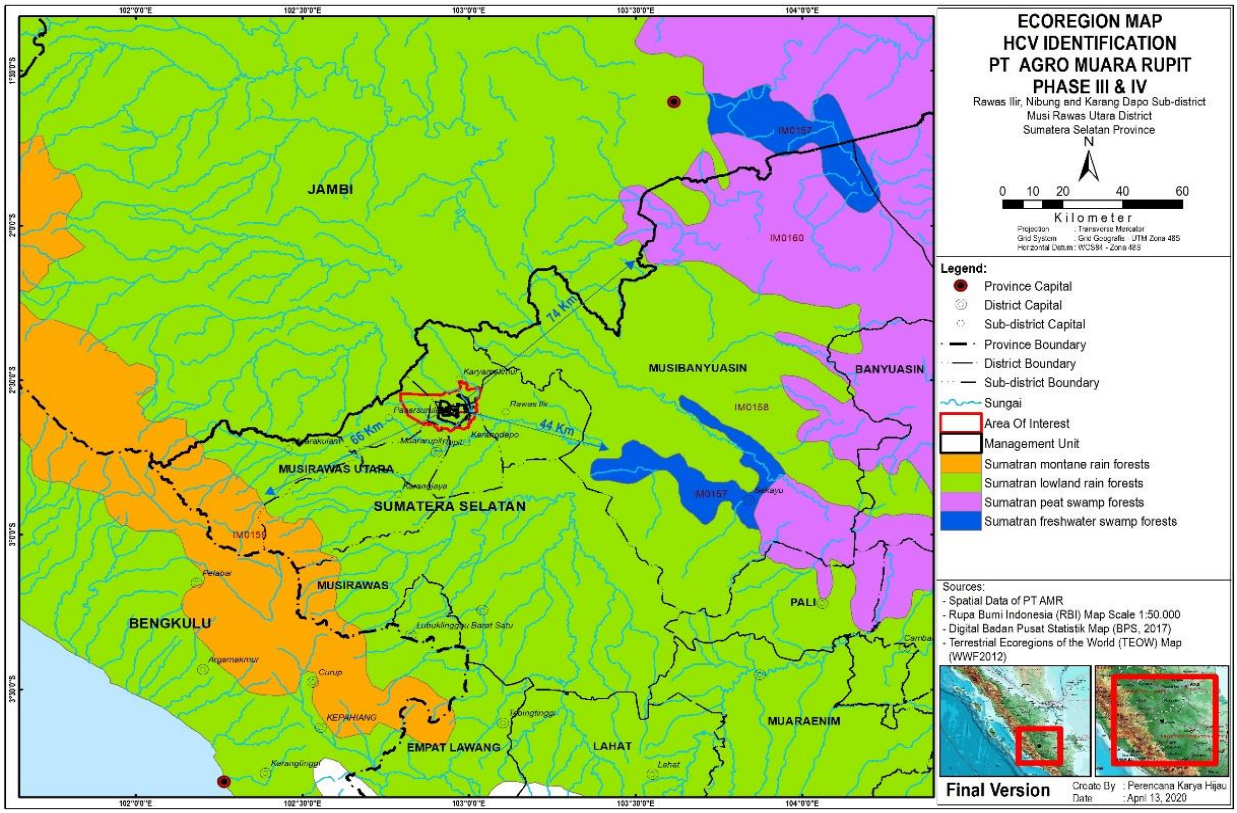


Figure 19 Position of PT AMR III & IV location permits on the Ecoregion Map

Areas of important biodiversity consist of Key Biodiversity Areas (based on WWF data), Important Bird Areas and Endemic Bird Areas (BirdLife International), and Ramsar Sites. The position of the important area of biodiversity around the AoI area is presented in **Figure 20** with the following explanation:

1. Key Biodiversity Area (KBA) and Important Bird Areas (IBA) closest to the AoI area, namely KBA Meranti, which is 18 km northeast and directly adjacent to Dangku Wildlife Reserve.
2. Endemic Bird Areas (EBA) closest to the AoI area, namely EBA Kerinci Seblat which is 41 km southwest with the characteristic of mountainous rain forest habitat.
3. Ramsar Sites: On the island of Sumatra, there are 2 Ramsar areas, namely Ramsar Site Berbak (Jambi Province) and Ramsar Site Sembilang (in South Sumatra Province). The closest Ramsar Site to the AoI area is the Ramsar Site Sembilang, 158 km northeast.

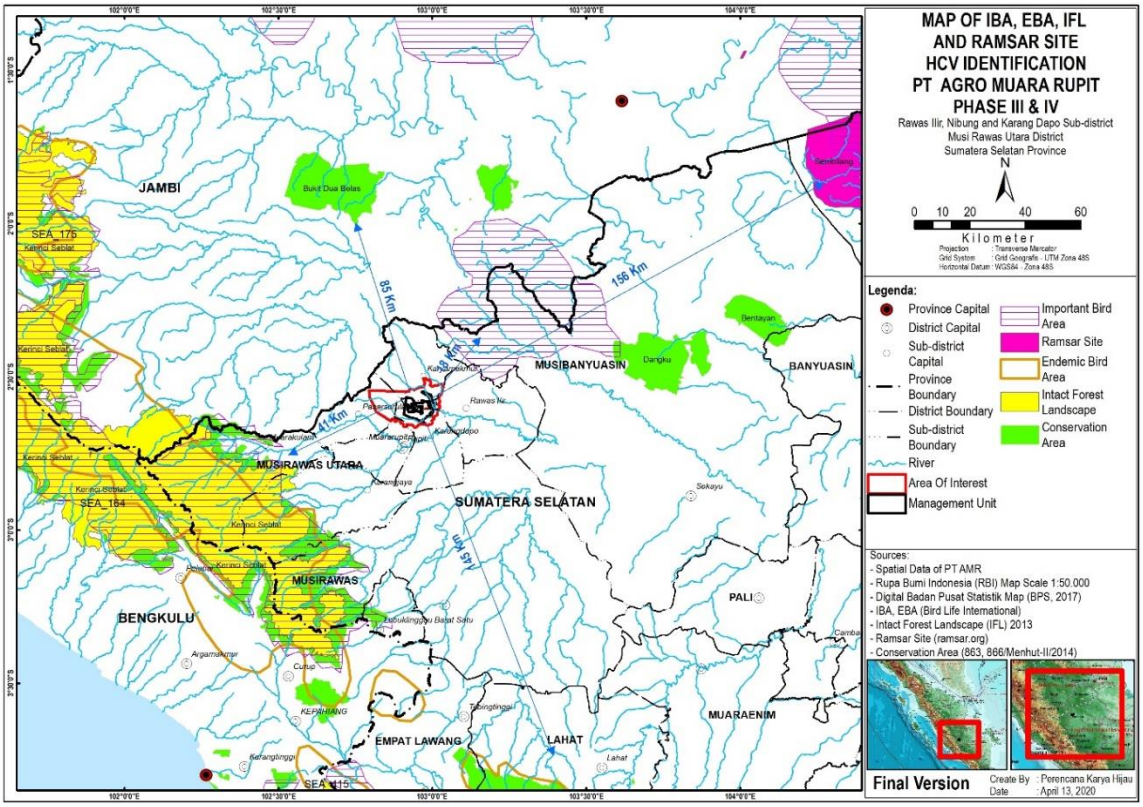


Figure 20 Map of IBA, EBA, Ramsar Site, IFL and nearby Conservation Areas

The PT AMR III & IV location permit areas are outside the distribution area of critical species such as the Sumatran tiger (*Panthera tigris sumatrae*), Sumatran elephant (*Elephas maximus sumatranus*), and sun bear (*Helarctos malayanus).* The distribution of the nearest Sumatran tiger is 100 km to the west, the closest distribution of sun bears is 18 km to the northeast, and the closest distribution of Sumatran elephants is 12 km to the southeast. The animal species indicated include pangolins (*Manis javanica,* CR), gibbons ((*Symphalangus syndactylus*, EN), ungco (*Hylobates agilis,* EN), and simpay (*Presbytis melalopos*, EN).

Based on government administration, the PT AMR III & IV location permits are located in Nibung District, Karang Dapo District and Rawas Ilir District. Karang Dapo and Nibung Districts are part of the Rawas Ilir District. In general, the villagers are local residents, except in Jadi Mulya 1 Village, an expansion village from Jadi Mulya Village which is dominated by immigrants. The results of the analysis show that the largest percentage of the PT AMR III & IV location permit areas are in Beringin Sakti Village with an area of 3,824.90 hectares or 91.1% of the location permit areas, while the area in other villages / kelurahan was insignificant. The residential area and village center in the PT AMR location permit areas are outside the location permit, only the center of Beringin Sakti Village, part of Hamlet 9 from Karang Dapo 1 Village and several other clusters are within the permit area. **Figure 21** presents the Map of Settlements in the PT AMR Location Permit Areas.

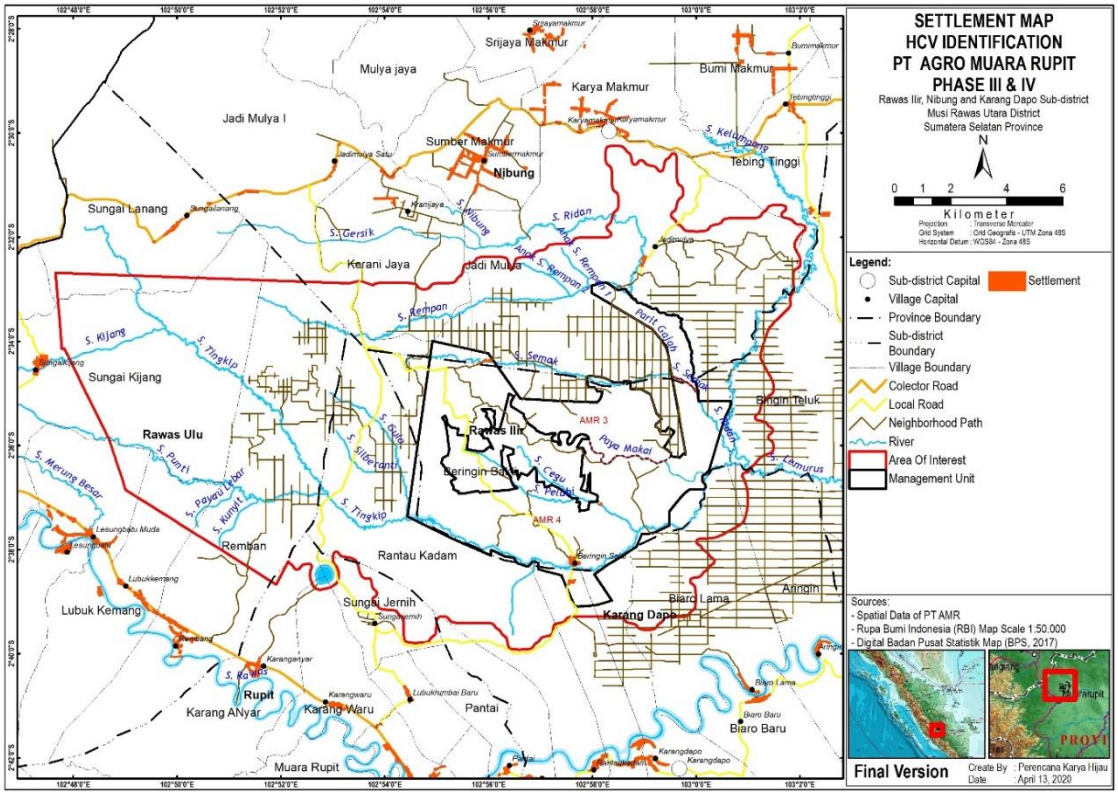


Figure 21 Map of the distribution of settlements in the AoI area of the PT AMR III & IV location permit areas

In total there are 7 villages in 3 sub-districts that are included in the PT AMR III & IV location permits, namely: Jadi Mulya Village and Jadi Mulya 2 Village in Musi Rawas Utara District, while in Karang Dapo District there are 4 villages / wards namely Karang Dapo 1 Village, Desa Rantau Kadam, Biaro Lamo Village and Karang Dapo Village. There is only one village in Rawas Ilir Subdistrict, namely Beringin Sakti Village.

The majority of sub-district / village communities around the PT AMR III & IV location permits are dominated by local people who call themselves 'Orang Bingin Teluk' (Marga Sukapindah Ilir) who are classified as 'Orang Melayu' with the Bingin Teluk dialect of Malay. Now Bingin Teluk is a village which is the capital of Rawas Ilir District. Marga Suka Move Ilir, consists of: (1) Mandiangin Hamlet, (2) Bingin Teluk Hamlet, (3) Beringin Sakti Hamlet, (4) Tebing Tinggi Hamlet, (5) Tanjung Raja Hamlet, (6) Belani Hamlet, (7) Batu Kucing Hamlet and (8) Pauh Hamlet.

3.3.3. Results of the HCV Assessment and Justification

Based on the results of the HCV assessment in the PT AMR III & IV permit areas, 4 types of HCV were found, namely HCV 1, HCV 4, HCV 5 and HCV 6. A summary of the findings is presented in **Table 18**.

Table 18 Summary of HCV findings at PT AMR III & IV

HCV	Definition	Summary Description and Justification		
		Presence	Potentially	Absence
1	Concentrations of biodiversity including endemic species, and rare, threatened or endangered (RTE) species, that are significant at global, regional or national levels	Present		
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 species capable of surviving in natural patterns of distribution and abundance			Absent
3	Rare, threatened, or endangered ecosystems, habitats or refuges	Present		
4	Basic ecosystem services in critical conditions, including protection of water catchments, control of erosion of vulnerable soils and slopes	Present		
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	Present		
6	Places, resources, habitats and landscapes that have cultural, archaeological, or historical significance globally / nationally, or cultural, economic or religious / sacred values of great importance to local people or indigenous peoples, which are identified through the involvement of indigenous peoples or these indigenous peoples			Absent

1) HCV 1 – Biodiversity Concentration

Based on the results of the preliminary desktop analysis and scoping study, the identification area is one that has become a cultivated area. It has been built into a residential area that has a long history and has adequate infrastructure. The area around PT AMR III & IV is also far from areas of biodiversity concentration.

In addition, based on field identification, using the IUCN RedList database as a reference, there are still several animals with endangered (EN) status, namely the hoop langur (*Presbytis melalophos fluviatilis*) and five species with vulnerable (VU) status, namely the Sumatran slow loris (*Nycticebus coucang*), monkey (*Macaca nemestrina*), sun bear (*Helarctos malayanus*)), small clawed otter (*Aonyx cinereus*), and tongtong stork (*Leptoptilos javanicus*). EN flora species are: Pekawai (*Durio kutejensis*), Keruing (*Dipterocarpus trinervis*) and Belian (*Eusideroxylon zwageri Teijsm. & Binn.)*

Although there is no protected area designated by the Government, the location permit areas still remain in a lowland forest area which has relatively good growth and composition as well as a swamp area, and can function as a refuge area for several priority species with critical status, EN and VU, so it will become a concentration area for these priority animal and fauna species. In addition, there are several non-forest areas that are connecting or connectivity paths between lowland forest cover and which are considered important to support the area or habitat for important 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** providesa summary of the presence of HCV 1 in the PT AMR III & IV location permit.

Table 19 Summary of HCV 1 presence

Qualified Situations as HCV 1	Indications
A high overall species richness, diversity oruniqueness	**Absent |** The identification area is a cultivation area dominated by community oil palm plantations and plantation companies and is directly adjacent to the villagewhich is a residential area that has been developed with infrastructures
Populations of multiple endemic or RTE (*rare,threatened or endangered*) species	**Present |** There is. There are still potential endangered species (EN, Genting), namely black-crested sumatra langur(*Presbytis melalophos fluviatilis*) and five species with the status of Vulnerable (VU, Vulnerable), namely the Sumatran slow loris (*Nycticebus coucang),* Southern pig- tailed macaque (*Macaca nemestrina*), Malayan sunbear (Helarctos malayanus), the clawed otter (*Aonyx cinereus*), and lesser adjutant stork (*Leptoptilos javanicus*). Potential flora species with endangered status (EN, Genting), namely: Pekawai (*Durio kutejensis*), Keruing (*Dipterocarpustrinervis*) and Belian (*Eusideroxylon zwageri Teijsm. & Binn*.)
Important populations or a great abundanceof individual endemic or RTE species	**Absent** | No endemic species and RTE species wererecorded
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 wererecorded
Sites with significant RTE species richness	**Present |** Although there is no protected area designated by the Government, the location permit remains a lowlandforest area with good growth and composition and a swamp area that can function as a refugium area for several priority species with critical status (EN). and vulnerable (VU), so that this area will be a

	concentration for these priority flora and fauna species.
Particularly important genetic variants,subspecies or varieties	**Absent |** There is no important genetic variants, subspeciesor varieties

The presence and area of an HCV 1 area 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 AMR III & IV is presented in **Figure 22**.

Table 20 Existence and area of HCV 1 Management Unit and in the AoI landscape of PT AMR III & IV

HCV 1 description	HCV in MU		HCV AOI	
	Ha	%	Ha	%
Rempan River	0.21	0.00	7.36	0.03
Semak River	1.51	0.03	1.51	0.01
Muara Semak River Swamp	3.35	0.06	3.35	0.01
Ridan River	3.37	0.06	11.42	0.04
Pelabi River	4.58	0.08	5.97	0.02
Rempan River border	5.34	0.10	165.71	0.58
Semak River border	11.15	0.20	11.15	0.04
Tingkip River border	32.07	0.58	32.07	0.11
Ridan River border	44.35	0.81	125.56	0.44
Pelabi Hilir River Swamp	64.38	1.17	64.38	0.23
Tingkip River	66.96	1.22	83.11	0.29
Tingkip Hilir River Swamp	106.58	1.94	339.27	1.19
Tingkip Hulu River Swamp	184.99	3.36	451.54	1.59
Natural Cover	694.38	12.62	1,524.33	5.37
Connectivity for Natural Cover	62.22	1.13	86.32	0.30
Forested Area 1		0.00	6.17	0.02
Forested Area 2		0.00	6.81	0.02
Lake Rayo		0.00	32.41	0.11
Kantung Satwa		0.00	90.47	0.32
Kelumpang River		0.00	26.05	0.09
Lemurus River		0.00	1.21	0.00
Lake Rayo border		0.00	53.59	0.19
Total HCV 1:	**1,285.44**	**23.36**	**3,129.76**	**11.02**
Area / Landscape location permit:	**5,503.27**		**28,401.4**	

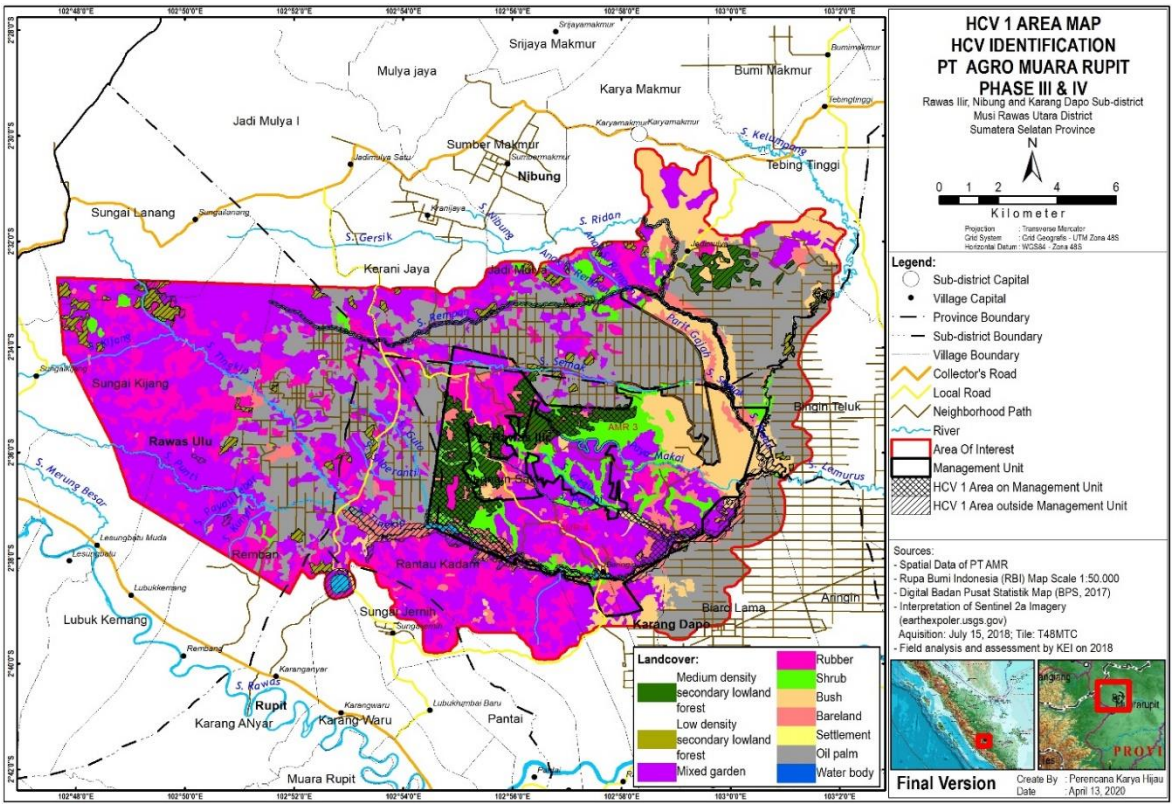


Figure 22 HCV 1 area in Unit Management and landscape AoI PT AMR III & IV

2) HCV 2 - Ecosystems and Mosaics at Landscape Level

The absence of HCV 2 findings is based on the fact that the PT AMR III & IV location permit areas are an area that has been developed; some of the location permits are even in allocated residential areas (see RTRW South Sumatra above). The villages surrounding the location permits have a long history and have long been developing in line with the conversion of forests to land for agriculture, mixed gardens and oil palm plantations where there extensive intact forest cover is no longer found.

Examination of the Intact Forest Landscapes (IFL) map and forest use map (Forest Zone Map from the Ministry of Environment and Forestry), shows that the nearest IFL area is the Kerinci Seblat National Park (TNKS) forest area about 42 km away, while the closest forest area is a production forest area in Jadi Mulya I Village area, Nibung District, about 8 km away.

Meanwhile, land cover analysis through Sentinel 2018 satellite imagery and field checks have found that land cover in the form of old scrub, old swamp scrub, and dry land secondary forest had a combined area of 365.3 ha or about 28% of the total area of the study area. It is also in a varied condition of scrublands, young shrubs, smallholder rubber plants, oil palm trees and open marshes or scrub swamps. There is no relatively intact forest cover, the function of which is important to connect large forests or other natural ecosystems around it.

No HCV 2 areas are identified. PT AMR III & IV 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 AMR III & IV location permit.

Table 21 Indication of presence of HCV 2

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 openand 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 theprotection 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 naturalor more intact

Generally, The PT AMR III & IV location permit is developed area, some of the location permits are even located in the allocation of residential areas in the central district of Musi Rawas district: Muara Beliti. On theother hand, the villages surrounding the location permit are villages that have a long history and have long developed in line with the conversion of forest to land for agriculture, (mixed natural rubber) and oil palm plantations where there is no longer found extensive intact forest cover. Based on the analysis of landscape maps and the identification process in the field, the location permit area and the AOI area are not included ina large forest landscape or important ecosystem mosaic, so it can be concluded that HCV 2 is not found.

3) HCV 3 - Endangered or Threatened Ecosystems

Although the PT AMR permit areas are not included in the function of the forest area and waters of South Sumatra Province and the peat moratorium area is based on the revised XIII Indicative Map for Suspension of New Permits (PIPIB), parts of the area are in the Mendawai Land System (MDW) and most of the land system Muara Beliti (MBI). Based on HCV of the Toolkit, the MBI land system is not classified as having rare ecosystems in the lowlands of Sumatra, while the MDW land system may contain an endangered peat swamp ecosystem on the island of Sumatra. The MDW and BLI land systems are categorized as endangered land systems in the lowlands of Sumatra.

MDW according to the RePProT Land System map (1985) is a shallow peat swamp area, within the PT AMR III & IV location permit areas that have been mapped, where the land system has a top peat texture and a smooth subsoil texture. The shape of the topography is relatively flat; the slope is <2%, the depth is between 51-200 cm, the soil pH on the top layer is high because it contains a lot of minerals, and the lower layer is low. Based on field observations, the soil conditions in MDW are in the form of scrub swamps with soil layers that have been replaced by mineral soils. This erosion of the peat layer on top of the soil is understandable because of the large fire incident in 1997, which burned all the vegetation and drained the peat layer. In addition, the community then carried out sporadic land use so that the shape and distribution of the MDW in the area was not a complete land system, but only a small part of the area surrounded by the Muara Beliti and Beliti land systems, which were mineral soils with modified land cover with agricultural cultivation. The MDW in the PT AMR III & IV permit areas is no longer a native ecosystem, and has been fragmented with a very thin layer of peat that has even disappeared (an irreversible function). Meanwhile, the results of field checks have found that the vegetation

cover in the area is dominated by mixed rubber farms, oil palm plantations, cultivation and settlements.

Based on the results of a semi-detailed soil survey conducted by the Bogor Agricultural Institute in August 2019, it is known that in the PT AMR III & IV location permit areas there are 11 SPTs, of which 2 are categorized as Terric Haplosaprists land and Typic Haplosaprists which are sapric organosol soils. With the precautionary principle, some peat ecosystems (soil types Terric Haplosaprists and Typic Haplosaprists) are recommended to be HCV, and through this soil analysis it can be ascertained that there is peat soil, which is HCV 3 covering an area of 108.03 Ha. The HCV 3 assessment also refers to the ecosystem criteria stated by the IUCN Ecosystem Redlist, that lowland tropical forest types are threatened with extinction, and the presence of this forest type, although not extensive, should be preserved. In addition, the HCV 3 assessment also refers to the ecosystem criteria stated by the IUCN Ecosystem Redlist, that lowland tropical forest types are threatened with extinction, and the presence of this forest type, although not extensive, should be preserved. In the classification of terrestrial ecoregion types presented by WWF (2012), the area where the location permit of PT AMR III & IV and its surroundings is actually Sumatran Lowland Rain forest, so that the existence of this remaining forest on the island of Sumatra can be seen as an ecosystem that can be preserved from extinction.

HCV 3 areas are identified. PT AMR III & IV 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 presenceof HCV 3 in the PT AMR III & IV location permit.

Table 22 Indication of presence of HCV 3

Qualified Situations as HCV 3	Indications
Naturally rare because they depend on highly localised soil types, locations, hydrology or otherclimatic or physical features	**Absent |** No areas of natural scarcity that dependon soil type, location, hydrology or other climatic or physical features are highly localized
Anthropogenically rare, because the extent of theecosystem has been greatly reduced by human activities compared to their historic extent,	**Present |** There is still a remnant of peat forest asan ecosystem that needs to be maintained and there is an area of secondary forest remaining which functions as an area for concentration ofwildlife (with HCV 1)
Threatened or endangered (e.g. rapidly declining) due to current or proposed operations	**Absent |** Most of the permit areas have undergone drastic changes in terms of the organic content of
Classified as threatened in national or internationalsystems	the soil and / or the vegetation above which hasbeen converted into agricultural / plantation cultivation areas by the community.

The presence and area of HCV 3 areas are presented in **Table 23.** and the maps of the presence of HCV 3 in the Management Unit (HCVMA) and the surrounding landscape of PT AMR III & IV are presented in **Figure 23**.

Table 23 Results of HCV 3 Identification

HCV 3 Information	HCV in MU		HCV AOI	
	Ha	%	Ha	%
Peat area	108.03	1.96	108.03	0.38
Natural cover	694.38	12.62	1,524.33	5.37
Animal bags		0.00	90.47	0.32
Peat of the Semak River		0.00	42.36	0.15
Peat of the hydrological unit KHG of the Kelumapang River		0.00	295.92	1.04
Total HCV 3:	**802.41**	**14.58**	**2 061.11**	**7.26**
Area / Landscape location permit:	**5,503.27**		**28,401.40**	

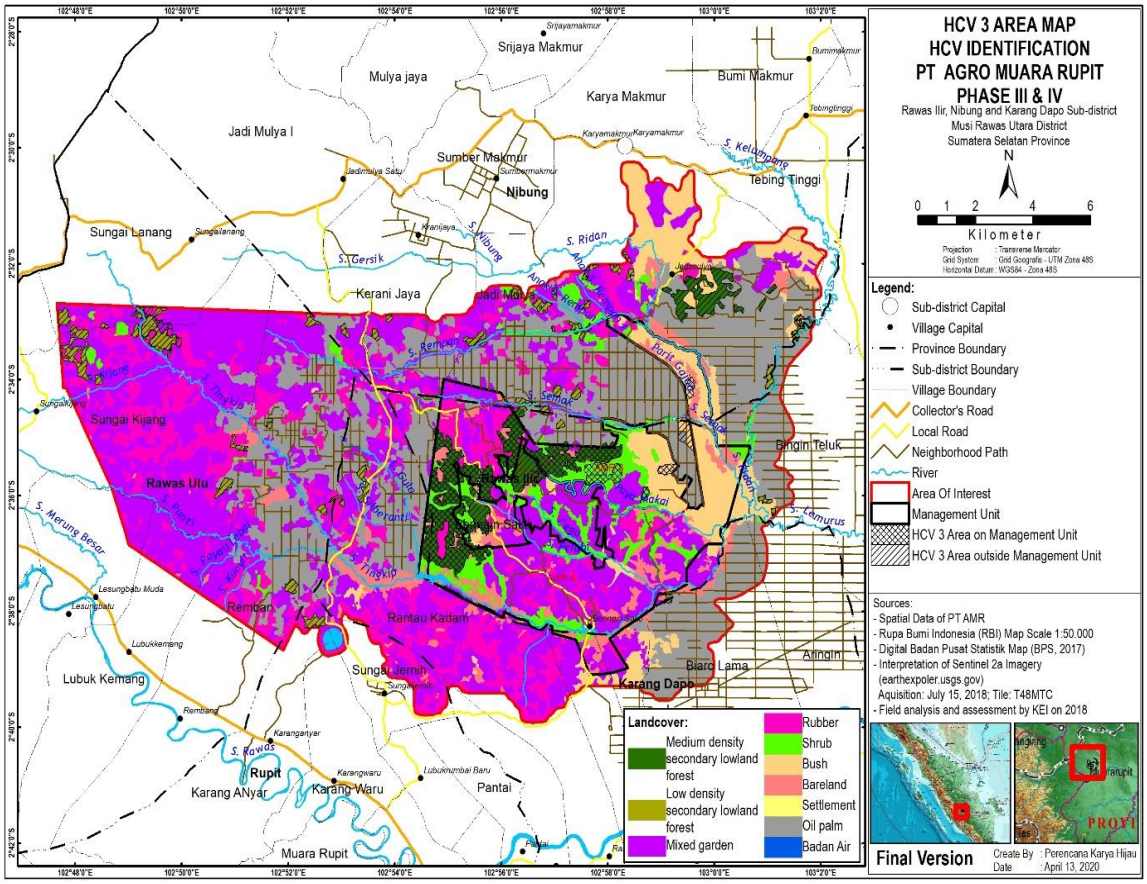


Figure 23 HCV 3 area in Unit Management and landscape AoI PT AMR III & IV

4) HCV 4 - Areas Providing Basic Environmental Services

In the PT AMR III & IV location permit areas, there 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. Based on the findings and analysis, in the PT AMR III & IV location permit areas, HCV 4 (Ecosystem Services) areas were identified, in the form of river border areas, peat areas and swamp areas. All of these regional typologies function in relation to providing water sources and preventing fire hazards. The existence of secondary forest can potentially become a habitat for pollinating agents and support pollination services. Based on the provisions in the Presidential Decree No. 32 of 1990

concerning Management of Protected Areas, PP. 38 of 2011 Concerning Rivers, the 2008 HCV Toolkit Indonesia, 2013 Common Guidance NKTRN, and consideration of scientific principles, most of the rivers in the PT AMR III & IV permit areas are categorized as small rivers, so that a border area of up to 50 m is allowed along edge of the river. Meanwhile, rivers whose edges merge with the swamp area have their boundaries adjusted to the area of influence of the swamp.

HCV 4 areas are identified. There is a part of the landscape which is an area that functions as a basic ecosystemservice as a water provider and flood control for the community including protection of water catchments, control of soil erosion and vulnerable slopes. **Table 24** provides a summary of the presence of HCV 4 in the study area.

Table 24 Summary of HCV 4

Qualified Situations as HCV 4	Indications
Managing extreme water flow events, including vegetated riparian buffer zones / intact floodplains	**Present |** There are several streams, creeks and streams 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 Musi Watershed, Beliti Sub-watershed which is near to the upstream area and there are still areascan maintain the function of the hydrological system in the form of river riparian buffer for both large rivers and small rivers / streams that have a role and contribution to river flow fluctuations in the downstream.
Maintaining water quality characteristics	**Present |** Some rivers buffer is already having tree crops and oil palm andshrubs that can function as erosion-resisting cover as well as buffering rivers, streams and channels.
Fire prevention and protection	**Present |** There is. The rivers in the area identified mainly the Tingkip Riverand the Kelumpang River which are quite significant can act as natural firebreaks, while other rivers can at least provide a source of water to extinguish a fire in the event of a fire.
Protection of vulnerable land, aquifers, or the fisheries	**Present |** Rivers and streams still provide the function of natural resourcesas a source of fishes to local communities
Provision of clean water supply; and natural ecosystems that play an important role in stabilizing steep slopes.	**Present |** There are some people who utilize river water at certain times inthe dry season. Most of the family's daily water needs are supplied from man-made well, as well as paid gallon water. A small part of community at a certain time still uses river water for cooking. The tradition of river bathing is still widely practiced as well as clothes washing.
Protection against wind, and regulation of humidity, rainfall, and other climatic elements.	**Present |** River basins that are still covered in natural have a function inregulating the microclimate

Pollination services, for example exclusive pollination of subsistence food crops	**Present |** Secondary forest has the potential as habitat for pollinatingagents and to support pollination services

Based on the findings and analysis, in the PT AMR III & IV location permit areas the presence of HCV 4 areas (Ecosystem Services) has been identified and presented in **Table 25**. Map of the presence of HCV 4 in the Management Unit and the AoI landscape of PT AMR III & IV is presented in **Figure 24**.

Table 25 The presence and area of HCV 4 areas in the Management Unit and the PT AMR III & IV landscape area

HCV 4 Information	HCV in MU		HCV AOI	
	Ha	%	Ha	%
Rempan River	0.21	0.00	7.36	0.03
Kelumpang River border	0.69	0.01	107.20	0.38
Muara Swamp Semak River	3.35	0.06	3.35	0.01
Ridan River	3.37	0.06	11.42	0.04
Semak River	3.46	0.06	6.24	0.02
Pelabi River	4.58	0.08	5.97	0.02
Rempan River border	5.34	0.10	165.71	0.58
Pelabi River border	30.99	0.56	49.10	0.17
Tingkip River border	32.07	0.58	177.08	0.62
Ridan River border	44.35	0.81	125.56	0.44
Semak River border	57.40	1.04	124.39	0.44
Pelabi Hilir River Swamp	64.38	1.17	64.38	0.23
Tingkip River	66.96	1.22	105.45	0.37
Paya Makai	83.43	1.52	104.92	0.37
Tingkip Hilir River Swamp	106.58	1.94	339.27	1.19
Peat area	108.03	1.96	108.03	0.38
Ridan River Swamp	109.48	199	218.51	0.77
Tingkip Hulu River Swamp	184.99	3.36	451.54	1.59
Natural cover	694.38	12.62	1524.33	5.37
Rempan River tributary 1		0.00	0.36	0.00
Rempan River tributary 2		0.00	0.47	0.00
Rempan River tributary 3		0.00	0.20	0.00
Forested Area 1		0.00	6.17	0.02
Forested Area 2		0.00	6.81	0.02
Rayo Lake		0.00	32.41	0.11
Peat of the peat hydrological unit of the Kelumapang River		0.00	295.92	1.04
Peat of the Semak River		0.00	39.78	0.14
Kantung Satwa		0.00	90.47	0.32
Cegu River		0.00	0.64	0.00

HCV 4 Information	HCV in MU		HCV AOI	
	Ha	%	Ha	%
Gulo River		0,00	2.05	0.01
Kelumpang River		0.00	26.05	0.09
Kijang River		0.00	2.25	0.01
Kunyit River		0.00	1.00	0.00
Lemurus River		0.00	1.21	0.00
Payau Lebar River		0.00	0.91	0.00
Punti River		0.00	7.54	0.03
Rantau Kadam River		0.00	1.21	0.00
Silaberanti River		0.00	0.96	0.00
Rempan River tributary 1 border		0.00	17.75	0.06
Rempan River tributary 2 border		0.00	22.73	0.08
Rempan River tributary 3 border		0.00	9.43	0.03
Rayo Lake border		0.00	53.59	0.19
Cegu River border		0.00	22.61	0.08
Gulo River border		0.00	58.88	0.21
Kijang River border		0.00	37.04	0.13
Kunyit River border		0.00	24.41	0.09
Lemurus River border		0.00	3.38	0.01
Payau Lebar River border		0.00	22.69	0.08
Punti River border		0.00	113.23	0.40
Rantau Kadam River border		0.00	29.89	0.11
Silaberanti River border			31.86	0.11
Total HCV 4	1,604.06	29.15	4,663.70	16.42
Area / Landscape permit area:	5,503.27		28,401.4	

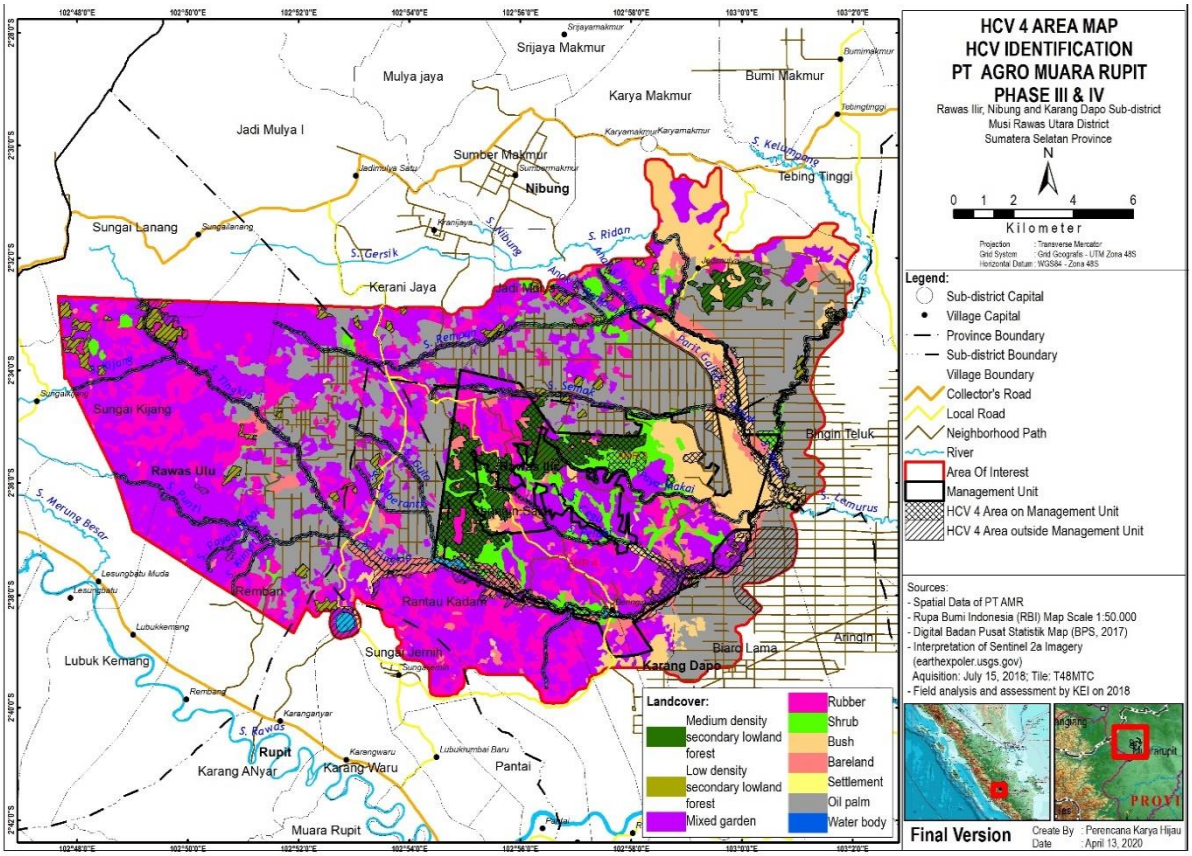


Figure 24 Map of the presence of HCV 4 areas within the Management Unit and in the PT AMR III & IV landscape

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

In the PT AMR III & IV location permit areas, 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. Based on the results of the FGD, interviews and discussions with several resource persons in the villages around the assessment area, it shows that some local communities are no longer dependent on forest resources to meet their daily needs. However, there are still members of the surrounding village community who use rivers and streams as fishing areas for family protein sources, as well as for bathing, washing and toilet needs. River water is used in the event of a long dry season, because some of the dug well water is dry and villagers are forced to take water directly from rivers.

River and tributary areas within the location permit areas and in the AoI are important fishing grounds for local villagers. Several informants from Beringin Sakti Village stated that at certain times when the river water recedes, the fish in the Tingkip River are quite abundant and become additional livelihoods to be sold at the Muara Rupit market. The surrounding villages claim that along the rivers and creeks are places for fishing.

HCV 5 areas are identified. There are sites and resources that are fundamental to meeting the basic needs oflocal communities or indigenous peoples (for example as sources of livelihoods, protein and water), which are identified through engagement with communities. A summary of the presence of HCV 5 is presented in **Table 26.**

Table 26 Summary of HCV 5 presence in the PT AMR III & IV location permit

Qualified Situations as HCV 5	Indications
Hunting and trapping grounds (forgame, 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 asmall 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 (PHBK) can be said to havedisappeared
Fuel for household cooking, lightingand heating	**Absent** | Energy for family lighting is generally obtained from national electricity grid. Society does not need heating. Most of thepeople have used government's subsidy gas fuel
Fish (as essential sources of proteins) and other freshwater species relied on by local communities	**Present** | Fish is one of the main protein sources which is quite oftenconsumed besides poultry and beef. Some residents also use their spare time for fishing as a hobby and for additional family consumption.
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 seasonalgrazing	**Absent** | There are no seasonal grazing activities, and animal feedssuch as grass is obtained from buying or collected from around theyards or oil palm plantations.
Water sources necessary for drinkingwater 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 latrines. However, there are still some Sakai residents who still use river water for toilet purposes
Items which are bartered in exchangefor 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 is the community's leading commodity to earnmoney for buying essential goods and other necessities. In addition, rubber sap still can be sold to add the income.

The presence of HCV 5 areas is presented in **Table 27** and the HCV 5 presence map and HCV 5 management map in **Figure 25.**

Table 27. The presence and area of HCV 5 in the Management Unit and in the PT AMR III & IV landscape area

HCV 5 Information	HCV in MU		HCV AoI	
	(Ha)	(%)	(Ha)	(%)
Rempan River	0.21	0.00	7.36	0.03
Ridan River	3.37	0.06	11.42	0.04
Semak River	3.46	0.06	6.24	0.02
Pelabi River border, Rice Field Plan	3.53	0.06	3.53	0.01
Pelabi River	4.58	0.08	5.97	0.02
Tingkip River	66.96	1.22	105.45	0.37
Rice Field Development Plan	237.12	4.31	247.64	0.87
Rayo Lake			32.41	0.11
Kelumpang River			26.05	0.09
Lemurus River			1.21	0.00
Cegu River border, Rice Field Plan			0.48	0.00
Total HCV 5:	319.23	5.80	447.75	1.58
Area / Landscape permit area:		5,503.27	28,401.40	

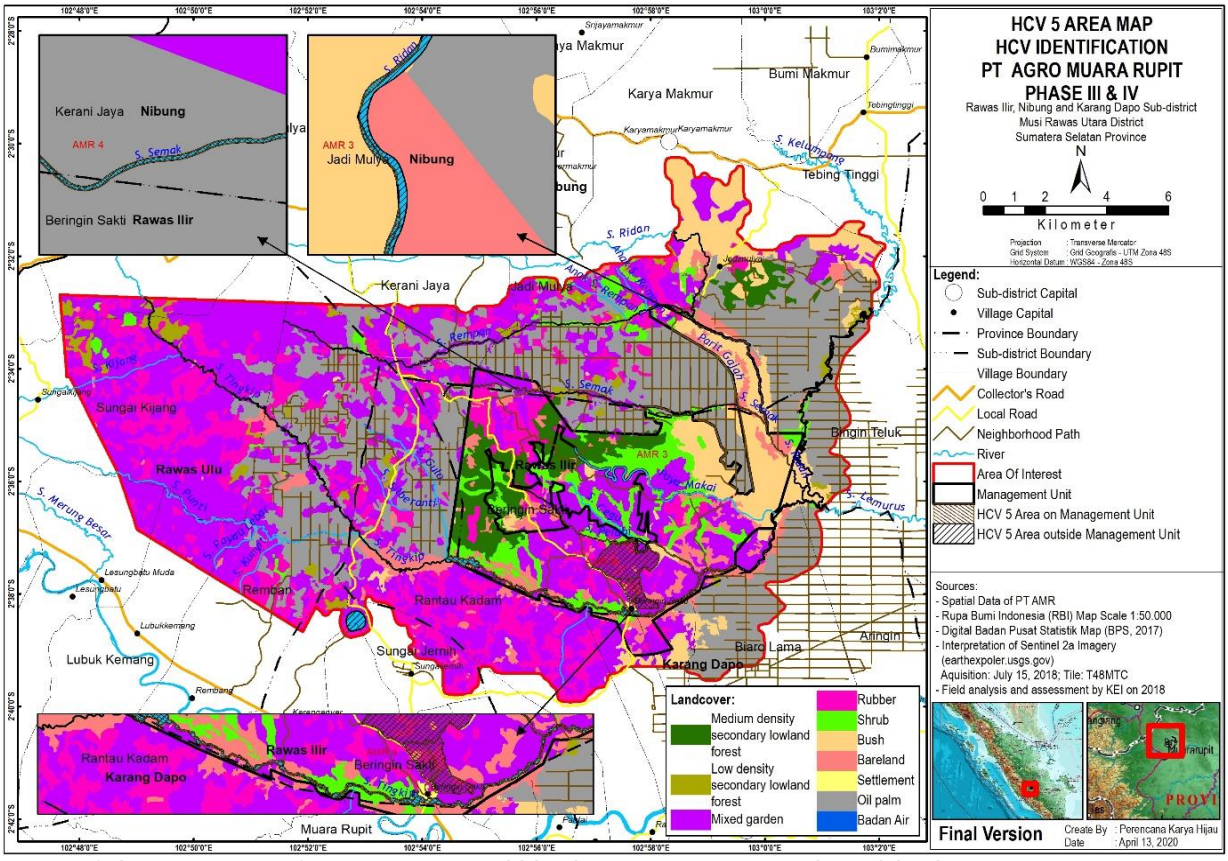


Figure 25 Map of the presence of HCV 5 areas within the Management Unit and in the PT AMR III & IV landscape

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

Identification of the presence of HCV 6 is based on the *Common Guidance for the Identification of High Conservation Values* (Brown et al., 2017) and to further explore the context of villages still using the guidelines' *Consortium Revised HCV Toolkit Indonesia, Identification Guide High Conservation Value Areas in Indonesia* (Tropenbos International Indonesia Program, 2008). In the PT AMR III & IV location permit areas, there are no sites, resources, habitats and landscapes that

have cultural, archaeological or historical significance at the global or national level and / or which have cultural, ecological, economic or religious / sacred interests that are critical to the traditional culture of the local community or indigenous peoples, identified through interactions with the local community or indigenous peoples concerned.

No HCV 6 areas: In the PT AMR III & IV location permit area, there are no 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 importance / sacred which is critical to the traditional culture of the local community or indigenous peoples which are identified through interactions with the local community or related indigenous peoples. Indications of the absence of HCV 6 are presented in **Table 28**.

Table 28 Indications of the presence of HCV 6 in the PT AMR III & IV location permit area

Qualified Situations as HCV 6	Indications
Sites recognised as having high cultural value within national policy and legislation	**Absent** | 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 inthe 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** | In the vicinity of the location permit area, there are still no sites that have historical and cultural traditionsof high value as symbols of local identity.
Religious or sacred sites, burial grounds or sites at which traditional ceremonies take place that have importance to local or indigenous people	**Absent** | Burial grounds or sites for holding traditionalceremonies that have an important role for local or customary communities, important places that have religious values are no longer there.
Plant or animal resources with totemic values or used in traditional ceremonies.	**Absent** | Plants and animals no longer have totem valuefor traditional ceremonial purposes.

3.3.4. HCV summary

In the PT AMR III & IV location permit areas, there are four categories of HCV, namely HCV 1, HCV 3, HCV 4 and HCV 5. Important elements of HCV 1 identified have the potential for EN species, namely langur simpai (*Presbytis* melalophos fluviatilis) and five species with VU status, namely the Sumatran slow loris (*Nycticebus coucang*), monkey (*Macaca nemestrina*), sun bear (*Helarctos malayanus*), small clawed otter (*Aonyx cinereus*), and tongtong stork (*Leptoptilos javanicus*). Potential flora species with EN status, namely: Pekawai (*Durio kutejensis*), Keruing (*Dipterocarpus trinervis*) and Belian (*Eusideroxylon* zwageri Teijsm. & Binn.). An important element of HCV 3 is the remaining peat forest is an ecosystem that needs to be maintained, and there is an area of secondary forest remaining which functions as an area for the concentration of wild animals (HCV 1). Important elements of HCV 4 are the management of rivers and riparian areas and several swamp areas, prevention of erosion and fire, and important elements of HCV 5 are rivers for drinking water at a certain time and for the benefit of MCK and as a source of fishing grounds. Information on the location and area of HCV areas and AoI landscapes in the location permit area is presented in **Table 29**, while maps of the distribution of HCV areas and AOI landscapes are presented in **Figure 26**.

Table 29 Summary of HCV areas in unit and landscape management of PT AMR III & IV

Conservation Area	MU		AOI	
	Ha	%	Ha	%
HCV 1	1,285.44	23.36	3,129.76	10.72
HCV 2	-	-	-	-
HCV 3	802.41	14.58	1,765.2	6.22
HCV 4	1,604.06	29.15	4,663.7	16.42
HCV 5	319.23	5.80	447.75	1.58
HCV 6	-	-	-	-
Net Total *:	**1,903.39**	**34.59%**	**4,957.88**	**17.46**
Area MU:	**5,503 27**			
Area AOI:			**28,401.4**	

Note: *) net area because several HCV areas overlap in HCV 1, HKV 4 and HCV 5

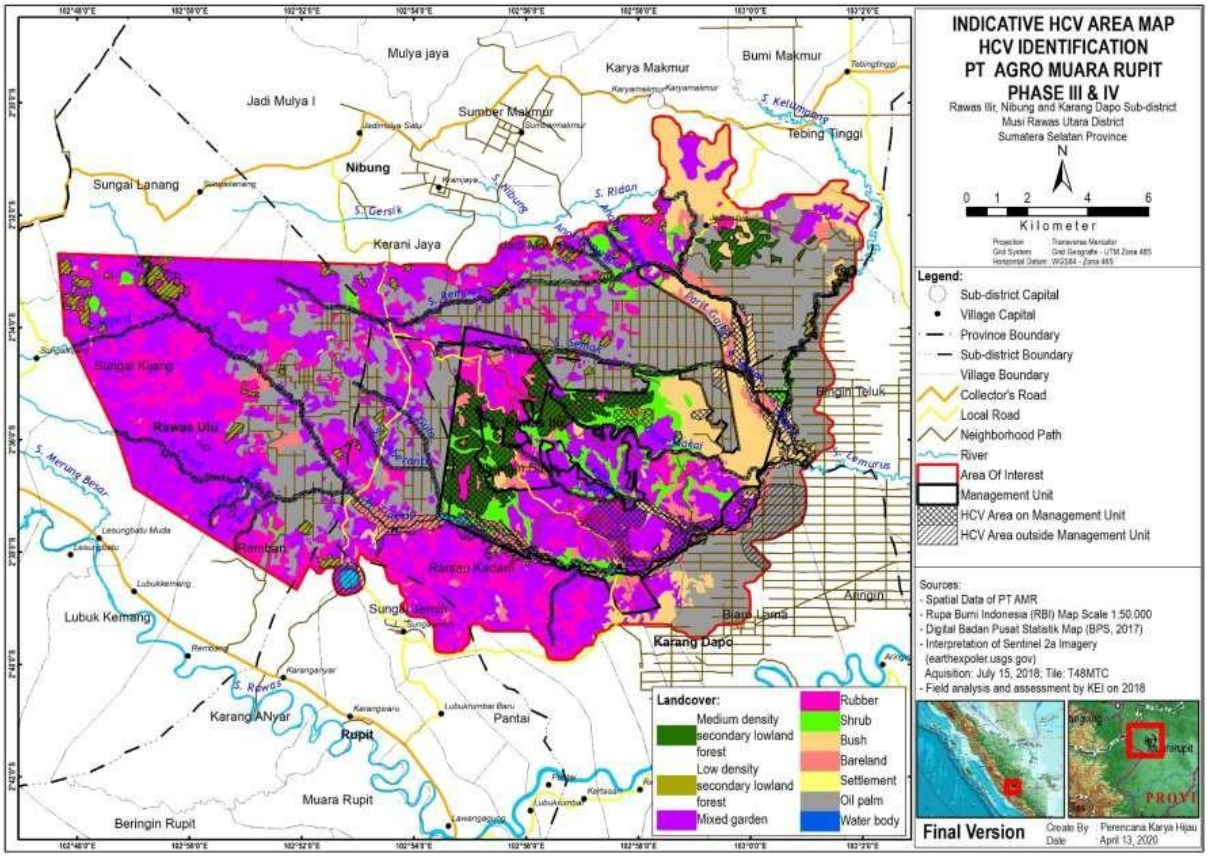


Figure 26 Map of HCV distribution within the Management Unit and in the PT AMR III & IV landscape area

The results of the integration of conservation areas and potential development areas in the study area show that the conservation area (HCV and HCS) is 1,766.0 ha, community land for future food security is 240.6 ha, and the potential area for oil palm development is 3,496 ,7 ha (Table 30, Figure 27 and Figure 28).

Table 30. Integration of conservation areas and potential development areas in the study area

No	Description	Area (ha)	% to study area
1	Study area	5.503,3	100,0%
2	HCV area*	1.554,8	28,3%
3	HCS conservation area**	103,2	1,9%
4	Peatland***	108,0	1,9%
Sub-total conservation area		**1.766,0**	**32,2%**
5	Community land****	240.6	15,2%
6	Planted area	-	-
7	Potential for Development area	3.496,7	64,5%

Note:

* The HCV area is 1,903.4 ha, there is an overlap with community land of 240.6 ha land overlaps with 108.0 ha of peatland, so the net HCV area is 1554.8 ha.

** Total area of HCS conservation area is 715.9 ha consisting of (i) HCS Patch based on Patch Decision Trees categorized as HCS conservation areas (all overlapping with HCV areas) and (ii) The area gives the area at stage 13 which is 103.2 ha. The net area of HCS conservation area is 103.2 ha

*** All Peatlands have been designated as HCV Areas.

**** Community land is a rice field plan for future food security.

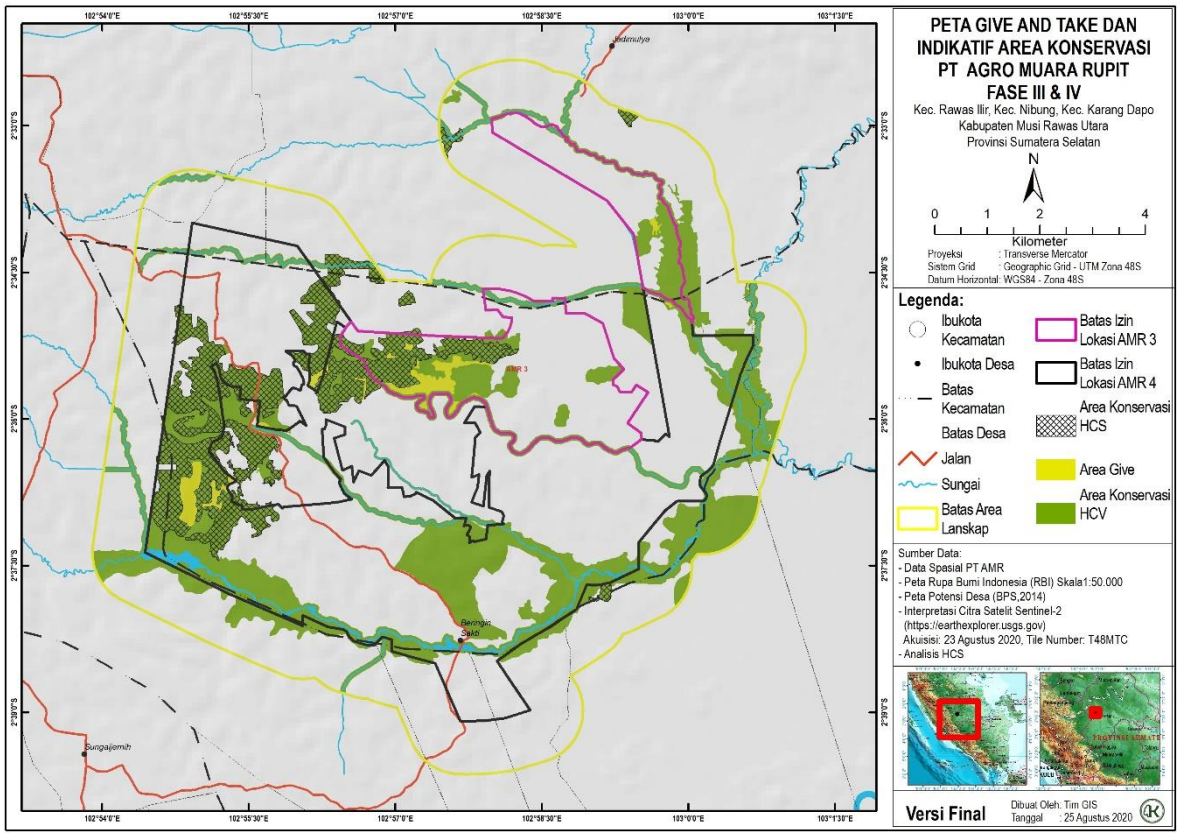


Figure 27. Map of the Give and Take process in the study area

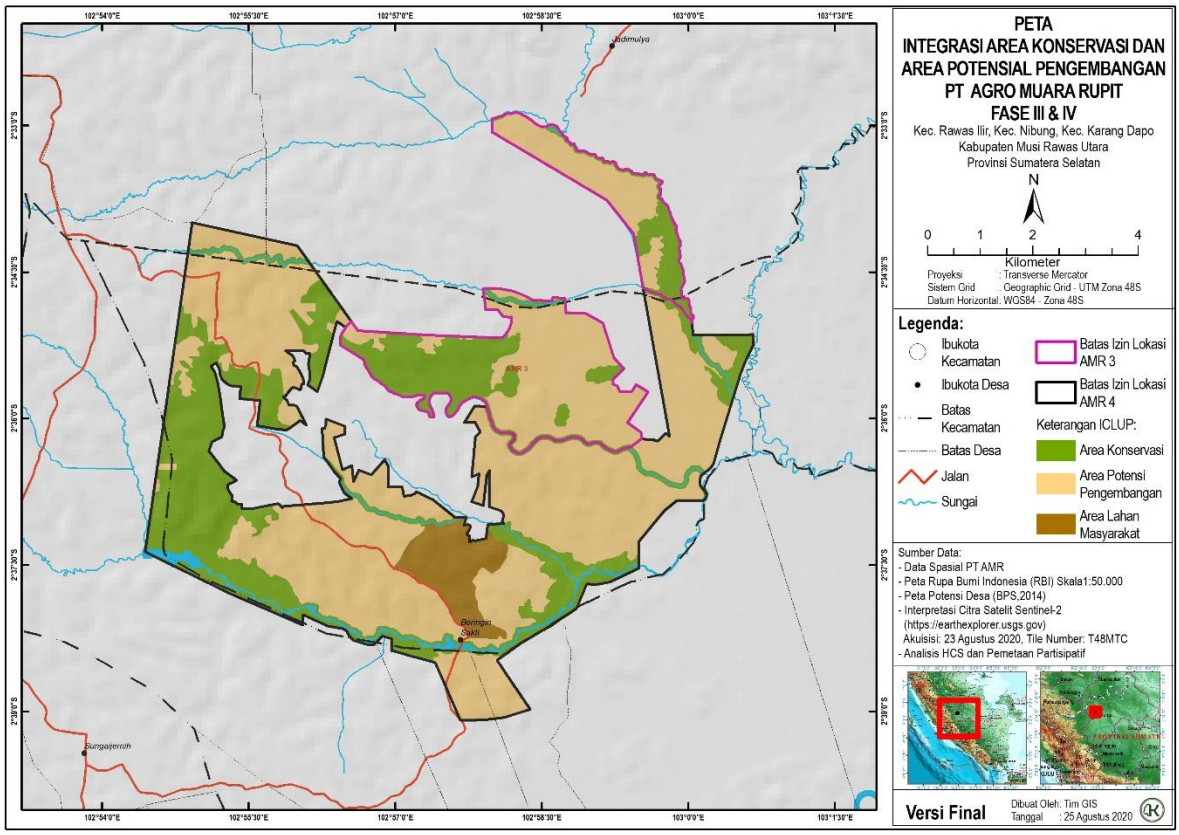


Figure 28. Map of integration of conservation areas and potential development areas in the study area

3.3.5. Public Consultation

Final consultations and interviews were carried out by inviting representatives from the kelurahan/desa, kecamatan, Government agencies and related institutions to present the results of the final analysis with the aim of obtaining final input. The final public consultation was held on 10 July 2019; the summary notes of the final consultation are presented in **Table 30.**

Table 31 Summary of Final Consultations with PT AMR III & IV Key Stakeholders

No.	Name	Position / role	Social organization / group	Main concerns and recommendations
Date: 10 July 2019, Place: Sederhana Restaurant, Muara Rupit, Musi Rawas Utara				
1	Mr Wisnu	Head of Subdivision of Plantation	Department of Agriculture and Fisheries, Kab. Musi Rawas Utara	• Appreciation to PT AMR for conducting a study prior to opening the location permit area. • *The consultant's review and recommendation are expected to be binding for implementation by PT AMR and seriously implement it.* • The GRTT process can be carried out properly, transparently, without problems and is well documented.
2	Mr Abdul Kadir	Environmental Service Staff	Environmental Service of Musi Rawas Utara Regency	• *PT AMR in its implementation regarding river boundaries should be given a stake or sign so that the community knows and at least participates in understanding in maintaining the river's balance.* • In the PT AMR location, peat is very limited if there is only temporary, such as swamps in the

No.	Name	Position / role	Social organization / group	Main concerns and recommendations
				rainy season and along rivers. The government has started to build irrigation channels along the Tingkip river to support community rice fields including Beringin Sakti Village • If there is a photo of a protected animal that is still around the PT AMR permit, please copy it and distribute it to the sub-districts / villages so that the community will understand. • Rehabilitation of rivers that have been damaged a lot, is expected to collaborate with local communities by planting timber trees that are useful and have economic value, such as: petai, jengkol, bamboo so that the community can feel and participate in maintaining river-worthy HCVs. • Taking part in protecting the river, especially contributing to making the river clean and not a place to dispose of waste or rubbish.
3	Mr Herman	Camat	Rawas Ilir District	• Many groups have been abandoned due to the low price of rubber in recent years so that it is rarely tapped, not managed, and even bought and sold. • Each member of the group has a family relationship or closeness, it is hoped that it will become a reference for the origin of the land in the implementation of land acquisition / GRTT. • There are groups that have now become settlements, which should also be considered by the company in the GRTT process. • In GRTT, it involves local residents (group residents) to ensure proper ownership, boundary area and so on. • In Beringin Sakti Village, no companies have entered so far. It is hoped that PT AMR can become an example for other companies in the process of developing plantations in Musi Rawas Utara.
4	Mr Fahrurozi	KPH Staff	FMU Staff Musi Rawas Utara	• PT AMR III & IV location permits that enter the Forest Zone in accordance with the Ministerial Decree No. KLH. 454/2016, how wide is it? Are there areas affected by peat areas? • It has been explained that none of the PT AMR III & IV location permits entered the forest area and peat forest area (KHG) according to the Ministerial Decree of the Ministry of Environment and Forestry. • There are no local permits in the village area that are affected by peat areas, if there are some outside the location permit.

No.	Name	Position / role	Social organization / group	Main concerns and recommendations
5	Mr Reza	Community stakeholder representative	Beringin Sakti Village	• Beringin Sakti Village, which has been isolated and no company wants to attend, hopes that all must comply with the regulations and learn from previous experiences from PT AMR I & II and collaborate with the community in its management. • Regarding protected animals, it is hoped that a team of animals will be formed together with the community along with socialization and learning to anticipate attacks by unwanted wildlife.
6	Mr Ahmad	Community stakeholder representative	Rantau Kadam Village	• There have been rubber farmers who have been attacked by bears, so it needs to be handled more comprehensively in areas designated as HCV. • Even though the land map is in GPS, sometimes in the field it still breaks into neighboring lands. This needs to be considered because the business will be long and sometimes take a long time.
7	Mr Agus Cahyono	Commander of Koramil Rawas Ilir	Koramil Rawas Ilir	• Koramil Rawas Ilir covers Kec. Nibung, Kec. Karang Dapo and Kec. Rawas Ilir where PT AMR III & IV will operate. Whatever the activities of the company as long as they do not cause negative impacts and provide benefits for welfare, it will be supported. • Recommendations are implemented properly and of course will be able to reduce the negative impact from a security perspective, if it has started with good socialization with the community and there will be a reciprocal relationship which will have an impact on improving the welfare of the community.
Date: 12 July 2019, Place: Hotel Dewinda, Lubuklinggau				
8	Ms Yeni Marcia & Mr Mangaraun L. Lumban Gaol	Staff DLH	Department of Environment & Land, South Sumatra Province	• In Musi Rawas Utara District, especially in peat areas such as the Kelumpang River Peat Hydrology Area (KHG), fires often occur during the dry season. Fires are usually from outside plantations or in community garden areas, which sometimes still burn. • If from within the plantation it is usually due to the negligence of workers who are at the time of resting, smoking and throwing away carelessly, this needs serious attention from the internal company.

<table>
<tr><th>No.</th><th>Name</th><th>Position / role</th><th>Social organization / group</th><th>Main concerns and recommendations</th></tr>
<tr><td colspan="5">  
Evidence Sharing, interviews and consultation with staff from the Department of Environment & Land, South Sumatra Province.</td></tr>
<tr><td colspan="5">Date: 05 November 2020, Teleconference regarding the results of the HCVRN QC review</td></tr>
<tr><td>9</td><td>Dr. Ir. Heru Bagus Pulunggono M.Agr.</td><td>Lecturer in Chemistry and Soil Fertility, Dep. Soil Science & Land Resources</td><td>Faculty of Agriculture - Bogor Agricultural University</td><td rowspan="2">Explanation of “histic humaquept” and “terric & typic haplosaprist” soils that are within the PT AMR III & IV location permit area.
The type of histic humaquept soil is not saturated with water all the time, only periodically so that this soil can dry naturally (not in a saturated condition). This soil is a type of mineral soil that has a layer of organic matter.
A statement that the Mendawai land system unit (MDW) which is in the PT AMR III & IV location permit area is mostly composed of humaquept sub-group land which is categorized as mineral soil.</td></tr>
<tr><td colspan="3"> 
Photo of Mr. Heru Pulunggono who was contacted via Whatsapp communication for consultation regarding the type of soil "histic humaquept" and "terric & typic haplosaprist" in the PT AMR III & IV location permit area.</td></tr>
</table>

3.4. Findings and Results of Soil and Topography Studies

3.4.1. Topography and Slope

Based on the SRTM Digital Elevation Model (DEM) Image with a spatial resolution of 30 meters, the topography in the PT AMR III & IV location permit area is at an altitude between 29 - 55 MASL, with an area of 5,440 ha (98.9%) in the lowlands and wide 62.8 ha (1.1%) are on low hills in the PT AMR IV area. Information on the physiographic elevation of the land in the PT AMR III & IV location permit areas is presented in **Table 32** and the physiographic map of the land in the PT AMR III & IV location permit areas is presented in **Figure 29**.

Table 32 Physiographic elevation of land in the area of PT AMR III & IV location permits

Altitude Classification (m MASL)		Management Unit (MU)			
		Phases III & IVI	%	Phase IV	%
<29	Lowland <50 m MASL	492.61	37.82	528.84	12.59
30-34		509.16	39.09	1 132.73	26.96
35-39		162.02	12.44	924.47	22.01
40-44		112.54	8.64	751.09	17.88
45-49		26.12	2.01	800.91	19.07
50-54	Low hills 50 – 200 m MASL	-	-	62.80	1.49
55-59		-	-	-	-
60-64		-	-	-	-
65-100		-	-	-	-
Total:		**1,302.45**		**4,200.82**	

Based on the SRTM Digital Elevation Model (DEM) Image with a spatial resolution of 30 meters, the slope class in the PT AMR III & IV location permit areas is dominated by flat slope class (0-2%) around 95.42%, while the slope class in the location permit areas of PT AMR III & IV is dominated by flat slope class (0-2%) covering an area of 5,405.13 ha (98.22%), and gentle slope class (3-8%) covering an area of 98.15 ha (1.78%). Information on slopes in the PT AMR III & IV location permit areas is presented in **Table 33** and the slope map is presented in **Figure 30**.

Table 33 Slopes in the PT AMR III & IV location permit areas

Slope Classification (%)		Management Unit (MU)			
		Phases III	%	Phase IV	%
0-2 %	Flat	1,293.63	99.32	4,111.50	97.87
3-7 %	Sloping	8.82	0.68	89.33	2.13
Total:		**1,302.45**		**4,200.82**	

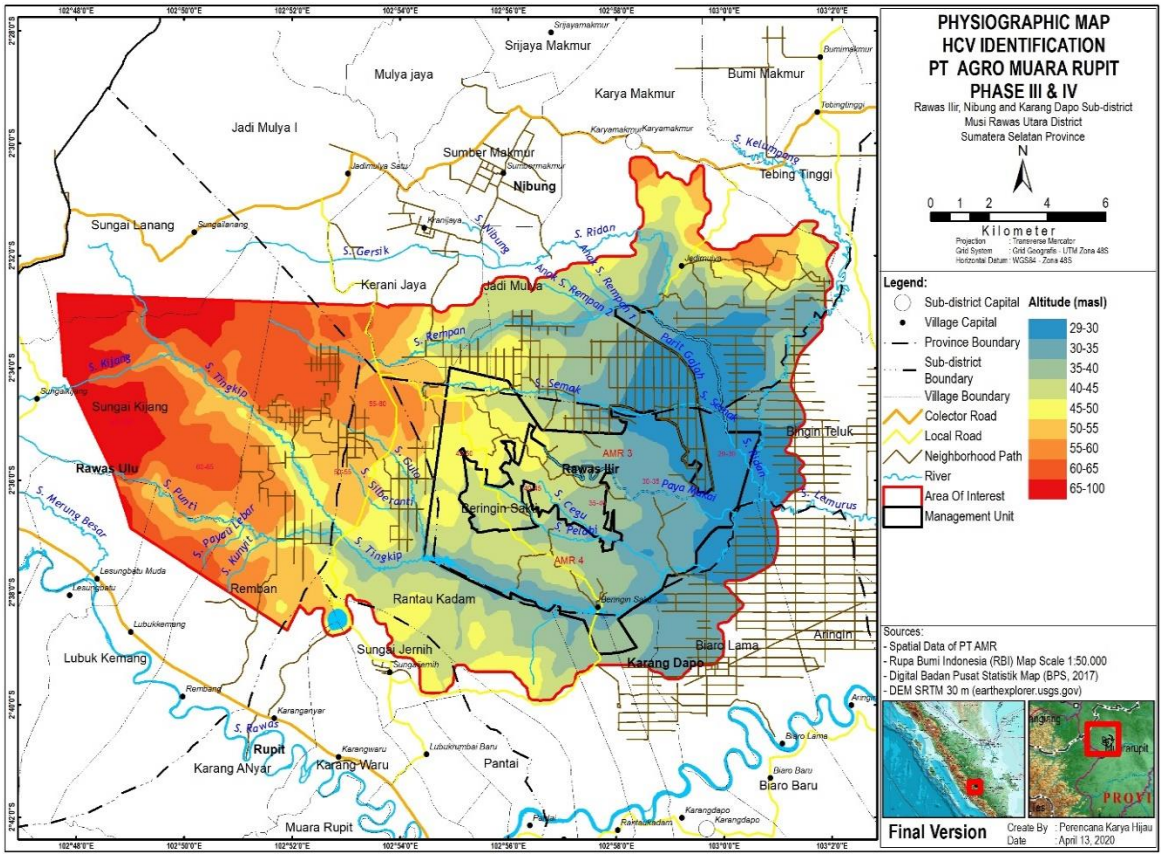


Figure 29 Physiographic Map of Land in the area of PT AMR III & IV location permits

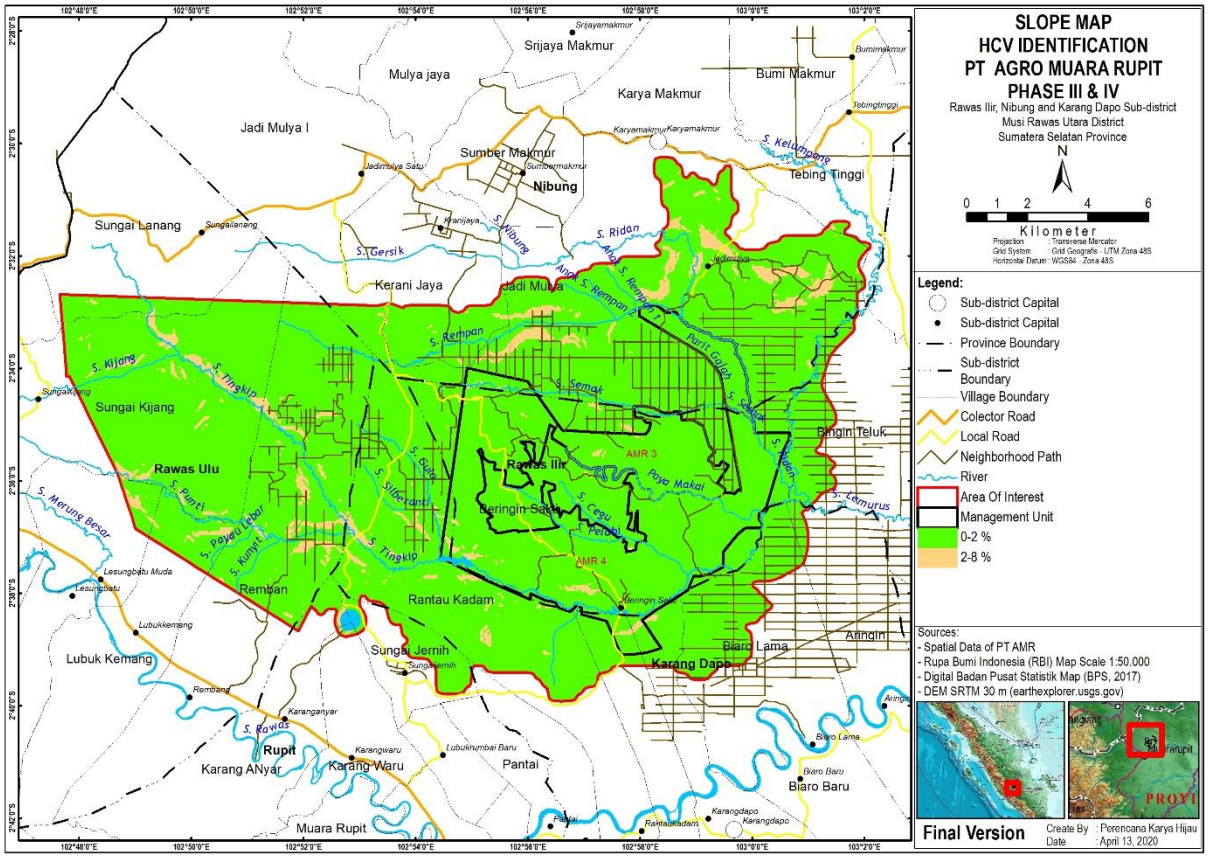


Figure 30 Map of Land Slope in the PT AMR III & IV location permit areas

3.4.2. Land Survey

Based on the nature and characteristics data obtained from direct observation in the field, the soils in the survey area are classified into several types of soil using the Soil Taxonomy System (Soil Survey Staff 2014) as shown in **Table 34.**

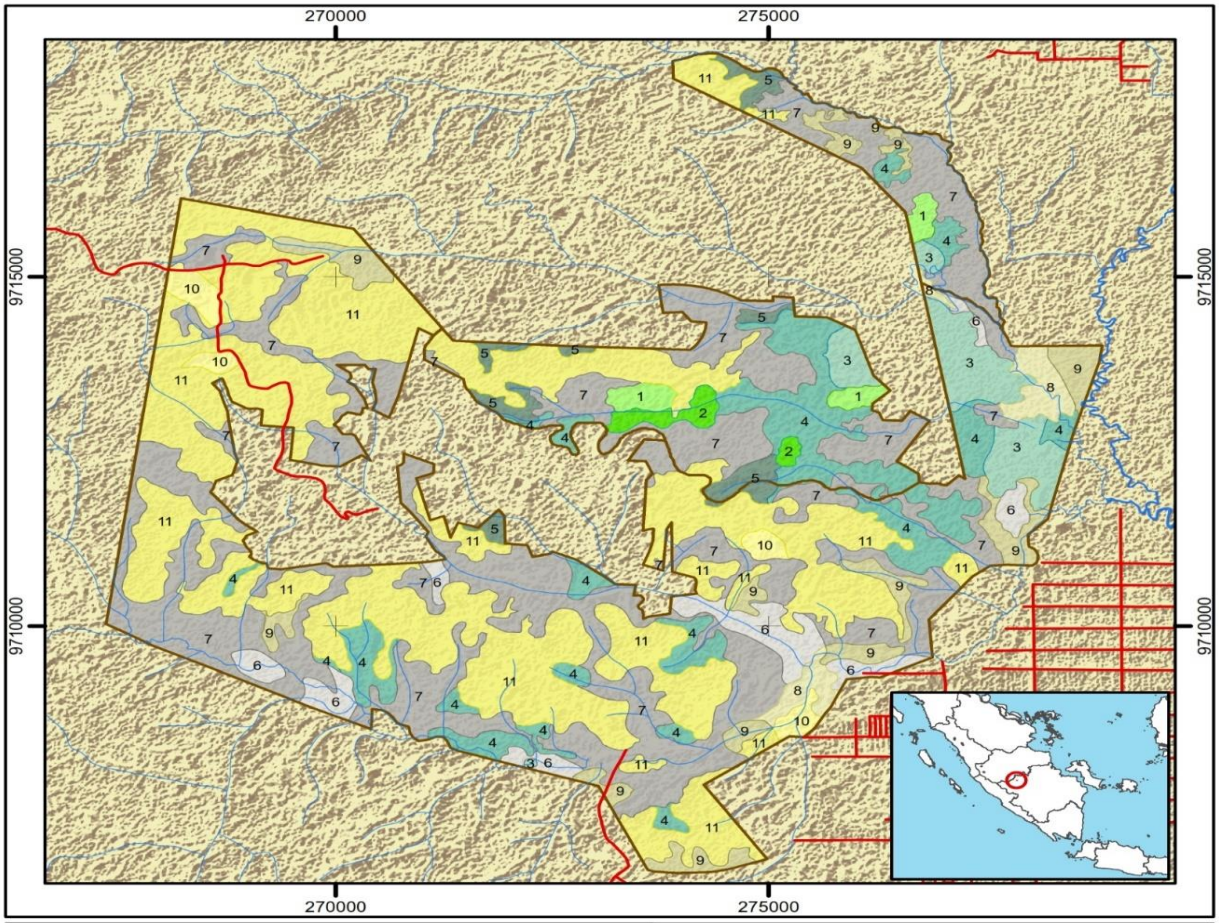
Table 34 Land Units in the Survey Area Based on the Level of Categories according to the Soil Taxonomy Classification System (Soil Survey Staff 2014)

Group (order)	Species (Great Group)	Type (Sub Group)	BBSDLP Equivalent
Histosol	Haplosaprits	Typic Haplosaprits	Organosol Saprik
		Typic Haplosaprits	Organosol Saprik
Inceptisol	Dystrudepts	Typic Dystrudepts	Kambisol Distrik
	Epiaquepts	Typic Epiaquepts	Gleisol Tipik
		Typic Endoaquepts	Gleisol Tipik
	Endoaquepts	Fluvaquepts Endoaquepts	Aluvial Gleik
	Humaquepts	Histic Humaquepts	Gleisol Humic

In the AMR III & IV areas, 11 Soil Map Units (SPT) can be distinguished as shown in **Table 35** and their spatial distribution is presented in **Figure 31**.

Table 35 Land Map Units (SPT) in the Survey Area of PT Agro Muara Rupit III & IV

SPT	SOIL		ORIGIN	RELIEF		SIZE	
	DOMINANT CLASS	SECONDARY CLASS		LAND FORM	SLOPE (%)	HA	%
1	Terric Haplosaprists	Typic Haplosaprists, Histic Humaquepts	Sediment of swamp organic matter	Flat	0 - 3	62.54	1.1
	Total					**62.54**	**1.1**
2	Typic Haplosaprists	Terric Haplosaprists, Histic Humaquepts		Flat	0 - 3	45.49	0.8
	Total					**45.49**	**0.8**
3	Histic Humaquepts	Typic Endoaquepts, Fluventic Endoaquepts	Alluvial clay deposits	Flat	0 - 3	229.94	4.03
4	Histic Humaquepts	Typic Endoaquepts, Fluventic Endoaquepts		Rolling	3 - 8	590.39	10.34
	Total					**820.33**	**14.37**
5	Fluvaquentic Endoaquepts	Typic Endoaquepts, Histic Humaquepts		Rolling	3 - 8	122.34	2.14
	Total					**122.34**	**2.14**
6	Typic Endoaquepts	Histic Humaquepts, Fluvaquentic Endoaquepts		Flat	0 - 3	212.6	3.72
7	Typic Endoaquepts	Histic Humaquepts, Fluvaquentic Endoaquepts		Rolling	3 - 8	1879.78	32.92
	Total					**2092.37**	**36.65**
8	Typic Epiaquepts	Typic Endoaquepts		Flat	0 - 3	97.66	1.72
9	Typic Epiaquepts	Typic Endoaquepts		Rolling	3 - 8	274.55	4.81
	Total					**372.21**	**6.53**
10	Typic Distrudepts	Fluventic Dystrudepts		Flat	0 - 3	84.64	1.48
11	Typic Distrudepts	Fluventic Dystrudepts		Rolling	3 - 8	2063.9	36.15
	Total					**2148.54**	**37.63**
	Grand Total					**5663.82**	**100.00**



SPT	Soil		Relief		Parent Material	Area	
	Dominant	Others	Terrain	Slope (%)		Ha	%
1	Terric Haplosaprists	Typic Haplosaprists, Histic Humaquepts	Flat	0 - 3	Sediment of swamp organic matter	62,54	1,10
	Total					**62,54**	**1,10**
2	Typic Haplosaprists	Terric Haplosaprists, Histic Humaquepts	Flat	0 - 3		45,49	0,80
	Total					**45,49**	**0,80**
3	Histic Humaquepts	Typic Endoaquepts, Fluventic Endoaquepts	Flat	0 - 3	Sediment of Alluvial clay	229,94	4,03
4	Histic Humaquepts	Typic Endoaquepts, Fluventic Endoaquepts	Rolling	3 - 8		590,39	10,34
	Total					**820,33**	**14,37**
5	Fluvaquentic Endoaquepts	Typic Endoaquepts, Histic Humaquepts	Rolling	3 - 8		122,34	2,14
	Total					**122,34**	**2,14**
6	Typic Endoaquepts	Histic Humaquepts, Fluvaquentic Endoaquepts	Flat	0 - 3		212,60	3,72
7	Typic Endoaquepts	Histic Humaquepts, Fluvaquentic Endoaquepts	Rolling	3 - 8		1879,78	32,92
	Total					**2092,37**	**36,65**
8	Typic Epiaquepts	Typic Endoaquepts	Flat	0 - 3		97,66	1,72
9	Typic Epiaquepts	Typic Endoaquepts	Rolling	3 - 8		274,55	4,81
	Total					**372,21**	**6,53**
10	Typic Dystrudepts	Fluventic Dystrudepts	Flat	0 - 3		84,64	1,48
11	Typic Dystrudepts	Fluventic Dystrudepts	Rolling	3 - 8		2063,90	36,15
	Total					**2148,54**	**37,63**
	Grand Total					**5663,82**	**100,00**

Figure 31 Map of Land Map Units (SPT) in the Survey Area of PT Agro Muara Rupit III & IV

Land Map Unit 1 (SPT 1)

This SPT is mainly dominated by Terric Haplosaprist soil which develops from organic matter. Other types of soil that were found were Typic Haplosaprist which also developed from organic material and Histic Humaquept which was formed from alluvial clay as a parent material. The shape is a flat

area with a slope of 0 - 3% and a height difference of <3 meters. This SPT is in the form of a depression or back swamp area, with a total area of about 62.54 hectares or 1.10% of the total survey area.

Land Map Unit 2 (SPT 2)
This SPT is mainly dominated by Haplosaprist Typic soil which develops from organic matter. Other types of soil that were found were Terric Haplosaprist which also developed from organic material and Histic Humaquept which was formed from alluvial clay as a parent material. The shape is a flat area with a slope of 0 - 3% and a height difference of <3 meters. This SPT is in the form of a depression or back swamp area, with a total area of approximately 45.49 hectares or 0.80% of the total survey area.

Land Map Unit 3 (SPT 3)
This SPT is dominated by Histic Humaquept soil which is formed from the mother material of alluvium clay deposits. Other types of soil that may be encountered are Typic Endoaquept and Fluventic Endoaquept which are also formed from alluviun parent material. This SPT is part of the sedimentary rock plain complex. The shape of the area is flat with a slope of 0 - 3%. The area of this SPT is approximately 229.94 hectares or 4.03% of the total survey area.

Land Map Unit 4 (SPT 4)
This SPT is dominated by Histic Humaquept soil which is formed from the mother material of alluvium clay deposits. Other types of soil that may be encountered are Typic Endoaquept and Fluventic Endoaquept which are also formed from alluvium parent material. SPT is part of the sedimentary rock plain complex, with the shape of the area generally undulating slopes of 3 - 8%. The area of this SPT is around 590.39 hectares or 10.34% of the total survey area.

Land Map Unit 5 (SPT 5)
This SPT is dominated by Fluvaquentic Endoaquept soil which is formed from the main material of alluvium clay deposits. Other types of soil that may be encountered are Typic Endoaquept and Histic Humaquept which are also formed from the mother material of alluvium clay deposits. SPT is part of a complex of undulating plains, with the shape of the area generally choppy, and a slope of 3 - 8%. The area of this SPT is around 122.34 hectares or 2.14% of the total survey area.

Land Map Unit 6 (SPT 6)
This SPT is dominated by Typic Endoaquept soil which is formed from the mother material of alluvium clay deposits. Other types of soil that may be encountered are Histic Humaquept and Fluvaquentic Endoaquept which are also formed from the mother material of alluvium clay deposits. This SPT is part of the sedimentary rock plain complex, with the shape of the area generally flat and a slope of 0 - 3%. The area of this SPT is around 212.60 hectares or 3.72% of the total survey area.

Land Map Unit 7 (SPT 7)
This SPT is dominated by Typic Endoaquept soil which is formed from the mother material of alluvium clay deposits. Other types of soil that may be encountered are Histic Humaquept and Fluvaquentic Endoaquept which are also formed from the mother material of alluvium clay deposits. This SPT is part of the sedimentary rock plain complex, with the shape of the area generally undulating in slopes of 3 - 8%. The area of this SPT is around 1879.78 hectares or 32.92% of the total survey area.

Land Map Unit 8 (SPT 8)
This SPT is mainly dominated by Typic Epiaquept soil which are formed from the mother material of alluvium clay deposits. Other types of soil that may be encountered are Typic Endoaquept which is also formed from the mother material of alluvium clay deposits. This SPT is part of the sedimentary

rock plain complex, with the shape of the area generally flat with a slope of 0 - 3%. The area of this SPT is around 97.66 hectares or 1.72% of the total survey area.

Land Map Unit 9 (SPT 9)
This SPT is mainly dominated by Typic Epiaquept soils which are formed from the mother material of alluvium clay deposits. Other types of soil that may be encountered are Typic Endoaquept which is also formed from the mother material of alluvium clay deposits. SPT is part of the sedimentary rock plain complex, with the shape of the area generally undulating slopes of 3 - 8%. The area of this SPT is around 273.55 hectares or 4.81% of the total survey area.

Land Map Unit 10 (SPT 10)
This SPT is mainly dominated by Typic Dystrudept soil which is formed from the mother material of alluvium clay sediment. Another type of soil that may be encountered is Fluventic Dystrudept which is also formed from the mother material of alluvium clay deposits. This SPT is part of the sedimentary rock plain complex, with the shape of the area generally flat with a slope of 0 - 3%. The area of this SPT is around 84.64 hectares or 1.48% of the total survey area.

Land Map Unit 11 (SPT 11)
This SPT is mainly dominated by Typic Dystrudept soil which is formed from the mother material of alluvium clay sediment. Another type of soil that may be encountered is Fluventic Dystrudept which is also formed from the mother material of alluvium clay deposits. SPT is part of the sedimentary rock plain complex, with the shape of the area generally undulating slopes of 3 - 8%. The area of this SPT is around 2063.90 ha or 36.15% of the total survey area.

3.5. Findings and Results of Assessment of Carbon Stocks and GHG Emissions

3.5.1. Evaluation of Carbon Stocks

The land cover in the PT AMR III & IV Location Permit areas is divided into nine classes, namely (i) young regenerating forest (HRM); (ii) scrub; (iii) bush; (iv) mixed garden; (v) rubber plantations; (vi) oil palm plantations; (vii) water bodies; (viii) roads; and (ix) settlements. Carbon stocks at each land cover and estimated total carbon in the PT AMR III & IV Location Permit areas are presented in **Table 36**, and the distribution of carbon stocks in the PT AMR III & IV Location Permit areas is presented in **Figure 32**.

Table 36 Carbon Stocks in the PT AMR III & IV Location Permit areas according to Land Cover.

Land Cover	Luas (ha)	Carbon stock (tC/ha)	Total Carbon Stock (tC)
Young Regenerating Forest	612.7	61.0 [a)]	37,374.70
Scrub	656.3	30.0 [a)]	19,689.00
Bush	2,450.50	5.3 [a)]	12,987.65
Agroforestry	920.2	54.9 [b)]	50,518.98
Rubber Farming	700	75.0 [c)]	52,500.00
Oil Palm Plantation	43.5	59.3 [c)]	2,579.55
Water Body	78.5	-	-
Road	32.1	-	-
Settlement	9.6	5.0 [c)]	48.0
Total	**5,503.3**	**290.5**	**174,163.1**

Note: a) AGB value based on field measurement during HCS Assessment = young regenerating forest (44.5 tC/ha); scrub (30.0 tC/ha); bush (5.3 tC/ha), while BGB value is referred to by Aalde *et al* (2006) in IPCC Guidelines for National GHG Inventories with root-shoot ratio 0.37.
b) AGB and BGB based on carbon stocks in various types of forest and plant species

in Indonesia (Maripatin, 2010)

c) AGB and BGB based on RSPO Default Values

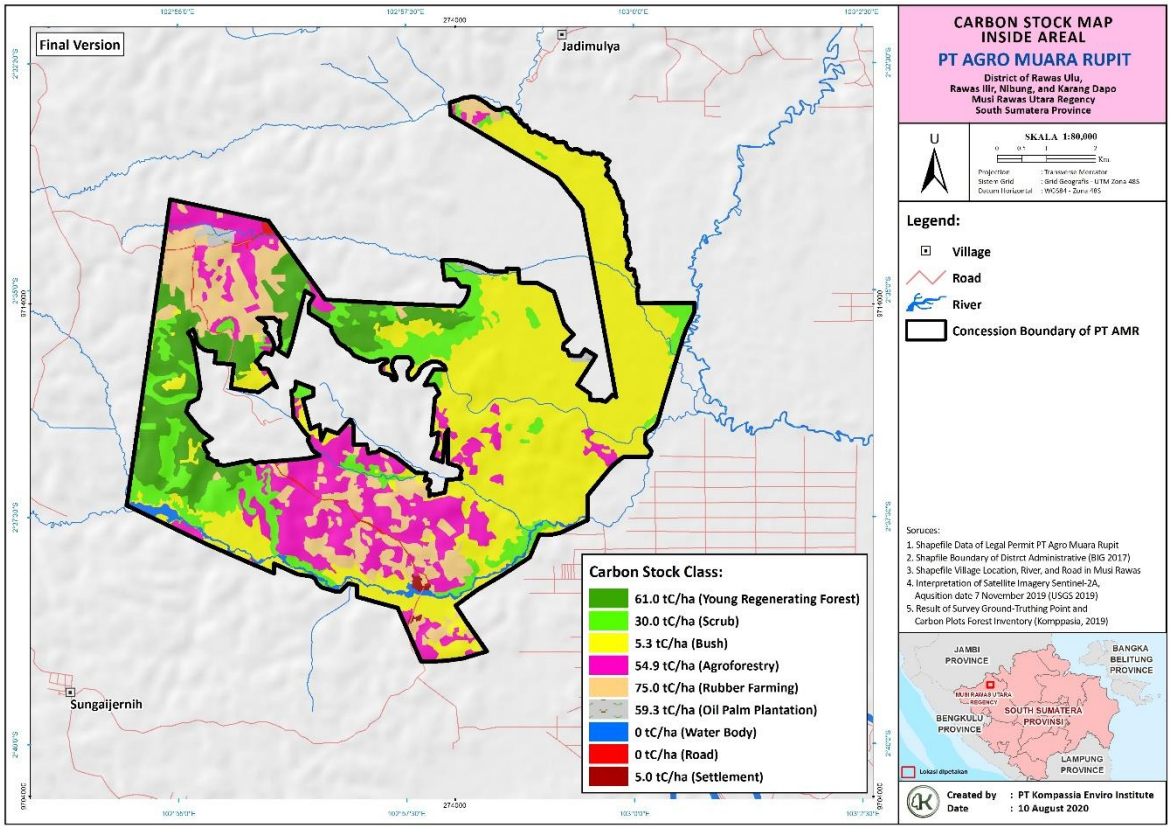


Figure 32 Map of Carbon Stocks in the PT AMR III & IV Location Permit areas

3.5.2 GHG Calculation Results

a) Scenario Test

Two future scenarios are predicted for estimating GHG emissions, namely:

1). Scenario 1, all conservation areas including HCV areas and HCS areas are not cleared for oil palm development. Settlement areas and plasma reserves on planted palms were not reopened (**Table 37**). The plant will be equipped with a methane capture facility.

2). Scenario 2, all conservation areas including HCV areas and HCS areas are not cleared for oil palm development. However, all areas outside of conservation will be cleared and replanted, including the planted palms. The factory is not equipped with a methane capture facility.

Note that Scenario realization will be subject to changes as per the land acquisition process and following principles of free and prior informed consent.

Table 37 Land clearing area for each scenario

Land Cover	Developed for oil palm (ha)	
	Scenario 1	Scenario 2
Scrub	306.10	306.10
Bush	1,787.81	1,787.81
Agroforestry	735.40	735.40
Rubber farming	561.90	561.90
Oil Palm Plantation	27.00	43.50
Total	**3,418.21**	**3,434.71**

a) Projected GHG Emissions

Table 38 Projected GHG emissions with 2 scenarios

Source	Scenario	
	S1	S2
Field emissions & credit	t CO_2e	t CO_2e
Land clearing	15,401.58	15,548.39
Crop sequestration	-29,721.79	-29,865.26
Fertilisers	1,937.79	2,125.19
N^2O	3,418.30	3,434.80
Field fuel	1,864.20	1,939.08
Conservation credit	-1,531.75	-1,531.75
Total	**-8,631.77**	**-8,349.65**
Mill emissions & credit	t CO_2e	t CO_2e
POME	2,074.76	10,998.51
Mill fuel	264.35	264.35
Purchased electricity	14.06	14.06
Total	**2,353.17**	**11,276.92**
Total emissions, tCO_2e (field and mill)	**-6,279**	**2,927**

Scenario 1 was chosen because it would have a significant emission reduction impact both through operations in the field and in factories with methane capture waste processing facilities. This is in accordance with the sustainability policy of the SIPEF group which will not open and develop HCV areas and HCS / HCS areas, will adhere to the principle of efficiency and foster good relations with the community, and will commit to building factory waste processing facilities with methane capture as with other large capacity factories operated by the SIPEF group.

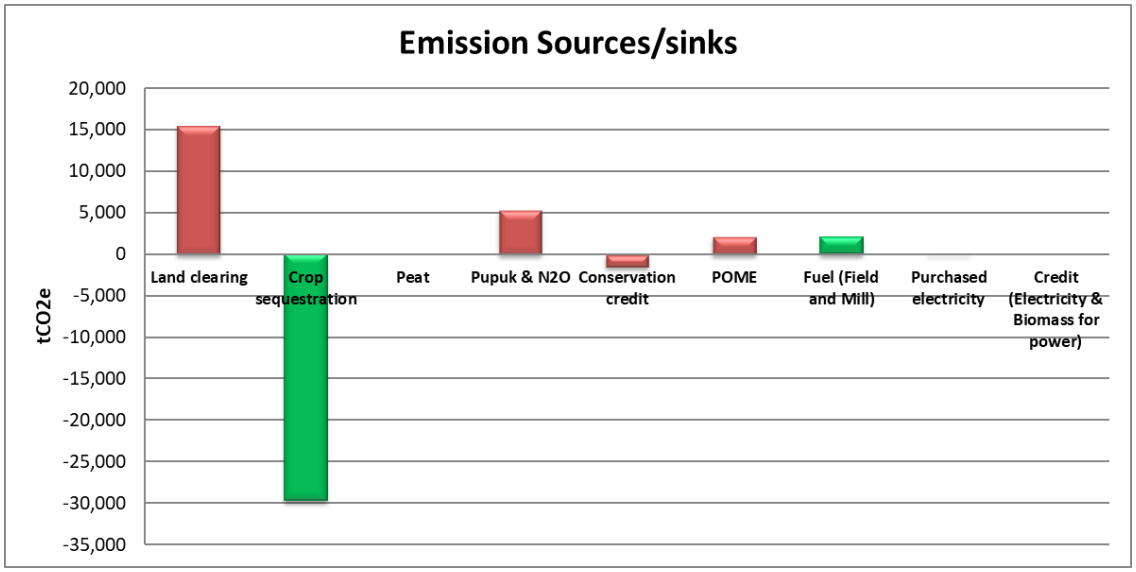


Figure 33 Summary of GHG emissions for PT AMR III & IV plantation development plans

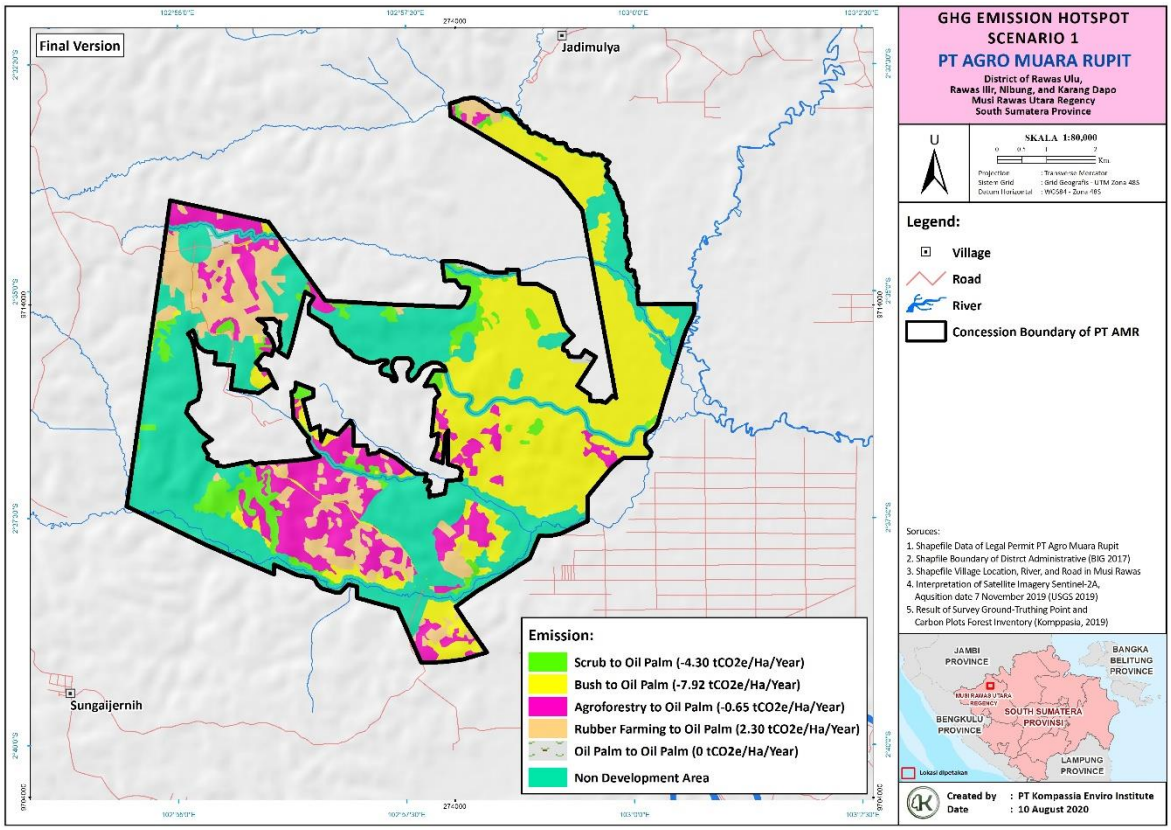


Figure 34 GHG Emission on New Development Plan Scenario 1 PT AMR III & IV

3.6. Community Engagement and FPIC Process Findings and Results

PT AMR has carried out a series of outreach processes at the local, sub-district and village government levels for plans for the development and management of oil palm plantations. The area for the additional location permits is to the east of the previous location permits (Phases I and II) with the same 7 villages and 3 sub-districts. A series of outreach was conducted by PT AMR on the additional location permits (Phases III & IVI and Phase IV), including: (1) High Conservation Value (HCV) and High Carbon Stock Assessment (HCSA) and Social Impact Assessment (SIA), (2) Identification of Environmental and Social Impacts (SEIA), and (3) AMDAL along with RPL & RKL.

Findings regarding land tenure

PT AMR has conducted land tenure mapping in the study area. The purpose of community land mapping is to identify and record land owners, as well as land users. It is considered important to determine with whom the FPIC process must be carried out in order to reach an agreement. The land tenure mapping that has been carried out covers an area of 985.16 ha[10)] (17.9% of the study area). Land tenure mapping has been carried out on 138 community land parcels from 4 villages around the study area. Meanwhile, the other 3 villages have not carried out land tenure mapping.

When compared to the area of land mapping resulting from community land mapping within the area of the study, there are still 4,518.14 ha of land that has not been mapped or the owners of the land have not been identified. Therefore, up until this assessment was carried out, PT AMR was still mapping and identifying community lands.

The land tenure study is carried out using a “door-to-door” socialization process with land owners in the study area using the FPIC principle. The community that applied for and gave permission to carry out land mapping will be followed up by PT AMR. Community land mapping is carried out

by measuring the area of land in the field accompanied by land owners, village teams, Company teams, and neighboring land owners to provide an explanation of the boundaries of the land.

Community lands that have been mapped and identified will be followed up with GRTT according to Company procedures. The GRTT process stages implemented by PT AMR are as follows:

1. **Early Advanced Socialization |** Follow-up socialization was carried out as a continuation of the initial socialization that had been carried out at the village level. Follow-up socialization is carried out at the community level (either RT, a collection of lectures, small meetings at farmers' land locations or others).
2. **Further Socialization with Land Measurement |** This is a continuation of socialization at the family level, where initial data, land identity and ownership, as well as an agreement on initial land measurement, have been agreed upon and GIS data for the owner's land are obtained.
3. **Negotiation Process |** It is a more intense / in-depth socialization, where PT AMR III & IV have informed the GRTT price value and the completeness of documents for the GRTT process.
4. **Administrative Process |** It is a socialization where the land owner has agreed and has completed all the required documents in the GRTT process, and is in the process of being verified by the PT AMR Legal section, as a condition for payment.
5. **Already Paid |** This is the final GRTT process; the funds have been paid and have met the requirements based on the state regulations and the PT AMR SOP.
   In the GRTT principle, there is an agreement between the land owner and the Company regarding the options chosen by the community and the amount of compensation.

FPIC process prior to assessment activities

PT AMR has conducted a series of outreach, starting at the sub-district and village / kelurahan levels, regarding the existence of additional location permits (Phases III & IVI and IV). Furthermore, socialization was carried out at the community / public level, and socialization related to GRTT was carried out with villages / kelurahan and communities / land owners.

In fulfilling the permits for additional location permits (Phases III & IVI and IV), PT AMR conducted HCV, HCS and SIA assessment, and an AMDAL study. All assessments and activities are socialized to the public. The socialization of HCV, HCS and SIA assessments was carried out in April - May 2018 and July 2019 at the sub-district and village / kelurahan levels, as well as customary leaders, while the socialization of the AMDAL study carried out on 19-21 November 2019 was conducted at the sub-district and village / kelurahan levels, with community leaders, youth leaders, and community observers of the environment. From this stakeholder approach process, it is known that PT AMR III & IV have carried out initial socialization related to plantation development plans, and there is agreement from the community represented by the official village entity, namely the village head or those representing him to carry out an HCV assessment in the village area, This is on the understanding from the community about the planned HCV, HCS, SIA and AMDAL assessment activities, the objectives, timing and implementation of the assessment delivered by the assessment team during the scoping study, and recommendations regarding the involvement of the community and relevant resource persons in the assessment activities.

[10)] PT AMR Community Land Mapping Document Update March 2020

Description of community engagement activities and participatory mapping

The socialization and licensing activities carried out by PT AMR regarding the HCSA assessment have been done and permission has been received from the village head appointed as the community representative. This is evidence that PT AMR has complied with the principles of FPIC in implementing the HCV and HCSA assessments. The HCSA assessment team has verified and confirmed to the village head and community the socialization and licensing of the HCSA and HCV assessments conducted by PT AMR. During verification and confirmation, the assessment team also asked for community involvement in the HCSA assessment in the study area. Several villages sent representatives to be involved in the HCV and HCSA assessments.

Participatory mapping and FGD are methods used in the FPIC and HCV and HCSA assessments, as well as the latest reviews and updates of studies and activities that have been conducted by PT AMR. All of these activities involve local communities, key stakeholders, and village government institutions that act as resource persons.

First Stage | FGD or consultation is done with relevant internal staff to gather information, about activities that have been and will be carried out as well as information on key stakeholders who have an important role. FGDs and internal company consultations were conducted twice, during the FPIC assessment and during the HCV and HCSA assessments. Basic information obtained, was configured in a 'sketch' that included location permits, important rivers, adjoining villages, plans to allocate conservation areas, land that has been cultivated by the community, former logging roads, rehabilitated roads, basecamps, neighboring companies and other relevant information.

Second Stage | Visits to the districts, villages / kelurahan and the field began with a meeting with the kecamatan institutions to explain activity plans. The visit to the sub-district and village / kelurahan started with questions asking about the initial outreach process for PT AMR's oil palm plantation development plan: ‘Has it been carried out?’ ‘When and what is known about the PT AMR plan?’ This was followed by information on the plan for identification activities carried out by the consultant, who explained the mechanism of activities and benefits for the community and questioned the availability of sub-district, village / kelurahan institutions as community representatives. The consultant also explained in detail the plan for identification activities and follow-up meetings with the village and community regarding the times, tentative places, the key stakeholders expected to be present and the technical brief of its implementation.

Third Stage | The implementation of participatory mapping activities with key stakeholders as the main agenda, is to provide an understanding of the certainty of location permits and concerns that have been expressed in SIA and HCVA. Another organizer is additional important information that is directly configured in the provided sketch. The results of the participatory mapping sketch are presented in **Figure 35**. Sketches are made from spatial data to configure: (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.

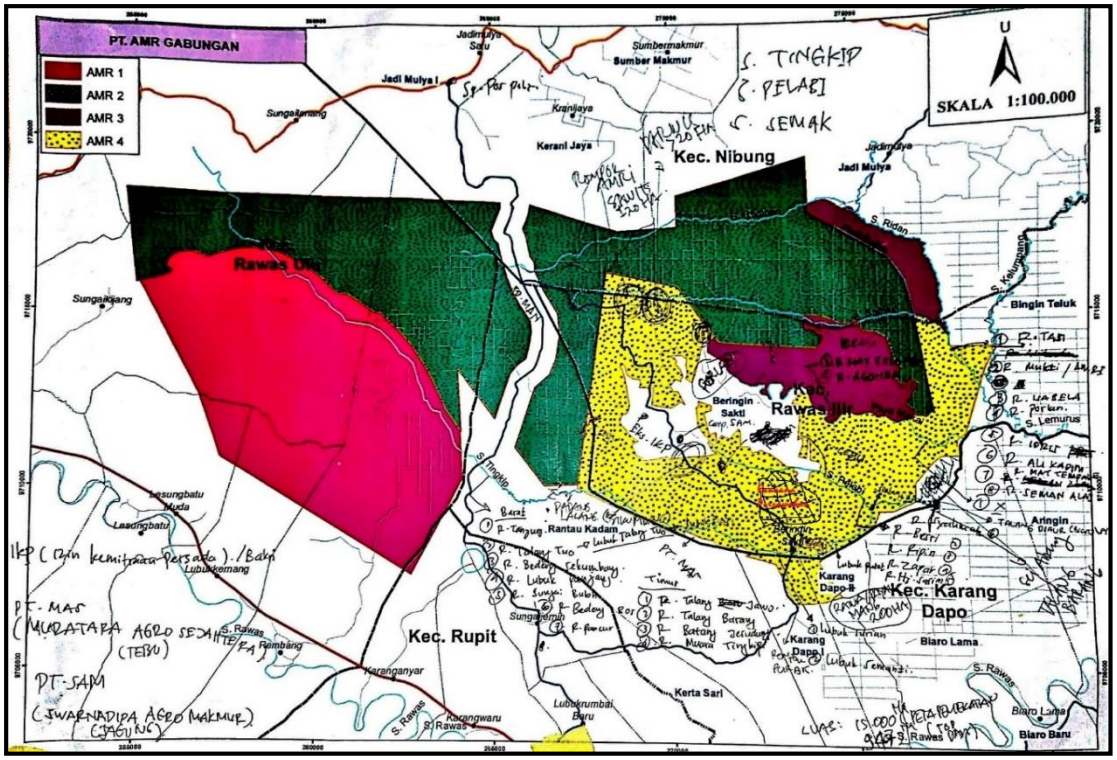


Figure 35 Sketches of participatory mapping results in villages and sub-districts around the study area

Social and other information to determine the socio-economic conditions of the community as supporting data, including: (a) History; village / village, tribe and sub-tribe, (b) customary / village institution, name, structure, task and function, methods of 'decision making', (c) Region / place; history of territorial boundaries, history of important locations, landscape information and (d) Management of customary / village areas (management rules), local wisdom, production areas and protected areas.

Based on the results of interviews and participatory mapping, community lands were found in the study area. The community land is still being used at the time of this assessment. Management of community land is carried out intensively / managed optimally and managed accordingly. Activities carried out by the community about intensive community land management are in the form of cleaning, pulping, fertilizing and harvesting, while formerly it was managed only with harvesting.

The results of interviews, participatory mapping and field checks identified that the community's land which is managed maximally covers land in the form of rubber plantations and oil palm plantations, while unmanaged land covers land in the form of mixed gardens. The results of participatory mapping and the area of land used by the community are presented in **Figure 36** and **Table 39**.

Table 39 Extent and classification of community lands in the study area

SNI land cover *)	Area (ha)	% of the concession
Mixed garden	920.2	16.7%
Rubber plantation	700.0	12.7%
Oil palm plantation	43.5	0.8%
Total	**1,663.7**	**30.2%**

Information: *) SNI 7645-1: 2014 Land cover classification - Part 1: Small and medium scale

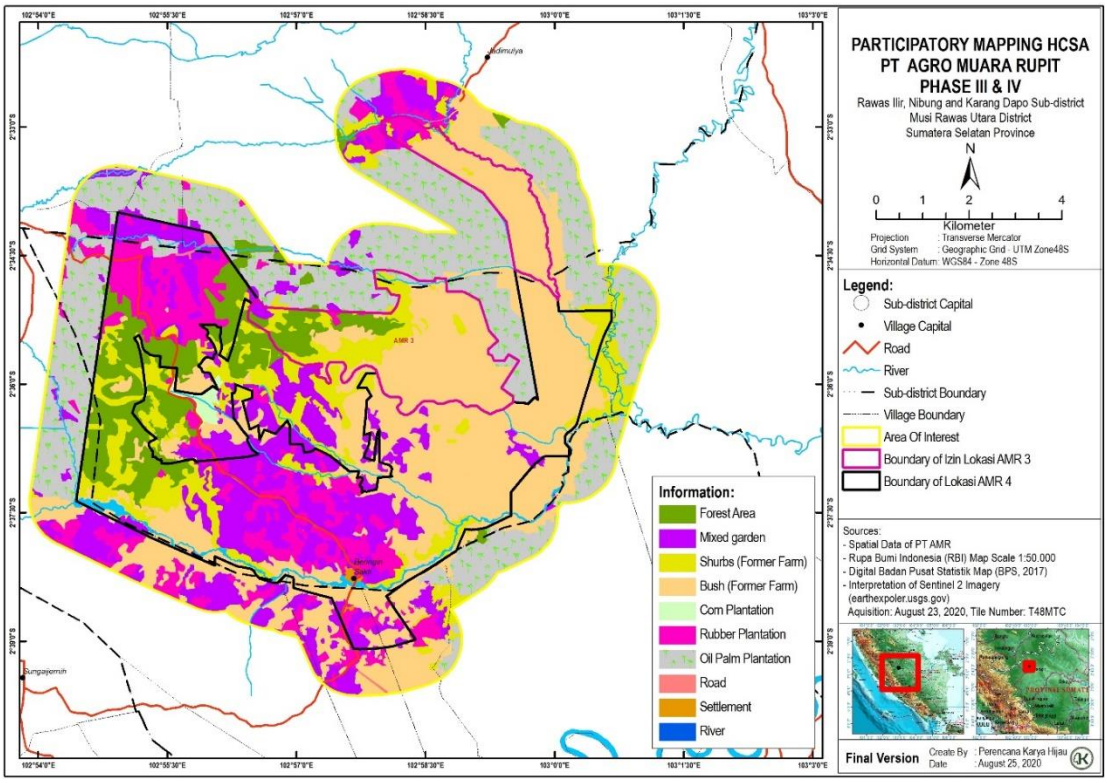


Figure 36 Map of the results of participatory mapping in the villages and sub-districts around the study area

Food Security

The area around the study area has a typical culture where each family generally owns agricultural land in the form of a rubber plantation, or at least works as a rubber tapper under a sharing system in the community rubber plantation. The presence of several oil palm plantation companies, accompanied by falling rubber sales prices, has changed the source of livelihoods from rubber commodities to being workers in plantations. Direct lessons on oil palm cultivation were obtained by working on oil palm plantations, and with this learning trying to plant by converting part of the rubber plantation. The majority of those who have planted oil palm feel that there is less time to care for them and they are still able to continue working on the plantations and tapping rubber during holidays. This situation has begun to change the pattern of livelihoods that used to be rubber cultivation accompanied by farming, to focus on working by using the free time to tap or harvest FFB in the oil palm plantation owned by the community.

Related to 'Food Security', stakeholders from Beringin Sakti Village have stated that the rice field development plan is in accordance with the Government's plan to build a dam and irrigation canal from the upstream stretch of the Tingkip River in Rawas Ulu District, which will flow into villages including Beringin Sakti Village. In the future, it is hoped that the development of rice fields can be run and in line with the results obtained from oil palm plantations to buy rice to meet family needs. In addition, if appropriate technology can be applied, it will boost productivity yields that can at least meet the needs at the village level.

Summary of findings from the community engagement and FPIC processes

Verification of the fulfillment of FPIC principles is carried out in two stages, namely reviewing Company documents regarding socialization and land acquisition plans and interviews, as well

as FGDs with communities and village / sub-district government agencies. Below is a brief description of the results of the verification process on the fulfillment of FPIC principles.
Free - refers to this principle of 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 AMR or other parties in the process of socialization 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 socialization carried out by PT AMR fulfills the Free element of FPIC.

Prior – refers to this principle of checking and ensuring that PT AMR III & IV 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 AMR III & IV before starting the land acquisition and plantation development process, namely (i) socializing at the district level, (ii) conducting socialization at the village level, (iii) taking a personal approach to requesting permits from the village community, assisted by the village team, (iv) conducting public consultations on AMDAL, and (v) organizing formal socialization that invites all interested parties. It can be concluded that the socialization process by PT AMR has fulfilled the Prior element of FPIC.

Informed – refers to this principle of examining and ensuring what information the Company has conveyed to the local community in the socialization activities that have been carried out so far, and assesses whether the information is complete, objective and accurate to be used as consideration for the community to make good decisions.

The delivery of information by PT AMR III & IV is carried out in both formal and informal ways. PT AMR through the village government officially invited the community to attend a meeting explaining the plantation development plan, including the land acquisition procedure (GRTT). Non-formal socialization was conveyed through door-to-door visits by PT AMR III & IV teams to villages that had land to be released as nucleus plantations. It can be concluded that the socialization process carried out by PT AMR has fulfilled the Informed element of FPIC.

Consent – refers to this principle of checking and ensuring that the community expresses their consent or refusal to release land to PT AMR III & IV to be developed into an oil palm plantation is based on sufficient knowledge of the possible risks to be faced and the benefits to be obtained.

During the socialization, PT AMR III & IV gave freedom to the land owners / cultivators 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 negotiations between PT AMR III & IV and the community. The community who released their land has received compensation at the value agreed by PT AMR III & IV with the community. Meanwhile, for the people who refuse to release their cultivated land because negotiations have not been completed, PT AMR III & IV will respect the community's decision. PT AMR provides access for the community to enter and leave their farms. Until this activity was carried out, PT AMR III & IV was still continuing the process of approaching, socializing and negotiating. It can be concluded that the socialization process by PT AMR III & IV has fulfilled the Consent element of FPIC.

Socialization and FPIC permits related to the implementation of HCSA and HCV assessments have been carried out by PT AMR III & IV and have been permitted by the community. The assessment team has verified and confirmed the permit with the community. 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 AMR III & IV under the management and policies of the SIPEF Group are 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 responsibility for the development of new operations (plantation development) will be subject to a HCV assessment procedure prior to the FPIC process of 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 a location permit to the land clearing stage.

The team that is responsible for managing and monitoring the impact of the planting of new plants at PT AMR III & IV can be seen in **Figure 37**.

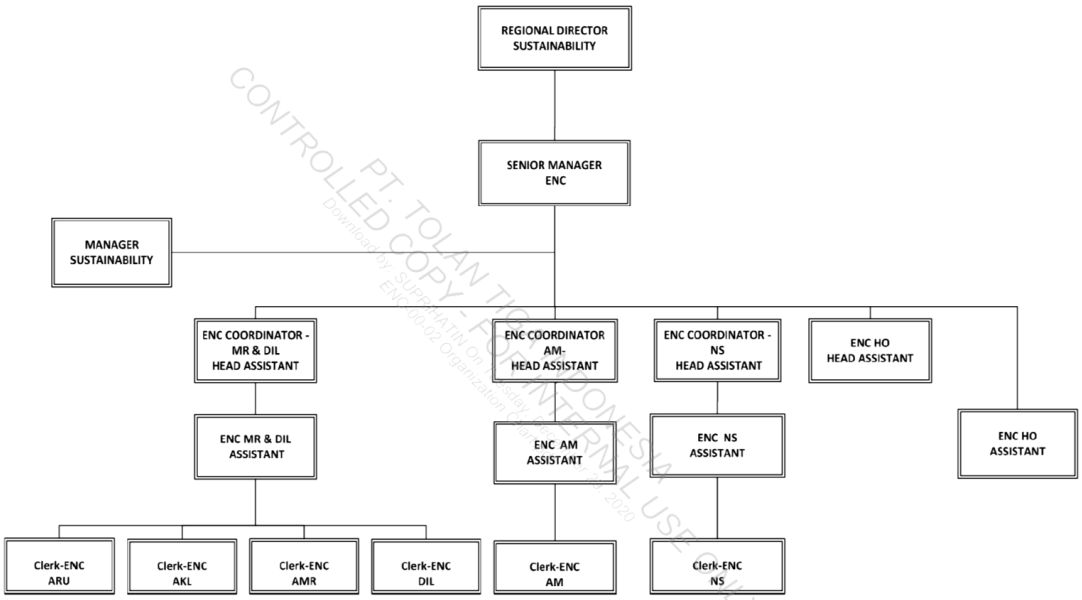


Figure 37 The team responsible for managing and monitoring the development of new planting at PT AMR III & IV

4.2 SEIA Management Plan

The Social Management and Monitoring Plan is made based on the results of the identification of Social Impact Assessment (SIA), and recommendations for social management and monitoring by the Company are presented in **Table 40**. Meanwhile, the management of environmental impacts as stated in the RKL-RPL document is presented in **Table 41**. In accordance with the adaptive social nature of management principles, all management recommendations must come from various parties involved in the management of the area where the Company is located.

Table 40 Matrix of Management and Monitoring Plan for External Communities Around PT Agro Muara Rupit III & IV Plantation

No.	Social Issue	Current Status	Recommendation	Output
1	Village boundaries which are still problematic	There are still unilateral claims about the boundaries of Beringin Sakti Village with neighboring villages.	Assist in socialization until the village understands the village boundaries according to the 2016 RTRW map, which has been definitively enforced.	The village of Beringin Sakti understands and agrees with the village boundaries according to the 2016 RTRW Map.
2	Stakeholders are not yet aware of the information on the Additional Location Permit for PT AMR Phase 4.	After the socialization and identification activities, some of the village parties knew the location of the additional location permit for PT AMR Phase 4.	Continue to socialize about the PT AMR Phase 4 location permit area, especially in relation to the land acquisition process.	The community understands the location of the additional location permit for PT AMR Phase 4.
3	Evaluate better compensation process	There are still land claims due to 'land clearing' by neighboring land owners that are compensated for.	Evaluate the land measurement process according to the SOP without a policy, by involving neighboring land owners in the field.	Zero complaints by neighboring land owners who were compensated due to land clearing
4	Overlapping areas for location permits	An indication of overlapping areas of the location permits with PT SAM, which has carried out the compensation process	Continue the land measurement plan in order to know clearly and correctly about the community land, both those who agree to the compensation process and those who do not. Land measurement will provide mutual benefits regarding the position of the location and area of land which can be continued with the process of making a 'Land Certificate' from the village.	Clarity of overlapping land which will assist the process of land compensation by the legal owner
5	The continuity of the 'groups' that are still being managed	Initial identification of groups in the location permit during identification activities		Knowing the land in the group that is being managed or inhabited and its accessibility
6	Labor recruitment involving third-party contractors regarding recruitment procedures and working day limitations	There are still processes, recruitment procedures and operations by contractors which are still an obstacle for local residents.	Encourage contractors to follow contract procedures with companies and the mandate of the Indonesian labor laws. Coordinate, monitor and evaluate regularly with contractors for improvements for the Company and contractors in the future.	There are no significant obstacles in terms of employment carried out by the contractor, which ensures sustainability in the future.
7	Concerns about declining demand for labor in the future	There are still concerns that the need for local labor will decline in the future.	Prepare and plan other activities for community empowerment programs so that they can be self-reliant to substitute livelihood sources.	The community gets other income alternatives as a source of livelihood.
8	Plasma Plantation	The status of information for plasma plantations is not clear.	Socialize and inform the current status of the plasma plantation conditions to all stakeholders (community, village and related government agencies).	The community and related stakeholders understand and support the existence of plasma plantations.
9	Concern about HCS areas	The concern is that the location of HCS is used as a conservation area and cannot be compensated for.	Disseminate and inform clearly about HCS to the community and related stakeholders, starting from the objectives, processes, results and implementation for the future.	The community and related stakeholders understand and are not worried about

No.	Social Issue	Current Status	Recommendation	Output
				the implementation of high carbon stock.
10	Clean water Issues	Perception of decreasing river water quality from upstream	Disseminate and inform RPL and RKL information that is managed by the Company on a regular basis, and collect information on complaints related to the relevant environment as part of environmental management. Allocate Company CSR programs for village clean water programs that directly benefit the community.	Understand environmental management that is carried out by companies and the community to obtain clean water for their lives.

Table 41 Matrix of Environmental and Social Management and Monitoring Plans for PT AMR III & IV New Planting Activities

No	Environmental Impact Managed	Source of Impact	Management form	Monitoring Time and Frequency	Manager
1	• Changes in Public Perception • Changes in Job Opportunities • Changes in Community Income	• Land acquisition • Labor recruitment • Land clearing • Plantation Management	1) Extension: In the pre-construction (preparation) stage, information is needed in the community regarding plans for land clearing for farm, plans for compensation for plants and buildings and for recruitment of workers. Outreach to the community (village officials, community leaders and representatives of the affected community) about the plantation management system applied and community involvement in such management 2) The Company must provide counseling to the community regarding the use of the proceeds from land acquisition for productive business (such as buying replacement land, production equipment, business transfer) instead of consumptive use (purchasing consumable goods and other consumptive activities). 3) People who have lost their main source of livelihood due to land acquisition activities must be given appropriate compensation according to market prices and an agreement between the two parties, so that they can be used to buy replacement land or investment in business capital. 4) Conduct community development programs around plantations and mills through the oil palm plasma program for residents who own land or other programs arranged jointly between the Company and the community to bring community needs closer to the Company's capabilities, such as providing clean water for residents, assistance of superior seeds that are accessible to residents, and other assistance according to Company capacity and residents' expectations.	Once a year during the pre-construction stage and continued at the construction stage and during plantation and mill operations	ENC Regional staff ENC Plantation staff Person-in-charge: ENC Senior Manager

No	Environmental Impact Managed	Source of Impact	Management form	Monitoring Time and Frequency	Manager
			5) Plasma members are prioritized by the communities affected by the impact, due to changes in land use, swamp function, forest function as a place to work and a source of family income 6) Include village officials, community leaders, sub-district governments and authorized institutions in land acquisition activities, in accordance with the applicable main duties and functions in government and society. 7) Development of service facilities through the Corporate Social Responsibility program of PT Agro Muara Rupi in coordination with local villages such as: Repair of village road facilities that are used by the company and can be enjoyed by the local community in supporting their economy. Support for the development of educational facilities for workforce needs and health facilities to anticipate workplace accidents and the negative impacts that may arise from oil palm plantation activities. 8) Proper treatment: Treat the local community properly through the policy of prioritizing local workers and the principle of open information in the acceptance or termination of employment can control negative impacts. 9) Improve educational facilities and infrastructure, especially coaching courses / training either carried out by companies or organized by other agencies through the CSR program. 10) Prioritize the use of local labor in filling job opportunities at the PT Agro Muara Rupit oil palm plantation and processing factory. 11) Disseminate information (socialization) of job opportunities openly to all levels of society through village, sub-district and district government officials. 12) Land that does not match the replacement price must be enclaved from the activities of the plantation project and oil palm processing factory of PT Agro Muara Rupit 13) Assist and facilitate the community to establish a plasma plantation cooperative PT Agro Muara Rupit. 14) In cooperation with the North Musi Rawas District Cooperative Office, provide outreach and foster members and cadres of the plasma plantation cooperative leaders of PT. Agro Muara Rupit. 15) Facilitate meetings of members of the plasma plantation cooperative of PT Agro Muara Rupit every year.		

No	Environmental Impact Managed	Source of Impact	Management form	Monitoring Time and Frequency	Manager
			16) Hold a forum for friendship between plantation leaders and oil palm mills of PT Agro Muara Rupit with the leader and members of the plasma plantation cooperative periodically (at least annually).		
2	Increased Soil Erosion	1. Construction and Repair of Facilities and Infrastructure 2. Land Clearance	1) Build erosion prevention structures that are adjusted to the level of the slope of the soil. 2) Cleared land that is not used for long term is planted with cover crops such as legumes (LCC) such as (Calopogonium mucunoides, Centrosema pubescens, Crotalaria spp) or plants specifically planted to protect the soil from the threat of damage by erosion and / or to improve the chemical and physical properties of the soil. 3) Waste or plant biomass resulting from land clearing such as stems, branches, plant twigs is cut into pieces 1.0 - 1.5 m in size and arranged to function as mulch to control soil erosion 4) Create and arrange drainage channels at the construction site and repair infrastructure and equip it with sediment traps so that the channel functions to drain water and captures sediment before entering water bodies / rivers. 5) Sediment traps can be created along drains, water control channels, or natural drains. Sediment traps filled with half the volume of sediment are dredged immediately (usually after high rainfall intensity)	Once a year during the construction stage and continue at the plantation operation stage	ENC Regional Staff ENC Plantation staff Person-in-charge: ENC Senior Manager
3	Decreasing Water Quality and Quantity	Land clearing Nurseries and Planting Activities of building and repairing facilities	The water quality management plan for plantation land clearing activities is focused on the source of the impact, namely erosion management, as described in the impact of erosion. In addition, water quality management is carried out as a result of land clearing activities and construction of improved facilities as follows: 1) Doing land clearing in stages according to the progress of oil palm planting. Open land that is not used in the long term is planted with ground cover such as legumes (LCC) 2) Managing runoff water carrying eroded soil particles by building: Water Control Channels, Checks and Sediment Traps 3) Creating retention ponds (*embung*) and checking dams as water reserves in the dry season. 4) Not closing natural channels so as not to change the existing surface water flow pattern. 5) Planting ground cover crops immediately after land clearing is carried out to reduce evaporation of open land.	Water quality: during land development by monthly. During operational will be monitored every 6 months.	Staf ENC Regional Staf ENC Kebun Penanggung jawab: Senior Manager ENC

No	Environmental Impact Managed	Source of Impact	Management form	Monitoring Time and Frequency	Manager
			6) Collecting former packaging of fertilizers and pesticides for oil palm seeding and planting in a temporary storage area for hazardous and toxic waste (TPS LB3) 7) Controlling pests, diseases and weeds in the nursery and planting of oil palm by endeavoring to use organic pesticides or pesticides recommended by the "Pesticide Commission of the Central Government, Provincial Governments and District Governments". 8) Processing waste at the TPA by means of sanitary landfill. In the nursery and planting activities: 1) Oil palm nurseries are conducted in locations that have sufficient surface water reserves, which are capable of supporting the opening of plantations. 2) Waterways or garden land drainage must be equipped with a drainage gate to regulate the ground water level in the land. The water channel is equipped with an *embung* at certain distances and places for water reserves, especially during the dry months (June - August) 3) Not closing natural channels, so as to not change the existing surface water flow pattern. 4) Not carrying out oil palm planting on riverbanks (50 - 100 m). The river border area is enriched with local vegetation as a corridor for animals or habitat for food, shelter and for the breeding of wild animals. In this connection, local plant nurseries need to be made to enrich the land border.		
4	Air Quality Deterioration	Heavy equipment and material mobilization activities Land clearing activities Palm oil mill construction	1) Land clearing is carried out in stages according to the progress of oil palm planting in the mill's plan. 2) Ground cover crops are planted to control soil surface dust in open areas of vegetation in the form of legumes (LCC) such as (Calopogonium mucunoides, Centrosema pubescens, Crotalaria) on exposed soil surfaces. 3) Land clearing is not carried out on riverbanks (50 - 100 m), to control the spread of dust by wind. **PKS development** 1) Land clearing for factory construction is carried out selectively, namely only in the factory site and supporting facilities area. 2) Clearing the factory land can leave a green belt in the form of local native plants with a width of 50 - 100 meters around the factory, as an area that functions as a windbreak that keeps dust and gas emissions away from construction	Once in 6 months during the pre-construction stage and continued at the construction and operation stages of the plantation and factory	ENC Regional Staff ENC Plantation staff Person in charge: ENC Senior Manager

No	Environmental Impact Managed	Source of Impact	Management form	Monitoring Time and Frequency	Manager
			activities and factory operations. This area is enriched with local types of plants in a sustainable manner. 3) Making efforts to ensure that the equipment to be used in the construction and operation of the palm oil processing plant meets the operating standards of the equipment, so that the resulting exhaust emissions do not exceed the quality standard.		
5	Potential Land Fires	Land clearing activities	1) Making ditches or drainage of oil palm plantations must consider the groundwater level so that the land remains moist and does not dry out in the dry season. Water ditches or drainage must be installed with bulkheads or water gates to regulate the ground water level in oil palm plantation blocks, in accordance with local topographical conditions or where water channels drain into rivers. 2) Modifying a sealed trench as a water storage pool (*embung*) to control land fires, and at the same time for habitat for shelter and foraging for local aquatic biota. 3) Establishing hotspot monitoring posts at the plantation location. 4) Controlling community activities in PT Agro Muara Rupit.	Once a year during the construction stage	ENC Regional Staff ENC Plantation staff Person-in-charge: ENC Senior Manager
6	Changes in Vegetation / Flora Fauna / Wildlife Disturbance	Land clearing activities Nursery and planting activities	1) Land clearing is not carried out on river borders (50 - 100 m). The river border area is enriched with local vegetation as a corridor for animals or habitat for food, shelter and for the breeding of wildlife. 2) Local plant nurseries must operate for the revegetation and enrichment of riparian plants besides oil palm nurseries. 3) Putting up noticeboards regarding the prohibition of clearing land for river borders and hunting for wild animals and cutting trees, as well as all forms of disturbance to protected habitats for foraging and the breeding of wild animals on riverbanks or places planned to become conservation areas of PT Agro Muara Rupit. 4) PT Agro Muara Rupit, apart from seeding and planting staple crops (oil palm), also runs a nursery and plants local plants in open areas and river boundaries as habitats for foraging, shelter and wildlife breeding.	Once a year during land clearing, nurseryand planting	ENC Regional Staff ENC Plantation staff Person-in-charge: ENC Senior Manager

4.3. HCV and HCS Management and Monitoring Plans

Threat assessment is carried out by applying the IUCN Threat Classification Scheme approach (based on Salafsky et al., 2008). **Table 42** provides a summary of the results of the threat assessment to conservation value.

Table 42 Summary of threats assessment to conservation value in the location permit in PT AMR III & IV

HCV	Summary of Significance in the identification area	Main Threat
HCV 1	Population of endemic animal and plant species or RTE species - Endangered (EN, Genting) and Vulnerable (VU, Vulnerable) stillexist	The hunting of the remaining animals, especially specieswith endangered status (EN, Genting), namely the hooplangur (*Presbytis melalophos fluviatilis*) and five species with the status of Vulnerable (VU, Vulnerable), namely the Sumatran slow loris (*Nycticebus coucang*), monkey monkey (*Macaca nemestrina*), sun bear (*Helarctos malayanus*), the clawed otter (*Aonyx cinereus*), and the tongtong heron (*Leptoptilos javanicus*).
		A decrease in the quality of the aquatic habitat.
		Decrease in the extent and quality of aquatic and animalhabitats due to logging, land fires, and lack of connectivity with potential habitats outside
		Habitat fragmentation
		Wildlife - human conflict
HCV 3	Existence of peat areas and natural forest cover of lowland forest, which are endangered ecosystems.	Clearing of peat areas and conversion of the cover above them.
		Drainage connected to peat areas can cloud the area.
		Tree felling, clearing of natural forest, land clearingactivities and conversion to cultivation.
		Forest fires.
HCV 4	Managing extreme water flow events, including vegetated riparian buffer zones / intact floodplains	Decreasing water quality due to pollution from agrochemical residues and household waste
		Conversion (clearing) of land along riverbaks, swampsand peat areas
		Illegal logging
		Forest fires
	Maintaining downstream flow regimes	Decreasing water quality due to pollution from agrochemical residues and household waste
		Conversion (land clearing) on riverbanks and floodplains
		Illegal logging
		Forest fires
	Maintaining water quality characteristics	Decreasing water quality due to pollution from agrochemical residues and household waste

		Conversion (clearing) of land along riverbanks and floodplains
	Fire prevention and protection	Conversion (land clearing) on riverbanks and floodplains
	Protection of vulnerable land, aquifers, or the fisheries	Decreasing water quality due to pollution from agrochemical residues and household waste
		Conversion (land clearing) on riverbanks and floodplains
	Provision of clean water supply; and natural ecosystems that playan important role in stabilizing steep slopes.	Decreasing water quality due to pollution from agrochemical residues and household waste
		Conversion (land clearing) on riverbanks and floodplains
	Protection against wind, and regulation of humidity, rainfall, and other climatic elements	Conversion (land clearing) on riverbanks and floodplains
		Illegal logging
		Forest fires
	Pollination services, for exampleexclusive pollination of subsistence food crops	Vegetation conversion (land clearing)
		Illegal logging
		Forest fires
HCV 5	Presence of rivers as water sources and fishing grounds.	Decreasing water quality due to pollution from agrochemical residues
		Decreasing water quality due to household waste andplastic waste
		Conversion (clearing) of land on riverbanks
		Illegal fishing by using electric stun and poison
	Development of rice fields. Rice cultivation is a traditional sourceof livelihood for local communities.	Land conversion plans for rice fields, and poor management of community members in controlling andutilizing land.
	An important source of water fordrinking water and sanitation	Decreasing water quality due to pollution from agrochemical residues
		Decreasing water quality due to household waste andplastic waste
		Conversion (clearing) of land on riverbanks

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 functions of areas of HCV and / or areas of HCS.

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 neighboring 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 the interests and benefits of all parties.

In line with HCV management, 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. This entails, strengthening staff capacity in management identification, monitoring and evaluation, among others: 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. 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 43**.

Table 43 HCV Management and Monitoring Plans in the PT AMR III & IV location permit area

HCV	Threat	Management Recommendations	Monitoring Recommendations	PIC
HCV 1	Hunting results in: • Reduced animal populations • Decrease in the extent and quality of aquatic and terrestrial animal habitats, due to felling of trees, land fires, and lack of connectivity with potential habitats outside • Fragmented animal habitat • Animal-human conflict	• Conducting outreach and information about the presence of important animals at every internal briefing and every relevant meeting both internal and external • Reducing opportunities 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, including by establishing HCV areas and security patrolling. This is very important considering that once there is a clearing at the edge of the remaining forest cover, it will increasingly enter the area. • Establish a reporting and action system for findings of RTE animals to the local BKSDA.	• Regularly monitoring, every 3 months, the presence of animal species • Recording any hunting occurrences, and habitat loss or reduction	ENC team and Estate Manager
HCV 3	• Clearing of peat areas • Drainage connected to peat areas • Tree felling, clearing of natural forest, land clearing activities and conversion to cultivated land • Forest and peatland fires	• Conducting socialization and information about the existence of land and forested areas at every internal briefing and every relevant meeting, both internal and external. • Maintaining the integrity of the remaining peatland ecosystem and forest land, among others, by	○ Monitor peat height and depth parameters regularly, in each relevant meeting ○ Creating documentation and regular monitoring reports	ENC team and Estate Manager

HCV	Threat	Management Recommendations	Monitoring Recommendations	PIC
		establishing HCV areas and patrolling security • Installing a sign board on HCV clearance prohibitions • Making policies prohibiting the opening of peat areas, natural forest areas, riverbanks and flood banks • Not draining the peat and blocking the canals that will be connected to the remaining peat areas • Installing fire control towers • Creating action protocols for changes in natural forest cover, peat areas, river boundaries and flood banks	○ Monitoring changes in forest cover, both indirectly (remote sensing) and directly in the field	
HCV 4	Decrease in water quality due to pollution from waste residues and agrochemicals	• Installating a signboard and outreaching to employees about the prohibition of using agrochemicals on riverbanks that have been planted with oil palm • Carrying out manual weeding and fertilizer application in the riverbank area of oil palm plantations • Conducting outreach and providing information about the importance of HCV areas to internal and external parties • Strengthening riverbanks prone to landslides, with civil engineering, by making sediment traps (overflow or gully plugs) as well as vegetatively, especially in undulating areas. The materials used can be sandbags, stone, wood, or bamboo. • Vegetation enrichment is recommended on riverbanks that are prone to landslides, with native tree species and / or those with deep and strong	○ Documenting outreach activities ○ Monitoring functions and performing maintenance on sediment traps (weirs / overflows / gully plugs) ○ Recording landslides or erosion events ○ Monitoring vegetation growth (% growth) in the enriched areas ○ Measuring the sedimentation rate at the water quality monitoring locations ○ Checking water quality periodically (at least once every 6 months) at water monitoring points, namely river inlets within the study area. Inspections are carried out both visually and in laboratory tests.	ENC team and Estate Manager

HCV	Threat	Management Recommendations	Monitoring Recommendations	PIC
		roots, as well as a dense canopy. • Creating *rorak* both in the planting block area (silt pit) and on either side of the road (road side pit), especially in areas with bumpy waves.		
	Land conversion / clearing on riverbanks and floodplains which have an important role	• Marking the boundaries of the bufferzone area with the boundaries of each river • Conducting socialization and information regarding the boundaries of the HCV area and the important functions of the HCV at every internal briefing and every relevant meeting, both internal and external. • Collaborating and cooperating with the community, government (from village to regional level), and NGOs in relation to river conservation and protection programs • Outreaching and providing assistance to LC contractors regarding the boundaries of HCV areas to avoid over-clearing	○ Documenting outreach with relevant stakeholders ○ Periodically (at least 6 months), monitoring the river boundaries that become HCV areas ○ Accompanying LC contractors and making minutes of land clearing	ENC team and Estate Manager
	Land fires	• Preparing fire management SOPs, including emergency response mechanisms and reporting to the authorities • Establishing a task force for land fire mitigation and control, supported by training and infrastructure • Installing fire control towers • Creating action protocols for changes in river boundaries and flood banks	○ Documenting SOP socialization and reporting records ○ Recording the number of fire incidents, complete with documentation and minutes ○ Coordinating with local companies and government, both local and regional levels, to mitigate forest and land fires ○ Monitoring the discharge of water at locations of	ENC team and Estate Manager

HCV	Threat	Management Recommendations	Monitoring Recommendations	PIC
			water sources for fire management	
	Logging	• Identifying the communities that carry out logging • Carrying out collaborative and participatory community empowerment programs, especially for communities who carry out logging • Marking the buffer zone boundaries according to the width of the borders of each river	○ Documenting outreach with relevant stakeholders ○ Periodically (at least 6 months), monitoring the river boundaries that become HCV areas	ENC team and Estate Manager
	Conversion of forested areas for pollination services	• *See HCV 1 and HCV 3 management regarding the presence of forest cover*	○ *See HCV 1 and HCV 3 management regarding the presence of forest cover*	ENC team and Estate Manager
HCV 5	Garbage, household waste, bathing and washing places and latrines that are disposed directly into the river reduce the quality of river water	• Conducting socialization and information about the importance of rivers and the risk of garbage and waste being directly disposed into the river at every internal briefing and every relevant meeting, both internal and external.	○ Documenting outreach with relevant stakeholders ○ Monitoring regularly ○ Measuring the quality of river water regularly, integrated with UPL (environmental monitoring efforts) ○ Making regular visits and dialogues to see feedback from the community on the rice field plan ○ *See HCV 4 monitoring for rivers*	ENC team and Estate Manager
		• Encouraging internal village parties to make 'village regulations' or village rules on river use and maintenance • Encouraging the village to socialize and collect data regarding bathing, washing and latrines as well as mapping their locations • Encouraging the creation of public bathing, washing and goose neck latrines at various points as needed • Encouraging village internal parties and companies around the village to form a monitoring team for areas of river flow and border areas.		ENC team and Estate Manager

HCV	Threat	Management Recommendations	Monitoring Recommendations	PIC
		• *See HCV 4 management regarding rivers*		
	Exploitation of fish in rivers in an unsustainable manner	• Creating announcements and signboards in strategic places for all employees and the public to understand. • Encouraging announcements and efforts to make village regulations / laws related to river waste and utilization. • Encouraging the village to form a village voluntary team to monitor rivers related to utilization and exploration, as well as other related interests. • *See HCV 4 management regarding rivers*		ENC team and Estate Manager
	The potential for conversion of paddy fields	• Coordinating with local governments regarding plans for developing rice fields for the needs of local communities • Providing training to the community regarding the management of rice fields		ENC team and Estate Manager

Because the existence of HCV areas also depends on environmental conditions outside the PT AMR III & IV location permits, for example watershed management, cross-sectoral management is also

needed. Management and monitoring of HCV requires the collaboration of stakeholders from internal PT AMR III & IV or at the SIPEF group level, the local government with related agencies and village institutions and their communities, as well as with other parties who are involved at the wider landscape level. Strengthening the capacity and mentoring of related stakeholders are the main things in the management and monitoring of conservation areas. **Table 44** presents management that applies across sectors.

Table 44 Cross-sectoral recommendations

Conservation Area Designation	Socialization and Engagement Conservation Area Management	Capacity Building
• Delineating the field, verifying it, then defin it as the definitive map of conservation areas • Creating markers to mark the boundaries of conservation areas • Creating a signboard in the conservation area	○ Internal plantations of the company and those managed by the community ○ Communities around the company (village, sub-district and the relevant general public) ○ Government agencies	▪ Monitoring training (basic identification, water quality measurement and matters related to sustainability) of the conservation area ▪ 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 minimizing GHG emissions 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 emissions, in the form of a conservation area, is carried out through satellite imagery and a permanent plot is made for observation and analysis of the vegetation.
2) Regulating the use of fuel in all aspects of farm operations and supporting activities
3) Regulation and control of fertilizer and pesticide use, including dosage and method of use.

Table 45 Mitigation efforts and monitoring of GHG emission reduction at PT AMR III & IV

Source of emissions	Mitigation efforts	Monitoring Plan	PIC	Time
Land Clearance	PLTB policy implementation Implement SOP in an orderly manner for land clearing and new planting. Replanting socialization to contractors to avoid conservation areas (HCV-HCS) Land clearing gradually	Data collection and reports	ENC Dept and Plantation Dept	Annually
Damaged conservation area	Rehabilitation of degraded (disturbed) conservation areas Implementation of HCV and HCS management plans Extension for protection of HCV-HCS areas	Data collection and reports	ENC Dept and Plantation Dept	Annually

Transportation and heavy equipment	Routine maintenance of vehicles and heavy equipment Training and counseling on how to drive, that is efficient and not wasteful of fuel Improvements to garden transport roads, limiting vehicle loads Not using vehicles over 7 years old	Emission tests for vehicles and heavy equipment Data collection and reports		Every year
Fertilizer	Regulation of fertilizer use and dosage Use of organic matter (empty bed, ash, compost) Efficient use of fertilizers only during the dry season In riparian areas Planting fertilizer instead of spreading it	Data collection and reports		
Using electricity for houses and offices	Education and culture for saving electricity Limitations on the use of electric power every month	Data collection and reports	ENC and General Operations	Every month
Factory operations	Routine maintenance of boilers and generators Use of biomass to replace fossil fuels	Perform emission (air quality) tests on chimneys Data collection and reports	Dept. of Factory Operations	Every 6 months
Factory waste	Establish a methane capture facility. Make land application before the methane capture is complete.	Data collection, monitoring of waste ponds and reporting of waste profiles	Dept. of Factory Operations	Every 1 month for waste quality Every year for LA and methane capture

5. REFERENCES

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6. INTERNAL RESPONSIBILITY

The oil palm grower (PT Agro Muara Rupit) signs to confirm that the necessary assessments have been done and completed in accordance to 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 Agro Muara Rupit

Sander van den Ende
ENC Regional Director
Date: 07 April 2021

Signed for and on behalf of PT Perencana Karya Hijau

Operational Director
Date: 07 April 2021

Acceptance of Responsibility for Manageme

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

Management of PT Agro Muara Rupit

Sander van den Ende
ENC Regional Director

Organisation and Contact Persons

Contact details of the Company are as follows:

Company Name	PT Agro Muara Rupit (AMR) Phases III & IV
Address	Forum Nine Building, 10th floor, Jl. Imam Bonjol 9, Medan, North Sumatra
Location for proposed NPP	Sub District of Tiang Pumpung Kepungut and Sub District of Muara Beliti, Musi Rawas District, South Sumatra
Contact Person	Sander van den Ende
Position	ENC Regional Director
Email	svdende@sipef.com
Telephone	+62 61-41060020
Status Business Permit	Location Permit, issued and signed by the Head of One Stop Integrated Services and Investment Office of Musi Rawas Utara Regency with ref#. 04/02/KPTS/DPM-PTSP/2017 for AMR III (1,303 ha) and ref#. 04/03/KPTS/DPM-PTSP/2018 for PT. AMR IV (4,200.82 ha)
Total Area of Location Permit	5,303.82 ha (based on delineation maps, total area 5,303.27 ha as stated in this NPP Summary report).