Roundtable on Sustainable Palm Oil
New Planting Procedure
Summary of Assessment Report and Management Plan

PT SAWIT MITRA ABADI

(ADDITIONAL 1000 HA)

Nanga Tayap District, Ketapang Regency,
West Kalimantan
Indonesia

Prepared by :
PT SAWIT MITRA ABADI (Additional 1000 Ha)

September 2019

CHAPTER 1. OVERVIEW AND BACKGROUND

1.1. Area of New Planting and Development Plan

PT. SAWIT MITRA ABADI Additional 1000 Ha (PT. SMA) is one of the national oil palm plantations which is administratively located in Nanga Tayap District, Ketapang Regency, West Kalimantan Province. In its operation. Additional 1000 Ha has obtained a license based on the Decree of the Regent of Ketapang Number 861 date of Desember 29, 2015 and get an extension of location permit based on Ketapang Regent Decree No : 434/DPMPTSP-D/2018, December 26, 2018. Geographically, PT. SMA additional 1000 ha is located at position E $110^{0}21'44.87"$ – $110^{0}23'47.65"$ and S $1^{0}15'37.07"$ S – $1^{0}18'2.65"$ (**Figure 1** and **Figure 2**).

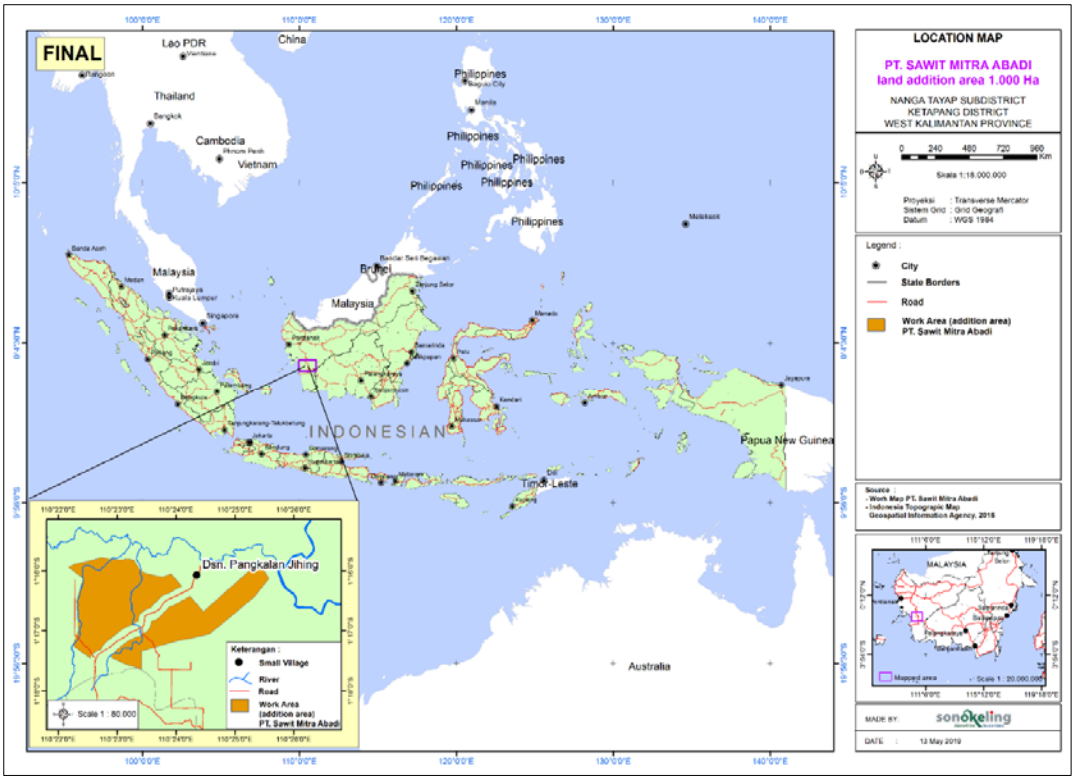


Figure 1. Location Map of Permit Areas for PT. SMA additional 1000 ha, above Indonesia Map

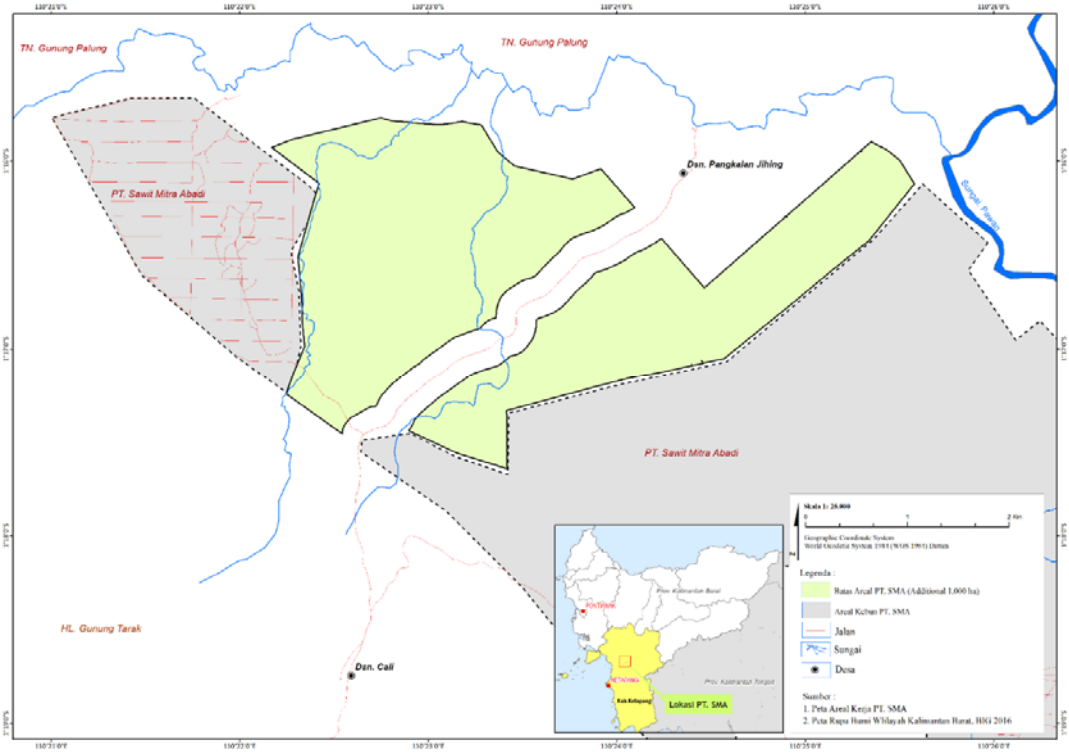


Figure 2. Map Location of Permit Areas for PT. SMA additional 1000 ha

Based on the Map of the Forest and Aquatic Areas of the Province of West Kalimantan (SK. Minister of Forestry No. 733 / Menhut-II / 2014, dated 2 September 2014), the area for the addition of permits of PT. SMA in total are APL (**Figure 3**). According to the Regional Spatial Plan for the Province of West Kalimantan in 2014-2032 (Regional Regulation No. 10 of 2014), the area including Dryland Agriculture (**Figure 4**); while according to the Revised X Indicative Delay Granting of New Permits (PIPPIB) Revision (May 20, 2016), the area is not included in the moratorium area (**Figure 5**).

From this information shows that the existence of the area of additional licenses of PT. SMA which is in the Other Use Areas (APL) or Dry Land Agriculture guarantees the certainty of the area and is included in the safe category in the long run.

Until now, PT SMA additional 1000 Ha has not conducted land clearing activities. Based on the Decree of the Regent of Ketapang No: 377 / DPMPTSP-DB / 2019, dated July 8, 2019 concerning Changes in Land Area, which stipulates amending the Decree of the Regent of Ketapang No: 519 / Disbun-D / 2015 concerning the granting of plantation business licenses, stipulating the total area of land is 8,865 Ha which is divided into 7,965 Ha is the old HGU and the area added from 1000 Ha (location permit) to 900 Ha (IUP). So that the area that is entered into the area to be carried out by NPP is 900 Ha.

Of the IUP 900 Ha area, PT SMA (additional) has a new planting plan for oil palm plantations from 2020-2021, which has wide potential for new plantings is 696.15 Ha (Recommendations for development), the details are as follows: 2020 (438.06 Ha), 2021 (258.09 Ha) (presented in Figure 30)

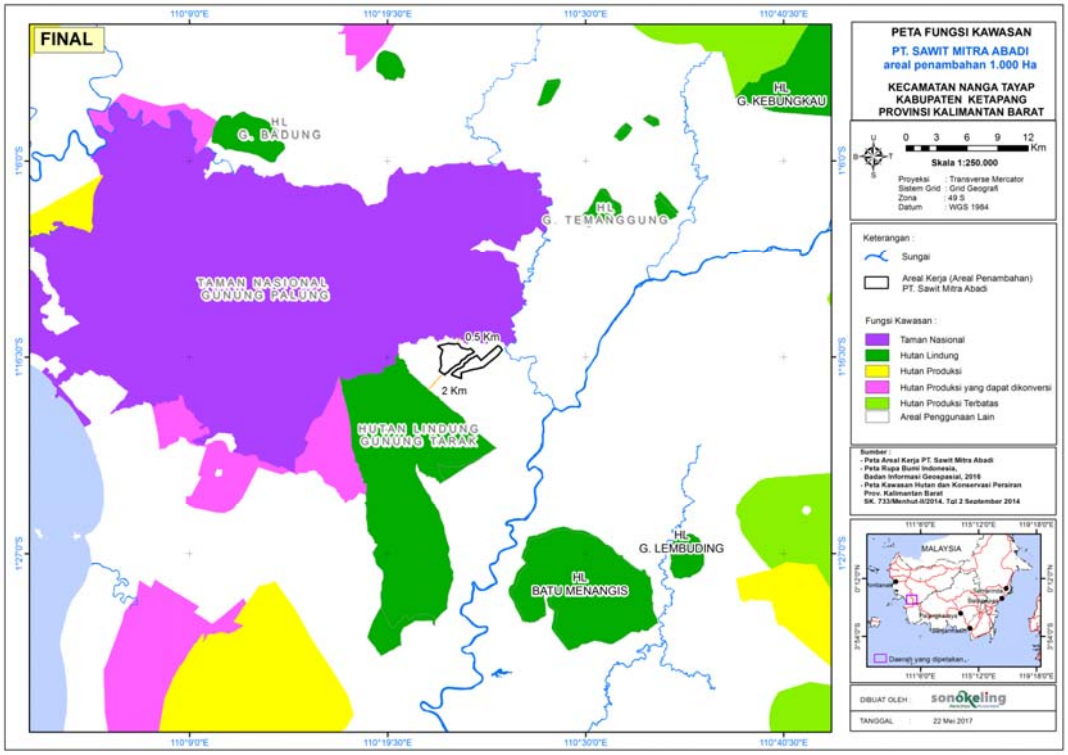


Figure 3. PT SMA Additional 1000 Ha on Map of the Forest and Aquatic Areas of the Province of West Kalimantan (SK. Minister of Forestry No. 733 / Menhut-II / 2014)

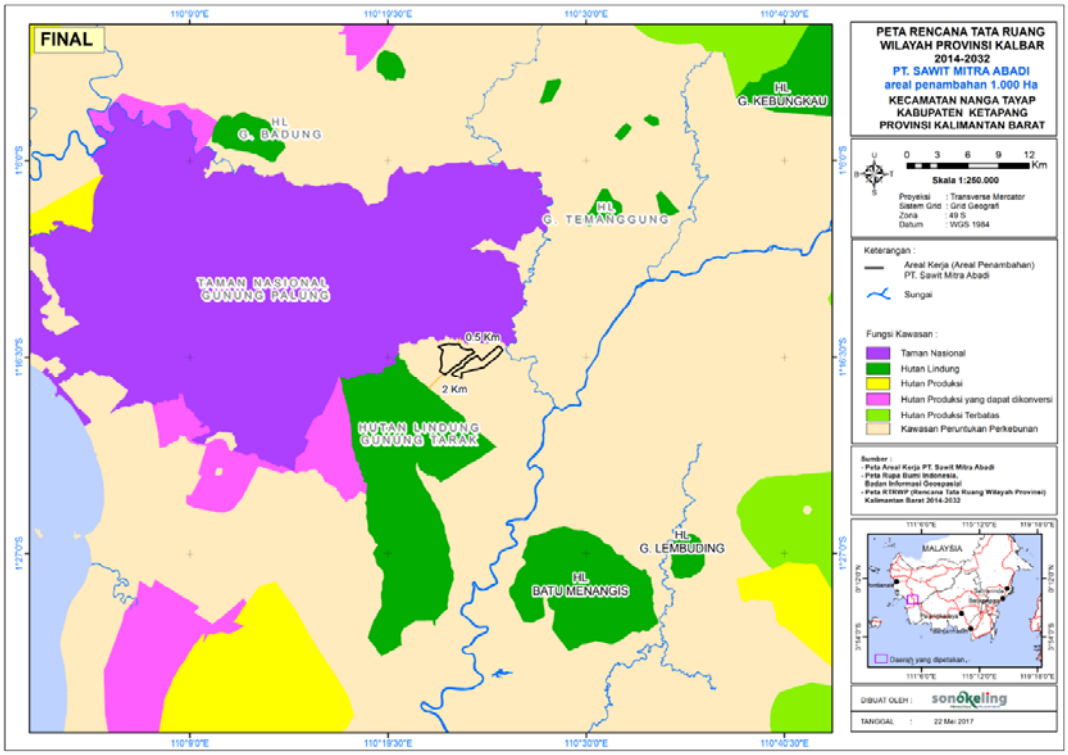


Figure 4. PT SMA Additional 1000 Ha on RTRWP West Kalimantan (2014-2032)

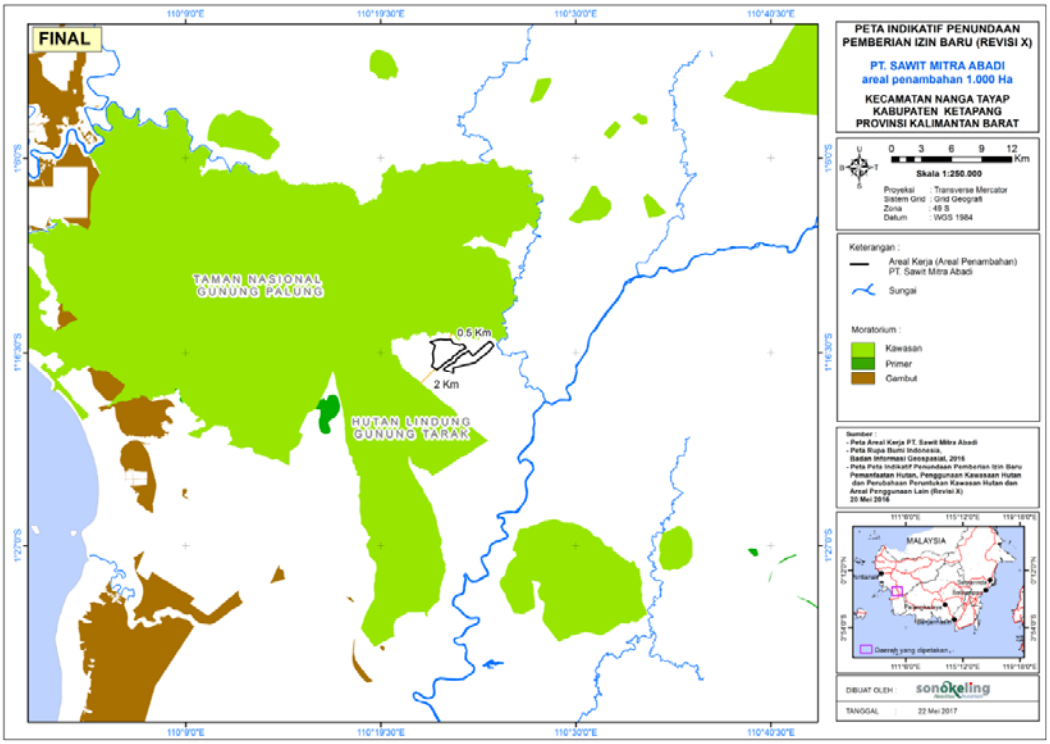


Figure 5. PT SMA Additional 1000 Ha on PIPPIB Map (Revisi X), May 20, 2016

HCV Assessment in the area additional permit of PT SMA was done by PT Sonokeling Akreditas Nusantara (PT SAN). The assessment was done during 4 (four) months, from January till May 2017.

Based on the HCV assessment in the area additional permit of PT. SMA 1000 Ha, identified 6 (six) HCV categories and 6 (six) HCV sub categories, namely HCV 1 (HCV 1.1., HCV 1.2., HCV 1.3, HCV 1.4), HCV 2 (HCV 2.3), HCV 3, HCV 4 (HCV 4.1), HCV 5 and HCV 6. The HCV areas overlap, which in one area is composed of more than one high conservation value. The total area of HCV in the area of PT. SMA with an area of 229.63 ha or 22.96% of the total area of additional 1,000 ha, with an HCV management area (KPNKT) covering 310.35 Ha or 31.04%

1.2. Landsystem and Soil

Based on the Map of Kalimantan island system from RePPProT, it can be seen that in the area of additional licenses of PT. SMA additional 1000 Ha consists of 1 (one) land system, namely Honja with 1,000 Ha (100%). Honja's land system is that which occupies a hilly terrain landform, covering 90% of the sloped area and 10% of the peak. This land system develops from plutonic and metamorphic rock parent material. Rock types consist of andesite, basalt, granite, granodiorite and schist. Distribution of the land system in the area of the additional permits as presented in **Figure 6**.

While the type of soil found in the area of the addition of a permit of PT. SMA additional 1000 Ha based on the Kalimantan Landsystem Map from RePPProT is 1 (one)

association of soil types, namely Tropudults, Paleudults, Tropohumults (100%). The distribution of soil types is presented in **Figure 7**.

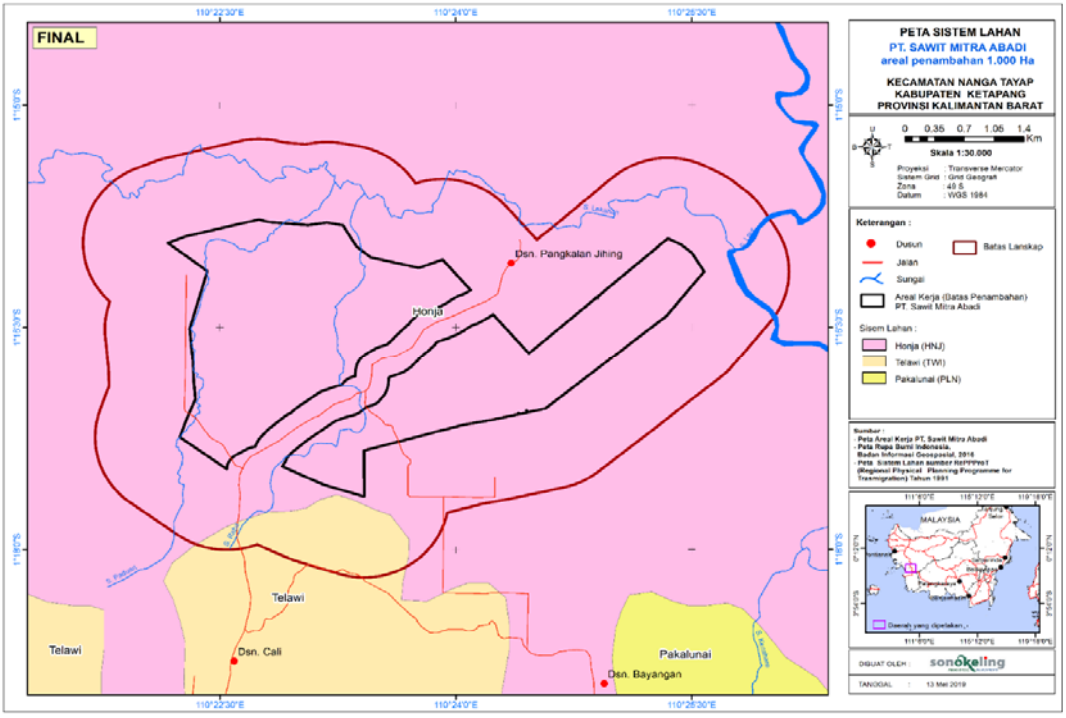


Figure *6*. Land System Map Permits of PT SMA Additional 1,000 Ha

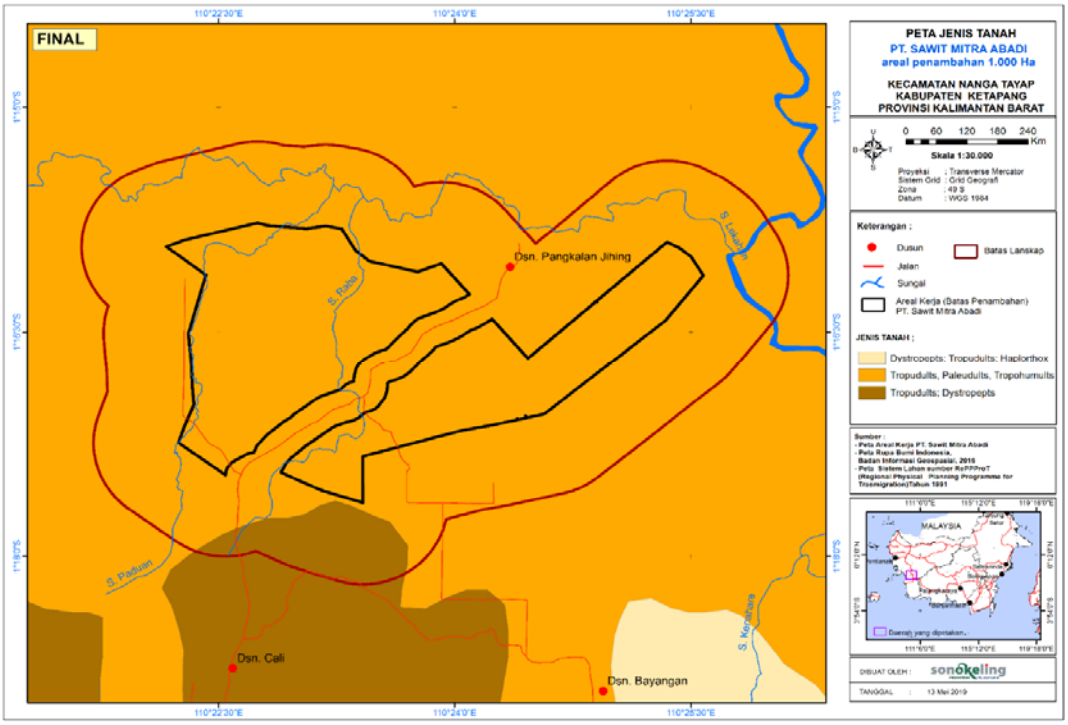


Figure *7*. Soil Map Permits of PT SMA Additional 1,000 Ha

1.3. Slope

Based on data from DEM SRTM, the area of PT. SMA additional 1000 Ha is located at an altitude of 20–73 m above sea level with the slope class composing the area of the location permit addition being 0 - 8.

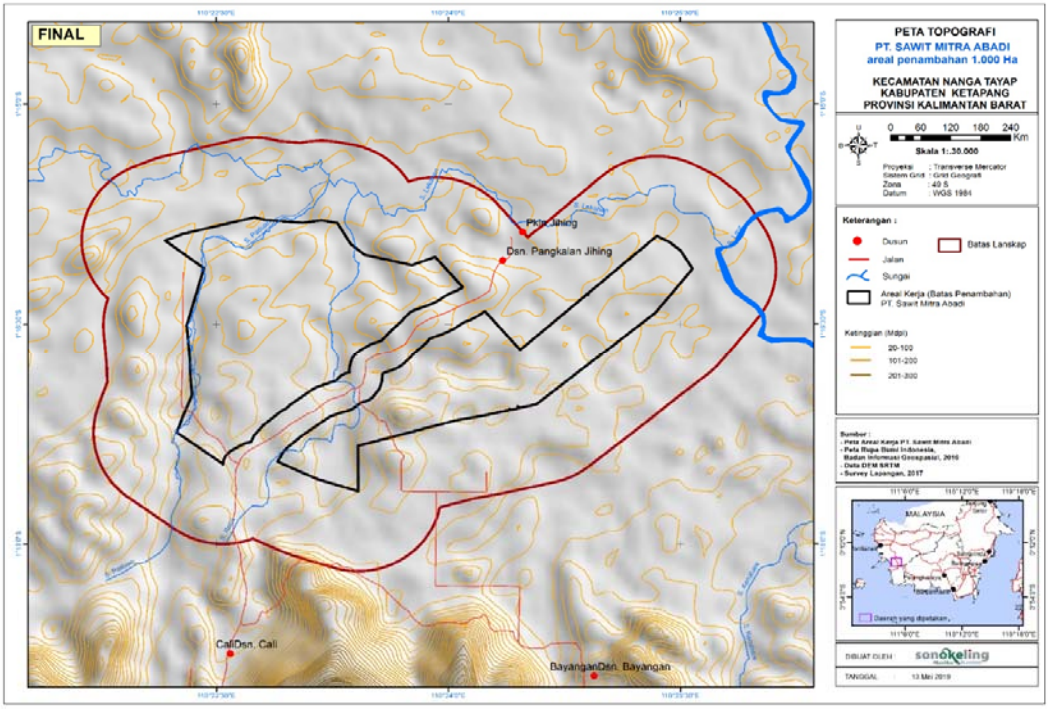


Figure 8. Topographic Map on Permits of PT SMA Additional 1,000 Ha

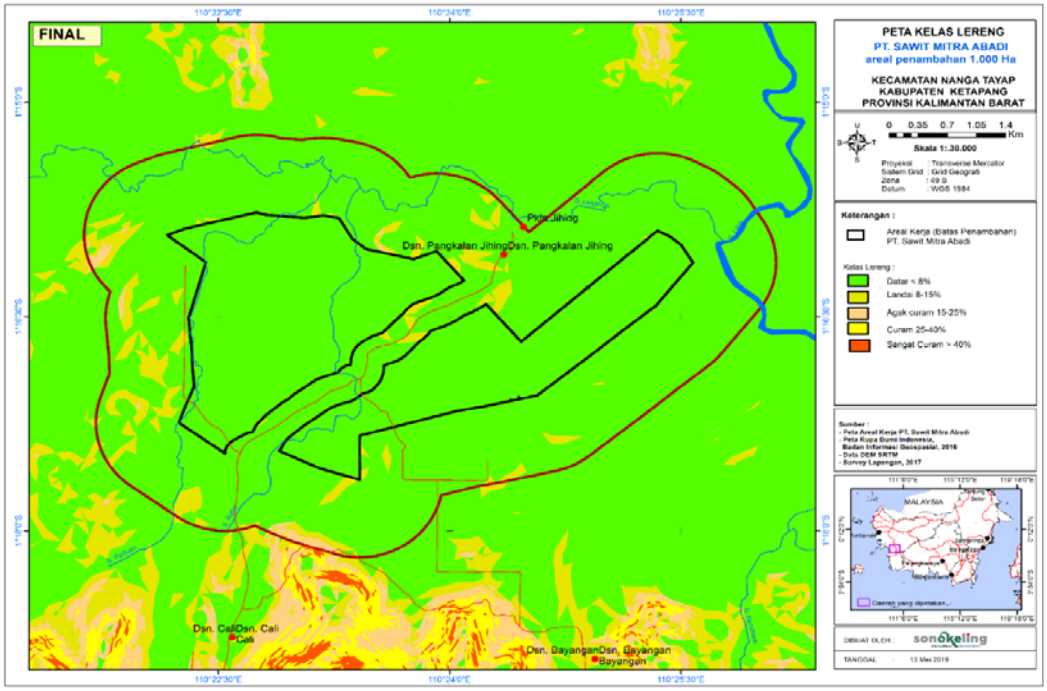


Figure 9. Slope Class Map on Permits of PT SMA Additional 1,000 Ha

CHAPTER 2. ASSESSMENT PROCESS AND METHODS

2.1. SEIA Assessment

a. Assessor Credentials

1) ADDENDUM AMDAL (Environtment Impact Assessment) conducted by : DR. Farah Diba S.Hut, M.Si and team (2017)

   Addres : Jl. Prof. M. Yamin Gg. Ekadaya No. 31, Pontianak, West Kalimantan.

   Composition team :

Team Leader	: DR. Farah Diba S.Hut, M.Si.
Geo - Physical and Chemistry	: Dr. Ir. Slamet Rifanzani, MP
	Ir. Dian Putranto
Biology	: Ir. Iskandar. Am. M.Si
	Dr. Ir. Fahrizal, MP
Social, Economic and Cultural	: Moh. Fahrizal, S.Sos.
	Rizani Ramadhan, SE
Public Health	: Agus Fitri Angga, SKM, MKM
	Dwi Yoga Pranoto S.Hut

2) SIA (Social Impact Assessment) conducted by : Ir. Kresno Dwi Santosa, MSi. Iyat Sudrajat, S.Hut., MSi., and Sigit Pamungkas, SP., MSi.

b. Location and Times

Addendum of AMDAL Plantation Area of PT SMA Additional 1000 Ha was prepared in 2017 and has obtained environmental feasibility based on the Decree of the Regent of Ketapang Number: 205 / DPMPTSP-D.B / 2018 dated June 8, 2018.

While the SIA study at PT SMA additional 1000 Ha was compiled in September 2019 with field data collection activities carried out on 24 - 28 June 2019.

Village Assessment including: Pangkalan Telok Village (Cali dan Pangkalan Jihing Dusun) on Nanga Tayap Sub District - Ketapang District, West Kalimantan Province.

c. Study Method

The method used in the SIA review process consists of:

1) *Literature review*; This is done by collecting and studying related documents to gain an understanding of the social and environmental context of the identified area. Documents were obtained from study villages such as village profiles, District BPS in Figures, District BPS in Figures, and other sources.
2) *Focus Group Discussion*; This method is used to identify the parties by involving local leaders, local government officials and other parties who are

considered competent on social and economic issues, culture, society, exploring hopes, ideas and aspirations to get solutions to the issues that occur, carried out through meetings both formal and informal and with specific topics (Focus Group Discussion).

3) *Field observation*; This method is used to directly understand field facts that are indicative of social issues and impacts that occur as well as visually ascertain the extent of the impact of the planned activities of adding 1,000 hectares by the company, both positive and negative impacts.
4) Indepth Interview; in-depth interviews were conducted with selected key figures who were respondents. Interviews were conducted with residents / community and community leaders (Village Heads, RT Heads, BPD, PKK, LPM, leaders of local institutions, traditional leaders, religious leaders and local community members).
5) Triangulation; the methods above are carried out in an integrated way to verify each other's issues, opinions and ideas that arise.
6) Social-Learning Cycle; SIA study is not a once-finished linear process but a cyclic process, which functions as social learning processes to respond to environmental changes that occur

d. Stages of SIA Study

d.1. Study Preparation and Pre-assessment

The study preparation is intended to collect secondary data, both from management and other relevant sources and to collect basic information (both spatial and non-spatial information).

d.2. Phase of Field Activities

Stages of activities in the field include:

1) Opening Meeting; This activity is intended to convey the objectives of the SIA, the scope of activities (scoping), arranging a field work team, and agreeing on a daily activity schedule.
2) Participatory Social and Stakeholder Mapping; This activity aims to identify:
   - Key parties that will or have been affected (both positive and negative) on the presence and operations of oil palm plantation companies,
   - Key parties that can facilitate / support or that significantly or potentially hinder the presence and operation of oil palm plantation companies, and
   - Life portraits (socio-cultural and socio-economic) of communities in and around the concession area.
3) Field Observation; This activity aims to collect and explore information relating to social impacts (primary) directly in the field. Observations were made by each consisting of 1-2 people (involving counterparts from the company).
4) Interview

- Focused interview or Focus Group Discussion (FGD); this activity aims to gather information and opinions, as well as clarify, confirm, complete, and deepen the results of provisional findings from the field in the form of

brainstorming discussions on several recorded social issues, both positive and negative.

- Indepth Interview; interviews were conducted with key person interviews to find out more deeply an issue in accordance with the area of expertise or authority of each key respondent in each village.

5) Kuesioner; Data collection techniques using a questionnaire to obtain data and information from speakers who come from the internal company PT. SMA is a company employee. Researchers used a random sample determination method by setting the number of 20 employees to be able to fill out the questionnaire. The topics discussed in the questionnaire were respondent characteristics, assessment of various aspects of work such as the system of labor recruitment, protection and improvement of labor welfare, industrial relations, competency development systems, career paths, and other aspects.
6) Analysis and identification records in the field; This activity aims to process and analyze data and information obtained from field activities and then compile it into an "Identification record". "Identification Notes" contain temporary findings in the field (social issues, social impacts), drawing conclusions, along with justifications or arguments.
7) Closing Meeting; This activity aims to deliver interim results in the form of brief information on social portraits, social issues, and social impact in a more comprehensive and in-depth manner on all results from the field and confirmation, clarification, revision, on special cases based on the opinions of company.

d.3. The analysis phase

The analysis phase is carried out in the form of a series of discussions, both formal and informal. The results are then presented back to the Management Unit for input and improvement.

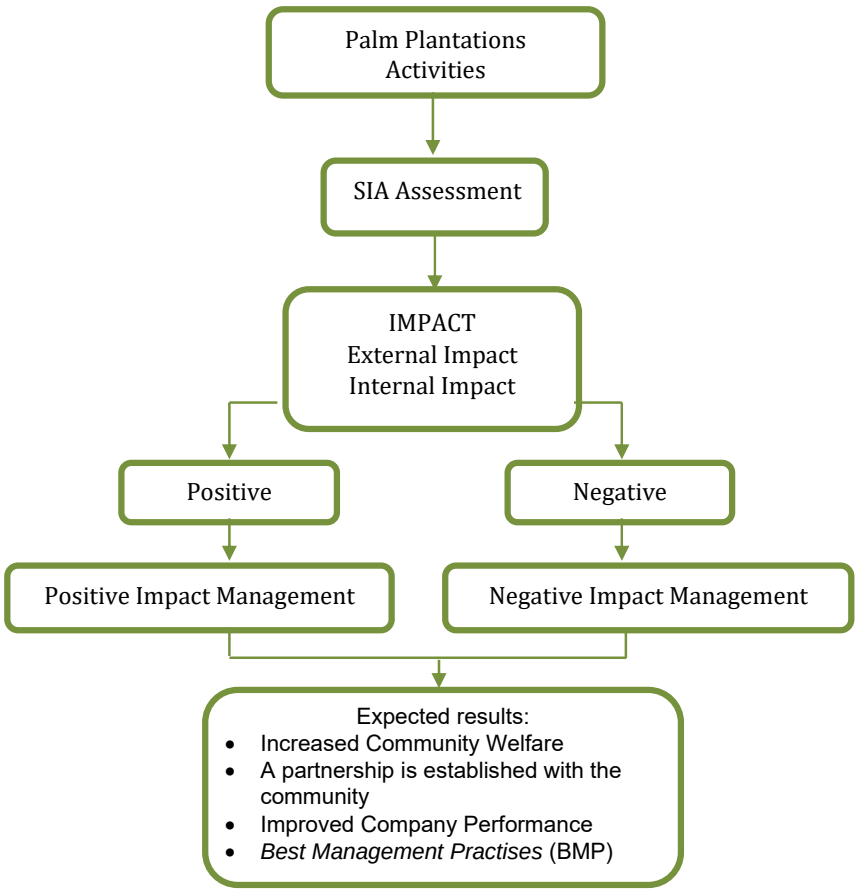


Figure 10. SIA Analysis Framework in the Area of PT SMA additional 1000 Ha

d.4. Report Writing Stage

At the report writing stage, it consists of:

1) Writing the Draft Report; The output of this stage is the Draft Report. Subsequently, the Draft Report is sent to the Management Unit / Company to be examined, given input, and corrected if there are any errors in the data and information.
2) Final Report Writing; This activity is focused on including relevant input 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.

e. Focus of SIA Study

The focus of the SIA study in the area of PT. SMA consists of various aspects both social, cultural and economic aspects, which include components of disruption to the social environment and the possibility of the emergence of strategic issues and conflict, as a result of the operation of PT. SMA

2.2. HCV Assessment

a. Assessor Credentials

HCV Assessment was conducted by: PT Sonokeling Akreditas Nusantara

Address: Komplek Sari Inten No 44, Ciomas, Bogor, Jawa Barat – Indonesia 16610
Phone: 0251-7521685

The assessment team consisted of six experts: Team Leader, Biodiversity (Flora and Fauna) Experts, Environmental Service Expert, and GIS Mapping Expert, who were assisted by a numbers of field assistants, provided in **Table 1**

Table *1*. List of HCV assessment team

Name	ALS License	Organization	Role	Expertise
Ir. Kresno Dwi Santosa, MSi **ksantosa_68@yahoo.com**	Provisionally (ALS151009KS)	PT SAN	Team Leader/ Socio-economic-culture expert	Socio-economic of community forestry
Dr. Ir. Harnios Arief, M.ScF **harniosarief@yahoo.co.id**	N/A	PT SAN	Biodiversity expert	Tropical forest conservation
Sigit Pamungkas, SP, MSi **Sigitp4mungk4s@gmail.com**	N/A	PT SAN	Social expert	Community forestry
Ahdi Muhtadin, S.Hut **amuhtadin@gmail.com**	N/A	PT SAN	GIS Mapping	GIS, spatial planning expert
Ainurrahman, A.Md. **inungrahman007@gmail.com**	N/A	PT SAN	Wildlife identification	Wildlife expert
Yanuar Wicaksono, S.Hut **gpenkganteng@gmail.com**	N/A	PT SAN	Environmental services	Hidrology, soil and water conservation

b. Methods and timeline

b.1. Timeline of HCV assessment

The assessment was done during 4 (four) months, from January till May 2017, while the field survey was one for six days, from 25 to 30 January 2017, about which the time frame is presented in Table 2 below.

Table 2. Timeline of HCV assessment in PT. SMA Additional 1000 Ha

No.	Activities	Time
A.	**Pre-assessment phase**	
1	Examination study	5 – 10 November 2016
2	Information exchange	Week III & IV January 2017
3	Tier rating	Week III & IV January 2017
4	Information collecting	Week III & IV January 2017
5	Analysis preparation and initial mapping	Week III & IV January 2017
6	Preparation and planning	Week III & IV January 2017
B.	**Assessment phase**	
1	Data collection in the field	26 – 29 January 2017
a.	Opening meeting	January 25, 2017
b.	Data collection:	
	• Data collection for flora	26 – 29 January 2017
	• Data colection for fauna (mammals, bird and herpetofauna)	26 – 29 January 2017
	• Data collection for environmental services	26 – 29 January 2017

No.	Activities	Time
	• Data collection of socio-economic and cultural aspects and participative mapping	26 – 29 January 2017
	• Field verification	26 – 29 January 2017
c.	Closing Meeting Preparation (Data Processing and Analysis, and Mapping of Interim Results)	January 29, 2017
d.	Closing meeting	January 30, 2017
2	Public Consultation	
	• Public consultation 1 in Pangkalan Telok Villages	January 25, 2017
	• Public consultation 2 in Pangkalan Jihing and Cali Dusun	January 26, 2017
	• Public consultation 3 with Academisi (Untan Forestry of Faculty), BKSDA (Ministry of Forestry)	April 7, 2017
	• Public consultation 4 with NGo (Tropenbos International Indonesia Programme)	April 10, 2017
3	Reporting	February – April 2017
4	Peer Review	May 5, 2017
5	Completion of the final report	May 2017
6	Submission to quality panel review of HCVRN	January 2018

b.2. Secondary data collection

Secondary data type

Table 3. Secondary data and information collected during HCV Assessment in the PT. SMA additional 1000 Ha.

HCV	Sources of data and information	Year
HCV 1	Map of Location Permit for PT. SMA Additional 1000 Ha by Ketapang Regent Decree (No. 861, Desember 29, 2015 areal 1000 Ha.	2015
	Map of Forest and Aquatic Areas of West Kalimantan Province Skala 1 : 250.000 (SK. 733/Menhut-II/2014, 2 September 2014)	2014
	Provincial Spatial Plan (RTRWP) West Kalimantan 2014-2034 (Perda No. 10 Tahun 2014)	2014
	Indicative Map of Postponement of Granting New Permits (PIPPIB) Revisi X (20 Mei 2016)	2016
	Geospatial Map, Geospatial Information Agency	2016
	Map of Land Cover, Forestry Planning Agency, Ministry of Forestry and Environment	2016
	Map of Spatial Pattern Plan for the Province of West Kalimantan	2007
	Government Regulation No. 7 of 1999	1999
	IUCN Red List of Threatened Species (www.iucnredlist.org)	2016
	CITES (Appendix 1 and 2)	2016
	Landsat Data 8 Path / Row 121/61 ETM Satellite images Coverage January 27, 2017	2017
	Plat - Tantra, *et al.*	1990
	Mamalia : Payne, *et al.*	2000
	Birds : MacKinnon *et al.*	1992, 2010
	Herpetofauna : Sardi *et al.*	2013
	Ramsar Convention	1991
	The Heart of Borneo Initiative	2007
	Orang utan distribution map, Forum Orang Utan Indonesia (www.forina.or.id).	2014
	Orang utan distribution map, IUCN	2016

HCV	Sources of data and information	Year
	IBA distribution map (Important Bird Area), Birdlife Indonesia	2004
	EBA distribution map (Endemic Bird Area), Birdlife Indonesia	2004
	PT SMA HCV Assessment report	2014
HCV2	Map of Location Permit for PT. SMA Additional 1000 Ha by Ketapang Regent Decree (No. 861, Desember 29, 2015 areal 1000 Ha.	2015
	Map of Forest and Aquatic Areas of West Kalimantan Province Skala 1 : 250.000 (SK. 733/Menhut-II/2014, 2 September 2014)	2014
	Provincial Spatial Plan (RTRWP) West Kalimantan 2014-2034 (Perda No. 10 Tahun 2014)	2014
	Map of Spatial Pattern Plan for the Province of West Kalimantan	2007
	Landsat Data 8 Path / Row 121/61 ETM Satellite images Coverage January 27, 2017	2017
	Ecosystem: RePProt	1987
	Ecoregion Map in Kalimantan island (Ministry of Environment, 2013)	2013
	Peta *Intact Forest Landscape* (IFLs) (www.intactforests.org).	2013
HCV 3	Map of Location Permit for PT. SMA Additional 1000 Ha by Ketapang Regent Decree (No. 861, Desember 29, 2015 areal 1,000 Ha.	2015
	Ecosystem : RePProt	1987
	Landsat Data 8 Path / Row 121/61 ETM Satellite images Coverage January 27, 2017	2017
	Land system : RePProt	1987
	Indonesian Geology Map	1995
	DEM SRTM data	2015
	Kalimantan Biofisiografis map	1997
	Ecoregion Map in Kalimantan island (Ministry of Environment, 2013)	2013
	PT SMA HCV Assessment report	2014
HCV 4	Map of Location Permit for PT. SMA Additional 1000 Ha by Ketapang Regent Decree (No. 861, Desember 29, 2015 areal 1,000 Ha.	2015
	Land system : RePProt	1987
	Map of Watersheds (DAS) West Kalimantan Province	-
	Land Cover: Landsat Path / Row 121/60 ETM Satellite images	2015
	River network : DEM SRTM 90 m USGS NASA	2014
	Slope : DEM SRTM 90 m USGS NASA	2014
	Topography : Indonesian Topography map, Geospatial Information Agency	1998
	Map of Watershed Areas (DAS), Indonesia SK.511 / Menhut-V / 2011, 7 September 2011	2011
	Rainfall: Flood Control and Coastal Monitoring Project Station, DG SDA, West Kalimantan 2005-2010, and	2005-2010
	Rainfall data from the Rahadi Usman Airport Climatology Station	2014-2015
	PT SMA HCV Assessment report	2014
HCV5	Map of Location Permit for PT. SMA Additional 1000 Ha by Ketapang Regent Decree (No. 861, Desember 29, 2015 areal 1,000 Ha	2015
	PT SMA HCV Assessment report	2014
	Ketapang Regency in Figures 2015, BPS Ketapang Regency	2015
	Nanga Tayap District in Figure 2015, BPS Ketapang	2015
	Social Impact Assessment Review report PT. SMA	2016
	Kalimantan ethnic distribution map (http://www.ethnologue.com/)	2016
	Environmental Impact Analysis Report (ANDAL) PT. SMA	2017
	RKL and RPL ANDAL PT. SMA	2017
HCV6	Map of Location Permit for PT. SMA Additional 1000 Ha by Ketapang Regent Decree (No. 861, Desember 29, 2015 areal 1,000 Ha	2015
	PT SMA HCV Assessment report	2014
	Ketapang Regency in Figures 2015, BPS Ketapang Regency	2015

HCV	Sources of data and information	Year
	Nanga Tayap District in Figure 2015, BPS Ketapang	2015
	Social Impact Assessment Review report PT. SMA	2016
	Kalimantan ethnic distribution map (http://www.ethnologue.com/)	2016
	Environmental Impact Analysis Report (ANDAL) PT. SMA	2017
	RKL and RPL ANDAL PT. SMA	2017

Secondary data analysis

Spesies data

Species data are necessary for assessing HCV 1 and HCV 2, and potentially existing species in the area were extracted from various sources (Vegetation - Tantra, et al. 1990; Mammals - Payne, et al. 2000; Birds - MacKinnon et al. 1992 and 2010; and Herpetofauna – Sardi et al. 2013), and listed in a table form. Species were checked for their respective conservation status based on Government Regulation No. 7/1999, IUCN Red List on endangered species (www.iucnredlist.org), and the appendices 1 and 2 of CITES. These potential species were then verified in the field and to the local communities in the vicinity of PT SMA concession areas.

Land cover

Land cover is required in the assessment of HCVs 1-4. The main data used for the land cover classification of the area additional permit to PT SMA area the history of land cover from November 2005 (Landsat Imagaery TM 4-5, 1 November 2005), December 2007 (Landsat Imagery TM 4-5, 1 December 2007), May 2010 (Landsat Imagery 7, 14 May 2010), May 2014 (Landsat Imagery 8, 17 May 2014) and current land cover condition year 2017. Satellite imagery data used in this assessment were the Landsat TM Path/Row 121/61 year 2017, which was obtained from the USGS website. These recent satellite images were then analyzed and verified by satellite imagery data in the previous years, from which land cover classification was done through on screen digitation at a scale of 1:50,000. Image interpretation, land cover classification was referred to Southeast Asian 2005 Land Cover data set (Gunarso et al. 2013), which have been published by RSPO.

Ecosystems

In assessing HCV 3, the mapping of ecosystem in a bio-physiographic unit, where the concession area of PT SMA is located, was using a proxy of RePPProT classification in West Kalimantan. Map of the ecosystem in the bio-physiographic units was then be overlaid with land cover maps of 2016, and subsequent analysis was done to determine whether this ecosystem is categorized as rare or endangered.

Environmental service

In HCV 4 assessment, the mapping of river networks in the presence of springs was carried out by overlaying the map of the study area with the River Basin Map of West Kalimantan Province and the 90 m USGS NASA UST Digital Elevation Model (DEM) SRTM Map (2014). The river network map that has been compiled is then used as

verification material to the community around the study area and field observations to ascertain their presence and name. Determination of topography and slopes is done by overlaying the map of the area of the permit addition with the USGS NASA's 90 m Digital Elevation Model (DEM) SRTM (2014). Land determination is done by overlaying the Landsystem Map of RePPProT. Furthermore, the slope and soil class data are added with rainfall and soil data used as material for calculating and creating Erosion Hazard (TBE) maps.

Map of the river / spring network, and TBE in the area of PT. The SMA is then overlaid with a map of land cover, then used as a reference for checking in the field, as well as to see the possibility of finding areas that can function as natural / fire barriers or not.

Social culture

In the assessment of HCVs 5 and 6, the village distribution was examined by overlaying the maps of newly permitted concession location with the Topographic Map of Indonesia (from the Geospatial Information Agency); while for the ethnic group distribution was done by overlaying the maps of concession area with the Map of Tribe Distribution in Kalimantan. Other secondary data used in the assessment of HCV 5 came from Ketapang in Figures 2015 (Kabupaten Ketapang Dalam Angka 2015), District Nanga Tayap in Figures 2015 (Kecamatan Nanga Tayap Dalam Angka 2015), and the report documents of previous HCV Assessment and Social Impact Assessment for PT SMA. The other activities undertaken in preparation for the initial mapping and analysis were: (1) identifying potential and an indication of the presence of HCV attributes or elements; (2) understanding the landscape context; and (3) identifying conservation issues and potential threats to HCVs.

b.3. Primary data collection

1) Mapping and landscape validation

   Field and landscape verification was done to assess the accuracy of boundary of the area additional permit of PT SMA, location of village or settlement, topographic conditions, land cover, river network, embankment, wtare catchment area, and ecosystem condition. Field checks were done in the boundary areas, rivers, and hilly areas, also to clarify land cover conditions.

2) Flora/Plant

   Determination of the sample unit is done by overlapping of land classes, topography, soil types, river distribution and land cover maps. Based on the results of the determination of flora sample units in the area of PT. SMA obtained 22 points of observation, namely in the shrub land cover type of 10 point, rubber land cover 7 points, open land 1 point, Raba river border 2 points and Paduan river border 2 point. Flora data collection in each sample unit is done by census. The census is carried out by observing and recording the types of plants found at the observation site, which are carried out at each observation point along the 200-500 meters. Before the sample paths are established, a field rappid assessment (recognaissance method) and interviews with local communities / UP staff are conducted first to improve the accuracy of the data. Flora data taken is data on the existence of species in the sample unit. Plant data collected in the

field covers of all plant habitus, including: trees, herbs, shrubs, lianas, epiphytes, spikes, bamboo, palms and pandanus. To identify plant species, refer to several books, including: as presented in the Bibliography. Then the status of flora can be obtained from the IUCN and CITES Websites and from the Indonesian government policy (Government Regulation Number 7 of 1999). The equipment used in the flora survey is the Global Positioning System, tally sheet and field guide for Tumbuhan Berguna Indonesia, K. Heyne (1987).

3) Fauna/Wildlife

Determination of sample units is done by overlapping of land classes, topography, soil types, river distribution, land cover maps and wildlife distribution (both from literature and information from company and community staff). Before setting the sample plot, the field observations were carried rappid field asessment (recognaissance method) and interviews with local communities / UP staff to improve data accuracy. Fauna data taken is the existence of species in the sample unit data. Based on the results of the determination of fauna / wildlife sample units in the area of PT. SMA obtained observation points as many as 22 points, namely in the shrub land cover type 10 points, rubber land cover 7 points, open land 1 point, Raba river border 2 points and Paduan river border 2 points. Fauna data collection uses the line method with a width of 20 meters and a length of 200-500 meters. The length of the line is adjusted to the condition of land cover in the field, laying the line sample used of the purposive sampling method. Fauna data taken is data on the existence of fauna species in the sample units and their habitat quality. To enrich the census results, interviews were conducted with local communities / UP staff to improve data accuracy. Data collected in the morning and evening. In collecting fauna data, survey equipment such as the Global Positioning System (GPS), tally sheets and literature of Kalimantan fauna types are used

Mammals

Mammals data collection on each sampling unit was performed using rapid appraisal techniques, by combining four methods: (1) interviews with the local communities, particularly those who frequently hunt animals, and the company's staff; (2) the list of mammals obtained from the report of the previously done environmental impact assessment; (3) field encounter either directly (visual) or indirectly (foot prints, voices, scratches and faeces); and (4) observation on the habitat quality for mammals that was done in cooperation with a flora team. Interviews with the local communities were conducted in the villages of Pangkalan Teluk, Dusun Pangkalan Jihing, and Dusun Cali. The observation was undertaken along the transects of 200-500 m in the sampling unit area.

Bird

Bird data collection on each sampling unit was performed using rapid appraisal techniques, by combining four methods: (1) interviews with the local communities, particularly those who frequently hunt birds, and the

company's staff; (2) the list of birds obtained from the report of the previously done HCV assessment in the area additional permit of PT SMA; (3) field encounter either directly (visual) or indirectly (songs, calls, fallen body parts); and (4) observation on the habitat quality for birds that was done in cooperation with a flora team. The observation was undertaken along the transects of 200-500 m in the sampling unit area.

Herpetofauna (reptiles and amphibians)

Data collection on each sampling unit was performed using rapid appraisal techniques, by combining four methods: (1) interviews with the local communities and the company's staff, in particular to check herpetofauna species that they frequently encounter and the species habitat condition; (2) the list of herpetofauna obtained from the report of the previously done HCV assessment in the area additional permit of PT SMA; (3) field encounter either directly (visual) or indirectly (voices); and (4) observation on the habitat quality for herpetofauna that was done in cooperation with a flora team. Observation on reptiles was done along with mammal and bird observation, while that on amphibians was focussed in river banks and swampy areas.

Field identification was referred to the Filed Guide of Mammals from Kalimantan, Sabah, Sarawak, and Brunei Darussalam, the Field Guide to the Birds from Sumatra, Jawa, Bali and Kalimantan, A Photographic Guide to Snakes and Other Reptiles of Peninsular Malaysia, 10 High Conservation Value Assessment PT Sawit Mitra Abadi Ketapang District – West Kalimantan Province Public Report Summary Singapore and Thailand, and the List of Indonesian Birds No. 2. The conservation status of these species was referred to IUCN, CITES, and Government Regulation No. 7/1999.

4) Environment service

The collection of environmental service data were performed on the pre-set sampling units, namely: river banks (4 locations), hilly area (1 location), shrubland (7 locations), and rubber as well as open areas (10 locations). For the purposes of verification of the physical aspect, the collected data and information are the presence and condition of the river network, road network, territorial boundaries, soil type, and topography; as well as an overview on the whole area being assessed. With regard to environmental services, data and information needs to be verified were:

- ✓ The condition of land cover in the area of HCV 4 and its vicinity.
- ✓ Water quality, color, smell, taste, and turbidity.
- ✓ Streamflow; observed elements were sectional areas of the river (width and depth of river) and velocity.
- ✓ Utilization of river, springs, and swampy areas.
- ✓ Data and information on the occurrences of flood and inundation.
- ✓ Checking the areas with potential landslides, and those with potential erosion of High and Very High: land cover, slope, aspect, solumn.
- ✓ Checking the areas with slope above 40%, their land cover conditions, and solumn.
- ✓ Checking the ecosystem with capacity to control local hidrological function as well as wild fire breaks: riparian, swamps.

- ✓ Data and information on local communities' routine in land preparation (land burning or not).

5) Social and Cultural survey for HCVs 5 and 6

HCV 5 and 6 assessments are carried out through 4 (four) stages of activities, namely:

(1) Through a participatory mapping process to obtain information directly from citizens by mapping together areas with potential HCV 5 and 6; Stages in Participatory Mapping:

a) Compilation of participatory mapping activity plans,

b) Prepare socialization materials (HCV, HCS and FPIC) to be conveyed to the community,

c) The formation of a village-level participatory mapping team that involved community leaders, by asking one of the community leaders to sketch a village map based on a map of the palm oil plantation concession area. This village sketch map contains:

- o Village spatial planning with information on the existence of agricultural areas, plantations, roads, forests, etc.
- o Administrative indicative boundaries between villages or villages from one village to another village.
- o Village profile data relating to village facilities and infrastructure such as jelan village infrastructure, bridges, educational facilities, health facilities, etc.

d) Determine the location of land use or use by residents which includes:

- o Location of land used by the community for economic, socio-cultural and religious activities,etc.
- o Location of residential areas.
- o Location of agricultural areas both subsidized and commercial.
- o Village development reserve land or village treasury land (TKD) which will be used for agricultural / plantation activities.
- o Customary jointly owned land and customary land whose ownership is personal.
- o Religious land that is used for religious activities or beliefs

e) If there is information on land use that is not known with certainty, it will consult with local community leaders (informants).

f) Then the sketch-based mapping results data is processed and then overlaid with a GIS map as a participatory draft map.

g) Finalize participatory maps with GIS-based mapping collaboration. Participatory mapping is carried out together to fully map rights and customary uses, including agricultural land, fishing and gathering areas, sacred sites and collective areas. In its implementation, direct participatory mapping uses a map of the work area and the community is asked to draw the important area above the map provided.

(2) Interviews and field observations using a purposive sampling method in determining target respondents or informants;

(3) Focus Group Discussions to gather information and opinions from citizens, as well as clarify, confirm, supplement and deepen the interim findings from the field in the form of brainstorming discussions on several elements of HCV 5 and 6; and

(4) Data and information on areas that have HCV 5 and 6 elements are then mapped spatially and delineation of the protected area is determined.

Regarding HCV 5, an area is considered important if the area is used by one or more community members to meet their subsistence needs without other alternatives that are affordable or cannot be replaced by substitute items. Based on the HCV Toolkit for Indonesian (2008), the ranking of important values of forests or other natural ecosystems is based on scores, as follows:

100%	If all needs are only met by a single resource, the resource is considered very important; score = 4.
50%-99%	If the majority of the needs met by one source and only rarely by other sources, these sources are considered fairly important; score=3.
25%-49%	If the requirement can be met by several resources, each below 50%, the sources are regarded as important; score = 2.
10%-24%	If needs are met by many sources, these sources are considered less important; score = 1.
0%-9%	If the needs do not necessarily require resources from forest or ecosystem, the sources area considered unimportant; score = 0.

If there is any doubt, then the precautionary principle is used, under the assumption that the communities have no alternative source of fulfillment. In certain cases, the assessment team consulted an ecologist to determine these interactions.

Sources of data of HCV 6 assessment were obtained from the subject of local communities namely; local community leaders and residents, as well as information from secondary data and other documents.Indicators of regional distribution of "customary" rights or the distribution of forest resources related to the behavior of people to meet their cultural needs, are zoning regulations based on specific cultural characters, archaeological site distribution, distribution of ritual activities for the local community, and/or special location to meet the cultural needs.

The location for collecting data of flora, fauna, environmental services and the economy, and socio-culture in the additional newly permitted area of PT SMA is presented in Figure 11.

b.4. Analysis and Mapping

Analysis and mapping are the most important and crucial stage in the process of HCV assessment in the area allegedly containing HCV elements. The analysis was conducted by comprehensively reviewing all data and information from the field as well as secondary data, which included the physical, spatial, flora, fauna, socio-cultural data. The analysis resulted in identifying the areas with HCV elements, which were then mapped using GIS software.

b.5. Public Consultation

Public consultation is one of the processes that must be undertaken in the HCV assessment, where the final draft of HCV assessement report is presented before the

public, namely relevant communities living inside and in the vicinity of concession areas and other relevant stakeholders. The purpose of public consultation is to obtain feedbacks from all relevant parties over the findings and conclusion of the assessment; it is also a form of transparency of HCV assessment so that the public can be informed about the areas designated as HCVs within the additional newly permitted area to PT SMA. This public consultation was conducted separately in some places, namely: Desa Pangkalan Telok, on 25 April 2017, attended by 36 participants consisting of community leaders and the village leaders; Dusun Pangkalan Jihing, on 26 April 2017, attended by 76 participants, and Dusun Cali, on 26 January 2017, attended by 34 participants. Separate consultations were also conducted with academia (Faculty of Forestry, Tanjungpura University) on 27 April 2017, government agencies (BKSDA of West Kalimantan) on 28 April 2017, and non-governmental organizations with focus on condservation issues (Tropenbos Indonesia Foundation) on 10 April 2017.

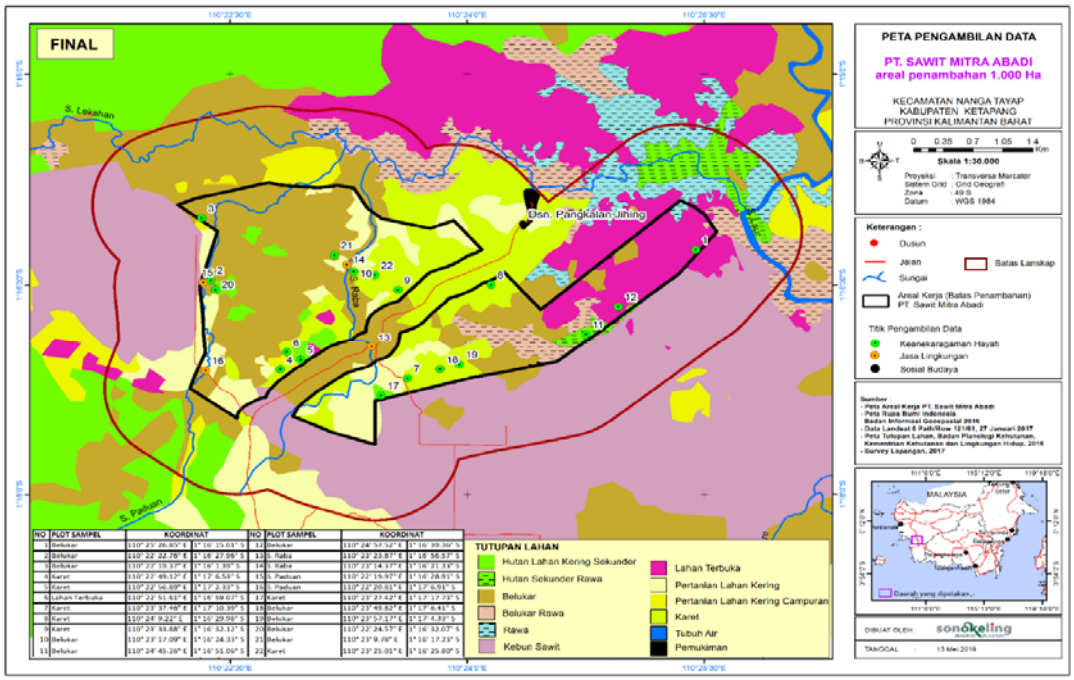


Figure 11. Location Map of Data Collection for Flora, Fauna, Environmental Services and Social and Culture in the Area Permit of PT. SMA Additional 1000 Ha.

b.2.4. Peer Review

Peer review is done when the assessment report is still in draft form, so that the final report could become a comprehensive and factual report, and in accordance with the multidiscipline norms. In addition, peer review can also be done to a finished report, in order to obtain other opinions from the other experts of the same field of expertise when developing the HCV management plan. The peer review to the document of HCV assessment in the area additional permit to PT SMA was performed on 5 May 2017 by Dr. Kunkun J. Gurmaya(email: kunjgurmaya@yahoo.co.id), and the peer review approval sheet is dated on 19 May 2017.

2.3. Land Semidetails and Land Suitability Assessment

a. Times and Assessor Credentials

The activity of Semi-Detailed and Land Suitability Land Survey in the PT Sawit Mitra Abadi Additional 1,000 Ha oil palm plantation area was carried out for 3 (three) months from January – March 2017 and carried out by the implementing consultant PT. Sonokeling Akreditas Nusantara.

Address: Komplek Sari Inten No 44, Ciomas, Bogor, Jawa Barat – Indonesia 16610 Phone: 0251-7521685

Table 4. Composition Team

No	Name	Role
1	Ir. Kresno Dwi Santosa, M.Si	Responsible for Activities
2	Dandun Sutaryo, S.Si	Team Leader / Soil Expert
3	Tatis Markis	Soil Surveyor
4	Dedi, SP	Soil Surveyor

b. Methods

b.1. Preparation

1) Collection and analysis of secondary data

Secondary data used in this survey activity, among others:

- Landsytem maps
- Land map review
- Satellite imagery
- Topography or DEM Map

The secondary data analysis above aims to:

- Obstain a comprehensive description of the survey area through the collection of information from available and relevant data and maps, so that it can assist in the analysis of landforms and the smooth implementation of surveys in the field.
- Interpretation of landforms / land units from DEM data, remote sensing imagery and geological maps that will be used to prepare land units as a basis for planning field surveys and preparing land maps and land suitability analysis.

2) Survey Equipment Preparation

In the preparation stage, preparations are also made for the provision of survey equipment in the form of:

- Belgian type mineral drill (1.2 m long);
- The Munsell Soil Color Chart book;
- Revised edition of the National Soil Classification Book (BBSDLP, 2014) and the 2010 edition of Keys to Soil Taxonomy
- GPS (geographical positioning system) tool for determining the coordinates of observation positions

- Measuring soil pH in the field (litmus);
- Clinometer
- Abney level to measure slope slope;
- Steel meter or band meter;
- Ground profile digging tools (hoes, shovels, crowbars, etc.).
- Laptop computers for data entry and spatial analysis, which is equipped with the ArcGIS program, Global Mapper.

b.2. Field Survey Phase

1) Pre survey stage

A pre-survey or preliminary survey also aims to consult with the employer and obtain an overview of the condition of the survey area. Field observations include checking several land units related to landform distribution, lithology / parent material, soil composition and characteristics as well as preparation of basecamp, local transportation and field workforce. Information obtained from the survey results is used for planning the implementation of the main survey.

2) Main Field Survey

Soil observation and soil fertility sampling.

Soil observation is carried out through a transect approach (topo-lithosene) in the representative land unit that has been planned prior to the field and a 500 x 1000 m grid system. Soil observation is carried out by paying attention to the appearance of changes in micro-surface relief on flat areas, while for sloping areas taking into account the slope, position and shape of the slope. If there is a representative land unit that is difficult to visit because of low accessibility, then extrapolation of data can be done based on the similarity of land unit characteristics. The observation density is 1/50 Ha, taking into account the area of the Block. Map of drill observation, soil profile, location of soil fertility samples

Land observation is carried out by: (a) Drilling of land, (b) Minipit hole digging, and (c) Complete soil profile. The drilling of land was carried out as deep as 120 cm, while the manufacture of minipit was 50 cm deep with a length and a width of 50 x 50 cm. Observation of land on the minipit is continued with drilling as deep as 120 cm Making complete soil profiles with sizes: length x width x inside: 100 x 100 x 150 cm or up to the parent material layer, if the soil depth is less than 150 cm

Ways of making profiles, observing the properties of soil morphology and physical environment in the field refer to the Land Observation Guidelines (Balittanah, 2004) or Guideline for soil profile description (FAO, 1990). The coordinates of the observation point are determined by GPS (UTM or geographical) and plotted on a map of land units on a scale of 1: 50,000. The representative soil profile is fully described and represents each land unit (group / subgroup of land). All data on the results of drilling, mining and soil profiles in the field are recorded in the database entry form.

Soil samples are taken from each horizon from the representative profile or minipit or drilling which represents the land unit of each land unit, then coded according to the ground observation code, to be further analyzed in the laboratory.

Field observation maps are prepared using land unit maps as a result of interpretation / analysis. All ground observation points in the field are plotted in each sheet of the land unit map. Data from field observations, namely soil morphology and physical environment.

Field maps are arranged based on observations of land units and land units from the results of observations of drilling, minipit and profiles. During the field observations, corrections to land units were carried out, both for delineation and naming (symbols) of land units in accordance with ground truth conditions.

Maps of land need to be completed with map legends. The legend of the field map is arranged in the following order: sequence number of land map units (SPT), land units at the level of land / subgroup of land and their properties, and proportions, landform units, parent material units and relief units / slopes and area of each SPT (in ha and%). The land units found in each SPT can be more than one type of land and the spread is expressed in proportions, namely: very dominant (P> 75%), dominant (D = 50-75%), moderate (F = 25-49%), little (M = 10-24%) and very little (T = <10%) (CSR / FAO, 1983). The proportion of land units is suspected from the distribution of land on the slope / facet position of the land unit at the time of soil observation in the field.

SPT (unit of land map) consists of elements of land units, landform units, parent material units and relief units / slopes. Land units consist of: Kinds of soil, depth of soil, drainage, texture, soil reaction (pH), cation exchange capacity (CEC) of soil and base saturation (KB).

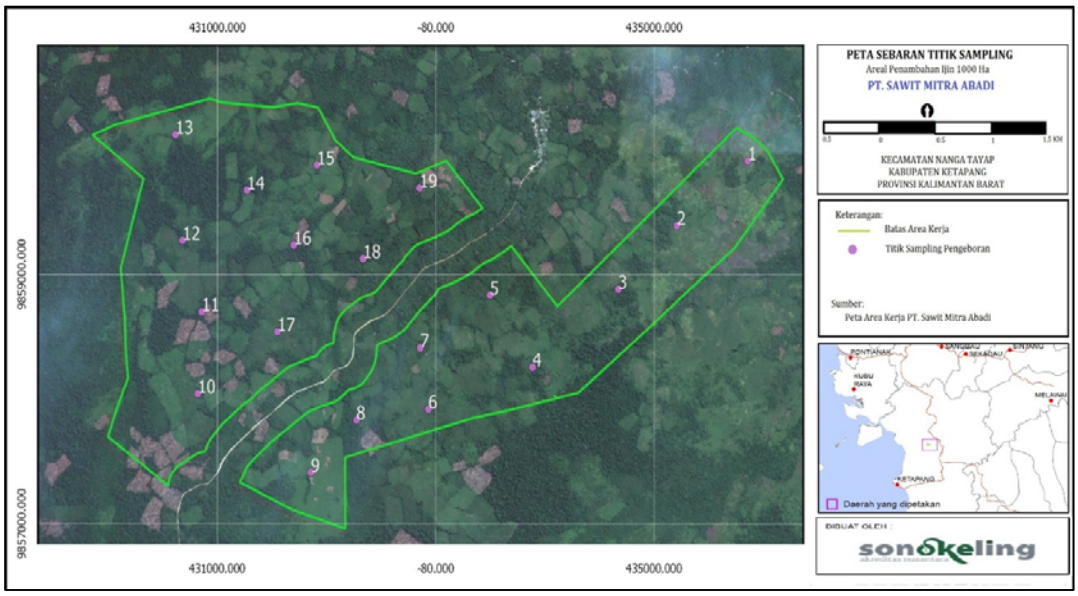


Figure 12. Distribution Map of Land Observation Points in PT. SMA Additional 1,000 Ha

b.3. Field and Laboratory data analysis

Laboratory analysis was carried out on soil samples. The soil samples analyzed included fertility samples. Based on the variation and distribution of the Land Map Unit (SPT) temporarily from the results of field observations a sample profile and examples of soil fertility are selected for each SPT. Examples of soil around 0.5-1.0 kg were taken from each horizon from drilling (wet soil), minipit and representative soil profiles to be analyzed in laboratories that had received accreditation. The type of analysis of soil samples consists of standard and special / additional chemical analysis and analysis of minerals (sand fraction and or clay fraction), which are tailored to the needs.

b.4. Land Units Analysis

Evaluation of land suitability is done by comparing the compatibility between the quality and properties of the land as a parameter with the criteria for land suitability classes based on the requirements for plant growth evaluated, namely the land suitability class is determined by the smallest value, that is the parameter as the heaviest limiter or the most difficult to overcome compared to other limiting factors.

Evaluation of land suitability for oil palm plants in the area was carried out by referring to the criteria of the Land and Agro-Climate Research and Development Center, Bogor Soil Research Center, Ministry of Agriculture and PPKS criteria (2005) for oil palm plants. This PPKS criterion assumes that the problem of soil fertility is not a problem that is taken into consideration because it can be improved by the provision of fertilizers and generally in oil palm cultivation fertilizer is always applied as an addition to nutrients for the plant. The potential for soil fertility is approached by criteria for soil acidity (soil pH) which can generally indicate the level of nutrient availability in the soil. The quality of land evaluated includes climate, physiography, soil, topography, land use and flood hazards.

Class quality of land suitability shows the level of suitability relative to certain uses. At the class level, land suitability assessment is differentiated according to its level, namely: land classified as very suitable (S1), quite suitable (S2) according to marginal (S3), not appropriate (N).

2.4. Carbon Stock Assessment and GHG Emissions

a. Assessor Credentials

Carbon Stock and GHG Assessment Activities in the Palm Oil Plantation Area of PT. Sawit Mitra Abadi (Additional 1,000 ha) is conducted in August - September 2019 with a consultant. The assessment consultant's profile is as follows:

Name	:	Kasuma Wijaya, S.Hut, M.Si
Address	:	Perum Griya Melati Blok C3/23, RT. 003, RW. 013, Kelurahan Bubulak, Kecamatan Kota Bogor Barat, Kota Bogor, Provinsi Jawa Barat
Position	:	Land covers image analysis and GIS experts
Register	:	Registered HCS Approach Practitioners

b. Methods

CSA and GHG Activities in PT. SMA additional 1000 Ha is conducted in September 2019, follows the RSPO GHG assessment procedure guidelines for new plantings. The RSPO GHG assessment procedure for new plantings has four key stages, namely (1) Carbon Stock Assessment, (2) GHG Emission Assessment for new plantings, (3) GHG Emission Management and Mitigation Plans and (4) GHG Assessment Reporting for New Plantings. The key steps in the RSPO GHG Assessment Procedure are presented in Figure 13.

The CSA methodology has a process stage which consists of two key steps. The first step is the preparation of a map of land cover from satellite imagery and the second step is estimating carbon stocks in the new development area. The carbon stock estimation using these two key steps can then be used to estimate RSPO GHG emissions resulting from changes in land use for new development areas

The estimated carbon stock required must include carbon stored in: (1) Above-ground biomass, (2) underground (root) biomass and (3) peat soil - if any. The total amount of carbon stock at the assessment site is the sum of carbon stocks in the above and below ground biomass estimates with peat soil carbon stock estimates. The key steps for carbon stock assessment are presented in Figure 14.

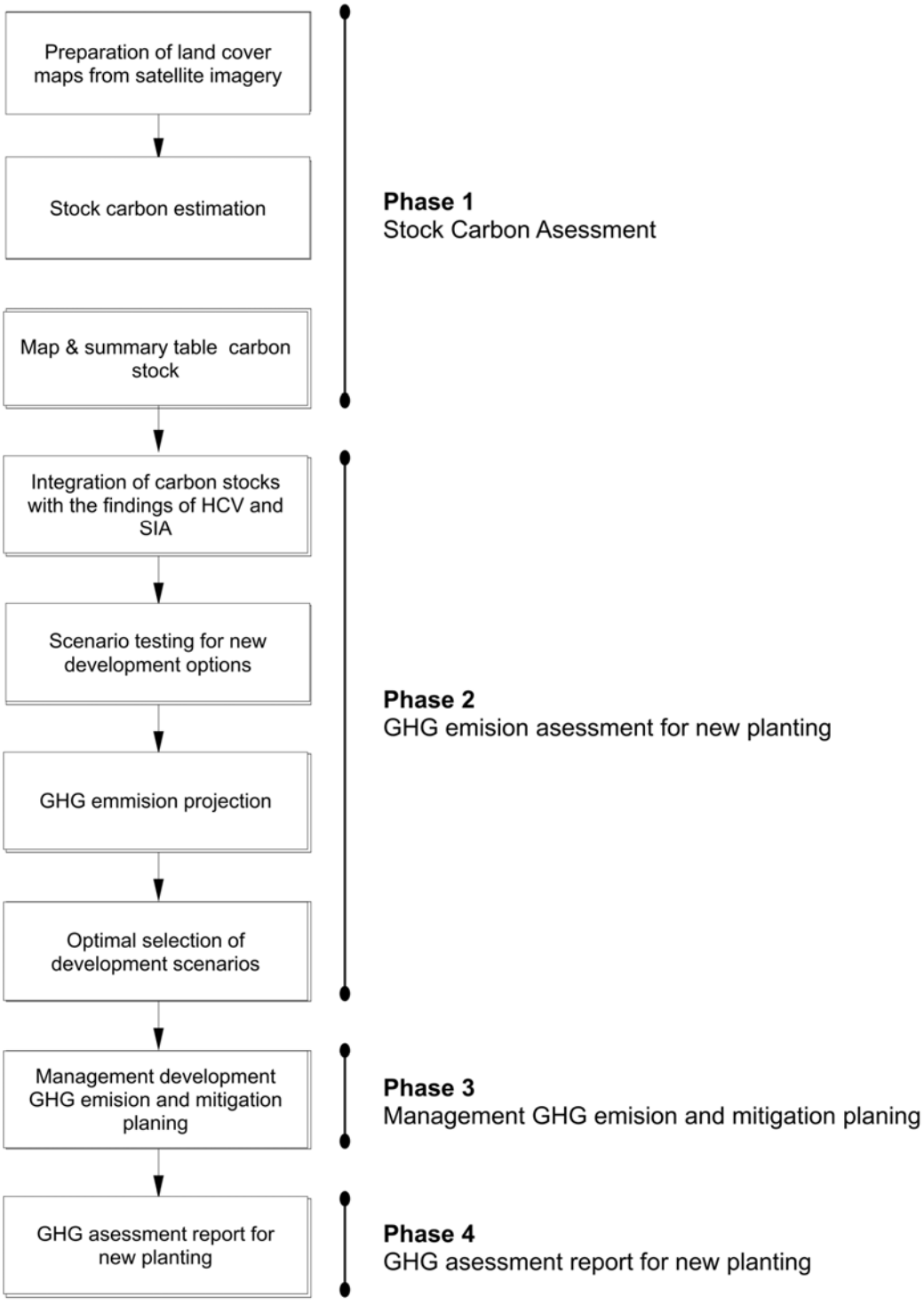


Figure 13. Stage of RSPO GHG Assessment Procedure for new planting

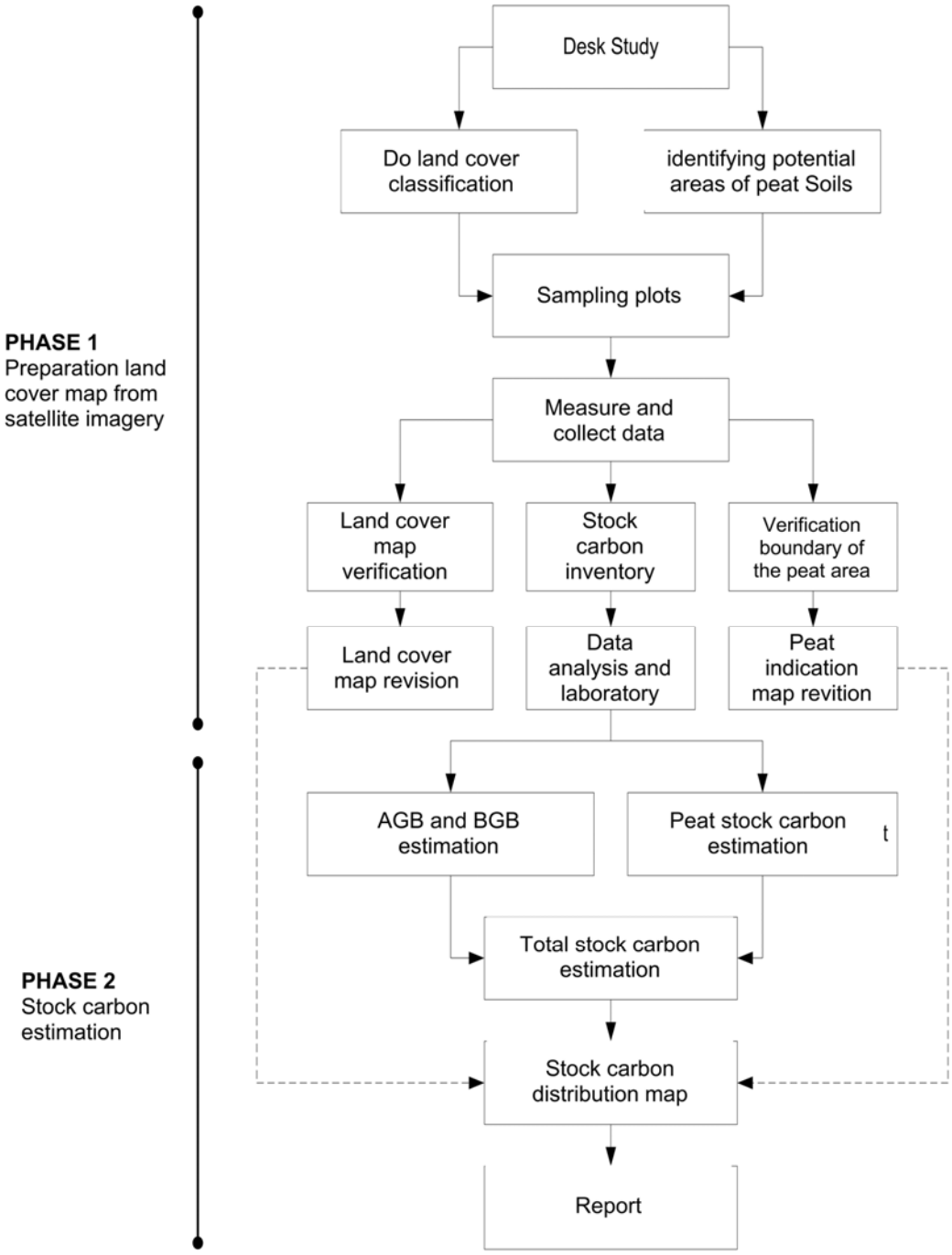


Figure 14. Key Step Diagram for Carbon Stock Assessment

Sampling Plots

The minimum number of plot needs is calculated by Winrock Calculator which uses a confidence level of 90% and a sampling error of 20%. This condition is possible because in SNI 7724: 2011 concerning Carbon Measurement in the Field states that the maximum permissible sampling error is 20%. Many natural factors in the field that cannot be controlled by humans such as topography, climate and weather, so the maximum sampling error of 20% is still allowed

In the Winrock Calculator, the calculation template uses a formula built by Walker et al. (2007) based on the CDM - Executive Board 2006 namely AR-AM0001, AR-AM0003, AR-AM 0004, AR-AM0005, AR-AM0006 & AR-AM0007. The formula is as follows:

$$n = \frac{\left[\sum_{i=1}^{m_{str}} N_i \cdot st_i - \sqrt{C_i}\right] \cdot \left[\sum_{i=1}^{m_{str}} N_i \cdot st_i \cdot \frac{1}{\sqrt{C_i}} \cdot\right]}{\left(N \cdot \frac{E}{z_{\alpha/2}}\right)^2 + \sum_{i=1}^{m_{str}} N_i \cdot (st_i)^2}$$

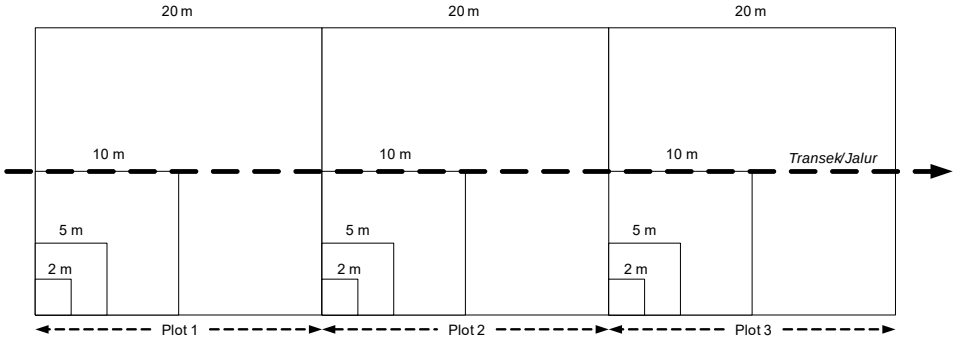
$$n_i = \frac{\sum_{i=1}^{m_{str}} N_i \cdot st_i - \sqrt{C_i}}{\left(N \cdot \frac{E}{z_{\alpha/2}}\right)^2 + \sum_{i=1}^{m_{str}} N_i \cdot (st_i)^2} \cdot \frac{N_i \cdot st_i}{\sqrt{C_i}}$$

$$N = \frac{A}{AP} \quad N_i = \frac{A_i}{AP} \quad E = Q \cdot p$$

Information:

A = *Total size of all strata, eg total project area; ha*
Ai = *Size of each stratum; ha*
AP = *Sample plot size; ha*
Sti = *Standard deviation for each stratum i; dimensionless*
Ci = *Cost of establishment of a sample plot for each stratum i; e.g. US$*
Q = *Approximate average value of estimate quantity Q (eg tree biomass; m3/ha)*
p = *desired level of precision (e.g. 10%); dimensionless*
N = *Maximum possible number of plots in the project area*
Ni = *Maximum possible number of plot in stratum i*
E = *Allowable error (20%)*
N = *Sample size – total number of sample plots required in the project area*
ni = *Sample size for stratum i*
Z = *Value of the statistic z (normal probability density function), for* *= 0.05 (implying a 95% confidence level)*

The design of the sample plots used in the inventory of carbon stocks for above-ground biomass (Above Ground Giomass / AGB) are nesting and square shapes. A maximum of 5 sample plots are placed in each transect / lane. The sample plot design in the carbon stock inventory activity is presented in Figure 15.



Information:

- Seeding and understorey level (2 x 2 meter)
- Stake level (5 x 5 meter), DBH (2 – 10 cm)
- Pole level (10 x 10 meter), DBH (10 – 20 cm)
- Tree level (20 x 20 meter), DBH (>20 cm)

Figure 15. Design plot of carbon stock measurement samples

Carbon Stock Inventory

The activity of inventorying carbon stocks for above-ground biomass (AGB) in the Pile, Tree and Tree classes in the form of DBH measurements of trees using tape diameter, identification and recording of species and numbers of species and taking examples of wood representing each species (Figure 16).

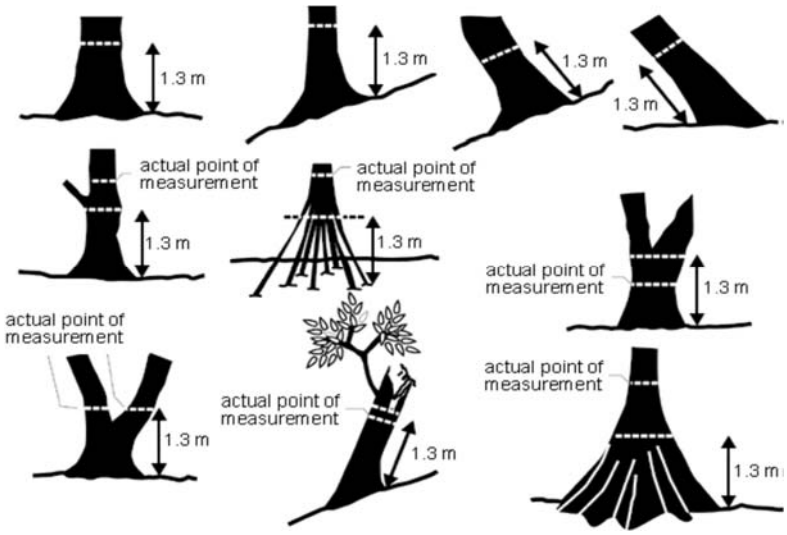


Figure 16. Measurement of Chest Height in Various Tree Conditions

Each sample of the wood is weighed in the wet field and then taken to the laboratory for drying and weighing the dry weight, so that the specific gravity (BJ) will be known.

Whereas for the measurement of biomass in seedlings and understorey classes is carried out as follows (SNI 7724: 2011):

a) cut all seedlings and understorey on the ground using cuttings scissors;
b) weigh the total wet seedling and understorey wet weight in the measurement plot area;
c) take and weigh the wet weight of the sample as much as ± 300 grams;
d) do the drying by using an oven in a laboratory with a temperature range of 70 ° C to 85 ° C until it reaches a constant weight;
e) weigh the dry weight of seedlings and understorey;
f) analyze organic carbon in the laboratory to see the carbon content

Measuring carbon stocks on peat soil is done by measuring the depth of peat soil using a soil drill at every distance of 200 - 300 meters on the stub path to the plot and taking at least 3 soil samples. The soil samples were analyzed at the laboratory to determine the weight of the contents and Organic Carbon Content.

Carbon Stock Estimasion

The estimated carbon stock is the second step of the carbon stock assessment carried out to find out (a) carbon stocks from above and below biomass, and (b) peat carbon stocks.

The amount of carbon stock in the valuation is expressed in tons of carbon per hectare (tC / ha). As defined by IPCC (2006), there are five carbon pools, namely soil biomass, underground biomass, dead wood, litter, and soil organic matter. In assessing carbon stocks in RSPO GHG procedures, this assessment only needs to take into account above-ground biomass (AGB), underground biomass (BGB) and soil organic matter. Soil organic matter only needs to be estimated if peat soil

Above Ground Biomass **(AGB)**

The general equation used in estimating carbon stocks for above ground biomass is:

$$\textit{Massa Karbon (ton)} = \textit{Biomassa} \times (\textit{Faktor Konversi Karbon})$$

The carbon conversion factor estimates the carbon component of vegetation biomass. This factor can be produced for a particular forest type, or using a standard value from the IPCC of 0.47 (IPCC, 2006).

Allometric equations for estimating biomass use the equation Ketterings et al (2001), namely:

$$TDW = 0{,}11 \times \rho \times (DBH)^{2.62}$$

Information:
TDW = biomassa (kg); ρ = wood density (gr/cm^3), DBH = diameter setinggi dada (cm)

In accordance with the sample plot design above, there are several formulas to determine the value of biomass and carbon stocks for the stake class, pole, tree, seedling and understorey, namely:

a) Calculation of Biomass and carbon per Ha for stake level (5 x 5 meters)
    - The value of biomass is calculated using the formula for using BJ and DBH from wood tree samples from the plot location

- Temporary carbon stock values (Cs) for stake are calculated with 0.47 x biomass value (Kg)
- The carbon stock value for the stake (ton C / ha) is ((Cs) / 1000) x (10000/25)

b) Calculation of Biomass and carbon per Ha for pole level (10 x 10 meters)

- The value of biomass is calculated using the formula for using BJ and DBH from wood tree samples from the plot location
- Temporary carbon stock values (Cs) for poles are calculated with 0.47 x biomass value (Kg)
- Carbon stock values for poles (tons C / ha) are; ((Cs) / 1000) x (10000/100)

c) Calculation of Biomass and carbon per Ha for Tree level (20 x 20 meters)

- The value of biomass is calculated using the formula for using BJ and DBH from wood tree samples from the plot location
- Temporary carbon stock values (Cs) for trees are calculated with 0.47 x biomass value (Kg)
- Carbon stock values for trees (tons C / ha) are ((Cs) / 1000) x (10000/400)

d) Calculation of Biomass and carbon per Ha for seedling and understorey levels (2x2 meters)

- The value of biomass is obtained from laboratory analysis using the formula:
  Bo = (Bx x Bbt) / Bbs, where Bo = weight of organic matter (kg), Bks = sample dry weight (kg), Bbt = total wet weight (kg), Bbs = sample wet weight (kg).
- Temporary carbon stock values (Cs) for seedlings and understorey are calculated with 0.47 x biomass or organic matter value (Kg)
- Carbon stock values for trees (tons C / ha) are ((Cs) / 1000) x (10000/400)

Below Ground Biomass (BGB)

In assessing carbon stocks in the RSPO GHG procedure it is explained that it is not possible to measure BGB (root biomass) directly and the preferred approach is to use the standard BGB AGB ratio (commonly referred to as the shoot root ratio).

The ratio of shoot roots varies depending on the type of vegetation and local situation, and for the purposes of the RSPO GHG Assessment Procedure it is recommended that a value of 0.18 be used for Southeast Asian tropical

The general equation used in estimating carbon stocks for subsurface biomass (BGB) is:

$$\mathbf{B_{bp} = RAP \times B_{ap}}$$

Information:

B_{bp} = biomassa di bawah permukaan tanah (kg); RAP = Nilai Rasio akar: pucuk atau sebesar 0,18; B_{ap} = biomassa di atas permukaan tanah (kg)

Peat Carbon Stock

Some parameters needed to calculate soil carbon stocks on peatland are as follows:

1) Content weight (g / cm3 or kg / dm3 or t / m3)
2) Organic carbon content (% based on weight or g / g or kg / kg)
3) Depth or thickness of peat (cm or m)
4) Land area where carbon stock will be estimated (ha or km2)

The total amount of peat carbon stock in assessing carbon stocks in the RSPO GHG procedure is calculated

$$\mathbf{C_{gambut}\ (ton\ C) = A\ (ha)\ x\ 10.000\ m^2/ha\ x\ D\ (m)\ x\ BD\ (ton/m^3)\ x\ C\ (\%)}$$

Information:
A = total area of peat in hectares; D = average peat depth (meter); BD = peat content weight (ton/m^3); C = peat carbon content in the percentage of dry weight

Total Carbon Stock

a. Carbon Stock The total in sample plots for above-ground biomass (AGB) and below ground biomass (BGB) are calculated with the following

$$\mathbf{C_{plot} = C_{AGB} + C_{BGB}}$$

Information:
C_{plot} = Total Carbon Stock in the plot (Ton C/ha)
C_{AGB} = Stock Total carbon above ground (Ton C/ha), which is the summation of Carbon Stock for poles, stakes, trees and seedlings.
C_{BGB} = Stock of Total Carbon below ground biomass (Ton C/ha)

b. The Total Carbon Stock in the land / class cover class is calculated by the following equation:

$$\mathbf{C_{stratum} = (C_{Plot} / n_{stratum})\ x\ Luas\ stratum}$$

Information:
$C_{stratum}$ = Stratum Total Carbon Stock (Ton C)
C_{plot} = Total Carbon Stock in the plot in the strata (Ton C/ha)
$n_{stratum}$ = Number of Plots in the stratum

c. Total Carbon Stock in the RSPO GHG procedure in the study area is calculated using the following equation:

$$\mathbf{C_{Total} = C_{Total\ Stratum} + (C_{Gambut}\ x\ A_{Gambut})}$$

Keterangan:
C_{Total} = Total Carbon Stock in the study area (Ton C)
$\mathbf{C_{Total\ Stratum}}$ = Carbon Stock Total all land cover / stratum classes (Ton C)
C_{Gambut} = Stok Karbon Tanah Gambut (Ton C/ha)
A_{Gambut} = Luas total gambut (ha)

Assessment of the amount of GHG emissions from the planned new planting in oil palm plantations in RSPO GHG procedures using the GHG Calculator for new developments issued by RSPO.

2.5. LUC Assessment

a. Assessor Credentials

LUC Assessment activities in the Palm Oil Plantation Area of PT. Sawit Mitra Abadi (Additional 1,000 ha) is conducted in August - September 2019 with a consultant. The assessment consultant's profile is as follows:

Name : Kasuma Wijaya, S.Hut, M.Si
Address : Perum Griya Melati Blok C3/23, RT. 003, RW. 013, Kelurahan Bubulak, Kecamatan Kota Bogor Barat, Kota Bogor, Provinsi Jawa Barat
Position : Land covers image analysis and GIS experts
Register : Registered HCS Approach Practitioners

b. Methods

Relevant time of clearance period	
⊠ November 1, 2005 – November 31, 2007	⊠ December 1, 2007 – December 31, 2009
⊠ January 1, 2010 – May 9, 2014	⊠ After May 9, 2014

Date of satellite image acquisition for each time of clearance period		
Period	**Date of acquisition**	**Cloud cover (%)**
Before November 1, 2005 (baseline)	August 12, 2005	0 %
November 1, 2005 – November 31, 2007	July 1, 2007	< 5 %
December 1, 2007 – December 31, 2009	August 7, 2009	0 %
January 1, 2010 – May 9, 2014	August 18, 2013	0 %
After HCV area identified	April 22, 2017	< 5 %
After becoming RSPO member (if relevant)	Not relevant	-
After the management unit acquired (if relevant)	Not relevant	-
Latest satellite image used for ground truthing	July 26, 2019	0 %

Satellite images used in the LUC Analysis	
Satellite Name	Landsat TM 5, Landsat 8 , and Sentinel 2
Resolution	30 metre (Landsat), 10 metre (Sentinel 2)

List of data and document used in the LUC Analysis		
1. Land clearance progress map (monthly)	☐ Available/used	⊠ Not available
2. Land clearance progress data (monthly)	☐ Available/used	⊠ Not available
3. Planting year map	☐ Available/used	⊠ Not available
4. Planting year data	☐ Available/used	⊠ Not available
5. Land compensation progress map (if applicable)	☐ Available/used	⊠ Not available
6. Land compensation progress data/document (if applicable)	☐ Available/used	⊠ Not available
7. Soil map	⊠ Available/used	☐ Not available

8. Slope map	☒ Available/used	☐ Not available
9. Watershed-hydrology map	☒ Available/used	☐ Not available
10.HCV assessment report	☒ Available/used	☐ Not available

Image processing		
Radiometric correction	☒ Conducted	☐ Not conducted
Geometric correction	☐ Conducted	☒ Not conducted

Image analysis		
☐ Supervised classification	☐ Unsupervised classification	☒ Object based visual interpretation

Survey design	
Number of sample	The minimum amount of sample needs is *Taro Yamono Formula* (1967)
Sampling method	Terrestrial Sampling
Reference for sampling method	RSPO Guidance for Land Use Change Analysis (Revised version March 2017)

Field verification	
Validating the land cover data	Data verification and ground truthing
Compiling information related to historical land use in the study area	Compilation of historical information on land use by combining information from (1) ground truthing, (2) document review, dan (3) interview
Identification the loss of social HCVs	Conducted by review of HCV documents and in-depth interviews with key responden
Identifying the loss of areas where planting is prohibited by RSPO P&C or by country's specific legislation (e.g. riparian zones, steep slope, deep peat)	Analysis of the data resulting from the overlay between data on land cover changes in each period of liability with the distribution of areas not allowed by P & C for oil palm planting

Image validation	
Method used for LUCA accuracy assessment	the Kappa Accuracy method

Change detection analysis
In LUC analysis activities, change detection analysis is based on review of company documents and in-depth interviews. Review of company documents including acquisition documents and HCV Report. In-depth interviews with key respondents include local community leaders, and company staff who have long been in the study area, relating to the land cover baseline, history of land ownership and activities, land clearing activities and community cultivation patterns.

Vegetation coefficient
Grouping land cover classes into the vegetation coefficient category follows the guidance RSPO, which in principle consists of 4 categories, namely (1) Coefficient 1.0, for Primary Forest land cover, (2) Coefficient 0.7, for Secondary Forest land cover, (3) Coefficient of 0.4, for mixed garden or agroforestry land cover, and (4) coefficient 0.0, for non-forest cover such as fields, rubber, oil palm, rice fields, shrubs and grasslands.

2.6. FPIC process

a. Assessor Credentials

FPIC activities in the Palm Oil Plantation Area of PT. Sawit Mitra Abadi (Additional 1,000 ha) is conducted in June - September 2019 with a independent consultant. The assessment consultant's profile is as follows:

Table 5. Composition Team

Expert Name	Posisi	Bidang
Sigit Pamungkas, SP, M.Si	Team Coordinator and Expert	• Communication and Community Development (KPM) • Agricultural and Rural Development Communications • FPIC, SIA and participatory mapping • General OHS (Occupational Health and Safety) Expert • HCV Criteria 5 and 6, SEIA
Iyat Sudrajat, S.Hut., M.Si	Expert	• Forestry, community social studies and participatory mapping, SEIA facilitation techniques

b. Method

b.1. Reference and Guidelines FPIC

The references and guidelines used as references in conducting FPIC studies at PT SMA additional 1000 ha are as follows:

1) Free, Prior and Informed Consent Guide For RSPO Members, RSPO Human Right Working Group 2015. Endorsed by the RSPO Board of Governors meeting on 20 November 2015 in Kuala Lumpur.

2) United Nations Declaration on the Rights of Indigenous Peoples, relating to FPIC (article 32), Lands and Territories (articles 20 and article 26), Displacement and the right to restitution and correction / submitting compensation (article 10, article 28), Representatives (article 18 , article 19), based on customary agreements (article 3, article 4, article 5, article 33 and article 34).

3) International Law Convention, which includes:
   - International Convention on Civil and Political Rights
   - International Convention on Economic, Social and Cultural Rights
   - Convention on the Elimination of All Forms of Ethnic Discrimination
   - ILO Convention No. 169 concerning Indigenous Peoples and Tribes.

4) Secondary data in the form of documents or library resources needed (documentation) in the study such as:
   - Profiles / Monographs of Pangkalan Telok Village (Dusun Cali & Dusun Pangkalan Jihing)
   - RPJMDes Pangakalan Telok Village
   - Subdistrict Nanga Tayap in Figures 2018

- Ketapang Regency in Figures 2018
- Ethnicity, tradition and history in the FPIC study area
- Reports from MUs such as SIA reports, HCV reports, HCS reports, and LUC reports
- Growing Compensation Document (LAND COMPENSATION)

b.2. FPIC Study Method

The method used in the FPIC study consists of:

1). **Secondary Data Collection** by collecting documents needed (documentation) taken from village profiles or Village Medium Term Development Plans (RPJMDes), sub-districts in numbers, districts in numbers and or other library sources.

2). **Primary Data Collection** by:

- Structured and in-depth interviews with community members who are considered to know the information needed (Village Head, Customary Head, Hamlet Head, leaders of local institutions, community leaders, religious leaders, women leaders, youth leaders, and other local community members).
- Focus Group Discussion and Rapid Rural Appraisal with community groups. Participants in the FGD and RRA consisted of the Village Head, BPD Management, LPMD, RW / RT heads, Hamlet Heads, representatives of local institutional leaders, community leaders, representatives of religious leaders, women leaders, youth leaders, and representatives of other community leaders.
- Field observations of the conditions of the physical environment, social environment, social relations, matching the initial land cover map with the reality on the ground, the habits of the local community such as land use patterns and Natural Resources or Forest Resources around the settlement

3). **Triangulasi data**, integrated methods to verify each other on emerging issues, opinions and ideas such as the emergence of the latest values of norms and rules on land use, natural resource management, and SDH management that apply in the local community.

CHAPTER 3. SUMMARY OF FINDINGS

3.1. SEIA

Potential Positive and Negative Developments

positive and negative social impacts in the company environment include components that are the basic capital of the sustainability of social livelihoods consisting of 5 components (Natural Capital, Human Capital, Financial Capital, Social Capital, and Physical Capital). In the plan to increase the area of 1,000 hectares of PT SMA oil palm plantations the environmental and social impacts in the community that occur are as follows: Table 6:

Table 6. External Social Impacts on the Permit Area PT SMA Addition of 1,000 Ha

No	External Impact	Impact Category	
		Positive (+)	Negative (-)
Nature Resource			
1.	Land compensation (GRL) conducted by PT. SMA later must be in accordance with the hopes and desires of citizens	√	
2.	Increased community interest in developing palm oil commodities	√	
3.	The reduction in land or land owned by the community around the company for the cultivation of agricultural rice fields, crops and vegetables or for plantations, so that it also has an impact on the reduced production of these commodities		√
4.	Community perception related to river water pollution by oil palm plantation management activities in fertilizing and spraying activities using chemicals		√
5.	People's opinion, the occurrence of flooding in the rainy season and reduced river water discharge in the dry season and river silting.		√
6.	Changing forest area or resources which causes a reduction in the source of basic needs for wood for building materials, hunting areas, sources of fruits and vegetables and has an impact on reducing river water discharge		√
Human Resource			
7.	There are opportunities for the community to work in the company	√	
8.	Increased knowledge and skills in managing oil palm plantations based on work experience in the company, so that it can be applied in managing privately owned oil palm plantations	√	
Economic Resource			
9.	Residents are hopeful if the release of land to the company to be accompanied by a plasma plantation (as a substitute for economic resources of citizens) as well as family members / children as well as can work in the company	√	
10.	The income of the surrounding community increased with the existence of an alternative source of income, namely working at a company PT. SMA before.	√	
11.	Residents' concerns about the loss of livelihoods, because most of the livelihoods of residents are still dependent on land in the area of the addition of 1,000 hectares of PT. SMA		√
Social Resource			
12.	The positive perception of citizens towards PT. SMAs are always welcome and always ready to help the activities and needs of residents, such as the ease of borrowing heavy equipment from the company for road repair	√	
13.	Improving relations between families such as the community is easier to visit with relatives in other places with easier access to the road	√	
14.	The social jealousy of the local community with the elite of village / hamlet		√

No	External Impact	Impact Category	
		Positive (+)	Negative (-)
	leaders which caused mistrust of both parties, especially those related to land acquisition plans from the company		
15.	Social jealousy among the hamlets, because the hamlet Cali considers older than the Pangkalan Jihing Hamlet, so if there are programs from the company, he hopes the older hamlet should get more attention.		√
16.	Negative perceptions of citizens towards CSR programs that are considered to be minimal even do not yet exist for each village		√
17.	The negative perception of citizens towards PT. SMA will provide transportation facilities for pick-up and transfer of employees that are considered inadequate		√
Physic/Infrastructure Resource			
18.	Open access road connecting the hamlets, villages and districts	√	
19.	The connecting road between villages or hamlets in the form of a road as well as a road that is often passed by employees and employees of PT. His SMA condition is broken. If the rainy season the road is muddy and difficult to pass.		√

Socio-economic impacts to country, region and local communities

- **Positive impacts include**;

  1) Land compensation (GRL) conducted by PT. SMA later must be in accordance with the hopes and desires of citizens
  2) Increased community interest in developing palm oil commodities
  3) Increased knowledge and skills in managing oil palm plantations based on work experience in the company, so that it can be applied in managing privately owned oil palm plantations.
  4) There are opportunities for the community to work in the company
  5) Residents are hopeful if the release of land to the company to be accompanied by a plasma plantation (as a substitute for economic resources of citizens) as well as family members / children as well as can work in the company
  6) The income of the surrounding community increases with the existence of alternative sources of income, namely working at PT. SMA before,
  7) The positive perception of citizens towards PT. SMAs are always welcome and always ready to help the activities and needs of residents, such as the ease of borrowing heavy equipment from the company for road repair
  8) Improving relations between families such as the community is easier to visit with relatives in other places with easier access roads
  9) Open access road connecting the village, villages and districts

- **Negative impacts include**;

  1) The reduction in land or land owned by the community around the company for the cultivation of agricultural rice fields, crops and vegetables or for plantations, so that it also has an impact on the reduced production of these commodities
  2) Community perception related to river water pollution by oil palm plantation management activities in fertilizing and spraying activities using chemicals

3) People's opinion, the occurrence of floods in the rainy season and reduced river water discharge in the dry season and silting of the river.
4) Changing forest area or resource which causes a reduction in the source of meeting basic needs for wood for building materials, hunting areas, sources of fruits and vegetables and has an impact on reducing river water discharge
5) This has a negative impact due to the social jealousy of the local community with the elite of village / hamlet leaders who causes mistrust of both parties, especially those relating to land acquisition plans from the company
6) Social jealousy among the village, because the hamlet Cali considers older than the Pangkalan Jihing Hamlet, so if there are programs from the company it is hoped that the older hamlet should get more attention.
7) Residents 'concerns about the loss of livelihoods, because most of the residents' livelihoods are still dependent on the land within the additional 1,000 hectares area of PT. SMA.
8) Residents' negative perceptions of CSR programs that are considered still minimal or even not yet exist for each village
9) Negative perceptions of citizens towards PT. SMA will provide transportation facilities for pick-up and transfer of employees that are considered inadequate
10) Road connecting between villages or village in the form of a road as well as a road that is often passed by employees and employees of PT. SMA condition is broken. If the rainy season the road is muddy and difficult to pass

Socio-economic impacts in respect of emergent communities (workers, suppliers etc.)

Some internal aspects reviewed in the SIA assessment are: (1) recruitment of workers, (2) comfort of work, (3) trade unions, (4) competency development, (5) determination of career paths, (6) salary (appropriateness and accuracy) time), (7) facilities, and (8) welfare and employee benefits.

Table 7. Internal Impact

No	Indicator	Note
1.	recruitment of workers	✓ For the surrounding community, recruitment is done through a personal approach to village officials. The recruitment system is carried out without a test but it is sufficient to submit an administrative requirement in the form of a photocopy of Identity card, family card and a certificate from the Village Head without specific educational requirements ✓ Approach to recruitment of workers to communities who have land in the area of the company's location permit with the aim that landowners want to sell their land to the company, ✓ Through Management Training (MT) primarily to get employees who have a high level of education, through the Department of Labor.
2.	comfort of work	✓ Some employees / gardeners perceive that the convenience of working at PT. SMA has not been fully met. This is due to a number of criteria that measure success and safety and comfort indicators at work have not been met.
3.	trade unions	✓ A Trade Union has been formed. However, there are still workers who are not aware of the union at PT. SMA because at the time of the formation of trade unions and the election of chairmen carried out in private

No	Indicator	Note
4.	competency development	✓ The way the company does is to provide training and explanations for new workers, especially at morning muster
5.	determination of career paths	Career Level System ✓ Workers do not want to work more because there are no benefits. ✓ The promotion process is carried out through a supervisor's appraisal which then asks management to increase the position of the employee concerned. ✓ Reward ✓ There is not yet a reward system for workers who excel or perform work that exceeds the specified target. This results in the loss of enthusiasm of workers to do something more work
6.	salary (appropriateness and accuracy) time)	✓ Paying according to regional minimum salary West Kalimantan Province,
7.	facilities	Availability of supporting facilities (PPE, Job Transparency, Health Facilities are still of low value such as: ✓ PPE (Personal Protective Equipment) ✓ Employee Shuttle Transportation ✓ Employee Shuttle Transportation
8.	welfare and employee benefits	Provide benefits received by permanent employees including: ✓ THR. ✓ Giving premiums, ✓ Food allowance (staff only), ✓ Free medical expenses due to work accident, ✓ Provision of mess for each employee, ✓ BPJS Health and Employment Registration, ✓ Transportation allowances, and others.

Sumber : Olah Data Primer Tim SIA, 2019

Issues raised by stakeholders and assessors comments

Risk analysis is one of the basics of social management in the future, which includes analysis of strategic issues and social impacts related to Natural Resources (SDA), Human Resources (HR), Economic Resources (SDE), Social Resources (SDS), Physical Resources (SDF).

In general, the majority of respondents have relatively similar assessments of the conditions of strategic issues, both from Pangkalan Jihing and Cali. The condition of strategic issues in the fields of natural resource, social resource and physical resource are stated in conditions that need to get the main attention of PT SMA, but for the strategic issues in the field of resource human and finance resource are considered to be in a rare condition in the community. In the context of strategic issues of natural resource, social resource and physical resource, efforts need to be made by the company's programs to address critical, major and minor issues. Whereas the evaluation of social impacts is relatively the same as the strategic issues, but for the external impacts in the field of Physical and Human Elementary Schools is considered to be in a condition that rarely impacts the community.

Based on the issues and findings of the social impact assessment, the assessors recommended several points as follows :

The recommendations of the company's external relations are based on information obtained from interviews or FGDs in the area regarding the hopes and desires of the community for the progress of the company and the community in the future as material for discussion and consideration for the company to be realized in the future through Community development programs (CD) and Corporate Social Responsibility (CSR). The proposal of this program is not all based on the expectations of the community above, but also based on the problems faced by residents.

List of legal documents, regulatory permits and property deeds related to the areas assessed

Tabel 8. List of legal documents, regulatory permits and property deeds related to the areas assessed

No	List of Document	Certificate Letter	Agency	Large (Ha)
1	Location permits	Ketapang Regent Decree No : 861/PEM/2015, December 29, 2015.	Ketapang Regent	1000
2	Extension of location permit	Ketapang Regent Decree No : 434/DPMPTSP-D/2018, December 26, 2018	Ketapang Regent	1000
3	Environmental feasibility permit	Ketapang Regent Decree No : : 205/ DPMPTSP-D.B/2018, June 8, 2018	Ketapang Regent	8953
4	Environmental permits	Ketapang Regent Decree No : 206/ DPMPTSP-D.B/2018, June 8, 2018	Ketapang Regent	8953
5	Plantation Business Permit	Ketapang Regent Decree No: 377 / DPMPTSP-DB / 2019, dated July 8, 2019	Ketapang Regent	8865
6	Company Deeds	Latest Amendment Deed of PT SMA No. 7 dated February 1, 2019	Indonesian Ministry of Law and Human Rights	

3.2. HCV Assessment

3.2.1. National and or regional context

Key biodiversity areas are areas that are nationally identified that have global significance. Several international organizations have identified key areas for biodiversity with their respective criteria. Some key biodiversity areas that are internationally recognized include:

- Ramsar site; in Kalimantan there are 2 Ramsar sites namely Tanjung Puting National Park in Central Kalimantan and Danau Sentarum National Park in West Kalimantan. Additional permit area of PT. SMA is not included in the Ramsar site area.
- Heart of Borneo (HoB); is an initiative that involves 3 countries namely Malaysia, Brunei Darusallam and Indonesia. The HoB location is a conservation area that is located in the middle (heart) of Kalimantan Island in 3 (three) countries. In Indonesia the conservation areas included in the HoB are Lake Sentarum National Park, Gunung Palung, Bukit Raya Bukit Baka, Betung Kerihun and Kayan Mentarang. The area of PT. SMA in the north adjacent to Gunung Palung National Park is approximately 0.5 km, thus the additional area of PT. The SMA is within the scope of the HoB area.
- Important Bird Area (IBA); The closest important bird distribution area (IBA) is Gunung Palung National Park which is located in the north with a distance of ± 0.5 kilometer.
- Endemic Bird Area (EBA); the endemic bird distribution area (EBA) is in the Protection Forest area, especially in the western part with a distance of ± 18 km, and the eastern part of the additional area of PT. SMA with a distance of ± 48 km.
- Ecoregional; Based on the Biophysiogeographic map of West Kalimantan, it is divided into 5 (five) Ecoregion types namely Upper Kapuas Basin, Muller Mountains, Middle Kapuas Basin, Western Plains and Mountains and Southern Plains and Mountains. Location permit location of PT. SMA is included in Southern Plains and Mountains Biophysiography. Based on the ecoregion map, entered into the Denudasional hills.
- Distribution of Orangutans; Based on the 2014 Orangutan Distribution Map www.forina.or.id and the 2016 IUCN Orangutan Distribution Map, there are orangutan distribution areas around the area of PT. SMA to the west with a distance of about 1.9 km (Figure 15). In addition, in the area of the addition of PT. SMA is not found migration corridors in the landscape.
- Protection Forest, in the southern area of the PT. SMA there is HL Gunung Tarak with a distance of ± 2 km. In the landscape scale there are several protected forests including HL Gunung Batu Menangis which is located in the south with a distance of ± 17 km, HL Batu Nyambu is located in the east with a distance of ± 56 km, HL Bukit Kerai Kundang with a distance of ± 82 km (Figure 16).

The explanation above indicates that there is no conservation area within the area additional permit of PT SMA, but the area has a supporting function to Gunung Palung NP given its close proximity (about 500 m). In the area, there is not found Orangutan

(*Pongo pygmaeus*) - a species of global concern, and neither there is an indication of a migration corridor for wildlife in the landscape, and in addition, the area is not covered by EBA distribution. Although the area of PT SAM is not within the IBA, it has a supporting function to the important value birds, considering it is only about 500 m from the location of IBA. In the vicinity of PT SMA's area additional permit, there are protection forests, conservation areas, and the distribution of important birds area, so that in the national and regional context, the area has a supporting function essential for the protection of the surrounding area. The results of HCV identification in the additional permitted location to PT SMA, as well as the action plans of HCV management and monitoring in the future, are expected to provide a significant contribution to the conservation of biodiversity, environmental services, and sociocultural values of society at regional and national levels. Supporting regulations and local government regulations relating to nature conservation and HCVs area, among others, the West Kalimantan Provincial Government Regulation No. 10 of 2014 on Spatial Planning of West Kalimantan Province, Year 2014-2034.

3.2.2. Landscape context

Land cover

The land cover of the area additional permit to PT SMA of 1,000 Ha was obtained from the interpretation of Landsat 8 Path/Row 121/61 on 27 January 2017, the map of additional newly permitted area to PT SMA, and the topographic map of Indonesia from the Geospatial Information Agency, combined with the results of field surveys undertaken by HCV Assessment Team in 2017. The results of analyses show that the land cover of this additional newly permitted area is mostly covered with shrubs, rubber plantation, dry cultivation land, and bareland. Nevertheless, in its proximity, there are Gunung Tarak PF, Gunung Palung NP, ladang, rice field, and settlement.

Tabel 9. Land cover at landscape scale where the area additional permit to PT SMA is located

No	Land Cover	Permit Area (Ha)	Outside Permit Area (Ha)	Landscape Area (Ha)
1.	Dry Secondary Forest	31,93	69,53	101,46
2.	Swamp Secondary Forest	10,46	79,52	89,97
3.	Shrub	416,76	401,07	817,83
4.	Swamp Shrub	45,46	122,78	168,25
5.	Rubber	201,74	200,85	402,59
6.	Palm Oil	1,91	849,36	851,28
7.	Open Land	123,50	153,57	277,07
8.	Dryland cultivation	160,48	159,04	319,52
9.	Mixed dryland cultivation	4,53	77,38	81,91
10.	Swamp	3,23	107,64	110,87
11.	Settlement	-	6,27	6,27
12.	Water Body	-	10,13	10,13
	TOTAL	**1.000,00**	**2.237,14**	**3.237,14**

The dynamics of land cover changes in the area additional permit of the PT. SMA area of 1,000 Ha based on interpretation of Landsat imagery result starting from December 2005, December 2007, May 2010 and May 2014 is presented in Table 10. From the analysis results showed a tendency reducding of the secondary dryland forest cover

and secondary swamp forest, on the other side an increase of scrub area, open land and dry land cultivication.

Tabel 10. The Dynamics Land Cover Changes in the Area additional permit of PT SMA 1.000 Ha, from 2005 – 2014.

No	Land Cover	Year 2005	Year 2007	Year 2010	Year 2014
1.	Dry Secondary Forest	218,14	105,39	38,38	38,38
2.	Swamp Secondary Forest	30,99	14,75	14,75	10,46
3.	Shrub	287,89	402,48	421,92	416,93
4.	Swamp Shrub	24,93	41,17	41,17	45,47
5.	Rubber	222,35	222,35	198,08	198,08
6.	Palm Oil	-	-	-	1,91
7.	Open Land	120,11	117,62	121,59	121,59
8.	Dryland cultivation	86,81	78,96	119,21	159,42
9.	Mixed dryland cultivation	5,53	14,05	41,66	4,53
10.	Swamp	3,23	3,23	3,23	3,23
11.	Settlement	-	-	-	-
12.	Water Body	-	-	-	-
	TOTAL	**1.000,00**	**1.000,00**	**1.000,00**	**1.000,00**

Source : Interpretation of Landsat Imegery 2005, 2007, 2010, 2014

Land use at the national level

Based on the Map of Forest Areas and Waters of West Kalimantan Province (Decree of Forestry Ministry No. 733/Menhut-II/2014), the whole area additional permit of PT SMA of 1,000 Ha classified as APL (Area untuk Penggunaan Lain = other purpose area). According to the Provincial Spatial Planning of West Kalimantan for the period of 22014-2032 (Peraturan Daerah or Provincial Regulation No. 10/2014), the additional area is assigned as Dry Agricultural Land; while the Map of New Permits Delays Indicative – Revision X of May 20, 2016 (PIPPIB = Peta Indikatif Penundaan Pemberian Izin Baru Revisi X), this additional area is not included as the delaying permit areas. The fact that this area additional permit of PT SMA is located within Other Pupose Area (APL) or Dry cultivation land has ensured the legitimacy of area for plantation, which can be categorized as highly secured in the long term.

Tabel 11. Types and land use area at landscape scale that include the area additional permit

Land Use (RTWR)	Permit Area (Ha)	Outside Permit Area (Ha)	Landscape (Ha)
Gunung Palung National Park	-	245,99	245,99
Other Purpose Area	1.000	1.981,03	2.981,03
Water Body (Inundation Temporary)	-	10,12	10,12
TOTAL	**1.000**	**2.237,14**	**2.237,14**

History of management unit

PT Sawit Mitra Abadi (PT SMA) is one of the national private plantation companies that invests in Ketapang with permission from Ketapang District. The area of this management unit is a former IUPHHKHA of PT Duaja during the period of 1979-1981, followed by IUPHHKHA PT Gelora Indonesia until 1997.

Physical environment

At the landscape level, the area additional permit of PT SMA is within Pawan watershed (Pawan sub watershed), where two rivers are located, namely Paduan River and Raba River, and these two rivers have a width less than 3 meters. Based on rainfall data obtained from the Meteorological Station of Rahadi Usman Ketapang Airport of 2006-2015, and according to Schmidt-Ferguson classification system (1951), the climate in this area is classified as Climate Type A (very wet), with 12 wet months, but it does not have any period of moist and dry months. Rainfall during 10 years (2006-2015) in the area is relatively fluctuative, between 2,043 and 3,544 mm, with an average annual rainfall of about 3095 mm. During the same period, the air temperature was also fluctuative, between 30.7 and 33.8°C, the range of annual minimum temperature was 22.3-24,8°C, and the range of average annual temperature was 26.3-27.6°C; while the average maximum temperature was 32.2°C, and average minimum temperature was 23.1°C and the whole average temperature was 27.2°C.

Based on RePPProT's land system (1981), the area additional permit of PT SMA of 1,000 Ha classified into Honja land system (100% . The area of PT SMA is located at an altitude of 20–73 m above sea level, with the slope of 0-8%. Only one soil type association can be found in this area, namely Tropudults, Paleudults, and Tropohumults association. And the geological formation also consists only one formation, namely the Karabai Volcano rock formation.

Biodiversity

Kalimantan has several types of tropical habitat that are rich in biodiversity. The location of area additional permit of PT SMA, being located in Kalimantan, certainly can not be separated from such richness of biodiversity. In Kalimantan, there are about 225 species of terrestrial mammals, 44 of which are endemic to the island (Payne et al., 2000), 639 bird species, of which 37 are endemic and 358 are resident species (MacKinnon et al., 2000), 166 species of snakes (Stuebing, 1991), about 140-150 amphibian species (Inger and Stuebing, 1997), and 394 species of fresh water fish, of which 149 are endemic (MacKinnon et al., 1996). A number of unique species are, for example, Orangutan (*Pongo pygmaeus*), the proboscis monkey or long-nosed monkey (*Nasalis larvatus*), Malay sunbear (Helarctos *malayanus*), the Sunda clouded leopard (*Neofelis diardi*), and Bulwer's pheasant (*Lophura bulweri*). Primate species of global concern on Borneo island, i.e., orangutans, is known only concentrated in a few places. According to the distribution map of Orangutan from Orangutan Forum Indonesia (www.forina.co.id) in 2014, the area of newly permitted area to PT SMA is not included in that Orangutan distribution map.

A total wildlife species found in this area of PT SMA was 93 species, that consisted of 74 bird species, 15 mammal species, and four reptile species. The species categorized into RTE (Rare Threatened Endangered) are of birds (20 species, or 27% of the total bird species), mammals (13 species, or 87% of the total mammal species), and all those reptile species. A total vegetation species found in this area was 154 species, of which nine species are categorized as protected (as referred to Government Regulation No.7/1999, CITES, and IUCN). Six species are listed as IUCN Red List: two plant species as Vulnerable, two species as Endangered, and two species as Critically

Endangered. Kalimantan has more than 3000 species of trees, including 267 Dipterocarpaceae which are the most important industrial timber group, and approximately 58% of this dipterocarp species are endemic. Kalimantan also has more than 2000 species of orchids and 1000 species of ferns, even it is a distribution center of carnivorous plants, the Nepenthes sp. The endemism of flora on this island is high, approximately 34% of the entire plant species, but only has 59 unique genera of total 1500 genera. The proximity of study site in Kalimantan allows the existence of floral species that are endangered and protected by Indonesian regulation and legislation, mainly the members of Dipterocarp family (*Shorea spp., Dipterocarpus spp*.) in additional to other protected species such as the Nephentes family. All these species area protected by the Indonesian Government through the Decree of Agriculture Minister No. 54/Kpts/Um2/1972 and the Decree of the Forestry Minister No. 261/Kpts-IV/1990. On the other hand, those species are mostly exploited commercially, since the trees are of local communities' interests for their livelihood. The plant species found in the study area that are categorized as protected according to the Government Regulation No. 7/1999 are terambo (*Nepenthes gracilis*) and tengkawang (*Shorea pinanga*, red meranti), while those categorized as Ciritcally Endangered are Majau Air (*Shorea lepidota*) and Tengkawang Layar (*Shorea smithiana*).

Protection forest and conservation area

In the within of area additional permit of PT SMA is not the protection forest or conservation area. However this area nearby with the Gunung Tarak Protection Forest in the southern of about 2 Km distance, and Gunung Palung National Park in the northern of about 500 m distance. At the landscape context, this area is within the Heart of Borneo (HoB), in which Gunung Palung NP is a part of HoB. Gunung Palung NP and Gunung Tarak forest protection are important habitats for Bornean Orangutan (*Pongo pygmaeus*) – the global concerned species, and also a part of IBA destination. Other conservation areas in the landscape are Gunung Batu Menangis protected forest to the Southern at a distance of approximately 17 km, Batu Nyambu protected forest in the Eastern with a distance of approximately 56 km, Bukit Kerai Kundang protected forest at a distance of approximately 82 km, and Muara Kendawangan Nature Reserve at a distance of approximately 119 km to the North. Based on the position and location, the additional newly permitted area to PT SMA could provide supporting functions to these conservation areas and protected forests, although from the aspect of the land cover it is highly unlikely, but the future plantation management should still refer to the precautionary principle.

The entire area of PT SMA's additional concession has already been changed into farming and settlement. However, because the area is adjacent to IBA coverage, there should be an allocation for a temporary stop over (stepping stone) of bird species. The possible migratoty corridor for Orangutan is to connect HCV areas in this newly added concession area to Gunung Palung National Park, which is only 500 m distance.

Ecosystem

The entire area additional permit of the PT SMA's includes into the lowland dipterocarp forest ecosystem of Borneo, with mixed diperocarp forest. Ecosystem wise, this area is categorized as a mix dipterocarp forest on metamorphic rocks and dipterocarp forest

on a mix of igneous rock (Granite). There are two rivers in this area: Paduan and Raba Rivers, which has a width of about 1.5-2 m, and both rivers flow to the east and joint Lekahan River.

Despite there has been no information about large scale wild fire in this additional area, the occurrence of wild fire in the future is always potential due to the fact that the area is dominated by shrubs, which are prone to wild fire during prolonged drought. Therefore, the occurrence of ecosystem functioning as fire control is necessary, but there is not found such an area functioning as fire breaker in this area additional permit.

Social, economy and culture

This area additional permit of PT SMA administratively located in Pangkalan Teluk Village (Dusun Pangkalan Jihing and Dusun Cali), Sub-district of Nanga Tayap. Malay ethnic group in the surrounding area of PT SMA has been influenced by Matan Kingdom (historically), which was under control of Tanjung Pura Kingdom (historically) located in Tanjung Pura Village, now in Muara Pawan sub-district of Ketapang District.

The local society is still characterized with the values of Malay livelihood such as language, belief, and common customs to other Malay group. Until now, PT SMA has not developed palm oil plantation in the area, since most areas are still used by the local communities for their smallholder rubber and palm oil plantation. Community activity in the area is very intensive, where they open forest areas and is converted into plantation and ladang. Generally, the communities plant rubber and palm oil, and land clearing is usualy done through the shifting cultivation.

3.2.3. HCV Justification and Outcomes

Based on HCV assessment result in the area additional permit of PT SMA identified 6 (six) categories of HCV, with 6 (six) sub-categories, namely: HCV 1 (HCVs 1.1, 1.2, 1.3, and 1.4), HCV 2 (HCV 2.3), HCV 3, HCV 4 (HCV 4.1), HCV 5 and HCV 6, as presented in the Table 12 below.

Table 12. Summary of findings on HCVs in the area additional permit of PT SMA

HCV	Definitation	Present	Potential	Absent
1	Concentrations of biological diversity including endemic species, and rare, threatened or endangered (RTE) species that are significant at global, regional or national levels.			
1.1	Areas that contain or provide support functions for biodiversity protection and / or conservation areas			
1.2	Critically Endangered Species			
1.3	Areas that Contain Habitat for Viable Populations of Endangered, Restricted Range or Protected Species			
1.4	Areas that Contain Habitat of Temporary Use by Species or Congregations of Species			
2	Intact forest landscape, large-level ecosystems and ecosystem mosaics that are significant at global, regional or national levels, and that contain viable populations of the great majority of the naturally			

HCV	Definitation	Present	Potential	Absent
	occurring species in natural patterns of distribution and abundance.			
2.1	Extensive landscape areas that have the capacity to maintain ecological processes and dynamics			
2.2	Natural Areas that Contain Two or More Contiguous Ecosystems			
2.3	Areas that Contain Representative Populations of Most Naturally Occurring Species			
3	Rare, threatened, or endangered ecosystems, habitats or refugia			
4	Basic ecosystem services in critical situations including protection of water catchments and control of erosion of vulnerable soils and slopes.			
4.1	Areas or ecosystems that are important as water providers and flood control for downstream communities			
4.2	Areas important for erosion control and sedimentation			
4.3	Areas that function as natural barriers/breaks to prevent the spread of forest or land fires			
5	Sites and resources fundamental for satisfying the basic necessities of local communities or indigenous peoples (for example for livelihoods, health, nutrition, water), identified through engagement with these communities or indigenous peoples.			
6	Sites, resources, habitats and landscapes of global or national cultural, archaeological or historical significance, and/or of critical cultural, ecological, economic or religious/sacred importance for the traditional cultures of local communities or indigenous peoples, identified through engagement with these local communities or indigenous peoples			

There are several things that become conclusions in the area

1) There are no conservation areas in the area additional permit of PT SMA, but the area has a supporting function to Gunung Palung NP given its close proximity (about 500 m). In the area, there is not found Orangutan (*Pongo pygmaeus*) - a species of global concern, and neither there is an indication of a migration corridor for wildlife in the landscape, and in addition, the area is not covered by EBA distribution. Although the area of PT SAM is not within the IBA, it has a supporting function to the important value birds, considering it is only about 500 m from the location of IBA. In the vicinity of PT SMA's area additional permit, there are protection forests, conservation areas, and the distribution of important birds area, so that in the national and regional context, the area has a supporting function essential for the protection of the surrounding area. The results of HCV identification in the additional permitted

location to PT SMA, as well as the action plans of HCV management and monitoring in the future, are expected to provide a significant contribution to the conservation of biodiversity, environmental services, and sociocultural values of society at regional and national levels. Supporting regulations and local government regulations relating to nature conservation and HCVs area, among others, the West Kalimantan Provincial Government Regulation No. 10 of 2014 on Spatial Planning of West Kalimantan Province, Year 2014-2034.

2) The entire area of PT SMA's additional concession has already been changed into farming and settlement. However, because the area is adjacent to IBA coverage, there should be an allocation for a temporary stop over (stepping stone) of bird species. The possible migratoty corridor for Orangutan is to connect HCV areas in this newly added concession area to Gunung Palung National Park, which is only 500 m distance.

3) There are 10 land covers, i.e Dry Secondary Forest, Swamp Secondary Forest, Shrub, Swamp Shrub, Rubber, Palm Oil, Open Land, Dryland cultivation, Mixed dryland cultivation, Swamp. Dari keseluruhan tersebut terdapat beberapa tutupan lahan sebagai arael HCV, yaitu Dry Secondary Forest and Swamp Secondary Forest.

4) Based on the HCV assessment in the area additional permit of PT. SMA 1000 Ha, identified **6 (six)** HCV categories and **6 (six)** HCV sub categories, namely HCV 1 (HCV 1.1., HCV 1.2., HCV 1.3, HCV 1.4), HCV 2 (HCV 2.3), HCV 3, HCV 4 (HCV 4.1), HCV 5 and HCV 6. The HCV areas overlap, which in one area is composed of more than one high conservation value. The total area of HCV in the area of PT. SMA with an area of 229.63 ha or 22.96% of the total area of additional 1,000 ha, with an HCV management area (KPNKT) covering 310.35 Ha or 31.04%.

3.2.4. Interpretation of the findings that led to decisions on HCV presence/absence. It is key that all decisions on HCV presence/absence are adequately justified and supported by evidence

HCV 1. Species Diversity

HCV 1.1. Areas that contain or provide support functions for biodiversity protection and / or conservation areas

HCV 1.1 refers to any area designated for biodiversity conservation purposes, either inside or surrounding the area additional permit of PT SMA. This assessment reveals that the newly additional area is not inside the conservation area or protection forest, except that it is in a very close proximity to Gunung Palung national park to the north with a distance of about 500 m, while about 2 Km to the west there is Gunung Tarak Protection Forest. This is in accordance with the World Databased Protected Area (WDPA) in December 2016, which shows that the area additional permit of PT SMA is not covered with this IUCN database. Field observation showed that the land cover of area bufferring the Gunung Palung National Park consists of shrubs, secondary forest,

ladang, and local people plantation (rubber and palm-oil). When PT SMA starts developing palm oil plantation in its newly permitted area, its activities would to some extent affect these buffer areas (e.g., edge effect). In order to avoid such an edge effect due to palm oil development, the precautinary approach should be considered. It is important to allocate a buffer area of ± 500 m wide to the permit area bordering the boundary area between the area additional permit and the Gunung Palung National Park boundary. Thus, the width of the buffer zone becomes 1000 m. In managing the buffer zone, PT. SMA will utilize it as a 250 meter wide palm oil plantation (HCV Go Area) while the remaining 250 meters are allocated as part of controlling the effect of side effects (HCV No Go Area). The allocated buffer area is carried out restoration with local plant species that act as a barrier and controlling the occurrence of edge effects. The area of the buffer area allocated to avoid this edge effect is determined as HCV 1.1, with an area of 190.21 Ha.

This protected area related with HCV identification study is based on Presidential Decree Number 32 of 1990 concerning Management of Protected Areas and Government Regulation Number 26 of 2008 concerning National Spatial Planning. The protected area in the area additional permit of PT. SMA namely local protected area, which is the border of the river. The river flow are Paduan river and Raba river which is a tributary of the Lekahan river. The river border determined refers to Presidential Decree Number 32 of 1990, which is 50 meters on either side of the river. Based on the results of spatial calculations and analysis, the area determined as a river border is 68.39 Ha.

In the area of the location area addition permit of PT. SMA is found permanent and seasonal swamps. The existence of the swamps has a very important function and role in protecting the availability of water in nature. Referring to Presidential Decree No. 32 of 1990, the swamp is a local protected area that must be protected. To maintain the ecological function of the swamps, must be allocated of buffer zone, with a width of 50 meters from the swamp boundary. The width of the swamps border is set to 50 meters from the edge of the swamp, thus the area of the swamp protected area is 15.03 Ha.

Thus it was concluded that in the additional permit area of PT. SMA 1,000 Ha containing an HCV 1.1 area, in the form of rivers and their borders, which is Paduan river border of 34.81 Ha, Raba river border of 33.58 Ha, and the border of the swamp area of 15.03 Ha. Total HCV 1.1. area contained in the additionalpermit area of PT. SMA 1,000 Ha, is an area of 83.42 Ha. HCV area 1.1. presented in Figure 17.

HCV 1.2. Critically Endangered Species

Based on the analyses on secondary data and field data, there are 154 plant species scattered in a number of plant communities, such as young secondary forest, bareland, shrubs, and traditional rubber plantation (mixed rubber and shrubs). Under the protection status, nine (9) species are categorized as protected by Indonesian law (PP Np. 7/1999), and listed in CITES and IUCN. 6 (six) plant species are listed in the IUCN Red List: two are Vulnerable, two are Endangered, and two are Critically Endangered. The Critically Endangered species are Majau Air (Shorea lepidota) and Tengkawang Layar (*Shorea smithiana*, large red meranti).

Wildlife richness found in this newly permitted area to PT SMA was 93 species, consisted of 74 bird species, 15 mammal species, and four reptile species. The species categorized into RTE (Rare Threatened Endangered) are of birds (20 species, or 27% of the total bird species), mammals (14 species, or 87% of the total mammal species), and 4 reptile species (100% from total reptile species). The existency of plant species are located in the riparian of Paduan and Raba Rivers, and also there are remaining shrub spots (tembawang).

Whereas from wild animals the potential emergence of orangutans (Pongo pygmaeus), considered the study area is close to the orangutan distribution area (IUCN, 2016). The Sunda pangolin (Manis javanicus) has a very wide distribution in Southeast Asia. Indonesia, especially Kalimantan, is one of the largest habitats for Sundanese pangolins. These species experience tremendous threats from poaching and illegal trade, due to market demand and very high prices on the international market. Although the observations and assessments made did not reveal the existence of the Sundanese Pangolin, however, based on the condition of the remaining habitat and its distribution on the island of Borneo, the presence of this species of wildlife is potentially very large. The habitat for Sundanese Pangolin is estimated to be in buffer zones, secondary forest (dry land and swamp forests), swamp border, Raba and Paduan border rivers. Based on the findings in the field and analysis of habitat distribution of species included in the CR / Critically Endangered category, the distribution of areas that function as habitat are the Paduan and Raba rivers border area, swamp border, secondary dry land forest and secondary swamp forest. Based on the Indonesian HCV Toolkit of 2008, the existence of species with Critically Endangered status indicates that the area contains the element of HCV, namely HCV 1.2. In the area additional permit of PT SMA 1000 Ha, contining HCV 1.2 areas, as a provided in the Table 13. The distribution of this area HCV 1.2 are presented in Figure 18.

Table 13. Distribution of HCV 1.2 areas in the area additional permit of PT SMA 1.000 Ha

No	HCV 1.2 Area	Ha	information	
			Undevelop	Develop
1.	**Secondary Forest**			
	Secondary dryland forest	31,93	31,93	
	Hutan Rawa Sekunder	10,46	10,46	
		42,39	**42,39**	
2.	**Border**			
	Swamps border	15,03	15,03	
	River border	68,39	68,39	
		83,42	**83,42**	
3.	**Bufferzone of National Park**			
	HCV No Go Area	91,44	91,44	
	HCV Go Area	98,77		98,77
		190,21	**91,44**	
	Total Area	**316,02**	**217,25**	**98,77**

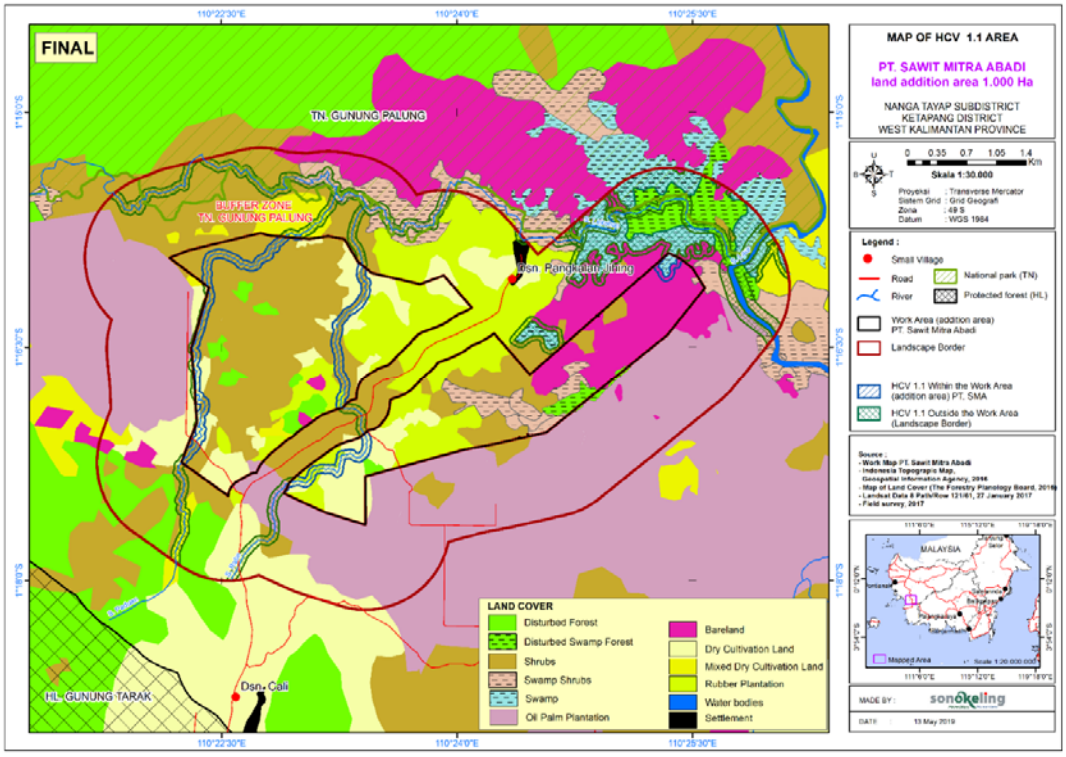


Figure 17. Distribution of HCV 1.1 in the additional permit area of PT SMA

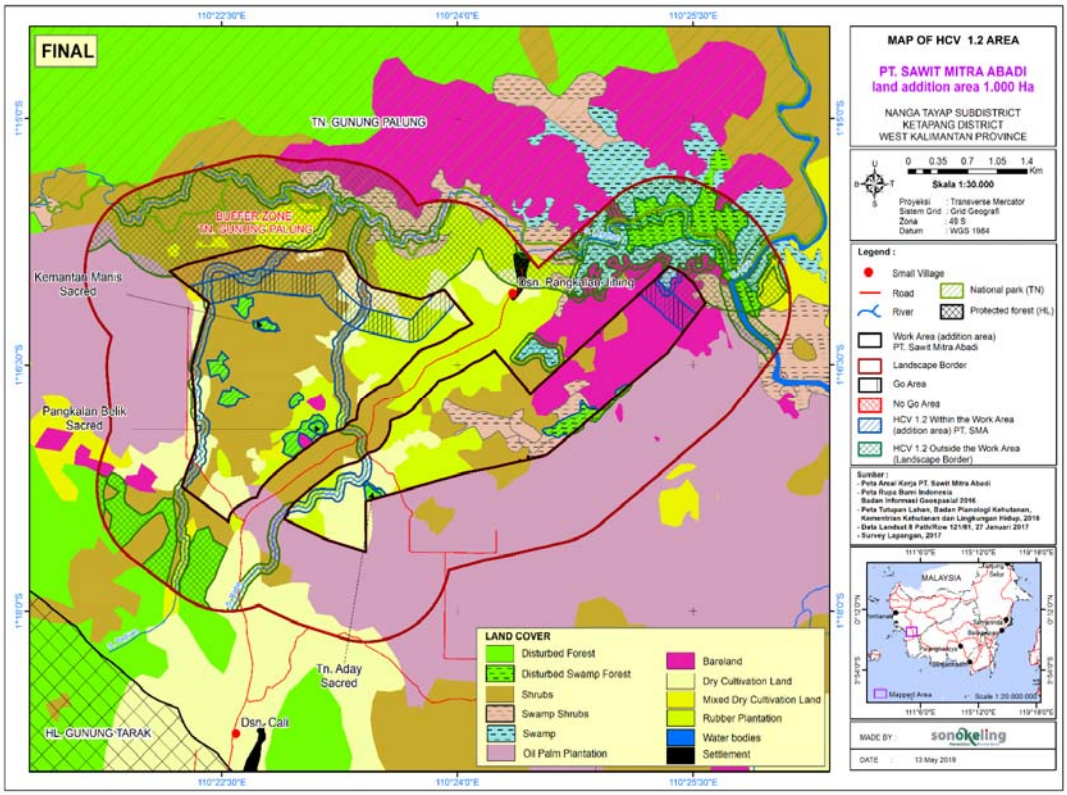


Figure 18. Distribution of HCV 1.2 in the area additional permit of PT SMA

HCV 1.3. Areas that Contain Habitat for Viable Populations of Endangered, Restricted Range or Protected Species

The existence of HCV 1.3 is characterized by the presence of species of flora and fauna which are threatened, limited distribution (endemic), and/or protected. Species to consider in HCV 1.3 include all species identified in the NKT 1.2, which are critically endangered species plus other species considered as endangered, vulnerable, species with limited distribution (at an island or part of it) or protected by the Government of Indonesia (protected species). In the area additional permit of PT SMA, there are six plant species listed in IUCN Red List, namely: Vulnerable (2 species), Endangered (2 species), Critically Endangered (2 species), namely Majau Air (*Shorea lepidota*) and Meranti Merah (*Shorea smithiana*).

Based on the protected plant species and their habitats, as well as endemic fauna, inside the area additional permit of PT SMA, it is considered that this area contains HCV element, namely HCV 1.3, as provided in the Table 14. Distribution of HCV 1.3. areas are presented in Figure 19.

Table 14. Distribution of HCV 1.3 areas in the area additional permit of PT SMA 1.000 Ha

No	HCV 1.3 Area	Ha	information	
			Undevelop	Develop
1.	**Secondary Forest**			
	Secondary dryland forest	31,93	31,93	
	Hutan Rawa Sekunder	10,46	10,46	
		42,39	**42,39**	
2.	**Border**			
	Swamps border	15,03	15,03	
	River border	68,39	68,39	
		83,42	**83,42**	
3.	**Bufferzone of National Park**			
	HCV No Go Area	91,44	91,44	
	HCV Go Area	98,77		98,77
		190,21	**91,44**	
	Total Area	**316,02**	**217,25**	**98,77**

Source : Analysis Result HCV Assesment PT SMA 2017

HCV 1.4. Areas that Contain Habitat of Temporary Use by Species or Congregations of Species.

The purpose of HCV 1.4 assessment is to identify key habitats in the landscape, where a group of individual species reside in a large number and/or utilize a part of habitats temporarily. Examples of key habitats are: (i) sites for reproduction or nesting, such as cave for bats or wetland for migratory birds; (ii) sites located along the main migratory routes; or (iii) wildlife corridor where individual species could move between different ecosystems to forage during seasonal food availability. The key habitat can also be a refugia for species during prolonged dry season, flood or wild fire. In the area additional permit of PT SMA, there are still spots of good quality shrubs and tembawangs with relatively closed and tall canopies, which could play an important role to birds as

resting and nesting sites, especially for the species of Accipitridae and Bucerotidae families. The members of these two families commonly utilize tall canopies for resting or foraging (stepping stones). It is therefore considered that the area additional permit PT SMA contains an element of HCV, namely HCV 1.4, of which the distribution is presented in Figure 20.

Table 15. HCV 1.4. areas in the Area additional permit of PT. SMA, 1.000 Ha.

No	HCV 1.4. Areas	Area (Ha)	Information	
			Undevelop	Develop
1.	**Secondary Forest**			
	Secondary dryland forest	31,93	31,93	
	Secondary swamp forest	10,46	10,46	
	Jumlah	**42,39**	**42,39**	
2.	**Border**			
	Swamp with it's border area	6,37	6,37	
	Secondary swamp border	8,66	8,66	
	Rivers border	68,39	68,39	
	Jumlah	**83,42**	**83,42**	
3.	**Swamp**			
	Seasonal swamp	12,38	12,38	
		12,38	**12,38**	
	Total Luas	**138,19**	**138,19**	

Source : Analysis Result HCV Assesment PT SMA 2017.

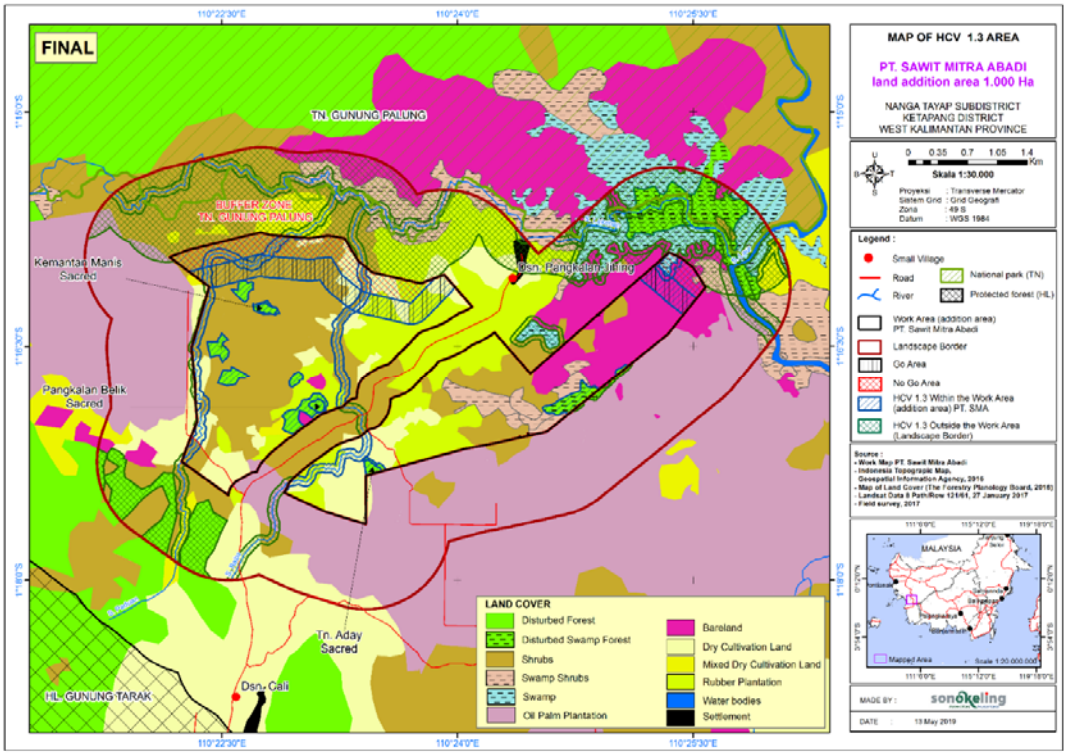


Figure 19. Distribution of HCV 1.3 in the area additional permit of PT SMA

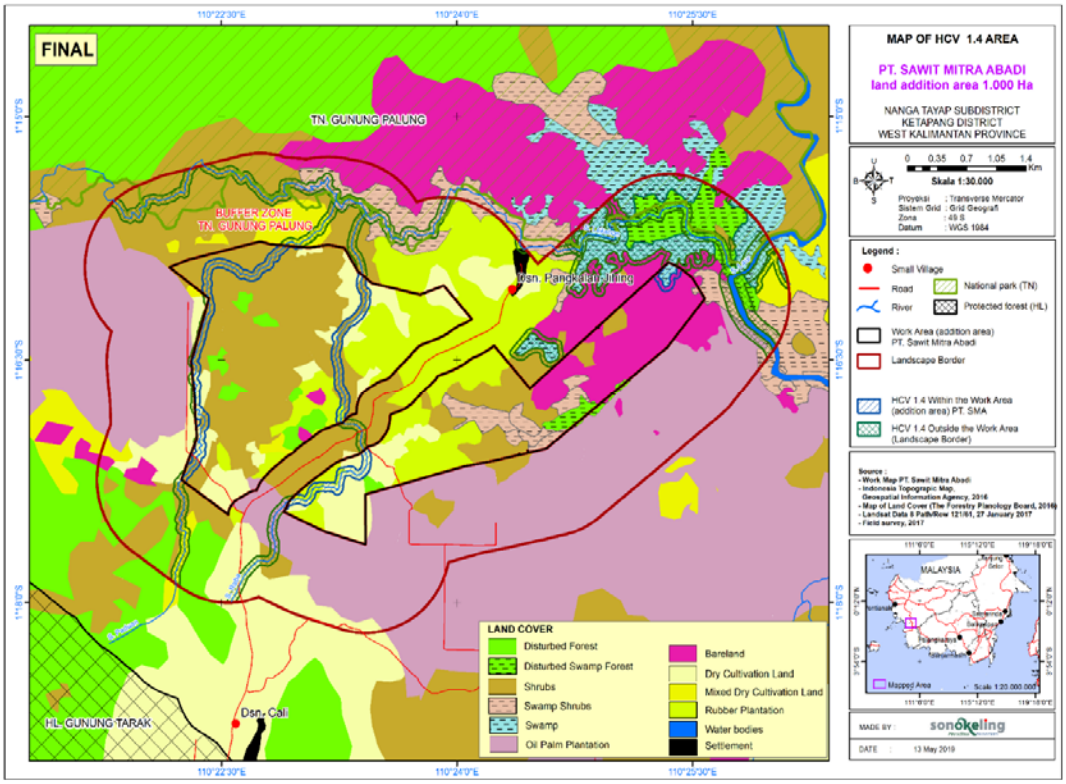


Figure 20. Distribution of HCV 1.4 in the additional permit area of PT SMA

HCV 2. Intact forest landscape, landscape-level ecosystems and mosaics

HCV 2.1. Large Natural Landscapes with Capacity to Maintain Natural Ecological Processes and Dynamics

The existence of HCV 2.1 is characterized by the presence of intact forest landscape (>50,000 Ha) and the core area of the landscape. The core area is defined as an area that is established to ensure the occurrence of natural ecological process without the disruption caused by fragmentation and edge effects. The core area is determined by the size (>20,000 Ha) plus the surrounding buffer area, that is at least 3 Km away from the cleared land. The location of this newly permitted area to PT SMA is far away from the intact forest landscape, which is located to the west and south-east of the concession area at a distance of about 50 Km (www.intactforests.org). At the moment, land cover of this area additional permit to PT SMA consists of young secondary forest, shrubs, bareland, and traditional rubber plantation. This has been due to previous logging activities, either by concessionaires with legal licences, or illegal loggings when the concessionaires have stopped their operations. On these logged over areas, the local communities then converted the land into cultivation land such as rubber plantation. This area has also been fragmented from the surrounding natural forest (namely, Gunung Palung NP). It is therefore considered that this area does not contain any element of HCV 2.1.

HCV 2.2. Areas that Contain Two or More Contiguous Ecosystems

GIS analysis and field observation suggest that the area additional permit to PT SMA has been heavily degraded and changed into ladang and smallholder plantation, although theoretically, this are is classified as lowland forest ecosystem of Kalimantan, characterized with mixed dipterocarp forest. Ecosystem wise, this area is categorized as a mix dipterocarp forest on metamorphic rocks and dipterocarp forest on a mix of igneous rock (Granite), and has been degraded. It is therefore considered that there is no contiguous ecosystem in the area additional permit to PT SMA, and there is no HCV 2.2.

HCV 2.3. Areas that Contain Representative Populations of Most Naturally Occurring Species

HCV 2.3 aims to identify landscapes with special potential that is able to maintain the viability of natural populations of representative species and ensure that management activities are carried out by the management unit as such that maintain or improve its potential. HCV assessment is demanded to look at a much larger area beyond the limits of management unit, in order to assess how important the interaction between populations and habitat within the management unit and its surroundings. Based on the satellite imagery analysis and field observations (interviews and field survey), the results indicate that the area additional permit of PT SMA contains the landscape or an area with a special potency that can guarantee the life of the population of the natural species representatives. Areas with particular potential is habitats of high-level predators, such as: Elang Brontok (*Haliastur indus*) and Elang tikus (*Elanus caeruleus*). The high-level predators are sometimes capable of adapting to disturbed environment. The disturbed condition of this area is characterized by land cover history, which shows that the area has been exposed to long-term damages, and the presence of predatory species, both land and aquatic animals, capable of adaptation to disturbed areas. The presence of high-level predatory birds of Accipitridae family in this area additional permit of PT SMA indicates that this area could support the viability of those species, and therefore, this area contains the HCV element, namely HCV 2.3, of which the distribution is presented in Figure 21.

Table 16. HCV 2.3. areas in the Area additional permit PT. SMA, 1.000 Ha

No	HCV 2.3. Areas	Area (Ha)	Information	
			Undevelop	Develop
1.	**Secondary Forest**			
	Secondary dryland forest	31,93	31,93	
	Secondary swamp forest	10,46	10,46	
	Jumlah	**42,39**	**42,39**	
2.	**Border**			
	Swamp with it's border area	6,37	6,37	
	Secondary swamp border	8,66	8,66	
	Rivers border	68,39	68,39	
	Jumlah	**83,42**	**83,42**	
3.	**Swamp**			
	Seasonal swamp	12,38	12,38	

No	HCV 2.3. Areas	Area (Ha)	Information	
			Undevelop	Develop
		12,38	12,38	
	Total Luas	138,19	138,19	

Source : Analysis Result HCV Assesment PT SMA 2017

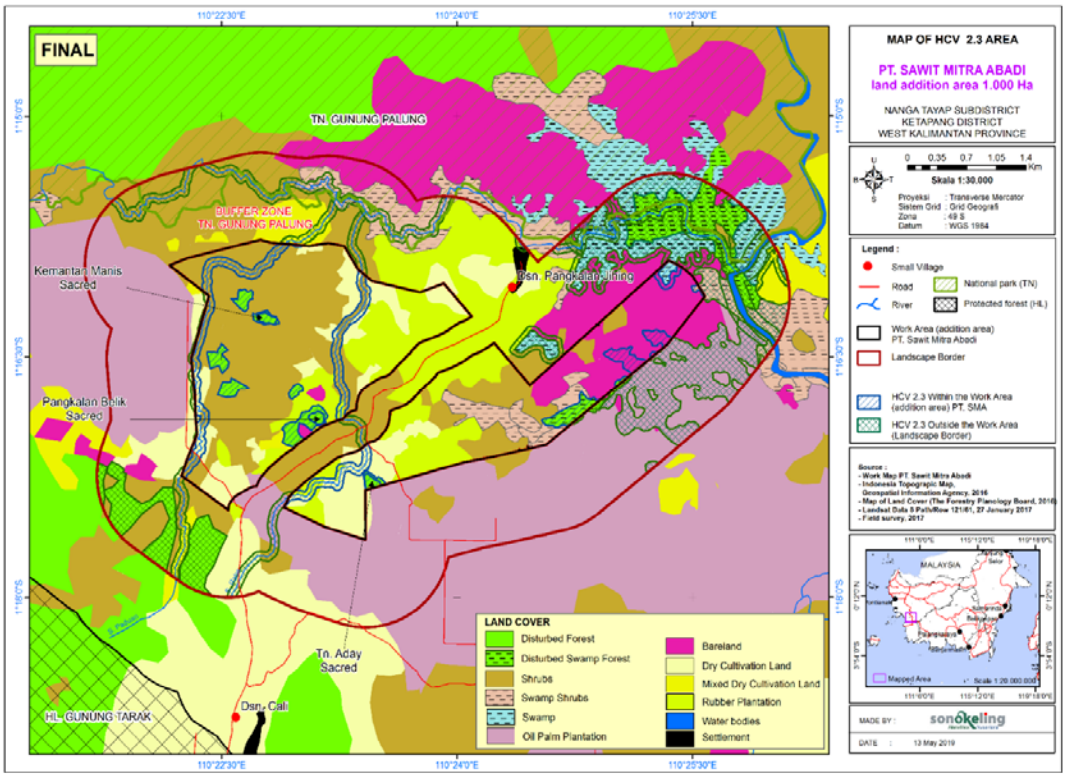


Figure 21. Distribution of HCV 2.3 in the area additional permit of PT SMA

HCV 3: Ecosystem and Habitat

In the area additional permit of PT. SMA does not have a naturally rare ecosystem because there are no limestone karst forests, inselberg, montana forests, or river forests in a barren zone; and there is no anthropogenic rare ecosystem because not found grassland in fertile soils that naturally experience seasonal flooding or fragments of primary forests that have been eliminated.

In the area of area additional permit of PT. SMA in the past (before conversion) there were found two types of ecosystems, namely (1) mixed dipterocarp forest on Malihan rock and (2) Mixed dipterocarp forest on granite rocks. In clarifying threatened and / or endangered ecosystems in the area additional permit of PT. SMA uses a cautious approach. HCV 3 identification results using a precautionary approach.

Around of the area additional permit of PT. SMA indicated found of the wetlands, namely secondary swamp forest. These ecosystems are threatened and there is forest land cover condition. Therefore HCV3 are found around of the additional permit area of

PT. SMA especially in the natural vegetation land cover area (forested areas). The existence of wetland ecosystems around the area of the area additional permit of PT. SMA is influenced by the Lekahan and Pawan rivers. The river contained in the area of the area additional permit of PT. SMA has two rivers namely Paduan and Raba Rivers which tipped outside the permit area and flowed through the area additional permit of PT. SMA which eventually empties into the Lekahan River. Based on this information, the existence of plannedutilization activities by PT. SMA is likely to affect the existence of freshwater swamp ecosystems (wetlands) contained in the vicinity.

Referring to the information above, then in the area additional permit of PT. SMA is a naturally threatened and endangered ecosystem that has a natural vegetation cover, which is a secondary swamp forest. Thus, in the area additional permit PT. SMA contains HCV 3. HCV 3 area in the area additional permit of PT SMA 1000 Ha, provided in the Table 17 and distribution of HCV 3 areas presented in Figure 22.

Table 17. HCV 3 Area in the Area additional permit of PT SMA 1000 Ha

No	HCV 3 Area	Within UM Area (Ha)	Outside of UM (Landscape Scale) (Ha)	Status
1.	Secondary swamp forest ecosystem	13,68	248,64	Undeveloped

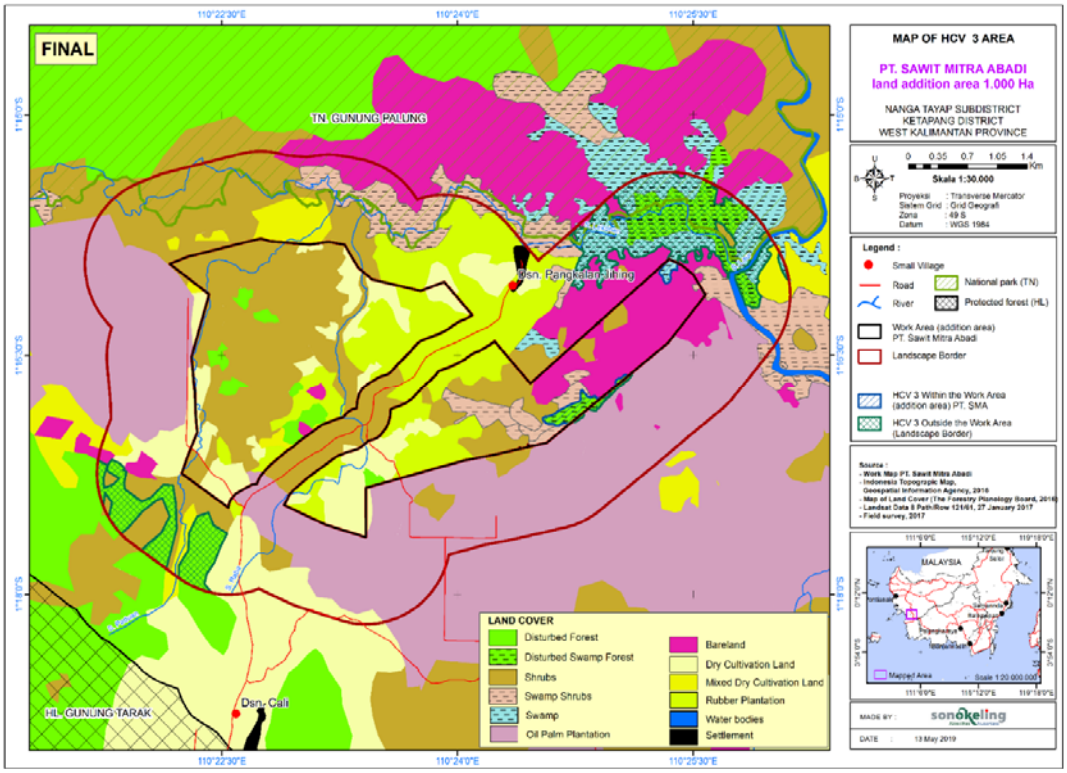


Figure 22. Distribution of HCV 3 in the area additional permit of PT SMA

HCV 4 : Ecosystem Services

HCV 4.1. Areas or Ecosystems Important for the Provision of Water and Prevention of Flood for Downstream Communities

The presence of HCV 4.1 is characterized by an area or ecosystem that is important for regulatin water flow and controlling flood to downstream communities, such as cloud forest, ridge forest, riparian ecosystems, karst forest, and a variety of wetland ecosystems, including peatlands (mainly forest), freshwater swamp forest, mangroves, lake, and meadows. In the newly permitted area to PT SMA, there are only two rivers, Paduan and Raba Rivers, of which the zones along the left and right riverbanks have unique characters due to the combination of water and land environments. Ecologically, these zones have important roles, especially in the soil conservation (through environmental management and civil engineering), biodiversity conservation, and the conservation of fresh water ecosystem. Among others, the important roles of these zones are: (a) controlling the rate of erosion and sedimentation flowing into the rivers, (b) controlling the release of various chemical substances, such as fertilizers and pesticides, into aquatic ecosystems, (c) a refuge for animals whose habitat is deteriorating, (d) shelter and foraging sites for various aquatic species, as well as shade area for regulating water temperature, and (e) controlling outburst of floods and avalanches of riverbanks. With these two important rivers, it is considered that the area additional permit of PT SMA contains HCV 4.1, of which the distribution is presented in Table 18 and Figure 23.

Table 18. HCV 4.1. Areas in the Area additional permit of PT. SMA, 1.000 Ha.

No	HCV 4.1. Areas	Ha	Status	
			Undevelop	Develop
1.	**Border**			
	Swamps Border	15,03	15,03	
	Rivers Border	68,39	68,39	
	Area	**83,42**	**83,42**	
2.	**Swamp**			
	Seasonal Swamps	12,38	12,38	
	Area	**12,38**	**12,38**	
	Total Areas	**95,80**	**95,80**	

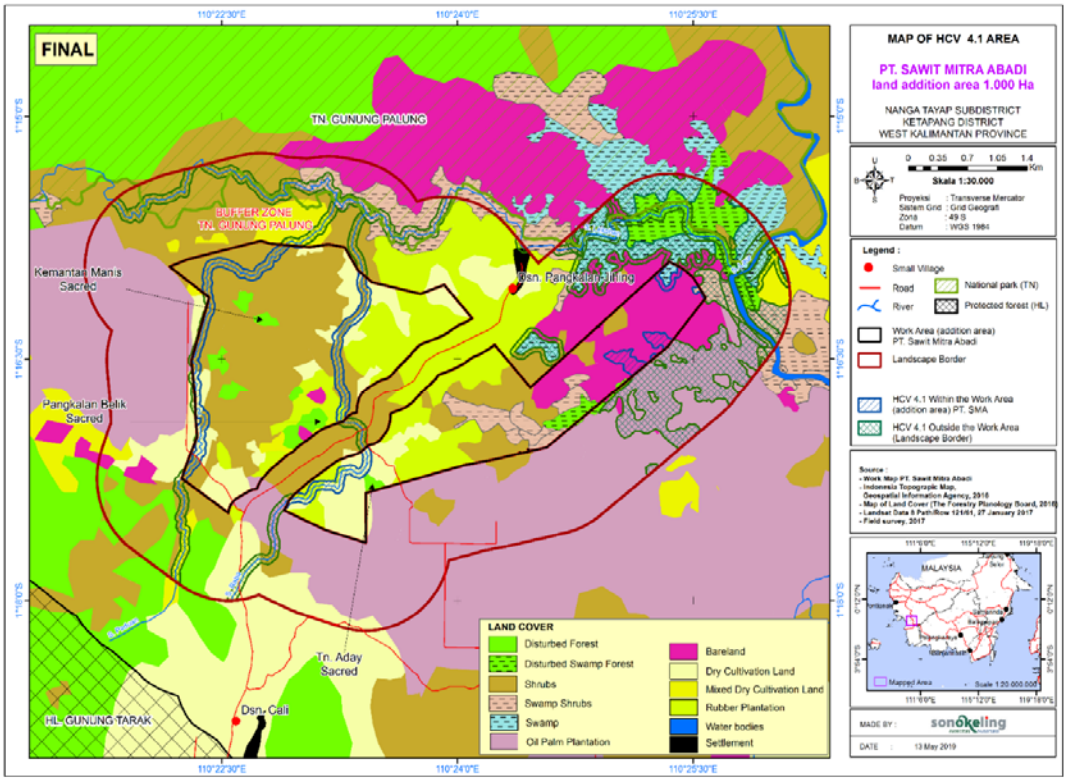


Figure 23. Distribution of HCV 4.1 in the area additional permit of PT SMA

HCV 4.2. Areas Important for the Prevention of Erosion and Sedimentation

In this context, an area of HCV 4.2 is a forested area or other vegetated area located in the area with potentially High Erosion Hazard Level, where any activity done by management unit shall be carefully undertaken in order to control potentially harmful erosion and sedimentation. The area with potentially High Erosion Hazard Level is defined as an area with an erosion level of 180 tonnes per hectar per year, or more, after land clearing. Fortunately, the whole area of newly permitted concession to PT SMA is almost flat with the slopes of 0-8%; and this suggests that the area does not have the risk of Erosion Hazard of High or Very High levels. Therefore, this area additional permit of PT SMA does not contain any element of HCV 4.2.

HCV 4.3: Areas that function as natural barriers to the spread of forest or ground fire

HCV 4.3 identification aims to determine the area within dry land ecosystems and/or wetland ecosystems serving to prevent the spread of forest/land fires. Some types of ecosystems that fulfill this function include peat swamp forests (with intact peat forest), swamp forest, puddles, other wetlands, and green belts with various fire resistant vegetation. Based on the interpretation of Landsat TM 8 Path/Row 121/61 on 27 January 27 2017, combined with field check, the land cover of newly permitted area to PT SMA is dominated by shrubs, rubber plantations, dry land cultivation, and bareland. The existing land cover does not indicate an area or ecosystem characterized as a

natural firebreak, shaped as stratified-stands with high density and high moisture level, and sufficient area. It is therefore considered that the area additional permit to PT SMA does not contain HCV 4.3.

HCV 5. Sites and Resources that are Fundamental to Meet Basic Needs of Local people or indigenous peoples (eg for livelihoods, health, nutrition, water) identified by involvement with such community or indigenous peoples

In the HCV Identification Toolkit (HCV-RN 2013), HCV 5 is any site or resource fundamental for satisfying the basic necessities of local communities or indigenous peoples, and it was identified through local community participation. The study sites for HCV 5 identification were Dusun Cali and Dusun Pangkalan Jihing, in Pangkalan Teluk Village, where the participating local communities were of Dayak Tayap and Dayak Kayong ethnic groups living in those dusuns. The two ethnic groups have a common characteristic in fulfilling their basic needs. They utilize areas adjacent to the concession area for rubber and palm oil plantations. The analysis on basic needs, such as food (carbohydrate, protein, and vegetable/fruit), water, clothes, wood for shelters, fire wood, medicines, animal feedstock, and cash money, was done by identifying the needs that can be fulfilled at community level, and their dependency on the concession area. Based on the alternative availability and sustainable utilization, the areas with potential HCV 5 are the rivers and riparians of Paduan and Raba Rivers, within the newly permitted area to PT SMA. These two rivers flow down as the tributaries of Lekahan River, where the local people of Dusun Pangkalan Jihing and Dusun Kali utilized the river for their water supply (for cooking and drinking), fishing, and sanitary purposes. It is therefore considered that the newly permitted area to PT SMA contains HCV 5, of which the distribution is presented in Figure 24.

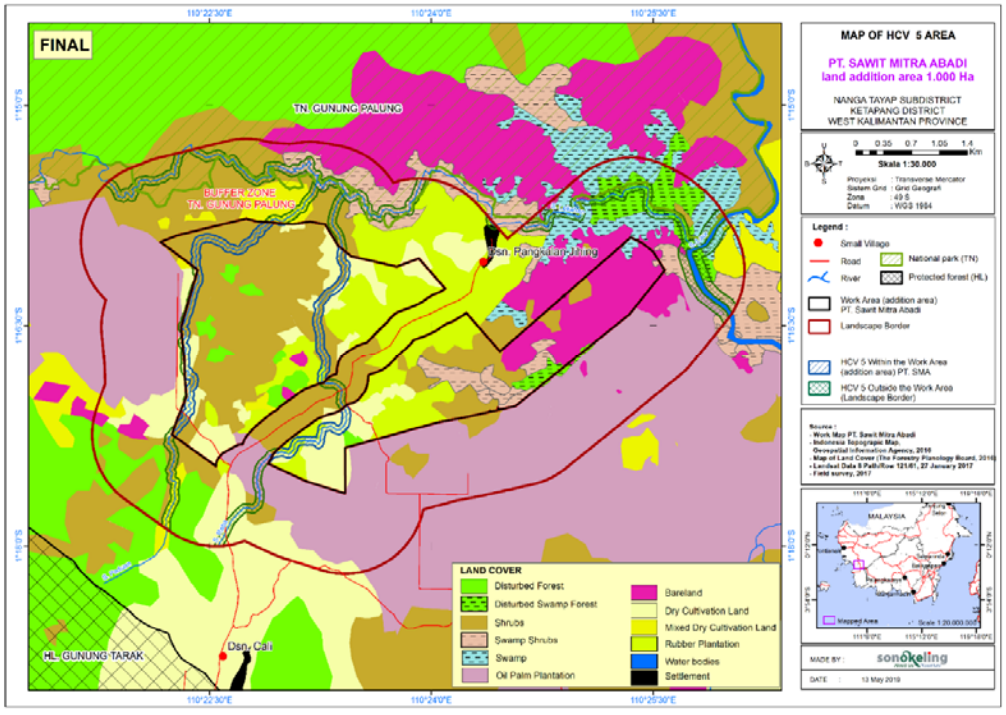


Figure 24. Distribution of HCV 5 in the area additional permit of PT SMA

HCV 6. Sites, resources, habitats and landscapes with significant cultural, archeological, or historical significance globally or nationally, or cultural, economic or religious / sacred values of great importance to local or indigenous peoples, identified through engagement with the population or indigenous peoples

In the HCV Identification Toolkit (HCV-RN 2013), HCV 6 is any site, resource, habitat, or landscape with important values for culture, archaeology, national or global history, economy, or religious purposes, to the local communities or indigenous communities, who are identified during participatory assessment. HCV 6 represents the cultural significances with important values for the local or indigenous communities, including sacred sites, cemetary, or sites for customary rituals. Based on field observation and participatoy consultation with the local people, the newly permitted area to PT SMA contains HCV 6, which includes:

1) *Zones designated by cultural regulations*

   Focus Group Discussion, field observation, and in-depth interviews with local leaders in each village in the adjacent area showed that, in the newly permitted area to PT SMA, there are a number of areas or zones designated as cultural inheritance, namely tembawang, and they are Tembawang Kemantan Manis, Tembawang Pangkalan Belik, and Tembawang Pa Aday. For the local communities, these tembawang areas are places for collecting fruits.

2) Archaeological sites (examples: ancestors' cemetery, temples, sacred sites, sites of historical objects)

   Field observation and interviews with the local people of Dusun Pangkalan Jihing dan Dusun Cali did not find any presence of such arcaheological site or object.

3) Sites for traditional rituals performed by local communities (examples: customary forest for absolution, forest for traditional festives)

   Field observation and interviews with the local people of Dusun Pangkalan Jihing dan Dusun Cali did not find any presence of such site for traditional ritual

4) Biological resources for fulfilling cultural needs (examples: location of wild boars used for traditional festives, location of Hornbills utilized for cultural symbols)

   Field observation and interviews with the local people of Dusun Pangkalan Jihing and Dusun Cali did not find any presence of such site for cultural needs, such as the sites of Menggeris (*Koompassia excelsa*), mentawa (*Artocarpus anisophyllus*), and durian (*Durio zibethinus*), all of which are considered to be sacred, and the local people are not allowed to cut or even disturbed the areas with those tree species.

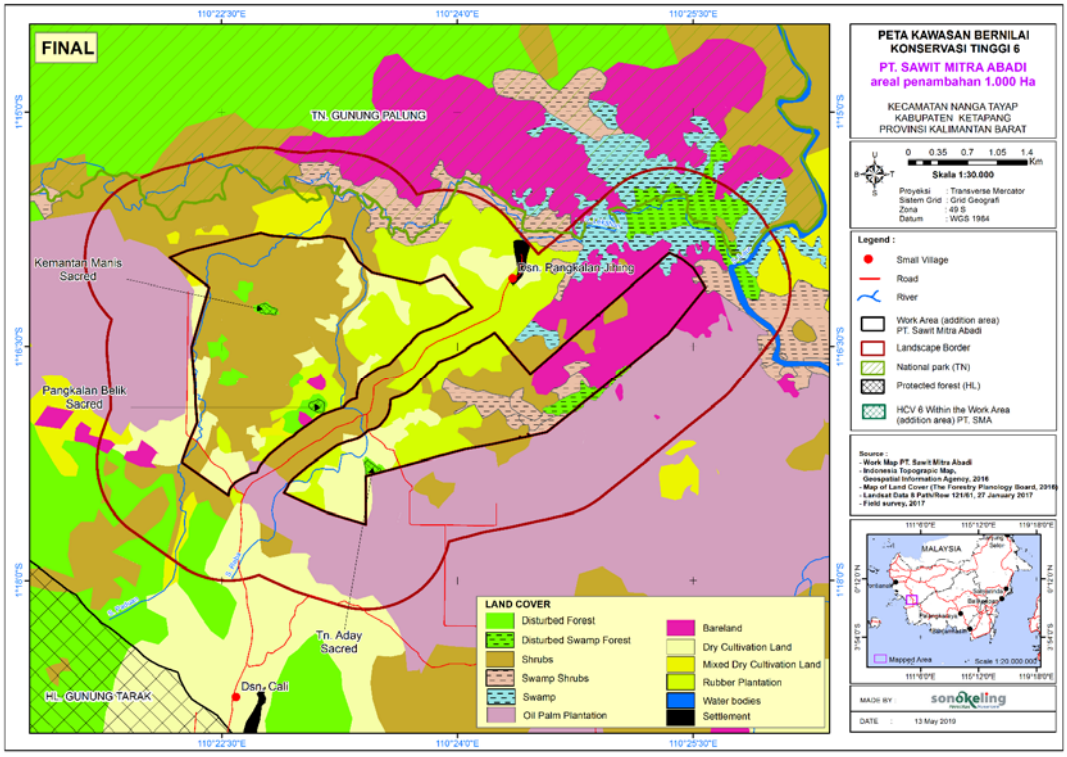


Figure 25. Distribution of HCV 6 in the area additional permit of PT SMA

3.2.5. Stakeholder Consultation

Public consultation was held with various stakeholders, such as the local people (25 January 2017 and 26 April 2017), academia (7 April 2017), the Agency of Nature Resource Conservation (BKSDA on 7 April 2017), and NGO (Tropenbos Indonesia on 10 April 2017). The main issues discussed and recommendation generated during the public consultation, as well as valuable inputs to the report of HCV assessment in the newly permitted area of PT SMA, are presented in Table 19.

Table 19. Summary of results from public consultation

No	Location and Date	Name	Position/Role	Organization	Method	Main issues and recommendation	Assessment Team Responses
1.	Pangkalan Telok, 25 January 2017	H. Uti Samsumar	Village Head	Pangkalan Teluk Village	FGD	- Plasm plantation (smallholding) is not allowed in the Nucleus (Core) plantation within HGU. - Village or dusun is expected to be provided with plasm plantation. - The company has to protect tembawang belonging to local people and villages. - Can village land be used for plasm plantation?	- Inputs from the local villagers will become community development plans. - Areas of tembawang have been designated as HCV 6, and both local villagers and company are expected to protect the areas.
2.	Pangkalan Telok, 25 January 2017	Kinan	BPD member	BPD	FGD	- Clean water supply comes from Lekahan River, which is also the estuary for such rivers as Raba, Paduan, Berensang, Belian-anum, and Lekahan Putih. The company is expected to help local people in maintaining the cleanness of these rivers. - The company is expected to protect pelaik/bengris trees for they are the habitats of honey bees. - The company is expected not to disturbed tembawang areas, such as Tembawang Pangkalan Belik and Tembawang Kemantan Manis.	- Inputs have actually been accomodated as HCVs 5 and 6. - HCV 5 is related to sites with high important values for fulfilling clean water needs, where the local people are still dependent on rivers as the water sources. The company is obliged to protect the rivers and their riparian ecosystems. - Tembawang is categorized as HCV 6, which has to be protected by the company.
3.	Pangkalan Telok, 25 January 2018	Sukri S	Head of Dusun	Pangkalan Jihing	FGD	- The company is expected to protect the intactness of Paduan and Raba Rivers since these water bodies are important sources of clean water for people of Dusun Pangkalan Jihing. - The company is expected to develop CSR programs related to clean water provision and education. For example, building the clean water pipeline from clean water spring, which may run through other dusuns.	- It will be excellent when the company could undertake its palm-oil operation and improve the local livelihood through CSR or other social programs.
4.	Pangkalan Jihing, 26 January 2018	Herkan	Village member	Village member	FGD	Having a piece of land inside the concession area, but its size has not been measured.	It is recommended that area delineation and measurement are done under the collaboration with the company, through participatory mapping.
5.	Pangkalan Jihing, 26 January 2018	Ibnul	Village member	Village member	FGD	Having a piece of land inside the concession area, but no certificate or letter of ownership	
6.	Pangkalan Jihing, 26 January 2018	Mulyadi	Head of RW 02	Local leader	FGD	Having a piece of land inside the concession area utilized for rice field, palm oil plantation, and other crops.	

No	Location and Date	Name	Position/Role	Organization	Method	Main issues and recommendation	Assessment Team Responses
7.	Pangkalan Jihing, 26 January 2018	Wilhamsidi	Head of Dusun	Dusun Cali	FGD	- Trees of honey, cemetery, and traditional rubber plantation are better not to be sold to the company. - In relation to man-power, how many local man-power can be provided with jobs by the company. If the villagers have released 100 Ha of land, how many men/women can work for the company.	- Land identification for clearing must be done carefully in order not to disturb important areas for local people. - Man power will be the company's policy, but this concern will be presented to the company.
	Pangkalan Jihing, 26 January 2018	Albani	Head of RT 04	Local leader	FGD	Having a lot of land pieces scattered inside the concession area, which are inherited from parents, but not sure about their respective size.	It will need participatory measure-ment with the company, which may be done gradually.
8.	10 April 2018, Bogor	Dr. Edi Purwanto	Director	Tropenbos Indonesia	FGD	- The fact that the concession area is in the close proximity with national park and protection forest, identified HCVs need to well managed and monitored. - Identified HCV areas, except those of cultural values, are better freed from local people ownership in order to easily managed and monitored. - Local people empowerment is necessary.	It will be recommended that the company's operation, as well as the management and monitoring of HCV areas should consider the sustainability of those conservation areas.
9.	7 April 2018, Tanjungpura University, Pontianak	Dr. Fahrizal	Lecturer of Forestry Faculty	Tanjungpura University	FGD	- The company operation should not damage or pollute the water bodies utilized by the local people. - Identified HCV areas, except those of cultural values, are better freed from local people ownership in order to easily managed and monitored.	The company is requested to protect the riverbanks so that potential pollution from pesticide or herbicide can be controlled.
10	7 April 2018, BKSDA Provinsi Kalbar, Pontianak	Ripin, S.Hut.	Staff	BKSDA	Interview	- The company's commitment to managing and monitoring HCV areas is very crucial. The company is requested to provide quarterly report to BKSDA, so that the government can monitor the HCV area management.	In accordance with the regulation, the company will submit quarterly reports to BKSDA and other relevant government agencies. In addition, the company will ask for BKSDA assistance for managing and monitoring globally important species, such as Orangutan.

3.2.6. HCV Areas and HCV Delineation

Based on the HCV assessment in the area additional permit of PT. SMA 1000 Ha, identified **6 (six)** HCV categories and **6 (six)** HCV sub categories, namely HCV 1 (HCV 1.1., HCV 1.2., HCV 1.3, HCV 1.4), HCV 2 (HCV 2.3), HCV 3, HCV 4 (HCV 4.1), HCV 5 and HCV 6. The HCV areas overlap, which in one area is composed of more than one high conservation value. The total area of HCV in the area of PT. SMA with an area of 229.63 ha or 22.96% of the total area of additional 1,000 ha, with an HCV management area (KPNKT) covering 310.35 Ha or 31.04%. Details of HCV areas and HCV management areas are presented in **Table 20**. Distribution of HCV areas within the PT SMA location permit area is presented in **Figure 26.**

Table 20. Total area of HCV and HCV management areas in the area additional permit of PT SMA

No.	HCV Areas	HCV Attributes	HCVA	HCVMA
1.	**Secondary Forest**			
	Secondary dryland forest including *tembawang*	1.2; 1.3; 1.4; 2.3; 6	31,93	62,55
	Secondary swamp forest including *tembawang*	1.2; 1.3; 1.4; 2.3; 3 ; 6	10,46	53,23
	Area		**42,39**	**115,78**
2.	**Border**			
	Swamps Border	1.2; 1.3; 1.4; 2.3; 3; 4.1	15,03	15,03
	Rivers Border (Paduan & Raba rivers)	1.1, 1.2, 1.3, 1.4, 2.3, 4.1, 5	68,39	68,39
	Area		**83,42**	**83,42**
3.	**Bufferzone of National Park**			
	HCV *No Go Area*	1.2, 1.3	91,44	
	HCV *Go Area*	Potential 1.2, 1.3		98,77
	Area		**91,44**	**98,77**
4.	Seasonal Swamp	1.4; 2.3; 3; 4.1	12,38	12,38
	Area		**12,38**	**12,38**
	Total Area		**229,63**	**310,35**
	Area additional permit (Ha)		**1.000**	**1.000**
	Procentage Area between HCV Area with dengan Area additional permit		**22,96%**	**31,05%**

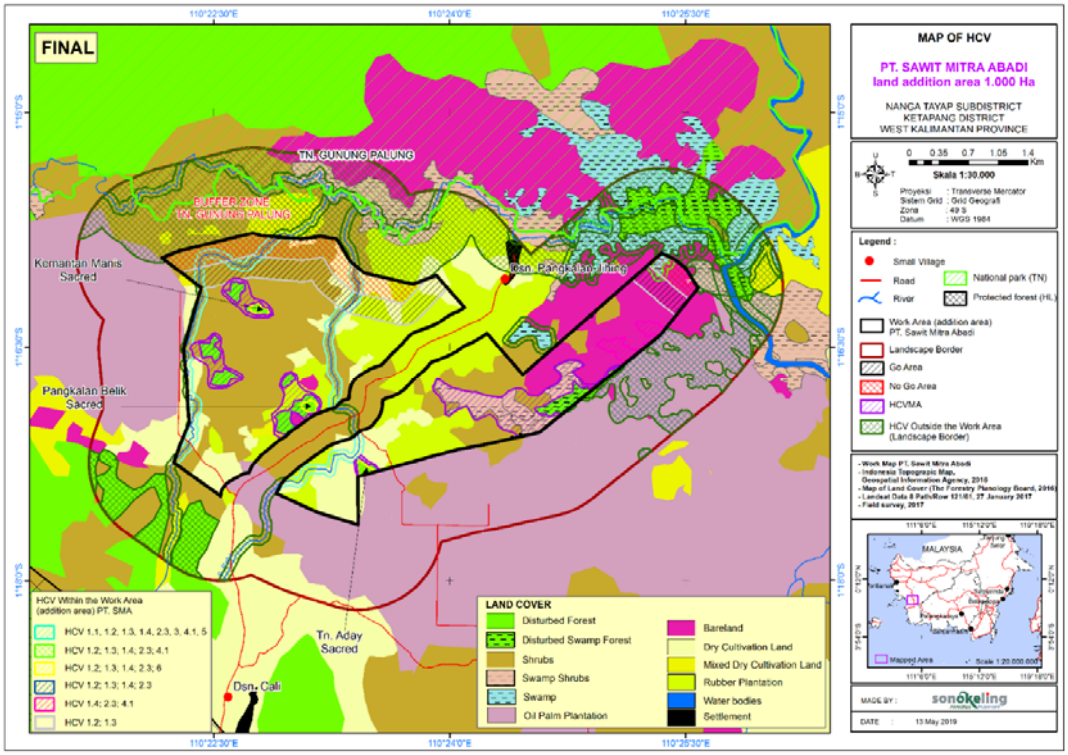


Figure 26. Map of Final location and distribution of HCV areas in the area additional permit of PT SMA

3.2.7. Threat Assessment

Table 21. Threats to HCV areas in the newly permitted area to PT SMA

HCV	Brief Description	Main threat
1	**Species diversity:** • **HCV 1.1 area**: Paduan and *Raba* River border and swamp border both permanent and seasonal swamps • **HCV 1.2** : In the area additional permit of SMA 1000 Ha there are two plant species categorized as *Critically Endangered* (CR) speciesb based on IUCN Red List, namely *majau air* (*Shorea lepidota*) dan *meranti merah* (red meranti, *Shorea smithiana*), and 1 primate species categorized as CR, i.e., orangutan (*Pongo pygmaeus*) and 1 mammal species, i.e. Sundanes Pangolin (*Manis javanicus*). The flora and fauna species are found in the buffer zone of Gunung Palung National Park, Rivers border, *Tembawang*, secondary forest and swampy areas. • **HCV 1.3 area**: there are found species of flora and fauna categorized as critical, threatened, endemic, and protected. The flora and fauna species are found in the buffer zone of Gunung Palung National Park, Rivers border, *Tembawang,* secondary forest and	**Internal threat**: • Land clearing through / beyond HCV areas will cause damage or fragmentation of aquatic ecosystems, and water catchment areas; • Land clearing in areas that still have forest cover remaining either secondary dry land forest or secondary swamp forest. • Landfilling of the seasonal and permanent swamps for oil palm plantations. • Tree felling which is a source of food and playground for Orangutans, • The construction of roads and other facilities that pass through HCV areas will cause damage or fragmentation of aquatic ecosystems, and water catchment areas; and • Potential pollution of chemicals (fertilizers, herbicides and insecticides) that enter the water, so that it can affect the water quality and the life of aquatic biota both in rivers and in swamps. **External threats**: • The occurrence of illegal logging and

HCV	Brief Description	Main threat
	swampy areas. • **HCV 1.4 spesies:** In the area additional permit, there are still found tall trees with high canopies, which can become the temporary sites for species to rest and forage, because in the surrounding area to the north there is an IBA distribution area which is about 1.6 km away, making it possible for the movement of wildlife especially birds from the permit area to the bird distribution area or vice versa. In addition, there are also found several species that use high canopy as a transit area, such as the types of families *Accipitridae* and *Bucerotidae*. In the area of the location permit addition, PT. SMA also found seasonal swamps which are temporary important habitats for waterbirds and other wildlife. Area identified as HCV 1.4. is the *Paduan* and *Raba* rivers border, *Tembawang* and seasonal swamps	encroachment activities (land clearing and illegal fields) as a result of the community's lack of understanding of the importance of conserving aquatic ecosystems, and water catchment areas; • Drainage of permanent swamps and seasonal swamps for community cultivation purposes. • Illegal hunting of protected and endangered wildlife such as pangolins for sale and purchase. • The use of poisons to catch fish in seasonal swamp areas and river waters, • Forest conversion due to changes in RTRWP or RTRWK that do not consider the presence of HCV areas, which will cause damage or fragmentation of natural habitats. • Forest and land fires that can damage or fragment aquatic ecosystems and watersheds; and • Weak law enforcement
2	• **HCV 2.3**. : high level predatory species were found in the area, especially the bird species of (Accipitridae family); then seen from the surroundings there are core areas and buffer zones for important landscaping in the form of National Parks and Protected Forests. Areas identified as HCV 2.3. is the Paduan and Raba border rivers, secondary forest including Tembawang	**Internal threat:** • Land clearing through / beyond HCV areas will cause natural habitat damage or fragmentation. • Land clearing in areas that still have forest cover remaining either secondary dry land forest or secondary swamp forest • Road and infrastructure construction disregards HCV areas, which could cause damages to or fragmentation of aquatic ecosystem and water catchment areas. • Landfilling of the permanent and seasonal swamps for oil palm cultivation • Unprotected riverbanks could cause chemical pollution from herbicides and pesticides through uncontrolled runoff, affecting water quality and the lives of aquatic biota. **External threats:** • Illegal logging and encroachment due to lack of awareness on the importances of conserving aquatic ecosystem and water catchment areas. • Changes in RTRWP or RTRWK that disregard the existence of HCV areas, which could cause cause damages to or fragmentation of aquatic eco-system and water catchment areas. • Drainage of permanent and seasonal marshes for community cultivation activities • Forest/land fire could cause cause damages to or fragmentation of aquatic ecosystem and water catchment areas. • Lack of law enforcement.
3	There are ecosystems that are threatened and rare with natural vegetation land cover in the form of secondary swamp forest ecosystem (wetlands)	**Internal threat:** • Land clearing through / beyond HCV areas will be caused natural habitat damage or fragmentation • Land clearing in areas that still have forest cover

HCV	Brief Description	Main threat
		remaining either secondary dry land forest or secondary swamp forest. • Road and infrastructure construction is regards HCV areas, which could cause damages to or fragmentation of aquatic ecosystem and water catchment areas. • Landfilling of the permanent and seasonal swamps for oil palm cultivation • Unprotected riverbanks could cause chemical pollution from herbicides and pesticides through uncontrolled runoff, affecting water quality and the lives of aquatic biota. **External threats:** • Illegal logging and encroachment due to lack of awareness on the importances of conserving aquatic ecosystem and water catchment areas. • Changes in RTRWP or RTRWK that disregard the existence of HCV areas, which could cause cause damages to or fragmentation of aquatic eco-system and water catchment areas. • Drainage of permanent and seasonal marshes for community cultivation activities • Forest/land fire could cause cause damages to or fragmentation of aquatic ecosystem and water catchment areas. • Lack of law enforcement.
4	• **HCV 4.1**. Areas or ecosystems that are important as water providers and flood control for downstream communities: ✓ River and river border Paduan ✓ Raba river and border ✓ Both permanent and seasonal swamps ✓ Swamp border	**Internal threat:** • Land clearing through / beyond HCV area will be caused natural habitat damage or fragmentation • Landfilling permanent and seasonal swamps for oil palm cultivation, eliminating areas that function as water reservoirs. • River straightening which impacts the disruption of water flow downstream. • Road and infrastructure construction disregards HCV areas, which could cause damages to or fragmentation of aquatic ecosystem and water catchment areas. • Unprotected riverbanks could cause chemical pollution from herbicides and pesticides through uncontrolled runoff, affecting water quality and the lives of aquatic biota. **External threats:** • Illegal logging and encroachment due to lack of awareness on the importances of conserving aquatic ecosystem and water catchment areas. • Changes in RTRWP or RTRWK that disregard the existence of HCV areas, which could cause cause damages to or fragmentation of aquatic eco-system and water catchment areas. • Drainage of permanent and seasonal marshes for community cultivation activities

HCV	Brief Description	Main threat
		• Utilization of rivers border for crop cultivation by community • Forest/land fire could cause cause damages to or fragmentation of aquatic ecosystem and water catchment areas. • Lack of law enforcement.
5	Areas utilized by the local people to fulfill their basic needs, especially water supply, sanitation purposes, and fishing: Paduan and Raba Rivers that flow to Lekahan River.	**Internal threat:** • Road and infrastructure construction disregards HCV areas, which could cause damages to or fragmentation of aquatic ecosystem and water catchment areas. • Streamlining the river for the benefit of farming which will change the flow of water to downstream areas. • Unprotected riverbanks could cause chemical pollution from herbicides and pesticides through uncontrolled runoff, affecting water quality and the lives of aquatic biota. **External threats:** • Occurrence of illegal logging and encroachment activities; • Fishing using poisons and electricity which will affect the productivity of the river and the quality of the river water. • Forest conversion due to changes in RTRWP or RTRWK that do not consider the presence of HCV areas; • Forest and land fires; and • Weak law enforcement.
6	Tembawang Kemantan Manis, Tembawang Pengkalan Belik, Tembawang Aday, Distribution of Bangris Trees, Mentawa Trees, and Durian Trees	**Internal threat:** • Construction of roads and other facilities through NKT area will cause damage to areas that have cultural value (tembawang and loss distribution terkategori tree HCV). • Clearing of land in the area that still has a good forest cover remaining dry forest secondary and secondary swamp forest • Uncontrolled land clearing by companies that results in damage to HCV areas. **External threats:** • Occurrence of illegal logging and encroachment activities; • The community uses the land in the Tembawang area. • Forest conversion due to changes in RTRWP or RTRWK that do not consider the presence of HCV areas; • Forest and land fires; and • Weak law enforcement.

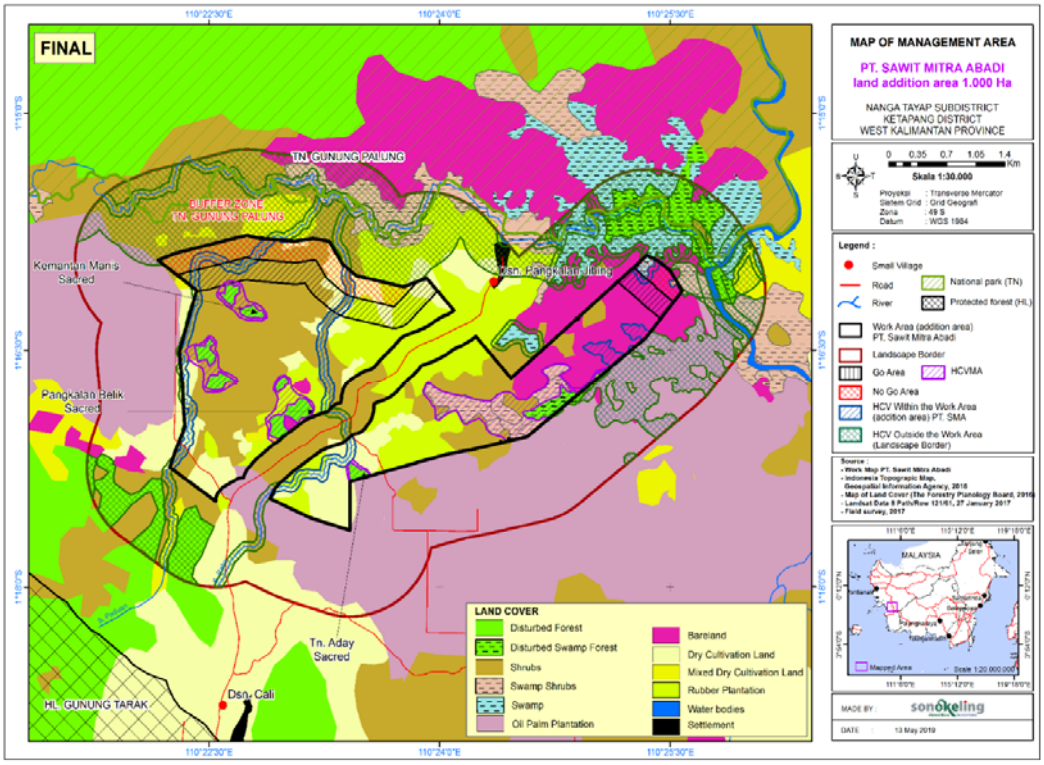


Figure 27. Final map of management plan of HCV areas in the additional newly permitted area to PT SMA

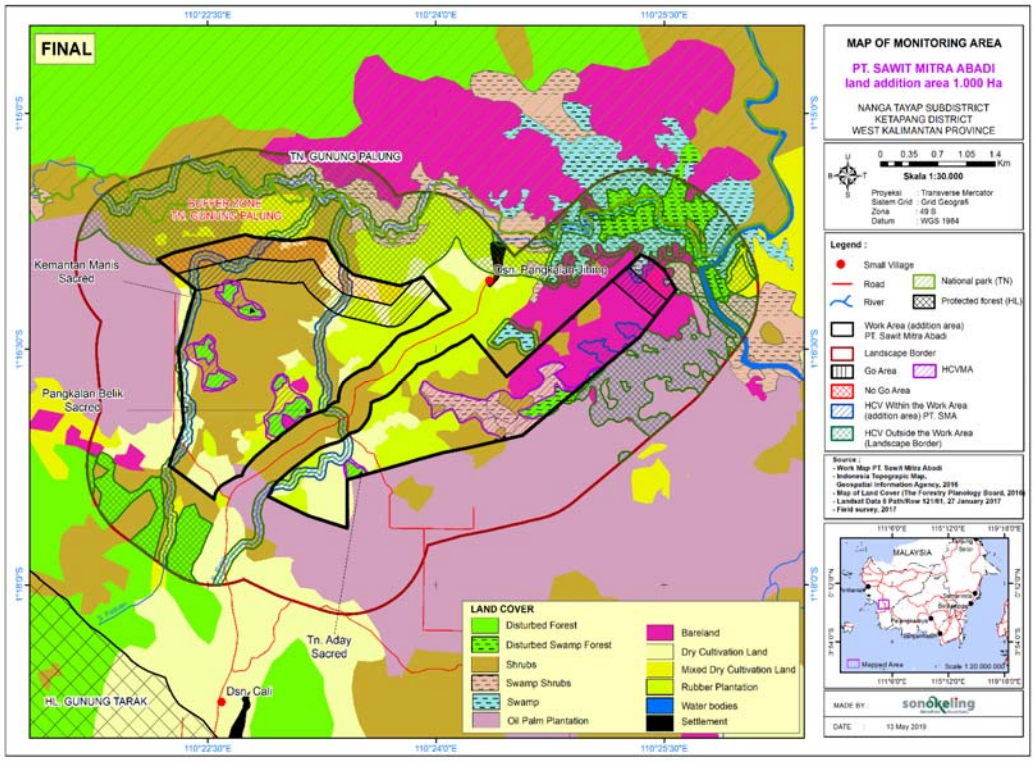


Figure 28. Final map of monitoring plan of HCV areas in the additional newly permitted area to PT SMA

3.1. Soil and topography

3.1.1. Description and soil clasification

Entisols

Entisols are young (undeveloped) and shallow soils, characterized by A / C or A / R profiles. This soil is still imperfect and has a profile whose B horizon has not yet developed. The land does not have many horizons which are only layers of soil, due to several reasons such as time, the formation is still new, on slopes or on eroded slopes, receiving deposits (sediment) floods, and so on. For example sedimentary soils along rivers, loose sandy slopes on the upper and lower slopes, volcanic areas or loose seashore sandlands that have not yet formed a soil structure (Musa, et al, 2006).

Soil reaction values vary from pH 2.5 to 8.5, organic matter content is low and usually less than 1 percent, moderate to high base saturation with CEC is very diverse, because it is very dependent on the type of clay mineral that dominates it, nutrient content depending on the parent material, permeability is slow

Psamment is an entisol soil that has rock fragments of less than 35 percent (volume) and has fine or coarse sandy texture in all layers. Udipsamment is psamment soil that is in 1 or more soil horizons at depths up to 100 cm from the surface of mineral soil, redox reduction with chroma of 2 or less is less and also stagnant conditions for some time in normal years (unless drainage channels are made).

Ultisol

Ultisols are soils that have argillic or candic horizons with low base saturation. They may have varied soil temperature regimes and soil moisture regimes except aridic humidity regimes. Generally there are areas with higher rainfall than the evapotranspiration rate in some seasons, and water moves through the soil and becomes a moist or wet substrate. The release of bases by weathering is usually equal to or less than the loss of bases due to the washing process, and most of the bases are on vegetation and soil layers a few centimeters above the surface. Base saturation in some Ultisols decreases with increasing depth because bases have been concentrated in vegetation and at shallow depths. Such conditions make the practice of shifting cultivation often carried out in ultisol soil.

Udult is an ultisol which has an udic moisture regime. Udult is well drained or slightly substandard soil. Udult is an ultisol which is poor in humus and has an udic moisture regime. Udult is in a humid climate, and most receive well-distributed rainfall. Most have been colored lightly on the upper horizon, generally the horizon is grayish which is based on the argillic horizon or candic which is yellowish or reddish brown. Some udult that develop from basic bedrock that has a surface horizon dark brown or reddish brown that rests on the argillic horizon or candlesticks that are red, blackish red or dark. Some have fragments or plinthite, or both, inside or below the argillic or candic horizon.

Hapludult is an udult land that:

- Does not have a candic horizon;
- Does not have fragments at depths up to 100 cm from the surface of mineral soil;
- Does not have plinthite which forms a continuous phase or is more than half the matrix in the horizon at depths up to 150 cm from the surface of mineral soil;
- Having colors: with hue 5 YR yr or older; or value in the humid state in some parts of the epipedon or 5 if it is dry or value 4 or more in a humid state in several parts of the argillic sub horizon

Having klei distribution along with increasing depth, the percentage of klei decreases from the maximum amount of more than 20 percent at a depth of up to 150 cm from the surface of mineral soil. If the layer of soil klei is less than the maximum limit, only less than 5% by volume of the layer has skeletans on the surface of the pedon or there is an increase in the soil content of less than 3 percent (absolute) below this layer

3.1.2. Land Unit Map

Land units are land which has the same or nearly the same properties, where the properties are related to soil formation factors. based on this the location of the survey area can be arranged into 3 Land Map Units. The summary and distribution area of each land map unit can be seen in Table 15 and the distribution overview is presented in Figure 29.

Table 22. The land map unit (SPT) in this additional area is PT. Sawit Mitra Abadi.

SPT	Soil Type	Slope (%)	Slope shape	Drainase	Area	
					Ha	%
1	Typic hapludult	0 – 5	Flat - choppy	good	604.68	60.47
2	Asosiasi Typic hapludult-aquic hapludult	0 – 5	Flat - choppy	Good - somewhat inhibited	328.18	32.87
3	Asosiasi Typic udipsamment-aquic udipsamment	0 – 5	Flat - choppy	Rather quickly - stunted	67.14	6.71
Total					**1000**	**100**

3.1.3. Land Suitability Evaluation Results

Based on laboratory analysis data from a number of soil samples taken from the location and other supporting data including data on land characteristics and quality. From these data and land suitability criteria for Oil Palm Plants an actual and potential land suitability analysis is conducted.

The assessment is carried out on each land unit up to the level of sub-class which is determined by the type and intensity of the worst effects of the characteristics and quality of the land that acts as a growth inhibiting or limiting factor.

Land at the location additional permit of PT. SMA has good potential for the development of oil palm plants. Some input is needed to overcome problems or obstacles, including through increasing fertility inputs and improving soil drainage on soils that are blocked. Inputs for increasing fertility with fertilization are needed to increase the availability of nutrients needed for plant growth. Inputs of making drainage channels on the ground with obstructed drainage function to lower the surface of the ground water and, improve soil air system. Improvement of inhibiting factors will increase the land suitability class.

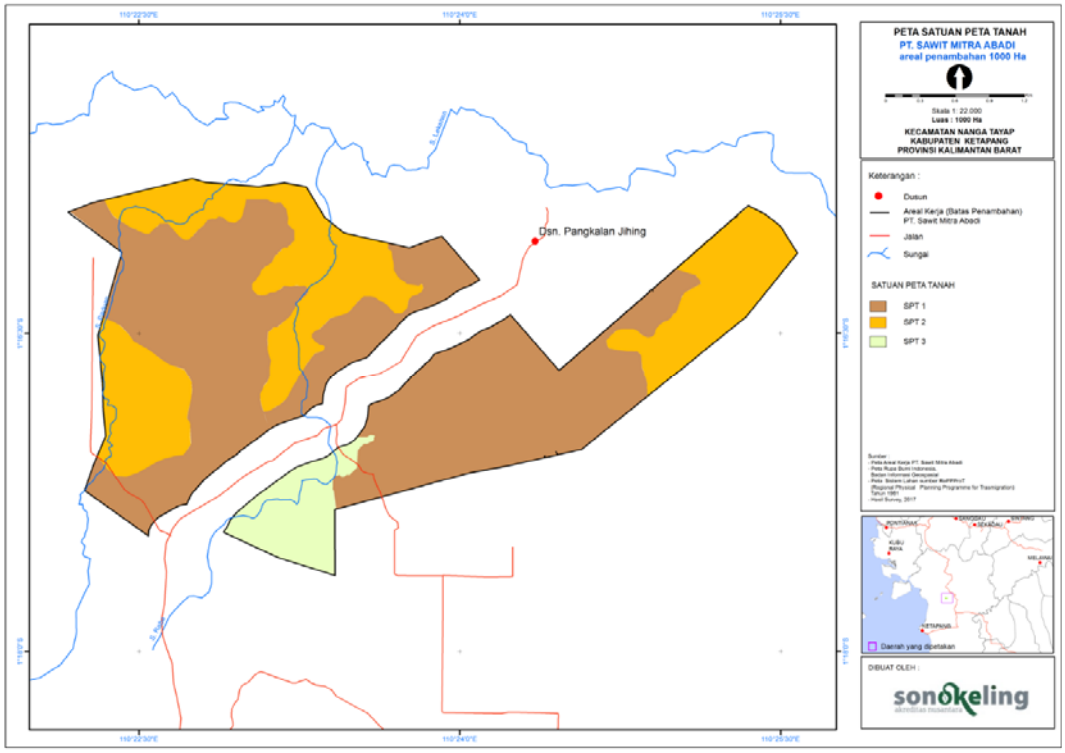


Figure 29. Land Unit Map area of additional permit of PT. Sawit Mitra Abadi

Table 23. Land suitability assessment results

SPT	Land Suitability currently	Limiting Factor	Limiting Factor Scala	Land area (Ha)
1	S1 (Very appropriate)	Rainfall	Light	604.68
		Soil texture	Light (Uneven)	
		Land Acidity	Light (Uneven)	
2	S1 (Very appropriate)	Rainfall	Light	328.19
		Soil texture	Light (Uneven)	
		Drainase	Light (Uneven)	
3	S2 (Quite appropriate)	Rainfall	Light	67.05
		Soil texture	Light	
		Drainase	Light	

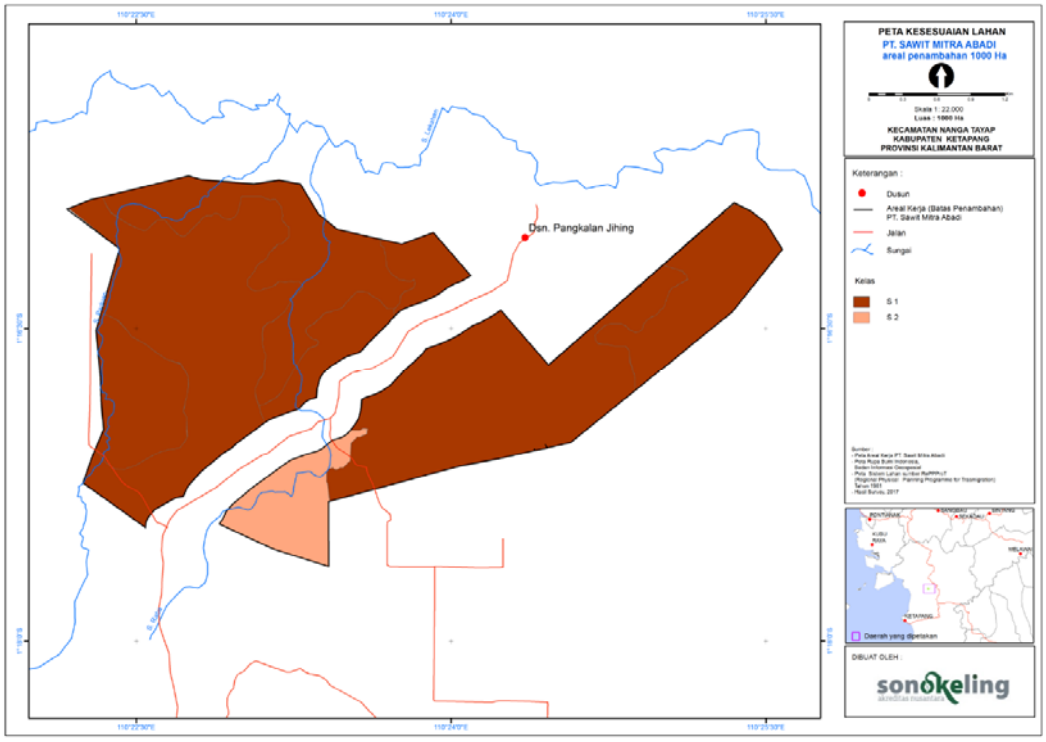


Figure 30. Map of Land Suitability Class PT. Sawit Mitra Abadi

Area Permit PT SMA Additional 1000 Ha, No Peat in the area.

3.2. Summary of Carbon Stock Assessment and GHG emissions

Table 24. Summary of land cover area (ha) and estimated average carbon stock (ton C / ha) of PT. Sawit Mitra Abadi (Additional 1,000 ha).

Land Cover Class	Large (ha)	Carbon Stock (ton C/ha)
Disturbed Forest (DIF)	18.06	150.69
Shrubs (SCH)	491.50	54.64
Rubber Plantation (RPL)	182.54	38.99
Dry Cultivation Land (DCL)	179.02	10
Bareland **(**BRL**)**	128.88	3.35

Source: Field data analysis and referensi

Integration of Carbon Stock with HCV Findings

Based on the HCV area identification study, in the permit area of PT. SMA (additional 1000 Ha) has a total HCV area of 229,63 ha. Table 18 shows the integration of carbon stocks at various land coverings with HCV areas.

Table 25. Summary Integration of Carbon Stock with HCV Findings.

Land Cover & Stock Carbon Estimation	HCVA (ha)	Non HCVA (ha)
Disturbed Forest (DIF) (150.69 ton C/ha)	18.06	-
Shrubs (SCH) (54.64 ton C/ha)	133.10	358.40
Rubber Plantation (RPL) (38.99 ton C/ha)	11.76	170.78
Dry Cultivation Land (DCL) (10 ton C/ha)	40.97	138.05
Bareland **(**BRL**)** (3.35 ton C/ha)	25.74	103.14
Total	**229.63**	**770.37**

Tabel 26. Summarising the total development areas (ha) and carbon stock estimated per land cover class

Land Cover & Stock Carbon Estimation	Developed Area (ha)	Total Carbon Stock (Ton C)
Shrubs (SCH) - (54,64 ton C/ha)	358,40	19.582,96
Rubber Plantation (RPL) - (38,99 ton C/ha)	170,78	6.658,60
Dry Cultivation Land (DCL) - (10 ton C/ha)	138,05	1.380,47
Bareland **(**BRL**) -** (3,35 ton C/ha)	103,14	345,53
Total	**770,37**	**27.967,57**

Map showing estimates of carbon stocks with HCV levels in the oil palm plantation area of PT. Sawit Mitra Abadi Additional 1000 Ha is presented in Figure 31. Whereas maps showing areas to avoid and the potential for new planting in the oil palm plantation area of PT. Sawit Mitra Abadi Additional 1000 Ha is presented in Figure 32.

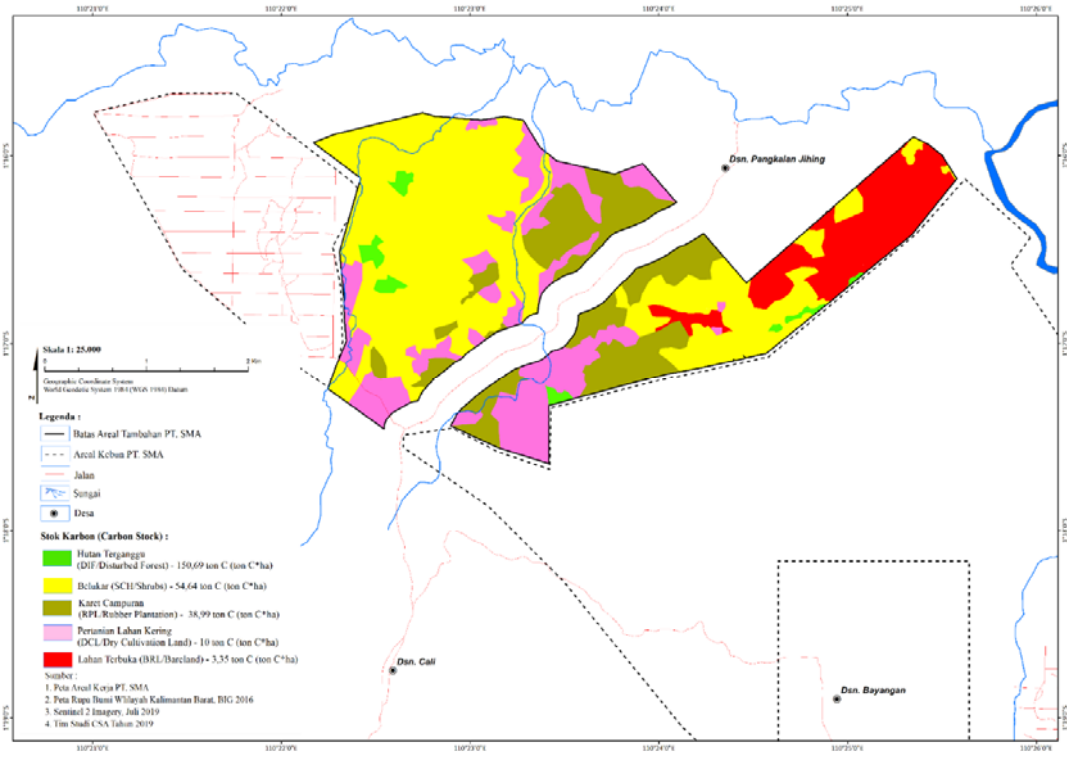


Figure 31. Map of Carbon Stock Estimates at various land cover with levels in the area of PT. SMA Additional 1000 Ha

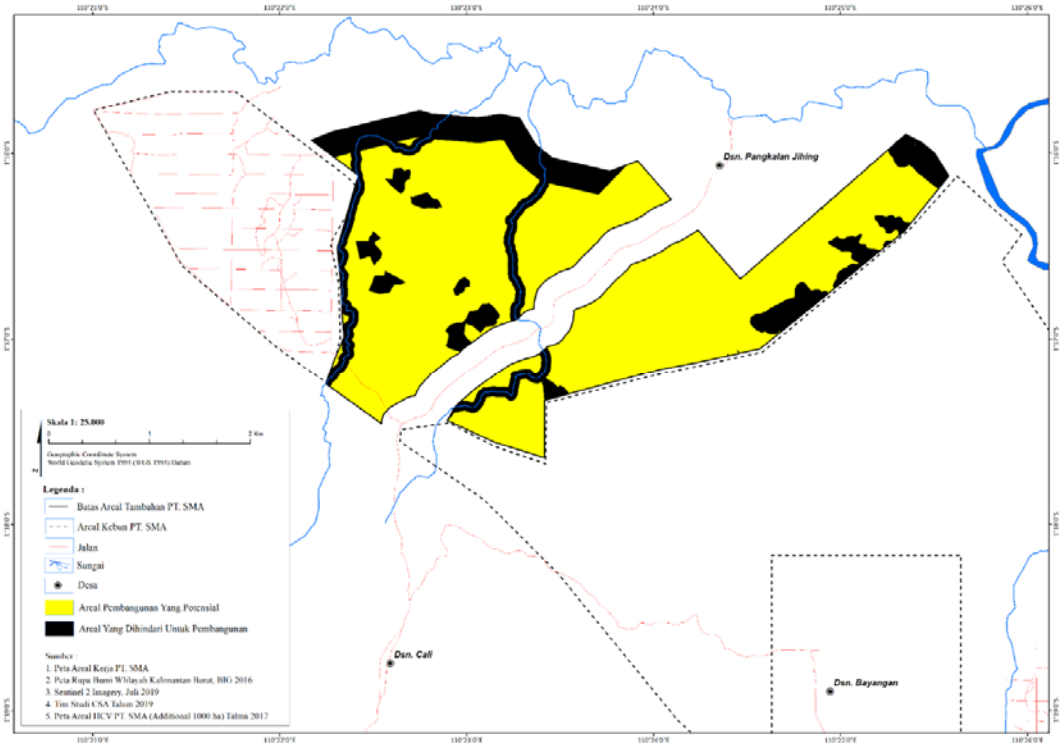


Figure 32. Map of areas to be avoided and the potential for new planting in the area of PT. Sawit Mitra Abadi Additional 1000 Ha

New Development Scenario

Table 27. Scenario for new development in the PT SMA Additional 1000 Ha

Scenario	Explanation
Scenario 1 (S1)	▪ All potential land cover for new planting is opened for oil palm. ▪ There are no methane capture facilities planned for the mill ▪ There is no land clearing in the identified HCV area ▪ Planned plant area = 770.37 ha ▪ Plan for conservation area = 229.63 ha
Scenario 2 (S2)	▪ All potential land cover for new planting is opened for oil palm ▪ There are methane capture facilities planned for the plant ▪ There is no land clearing in the identified HCV area ▪ Planned plant area = 770.37 ha ▪ Plan for conservation area = 229.63 ha

		S1	S2
Area avoided for new development	HCV Area	229.63 ha	229.63 ha
Areas that have the potential for new planting	*Shrubs* (SCH)	358.40 ha	358.40 ha
	Rubber Plantation (RPL)	170.78 ha	170.78 ha
	Dry Cultivation Land (DCL)	138.05 ha	138.05 ha
	Bareland (BRL)	103.14 ha	103.14 ha
POME treatment	Conventional treatment	Yes	Not
	Methane trap	Not	Exist

4.3. GHG Emission Projection

The GHG emission projection in the area of PT. Sawit Mitra Abadi Additional 1000 Ha is calculated using the RSPO New Development GHG Calculator to determine the emissions projections associated with the choice of scenarios developed.

Scenario 1

Summary of results

Summary of results

Field emissions & sinks (Assumes vigorous growth for oil palm - for use by large scale operations)

	t CO_2e	t CO_2e/ha	t CO_2e/t FFB
Land clearing	5.497,66	6,05	0,27
Crop sequestration	-8.510,67	-9,36	-0,43
Fertilisers	857,47	0,94	0,04
N2O	673,58	0,74	0,03
Field fuel	83,41	0,09	0,00
Peat	0,00	0,00	0,00
Conservation credit	-2.105,71	-2,32	-0,11
Total	-3.504,25	-3,85	-0,18

Mill emissions & credit	tCO_2e	t CO_2e/ha	tCO_2e/tFFB
POME	3.920,34	4,31	0,20
Mill fuel	780,00	0,86	0,04
Purchased electricity	0,00	0,00	0,00
Credit (excess electricity exported)	0,00	0,00	0,00
Credit (sale of biomass for power)	0,00	0,00	0,00
Total	4.700,34	5,17	0,24

Total emissions, tCO_2e (field and mill) 1.196

Scenario 2

Summary of results

Summary of results

Field emissions & sinks (Assumes vigorous growth for oil palm - for use by large scale operations)

	t CO_2e	t CO_2e/ha	t CO_2e/t FFB
Land clearing	5.497,66	6,05	0,27
Crop sequestration	-8.510,67	-9,36	-0,43
Fertilisers	857,47	0,94	0,04
N2O	673,58	0,74	0,03
Field fuel	83,41	0,09	0,00
Peat	0,00	0,00	0,00
Conservation credit	-2.105,71	-2,32	-0,11
Total	-3.504,25	-3,85	-0,18

Mill emissions & credit	tCO_2e	t CO_2e/ha	tCO_2e/tFFB
POME	739,53	0,81	0,04
Mill fuel	780,00	0,86	0,04
Purchased electricity	0,00	0,00	0,00
Credit (excess electricity exported)	0,00	0,00	0,00
Credit (sale of biomass for power)	0,00	0,00	0,00
Total	1.519,53	1,67	0,08

Total emissions, tCO_2e (field and mill) -1.985

Based on the consideration up to now PT SMA additional 1,000 Ha has no plans to build Methane Capture and then for the new planting plan, the land cover that is opened is only prioritized on shrubs (SCH), rubber plantations (RPL), dry cultivation land (DCL) and bareland (BRL). Then scenario 1 is the optimal development choice in the area of PT. SMA Additional 1,000 Ha. In this scenario, GHG emissions from land clearing and operational activities will be absorbed by Conservation Areas (HCV Areas) and oil palm plants. Summary of GHG emissions for new development plans in the PT. SMA Additional 1,000 Ha is presented in Figure 33. While the New Development Plan Map in the area of PT. SMA Additional 1,000 Ha is presented in Figure 34.

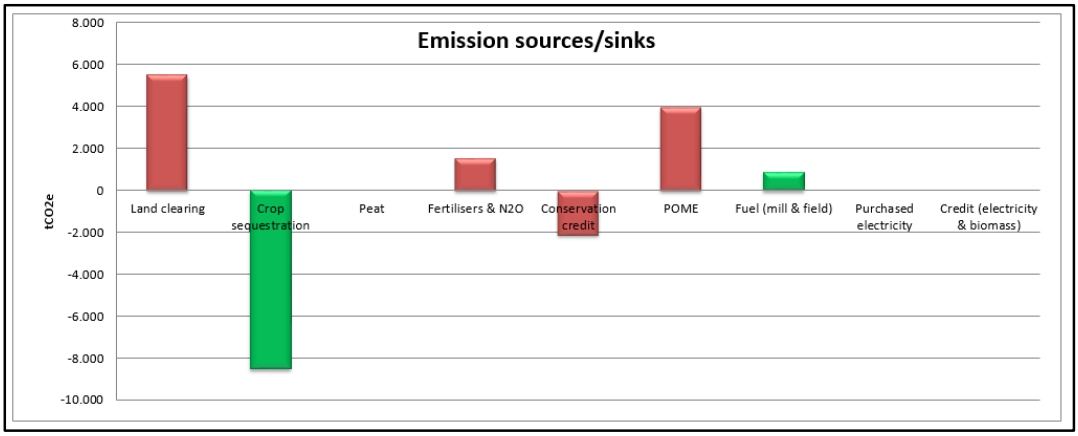


Figure 33. Summary of GHG emissions (tCO_2e) for new development plans in the PT. Sawit Mitra Abadi Additional 1,000 Ha

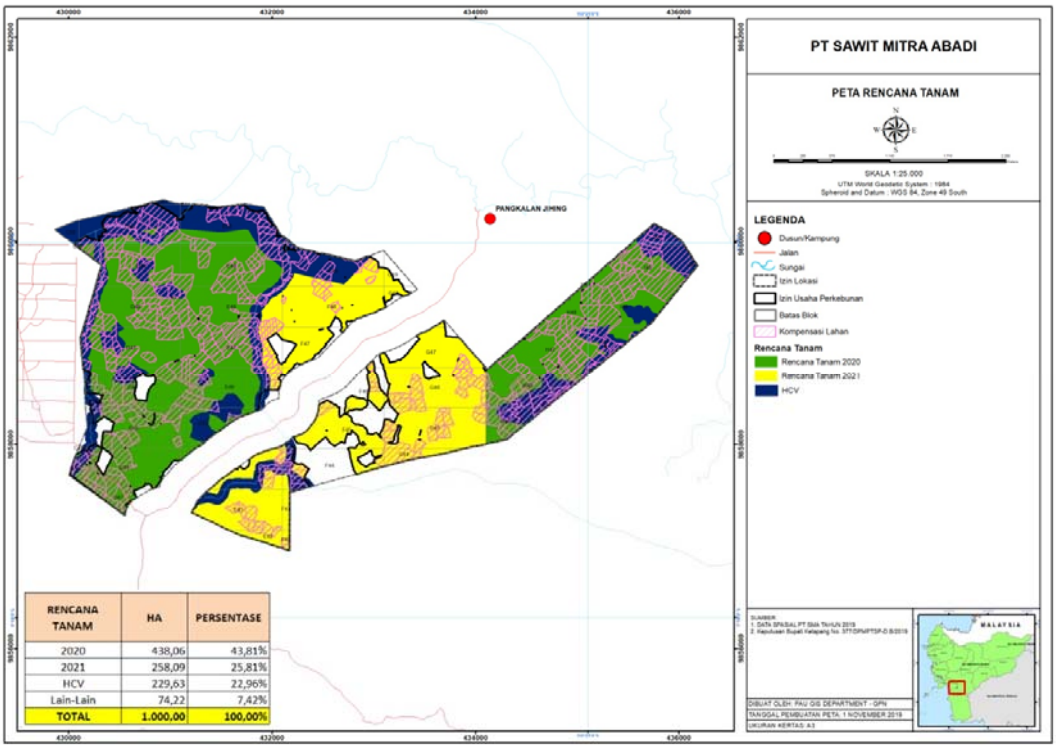


Figure 34. New Development Plan Map in the area of PT. SMA additional 1000 Ha

3.3. LUC analysis

Historical Analysis of Land Use Change

Table 29. Historical Analysis of Land Use Change in the PT SMA Additional 1000 Ha

No.	Code	Land cover	Area (ha)					
			Before November 1, 2005	November 1, 2005 - November 31, 2007	December 1, 2007 - December 31, 2009	January 1, 2010 – May 9, 2014	May 9, 2014 – HCV identified (2017)	Ground truthing, 2019
1	DIF	*Disturbed Forest*	249.14	120.14	52.21	40.55	18.06	18.06
2	SCH	*Shrubs*	319.28	450.11	470.47	494.30	494.36	491.50
3	RPL	*Rubber Plantation*	222.35	222.35	198.08	178.88	182.54	182.54
4	DCL	*Dry Cultivation Land*	89.12	89.78	157.65	164.67	171.36	179.02
5	BRL	*Bareland*	120.11	117.62	121.59	121.59	133.68	128.88
Total (ha)			**1000.00**	**1000.00**	**1000.00**	**1000.00**	**1000.00**	**1000.00**

Raw land cover data (contingency matrix)

Tabel 30. Periode November 2005 – November 2007

Non-Corporate

	Landcover Class	November 2007					Total 2005
		BRL	DCL	DIF	RPL	SCH	
November 2005	BRL	117,62	-	-	-	2,49	120,11
	DCL	-	81,26	-	-	7,86	89,12
	DIF	-	8,52	120,14	-	120,48	249,14
	RPL	-	-	-	222,35	-	222,35
	SCH	-	0,00	-	-	319,28	319,28
	Total 2007	**117,62**	**89,78**	**120,14**	**222,35**	**450,11**	**1.000,00**

Table 31. Periode December 2007 – December 2009

Non-Corporate

	Landcover Class	December 2009					Total 2007
		BRL	DCL	DIF	RPL	SCH	
December 2007	BRL	117,62	-	-	-	-	117,62
	DCL	-	89,78	-	-	-	89,78
	DIF	-	-	52,21	-	67,93	120,14
	RPL	-	-	-	198,08	24,27	222,35
	SCH	3,97	67,87	-	-	378,27	450,11
	Total 2009	**121,59**	**157,65**	**52,21**	**198,08**	**470,47**	**1.000,00**

Tabel 32. Periode January 2010 – May 2014

Non-Corporate

	Landcover Class	Mei 2014					Total 2010
		BRL	DCL	DIF	RPL	SCH	
Januari 2010	BRL	121,59	-	-	-	0,00	121,59
	DCL	-	157,64	-	-	0,01	157,65
	DIF	0,00	0,51	40,55	-	11,15	52,21
	RPL	-	3,44	-	178,88	15,76	198,08
	SCH	-	3,09	-	-	467,38	470,47
	Total Mei 2014	**121,59**	**164,67**	**40,55**	**178,88**	**494,30**	**1.000,00**

Tabel 33. Periode May 2014 – Assessment HCV (2017)

Non-Corporate

	Landcover Class	Date of HCV assessment (2017)					Total Mei 2014
		BRL	DCL	DIF	RPL	SCH	
Mei 2014	BRL	118,74	2,86	-	-	0,00	121,59
	DCL	3,06	157,95	-	3,66	-	164,67
	DIF	-	1,90	18,06	-	20,59	40,55
	RPL	-	-	-	178,88	-	178,88
	SCH	11,88	8,65	-	-	473,77	494,30
	Total Ha up to date of HCV assessment (2017)	**133,68**	**171,36**	**18,06**	**182,54**	**494,36**	**1.000,00**

Tabel 34. Periode 2017 – 2019

Non-Corporate

	Landcover Class	Periode 2019					Total 2017
		BRL	DCL	DIF	RPL	SCH	
Periode 2017	BRL	128,88	3,06	-	-	1,74	133,68
	DCL	-	171,36	-	-	-	171,36
	DIF	-	-	18,06	-	-	18,06
	RPL	-	-	-	182,54	-	182,54
	SCH	-	4,60	-	-	489,76	494,36
	Total 2019	**128,88**	**179,02**	**18,06**	**182,54**	**491,50**	**1.000,00**

Environmental Remediation

Because land clearing activities for oil palm development and infrastructure until this study were compiled in 2019 have not been carried out, there is no distribution of areas lost due to oil palm development and prohibited by the RSPO P & C in the permit area PT SMA additional 1000 Ha. So there is no potential remediation until the end of the liability period.

LUCA result before multiplying with vegetation coefficient

Table 35. The results of LUCA calculations in the PT Sawit Mitra Abadi Additional 1000 Ha area before multiplying by the vegetation coefficient

Land cover class	Vegetation Coefficient	Nov 1, 2005 to Nov 30, 2007	Dec 1, 2007 to Dec 31, 2009	Jan 1, 2010 to May 9, 2014	After May 9, 2014
One or more land cover classes which fulfill the criterion of vegetation coefficient 1.0	1.0	-	-	-	-
One or more land cover classes which fulfill the criterion of vegetation coefficient 0.7	0.7	-	-	-	-
One or more land cover classes which fulfill the criterion of vegetation coefficient 0.4	0.4	-	-	-	-
One or more land cover classes which fulfill the criterion of vegetation coefficient 0.0	0	-	-	-	-
Total (sum of rows)		-	-	-	-

Final compensation liability

Prediction of compensation amount is calculated using the area of land clearing that occurs in each period of liability multiplied by the vegetation coefficient of land cover in 2005 (Baseline).

Table 36. The results of LUCA calculations in the PT Sawit Mitra Abadi Additional 1000 Ha area after multiplied by the vegetation coefficient

Period of land clearance	Land controlled by a non-member at time of clearance	Land controlled by a RSPO member at time of clearance. This Includes land acquired from other RSPO members
After May 9, 2014	0	-
January 1, 2010 – May 9, 2014	0	-
December 1, 2007 - December 31, 2009	0	-
November 1, 2005 - November 31, 2007	0	-
Total (ha)	0	-

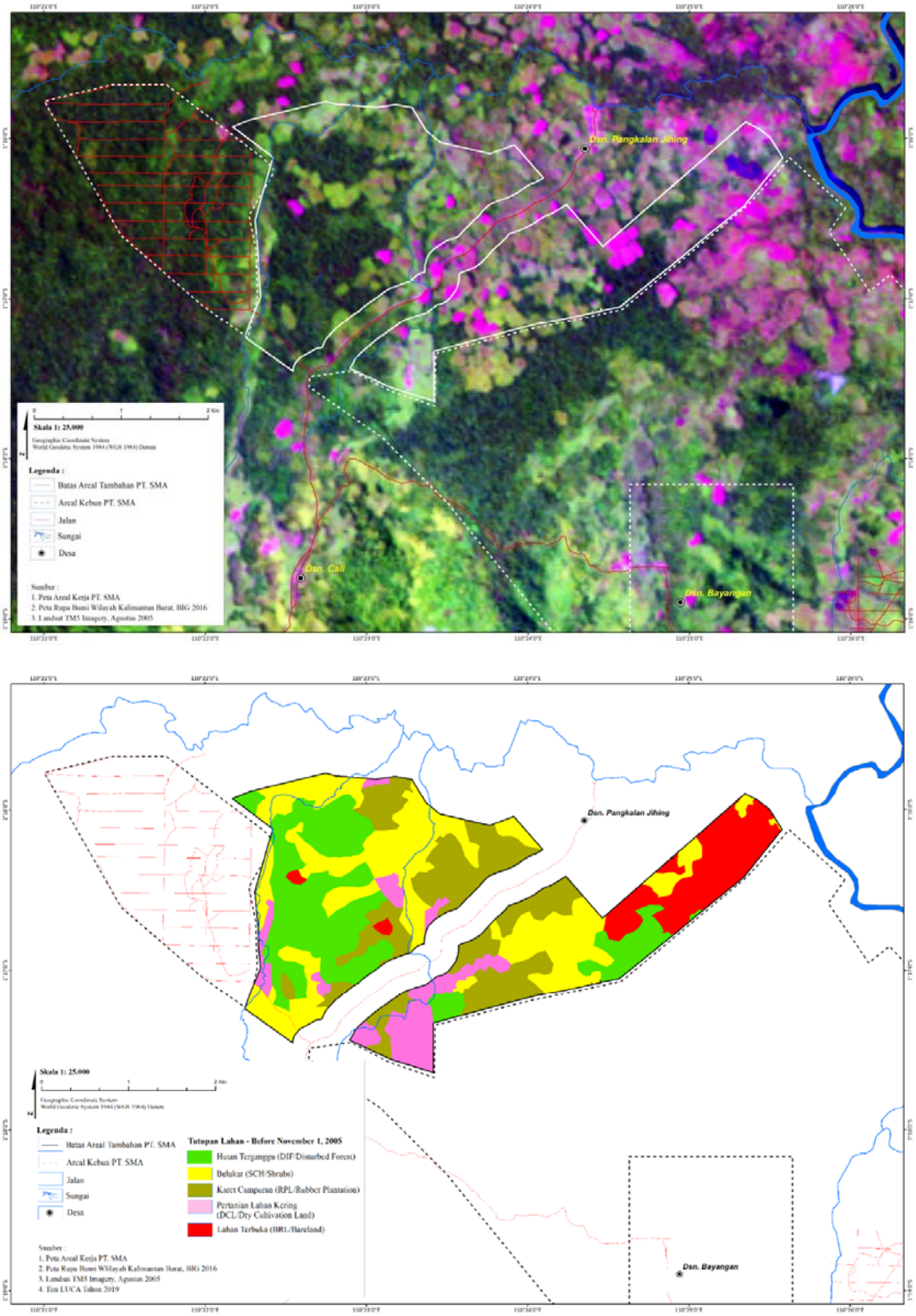


Figure 35. Land cover map - *Before November 1, 2005* (Landsat TM5 Imagery, Agustus 2005)

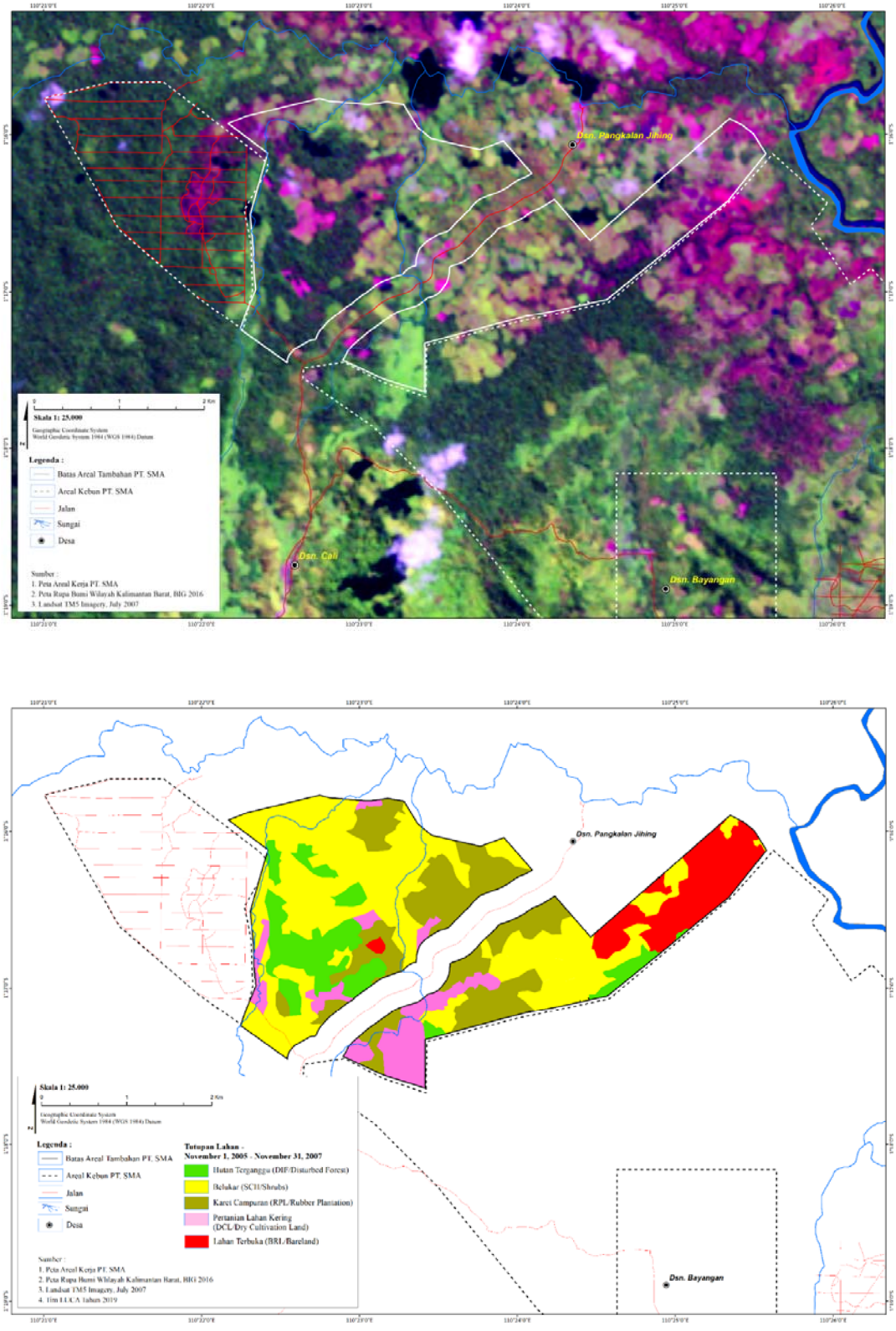


Figure 36. Land cover map - *November 1, 2005 - November 31, 2007* (Landsat TM5 Imagery, July 2007)

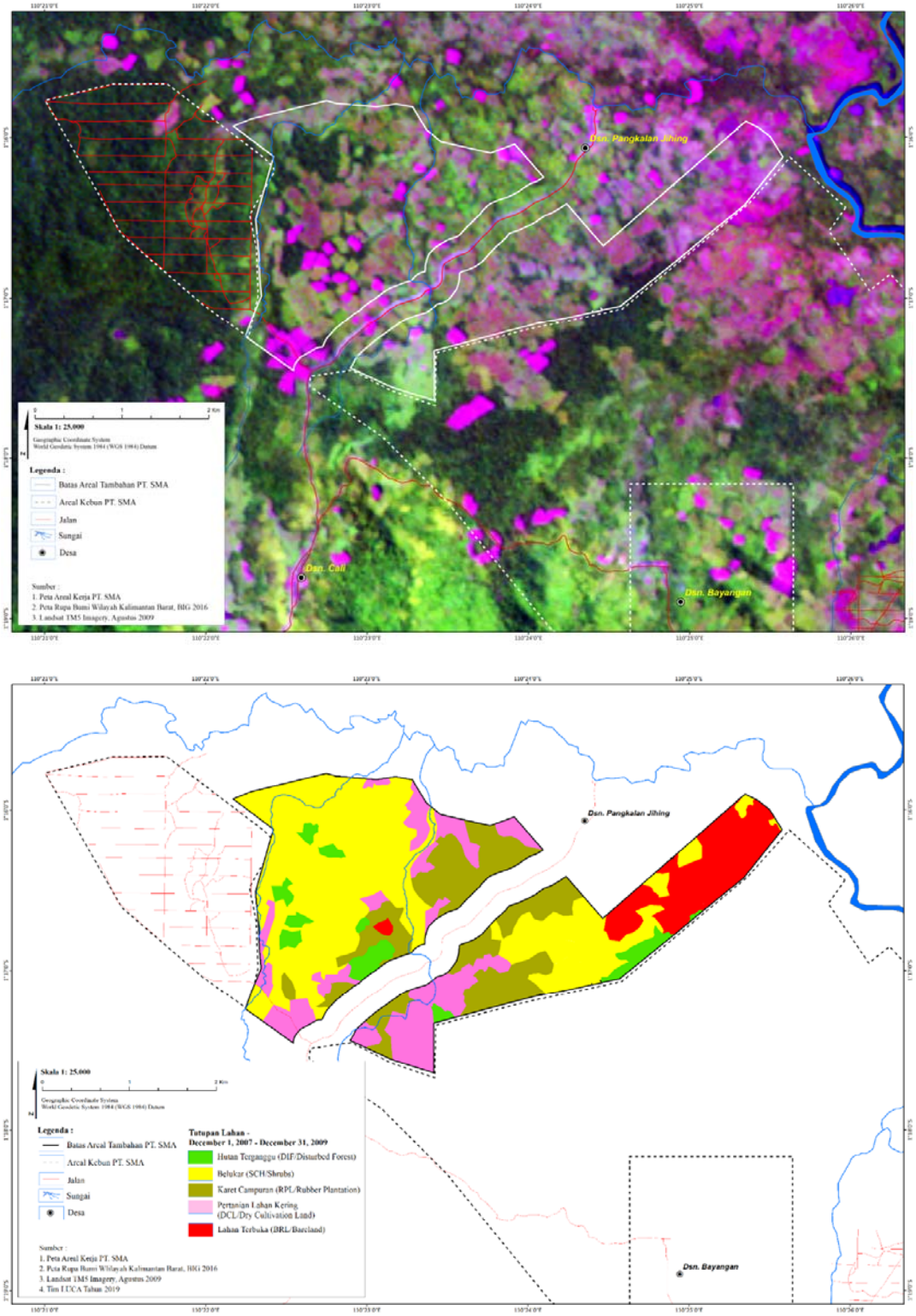


Figure 37. Land cover map - *December 1, 2007 - December 31, 2009* (Landsat TM5 Imagery, August 2009)

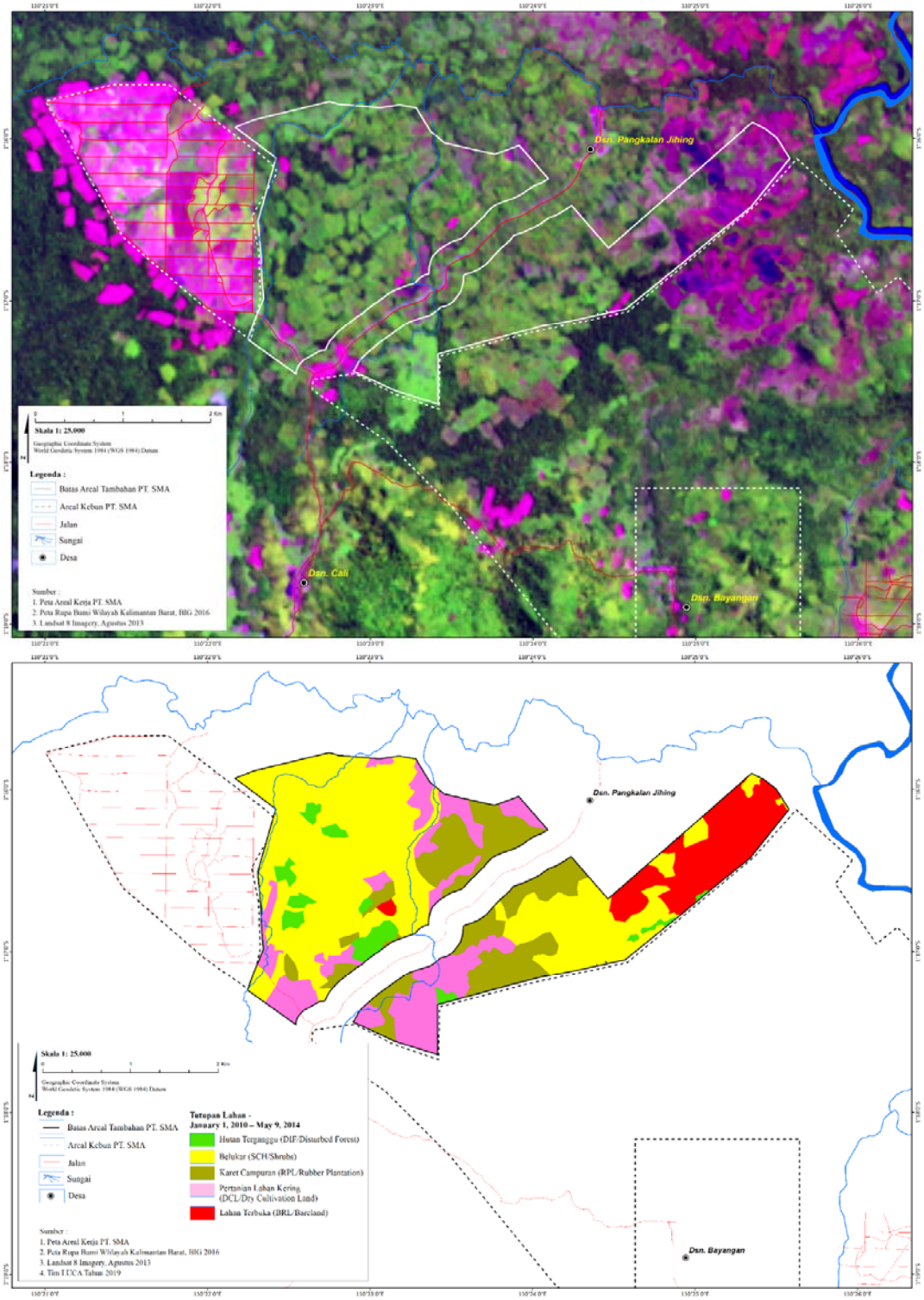


Figure 38. Land cover map - *January 1, 2010 – May 9, 2014* (Landsat 8 Imagery, August 2013)

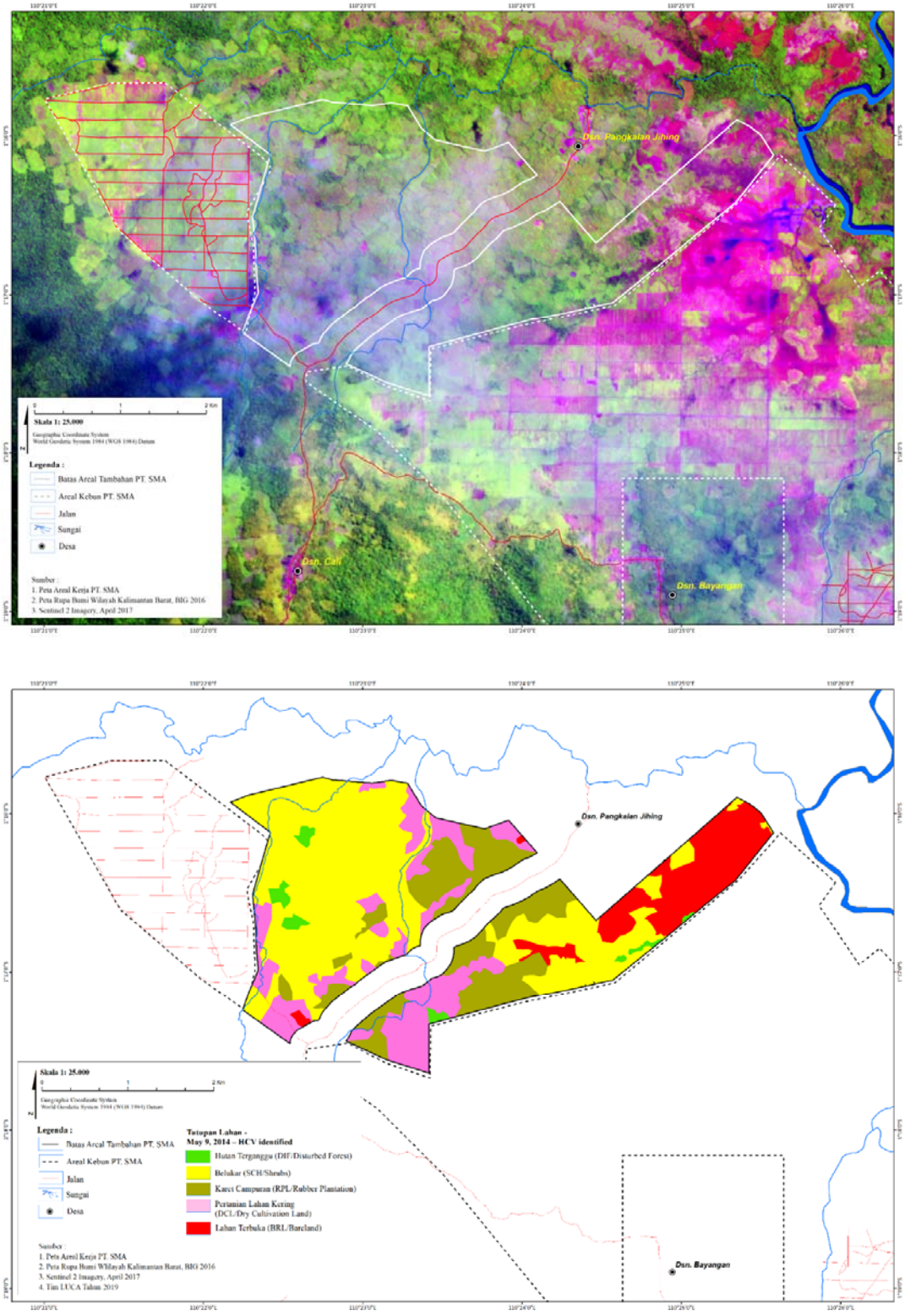


Figure 39. Land cover map - *May 9, 2014 – HCV identified* (Sentinel 2 Imagery, April 2017)

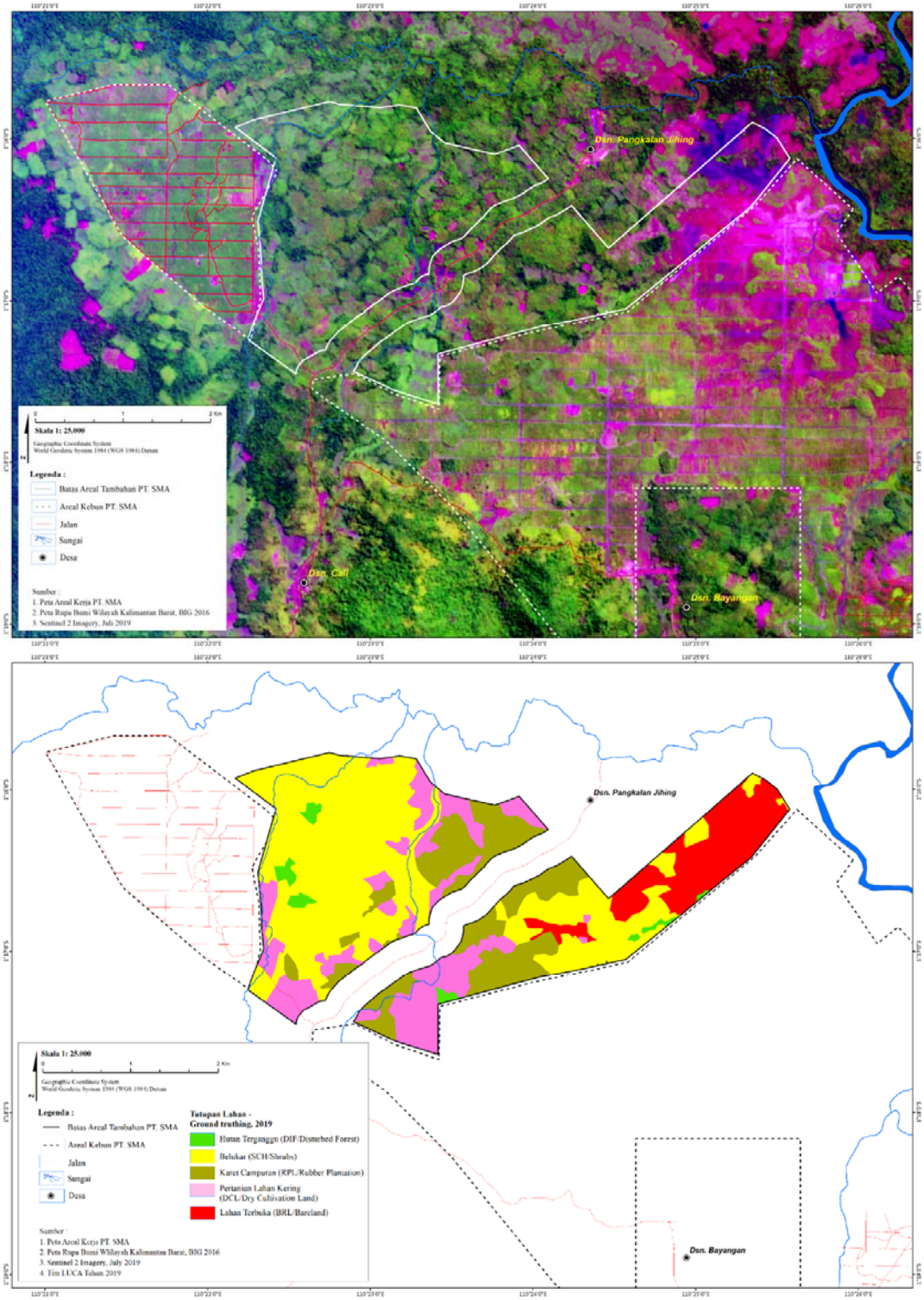


Figure 40. Land cover map – *July 2019 and Ground truthing* (Sentinel 2 Imagery, July 2017)

3.4. FPIC process

3.4.1. FPIC Phase 1 - Stakeholder Identification

3.4.1.1. Stakeholders and Stakeholders

Based on the RSPO FPIC 2018 Toolkit, community involvement includes formal structures (hamlet / village government as well as traditional instruments, and community leaders). Strive to involve broader community groups through extensive and inclusive consultations to ensure which organizations and individuals are considered by the community as their own chosen representatives. The community groups are rights holders and authority holders in the community

Rightsholder

The rights holders referred to in the FPIC study are those directly affected by the addition of a 1,000-hectare PT SMA permit area. These rights holders consist of land owners, land users, and land tenants.

Land ownership by the community around PT SMA varies in size. These lands are recognized traditionally although not yet certified, both SKT (Land Certificate) and SPPT (Land Ownership Declaration). The difference in land area is the result of differences in the work of each community in opening the land, so that the people who are able to open more land will have more extensive land / land. The method for acquiring land area for residents around PT SMA is presented in Table 37.

Table 37. Ways of Acquiring Extent of Land by Residents Around PT SMA

No	Village	Community Land Ownership in the Concession Area
1.	Pangkalan Jihing	• The majority of residents 'land tenure is from their former ancestors' claim. • 80% or around 146 households have land inside the concession. • The extent of residents' land within the concession is largely unmeasured • There is no evidence of land ownership (SKT / SPPT)
2.	Cali	• Land tenure is based on their former fields • In addition, land tenure is also based on the acquisition of ancestors' inheritance from ancestors, and bought from others based on agreement. • 40% or around 96 households have land inside the concession

Source: FPIC Team Survey, 2019

Land use within PT SMA concession area is almost the same. The land in the concession area is used by residents for agriculture, plantations and farming. Some types of plants planted by the community in the concession area, including: rice, corn, cassava, rubber, palm, fruit species, and others. At the time of the survey, rice, rubber and oil palm were the prima donna plants cultivated by the community (Table 38).

Table 38. Land Utilization by Residents Around PT SMA

No	Village	Land Use by Residents in Concession Areas
1.	Pangkalan Jihing	- Types of plants cultivated, such as rice, rubber, palm, jengkol, petai and types of fruits
2.	Cali	- The land is cultivated by residents with rubber, palm oil (5%), paddy rice, jengkol, petai, and types of fruit plants

Sources: FPIC Team Survey, 2019

Authority

The identification of authority stakeholders consists of individual representatives and institutional or organizational representatives in the community. Individual representatives can consist of representatives from indigenous peoples and local communities. The area of PT SMA additional permits is in Pangkalan Telok Village (Pangkalan Jihing and Cali hamlet), Nanga Tayap District. The ethnic Malay who are in the area of PT SMA additional permits is the influence of Matan Kingdom which is a child of the Kingdom of Tanjung Pura domiciled in Tanjung Pura Village, Muara Pawan District, Ketapang Regency. Malay community life values such as language, beliefs and similarities with other Malay customs in Ketapang are still the character of the community. In detail the distribution of tribes in Pangkalan Telok Village (Pangkalan Jihing and Cali hamlet) are as follows.

Table 39. Ethnic / Ethnic Distribution in the Village / Village Around PT SMA

Village/Village	Ethnic	Persentase (%)
Pangkalan Telok Village - Pangkalan Jihing hamlet - Cali hamlet	Melayu	98.3
	Dayak	0.3
	Jawa	1.0
	Sunda	0.2
	Bugis	0.1
	Madura	0.1

From Table, it can be seen that the representative authority of certain ethnic / ethnic groups becomes important in FPIC activities.

3.4.1.2. Village / Hamlet Representative Body

In identifying the representative institutions in the village / hamlet, reference can be used as in Figure 41.

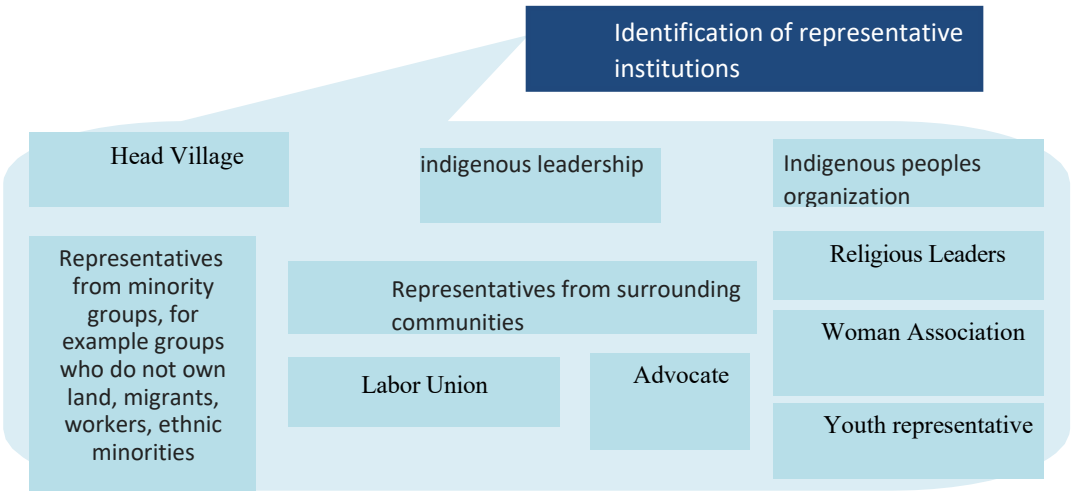


Figure 41. Identification of Representative Institutions

Some community institutions in Pangkalan Telok Village; BPD (Village Consultative Body), LPM (Community Empowerment Institution), MABM (Malay Cultural Adat Council), PKK (Empowerment and Family Welfare), REMAS (Mosque Youth), Posyandu (Integrated Service Post), and Da'wah / Assembly Development Tarbiyah Islamiyah.

The process of stakeholder identification from village / hamlet institution representatives begins with determining positions / positions that have a central role in the hamlet that influences the community, then analyzes the strength of stakeholder influence with the mastery of access to natural resources, as well as the potential for conflict and collaboration between stakeholders. In connection with the plan to open a plantation by PT SMA, several parties have been identified, including Village chief, Adat Chairperson, neighborhood Association (RT), citizens Association (RW), Tumenggung (Customary Leaders), Chiefs of Tribes and or Malay Cultural Adat Council, village government officials, community leaders, community leaders religion, and so on. In detail the identification of stakeholders from the representatives of village institutions is as follows:

Table 40. List of Authority from Village or Hamlet Institution Representatives

No	Name	Position	Organization/ Social group
1.	Karnadi	Pangkalan Jihing Village chief	Village government
2.	Meliadi	RT 02 Pangkalan Jihing	Village government
3.	Sumitro	RT 03 Pangkalan Jihing	Village government

No	Name	Position	Organization/ Social group
4.	Deni Albar	Cali Village chief	Village government
5.	Suwadi	RT 03 Cali	Village government
6.	Alisrun	RT 01 Cali	Village government

The list of authorities from the Village or Hamlet Representative Agency above depends on the conditions and dynamics of the surrounding community. The list is limited to the current conditions of the social impact assessment. The identification of stakeholders is now important for the priority management of social impacts and risks going forward. However, those who are not included in the authority of representatives of village or hamlet institutions do not mean that they are less important and do not need to be included in the management of social aspects, only in terms of different priorities

Figure 42. The process of identifying stakeholders and key issues, carried out through participatory processes in the field

3.4.2. FPIC Phase 2 - Forming Working Groups with Parties

After the community agrees to follow the entire FPIC stage in stage 1, the next step is the establishment of a working group. This working group will follow the whole process to the end, and will also be responsible if there is a dispute in the future. At the time of the FPIC study it was expected that there would be some form of a working group.

From the FGD results and interviews with several community leaders it was proposed that if the company had several Land Compensation activities, land measurement, High Carbon Stock activities, would at least involve these figures with the involvement of landowners. In addition, to facilitate the land acquisition process, it is necessary to form a kind of land acquisition team consisting of: Head of Village, BPD, Head of RT, Head of RW, and Land Owner. This working group they are called by the Village Team and consists of the names that already exist in Table 19 above. The village team was also prepared for the implementation of a participatory mapping process.

3.4.3. FPIC Phase 3 - Mapping Community Rights through Participatory Mapping

The next stage of FPIC is to identify the existence of plans to open oil palm plantations that will be built, whether it impacts on the rights of the community that was before the company opened. These principles and criteria require two stages that apply, namely by studying community land tenure systems and through participatory mapping.

Participatory mapping is done to identify important areas that are protected by the community because they contain cultural, historical, spiritual elements, or as a source of livelihood and identification of land use. Participatory mapping was also carried out to identify landowners in the PT SMA concession area. Stages done in Participatory mapping:

a) Compilation of a participatory mapping activity plan
b) Prepare socialization materials such as HCV, HCS, SEIA, and FPIC exposure materials to be communicated to the community
c) Ask one of the community leaders to sketch a village map based on a map of PT SMA oil palm plantation concession area. This village sketch map contains:
    - Village spatial structure with information on the existence of rice farming areas, plantations (rubber & palm oil), roads, forests, etc.
    - Administrative indicative boundaries between Pangkalan Jihing Hamlet and Cali Hamlet.
d) Determine the location of land use or utilization within PT SMA concession area by residents which includes:
    - Location of land used by the community to fulfill basic needs, socio-economic, socio-cultural, religious needs, ceremonial needs, etc.
    - Location of residential areas
    - Location of agricultural or plantation areas whether subsidized or commercial.
    - Village development reserve land that will be used for agriculture / plantation activities.
    - Customary jointly owned land and customary land whose ownership is personal.

- Religious land that is used for religious activities or beliefs

e) If there is information on land use that is not known with certainty, it will consult with local community leaders (informants).

f) Then the sketch-based mapping data is then processed and then overlaid with a GIS (land cover) map as a participatory draft map.

g) Finalize participatory maps with GIS-based mapping collaboration.

In its implementation, direct participatory mapping uses a map of the work area and the community is asked to draw important areas above the maps provided (Figure 12) and Figure 13. Then from the participatory map sketch then overlaid with GIS related to the land cover condition of the concession area. PT SMA The results of participatory sketch map overlays with GIS are shown in Figure 43.

Figure 43. Participatory Mapping Process in Pangkalan Jihing and Cali hamlets

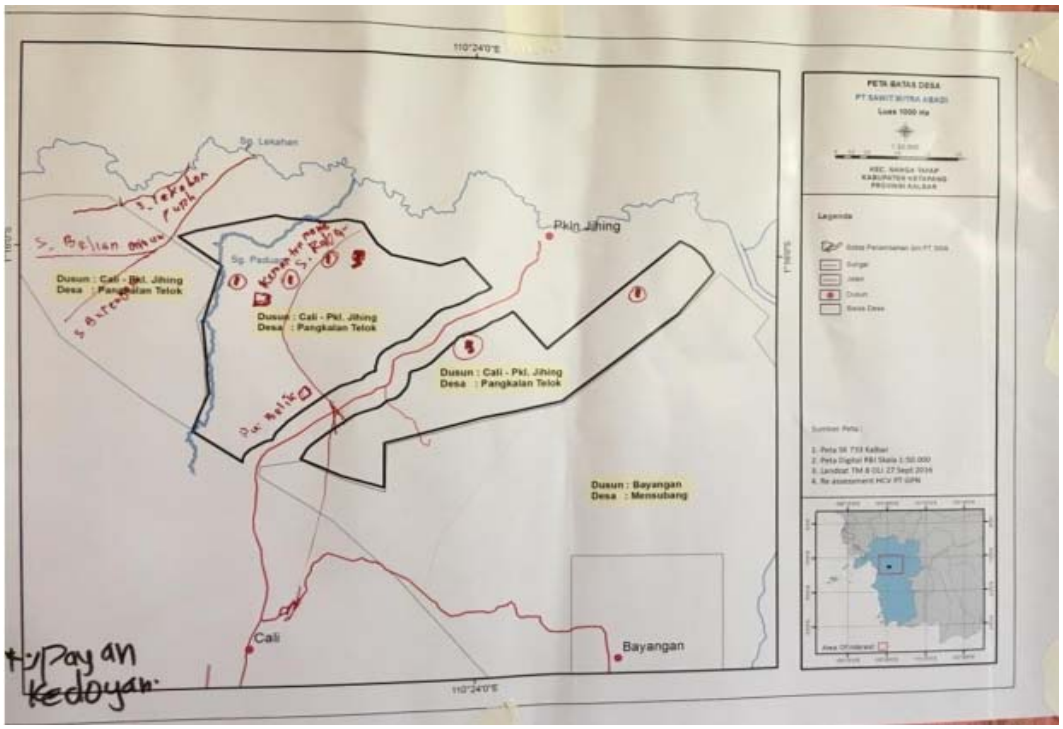


Figure 44. Participatory Map Sketch

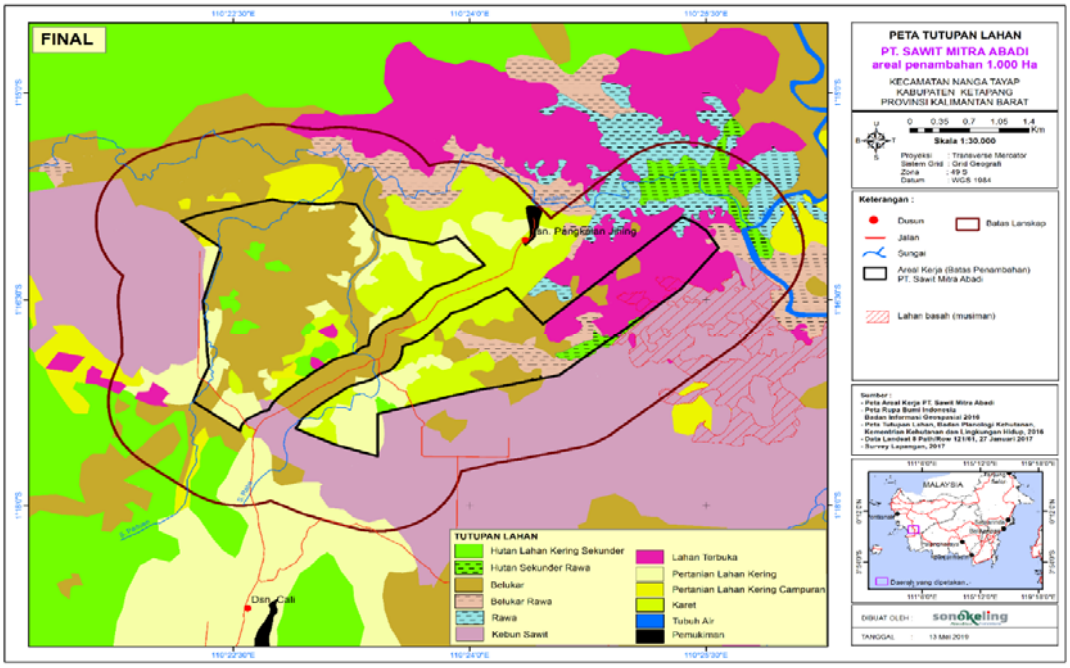


Figure 45. Participatory Map Sketch Overlay with GIS (Land Cover)

From Figure 41, it can be seen that in the area of PT SMA additional permits, many residents from Pangkalan Jihing and Cali hamlet used their land to fulfill their livelihood needs with oil palm, rubber, dry land agriculture, and mixed dry land agriculture. And based on discussions with Pangkalan Jihing Hamlet and Cali Hamlet, information was obtained that in the area of PT SMA additional permits, many residents used it for

agriculture, plantations and cultivation. Some types of plants planted by the community in the concession area, including: rice, corn, cassava, rubber, palm, fruit species, and others. When the survey was conducted, rice, rubber, and palm were the primadona plants cultivated by the community.

3.4.4. FPIC Phase 4 - Informing the Outcomes of Mapping and Work Plan of the Company

From the results of interviews, discussions / FGDs with residents and from the results of participatory mapping, several areas of PT SMA location permits were obtained and still used by residents. The people who are still acquiring land in the concession are then given information as a form of affirmation of rights for the community, that they have the right to know the risks and benefits obtained if their land is collaborated with an oil palm company. For companies, providing information is part of a commitment to transparency to ensure that the public understands the risks to be faced in the future by providing relevant and adequate information.

The process of providing information related to the plan to open oil palm plantations by PT SMA has been carried out, but only limited to socialization / public consultation at the time of the socialization of land acquisition, public consultation on HCV activities, HCS, SIA and so on. However, not all people understood it, some people still questioned about:

1) The expectation of hamlet residents when releasing their land, is that there must be compensation for labor recruitment for residents / children, plasma plantation compensation, and compensation in the form of company assistance (CSR programs) for residents.
2) Villagers in the village / hamlet ask about the company's work plans in the future, such as work plans in:
    - The time frame for the plan to measure residents' land inside the concession
    - Planning the realization of plasma plantations.
    - Clarity of CSR programs.
    - Management and monitoring of conservation areas (HCV-HCS).

From the explanation of the provision of information and company plans, at least the company has begun to prepare for these plans, such as in the preparation of the company's work plan program in the area of PT SMA adding permits covering an area of 1,000 Ha, preparing land acquisition SOPs, SOPs providing information to the public / stakeholders, SOPs handling complaints and conflicts, Plasma Plantation SOP, CSR Program SOP, and other SOPs that support the company's work plan in the future.

One of the work plans carried out by PT SMA companies in the framework of land acquisition is to conduct negotiations in the process of land release. The companies first socialized the company including related to land compensation or what is commonly referred to as Land Compensation (GRL). However, from a survey of two hamlet (Pangkalan Jihing Hamlet and Cali Hamlet), some of the hopes and desires of residents as well as considerations in the release of dry land agricultural areas whose locations are within the area of the addition of permits, namely:

1) Community concern that they will lose their land and not be able to farm if the area of their land is included in the 1,000 hectare permit area. Some of the residents' considerations of the planned land being released to the company include:
    - The company must conduct Land Compensation (GRL) for the residents' land which the plan will be used as oil palm plantations and the value of the GRL must be adjusted to the agreement or negotiation between the company and the direct land owner. And the GRL process has been carried out by the company in accordance with the agreement.
    - The company and the community will measure the land owned by the community in stages by involving the village head, the head of the RT / RW, BPD, and the land owner through a participatory mapping process.
    - If the residents will release their land to the company, the company must be able to recruit residents / children to be able to work in the company, built plasma gardens for residents and CSR assistance for hamlet residents.
2) Around the area of the addition of a 1,000-hectare PT SMA permit, there is no land that can be acquired, because productive plants have been planted such as rubber, palm, rice, and various types of fruit trees (cempedak, durian), unless there is an agreement with the land owner through the GRL process
3) The land will be passed on to his children, so that the GRL process undertaken by the company must be cautious.

Through FPIC, residents of two village (Pangkalan Jihing Hamlet and Cali Hamlet) have no objection if the dry land farming area gets land compensation from the company, because there are many other land alternatives outside the permits to add 1,000 hectares of PT SMA concessions. Based on discussion and participatory mapping and overlaying with GIS, the land area of residents who have received land compensation or GRL is ± 460.80 hectares. The status of the land compensation from PT SMA is presented in Figure 46.

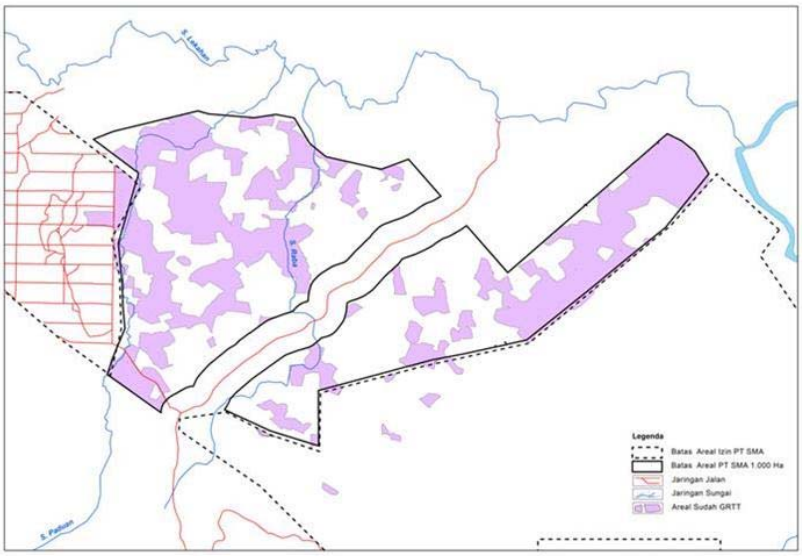


Figure 46. Land Compensation Map

3.4.5. FPIC Phase 5 - Discussion Process by the Community to Make Decisions

A vital stage in FPIC is the process of discussion among the community to make decisions consciously, armed with adequate information and without coercion. Decisions taken must be free from external pressure, intimidation, coercion, manipulation, and also internal pressure from the village officials themselves.

The process of discussion in the community has been carried out through interviews and discussions / FGDs with stakeholders who have interactions or who are affected by the planned development and development of oil palm plantations by PT SMA in the area of additional permits covering an area of 1,000 Ha. The summary of the results of the discussion process (interviews and discussions) on FPIC activities is as follows

Pangkalan Jihing Hamlet

- There is no GRL activity carried out by the company.
- Companies must comply with customary rules, regarding which land can be acquired and which cannot be acquired. Land that cannot be acquired, among others, such as; settlement, cemetery, Tembawang, honey / bangris tree, mentawa tree, and durian tree.
- The village head cannot force and depends on the will and negotiation between the company and residents.
- The company together with the residents of the hamlet take joint land measurements / participatory mapping of shared land.
- In the joint measurement, at least the village head, BPD, RT / RW chair, and land owner are involved.
- The expectation of hamlet residents when releasing their land, is there must be compensation for labor recruitment for residents / children, plasma plantation compensation, and compensation in the form of company assistance (CSR programs) for residents.
- Cooperation / partnership between the company and citizens is required as outlined in the agreement on the seal.

Cali Hamlet

- Land is obtained by inheritance, farming and buying to other residents based on agreement.
- There are community concerns related to the extent of their land, if the measurement is only done by the company. And residents asked if the measurements were carried out together, then the extent could be known right then and there.
- The release and price of land is adjusted to the negotiation between the company and the direct land owner. In addition, after an agreement was made, residents asked the company not to wait for GRL payments / compensation.
- The hope of the residents if releasing their land is the existence of compensation from the company, in the form of recruitment of workers for their children / residents of the village, plasma plantation rewards, compensation for CSR assistance.

- In addition to plasma, so that the company can give to the village or hamlet such as village cash land or hamlet cash land.
- Customary rules relating to land that cannot be acquired or may not be acquired / sold to companies, such as honey tree species, burial grounds.

From the discussion process that was carried out obtained several important points of joint decisions, namely:

1) If there is a conflict, then the negotiations carried out at least involve the involvement of several figures including: Village chief, Chairperson of Customary Affairs, Management of RT, RW, Tumenggung (Traditional Figure) including Chiefs of Tribes, Malay Customary Cultural Council.
2) If the company has several GRL activities, land measurement, High Carbon Stock activities, at least involve these figures with the involvement of landowners. In addition, to facilitate the negotiation process on land acquisition, it is necessary to form a village / hamlet land acquisition team consisting of the village head, BPD, RT chairman, RW chairman, land owner.
3) The hopes and desires of villagers / hamlet towards PT SMA, are:
    a) Providing an effective explanation of the planned activities for the development of oil palm plantations in the area of the addition of the location of PT SMA permit before it starts;
    b) Conducting direct consultations with community representatives (Village chief, Adat Chairperson, RT, RW, Tumenggung / Customary Leaders including Tribal Chief, Malay Cultural Customary Council).
    c) Carrying out public consultations with the wider community including vulnerable people such as women, the elderly, less educated, and so on.
    d) Give priority to as far as possible the provision of employment opportunities to local communities who meet the requirements.
    e) Providing training to residents through CSR programs on counseling and assistance in agriculture, plantation, fisheries, and animal husbandry.
    f) Companies must comply with customary rules regarding which land can be acquired and which cannot be acquired. Land that cannot be acquired, among others, such as; settlement, cemetery, Tembawang, honey / bangris tree, Mentawa tree, and durian tree.
    g) The company together with the residents of the hamlet take joint land measurements / participatory mapping of shared land.
    h) Cooperation / partnerships between companies and citizens need to be made as stated in the agreement on the seal.
    i) The release and price of land is adjusted to the negotiation between the company and the direct land owner. In addition, after an agreement was made, residents asked the company not to wait for GRL payments / compensation.

3.4.6. FPIC Phase 6 - Summarizing the Results of Activities, Confirmation and Verification of Agreements

From the results of the FPIC 1 process activities to the FPIC 5 process, key points can be summarized including:

1) Stakeholders in the FPIC study area are rights holders (land owners without certificates / SKT / SPPT).
2) Important representative institutions in the village or hamlet are Village chief, Traditional Chairperson, RT, RW, Tumenggung (Customary Leaders) including Tribal Chief, Malay Cultural Customary Council related to village / hamlet conflict and Village head, BPD, RT Chairman, RW Chairpersons, Landowner related to land compensation.
3) The formation of a working group called the desa team which has a duty in land acquisition, Land Compensation as well as in participatory mapping that involves a minimum of Village head, BPD, RT heads, RT heads, and land owners.
4) Participatory mapping is carried out to identify important areas related to social HCVs (HCV 4, HCV 5 & HCV 6) and identification of land / village residents' land use or ownership in PT SMA concession area.
5) Compilation of the company's work plan after the participatory mapping process and discussion with villagers / village, such as the time plan for the measurement of the residents' land in the concession, planning of plasma estate realization, clarity of CSR programs, Management and monitoring of conservation areas (HCV-HCS), as well as the company's work plan in an effort to overcome various kinds of social and environmental impacts.
6) Conduct a discussion process with the two village (Pangkalan Jihing Hamlet and Cali Hamlet) with a number of important points in the decision of peace as in FPIC in the FPIC process stage 5.

CHAPTER 4. Summary of Management Plans

4.1. Team responsible for development and implementation of management plans

Show the key personnel that is involved during the development and implementation of management plans.

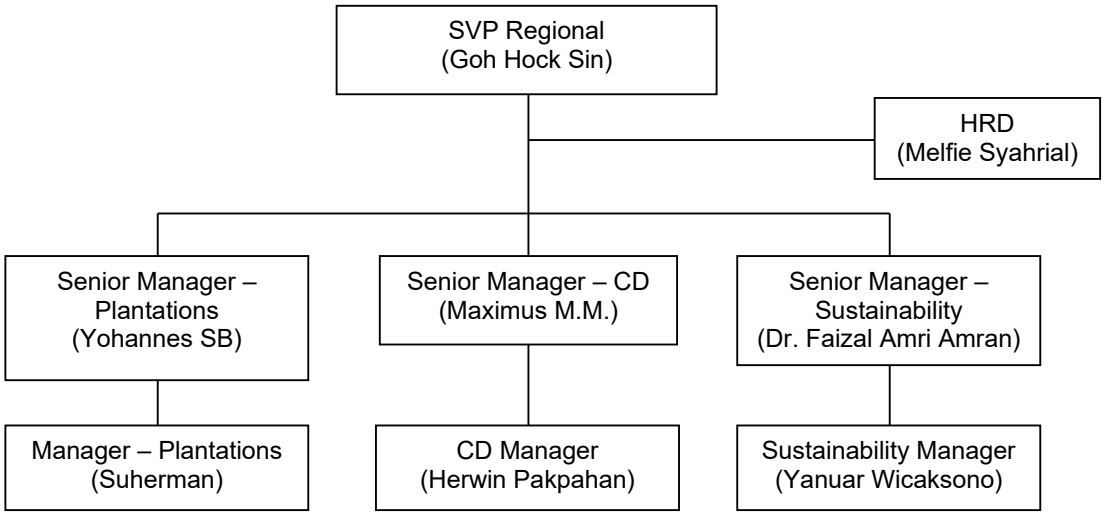


Figure 47. Team responsible for development & implementation of management plans

4.2. Stakeholder to be involved

Stakeholders are parties who give or receive influence from existence oil palm plantation in PT SMA additional 1000 Ha. The parties referred to in this study focused on key stakeholder, are parties directly, significant and interactive and give each other a sustainability stakeholder.

In addition to involving stakeholders in HCV identification, PT SMA in the future in management and monitoring is also shared with stakeholders, such as conducting studies on the conservation of natural resources and ecosystems with the BKSDA, the Community and NGOs engaged in the environment, coordinating with companies around them, and the Forestry Service in the management of HCV areas that are interconnected and coordinate and collaborate with the community and related agencies in order to prevent, protect, and overcome disturbances to the river and its boundaries, and hilly areas, as well as effective law enforcement.

4.3. Elements to be included in management plans

4.3.1. Elements to be included for SEIA

Management Plan for Important Issues or Strategic Issues of PT SMA additional 1000 Ha

No	Sources of Strategic Issues	Types of Important / Strategic Issues	Social Management Plan	Indicators of Social Management Success	Management Location
1	**Nature Resources**				
	Land	The majority of the residents move to the fields by burning with rice crops	• Routine socialization of prohibitions on burning forests and fields • Installation of information boards prohibiting burning forests and land	• Providing understanding to residents on the prohibition of burning forest and land. • Mounting signs or information boards prohibiting burning	• Pangkalan Jihing Hamlet • Cali Hamlet
		Ownership (who owns) and land area in the additional 1,000 hectares area of PT SMA is not yet clear for each hamlet	• In-depth FPIC activities related to participatory mapping, stakeholder identification, involvement of villagers or landowners in participatory land measurement surveys • Socializing the results of land measurements to villagers or hamlet residents • Land Compensation socialization • CSR programs in agricultural development	• Providing understanding to residents regarding the Land Compensation process • Resolution of Land Compensation (clear and clean) problems in each village • Implementation of CSR programs in agriculture	• Pangkalan Jihing Hamlet • Cali Hamlet
		The status of land ownership in an additional 1,000 hectare area does not yet have an official certificate, both SKT (Land Certificate) and SPPT (Land Use Statement)			
		Residents assume that the land that they work on for agricultural and plantation cultivation in the area of PT SMA additional permits is the property / inheritance of the previous parents			
		Residents are eagerly awaiting the land compensation process in opening up the additional 1,000 hectares of PT SMA			
		Residents of Pangkalan Jihing Hamlet want communal rice fields to be opened for residents if 1,000 hectares of land are cleared later			
	Water sources	Most of the residents of Pangkalan Jihing Hamlet do bath wash toilet (including) defecation in the Lekahan River (estuary of the Paduan River and Raba River), Berensang	• CSR programs in the health sector (fulfillment of clean water sources). • River border management CSR program • Routine socialization related to the	• Improve sanitation and availability of clean water sources for villagers / village • Improve the function of river	• Pangkaan Jihing Hamlet

No	Sources of Strategic Issues	Types of Important / Strategic Issues	Social Management Plan	Indicators of Social Management Success	Management Location
		River, Belianamun River, and Lekahan Putih River	results of river water quality tests to villagers or village	borders for animal corridors and other functions. • Dissemination of water quality testing to the village and hamlet residents	
2	**Human Resources**				
	Education	The education level of the study village community is generally low	• CSR programs in the field of education both education and non formal education (agricultural counseling, fisheries counseling, etc.).	• Availability of achievement scholarships for elementary, middle, high school to college students. • Assistance of teachers who are still in honorarium status every month. • Facilitated EPE (Education Player Equipment) for PAUD schools in the villages around PT SMA	• Pangkalan Jihing Hamlet • Cali Hamlet
		Residents' knowledge is still low regarding how to catch fish			
		In some village there is a shortage of teachers, both kindergarten, elementary and teacher teachers	• CSR programs in the field of education (schoolchildren's scholarships, teacher / educator scholarships, teacher / educator honorarium assistance). • Facilitate the provision of educators / teachers in coordination with the local Education Office		
		Teacher honorarium / welfare of PAUD / TK teachers in village around the company are still considered minimal and lacking			
	Working	Age restrictions on workers (over 45 years) may not work in companies again	• Outreach to villagers or village related to labor recruitment	• Absorbing workforce from surrounding villages • Declining unemployment in each village • Socialization related to labor recruitment can be understood and accepted by villagers • Improve the competence of local workers from surrounding villages	• Pangkalan Jihing Hamlet • Cali Hamlet
	Knowledge of agricultural cultivation	Counseling activities by Field Extension Officers (PPL) are still relatively low because PPL officers rarely come to the hamlet	• CSR programs in the field of education (non-formal education / non-school education) such as agricultural extension, fisheries, plantations, animal husbandry, etc. • Facilitating personnel or PPL in collaboration with the local Agriculture, Forestry and Plantation Office	• Increase knowledge, attitudes and skills of citizens in the cultivation of agriculture, plantations, animal husbandry, etc. • Formation of farmer groups / herds	• Pangkalan Jihing Hamlet • Cali Hamlet

No	Sources of Strategic Issues	Types of Important / Strategic Issues	Social Management Plan	Indicators of Social Management Success	Management Location
				• The existence of an agricultural business unit or livestock business unit in the village	
3	**Finance resources**				
	Income sources (employment, natural resources, physical resources, transfers)	Residents want that if they release their land for oil palm plantations, there will be compensation for plasma plantations	• Advanced FPIC related to decision making and agreement stages • Conduct MOU related to Land Compensation and Plasma Gardens with villages or village. • Socialization and realization of smallholdings for villagers or village	• Providing understanding to residents regarding the Land Compensation process • Resolution of Land Compensation (clear and clean) problems in each village • Implementation of CSR programs in agriculture	• Pangkalan Jihing Hamlet • Cali Hamlet
		Residents object if the location of the plasma estate is far from the location of the nucleus estate or far from the location of the hamlet (Pangkalan jihing or Cali)			
	Local economic institutions	In some village, BUMDes have been planned, but currently only as a discourse	• Assistance or facilitation of management of BUMdes through collaboration with relevant agencies	• Promote BUMDes in the village and open up new business cooperation opportunities to increase village income. • Establishment of a business unit managed by BUMDes	• Pangkalan Jihing Hamlet • Cali Hamlet
4	Social Sources				
	Social / Cultural Stability	The area of PT SMA additional permit area is surrounded by community gardens, which often carry out their land management with a fuel system	• Routine socialization of prohibitions on burning forests and fields • Installation of information boards prohibiting burning forests and land	• Providing understanding to residents on the prohibition of burning forest and land. • Mounting signs or information boards prohibiting burning	• Pangkalan Jihing Hamlet • Cali Hamlet
		Social jealousy between villages	• Facilitating reconciliation of potential conflicts	• Resolution of potential conflicts in the hamlet	• Pangkalan Jihing Hamlet
		Distrust of some people in certain community leaders			
		Residents' concerns are related to water	• CSR programs in the health sector	• Improve sanitation and	Pangkaan Jihing

No	Sources of Strategic Issues	Types of Important / Strategic Issues	Social Management Plan	Indicators of Social Management Success	Management Location
		pollution due to the proximity of the company's oil palm plantation to the river	(fulfillment of clean water sources). • River border management CSR program • Routine socialization related to the results of river water quality tests to villagers or village.	availability of clean water sources for villages / hamlet • Improve the function of river borders for animal corridors and other functions. • Dissemination of water quality testing to the village and hamlet residents	Hamlet
		The negative perception of citizens is related to the GRL plan	• Socializing the results of land measurements to villagers or hamlet residents • Land Compensation socialization	• Providing understanding to residents regarding the Land Compensation process • Resolution of Land Compensation (clear and clean) problems in each village • Implementation of CSR programs in agriculture	• Pangkalan Jihing Hamlet • Cali Hamlet
	Village Government	The role and function of village institutions, the existing Malay Cultural Adat Council (MABM), is still minimal	• Revive village organizations or institutions through collaboration with the Village Government and Indigenous Leaders, Female Leaders, Youth Leaders, Religious Leaders, etc.	• Increase the capacity of human resources knowledge and skills in the management of village organizations or institutions	• Pangkalan Jihing Hamlet • Cali Hamlet
		There are no social activities provided by an institution			
5	Physic Resources				
	Buying and selling system and market	There are no specific locations for the sale of agricultural produce, such as village markets, so that hamlet residents find it difficult to sell their crops	• Cooperation with the Village Government to organize the village market • Collaboration with farmers to sell agricultural products	• Increased cooperation between PT SMA and the village government and farmers / agricultural products •	• Pangkalan Jihing Hamlet • Cali Hamlet
		Minimal handling of post-harvest results			
	Road network / transportation facilities	Village conditions and locations, which are mostly difficult to access, cause the flow of goods and services to run very slowly	• Environmental CSR programs related to facilitation or heavy equipment assistance for road repair	• Increased quality of roads in village	• Pangkalan Jihing Hamlet • Cali Hamlet
	School	In some village only the highest educational	• CSR programs in education	• Increasing the quality of	• Pangkalan Jihing

No	Sources of Strategic Issues	Types of Important / Strategic Issues	Social Management Plan	Indicators of Social Management Success	Management Location
		facilities available are elementary education facilities		education of villagers / village	Hamlet • Cali Hamlet
	Clean Water Source	Community limitations in accessing clean water facilities and infrastructure, especially in Pangkalan Jihing Hamlet	• Health CSR Program (Clean Water Fulfillment)	• Improve sanitation and availability of clean water sources for villagers / village	• Pangkalan Jihing Hamlet • Cali Hamlet
	Street	The village / hamlet roads are damaged. Most of the access roads to villages are still in the form of dirt roads and potholes	• Environmental CSR programs related to facilitation or heavy equipment assistance for road repair	• Increased quality of roads in village	• Pangkalan Jihing Hamlet • Cali Hamlet
	Healthy	In each village / hamlet, the condition of health facilities and infrastructure both where the bath wash toilet is located, the place of garbage disposal is still very minimal	• CSR programs in the health sector including health education, such as PHBS (Clean and Healthy Behavior)	• Improve sanitation and health of villagers / village • Increased PHBS in village	• Pangkalan Jihing Hamlet • Cali Hamlet
		Limited access of residents to polindes or auxiliary health centers due to road conditions and distance traveled	• CSR programs in the health sector in collaboration with the local Health Office	• Access to public health to the nearest Dinas or Puskesmas	• Pangkalan Jihing Hamlet • Cali Hamlet

Monitoring Plans for Important Issues or Strategic Issues of PT SMA

No	Sources of Strategic Issues	Types of Important / Strategic Issues	Social Monitoring Plan	The Purpose of Social Monitoring	Monitoring Important / Strategic Issues		
					Location	Period	Method
1	**Natur Resources**						
	Land	The majority of the residents move to the fields by burning with rice crops	• Ensure regular socialization of the prohibition on burning forests and fields • Monitor information boards prohibiting burning forests and land	• Knowing the implementation of socialization to residents of the prohibition of burning forest and land. • Ensure signs or information boards are prohibited from burning	• Pangkalan Jihing Hamlet • Cali Hamlet	Once every 6 months and carried out periodically	• Interview • FGD • Field observations • documentation
		Ownership (who owns) and land area in the additional 1,000 hectares area of PT SMA is not yet clear for each hamlet	• In-depth monitoring of FPIC activities related to participatory mapping, stakeholder identification, involvement of villagers or landowners in participatory land measurement surveys • Ensuring the socialization of land measurement results to villagers or hamlet residents • Ensuring Land Compensation socialization • Monitoring CSR programs in agricultural development	• Knowing FPIC implementation is related to the Land Compensation process • Resolution of Land Compensation (clear and clean) problems in each village • Optimizing CSR programs in agriculture	• Pangkalan Jihing Hamlet • Cali Hamlet	Once every 6 months and carried out periodically	• Interview • FGD • Field observations • documentation
		The status of land ownership in an additional 1,000 hectare area does not yet have an official certificate, both SKT (Land Certificate) and SPPT (Land Use Statement)					
		Residents assume that the land that they work on for agricultural and plantation cultivation in the area of PT SMA additional permits is the property / inheritance of the previous parents					
		Residents are eagerly awaiting the land compensation process in opening up the additional 1,000 hectares of PT SMA					

No	Sources of Strategic Issues	Types of Important / Strategic Issues	Social Monitoring Plan	The Purpose of Social Monitoring	Monitoring Important / Strategic Issues		
					Location	Period	Method
		Residents of Pangkalan Jihing Hamlet want communal rice fields to be opened for residents if 1,000 hectares of land are cleared later					
	Water source	Most of the residents of Pangkalan Jihing Hamlet do bath wash toilet (including) defecation in the Lekahan River (estuary of the Paduan River and Raba River), Berensang River, Belianamun River, and Lekahan Putih River	• Monitor the implementation of CSR programs in the health sector (fulfillment of clean water sources). • Monitoring of CSR programs on river border management • Ensure routine outreach activities related to the results of river water quality tests to villagers or village.	• Availability of sanitation facilities and availability of clean water sources for villagers / village • Monitoring of river border functions for animal corridors and other functions. • Dissemination of water quality testing to the village and hamlet residents	• Pangkaan Jihing Hamlet	Once every 6 months and carried out periodically	• Interview • FGD • Field observations • documentation
2	**Human Resources**						
	Education	The education level of the study village community is generally low	• Monitoring the CSR programs in the field of education both education and non-formal education (agricultural counseling, fisheries counseling, etc.).	• Knowing the development of achievement scholarships for elementary, middle, high to college students. • Knowing the number of teachers who are still in honorarium status each month. • Knowing the number of EPE facilities for PAUD schools in the villages around PT SMA	• Pangkalan Jihing Hamlet • Cali Hamlet	Once every 6 months and carried out periodically	• Interview • FGD • documentation
		Residents' knowledge is still low regarding how to catch fish					
		In some village there is a shortage of teachers, both kindergarten, elementary and teacher teachers	• Monitoring CSR programs in the field of education (schoolchildren's scholarships, teacher / educator scholarships, teacher / educator honorarium assistance). • Ensuring the facilitation of the provision of educators / teachers by coordinating with the local Education Office				
		Teacher honorarium / welfare of PAUD / TK teachers in village around the company are still considered minimal and lacking					

No	Sources of Strategic Issues	Types of Important / Strategic Issues	Social Monitoring Plan	The Purpose of Social Monitoring	Monitoring Important / Strategic Issues		
					Location	Period	Method
			•				
	Working	Age restrictions on workers (over 45 years) may not work in companies again	• Monitoring the socialization activities of villagers or village related to recruitment of workers	• Ensure the absorption of labor from surrounding villages • Maximizing the reduction in unemployment in each village • Ensuring that socialization activities related to labor recruitment can be understood and accepted by villagers • Know the level of competence of local workers from surrounding villages	• Pangkalan Jihing Hamlet • Cali Hamlet	Once every 6 months and carried out periodically	• Interview • FGD • documentation
	Knowledge of agricultural cultivation	Counseling activities by Field Extension Officers (PPL) are still relatively low because PPL officers rarely come to the hamlet	• Monitoring CSR programs in education (non-formal education / non-school education) such as agricultural extension, fisheries, plantations, animal husbandry, etc. • Ensure the implementation of staff or PPL facilitation through collaboration with the local Agriculture, Forestry and Plantation Office	• Ensuring to increase knowledge, attitudes and skills of residents in farming, plantation, animal husbandry, etc. • Optimizing the formation of farmer groups / herds • Ensuring the existence of an agricultural business unit or livestock business unit in the village	• Pangkalan Jihing Hamlet • Cali Hamlet	Once every 6 months and carried out periodically	• Interview • FGD • Field observations • documentation
3	**Finance Resources**						
	Income	Residents want that if they release their land for oil palm plantations, there will	• Carry out further FPIC	• Providing	• Pangkalan	Once every 6	• Interview

No	Sources of Strategic Issues	Types of Important / Strategic Issues	Social Monitoring Plan	The Purpose of Social Monitoring	Monitoring Important / Strategic Issues		
					Location	Period	Method
	sources (employment, natural resources, physical resources, transfers)	be compensation for plasma plantations Residents object if the location of the plasma estate is far from the location of the nucleus estate or far from the location of the hamlet (Pangkalan jihing or Cali)	monitoring related to the decision making and agreement stages • Ensure that MOUs are related to Land Compensation and Plasma Gardens with villages or village. • Ensure the socialization and realization of smallholdings for villagers or village	understanding to residents regarding the Land Compensation process • Resolution of Land Compensation (clear and clean) problems in each village • Implementation of CSR programs in agriculture	Jihing Hamlet • Cali Hamlet	months and carried out periodically	• FGD • Field observations • documentation
	Local economic institutions	In some village, BUMDes (Village-owned business entity) have been planned, but currently only as a discourse	• Monitor assistance or facilitate the management of BUMdes through collaboration with relevant agencies	• Optimizing BUMDes in the village and opening up new business cooperation opportunities to increase village income. • Ensuring the formation of business units managed by BUMDes	• Pangkalan Jihing Hamlet • Cali Hamlet	Once every 6 months and carried out periodically	• Interview • FGD • Field observations • documentation
4	**Social Resources**						
	Social / Cultural Stability	The area of PT SMA additional permit area is surrounded by community gardens, which often carry out their land management with a fuel system	• Monitor routine socialization activities prohibiting the burning of forests and fields • Monitor information boards prohibiting burning forests and land that has been installed	• Improve understanding of residents on the prohibition of burning forest and land. • Monitoring of signs or information boards prohibiting burning	• Pangkalan Jihing Hamlet • Cali Hamlet	Once every 6 months and carried out periodically	• Interview • FGD • Field observations • documentation
		Social jealousy between villages Distrust of some people in certain community leaders	• Monitor the facilitation of reconciliation of potential conflicts	• Ensure the resolution of potential conflicts in the hamlet	• Pangkalan Jihing Hamlet	Once every 6 months and carried out periodically	• Interview • FGD • Field observations

No	Sources of Strategic Issues	Types of Important / Strategic Issues	Social Monitoring Plan	The Purpose of Social Monitoring	Monitoring Important / Strategic Issues		
					Location	Period	Method
							• documentation
		Residents' concerns are related to water pollution due to the proximity of the company's oil palm plantation to the river	• Monitoring CSR programs in the health sector (fulfilling clean water sources). • Monitoring the CSR program for river border management • Ensure routine outreach activities related to the results of river water quality tests to villagers or village.	• Knowing improved sanitation and availability of clean water sources for villagers / village • Knowing the improvement of river border functions for animal corridors and other functions. • Ensuring that water quality testing is disseminated to the village and hamlet residents	Pangkaan Jihing Hamlet	Once every 6 months and carried out periodically	• Interview • FGD • Field observations • documentation
		The negative perception of citizens is related to the GRL plan	• Monitoring the socialization of the results of land measurements to villagers or hamlet residents • Monitored the activities of the Land Compensation socialization	• Knowing the understanding of citizens related to the Land Compensation process • Ensure that Land Compensation (clear and clean) problems are resolved in each village • Ensuring the implementation of CSR programs in agriculture	• Pangkalan Jihing Hamlet • Cali Hamlet	Once every 6 months and carried out periodically	• Interview • FGD • Field observations • documentation
	Village governance	The role and function of village institutions, the existing Malay Cultural Adat Council (MABM), is still minimal	• Monitor the activities of assisting / fostering village organizations or institutions through collaboration with the	• Knowing the increase in the capacity of knowledge and HR skills in the	• Pangkalan Jihing Hamlet • Cali Hamlet	Once every 6 months and carried out periodically	• Interview • FGD • Field observations

No	Sources of Strategic Issues	Types of Important / Strategic Issues	Social Monitoring Plan	The Purpose of Social Monitoring	Monitoring Important / Strategic Issues		
					Location	Period	Method
		There are no social activities provided by an institution	Village Government and Traditional Leaders, Women Leaders, Youth Leaders, Religious Leaders, etc.	management of village organizations or institutions			• documentation
5	Physical Resources						
	Buying and selling system and market	There are no specific locations for the sale of agricultural produce, such as village markets, so that hamlet residents find it difficult to sell their crops Minimal handling of post-harvest results	• Monitor collaboration with the Village Government to organize village markets • Monitoring cooperation with farmers for the sale of agricultural products	• Knowing the establishment of cooperation between PT SMA and the village government and farmers / agricultural products	• Pangkalan Jihing Hamlet • Cali Hamlet	Once every 6 months and carried out periodically	• Interview • FGD • Field observations • documentation
	Road network /transportation facilities	Village conditions and locations, which are mostly difficult to access, cause the flow of goods and services to run very slowly	• Ensuring the implementation of environmental CSR programs related to facilitation or assistance of heavy equipment for road repairs	• Knowing the improvement of the quality of roads in the village	• Pangkalan Jihing Hamlet • Cali Hamlet	Once every 6 months and carried out periodically	• Interview • FGD • Field observations • documentation
	School	In some village only the highest educational facilities available are elementary education facilities	• Ensuring the implementation of CSR programs in education	• Knowing the improvement in the quality of education of villagers / village	• Pangkalan Jihing Hamlet • Cali Hamlet	Once every 6 months and carried out periodically	• Interview • FGD • Field observations • documentation
	Clean Water Source	Community limitations in accessing clean water facilities and infrastructure, especially in Pangkalan Jihing Hamlet	• Ensuring the implementation of the CSR Health Program (Fulfillment of Clean Water)	• Knowing the improvement of sanitation quality and availability of clean water sources for villagers / village	• Pangkalan Jihing Hamlet • Cali Hamlet	Once every 6 months and carried out periodically	• Interview • FGD • Field observations • documentation
	Street	Damaged village / hamlet road facilities. Most of the access roads to villages are still in the form of dirt roads and potholes	• Ensuring the implementation of environmental CSR programs related to facilitation or assistance of heavy equipment for road repairs	• Knowing the improvement of the quality of roads in the village	• Pangkalan Jihing Hamlet • Cali Hamlet	Once every 6 months and carried out periodically	• Interview • FGD • Field observations • documentation

No	Sources of Strategic Issues	Types of Important / Strategic Issues	Social Monitoring Plan	The Purpose of Social Monitoring	Monitoring Important / Strategic Issues		
					Location	Period	Method
	Healthy	In each village / hamlet, the condition of health facilities and infrastructure both where the bath wash toilet is located, the place of garbage disposal is still minimal	• Ensuring the implementation of CSR programs in the health sector including health education, such as PHBS (Clean and Healthy Behavior)	• Knowing the improvement of sanitation and health of villagers / village • Knowing the increase in PHBS in village	• Pangkalan Jihing Hamlet • Cali Hamlet	Once every 6 months and carried out periodically	• Interview • FGD • Field observations • documentation
		Limited access of residents to polindes or auxiliary health centers due to road conditions and distance traveled	• Ensuring the implementation of CSR programs in the health sector in collaboration with the local Health Office	• Optimizing access to public health to the nearest Dinas or Puskesmas	• Pangkalan Jihing Hamlet • Cali Hamlet	Once every 6 months and carried out periodically	• Interview • FGD • Field observations • documentation

4.3.2. Elements to be included for HCV Assessment

HCV	Threat	Management Recommendation	Monitoring	
			Monitoring Recommendation	Periodic Monitoring
1	• Land clearing through / beyond HCV areas will cause damage or fragmentation of aquatic ecosystems, and water catchment areas. • Land clearing in areas that still have forest cover remaining either secondary dry land forest or secondary swamp forest. • Landfilling of the seasonal and permanent swamps for oil palm plantations. • Tree felling which is a source of food and playground for Orangutans. • The construction of roads and other facilities that pass through HCV areas will cause damage or fragmentation of aquatic ecosystems, and water catchment areas; and • Potential pollution of chemicals (fertilizers, herbicides and insecticides) that enter the water, so that it can affect the water quality and the life of aquatic biota both in rivers and in swamps. • The occurrence of illegal logging and encroachment activities (land clearing and illegal fields) as a result of the community's lack of understanding of the importance of conserving aquatic ecosystems, and water catchment areas;	• Boundaries marking and maintain this markers of the Raba & Paduan rivers border areas (50 m wide border), the buffer go area (250 metres wide) and no go area (250 metres wide) of Gunung Palung National Park, permanent & seasonal swamps. • Routine patrols in designated HCV areas. • Socialization internally and externally the importance of HCVs. • Installment HCV signboards for activities that have the potential to disturb HCV areas. • Preventing, protecting and controlling disturbances to HCV management areas (wildlife hunting, illegal logging and land clearing) through activities: installation and maintenance of HCV marks on strategic access points. • Conducting further detailed surveys to ensure population status and the presence of HCV1 species, especially Orang Utans, in collaboration with BKSDA, Communities and NGOs engaged in orangutan conservation. • To conduct awareness raising and awareness campaigns about orangutan conservation and pangolins and other wildlife that are protected, threatened, endemic and endangered status to employees and the community both directly and through various media such as leaflets, posters and prohibition boards. • Arrange SOP for rescuing Orang Utans as well as other wildlife that are protected, threatened, endangered and endemic, such as Pangolin.	• Conduct annual monitoring of HCV 1 species population in HCV Management Areas. • Develop a routine monitoring system to ensure that unlicensed gold mining and hunting activities are minimized. • Conduct periodic monitoring of the effectiveness of prevention, protection and mitigation activities against disturbances in HCV management areas that have been carried out. • Monitor the intensity of disturbances of river borders and wetland areas, including poaching illegal. • Conduct periodic monitoring of areas that have the potential to become orangutan habitat. • Carry out an inventory and monitoring of trees that as a orang utans feed source. • Conduct periodic monitoring of socialization programs and conservation campaigns for orangutans and other wildlife that are protected, threatened, endemic and endangered status to employees and the community through interviews, FGDs. • Monitor the effectiveness of the implementation of the Orang Utan Rescue Procedure. • Joint patrols of areas designated as orang utan corridors. • Conduct periodic monitoring of rehabilitation and restoration activities in river border areas and hilly areas in which there are springs. • Monitor the effectiveness of the implementation of SOPs. • Regular monitoring of staff and community	• for biodiversity, monitoring is carried out every 6 months • for disturbances and threats, monitoring is carried out in conjunction with patrol activities • socialization to both employees and the surrounding community is conducted every 6 months

HCV	Threat	Management Recommendation	Monitoring	
			Monitoring Recommendation	Periodic Monitoring
	• Drainage of permanent swamps and seasonal swamps for community cultivation purposes. • Illegal hunting of protected and endangered wildlife such as pangolins for sale and purchase. • The use of poisons to catch fish in seasonal swamp areas and river waters, • Forest conversion due to changes in RTRWP or RTRWK that do not consider the presence of HCV areas, which will cause damage or fragmentation of natural habitats. • Forest and land fires that can damage or fragment aquatic ecosystems and watersheds; and • Weak law enforcement	• Establish a Task Force to Manage Human Conflicts with Orang Utans. • Building partnerships between parties that border to establish an orangutan corridor and an early warning system for the existence of orangutans. • Carry out rehabilitation and restoration of river border areas, no-go buffer zone area of Gunung Palung National Park with local plant species such as forestry types, Durian and others. • Coordinate with related agencies in order to reduce poaching and encroachment within the concession area, and effective law enforcement. • Provision of patrolling facilities and infrastructure and prevention of land fires. • Training of MU staff related to (1) prevention and control of illegal logging, encroachment of areas, exotic and / or invasive species, and forest and land fires and (2) public outreach. • Improvement / refinement of SOPs (SOPs for prevention and control of exotic and invasive species, Land Clearing SOPs, SOPs for oil palm cultivation, SOPs for harvesting and transporting palm fruit, SOPs for building roads and other facilities, SOPs for forest protection, and SOPs for extension) . • Preparation of Swamp Management SOP, both permanent and seasonal. • Supervise land clearing activities, especially in areas that intersect with HCV areas that have been determined • Increasing the capacity of management staff	understanding levels through questionnaires and outreach. • Applied spatial-based monitoring "SMART Patrol", to obtain valid monitoring results. • Joint monitoring with BKSDA, Forest Service and Gunung Palung National Park on HCV areas that are interconnected	

HCV	Threat	Management Recommendation	Monitoring	
			Monitoring Recommendation	Periodic Monitoring
		through training. • Coordinate with the Forestry Service, BKSDA and Gunung Palung NP Head in managing interconnected HCV areas.		
2	• Land clearing through / beyond HCV areas will be caused natural habitat damage or fragmentation • Land clearing in areas that still have forest cover remaining either secondary dry land forest or secondary swamp forest. • Road and infrastructure construction disregards HCV areas, which could cause damages to or fragmentation of aquatic ecosystem and water catchment areas. • Landfilling of the permanent and seasonal swamps for oil palm cultivation. • Unprotected riverbanks could cause chemical pollution from herbicides and pesticides through uncontrolled runoff, affecting water quality and the lives of aquatic biota. • Illegal logging and encroachment due to lack of awareness on the importances of conserving aquatic ecosystem and water catchment areas. • Changes in RTRWP or RTRWK that disregard the existence of HCV areas, which could cause cause damages to or fragmentation of aquatic eco-system and water	• Conduct routine patrols in designated HCV areas. • Socialization internally and externally the importance of HCVs. • Installment of HCV signboards activities that have the potential to disturb HCV areas. • Preventing, protecting and controlling disturbances to HCV management areas (wildlife hunting, illegal logging) and encroachment through activities: installation and maintenance of HCV marks on strategic access points. • Carry out rehabilitation and restoration of river border areas, buffer zone no-go area of 250 meters wide in Gunung Palung National Park and other HCV areas with local plant species such as forestry plants, Durian and others. • Monitoring of the land clearing activities, especially those that intersect with HCV areas. • Coordinate with relevant agencies in order to reduce illegal hunting, illegal logging and unlicensed gold mining within the concession area, and effective law enforcement. • Provision of patrol facilities and infrastructure to prevent land fires. • Training of MU staff related to (1) prevention and control of illegal logging, encroachment	• Undertake annual population monitoring of HCV 2 species in the HCV management areas. • Develop a regular monitoring system to ensure the reduction of threats to HCV areas. • Undertake periodical monitoring to the effectiveness of prevention, protection, and mitigation activities of disturbances wihtin HCV management areas. • Undertake monitoring of intensity of disturbance to remaining secondary forest, that includes monitoring animal poaching. • Undertake regular monitoring of rehabilitation or restoration activities on the areas that are potential as stepping stone habitats. • Undertake the regular monitoring on the effectiveness of SOPs' implementation. • Undertake regular monitoring to the level of people and staff's understanding about HCVs, using questionaires and socialization activities. • Applied spatial-based monitoring "SMART Patrol", to obtain valid monitoring results. • Joint monitoring with BKSDA, Forest Service and Gunung Palung National Park on HCV areas that are interconnected	• monitoring of rehabilitation results is done every month • for biodiversity, monitoring is carried out every 6 months • for disturbances and threats, monitoring is carried out in conjunction with patrol activities

HCV	Threat	Management Recommendation	Monitoring	
			Monitoring Recommendation	Periodic Monitoring
	catchment areas. • Drainage of permanent and seasonal marshes for community cultivation activities • Forest/land fire could cause cause damages to or fragmentation of aquatic ecosystem and water catchment areas. • Lack of law enforcement	of areas, exotic and / or invasive species, and forest and land fires and (2) public outreach. • Improvement / refinement of SOPs (SOPs for prevention and control of exotic and invasive species, Land Clearing SOPs, SOPs for oil palm cultivation, SOPs for harvesting and transporting palm fruit, SOPs for building roads and other facilities, SOPs for forest protection, and SOPs for extension). • Increasing the capacity of management staff through training. • Coordinate with the Forestry Service, BKSDA and Gunung Palung National Park in managing • interconnected HCV areas.		
3	• Land clearing through / beyond HCV areas will be caused natural habitat damage or fragmentation • Land clearing in areas that still have forest cover remaining either secondary dry land forest or secondary swamp forest. • Road and infrastructure construction disregards HCV areas, which could cause damages to or fragmentation of aquatic ecosystem and water catchment areas. • Landfilling of the permanent and seasonal swamps for oil palm cultivation. • Unprotected riverbanks could cause chemical pollution from herbicides and pesticides through uncontrolled runoff, affecting water quality and	• Conduct routine patrols in designated HCV areas. • Socialization internally and externally the importance of HCVs. • Installment of HCV signboards activities that have the potential to disturb HCV areas. • Preventing, protecting and controlling disturbances to HCV management areas (wildlife hunting, illegal logging) and encroachment through activities: installation and maintenance of HCV marks on strategic access points. • Carry out rehabilitation and restoration of river border areas, buffer zone no-go area of 250 meters wide in Gunung Palung National Park and other HCV areas with local plant species such as forestry plants, Durian and others. • Monitoring of the land clearing activities,	• Conduct routine patrols in designated HCV areas. • Socialization Internally and externally the importance of HCVs. • Installment HCV area signboards on activities that have the potential to disturb HCV areas. • Preventing, protecting and controlling disturbances to HCV management areas (wildlife hunting, illegal logging) and encroachment through activities: installation and maintenance of HCV marks on strategic access points. • Carry out rehabilitation and restoration of river border areas, buffer zone no-go area of 250 meters wide in Gunung Palung National Park and other HCV areas with local plant species such as forestry plants, Durian and others. • Monitor land clearing activities, especially those that intersect with HCV areas	• for biodiversity, monitoring is carried out every 6 months • for disturbances and threats, monitoring is carried out in conjunction with patrol activities • socialization to both employees and the surrounding community is conducted every 6 months • monitoring of rehabilitation results is done every month

HCV	Threat	Management Recommendation	Monitoring	
			Monitoring Recommendation	Periodic Monitoring
	the lives of aquatic biota. • Illegal logging and encroachment due to lack of awareness on the importances of conserving aquatic ecosystem and water catchment areas. • Changes in RTRWP or RTRWK that disregard the existence of HCV areas, which could cause cause damages to or fragmentation of aquatic eco-system and water catchment areas. • Drainage of permanent and seasonal marshes for community cultivation activities, • Forest/land fire could cause damages to or fragmentation of aquatic ecosystem and water catchment areas. • Lack of law enforcement.	especially those that intersect with HCV areas. • Coordinate with relevant agencies in order to reduce illegal hunting, illegal logging and unlicensed gold mining within the concession area, and effective law enforcement. • Provision of patrol facilities and infrastructure to prevent land fires. • Training of MU staff related to (1) prevention and control of illegal logging, encroachment of areas, exotic and / or invasive species, and forest and land fires and (2) public outreach. • Improvement / refinement of SOPs (SOPs for prevention and control of exotic and invasive species, Land Clearing SOPs, SOPs for oil palm cultivation, SOPs for harvesting and transporting palm fruit, SOPs for building roads and other facilities, SOPs for forest protection, and SOPs for extension). • Increasing the capacity of management staff through training. • Coordinate with the Forestry Service, BKSDA and Gunung Palung National Park in managing interconnected HCV areas.	• Coordinate with relevant agencies in order to reduce illegal hunting, illegal logging and unlicensed gold mining within the concession area, and effective law enforcement. • Provision of patrol facilities and infrastructure to prevent land fires. • Training of MU staff related to (1) prevention and control of illegal logging, encroachment of areas, exotic and / or invasive species, and forest and land fires and (2) public outreach. • Improvement / refinement of SOPs (SOPs for prevention and control of exotic and invasive species, Land Clearing SOPs, SOPs for oil palm cultivation, SOPs for harvesting and transporting palm fruit, SOPs for building roads and other facilities, SOPs for forest protection, and SOPs for extension). • Increasing the capacity of management staff through training • Coordinate with the Forestry Service, BKSDA and Gunung Palung National Park in managing interconnected HCV areas.	
4	• Land clearing through / beyond HCV areas will be caused natural habitat damage or fragmentation • Land clearing in areas that still have forest cover remaining either secondary dry land forest or secondary swamp forest • Road and infrastructure construction disregards HCV areas, which could cause damages to or	• Undertake boundaries marking and maintain this markers of the Raba & Paduan rivers border areas (50 m wide border), the buffer go area (250 metres wide) and no go area (250 metres wide) of Gunung Palung National Park, permanent & seasonal swamps • Installment HCV signboards on activities that have the potential to disturb HCV areas. • Rehabilitation open land around the bridge to	• Establish monitoring stations of river and spring physical condition, as well as water quality and quantity in the Raba and Paduan rivers. • Conduct periodic joint monitoring with community of the river's physical condition, as well as the quality and quantity of river water and springs. • Conduct periodic monitoring of gold mining activities without permission by the community. • Perform erosion monitoring periodically	• monitoring of the quality and quantity of the surrounding waters is done every 6 months • for disturbances and threats, monitoring is carried out in conjunction with patrol activities • socialization to both employees and the

HCV	Threat	Management Recommendation	Monitoring	
			Monitoring Recommendation	Periodic Monitoring
	fragmentation of aquatic ecosystem and water catchment areas. • Landfilling of the permanent and seasonal swamps for oil palm cultivation • Unprotected riverbanks could cause chemical pollution from herbicides and pesticides through uncontrolled runoff, affecting water quality and the lives of aquatic biota. • Illegal logging and encroachment due to lack of awareness on the importances of conserving aquatic ecosystem and water catchment areas. • Changes in RTRWP or RTRWK that disregard the existence of HCV areas, which could cause cause damages to or fragmentation of aquatic eco-system and water catchment areas. • Drainage of permanent and seasonal marshes for community cultivation activities • Forest/land fire could cause damages to or fragmentation of aquatic ecosystem and water catchment areas. • Lack of law enforcement.	prevent erosion and sedimentation. • Preventing and controlling unlicensed gold mining in HCVs through activities: installation and maintenance of HCV marks on strategic access points, and routine patrols. • Applied best management practices through soil and water conservation activities • Supervise land clearing especially those that intersect with HCV areas. • Apply cover crops on roads and hilly areas to reduce soil erosion. • Develop and implement SOPs on the use of chemicals and SOP on waste management, as well as SOP on land clearing, construction and maintenance of roads and other facilities, as well as planting and maintaining plants that can minimize erosion and maintain water quality. • Ensure that road construction activities and other facilities, as well as land clearing have been carried out correctly in accordance with the SOP that has been prepared. • Considering that all river borders and areas are currently controlled by the community, it is necessary to further discuss with the community through FPIC activities to obtain approval whether or not to compensate. • Coordinate and collaborate with the community and related institutions in order to prevent, protect and overcome disruptions to rivers and their watersheds, and hilly areas, and effective law enforcement. • Increasing the capacity of management staff through training. • Coordinate with the Forestry Service, BKSDA	• Conduct periodic monitoring of land cover change and natural regeneration in river borders and hilly areas. • Monitor and evaluate SOPs that are applied periodically. • Regular monitoring of staff and community level understanding through questionnaires and outreach. • Applied spatial-based monitoring "SMART Patrol", to obtain valid monitoring results. • Conduct joint monitoring with BKSDA, Gunung Palung National Park, Forest Service on HCV areas that are interconnected.	surrounding community is conducted every 6 months • monitoring of rehabilitation results is done every month

HCV	Threat	Management Recommendation	Monitoring	
			Monitoring Recommendation	Periodic Monitoring
		and Gunung Palung National Park in managing interconnected HCV areas.		
5	• Road and infrastructure construction disregards HCV areas, which could cause damages to or fragmentation of aquatic ecosystem and water catchment areas, • Streamlining the river for the benefit of farming which will change the flow of water to downstream areas, • Unprotected riverbanks could cause chemical pollution from herbicides and pesticides through uncontrolled runoff, affecting water quality and the lives of aquatic biota, • Occurrence of illegal logging and encroachment activities; • Fishing using poisons and electricity which will affect the productivity of the river and the quality of the river water. • Forest conversion due to changes in RTRWP or RTRWK that do not consider the presence of HCV areas; • Forest and land fires; and • Weak law enforcement.	• Undertaken boundary marking and maintenance of participatory boundary markers of river border areas (width of 50 m width). This activities is integrated with the management of HCV 1 and HCV 4. • Dissemination both internally and externally regarding activities that have the potential to pollute river waters. • HCV nameplate and prohibition signs installed on activities that have the potential to disturb HCV areas. • Preventing and controlling unlicensed gold mining in NKTA through activities: installation and maintenance of HCV marks on strategic access points, and routine patrols. • Develop and implement SOPs on the use of chemicals and SOP on waste management, as well as SOP on land clearing, construction and maintenance of roads and other facilities, as well as planting and maintaining plants that can minimize erosion and maintain water quality. • Further discussion with the community through FPIC activities to get approval whether or not it needs to be compensated. • Coordinate and collaborate with the community and related institutions in order to prevent, protect and overcome disruptions to the river and its watershed and effective law enforcement. • Increasing the capacity of management staff through training. • Coordinate with the Forestry Service, BKSDA	• Undertake regular monitoring (twice a year) on the quality of Paduan and Raba Rivers. • Develop and implement a participatory monitoring system to regularly track the basic needs of local people. • Undertake regular monitoring on the local people participation in reducing environmental impacts (for example: use of fertilizer or pesticide in their own cultivation areas). This will be integrated to HCV 4. • Undertake regular monitoring to the level of people and staff's understanding about the quality and quantitiy of rivers. • Applied spatial-based monitoring "SMART Patrol", to obtain valid monitoring results. • Conduct joint monitoring with BKSDA, Gunung Palung National Park, Forest Service on HCV areas that are interconnected.	• monitoring of the quality and quantity of the surrounding waters is done every 6 months • monitoring and analysis of needs and community involvement is carried out once a year

HCV	Threat	Management Recommendation	Monitoring	
			Monitoring Recommendation	Periodic Monitoring
		and Gunung Palung National Park in managing HCV areas that are interconnected in managing HCV areas that are interconnected.		
6	• Construction of roads and other facilities through NKT area will cause damage to areas that have cultural value (tembawang and loss distribution of trees HCV categoriez). • Land clearing of the area that still has a good forest cover remaining secondary dryland forest and secondary swamp forest • Uncontrolled land clearing by companies that results in damage to HCV areas. • Occurrence of illegal logging and encroachment activities; • The community uses the land in the Tembawang area. • Forest conversion due to changes in RTRWP or RTRWK that do not consider the presence of HCV areas; • Forest and land fires; and • Weak law enforcement.	• Undertake the marking of culturally important areas, and participatorily maintain those marking with the local people, in order to reduce disturbance to the sites. • Engage local people during the land clearing, especially those living nearby the areas of HCV 6. • Develop and implement SOPs for identification, boundary marking, marker maintenance, and the protection of all HCV 6 sites in collaboration with the local people. • Provide the local people with easy access to all HCV 6 sites.	• Develop a simple monitoring system of HCV 6 that can be implemented by local people. • In collaboration with the local people, the company shall undertake annual monitoring of HCV 6 sites, and present the reports to all relevant stake-holders. • Applied spatial-based monitoring "SMART Patrol", to obtain valid monitoring results.	• together with the community, monitoring is carried out for one year

4.3.3. Elements to be included for soil analysis

SPT	Description	Large (Ha)
1	In SPT 1, there is a limiting factor with a light scale, namely rainfall, namely the number of dry months between 1 to 2 months. Two other limiting factors, namely the texture of the soil and acidity of the soil on a mild but uneven scale, meaning that there are parts of the land whose texture is the limiting of the mild scale or not. Likewise with soil acidity, there are parts of land where acidity is a mild scale limiting factor or not. With the condition of such limiting factors, SPT 1 is categorized as land with the suitability of S1 or Very Appropriate.	604.68
2	In SPT 2 there is a limiting factor with a light scale, namely rainfall, namely the number of dry months between 1 to 2 months. Two other limiting factors, namely the texture of the soil and drainage on a mild scale but not evenly distributed, meaning that there are parts of the land whose texture is a limitation of light scale or not. Likewise with drainage, there are parts of land where drainage is a mild scale inhibiting factor or not. With the condition of such limiting factors, SPT 2 is categorized as land with the suitability of S1 or Very Suitable especially if given input in the form of improved drainage.	328.19
3	In SPT 3 there are 3 limiting factors with mild scale namely bulk, texture and drainage. Rainfall is a limiting factor on a mild scale with the number of dry months between 1 to 2 months. Soil texture is a mild limiting factor, namely sandy loam soil texture. The third limiting factor that is also mild in scale is drainage. SPT 3, has a unique drainage condition that is rather fast on the sloped part and somewhat obstructed on the soft part. The condition of drainage that is rather fast on the slope, is relatively difficult to do modifications because it is related to natural conditions, namely soil texture. On the other hand, if the area is covered with drainage, if the drainage is made, the soil drainage will become rather fast or fast due to the sandy soil texture. With such conditions SPT 3 is categorized on land with suitability of S2 or Sufficiently Sufficient.	67.05

4.3.4. Elements to be included for carbon stocks and GHG emissions

No	Mitigation	Monitoring	Protected Area	PIC
1.	Marking participatory protected area boundaries	Maintenance of protected area boundary signs periodically (once every six months).	HCV area	GIS, Sustainability and Estate
2.	Socialization of boundary signs and protected areas to contractor and PT staff who handle land clearing, construction of roads and other facilities, and maintenance of oil palm plants, harvesting and transportation of palm fruit.	Understanding of contractor / UM staff is related to boundaries and boundaries of protected areas, extension services, and prevention and control of forest and land fires, illegal logging and encroachment in protected areas (socialization is carried out every 6 months)	HCV area	CD & Sustainability
3.	Socialization of protected areas to surrounding communities	Understanding of surrounding communities is related to the boundaries and boundaries of protected areas, education, and prevention and control of forest and land fires, illegal logging and encroachment in protected areas (socialization is carried out every 6 months)	HCV area	CD & Sustainability
4.	Prevention and control of fire and encroachment disturbances in protected areas through the establishment of task forces	Periodic patrol (every day during the dry season)	HCV area	Security & GIS
5.	Inventory and identify land cover in protected areas	Monitor the structure and composition of vegetation (vegetation inventory is carried out every 6 months)	HCV area	Sustainability & GIS
6.	Rehabilitation and enrichment planting in protected areas	Realization and percentage of life of plants planted in rehabilitation and enrichment activities (2 months after species enrichment).	HCV area	Sustainability and Estate

CHAPTER 5. REFERENCES

Addendum of AMDAL Plantation Area of PT SMA Additional 1000, 2017, Conduct and Prepare by Farah Diba, et.al. Indonesia.

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RSPO New Planting Procedure . Endorsed by the Board of Governors on 20th November 2015

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CHAPTER 6. INTERNAL RESPONSIBILITY

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The oil palm grower signs to confirm that the necessary assessment have been done and completed in accordance to the relevant RSPO procedure.

Sign of Behalf SIA Assessor

Ir. Kresno Dwi Santosa, MSi.
Lead Assessor
Date : 30 September 2019

Sign of Behalf HCV Assessor

Ir. Kresno Dwi Santosa, MSi.
PT. Sonokeling Akreditas Nusantara
Date : 30 September 2019

Sign of Behalf LUCA Assessor

Kasuma Wijaya, S.Hut., MSi.
Lead Assessor
Date : 30/9 2019

Sign of Behalf CSA/GHG Assessor

Kasuma Wijaya, S.Hut., MSi.
Lead Assessor
Date : 30/9 2019

The implementation of the management and mitigation plan will be carried out, to follow each of the propossed management plan.

Faizal Amri

Dr. Faizal Amri Amran
Head Sustainability
Date : 1/10 - 2019

Contact Person :

PT. Sawit Mitra Abadi

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