

SUMMARY OF ASSESSMENT AND MANAGEMENT PLANS

**Proposed New Plantings by PT Sarana Esa Cita,
Sambas Regency, West Kalimantan Province,
Indonesia**

First Submission: January 2021

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Abbreviations

AE	Aidenvironment Asia
ALS	Assessor Licensed Scheme
APL	<i>Area Penggunaan Lain</i>
AWR	Agrowiratama
BPKH	<i>Balai Pemantapan Kawasan Hutan</i>
BPMPPPT	<i>Badan Penanaman Modal dan Pelayanan Perizinan Terpadu</i>
CITES	Convention on International Trade in Endangered Species of Wild Fauna and Flora (<i>Konvensi Perdagangan Internasional Flora dan Fauna Liar</i>)
CSR	Corporate Social Responsibility
DEM	Digital Elevation Model
FFB	Fresh Fruit Bunches
FGD	Focus Group Discussion
FPIC	Free, Prior, and Informed Consent
GHG	Green House Green
GPS	Global Positioning System
HCS	High Carbon Stock
HCV	High Conservation Value
IBA	Important and Endemic Bird Area
IFL	Intact Forest Landscape
IUCN	International Union for Conservation of Nature and Natural Resources, now called World Conservation Union
IUP	<i>Izin Usaha Perkebunan</i> or Plantation Business Permit
SEC	Sarana Esa Cita
SOP	Standard Operational Procedure

1. OVERVIEW AND BACKGROUND

1.1 Overview

PT Sarana Esa Cita (PT SEC) is a palm oil company and a subsidiary of Musim Mas Holdings (RSPO membership 2-0907-18-000-00) . PT SEC is located in Sambas Regency, West Kalimantan Province, Indonesia (**Figure 1**). PT SEC was formed on 1st May 2015, by grouping PT Agrowirtama 1 (AWR I) and PT Agrowiratama II (AWR II) into one management unit. Both PT AWR 1 and II are subsidiaries of Musim Mas Holdings.). Based on administrative jurisdiction, PT AWR I is located in Subah and Sajad Districts while PT AWR II is located in Subah District and Sejangkung Districts. The BPMPPT letter (*Badan Penanaman Modal dan Pelayanan Perizinan Terpadu*) Sambas Regency, Number: 582/192/BPMPPT/2015 dated 7th July 2015 stated that PT SEC has Principle Permit or Land Recommendation area of $\pm 11,310$ Ha. On 4th November 2015, based on letter Number: 582/029/BPMPPT/2015, PT SEC obtained Location Permit with an area of ± 10.000 Ha In 2016, the License of Plantation Business (Izin Usaha Perkebunan-IUP) of PT SEC issued with an area of ± 10.000 ha based on Letter Decree Head of BPMPPT Sambas Regency Number: 582/014/BPMPPT/2016 was issued.

HCV assessment in PT AWR I was conducted in 2010 and in PT AWR II in 2012 by RSPO approved assessor Aksenta. The NPP Notification Report of 9,000 ha by PT AWR I had been approved in 6th January 2011, and 3,100 ha by PT AWR II had been approved in 8th February 2012. In March 2018, PT SEC (together with another subsidiary company PT Mulia Indah situated in the adjacent concession) conducted Integrated HCV-HCS assessment by ALS licensed assessor Aidenvironment Asia and in December 2020 has attained satisfactory status quality review by HCVRN (<https://hcvnetwork.org/reports/hcv-hcs-pt-sarana-esa-cita-and-pt-mulia-indah-kabupaten-sambas-kalimantan-barat/>) . The HCV elements identified in PT SEC and PT MI are HCV 1, HCV 3, HCV 4, HCV 5 and HCV 6. The total HCV area of PT SEC are 826.10 Ha and PT MI area 359.10 Ha. The peatland is present in PT SEC and PT MI with total area of 540.31 Ha (PT SEC) and 475.47 Ha (PT MI). This HCV-HCS assessment included the PT SEC proposed new concession area for New Planting Procedure Notification with the total area of 597.64, the HCV elements identified in this area are HCV 1, HCV 4, and HCV 5 with the total overlap areas are 44.57 Ha. The peatland is presence in new concession area PT SEC with the total area of 110.51 Ha (9.50 Ha overlap with HCV area). Both HCV

and peatland have been set aside as conservation areas and there will be no new planting on those areas.

The Social Impact Assessment (SIA) PT AWR I conducted in July 2010 and PT AWR II conducted in March 2012. The combined PT SEC conducted the SIA by Aksenta on 23-29 May 2016 and for updated, PT SEC conducted the SIA reassessment by Remark Asia on 9-14 December 2019 and reported in Mei 2020.

PT SEC Plantation Business Permit (Izin Usaha Perkebunan-IUP) with an area of ± 10.000 ha was smaller than the total of PT AWR 1 and 2 due to not all original areas (about 2,900 ha) were retained in the new Izin Lokasi of PT SEC. There were about 597.64 ha of new concession areas that were included in the new Izin Lokasi of PT SEC. PT SEC proposed 597.64 Ha from the new alienated Land Permit which were not part of the original PT AWR I and II for New Planting Procedure Notification, that the proposed development area has covered in HCV/S Integrated Assessment and SIA (**Figure 2**).

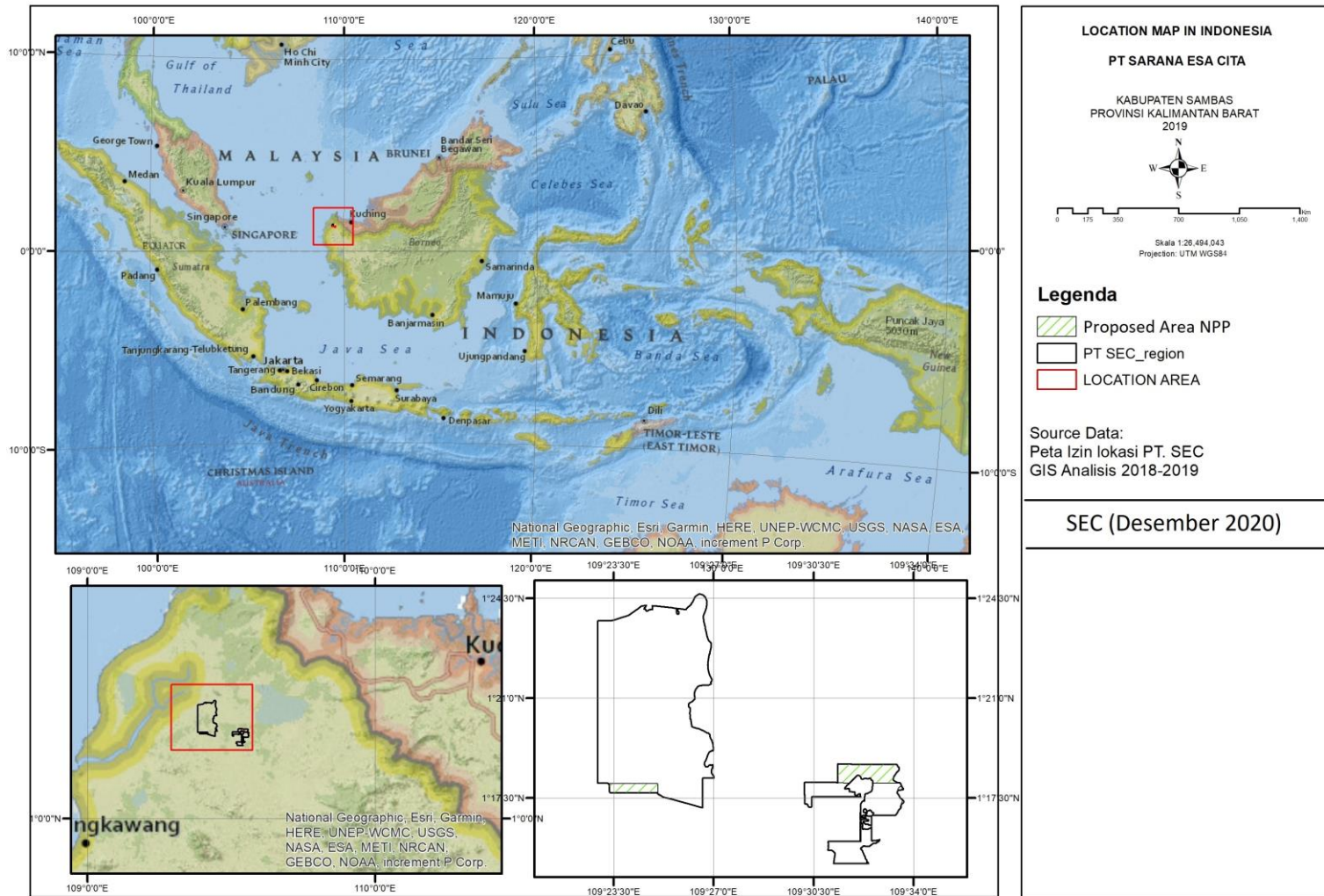


Figure 1. Location of PT SEC in Regional administrative

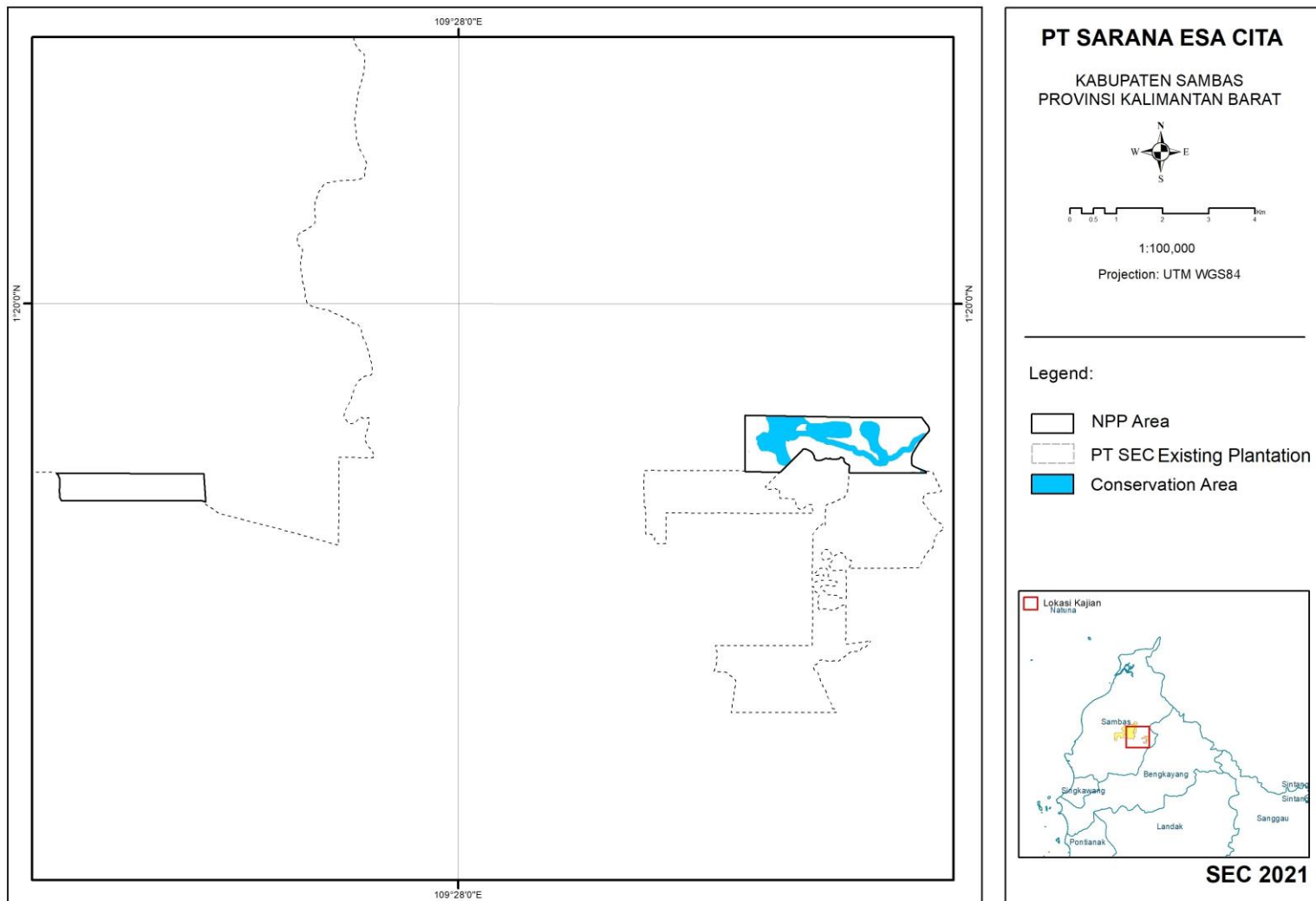


Figure 2. Location Map of PT SEC (existing plantation and proposed NPP)

Table 1. Information of the organization and contact person

Name of RSPO member	Musim Mas Holdings Pte. Ltd.
RSPO membership number	2-0907-18-000-00
Date of Joining RSPO	27 May 2008
Name of subsidiary/management unit	PT Sarana Esa Cita
Country of subsidiary/ management unit	Indonesia
Province and district of subsidiary/ management unit	West Kalimantan Province, Sambas Regency
Contact person	Dr. Gan Lian Tiong Email : liantiong.gan@musimmas.com Phone : +62 61 661 5511

The permits that have been obtained by the company are inclusive of Social Environmental Impact Assessment (AMDAL), Location Permit, Plantation Business Permit. Based on forest zone map in studied area that provided in HCV/S Assessment PT SEC and PT MI Report (**Figure 3**) and *Telaah Teknis Fungsi Kawasan Hutan Terhadap Lokasi PT SEC* No. S.573/BPKH.III-2/2015 Dtaed 29th July 2015 show that PT SEC is in *Areal Penggunaan Lain* (APL) zone, hence the proposed area of NPP is confirmed in APL area. The followings are the list of the licenses and recommendations:

Table 2. Types of permits and recommendations PT Sarana Esa Cita

Io	Licenses and Recommendations	Issued by	Number and date	Note
1	Deed of Incorporation	Notary Edy, SH	No. 277 Dated 25 th April 2013	
2	Deed of modification	Notary Edy, SH	No. 118 Dated 23 rd April 2020	
3	<i>Telaah Teknis Fungsi Kawasan Hutan Terhadap Lokasi PT SEC</i>	<i>BPKH Wilayah III West Kalimantan Province</i>	No. S.573/BPKH.III-2/2015 Dtaed 29 th July 2015	Confirmed that PT SEC is in <i>APL</i>
4	Location Permit	<i>Kepala Badan Penanaman Modal dan Pelayanan Perizinzn Terpadu Kabupaten Sambas</i>	Number 582 / 029 / BPMPT /2015 Dated 4th November 2015	Area of ±10,000 Ha
5	Environmental Permit	Sambas Regent	Number 352 / BLH / 2016 Dated 13 th April 2016	Area of ±10,000 Ha Capacity 60 Ton FFB/Hour
6	Plantation Business Permit (IUP)	<i>Kepala Badan Penanaman Modal dan Pelayanan Perizinzn Terpadu Kabupaten Sambas</i>	Number 582 / 014 / BPMPT /2016 Dated 19th May 2016	Area of ±10,000 Ha Capacity 60 Ton FFB/Hour

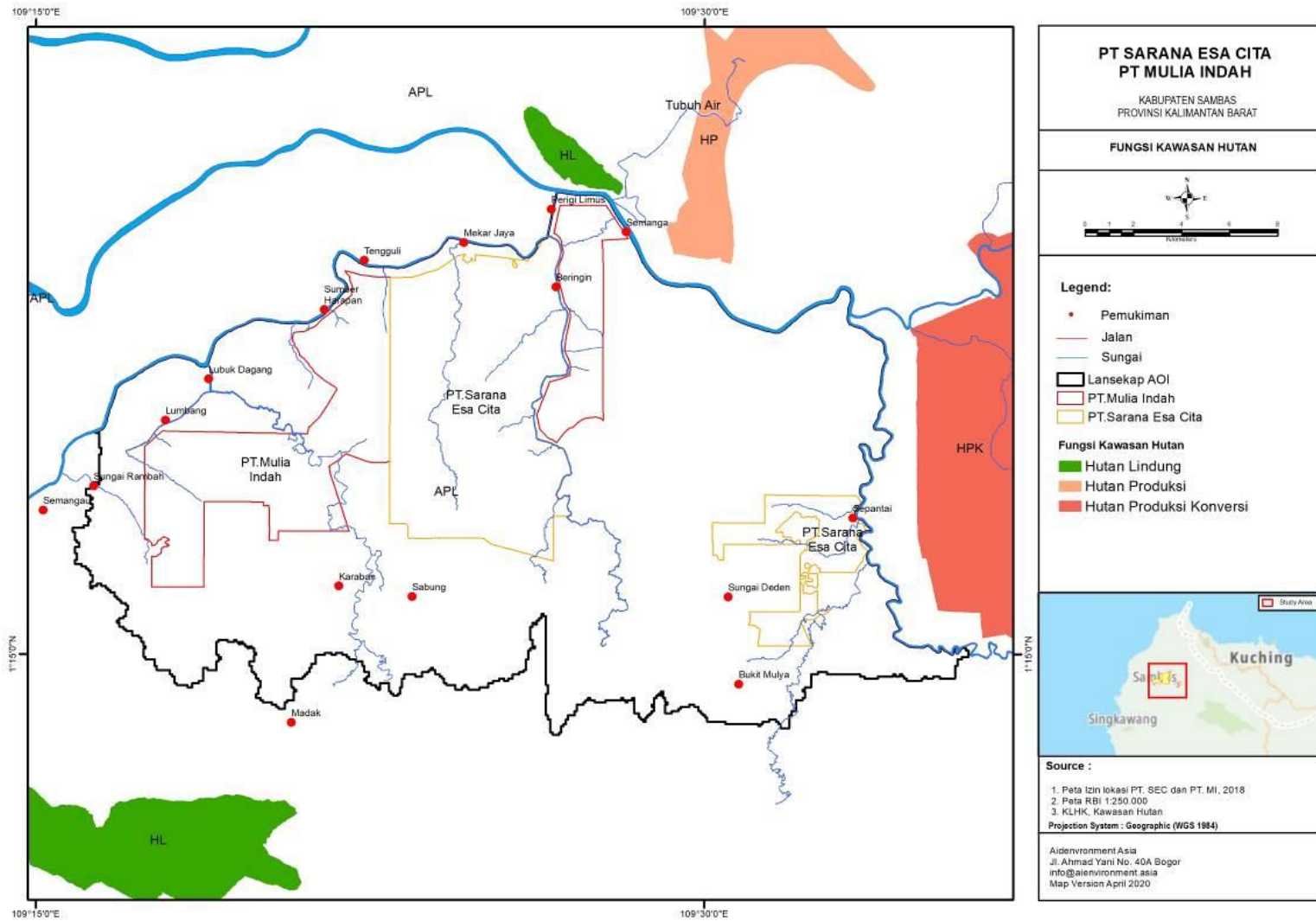


Figure 3. Forest Zone Map in Studied Area PT SEC and PT MI

1.2. New Development Plan

The new concession area for proposed development area of 597.64 ha has covered in HCV/S assessment area. While area of 145.60 Ha has been set aside to the Conservation area comprised peat and HCV area.

The proposed new development is area with a long history of occupancy and anthropogenic activities. Based on the HCV/S study, most of the area is cultivated land in the form of rubber, durian, rambutan and dry land agriculture in the form of field rice. The proposed new development area comprised of 2 locations, which Location 1 and Location 2. **Table 3** and **Figure 4** show the proposed new development area of 597.64 ha.

Table 3. Proposed New Development Area

Location	Area (Ha)	Total New Planting (Ha)	Conservation Area (Ha)	Area to be develop (Ha)	
				2021	2022
Proposed New Development Area	597.64*	452.04	145.60	230.25	221.79

**Note that these areas are based on the GIS – legal areas differ*

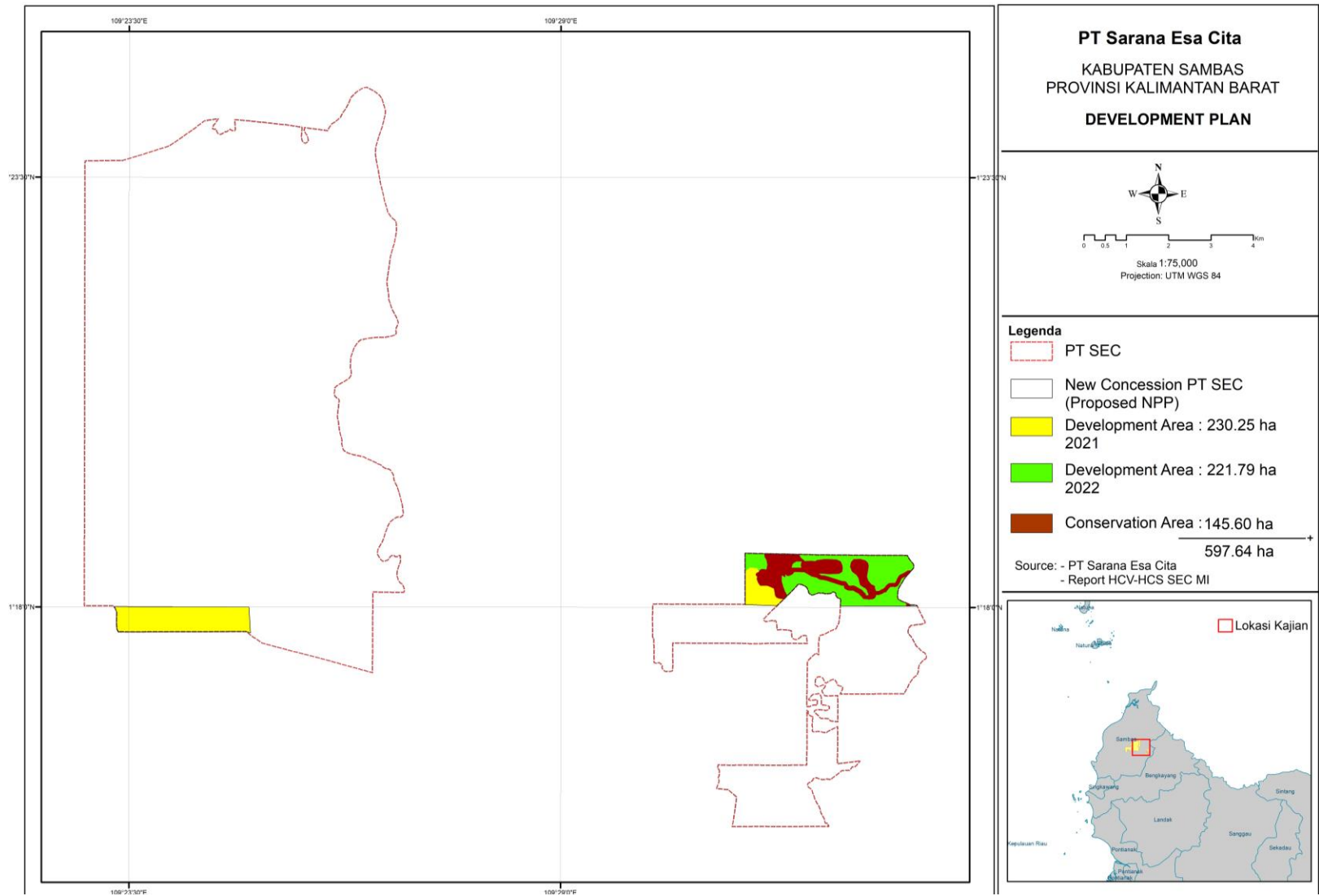


Figure 4. Map of Proposed New Development Area

2. ASSESSMENT PROCESS AND METHODS

2.1 Social and Environmental Impact Assessment (SEIA)

Based on Regulation Number 32 of 2009 concerning Environment Protection and Management, every business plan that can have significant impacts for environment is required have environment impact analysis.

PT Sarana Esa Cita's location Permit is in accordance with the Decree of the Sambas Regency Investment and Integrated One-Stop Service number 582 / 029 / BPMPT /2015 dated on November 04, 2015. The Location Permit is for Oil Palm Plantation Development with an area 10.000 Ha in Sambas, Subah, Sajad and Sejangkung District, Sambas Regency, West Kalimantan Province. Accordence with the Ministry of Environment Regulation Number 5 of 2012 concerning Type of Business and/or Activity Plan that are required Environment Impacts Analysis, PT SEC has conducted Environment Impacts Analysis Document (AMDAL) for Palm Oil Plantation and Mill Development with an areas 10.000 Ha with mill capacity 60 tons FFB/hour approved by the Sambas Regency AMDAL Assessment Comission Number 660.1/108/Komisi dated on April 11, 2016.

2.1.1. Date of the assessment

The SEIA (AMDAL) of PT SEC was conducted and issued in 2016.

2.1.2. Team Assesor and Their Credential

The assessment of the social and environmental impact assessment (AMDAL) was carried out by PT. Delta Ekotrop Rayaindo which is located at Jl. Prof. M. Yamin Gg. Ekadaya No.31, Kota Baru, Pontianak Selatan. PT. Delta Ekotrop Rayaindo is one of the AMDAL consultants registered with the Ministry of Environment.

PT Delta Ekotrop Rayaindo is a member of Inkindo (Ikatan Nasional Konsultan Indonesia), specifically of Inkindo West Kalimantan. PT Delta Ekotrop Rayaindo is a regular member KADIN (Kamar Dagang dan Industri) and registeres in Inkindo with membership number 13742/P/0148 KB. PT Delta Ekotrop Rayaindo id lead by Mr. Derry Yulianto who has been member of Inkindo since 2015.

Table 4. Assessor of the SEIA and Their Credential

No	Assessor	Role in Team	Qualification
1	Derry Yulianto, S.Hut	Team Leader	Team leader
2	Eva Aprilia, SE	Leader of Sub Team	Socio-economic culture
3	Rodiman, S. Hut	Team Member	Biology
4	Afrita Galih Pangestu, SKM	Team Member	Socio-economic culture
5	Robin Januardi, S.Si	Team Member	Biology
6	Rio Andrie, S.Si	Team Member	Physical and Chemistry
7	Januardi, SE	Team Member	Socio-Economic

2.1.2. SEIA Method

The activity of oil palm plantation that will be carried out by PT. Esa Cita Facility will have significant impacts, both positive and negative on the physical, chemical and biological environment as well as on social, economic, cultural conditions, and public health. The environmental impact that occurs is a consequence that must be accepted as a result of the activity in Sambas, Subah, Sajad and Sejangkung Districts, Sambas Regency.

Following up on the above, PT. Sarana Esa Cita has compiled an Environmental Impact Analysis, and an Environmental Management and Monitoring Plan (RKL-RPL) using a Technology Approach, a Socio-Economic Approach and an Institutional (Institutional) Approach. The management approach is basically an effort and program to prevent, reduce, mitigate and control damage or degradation of environmental components or ecosystem structures in the study area of PT. Sarana Esa Cita.

2.2 Integrated High Conservation Value (HCV) – High Carbon Stock (HCS) Assessment

Process and Method

The HCV and HCS Integrated Assessment on PT SEC (PT MI is included in the assessment as it is one of PT SEC's landscape and management unit) was conducted in June 2017 – July 2018 duration by Aidenvironment Asia . The HCV-HCS Integrated assessment is also expanded into wider landscape buffer from the area of interest. The implementation of the HCV-HCS Assessment Activities consists of three stages, namely Pre-Assessment, Preliminary Examination Study and Full Assessment. The HCV/S area assessment of PT SEC covered 10,000 Ha and PT MI covered area of 6,300 Ha and also

landscape level. The HCV-HCS Integrated assessment covered the PT SEC new concession area as proposed new development with total area of 597.64 Ha.

Prior to commencement of field assessment, PT SEC Management conducted the public consultation with regency stakeholders that included head of villages around PT SEC area in 19th March 2018. The main agenda included planning activities in village through initial socialization in village in 20th – 23rd March 2018. In this socialization, the company asked approval from the stakeholders to conduct integrated HCV HCS Assessment in PT SEC concession. As part of FPIC process, the assessor team conducted consultation with villages communities around in 11th April 2018 in Sambas Regency.

2.2.1 Team Assessor and Their Credential

The assessment was conducted by licensed independent consultant that competent in HCV HCS Assessment, Aidenvironment Asia. The assessment was lead by Assessor Licensing Scheme (ALS) , Haryono Sadikin with ALS Registration number ALS15017HH and helped by the team members that have the expertise in forest ecology, natural experts, fauna experts especially bird and mammals, social experts, participatory mapping and FPIC experts. The detail qualification showed as table follow:

Table 5. Aidenvironment Asia Integrated HCV/HCS Team Composition

Name	Role	Area of Expertise	Regional Experience (including language)
Haryono Sadikin ALS15017HH	Leader of the HCV-HCS Assessment Team	Forest - landscape ecology, hydrology & Ecosystem services, PRA, Participatory mapping, GIS analysis	Indonesian and English (Active)
Ihwan Rafina	GIS HCSA Register	Forest Management Conservation GIS / Spatial Aspects	Indonesian and English (Active)
Serge Rafanoharana	GIS HCSA Register	GIS/Remote Sensing	Indonesian, English Malagasy
Muzfa Dharma	Head of the socio-economic study team	Socio-economic and PRA Village Development	Indonesian and English

Name	Role	Area of Expertise	Regional Experience (including language)
Salman	Members of the Social and Environmental Services study team	Social forestry, GIS analysis	Indonesian and English
Imam Sulistyono	Social studies team member	Participatory mapping, SIA	Indonesian and English
Anton Prayogi	Social studies team member	Participatory mapping, SIA	Indonesian and English
Eka Kurnia Pambudi	Head of the biodiversity study team	Botany, forest inventory dan GIS	Indonesian and English
Budi Irawan	Biodiversity study team member	GIS, Forest inventory	Indonesian and English
Ihwan Rafina	Spatial study team	GIS / Spatial Aspects, HCSA Register	Indonesian and English
Djaya Prima Ifantara	Social studies team member	Participatory mapping, SIA	Indonesian and English
Muchlis	Biodiversity study team member	Ornithologist	Indonesian and English
Aryf Rahman	Biodiversity study team member	Ornithologist	Indonesian and English
Name		Position	
Eka Kurnia Pambudi		Team Leader	
Eka Kurnia Pambudi, Arif		Species identification technician	
Salman		Measurement assistant	
Budi Irawan		<i>Hip chain</i> measuring operator	
Muchlis		Compass officer	
Staf SEC dan MI		Land clearers	
Staf SEC dan MI		Land pioneers	

2.2.2 Timeframe

This study was conducted in the June 2017-July 2018. The implementation of the HCV-HCS Assessment Activities consists of three stages, namely Pre-Assessment, Preliminary Examination Study and Full Assessment.

Table 6. Schedule for conducting the assessment

No	Phase	Activities	Location	Note
1	Preliminary Pre Study and Desktop Study	June 2017 – March 2018	Musimmas Head Office Medan, North Sumatra and Sambas Operational Office, West Kalimantan.	The stages of gathering information, the presence of identified HCV elements, issues and opportunities for improvement. Secondary data collection stages.
2	Scoping assessment	20 March – 3 April 2018	Management of plantations, plantation areas and villages in the study area in Sambas, West Kalimantan	The land cover verification stage and the socialization process to obtain consent from the community through initial consultation at the district level involving the village government.
3	Initial public consultation	11 -12 April 2018	Plantation area, Villages in the Study Area and District Government Offices in Sambas, West Kalimantan	Stages of presenting field study plans to stakeholders (village officials, community representatives, agriculture and environmental services). Development of social studies (which include basic social studies and land ownership/tenure studies)
4	Field assessment	9-23 April 2018	Plantation and village area in Sambas, West Kalimantan	The flora, fauna and social survey stages. Verify land cover and peat soil, as well as verify land ownership (tenure studies) and community land use plans. The assessment location is also based on consideration of the results of previous studies
5	Public consultation at district level	8 May 2018	In Sambas District	The stages of communicating, validating and agreeing on the findings in the field, and obtaining direction, input and recommendations related to the

No	Phase	Activities	Location	Note
				management plan.
6	Public consultation at village level	17-19 July 2018	Plantation and Village Areas in Sambas District, West Kalimantan	The stages of communicating, validating and agreeing on the findings in the field, and obtaining direction, input and recommendations related to the management plan

2.2.3 HCV-HCS Assessment Method

2.2.3.1 Pre-Assessment

This HCV - HCS identification study is carried out in stages consisting of pre-assessment, pre-assessment study, full assessment and public consultation related to the final results of the assessment and gathering ideas or suggestions in the management and monitoring plan. In this pre-assessment stage, due diligence is carried out which includes the fulfillment of pre-conditions (due diligence) for the implementation of the assessment and approval from parties around the company as well as the ability to fulfill all stages and requirements in the assessment.

Table 7. Due Diligence on the four aspects of the pre-condition

No	Pre Condition	Activities
1	Commitments for environmental and social protection	The company is committed to provide benefits to society, promotes positive environmental impacts and fully complied with local and international regulations. The company ensures that its operations: <ol style="list-style-type: none"> Promote positive environmental impacts: <p>All developments must increase their positive impact on the environment. No deforestation in High Conservation Value (HCV) and High Carbon Stock (HCS) forests.</p> Bring benefits to the community by: <p>Respect their human rights including the rights for indigenous and local communities, families and other landowners to practice <i>Free, Prior, Informed Consent</i> (FPIC) in the development and conservation of land and natural resources.</p>
2	A moratorium on any land clearing or land preparation until the proposed	The company's new development will follow the RSPO New Planting Procedure - NPP. The company will not undertake any development in HCV and HCS areas. This matter has been stated in its sustainability commitment: <p>http://www.musimmas.co.id/keberlanjutan/proteksi</p>

No	Pre Condition	Activities
	Integrated Conservation and Land Use Plan (ICLUP) is completed	<p>lingkungan/konservasi-hutan)</p> <p>In this policy, Musimmas is committed to implement plantation management practices by marking the forest conservation area through efforts so that development did not take place in high conservation value (HCV) forests, to not develop in high carbon stock (HCS) forests and to not develop on peatlands.</p>
3	Presented legal rights or permission to explore the study area (Area of Interest)	<p>PT SEC obtained a land recommendation from the Head of the Sambas District Investment and Licensing Service Board through Decree Number: 582/192/BPMPPT/2015 on July 7, 2015. In the Decree of the Head of BPMPPT, it is stated that "Land Recommendations which were given to PT SEC are plantations. oil palm within the PT Agrowiratama Location Permit area of ± 5,300 ha and an area of ± 6,010 ha which was previously included in the PT Agrowiratama location permit which cannot be released or obtained until the location permit expires ". In 2016 the area of the PT SEC IUP underwent another change with a total of ± 10,000 hectares through the Decree of the Head of the Investment Board and the Integrated Licensing Service of Sambas Regency Number: 582/014/BPMPPT/2016. This legal and company legal rights document has been used as the basis for considering the results of the scoping to be continued into a full assessment, the company has shown the final IUP document in accordance with the issued permit. Until now, the company is in the process of obtaining a Business Utilization Permit (HGU), so that the existing IUP license becomes the basis and consideration in conducting this HCV-HCS study.</p>
4	The Free Prior Informed Consent (FPIC) process has commenced with full disclosure of the proposed project with all potentially affected communities and stakeholders, and a negotiation process and agreed forward consent, with representatives appointed through a fair process.	<p>The FPIC process that has been undertaken by PT SEC and PT MI are based on the Free Prior and Informed Consent (FPIC) requirements set out in the procedure. PT SEC and PT MI have procedures in place to apply the principles of FPIC. The SOP provides an approach to communities (land owners) and engages them in the consultation process to ensure that land acquisitions are understood and agreed upon.</p> <p>The process of determining land use for the community is carried out in a consultative manner through the process of FGD, interviews, stakeholder consultation (SHC), socialization and agreement with the community. In addition, PT SEC and MI have existing procedures for land compensation, grievance and complaints procedures and etcetera that have been and are always socialized to relevant stakeholders. Land still being operated by the community will not be converted to palm oil unless there is a desire and consent from the land owner to pass over the land.</p> <p>In carrying out activities, the principle of FPIC has generally been</p>

No	Pre Condition	Activities
		carried out by the company prior to land clearing. As part of this implementation, the company carried out participatory mapping activities in March - April 2010 in the Agro I area, 2-9 May 2011 in the PT MI area and 9-14 May 2011 in the Agro II area together with the community as the mapping team from each village.

The initial process of FPIC in this assessment was carried out based on the consideration of the desk study process and the literature review. This process began with the socialization of the study in the form of public consultations with several stakeholders both at the village level and at the district level which includes village officials, representatives of village communities, the Agriculture Office, and the local Environmental Service. The initial public consultation process for the HCV assessment was carried out especially with community groups that could potentially be affected by the plantation development process and external parties with an interest in and directly related to area development and natural resource management.

2.2.3.2 Scoping Study

Activities carried out at this stage include information gathering, initial field visits, stakeholder identification and initial consultation as well as survey preparation and planning. Information gathering is carried out in along with desktop study activities in the pre-assessment stage, this includes project status, literature studies and statistical data, spatial analysis including initial land cover analysis based on images. The initial analysis was carried out in order to fully understand the landscape context and the initial identification of the potential presence of HCV and HCS areas at the landscape level and within the Management Unit.

Table 8. Table of Scoping Study Activities

Activities	Description	Location	Time Schedule
Opening Meeting	Convey the objectives and intentions of the HCV-HCS assessment activity to the management unit whose location is the study area	PT SEC factory office in Sambas, West Kalimantan	20 March 2018
Scoping field visits	Stages of Verification of land cover and obtaining preliminary information at the site level as well as conducting a socialization process	Plantation area, Village Government Office in Sambas, West	21 – 23 March 2018

	to obtain community consent through initial consultations involving the village government.	Kalimantan	
Scoping result analysis	Perform analysis of the data and information obtained in the scoping field visit, in order to provide reports and follow-up assessments	Aidenvironment Office, Bogor	24 March – 3 April 2018
Consolidate the results of scoping and preparation for field visits	The meeting between AE and MM discussed the results of the scoping and discussed the preparations for the full assessment activities at the next stage	Aidenvironment Office, Bogor	3 April 2018

In general, the results of the scoping will provide direct consideration of both social and ecological factors to the company whether it can proceed to the next stage by conducting a full assessment or not. Based on the results of the scoping, it can be concluded:

- a) Change in PT SEC's license from Agrowitama 1, Addition of the Agrowiratama 2 area (Area Reduction)
- b) Areas of new additions to the revised PT SEC IUP are not included in the scope of the HCV study
- c) previously (found in the location of the west - south block and east - north block).
- d) New NPP plan at PT SEC
- e) No identified HCV signboards were found
- f) Disturbance in the form of timber extraction in several HCV locations which were were considerable
- g) Request for river normalization by the community
- h) There are potential HCV areas that are not included in the HCV - 2015 document
- i) HCS potential in the form of BT and HK
- j) Natural cover in the form of natural plants and rubber
- k) The threat to the potential for HCS is high
- l) Commodity areas of durian, rubber, rambutan etc. in the HCS class
- m) Identification of land ownership has not been carried out comprehensively, only partially at the location to be in GRTT

2.2.3.3 List of Consultation

The activities carried out in this initial scoping stage and becoming the most important stage are stakeholder identification and initial consultation with stakeholders around PT SEC and PT MI. In this stage, consultation and identification is focused on the site level, especially the management unit, village and sub-district. Consultations with experts, practitioners, stakeholders at the district level as well as NGOs were carried out during the initial consultation for the assessment or consultation on the results during the full assessment. The process of this activity includes introducing, conveying the aims and objectives of the HCV and HCS assessment and obtaining an overview and recommendations from stakeholders.

Table 9. List of Stakeholder

Name	Position/Role	Social Organization/Group	Key Concerns and Recommendations
Unit Management			
Vivi Anita Tri Budi Prasetya	Sustainability Manager	Musimmas	<ul style="list-style-type: none"> ▪ Agree on several commitments prior to the implementation of the assessment, namely related to the land tenure study, the FPIC process which is the role of Musim Mas ▪ For commitment to protection and incentives for HCV / HCS areas throughout the Musim Mas area, it will be integrated into a detailed Management and Monitoring plan and CSR activities ▪ Need clarity regarding the level of detail of the Land Tenure Study, if the results of the document review are still deemed inadequate, the land tenure study process must be carried out again ▪ The HCS and HCV assessment methods use the Integrated Toolkit ▪ Regarding the case of Ali Nafia's complaint (land compensation), MM acknowledged that the

Name	Position/Role	Social Organization/Group	Key Concerns and Recommendations
			problem had been resolved by discussion on 6 Jan 2018 (Minutes available)
Sub-District/Village Government			
Suherman	Sub-District head	Sambas Sub-District	<ul style="list-style-type: none"> For joint management between the Local Government, the Community and the Company, it is necessary to describe in detail the roles of each party, starting from the timeframe, planning and also the applicable complaint mechanism.
Heri	Village head	Sumber Harapan Village	<ul style="list-style-type: none"> The condition of the river as a water source is not suitable (cloudy), therefore it is proposed to plant <i>Barringtonia sp.</i> (Putat) as an effort to withstand abrasion.
Community Representatives			
Mr. Ardi	Community	Lumbang Village	<ul style="list-style-type: none"> Confirmation of ownership and history of the durian plantation area in Lumbang village
Mr. Ismail	Community	Mekar Jaya Village	<ul style="list-style-type: none"> Confirmation of land clearing and logging by communities

2.2.3.5 Social Method

The social data collection method was carried out in two stages through literature review of secondary data and field studies. Secondary data literature review was obtained by extracting information from initiators and other available sources (government and non-government institutions). Meanwhile, field study data were obtained through interviews, focus group discussions, participatory mapping and observation of social conditions in the field.

Literature and secondary data studies were conducted by extracting information from the results of studies that have been carried out as well as from other available sources, both research results or activity reports conducted by government and non-government agencies. Literature review / references and guidelines used as references in conducting the HCV - HCS assessment are as follows:

- a. HCV-HCSA Assessment Guidelines Used during the Integrated HCV-HCSA Assessment. Document ID: ALS_02_N Date November 08, 2017.
- b. Common Guidance for the Identification of High Conservation Values: A good practice guide for identifying HCTs across different ecosystems and production systems. 2013.
- c. *Free, Prior and Informed Consent Guidef For RSPO Members, RSPO Human Right Working Group 2015. Endorsed by the RSPO Board of Governors meeting on 20 November 2015 in Kuala Lumpur.*
- d. United Nations Declaration on the Rights of Indigenous Peoples, relating to FPIC (art. 32), Lands and Territories (art. 20 and article 26), immovability and the right to restitution and rectification / compensation (art. 10, art. 28), Representation (art. 18, art. 19), Agreement based on custom (article 3, article 4, article 5, article 33, and article 34).
- e. International Law Conventions, which include:
 - International Convention on *Civil and Political Rights*.
 - International Convention on *Economic, Social and Cultural Rights*.
 - Convention regarding Elimination of All Forms of Ethnic Discrimination.
 - ILO Convention No. 169 concerning Indigenous and Tribal Peoples.
 - Convention on Biological Diversity.
- f. Secondary data is in the form of documents or library sources needed (documentation) in studies such as:
 - Sambas District in Numbers 2017
 - Sajad District in Numbers 2017
 - Sambas Sub-District in Numbers 2017
 - Sebawi Sub-District in Numbers 2017
 - Sejangkung Sub-District in Numbers 2017
 - Subah Sub-District in Numbers 2017

- g. Social Impact Assessment documents and PT SEC and PT MI social management plans from 2010 – 2016
- h. Participatory mapping documents
- i. SOP for FPIC of PT SEC and PT MI
- j. Land compensation SOP

After the secondary data and information have been collected, the next step is to verify and analyze the data (including initial mapping). Verification is carried out to test the correctness and validity of the data and information obtained, while data analysis is carried out to obtain a tentative overview of the study area and the potential of high conservation value areas which can then be used as a basis for determining the method of collecting data in the field. The final stage of study preparation is the determination and development of methods for collecting primary data in the field, such as data collection methods for environmental services, social research methods, and methods of verifying the initial mapping results.

In the field study conducted, the selection of sampling locations was based on several considerations, including by considering:

- a. Distance between the village and the assessment area.
- b. Administratively, the village area is included in the company's concession permit.
- c. Communities who still interact directly with areas that are already burdened by company permits, where the source of their livelihoods and livelihoods is the result of utilizing existing resources in the forest area.
- d. The villages which based on the results of the SIA study were the affected villages.
- e. The condition of land ownership or has provided access to land management to the company.

There are 15 villages in the vicinity of the concession but the number of villages studied for this assessment were 8 villages, namely: Sabung Village, Sepantai Village, Sumber Harapan Village and Beringin Village, Lubuk Dagang Village, Lumbang Village, Sei Rambah Village and Desa Mekar Jaya. Hence the proposed NPP Area in this report located in Sabung Village and Sepantai Village. The village selection was based on land ownership patterns in the PT SEC and PT MI concessions which are part of the 8 villages. While 1 Tengguli village in the implementation process refused to be

involved in the assessment, specifically for the findings and recommendations for the management of the HCV-HCS area in the Tengguli village area, it is necessary to carry out a verification stage and also further socialization, both in plantation operations and in the implementation process of protecting HCV-HCS areas. The results of the participatory mapping document review conducted in 2010 and 2012 (PT SEC) and 2011 (PT MI) were carried out by involving village communities where activities were carried out by measuring polygons in each different land cover point in the field in the Location Permit area surveyed and re-verified with the village community. The results of participatory mapping have indicated that there are patterns of land use by village communities and land ownership patterns, however, for certainty and completeness of data and the results of land ownership and land use studies, it is necessary to follow up the completion of the study by the company in the process of building an integrated management and protection of HCV areas HCS and plantation development.

In sampling, the determination of community representation in each village was determined to be 10% of the smallest / marginalized population, but the social conditions in the assessment area did not have marginal communities so that representation by community leaders and village government officials was considered to be able to represent objectively and comprehensively. To avoid biased information, confirmation activities through field observations and short interviews with community members were conducted at each field observation location.

To be able to gather information on land use patterns and land ownership, participatory mapping was carried out using the focus group discussion method (FGD) by involving village officials at the village and sub-district levels. In the process, the information extracted focuses on three aspects: potential HCV / HCS areas, current land use and land use plans. After obtaining the outline of the land use map, the stages are continued by conducting field verification to get an overview of the location and condition.

2.2.3.6 Gate of FPIC

The initial process of FPIC in this assessment has been carried out, where this process is carried out based on the consideration of the desk study process and the literature. This process begins with the socialization of the study in the form of public consultations with several stakeholders both at the village level and at the district level which includes village officials, representatives of village communities, the Agriculture Service, and the Regional Environmental Service. The initial public consultation process for the HCV assessment was carried out especially with community groups that could potentially be affected by the plantation development process and external parties with an interest in and directly related to area development and natural resource management.

In conducting the initial socialization, the company and the assessment team invited as many as 9 villages around the company, the selection of the villages involved was based on the consideration of the results of the previous SIA study and BPS data where the 9 villages had interactions and had the potential to be affected by the development of the plantation. In the process, a representative from one of the villages was not present, the socialization process was carried out by communicating with the village apparatus. Based on the results of the consultation, 2 villages were not included in the social data collection sample, this is because by considering one village at that time had a conflict due to unclear boundaries with other villages and one village was in the upstream river so that the administrative location was not affected large due to the development of plantations.

2.2.3.7 Environmental Method

The initial information gathering prior carrying out a full assessment was done by using the literature review / image analysis reference method through the Quantum-GIS tool, Area of Interest (AOI), including the potential distribution of biodiversity and peatland populations and a guide used as a reference in conducting studies , some references or literature in the HCV - HCS assessment are as follows:

- a. HCV-HCSA Assessment Guidelines Used during the Integrated HCV-HCSA Assessment. Document ID: ALS_02_N Date November 08, 2017.
- b. Common Guidance for the Identification of High Conservation Values: A good practice guide for

- identifying HCTs across different ecosystems and production systems. 2013. Used as a main guidelines in assessing HCV areas in study area
- c. Used as a general guide in conducting HCV assessments at the study location.c. Indonesian document for the 2008 HCV identification toolkit. Used as a specific guide for conducting HCV assessments at the study site.
 - d. The HCSA version 2 2017 HCSA assessment guide. Used as a guide in determining HCS classes, including the steps for conducting land cover classification and patch analysis.
 - e. Guide to Bird Identification of Sumatra, Java, Bali and Kalimantan. MacKinnon, J., K. Phillipps, B. van Balen. 2000. Used to identify the diversity of bird species in the study location.
 - f. Kalimantan Bird Identification Guide. Phillipps, Quentin and Phillipps, Karen, 2014. Used to identify the diversity of bird species in the study site.g.
 - g. Kalimantan Mammal Identification Guide. Phillipps, Quentin and Phillipps, Karen, 2016. Used to identify the diversity of mammal species at the study site.
 - h. Guide for tracking mammals in western Indonesia, Van Strien, Nico J. 1983 Used to identify diversity of mammal species in the study site.
 - i. The PT Agrowiratama 1 HCV assessment report carried out in August 2010 and PT Agrowiratama 2 conducted by PT Gagag Dinamika Aksenta in May 2012. It was used as one of the ingredients in studying the report preparation process including the data needed to compile the HCV report.
 - j. The 2015 PT SEC HCV re-assessment report and the 2011 PT MI HCV re-assessment report conducted by PT Gagag Dinamiga Aksenta, both reports were not included in the HCVRN review process scheme. At present the HCV reassessment process at PT SEC and PT MI is being carried out by Aidenvironment and is expected to begin the HCVRN Quality Review process in July 2018. It is used as a reference and initial information including past conditions at the study site and progress that has been made until re- an assessment was carried out.
 - k. PT SEC's AMDAL report dated 21 November 2012 (No.660.1 / 235 / Commission) and PT MI dated 6 June 2011 (No660.1 / 139 / Commission). Used as material to gather information related to environmental impact analysis before the HCV assessment is carried out.
 - l. IUCN-redlist species version - 3, 2016. Used as a source for determining the hazard category for RTE species found in the study conducted.

- m. RePPPProt document from the Ministry of Transmigration, 1990. Used as initial data to determine the existing land system in the study location.
- n. List of important wetlands from Ramsar, 2015. Used to determine the location of the study with the existing Ramsar sites in the landscape.
- o. Peat Distribution Map of the Peat Restoration Agency (BRG). Used as secondary data to determine the distribution of the peat ecosystem in the study location and to assist in identifying existing HCV classes.
- p. Ministry of Environment and Forestry 2017 Land cover Map.
- q. Map of West Kalimantan forest area designation by the Ministry of Environment and Forestry, 2014.

Meanwhile, secondary data used are:

- a. Landsat-8 satellite imagery coverage recorded on 24 June 2017 and 3 July 2017
- b. Sentinel-2 satellite imagery coverage recorded on 4 July 2017, 26 November 2018 and 19 July 2018.
- c. Allometric Chave 2005 Tree allometry and improved estimation of carbon stocks and balance I tropical forests. This allometric uses a large dataset with measurements starting at > 5cm DBH and using wood density as one of the parameters, and the study location is in the study location in Kalimantan. And suitability with existing climates is also a relatively conservative allometric because a comparison test has been carried out with several other allometrics.

The use of secondary data for this assessment is data from the PT SEC and PT MI companies related to geographic information data, maps of study locations, and other information obtained from previous environmental studies such as environmental studies (AMDAL or UKL and UPL). In addition to literature studies, environmental field visits were also carried out to obtain useful information to obtain an overview in identification and assessment for determination: (1) identification of rare, threatened, or endangered species and ecosystems (HCV 1 and 3); evaluate for Intact Forest Landscapes or other large landscapes (HCV 2); (2) identification of ecosystem types and (3) identification of HCS forests.

➤ HCS Forest Inventory

For HCS forest inventory activities, were guided by the HCS Approach Toolkit version 2.0 May 2017 (module). The sample plot was determined by using the stratified sampling method with random start based on the results of the land cover classification. The number of required sample plots for each vegetation stratification was calculated using the Winrock Calculator biomass calculation tools with a confidence level of 90%. Plot sample placement represents each land cover class and considers potential HCS patches from land cover classifications within the PT SEC and PT MI Location Permits areas

Peat assessment and verification is carried out by utilizing secondary data such as land system maps associated with the presence of peatlands and field verification by the HCS and HCV teams or by the Implementation team identified as peat areas. And based on the results of the analysis of the land system and the results of the scoping visit, it is known that some areas of PT SEC and PT MI are in areas with peat ecosystems.

➤ HCV identification

Ecosystems within the AOI are identified and described. Checked based on image analysis to see Forest and Non-Forest vegetation and existing HCV Potentials. Consultations were also carried out together with a team of experts to understand the ecosystem and characteristics of the local area.

➤ Study of Flora and Fauna

Identification of rare, critically endangered and critically endangered fauna species (HCV 1) or the habitat where these species live (HCV 1, 2 and 3) is carried out through a combination of research based on literature review, consultation and field studies. Identification activities are carried out by determining the location of samples (sample) at the location to be assessed based on the identification results of image analysis. Samples were determined randomly in stratified (stratified random sampling) by taking into account the representation of the habitat based on the latest land cover conditions in the location. At each location, samples of flora and fauna identification were carried out by recording as many flora and fauna encounters as possible in the path that the observer had taken.

Data collection of animal encounters is carried out either directly by sighting or using binoculars, or indirectly (from field observation), usually in the form of sounds and traces left by the animals. Then all animal encounters in the field will be crosschecked with several references to animal identification and vegetation manuals. Because each group of fauna and flora has varying degrees of difficulty in the identification process, to assist and facilitate in determining areas of importance for fauna and flora, as well as the wider ecosystem, approach key species indicator species or umbrella species will also be used, especially for fauna or flora groups that have limited adaptability.

➤ **Biophysical Studies**

It is important to describe the biophysical characteristics of the assessment area. These include soil type, geology, slope and hydrology. Sources of data and information for biophysical studies can be obtained from information in other study documents such as existing environmental impact assessment documents and spatial data studies that can be obtained from existing sources and may be used.

➤ **Peat Assessment and Verification**

Peat study and verification is carried out by utilizing primary and secondary data such as land system maps associated with the presence of peatlands and field verification by the HCS and HCV teams or by soil and topographic survey teams including verifying the depth and maturity of peat from areas identified as peat areas and see the actual condition of existing land cover in the area and know the extent of management that has been carried out.

2.2.3.8 HCS Forest Classification

The method of taking the HCS plot used is with the help of Winrock Calculator. A total of 59 plots with details of Medium density Forest (MDF) 2 Plots, Low density forest (LDF) 2 Plots, Young regenerating Forest (YRF) 13 Plots, Agriculture Durian (AGD) 5 Plots, Agriculture Karet 15 Plots, Agriculture Rambutan (AGR) 6 Plot, Scrub (SC) 11 Plot and Open Land (L) 5 Plot. The Aidenvironment team has carried out an inventory in the PT SEC and PT MI areas. And based on the initial classification result shows the area of non-HCS land cover in mining areas, community gardens,

company gardens, etc. having the largest area, namely 16907.32 Ha (97.25%), the area of each class within the PT SEC and PT MI area is presented in the **Table 10**.

Table 10. Area Size for landcover stratification (using vectors)

Land cover class	Amount in Hectares		Total Amount in Hectares	% Of Total Management Unit
	PT MI	PT SEC		
HCS Potential Class:				
Medium Density Forest (MDF)	2,3	1,87	4.17	0,02
Low Density Forest (LDF)	-	22.44	22.44	0,13
Young Regenerating Forest (YRF)	114.99	335.94	450.93	2,59
Sub-total	117.29	360,25	477.54	2,75
Non HCS Class:				
Young Scrubs	354.02	550.38	904.4	5,20
Open Land (OL)	543.71	407.39	951.1	5,47
Mining area, Community plantation, Company plantation, etc.	6495.33	8556.49	15051.82	86,58
Sub-total	7390.06	9514.26	16907.32	97,25
TOTAL	7507.35	9874.51	17384.86	100

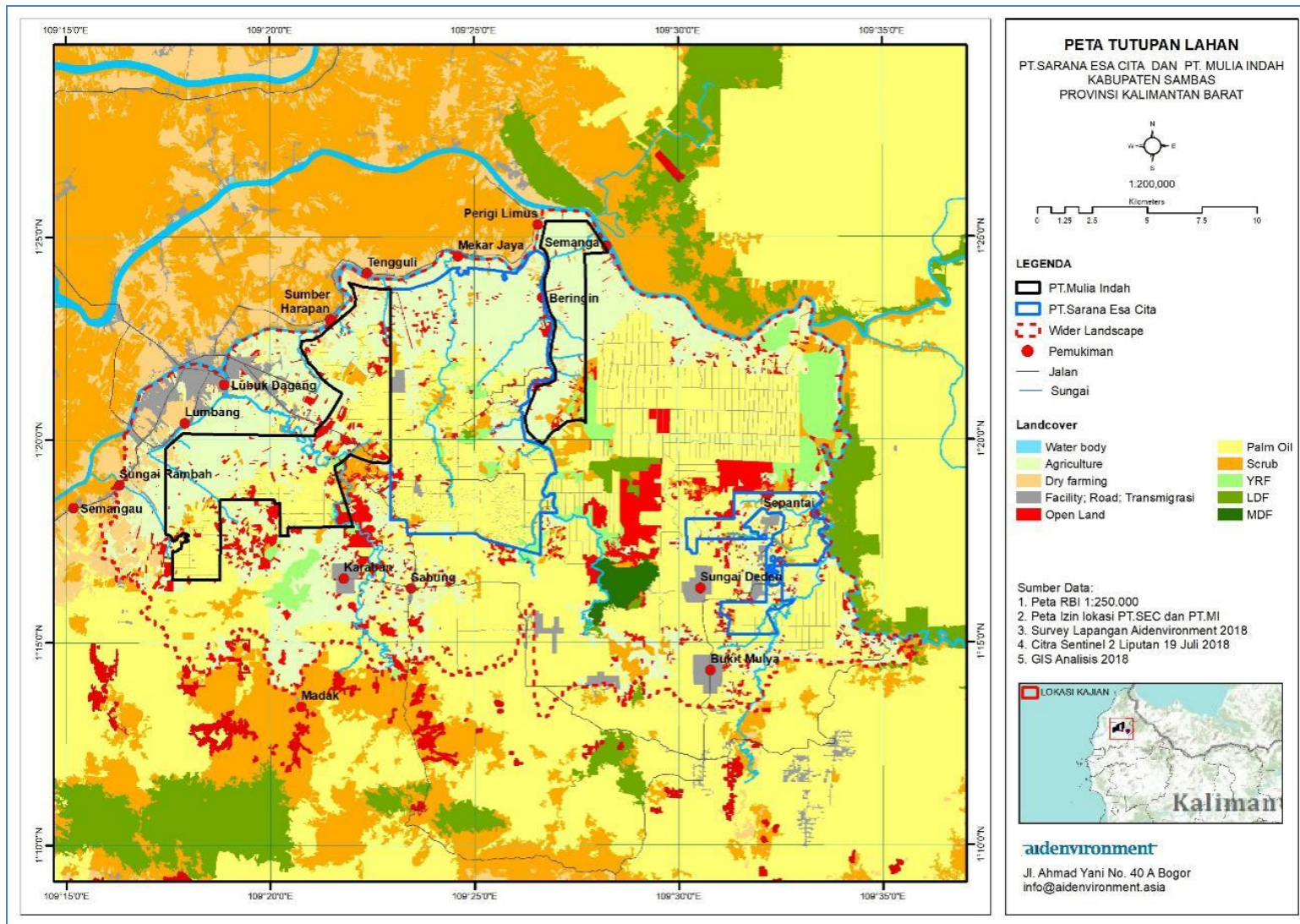


Figure 5. Initial Land Cover Stratification Map

In conducting this HCS analysis using a 90% confidence level which is representative enough to be used in the HCS research and as needed in the toolkit. The statistical analysis for calculating the confidence interval was using the Microsoft Excel 2013 program. After completing the processing of raw data and estimating the average per-stratum carbon stock, Anova and Scheffe tests were performed to measure the significant differences between strata.

Table 11. Forest Inventory Class

Land Cover Class	Average Carbon Value (tonnes / ha)	Physical description of land cover, mixed species, forest type (pioneer, regeneration, primary, etc.) diameter distribution, structure index, maturity index, etc.
Medium Density Forest (HK2)	134,4	It is a forest area that grows and develops in areas that experience the residual appearance of human intervention with heterogeneous vegetation types and dominated by stands with a diameter of 5.3-104 cm with an average diameter of 21.6 cm. The microclimate in this area is created well with the forest floor covered with thick litter.
Low Density Forest (HK1)	80,5	It is a forest area that grows and develops in areas that experience the appearance of heterogeneous types of human intervention and is dominated by stands with a diameter of 5.3 - 42.0 cm with an average diameter of 14.7 cm. The type of vegetation in this area is dominated by vegetation such as <i>Gironniera nervosa</i> , <i>Macaranga pruinosa</i> etc. The canopy cover in this area is slightly open with thin litter covering the forest floor and a microclimate is created quite well in this area.
Old Scrub (BT)	56,3	It is an area that has experienced severe human and natural disturbance with open canopy cover, interspersed with low-level vegetation at sapling and pile levels. The diameter of the stands in this area is 5.1-39.9 cm with an average diameter of 14.7 cm.
Young Scrub (BM)	24,6	It is an area which is a natural succession of previously open areas dominated by Pioneer stands such as <i>Vitex pubescens</i> , <i>Vernonia arborea</i> and <i>Macaranga</i> spp with a diameter of 5-45.0 with an average diameter of 11.4 cm.
Open Land (OL)	5,9	It is an area that has experienced severe human and natural disturbance with very open canopy cover, only interspersed with small sapling-level vegetation such as <i>Combretocarpus rotundatus</i> and <i>Cratoxylum glaucum</i> . The diameter of the stands in this area is 2- 11 cm with an average diameter of 4.6 cm.

2.3 Soil and Topography Assessment

A soil suitability assessment was carried out on the land in two ways survey method by two different teams. The first method was done by taking soil samples in the field on 23 Februari 2018. The second method with the Integrated HCV HCS assessment in 2017. Based on two ways survey method, a map of the distribution of land types, soil type and topography in the proposed development areas concession was obtained.

2.3.1 Soil Suitability Assessment expert and credential

The soil survey was carried out by PT SEC's internal assessment team that consist of research and development (R & D) of PT SEC. The R & D team plays a role in the collection and analysis of the soil types, the survey team plays a role in navigating to the sampling point, while the public relations team plays a role in communicating with the surrounding community, especially if the sampling points are located on community land.

Table 12. PT SEC's Research and Development Team

No	Assessor	Role in Team	Qualification
1	Dwik Adhi Saputra	Team Leader	Bachelor of Agriculture, Major in Soil Science from Bogor Agriculture University
2	Surya Karto L.G	Soil Survey Staff	Bachelor of Agriculture, Major in Soil Science from North Sumatera University
3	M. Riza Hapiza	Soil Survey Staff	Bachelor of Agriculture, Major in Soil Science from North Sumatera University

The additional information of soil data for the proposed development areas also collected from HCV/S Assessment Report which carried out by Aidenviroment Asia. Where the leader of the assessment is qualified as Assessor Licensed Scheme for HCV/S Integrated Assessment. The detail of the team member refer to **Table 5**.

2.3.2 Soil Suitability Assessment Method

The method used for field soil survey is a grid method with a size of 200 x 300 m (1 : 6 Ha). The planned sampling points are placed on each sub-block to ensure representation of each sampling points meets the required sampling intensity.

Observation of soil types is carried out by drilling at each planned sampling point and the description of the physical properties of soil in the field is carried out, which includes several criteria, including: soil color, texture, consistency, drainage, slope, effective depth and other physical properties found in the field. Soil survey activities are carried out by referring to the soil type guidebook for Indonesia. References used in the assessment of soil types of the proposed development areas are Keys to Soil Taxonomy, USDA, Eleventh Edition, 2010 and Guidelines & Keys to Proposed Indonesian Soil Series - First Edition, 2010.

The method used for soil survey using secondary data is done by overlaying secondary data that has been collected with the vector of the proposed development areas concession boundary. Example of secondary data used is a map of the land system that is derived from the macro scale map of RePPPProt land system 1987 and the map of soil types and land units in 2011. In addition to land system data, soil type data was also collected. USDA Soil Taxonomy in 1975 is used to determine the soil type.

2.4 GHG Calculation Assessment

The calculation of GHG emissions covered the potential of the planting area in PT SEC plantations. Scenarios are made to find the optimal land use plan. The calculation of the proposed development areas was carried out in January 2020.

2.4.1 Assessment Team and Their Qualification

The GHG calculations are carried out by Sustainability Departments' team member that have experiences in GHG calculations since 2015. Each member involved has experience and knowledge in calculating GHG, analysis of land cover and calculation of carbon stocks. Their qualifications are as follows:

Table 13. Assessment Team Role and Their Credential

No	Name & Position	Role	Credentials
1.	Dr Gan Lian Tiong	Team Leader	PhD. Agricultural Sc, Gent University, Belgium 1985
			45+ years working in plantation since 1975
			Joined Musim Mas in 2007
			ProForest HCV Workshop, Kuala Lumpur 2003
			LCA Training Japan, 2005, 2006
			Conducted HCV and GHG assessments in MMG plantation
			Co-Chair ERWG and member of BoG, BHCV WG
2.	Budi Tri Prasetya	HCV and Land Use Planning	BSc in Forestry, Agricultural Institute of Bogor, Indonesia 2007
			Joined Musim Mas in 2008
			Involved in high conservation area identification, management and monitoring
			Involved in high carbon stock measurement, land cover assessments and satellite image interpretation
			ISCC GHG emission training in Kuala Lumpur 2014
			Attended HCV Management and Monitoring Workshop by ZSL in Bogor in 2013
			Attended Tiger Summit Conference in Bogor in 2014
Attended in HCV Lead Assessor Training in 2020			
3.	Erickson Purba	LUC & GIS	He obtained a Bachelor of Forestry from the Department of Forestry Management, Faculty of Forestry, University of North Sumatra in 2013
			Joined Musim Mas is 2014
			Involved in mapping, analyzing land cover, interpreting satellite images and GHG.

No	Name & Position	Role	Credentials
			Well versed in satellite image interpretation using ArcGIS, Map_info, Quantum GIS and Er_Mapper
			Experienced in carbon stock calculation and High Conservation Value management and monitoring
			Attended RSPO Palm GHG Workshop and Potico WRI 2015. He also well trained in ESRI Training 2019
4.	Dita Galina	GHG Emission	Royal Melbourne Institute of Technology, 2011
			Joined Musim Mas in 2013
			Involved in GHG emission calculation
			Attended in HCV Lead Assessor Training in 2020

2.4.1 GHG Analysis Method

2.4.2.1 Stratification of Landcover and Soil Type

2.4.2.1.1 Stratification of Landcover

The land cover map obtained from the PT SEC LUCA assessment report. Analysis of land cover is carried out at the proposed development areas. Landsat 8 OLI_TRS Satellite Images with acquisition dates of Juni 2018 (<http://www.usgs.glovis.gov>). Polygons of the assessment area are superimposed on Landsat and the land covers inside the polygons were classified. The extent of each change in land use is determined by the results of the classification.

References used in land cover stratification include: Appendix 2 of RSPO RaCP 2014 by Compensation Task Force, Carbon Measuring Tool issued by RSPO (Sukswan, S. 2012. Updated June 2014 <http://www.rspo.org/>) and "Guideline 3 Appendix on Remote Sensing Methodology on HCV Compensation Proxy Approach" by the 2013 CTF - RSPO Team. Those references are used to interpret land cover classifications from satellite data. Verification of the results of satellite image stratification is carried out using field surveys and other secondary information sources, for example AMDAL, HCV reports, etc. The Cohen Kappa is used to determine the accuracy of satellite image stratification.

2.4.2.1.2 Stratification of Soil Type

The soil stratification used in this assessment are taken from PT. Sarana Esa Cita Integrated HCV/HCSA report (<https://hcvnetwork.org/reports/hcv-hcs-pt-sarana-esa-cita-and-pt-mulia-indah-kabupaten-sambas-kalimantan-barat/>) by Aidenvironment Asia that was conducted in 2018 and attained satisfactory in December 2020 (SEC, 2020).

2.4.2.2 Carbon Stock Assessment

In order to comply with Criterion 7.10.2 of 2018 P&C, information on the carbon stock is required in order to 'forecast' the balance of emissions and sequestration associated with a proposed development. Carbon stock value of the vegetation are taken from PT. Sarana Esa Cita Integrated HCV/HCSA report that were conducted in 2018 and and attained satisfactory in December 2020 (SEC, 2020).

2.4.2.3 Development Scenario

Land use scenarios are developed in the assessment area. Their potential emissions are estimated using the New GHG Development Calculator released in August 2016 (RSPO, 2016).

The new development GHG Calculator estimates emissions from palm oil production, and from changes in land use. The net GHG emissions exceed the full harvest cycle (default value is 25 years). The projection number of fertilizers used and the use of fuel are added to simulate operational emissions in the future.

2.4.2.4 Team Responsible for developing the mitigation plan

The team responsible for developing the mitigation plan was headed by Dr. Gan Lian Tiong, Director of the Sustainability Department Musim Mas Group. Other team members are from the Sustainability Department Musim Mas Group. Information and consultations with the Estate Department, Department of Processing and Industrial Relations (HUMAS) were also carried out to assist the team to conduct the analysis.

2.5 Land Use Change Analysis (LUCA)

The Land Use Change Analysis (LUCA) for new concession area PT SEC (597.64 Ha) was conducted in October 2019 - January 2020 and updated in February 2021. The LUC analysis covered new concession area as proposed new development area of PT SEC. The analysis period used included: a) August 2005, b) November 2007, c) PT SEC Joining RSPO in May 2008, d) December 2009, e) January 2010 – May 2014, f) Simultaneously with HCV-HCS Field Assessment 2018, g) Cut of for NPP in February 2021 (validity < 1 year) .

2.5.1 LUCA Assessors and Their credential

This assessment was carried out by Internal PT SEC Team competence in LUCA's assessment. The LUCA was led by Erickson Purba with the help of 2 other people who played a role in both GIS and field observations and has been reviewed by 2 people who played a role in Technical Review and feedback.

Table 14. Assessment Team Role and Their Experience and Qualification

Name	Assessment role	Experience and Qualification
Erickson Purba	Lead assessor GIS expert Report writing	He obtained a Bachelor of Forestry from the Department of Forestry Management, Faculty of Forestry, University of North Sumatra in 2013. Since joining Musim Mas in 2014, Erickson has been involved in mapping, analyzing land cover, interpreting satellite images and GHG. Erickson is experienced in using software for mapping and GIS such as ArcGIS, Map Info, Er Mapper and Quantum GIS. He also experienced in carbon stock assessment and monitoring of HCV areas. He also well trained in ESRI Training 2019.
Lastri Yanti Simanjuntak	GIS expert	She obtained a bachelor of Meteorology, Agricultural Institute of Bogor, Indonesia 2011. She joined Musim Mas is 2011 and has involved in land cover assessment and satellite image interpretation. She have well versed in satellite image interpretation using ArcGIS, Map_info, and Er Mapper and also experienced in carbon stock calculation and High Conservation Value management and monitoring then attended RSPO Palm GHG Workshop and Potico WRI 2015. She also well trained in ESRI Training 2019 and HCV Lead Assessor Training 2020.

Name	Assessment role	Experience and Qualification
Feri Isnu	Vegetation expert	He graduated from the Faculty of Forestry, Agricultural Institute of Bogor, Indonesia in 2009. During his study he has involved in various project related to forest inventory. He also involved in several HCV identification, management and monitoring activities in Kalimantan.
Budi Tri Prasetya	Technical Review and feedback	He earned a Bachelor of Forestry from Agricultural Institute of Bogor, Indonesia 2007. Since joining Musim Mas in 2008, Budi has been involved in HCV-HCS management & monitoring implementation, Landuse and landuse change analysis, participatory mapping and landuse planning. Budi had participated in ISCC GHG emission training in Kuala Lumpur 2014. Since 2008 he had participated in several HCV, HCS, social impact assessments and GHG calculations on PT Musim Mas group plantations. He also well trained in ESRI Training 2019 and HCV Lead Assessor Training 2020.
Gan Lian Tiong	Technical Review and feedback	He earned a Doctorate in Agriculture Science from Gent University, Belgium in 1985. He has 45 years of experience working on plantations including sustainability in the last 15 years. Dr. Gan had participated in the ProForest HCV workshop in Kuala Lumpur in 2003, Life Cycle Analysis training in Japan in 2005 and 2006, had conducted HCV assessments and GHG calculations on PT Musim Mas group plantations. Dr. Gan also serves as the co-chairman of the ERWG and was a member of the BoG and a member of BHCVWG.

2.5.2 LUCA Method

2.5.2.1 Data dan information used

Analysis of Land Use and Land Cover Change (LUCCA) was carried out using satellite images of several acquisition dates. LUCA is conducted following RSPO Remediation and Compensation Procedures (2015) which includes relevant cut-off dates to identify land clearance prior to HCV assessment and the NPP completion. LUCA for new concession area PT SEC has 8 cut-off dates in **Table 15**.

There are some of satellites available in the right combination in terms of resolution and spectral bands. The minimum requirements of the image that can be used in analysis are images with a resolution of 30 m. However, the possibility of high to very high-resolution data is needed to be able to distinguish among types of land cover, especially types of forest cover. Satellites that can be used include the Landsat Satellite Image (30 m), SPOT Satellite Image (10 m) or RapidEye Image (5 m).

Taking into account the potential variability of available images for specific locations and times, in accordance with the requirements and guidelines of the RSPO, it is necessary to use multiple data sources (a combination of high and very high-resolution images) to facilitate interpretation of land cover, so the interpretation results will be more accurate. In addition, to further validate the image interpretation process, groundtruthing is necessary.

The use of satellite imagery for analysis of land covers, does not always correspond to the cut-off periods specified by RSPO. However, due to the availability of good quality satellite image data (covered by clouds or poor image quality) in the intended period is not available, so the alternative satellite imageries that is close to the period determined by RSPO are used for the analysis.

Table 15. Satellite image data used in the LUCA the new concession area

Satellite Imagery Data Period	Satellite Imagery Data Used to Interpret data period	Source of Satellite Imagery Data
Period Satellite Imagery before 2005	• <u>Satellite Imagery Landsat TM 5, dated 12th August 2005 path/row 122/059; CC 20%.</u>	http://glovis.usgs.gov
Period Satellite Imagery between November 2005 – November 2007	<u>Satellite Imagery Landsat TM 5, dated 5th April 2008 path/row 122/059 ; CC 4%</u>	http://glovis.usgs.gov
Period May 2008 (Joining as RSPO Member)	<u>Satellite Imagery Landsat TM 5, dated 24th June 2008 path/row 122/059 ; CC 64%</u>	http://glovis.usgs.gov
Period Satellite Imagery between November 2007 – December 2009	<u>Satellite Imagery Landsat TM 5, dated 21st January 2010 path/row 122/059 ; CC 38%</u>	http://glovis.usgs.gov
Period Satellite Imagery 1 st January 2010 – 9 th May 2014	<u>Satellite Imagery Landsat 8 OLI TIRS dated 6th June 2013 path/row 122/059 ; CC 38%</u>	http://glovis.usgs.gov
Period Satellite Imagery 9 th May 2014 – HCV and HCS Field Assessment	<u>Satellite Imagery Landsat 8 OLI TIRS dated 07th August 2018. path/row 122/059 ; CC 25 %</u>	http://glovis.usgs.gov

Satellite Imagery Data Period	Satellite Imagery Data Used to Interpret data period	Source of Satellite Imagery Data
Conducted 2018		
Period Satellite Imagery Updated (cut off date HCV-HCS Satisfactory – NPP Submission)	Sentinel 2, dated 28 th February 2021 path/row 122/059 ; CC <u>97%</u>	http://glovis.usgs.gov

2.5.2.2 Stage and process of land cover change analysis

Overall, the stages and processes of LUCA analysis are as follows:

- a. Stage 1: Procurement process, including downloading satellite image data with specification of a resolution of at least 30 meters.
- b. Stage 2: Pre-processing or initial processing, covering atmospheric effects, geometric correction and satellite image data processing operations from the period to be used.
- c. Stage 3: Interpretation, covering the interpretation of land cover from pre-processed satellite image data, by referring to the vegetation coefficient specified in the remediation and compensation procedures.
- d. Stage 4: Ground truthing (field verification), includes verification activities in the field by proving field conditions on the results of the initial interpretation of satellite images of land cover.
- e. Stage 5: Image validation and reinterpretation, including the process of validating the satellite images from previous interpretations by making corrections that refer to the results of field checks.
- f. Stage 6: Make a map of the results of a change analysis, covering the process of making a map of the land cover map that has been validated with the results of field checks to be displayed in the report.

2.5.2.3 Preliminary analysis of satellite image data

The initial analysis was carried out through processing satellite image data from several periods of coverage using ArcGis software and continued with interpretation of vegetation cover or land cover which refers to the RSPO land cover classification system based on the value of the vegetation coefficient. Land cover classification was done under object-based interpretation followed by base

correction (base interpretation) applied to satellite images which were ready to be processed. Classification was done by using ArcGIS software. The results of this activity are the results of interpretation of satellite imagery for the entire study area with an initial analysis of land cover classification. In the analysis of changes in land cover used two types of satellite images, namely (i) Landsat 5 TM with a spatial resolution of 30 m, and (ii) Landsat 8 OLI with a spatial resolution of 30 m, for the latest land cover analysis when conducting LUCA studies.

2.5.2.4 Ground truthing

Ground truthing was carried out by determining the sampling plots on the field. Sampling points of these land cover is taken with representation of existing land cover types or types of land cover coefficients. Sampling points also consider the locations that difficult to differentiate from satellite image and need to be verified on the ground. The proportional random sampling method was used in the analysis. The number of the sampling plots taken is determined from each land cover category or land cover coefficient identified from the results of satellite analysis by taking into account the size of each land cover class. The observations in the sampling field also pay attention to the forest cover class. The sampling point in the forested area will have greater proportion compared to other land cover such as oil palm, shrubland or open land.

Verification of land cover in the field is carried out by using the check List sheet that was prepared before to record all conditions in the field. The data collected includes location of the sampling point, GPS coordinates, type of land cover, canopy conditions around it, observation time and date, etc. To find out the history of land management and utilization, the assessment team also conducted interviews with surrounding communities and PT SEC's employees who had worked long enough at PT SEC from the beginning of land clearing.

The results of field verification are used to calculate the accuracy of the land cover classification by comparing the land cover from the interpretation of satellite images with the land cover identified during field verification. Accuracy tests are then carried out to find out whether the results of the initial interpretation are acceptable or not. Corrections to the results of the initial land cover interpretation were also conducted to increase the accuracy of the results of the land cover interpretation. Verification activities and accuracy tests are only carried out for interpretation of land cover at the time the study was conducted.

2.5.2.5 Data processing and analysis of land cover changes

The data used for LUCCA activities are satellite image data with different times and years of coverage to see whether there is a change in land cover for each period, includes:

- a. 1 November 2005 (RSPO Principles & Criteria were first applied, satellite imagery using August 2005).
- b. 31 November 2007 (deadline for trial implementation of RSPO Principles & Criteria, satellite imagery using April 2008).
- c. 27 May 2008 (The date of joining RSPO, satellite imagery using June 2008) .
- d. 31 December 2009 (the introduction of the RSPO New Planting Procedure, satellite imagery using January 2010).
- e. January 2010 - 9 May 2014 (after the new planting procedure takes effect, satellite imagery using June 2013).
- f. After May 2014 (satellite imagery using June 2014).
- g. August 2018 (HCV-HCS Field Assessment).
- h. 23 December 2020 (HCV report satisfactory and updated 1 year before NPP area submitted, satellite imagery using February 2021).

2.6 FPIC and Social Impact Assessment (SIA)

The FPIC Process were verified by using RSPO Checklist. All FPIC implementation documents such as PM, HCV/S stakeholder consultation, SOPs, complaint and grievance documents, compensation documents have been demonstrated and checked by the Auditor.

The initial process of FPIC in this assessment has been carried out, where this process is carried out based on the consideration of the desk study process and the literature. This process begins with the socialization of the study in the form of public consultations with several stakeholders both at the village level and at the district level which includes village officials, representatives of village communities, the Agriculture Office, and the local Environmental Service. The initial public consultation process for the HCV assessment was carried out especially with community groups that could potentially be affected by the plantation development process and external parties with an interest in and directly related to area development and natural resource management.

In the proposed development areas, the scope of the Social Impact study was carried out in the internal and external environment of the proposed development areas. The Social Impact Study activities were carried out in 8 villages covered by the decree, namely 1) Sumber Harapan Village, 2) Lubuk Dagang Village, 3) Tengguli Village, 4) Mekarjaya Village, 5) Beringin Village, 6) Sabung Village, 7) Sungai Deden Village and 8) Sepantai Village.

Social Impact Assessment is conducted within the framework of a 'Social Sustainability' approach. The presence of oil palm plantations will have an impact on the social sustainability of local communities in the villages around the plantations. There are five components of social sustainability, namely: 1). Human capital, 2). Natural capital, 3). Financial capital, 4). Social capital, and 5). Physical capital. Each capital component consists of elements. The scope and focus of the identification of these elements is based on the issues that stakeholders see or feel are important. The results of the stakeholders' issue identification are then verified and explored in the field.

The approach taken in the Social Impact Study is technical as follows:

- 1) Participatory; as far as possible the parties (stakeholders) are actively involved in the process of identifying impacts,
- 2) Consulting; stakeholder representation is actively involved to explore aspirations or ideas how impacts are managed,
- 3) Triangulation; conducted field studies by combining observation-interview-verification and techniques
- 4) Rapid; conducted quickly to dig up the issues and substance thereof.

The assessment process comprised of the following table:

Table 16. Assessment Timeline Process

Days	Day & Date	Activities	Location
1.	Tuesday, 10 th December 2019	- Opening Meeting - FGD Internal - Sambas District Visit to discuss on conducting FGD SIA in villages	Meeting Room PT SEC Sambas District Office

2.	Wednesday, 11 th December 2019	<ul style="list-style-type: none"> - Discuss on observation with Village stakeholders and Sumber Harapan Village communities - Visit <i>Rumah Tenun</i>, observ <i>kerajinan tenun sambas</i> that made by village communities - Discuss on observation with Village stakeholders and Tengguli Village communities 	<p>Sumber Harapan Village</p> <p>Tenun Home Industry (<i>Rumah Tenun</i>)</p> <p>Tengguli Village</p>
3.	Thursday, 12 th December 2019	<ul style="list-style-type: none"> - Discuss on observation with Village stakeholders and Mekar Jaya Village communities - Discuss on observation with Village stakeholders and Beringin Village communities 	<p>Mekar Jaya Village</p> <p>Beringin Village</p>
4.	Friday, 13 th December 2019	<ul style="list-style-type: none"> - Diskusi dan Observasi ke Klinik BPM IX Sehat PT SEC - Observation environmental PT SEC employees' house and interview with <i>Tempat Penitipan Anak (TPA)</i> stakeholder - Closing Meeting 	<p>Clinic, Employee's house and <i>Tempat Penitipan Anak (TPA)</i></p> <p>Meeting Room PT SEC</p>

2.6.1 Team Asseors and Their Credential

This assessment is also carried out by team members that have competence in social impact assessments from PT Remark Asia. The assessment team members are as follow:

Table 17. PT Remark Asia Assessment Team

Name	Role in assessment	Credentials
Dwi Rahmad Muhtaman	Team Leader (data analyst and reporting)	Social Assessor, participatory approach, Facilitator, , Community Development, RSPO, Auditing, HCV Assessor, FPIC Assessor
Herry Triyana	Team Member (survey and reporting	Community social assessor and participatory mapping facility technique, SEIA, & FPIC
Aslinda Nurmazida	Team Member (survey and reporting	Community social assessor and participatory mapping facility technique, SEIA, & FPIC

2.6.2 Methods

The approach in preparation of this SIA is to ensure compliance with the guidance of RSPO, POIG and ISCC (which are voluntary) and ISPO (which is mandatory for Indonesian oil palm growers).

The method or technique used in the Social Impact Assessment process consists of:

- 1) **Literature review;** This method is used to gain an understanding of the social and environmental context of the assessment area, this method was carried out prior field assessment and results analysis stage; This method also reviewed the SIA PT SEC report that was carried out in 2015 as well as the main issues in the SIA attachment of PT Agrowiratama I (2010); PT Agrowiratama II (2012) as well as social management and monitoring programs that have been carried out by PT SEC;
- 2) **Dialogue;** the method is used to identified the stakeholder, issues, hopes, idean and aspiration to gain solution on the issues, this method conducted with formal and informal socialization and with the FGD (Focussed Group Discussion);
- 3) **Field Observation;** the method is used to understanding the facts on the field directly as indication or emerging the issues and social impact occurred;
- 4) **Deeper Interview;** to dig and get a deep understanding on emerging issues conducted the deeper interview with key stakeholders as respondents. The selection of the respondent based on respondents' knowledge or have direct impact;
- 5) **Triangulation;** those methods above conducted integrated to verify each other on the issues, opinions, and ideas ocured.
- 6) **Social-Learning Cycle;** Social Impact Assessment is not a linear process, bug the cycle process that have function as social learning process to respond the environmental change occurred.

Thus, recommendations can be provided with a focus on the application (benchmark) of each of the principles and criteria of the relevant certification standards. Recommendations are also given for issues that are not covered by the principles and criteria of the certification standard, in the form of ideas or aspirations summarized from field results and analysis results.

Social Impact Assessment Stages based on A Comprehensive Guide for Social Impact Assessment (2006).

2.5.2.1 Study Preparation and Pre Assessment

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

2.5.2.2 Field Activity

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

- a. **Opening Meeting.** This activity is intended to convey the objectives of the Social Impact Assessment, compile a field work team, and agree on a schedule of daily activities. In this activity, basic training activities (introduction) on Social Impact Assessment were also carried out: about the background, aims and objectives, concepts and how to identify them.
- b. **Social Mapping and Participatory Stakeholder.** Social mapping is a visual method that shows the relative location of a community or group which is used to identify and explore the social conditions of that community. This activity aims to identify: 1) key parties who will be or have been affected (both positive and negative) or will or have had an impact (both positive and negative) on the Company's presence and operations, 2) key parties who can facilitate / support or significantly or potentially hinder the presence and operations of the Company and 3) a portrait of the life (socio-cultural and socio-economic) of the community in and around the company's management area. Social data obtained from the results of discussions with the community (the parties) such as the state of the community and the physical environment can be used to analyze and understand a particular problem placed in the context of reality with the end result to be achieved, namely carrying out activities with

the community to meet practical needs. and improve community welfare and achieve community empowerment by exploring the potential that exists in the community so that people can improve their quality of life through a process of mentoring or facilitators.

- c. Filed Observation. This activity aims to collect and explore information relating to (primary) social impacts directly in the field, which examines three sub-studies, namely Socio-Culture and Community Empowerment; Socio-Economic & Rural Development; as well as Employment & Social Relations. Field observations involve counter parts from the company and the local community.

Focus Group discussion. This activity aims to gather information and opinions from the participants, as well as clarify, confirm, complete and deepen the temporary findings from the field in the form of brainstorming discussions on several recorded social issues, both positive and negative. The results of the analysis and identification notes in the field were obtained through focus group discussions (FGD) and interviews. Social issues include the five components that are the basic capital of the sustainability of social livelihoods, namely human resources, natural resources, financial resources, social resources and physical resources. Identified issues or impacts are immediately cross-checked with representatives of the Management Unit during the FGD process and at the closing meeting.

- d. Closing Meeting. This activity aims to convey temporary results or findings, in the form of brief information about social portraits, social issues and prediction of social impacts to the Management Unit. The purpose of this activity is so that the Management Unit gets the substance of the identification results and can follow up on important or urgent matters, without waiting for the final Result Report to be completed.

2.5.2.3 Analysis and Prediction Social Impact

This activity aims to process and analyze in a more comprehensive and in-depth manner all field results and to confirm, clarify and revise special cases based on the opinion of the Company or the Management Unit. The results are then presented back to the Management Unit for input and improvement.

2.5.2.4 Reporting Process

This activity is in the form of a writing workshop, where all members of the SIA Team meet, discuss, study together, and test the results of analysis and mapping, to then compile a report. Reports are prepared in an accountable format and systematic, but also coherent and simple, accompanied by a visual presentation, so that it is easy to read and understand by the Plantation Management Unit and the company. The output of this stage is a draft report. Subsequently, the Initial Report is sent to the Company for observation, input and correction if any data and information is found to be incorrect.

2.5.2.5 Final Reporting

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

2.5.2.6 Analysis and Data Syntehtic

To make it easier for the SIA assessment team to analyze the data that has been collected, an analysis framework is created. This analytical framework is used to describe the process of analyzing the flow of social impact assessment data from PT SEC's oil palm plantation activities on the components of the social environment of the communities living around the area. Components of activities that influence the components of the social environment can have positive and negative impacts. From the existing impacts (positive or negative impacts), then a social governance or social management model is formulated.

In addition, analysis was also carried out on the secondary and primary data (field data) obtained. Data were analyzed with a combination of quantitative and qualitative methods. Quantitative analysis puts more emphasis on descriptive statistical analysis in the form of frequency, average scores, and cross tabulations with the help of the International Business Machines Statistical Package for the Social Science Statistics 20.0 (IBM SPSS Statistics 20.0) and the Excel program.

3. SUMMARY OF FINDINGS

3.1 SEIA Summary of Finding

3.1.1 Negative and Positive Impacts

The SEIA provided the potential impacts in each stage of activities that summarized in table below.

Table 18. Summary of Potential Impacts

No	Stage of activity	Potential Impacts
1	Pre – Constructions	
a	Permit Arrangement	- Not a significant impact
b	Survey for feasibility study	- Not a significant impact
c	Socialization the activities	- Hypothetical significant impacts
2	Construction	
a	Sozialication to community	- Hypothetical significant impacts
b	Recruitment of labor	- Hypothetical significant impacts
c	Community Empowerment	- Hypothetical significant impacts
d	Mobilization of heavy equipment and materials	- Hypothetical significant impacts
e	Land clearance	- Hypothetical significant impacts
f	Development of Facilities and Infrastructure	- Not a significant impact
g	Oil Palm cultivation	- Not a significant impact
h	Soil and water conservation	- Hypothetical significant impacts
i	TBM Maintanance	- Hypothetical significant impacts
j	Development of Mill	- Hypothetical significant impacts
3	Operational	
a	Socialization of operation stage	- Hypothetical significant impacts
b	Community empowerment	- Not a significant impact
c	Harvesting	- Hypothetical significant impacts
d	Transportation of harvest	- Hypothetical significant impacts
e	Harvest management	- Not a significant impact
f	TM maintenance	- Hypothetical significant impacts
g	Waste Management and treatment	- Hypothetical significant impacts

No	Stage of activity	Potential Impacts
h	Research and development program	- Not a significant impact
4	Post Operational	
a	Socialization of post operational stage	- Not a significant impact
b	Community empowerment	- Hypothetical significant impacts
c	Ex-plantation plants handling	- Not a significant impact
d	Land reclamation and revegetation	- Not a significant impact
e	Immovable assets delivery	- Not a significant impact
f	Equipment demobilization	- Hypothetical significant impacts
g	Labor release	- Hypothetical significant impacts

3.1.2 Socio-economic impacts on the country, local and regional communities

Indonesia is one of the largest producers of palm oil in the world and its industry has become the most valuable agricultural export sector in the last decade. The palm oil industry is a significant contributor to production in Indonesia. The social impact caused by the presence of PT SEC and oil palm companies in general is to provide foreign exchange to the state, even higher than the contribution of oil and gas. In addition, palm oil production also supports the government's energy security program by replacing imported diesel with domestic-produced biodiesel.

The palm oil industry is a labor-intensive industry that can absorb a lot of labor. The absorption of this workforce contributes to increasing the income and welfare of the local community. Improvement in income and welfare of local community will improve purchasing power and stimulate spending that leads to improvement on the overall welfare of the region. The construction of infrastructure and the opening of access can stimulate regional and local economic growth. Corporate CSR programs, including the development of Village Cash can also improve the welfare of local communities.

3.1.3 Issues raised by stakeholders and assessor comments

The issues raised by stakeholders have been responded by the assessor as table below.

Table 19. Issues Raised by Stakeholders and Assessor Comments

No	Name	Position/ Organization/ social Group	Main concern / recommendation	Response
1	SUTOPO	Head of Sungai Deden Village	For overlapping land, the community who own the land in the study area hope that the overlap land with the ownership SHM can return to the community	The overlap area will be discuss with the concerned community
			The CSR Program for each villages surrounding PT SEC must refer to both local and central government programs	The CSR will adjust with basic needs of village
2	BARJONO	Head Of District Sejangkung	Suggestion for internship program for student of SMKN Sejangkung majoring in Agriculture and plantation.	Suggestion is accepted
			For the CSR ; please guarantee for development sanitation	The CSR will adjust with basic needs of community
3	U. Pazarullah / Dare	BPD / Head Village	The company lacks a socio-economic approach to the Mekar Jaya villagers regarding community empowerment In order to carry out the scraping of Sekuan River which has an impact on drought Construct roads from plantation to the settlement area for facilitate access.	Suggestion is accepted, that will be an input to company for community empowerment. The input is accepted. Thank you for the suggestions

No	Name	Position/ Organization/ social Group	Main concern / recommendation	Response
4	SUPRIYADI	Head of BPD Beringin Village	Infrastructure should be improved, especially for Beringin Village, Sajad District, because the existing road is very damaged during rainy days	This will be company's suggestion and input, which later on socialization activities can put on CSR program accordance the needs of community
6	TURIYANTO	Secretary of Sepantai Village	In order to construct roads from Sepantai Village to mill area for maintain quality the price that farmers get	This will be company's suggestion, input and attention.
7	JUNAIDI	Community of Lubuk Lagak Village	The construction of temporary bridge that passed trough Lubuk Lagak Village and Lubuk Dagang Village disturb community activities	This will be company's suggestion and input
8	MAHYUDIN	Vice head of BPD	The environment of facilities and infrastructure in the village further improved	This will be company's suggestion and input
9	YUDI	Head of Lubuk Dagang Village	Ask the company to concern about : 1. River water quality 2. Broke bridge and abration of river	This will be company's concern to planting adjust the bufferzone
10	SAPRIADI	BPD of Lubuk Dagang Village	1. Pay attention to the river flow 2. Always monitor the river flow 3. Pay attention to the use of fertilization	This will be company's concern, and the monitoring of river flow that impacted accordance the laboratory analysis result will be monitored every semester. The application of fertilization accordance to SOP
11	Drs. HERIKUSNA DI HM	Head of Sumber Harapan Village	The company must commit to all of stated in AMDAL. The company must also fulfill its obligations according the local permit. During operational of the mill,	The AMDAL document will serve as a guideline of implementation in field. This will be company's concern in the future.

No	Name	Position/ Organization/ social Group	Main concern / recommendation	Response
			<p>please to open a post each village to accommodate community complains.</p> <p>Please anticipate the problem of air pollution</p>	

3.1.4 List of Legal Documents Owned

The PT SEC's legal documents owned by PT SEC are listed in table below.

Table 20. List of PT SEC's Legal Documents owned by PT SEC

No	Letter Type/Permit	Date issued	Subject
1	Sambas Regent Government Investment and Integrated One-Stop Service Number 582/029/BPMPPT/2015	4 November 2015	Granting of location permits for oil palm plantation development on behalf of PT Sarana Esa Cita
2	Sambas Regent Decree Number 352/BLH/2016	13 April 2016	Environmental Permit pf PT Sarana Esa Cita
3	Sambas Regent Government Investment and Integrated One-Stop Service Number 582/014/BPMPPT/2016	19 May 2016	Plantation business permit of PT. Sarana Esa Cita
4	Indonesia Government, Department of Investment Coordination number 8120115180926	02 November 2018	Trading business license / Nomor Induk Berusaha (NIB)

3.2 Integrated HCV-HCS Assessment Summary of Finding

3.2.1 Study Area Boundaries (AOI)

In general, the determination of the study area is limited in the scope of the Sambas landscape by taking into account the landscape boundary in the form of the central part of the Sambas watershed and a radius of 5 - 10 km interaction area which is considered the affected area of oil palm plantation development, which is located in 4 (four) districts. namely Sambas District, Sajad District, Subah

District and Sejangkung District, the entire study area is located in Sambas Regency, West Kalimantan Province, Indonesia. Sambas Regency is a district bordering Sarawak, Malaysia. Geographically, it is in the central part of the Sambas River Watershed. The Sambas River is a river that reaches the Karimata Strait. The boundaries of the study landscape were obtained by combining the distribution maps of the watershed and sub-watersheds as well as the areas of interaction that surround the study area. The determination of landscape boundaries is based on the operational impacts of the two study areas on connectivity with natural ecosystems and/or locations that have potential as wildlife habitats, especially areas that have connectivity with potential HCV and HCS areas in the study area, environmental services and communities villages that make use of these environmental services. The area of AOI in the study area is 54,580 hectares.

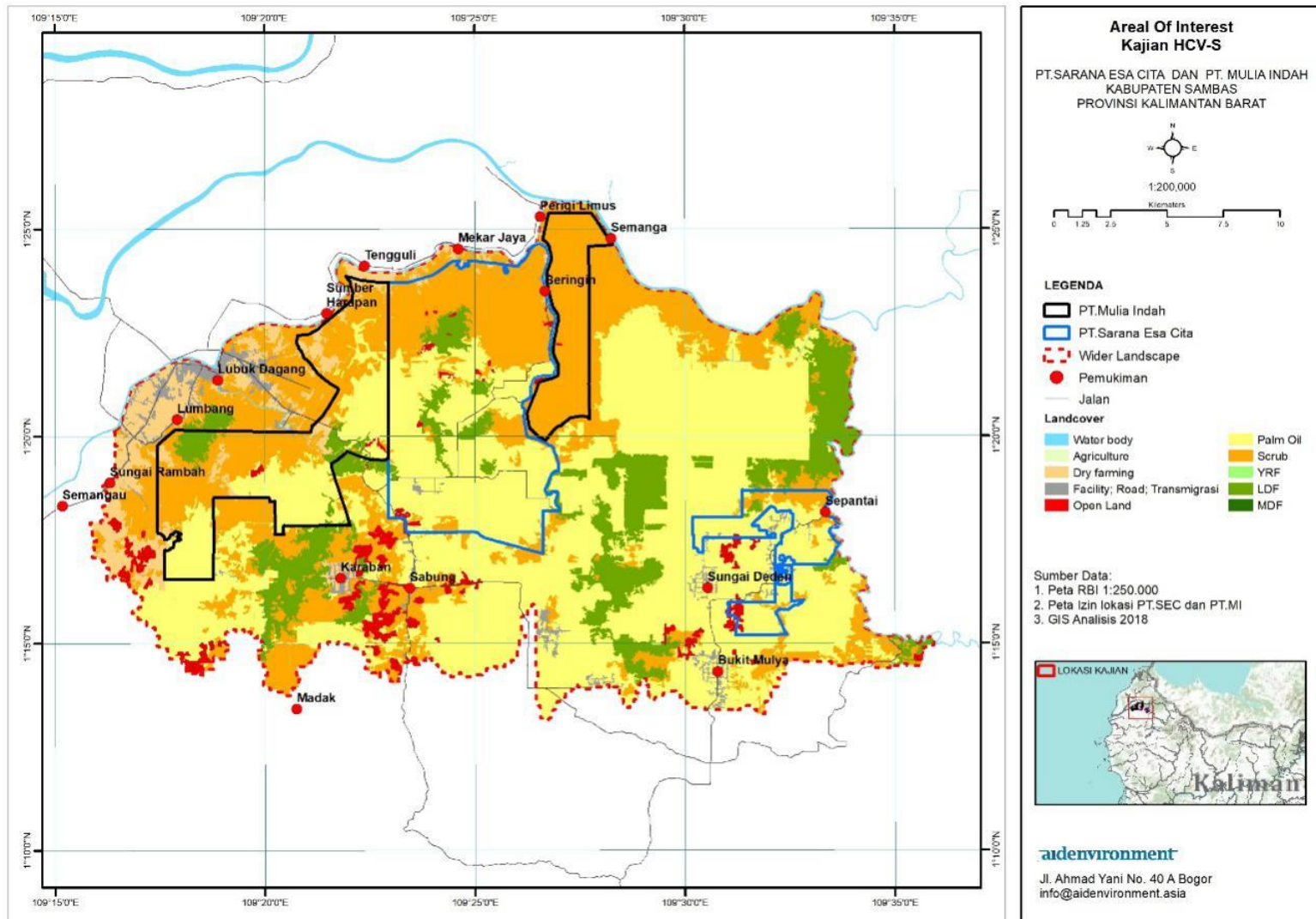


Figure 6. Map of boundaries of the HCV-HCS study area in the PT SEC and MI areas

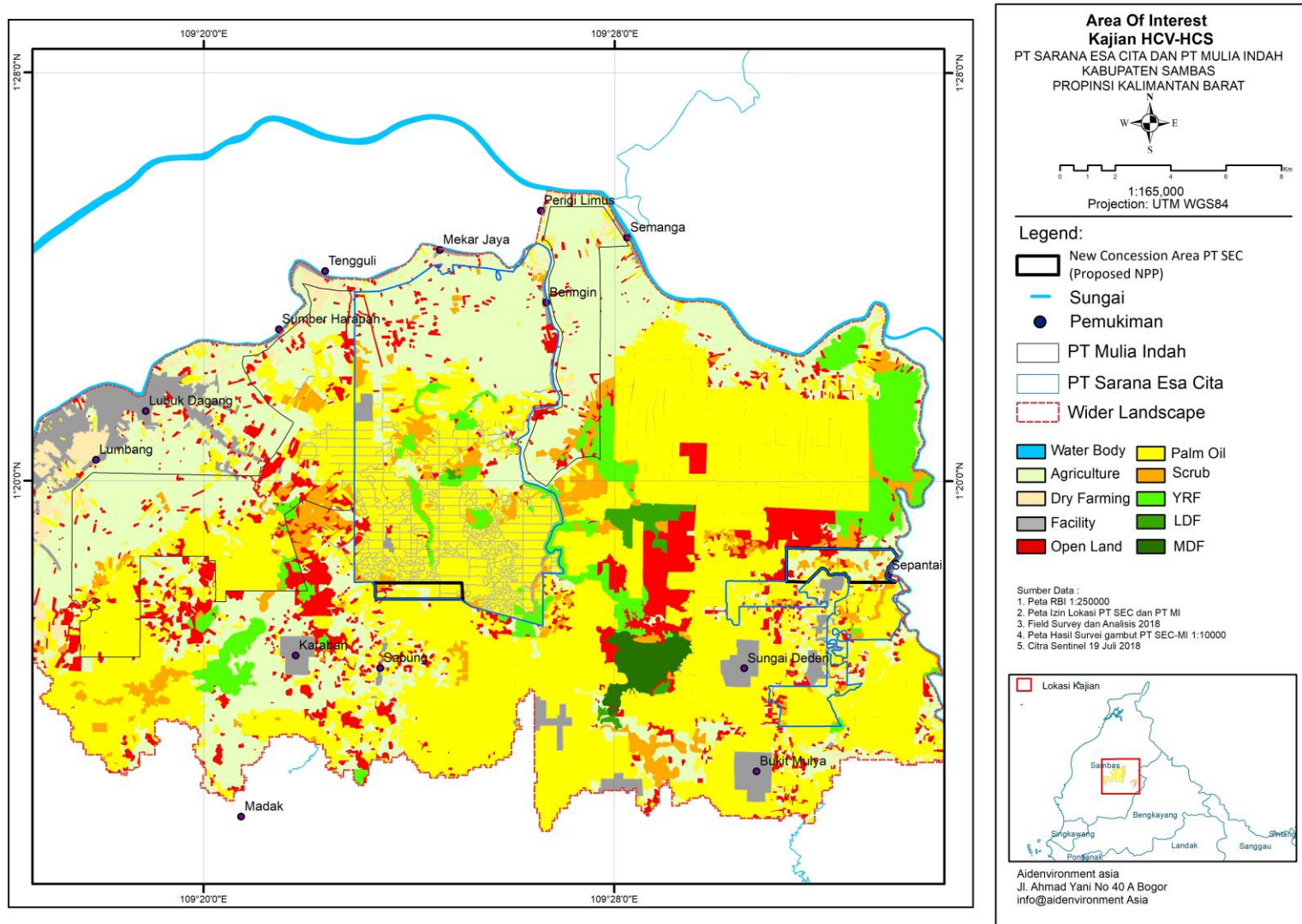


Figure 7. Map of Proposed NPP Area PT SEC in the AOI HCV/S Study

3.2.2 Landscape Context

Physical and Environmental Character

- The PT SEC and PT MI study areas are located in the central part of the Sambas watershed with two rivers as part of the sub-watershed, namely: the Sambas Kecil River and the Sambas Besar River. The Sambas River Watershed is the largest watershed in the Sambas River Basin (WS) with an area of 744,406 Ha.
- The areas of PT SEC and PT MI are very wet areas with natural vegetation in the form of tropical rain forests with rainfall reaching 3,266 millimeters or an average of 272.24 millimeters per month in Sambas District, while the lowest rainfall occurs in Teluk District. Keramat with an average of 100.64 millimeters per month The area in this study landscape is included in climate type A with 12 wet months (rainfall > 100 mm / month).
- These areas receive more intensive solar radiation so that the annual average temperature is relatively higher than other areas. The average air temperature is estimated to be around 27.2 C) with the warmest temperature occurring in July 33.8 °C.
- The area within the PT SEC and PT MI concessions is in lowland <100 m above sea level. The dominant slope classes in this region are <8% (flat) and 8-15% (undulating). The area with steep slopes in the PT SEC area is only found in Bukit Kubu with a slope of > 40%, while in PT MI there is no slope categorized as steep.
- Based on the Land System Map (RePPPProT, 1991), most (60.87%) of the study area are located in undulating sedimentary plains (Lawanguwang/LWW) and 36.86% are Kahayan/KHY alluvial plains.

Biological and Ecological Characteristics

- The conservation area around the study landscape is located quite far away, namely the Mount Nyiut National Park which is in the southeast of the area which is 37 kilometers away and the Asuansang Mountain Nature Park area which is in the north of the study landscape and is 29 kilometers away.

- Based on the *Important Birds and Biodiversity (IBAs)* map in **Figure 8**, it can be seen that in the study landscape there are no areas categorized as IBA areas, while the IBA area is quite far, approximately 29 Km to the north and approximately 33 Km to the southeast of the PT SEC

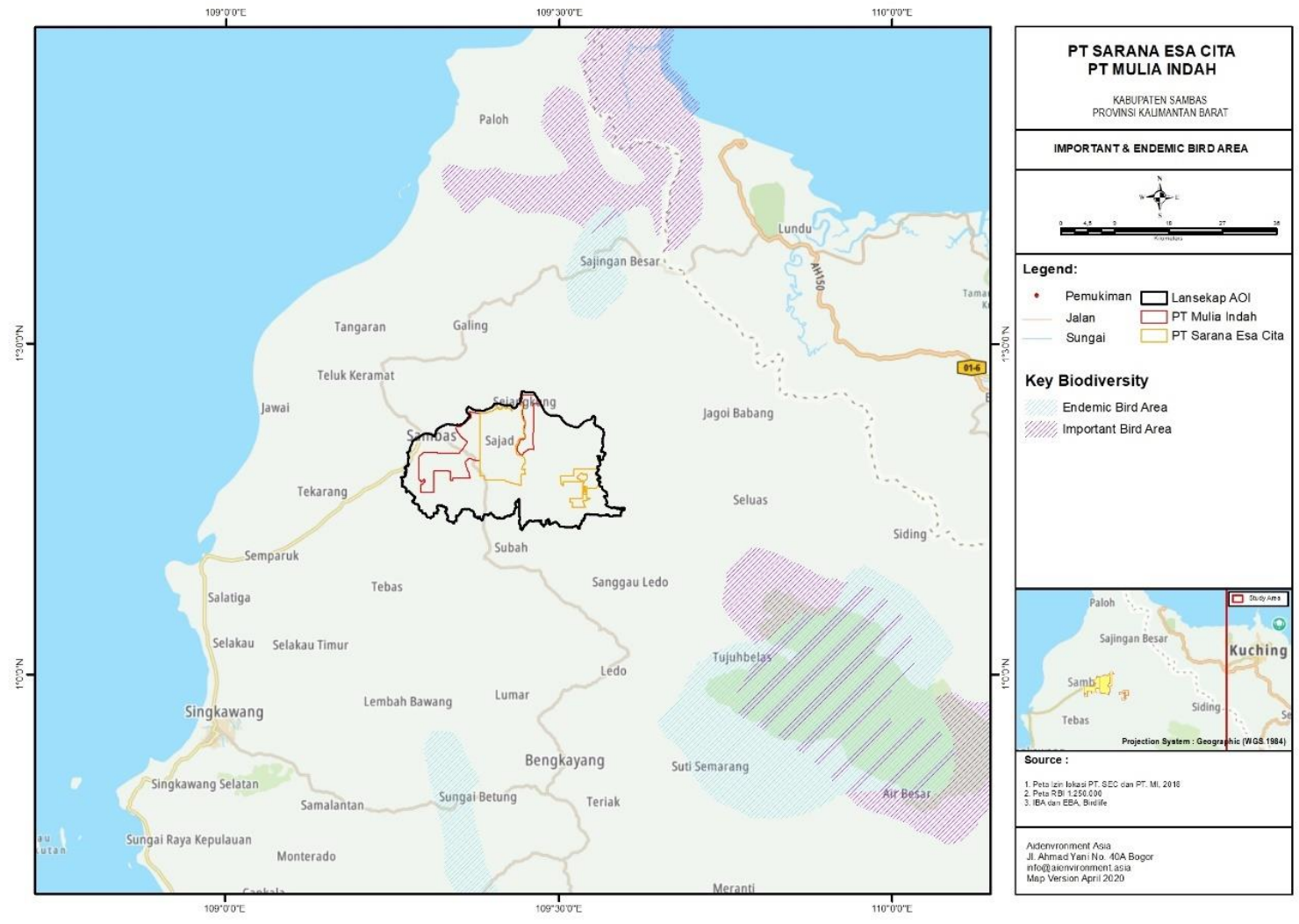


Figure 8. Important and Endemic Bird Area in Landscape Assessment Area

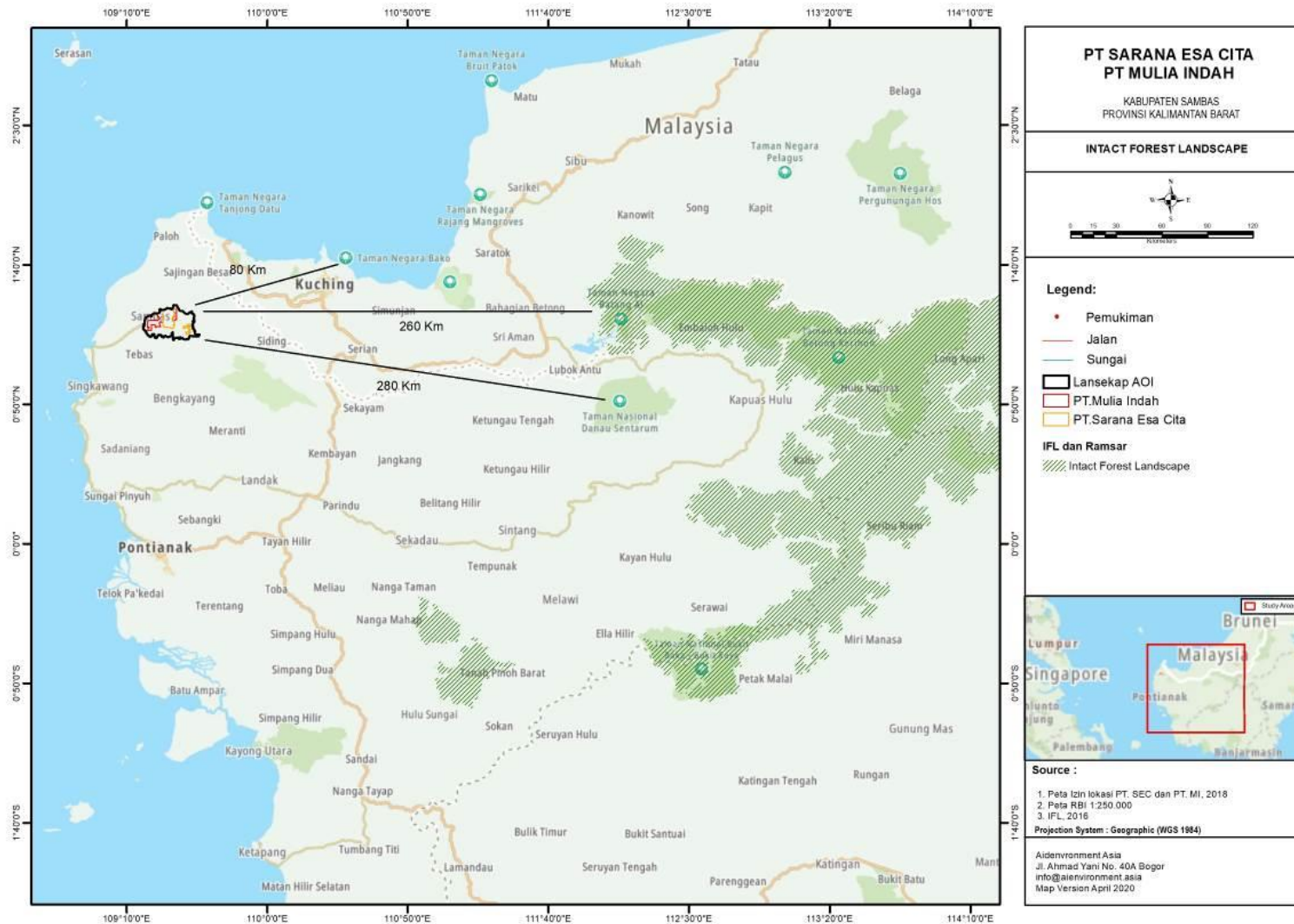


Figure 9. Intact Forest Landscape (IFL) and Ramsar Site in Landscape Assessment Area

and PT MI study site.

- Based on the IFL map in **Figure 9**, it can be seen that the study landscape in PT SEC and PT MI is an area that is very far from the area defined as IFL 2016. At the global level the study areas in PT SEC and PT MI are areas that are far from the areas categorized as Ramsar Site an area categorized as a RAMSAR site.

Socio-Economic and Cultural Context

- There are 15 villages that surround the study area, which as a whole are included in the administration of 4 sub-districts in Sambas Regency, West Kalimantan. Most of these villages have long lived in the vicinity of the study area. Some villages are definitively UPT Transmigration and inhabited by people who generally come from West Java, Central Java and East Java.
- Total population and population density in the village in this landscape is 39,135 people, with the largest number of households in Semanga Village as many as 5,160 people and the lowest in Desa Keraban Jaya with 919 people. The average population density in the study area is 134.52 people/km².
- The main source of livelihood for the local community is farming with the main commodities in the form of rubber, oil palm, pepper, corn, rice, cassava and other crops. The village community generally planted 500 - 600 trees/ha with varying spacing. On average each person can cut 200-300 trees with a yield of about 20-30 kg per day. The price of rubber is around Rp. 9,500 - 10,000 / kg, so that routine incisions for 25 days generate cash up to 5 million / month
- The diversity of sub-tribes in Sambas Regency shows that the Malays and Dayak ethnic groups dominate the study area. Ethnic Malays are scattered throughout the study area, and the west coast of Sambas Regency is an area of Islamic Malay culture.

Land use and development patterns.

Tracing the history of land use that has been carried out shows that forests in the study landscape have been used by the community since the 1950s. This is indicated by the existence of farms from

Sabung Village which later developed into small villages. Village communities use the forest and land for farming and rubber farming (*Hevea brasiliensis*), and also extract forest products in the form of wood.

The entry of oil palm plantations has an impact on shifting the farming culture of the surrounding community, who generally no longer carry out shifting cultivation activities, in the sense of finding or opening new land in the form of forests that do not have an owner. Even if land clearing occurs, it is only carried out on owned/cultivated land or inherited land that has not been processed. This shift is also marked by the intensification of land management by the community, and this oil palm company has also triggered the community to cultivate oil palm as a plantation commodity.

3.2.3 Image Analysis and Land Cover Classification

Land cover classification is carried out by the OBIA (Object-Base Image Analysis) segmentation method with the ENVI application. The image used is a Sentinel-2A image with a spatial resolution of 10 meters and has a spectral resolution of 12 multispectral channels. For the needs of the assessment of the use of the Sentinel image band used is a 4-3-2 (True Color) band combination. Meanwhile, for Landsat 8, a combination of bands (4-3-2) True Color is used.

The satellite imagery coverage date used for initial interpretation was landsat 8 satellite imagery covering July 4, 2017. The results of this OBIA analysis were then confirmed by visual delineation with the QuantumGIS application (QGIS) using high-resolution reference images available online/streaming from several providers such as BingMap, Google Earth and ESRI Image Library for more accurate delineation and updating of land changes with Sentinel 2A satellite imagery. To obtain other land cover references, the assessment team also used Landsat-8 imagery coverage on July 4, 2017 Path/Row 122/059 with cloud cover 5% of the total area of the AOI so that it is estimated that it is representative enough to be used to carry out HCS studies and analyzes carried out in the area. this. Based on the analysis of satellite imagery, 5 land cover classes were obtained, namely forest, shrubs, dry land agriculture, oil palm plantations and open land. The initial land cover class is used as a reference for conducting field visits in the initial assessment stage.

To get the results of land cover updates based on the results of the field survey in full assessment, the assessment team also used the latest satellite imagery on 19 July 2018 when conducting field

verification, especially in the delineation stages of HCV and HCS areas. The satellite image used at the time of writing the report was the Sentinel satellite image in July 2018 because the Sentinel imagery in that month has clear coverage and there are not many clouds. From the results of the land cover analysis from July 2017 to July 2018, it can be seen that there is a change in forest land cover to non-forest, where the change in land cover mostly occurs outside the concession permits of PT SEC and PT MI companies which are difficult to avoid because it is outside the company's authority to take preventive or a moratorium on land clearing owned by other parties. Based on the High Carbon Stock Toolkit Version 2.0 Module 4, the minimum required accuracy of initial land cover is 70% and for the accuracy of final land cover at least 80%. Initial land cover and final land cover can be used in the Integrated High Conservation Value (HCV) - High Carbon Stock (HCS) assessment. To be able to measure the accuracy of the initial interpretation, the calculation of the number of sampling will be used as a correction to the land cover classification. Where the total sampling count is calculated using the Slovin formula. Based on the calculation of the formula, the number of plots for land cover verification in further verification is 85 plots.

Land cover verification in the full assessment phase is carried out to ensure again the indication of the cover class which is still forest, where from the results of the field verification, not all vegetated areas in the study location are forested. Most of the area is cultivated land in the form of rubber, durian, rambutan and dry land agriculture in the form of field rice. Some areas also still have natural vegetation that has the potential to become forested areas, especially on riverbanks. During this final verification process the assessment team realized that the land cover was changing. Particularly outside the concession the changes are very high, so that the priority for land cover updates is mostly focused on areas inside the concession area.

The results of the accuracy test show that the lowest producer accuracy is found in the land cover class Low Density Forest (LDF) and Medium Density Forest (MDF) by 0%, this is because in actual conditions in the field the area included in this class is land that is not so wide that it is difficult to distinguish it from other Agriculture classes which really dominate the land cover in the area. The small level of accuracy is also influenced by the condition of the land cover in the image which has almost the same spectral similarities, also the actual conditions are similar, especially between young regenerating forest with old shrubs and cultivated land, the land cover can be distinguished

from the variations and tree types contained in it. . Meanwhile, for the accuracy of the producers with the highest value on the land cover of Agriculture Durian (AGD) with accuracy reaching 100%. Meanwhile, the lowest accuracy value is found in Dry Farming (DF) land cover of around 50%. While other cover classes such as Shrub, Old Scrub (YRF) and Open Land (OL) have a moderate level of accuracy, the accuracy of this assessment occurs because it is quite difficult to distinguish land cover from Sentinel imagery with relatively similar pattern and color conditions, especially distinguishing classes. Agricultural land cover and cover classes that have natural vegetation (Shrub and YRF), this results in the resulting total accuracy value only around 69%. Although the overall analysis results for mapping accuracy are still less than the 80% accuracy limit specified in the assessment guide (the accuracy test results show a value of 69%), the assessor considers using these results for the next analysis process, this refers to the strength of agreement value table. K under that the 69% accuracy rating is still rated as strong enough for accuracy. For recommendations in the improvement process to get an accuracy value that is greater or closer to 100%, it can be followed up and input into management and monitoring activities of HCV / HCS areas.

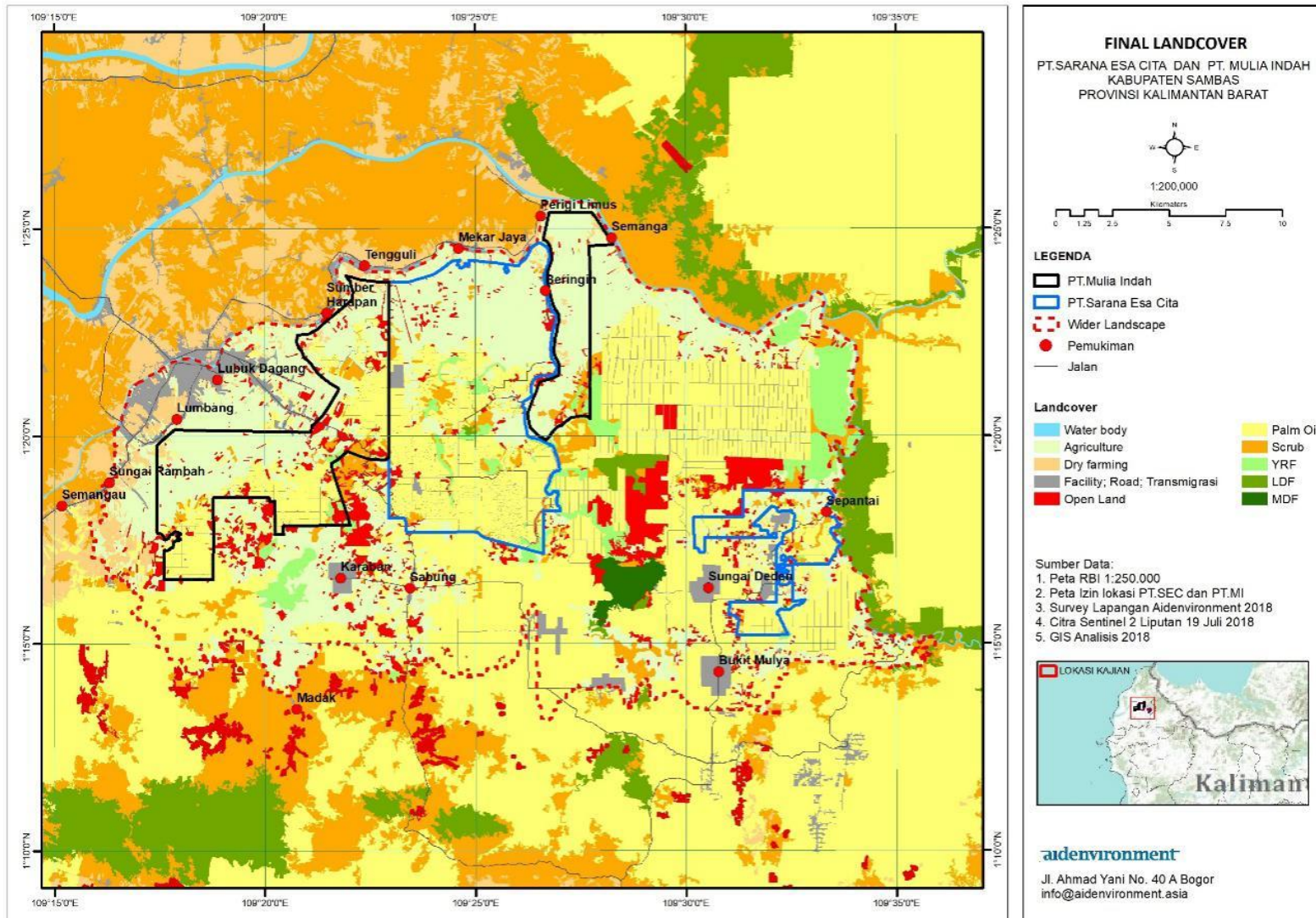


Figure 10.Final land cover map

3.2.4 Social Result

The social data collection method is carried out in two stages through literature review of secondary data and field studies. Secondary data literature review is obtained by extracting information from initiators and other available sources (government and non-government institutions). Meanwhile, field study data were obtained through interviews, focus group discussions, participatory mapping and observation of social conditions in the field.

Based on the results of the mapping (**Figure 11**), the total area of land under the plantation business permits of PT SEC and PT MI is $\pm 16,300$ Ha, around $\pm 10,107.48$ Ha (62%) is still community land (total area of local community's land under PT SEC are $\pm 5.923,16$ Ha and PT MI are $\pm 4.184,32$ Ha) and the rest is an area that the company has compensated to manage as oil palm plantation area.

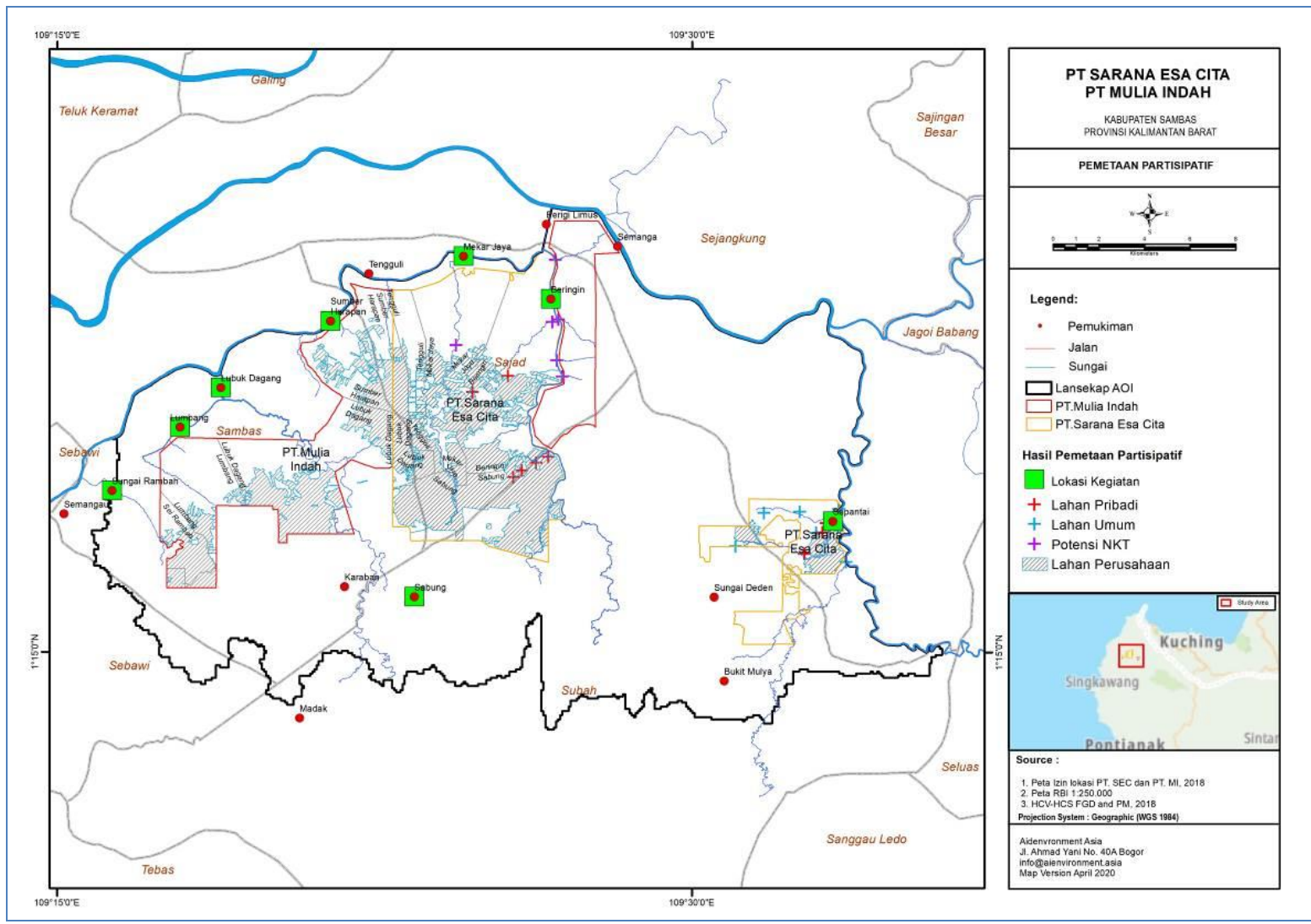


Figure 11. Map of the Results of Participatory Mapping in the Village Around the study Area

3.2.4.1 HCV 4: Critical Ecosystem Services in Critical Situations

Natural vegetated areas within the PT SEC and PT MI location permits have an important role for environmental services where there are still areas that function as erosion retaining areas, areas that function as catchment areas and the Riparian area where plantation development activities need to pay attention to ecological dynamics in the surrounding landscape which will indirectly have an impact on the downstream area of the study location.

Based on the results of analysis from a study by Aksenta in 2011 previously found locations that have potential for HCV 4 in PT MI, namely Mungguk Jering River, lowland hilly areas, Lumbang River, Lumbang River flood banks, Teberau River flood banks, Teberau River downstream, border of Sorat River, the upstream Teberau River and the Perangai River, the swamp forests exposed to the floods of the Teberau River and the Sungai Perangai Estuary.

Based on the results of previous studies at PT SEC by Aksenta in 2015, there were also areas that were included in the HCV 4 category in the study location, namely water catchment areas (Sebuyuk Besar River, Kemayau River, Red River and Rarak River), erosion control areas and river bed sedimentation. (Bukit Kubu), and based on the results of current field studies there are also areas that fall into the HCV 4 category in the form of water catchment areas and areas for erosion and sedimentation control.

For the company's planting area located on the riverbank / buffer zone, PT SEC and PT MI can be maintained for up to 1 planting cycle and harvest activities are carried out in accordance with the company's SOP. However, when 1 planting cycle has been completed, the buffer zone area must be rehabilitated and no *re-planting* activities are allowed.

The main river in the study landscape is the small Sambas River which empties into the Big Sambas River, as well as other small rivers. In some rivers the border area is still covered with natural vegetation: secondary forest and thickets where there is a protected species of flora belonging to the RTE category that grows in this area. However, the condition has been degraded or disturbed due to land clearing activities. Wood stumps and logged debris were frequently found in this area during the field survey. The Sambas Kecil River is one of the rivers where the border becomes a water

catchment area. Sebuyuk Besar River, Kemayau River, Red River and Rarak River, Erosion and Sedimentation Control Areas. Riverbanks and the Kubu Hill area.

Apart from river border areas, natural peat swamp forest areas provide a distinctive hydrological function where these areas provide water sources and control floods. In the study location, there is an area that used to be peat swamp forest, but in line with the development development at the landscape level, the area which was formerly a natural forest has been converted into plantation and community agriculture. Based on the results of the field study by the assessment team, based on the calculation analysis, it can be seen that based on the results of the survey conducted by the manager, it was found that the peat distribution in PT SEC was 540.31 Ha and in PTMI an area of 475.47 Ha, whereas based on the AOI area it was seen 823.98 Ha is peat with the priority category for restoration of canal peat dome (protected zone) and 6717.19 Ha is peat which is priority restoration of canalized peat (cultivation zone). From these data it can be concluded that the study area contains a peat ecosystem which has one of these functions as a water provider and flood control, so that the study area has the potential for HCV 4 (**Figure 12**). It can be seen in **Figure 12** as well that the presence of HCV 4 in New Concession Area PT SEC (Proposed New Development Area PT SEC) was found.

The potential of HCV 4 areas can also be seen in conditions with steep to very steep slopes, based on a desktop study in the assessment landscape area, there are several locations with small scattered areas. the SEC concession, given the field conditions found to have significant ecosystem service value.

In general, the village communities living in the vicinity of the PT SEC and PT MI study areas are located along the river, which is correlated with the culture of the people who tended to use river routes as a means of transportation long before land transportation became public transportation. as well as an access point to gardens which are generally along river boundaries. However, in several locations where river access is quite difficult, there are boundary areas that are still quite natural and have a high potential of biodiversity. From the results of data collection in the field, the use of rivers is currently only an access point and does not have the function of providing clean water, the current need for clean water is fulfilled by buying refill water and from wells located in each house.

Table 21. Summary of the existence of HCV 4 in the concession PT SEC and PT MI

HCV 4 Element	Existence	HCV area Identified
Water catchment area and controlling flood	Yes	Riparian area within site permit Sei Ubah, Sei Usar, Sei Mungguk Tabang, Sei Mensebai, Sei Sindak, Sei Sekuan, Sei Mbawang, Sei Turusan Lama, Sei Arung Malaban, Sei Sallok, Sei Sabung, Sei Tanjung Baru', Sei Sansang, Sei Sorat, Sei MerahSei Sendawar, Sei Surong Dayong, Sei Sebuyok Besar, Sei Sebuyok Kecil, Sei Singkapek, Sei Sangku, Sei Kemayau, Sei Teberau, Sei Satai, Sei Senyurai, Sei Sambas Kecil, Sei Geniang.
Erosion and sedimentation control areas	Yes	Hilly area and Kubu Hill Sempadan Sei Ubah, Sempadan Sei Usar, Sempadan Sei Mungguk Tabang, Sempadan Sei Mensebai, Sempadan Sei Sindak, Sempadan Sei Sekuan, Sempadan Sei Mbawang, Sempadan Sei Turusan Lama, Sempadan Sei Arung Malaban, Sempadan Sei Sallok, Sempadan Sei Sabung, Sempadan Sei Tanjung Baru', Sempadan Sei Sansang, Sempadan Sei Sorat, Sempadan Sei Merah, Sempadan Sei Sendawar, Sempadan Sei Surong Dayong, Sempadan Sei Sebuyok Besar, Sempadan Sei Sebuyok Kecil, Sempadan Sei Singkapek, Sempadan Sei Sangku, Sempadan Sei Kemayau, Sempadan Sei Teberau, Sempadan Sei Satai, Sempadan Sei Senyurai, Sempadan Sei Sambas Kecil, Sempadan Sei Geniang.
Natural Firebreaks	No	There are no water bodies or wet areas throughout the year, with significant coverage, to limit forest and land fires

HCV 4	Findings
Basic ecosystem services in critical situations include protection of water catchments and control of erosion in vulnerable soils and slopes.	Yes

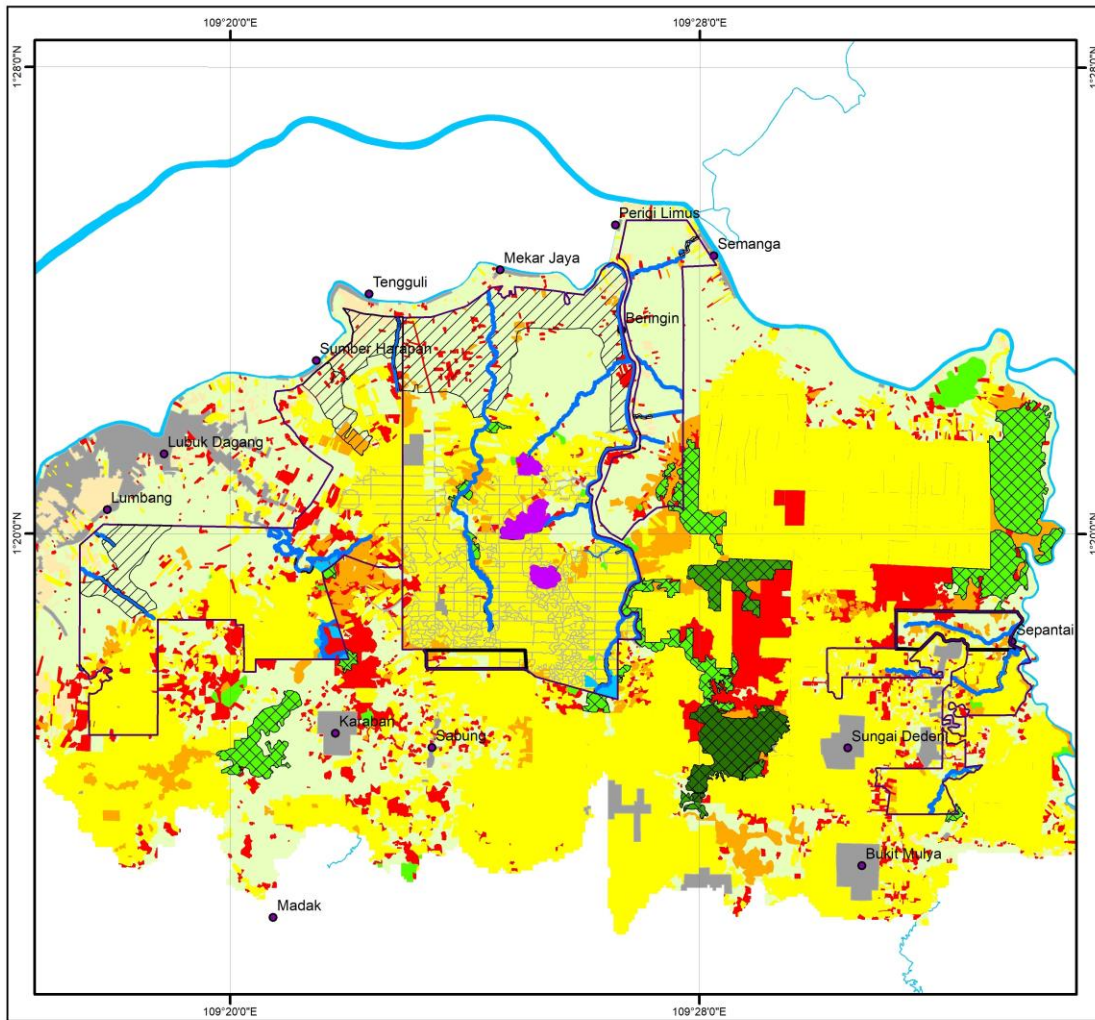


Figure 12. Draft HCV 4 maps inside the concession and around the landscape in the study area

3.2.4.2 HCV 5: Basic Needs of Local Communities

In this assessment, important values were obtained in areas as a source of livelihood for the local community, areas identified as HCV 5, namely:

- The source of fish is still obtained from the nearby Satai River, even though the rivers in Sepantai Village do not produce much fish anymore because they are becoming cloudy and polluted.
- Some people still believe in traditional medicine performed by village healers or traditional witch doctors. The availability of medicinal plants originating from the forest can still be obtained such as Asam Kandis, Bay Leaves, Guava Leaves, Pasak Bumi, Ginger and Turmeric.
- The Sei Satai and Sei Merah rivers that flow in Sepantai Village are used by the village community to meet their daily needs for clean water.
- Sungai Semayang (Sepantai village) and upstream of the Merah river (Sabung village) as a reserve source of wood for house building materials whose potential has not been utilized.

Overall in this assessment there were still locations that were included in the HCV 5 category, namely rivers and tributaries in and around the location permits for Sei Change, Sei Usar, Sei Mungbuk Tabang, Sei Mensebai, Sei Sikut, Sei Sekuan, Sei Mbawang, Sei Turusan Lama, Sei Arung Malaban, Sei Sallok, Sei Sabung, Sei Tanjung Baru ', Sei Sansang, Sei Sorat, Sei MerahSei Sendawar, Sei Surong Dayong, Sei Sebuyok Besar, Sei Sebuyok Kecil, Sei Singkapek, Sei Sangku, Sei Kemayau, Sei Teberau, Sei Satai, Sei Senyurai, Sei Sambas Kecil, Sei Geniang.

Although there are several means of substituting clean water sources for communities at the landscape level, there are also communities that use rivers as irreplaceable sources of clean water so that rivers within the area still have a very important role for local water fulfillment and still have attributes that are considered as HCV 5 so that plantation development activities need to mandate activities that pay attention to environmental aspects and river waters.

Digging up data and information needed to obtain information on the important values of the basic needs of the community was only carried out in 8 villages which were the social sampling villages out of 15 villages around the landscape. The lack of information from the other 7 villages has the opportunity not to identify the important values that actually have in the landscape. With the insufficient number of sample village locations visited in the verification of this HCV 5 study, the important conservation values and HCV 5 management areas presented in the map are still considered a draft. In order to get around the limited time for the assessment and representative sampling to obtain data, in the future more detailed information and data can be extracted for other villages and can be included in the management and monitoring plan for HCV-HCS so that important values that are not recorded during the full assessment can be identified. The Draft HCV 5 maps in the concession area and around the landscape in the study location provided in **Figure 13**. It can be seen in **Figure 13** as well that the presence of HCV 5 in New Concession Area PT SEC (Proposed New Development Area PT SEC) was found.

HCV 5	Findings
Sites and resources fundamental to meeting the basic needs of local communities or indigenous peoples (for example as sources of livelihoods, health, nutrition, water), identified through engagement with communities or indigenous peoples.	Yes

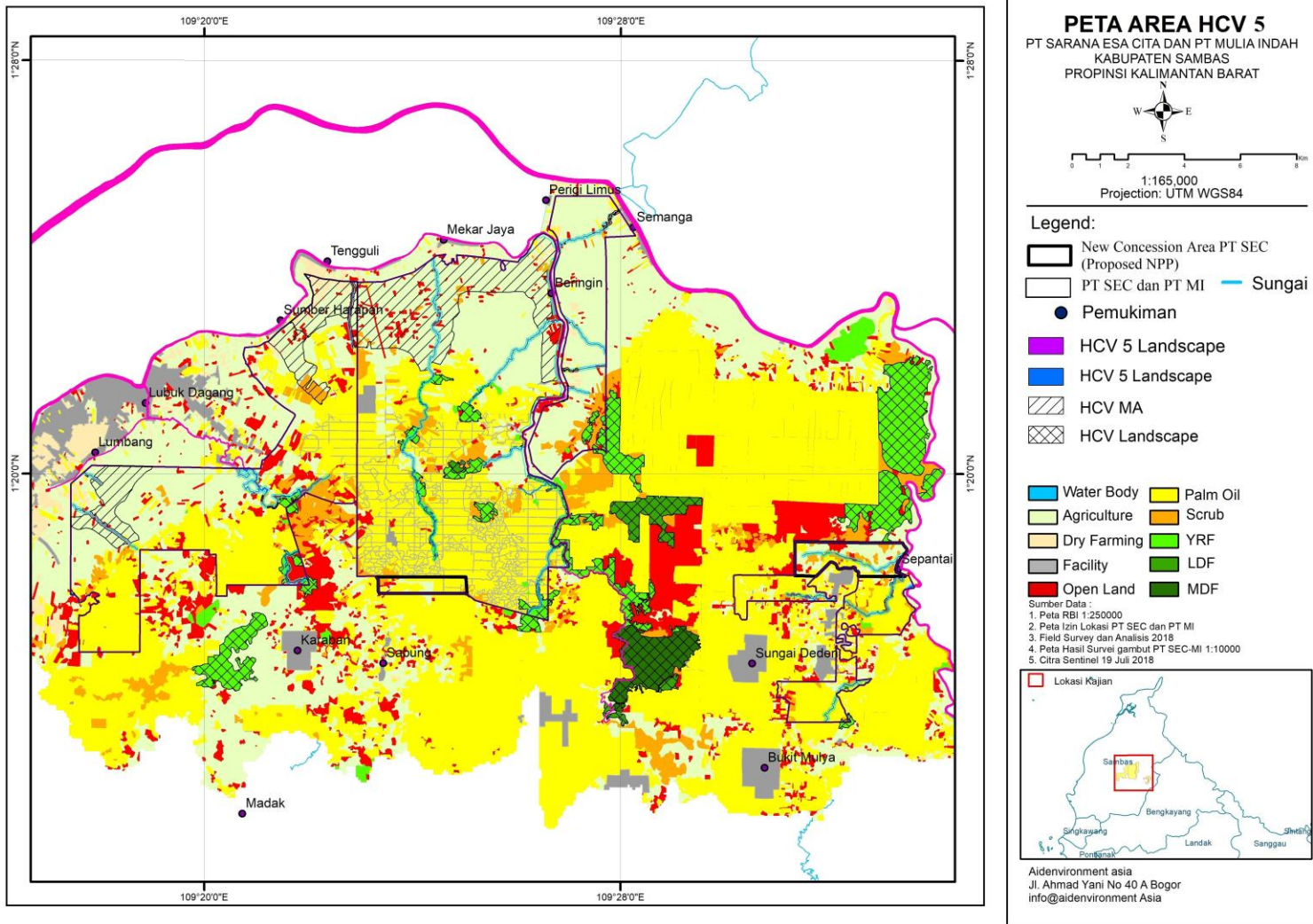


Figure 13. Draft HCV 5 maps in the concession area and around the landscape in the study location

3.2.4.2 HCV 6: Cultural Values

Based on the identification of HCV 6 with field observations and interviews, it shows that there are still sites that are used and protected and recognized by the community or local and national governments, some of which are the *Sansang Cemetery, Sansang Orchard, Pekong, the Keramat Brunai Cemetery, the Tomb of Syeikh Abdul Jalil al. -Fathani, Sambas Sultanate Palace/ Alwatzikoebillah Sambas Palace, Sambas Sultanate Jami 'Mosque, Sambas Struggle State Museum*. It was stated by the community that the villages around the study area did not have cultural sites or sacred areas by local communities that were nationally recognized or sites that had official designation from the national government and / or international institutions such as UNESCO. The only world heritage sites that have been officially designated by UNESCO in Kalimantan are Tanjung Puting National Park in Central Kalimantan. There are no world heritage sites in the province of South Kalimantan.

Based on the land use analysis, the criteria for determining HCV 6, consultation with the surrounding community, and observations in the field, it is concluded that there are 3 areas in the study area that have value and meet the criteria as HCV 6, namely the sacred areas of the Sansang Grave and the sacred Pekong), and Tembawang Sansang.

- Sansang Cemetery, a burial area for the ethnic Dayak Bakati 'residents of the Sabung Village community when they lived in the old village. The existence of this place has religious and cultural values and is still visited at certain times by his heirs.
- A sacred place in the form of a place of worship (pekong) in Sabung Village. qualify as HCV 6 even if those who value these cultural resources are not local residents (for example, if certain community groups are active in carrying out cultural rituals related to areas inhabited by their ancestors, or undertaking pilgrimages to visit sacred sites that are far from their residence (Brown et.al., 2013).
- Sansang Orchard is still managed and maintained by the heirs who come from Sabung Village and Sungai Mas Hamlet (Sepantai Village). Based on interviews with Tembawang heirs, they will keep their Tembawang, because it is a collective family ownership. Tembawang which

plays an important role as a source of livelihood for the Dayak people, is useful as a conserving land for plant genetic resources both in-situ and ex-situ, and also as an ecological pocket for wild species. Besides that, it also has socio-cultural values, namely preservation for future generations and is a tradition they have carried out from generation to generation.

Extracting data and information needed to obtain important value information in the form of sites and community culture was only carried out by 8 villages which were the social sampling villages out of 15 villages around the landscape. The lack of information from the other 7 villages has the opportunity not to identify the important values that actually have in the landscape. With the insufficient number of village samples verified in this HCV 6 study, the important conservation values and HCV 6 management areas presented in the map are still considered drafts. Details for other villages and can be included in the HCV-HCS management and monitoring plan so that important values that are not recorded at the time of the full assessment can be identified. The Draft HCV 6 maps inside the concession and around the assessment landscape can be found in **Figure 14**. It can be seen in **Figure 14** as well that the presence of HCV 6 in New Concession Area PT SEC (Proposed New Development Area PT SEC) was absence.

HCV 6	Findings
Identified sites, resources, habitats and landscapes that have cultural, archaeological or historical significance at the global or national level and / or have cultural, ecological, economic or religious / sacred importance critical to the traditional culture of local communities or indigenous peoples. through interaction / engagement with related local communities or indigenous peoples.	Yes

Table 22. HCV 6 Sacred Sites at PT Sarana Esa Cita

NKT 6 SITUS KERAMAT		
No	Name	Size (Ha)
1	Pekong	0,2
2	Sansang Orchard	0,5
	Total Size	0,7

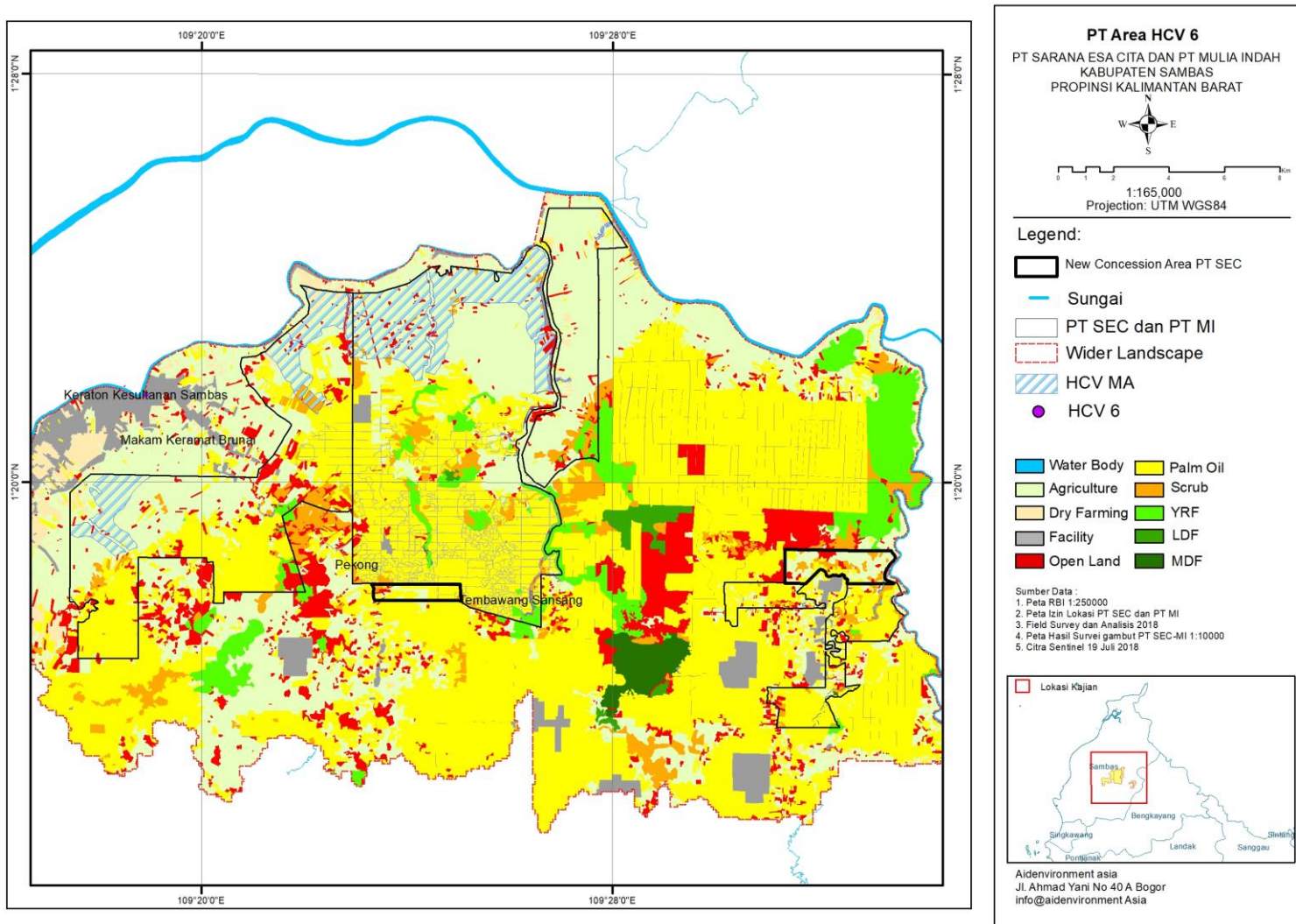


Figure 14. Draft HCV 6 maps inside the concession and around the assessment landscape

3.2.4.2 Land Tenure and Future Food Security for Local Communities

In general, land ownership in oil palm plantation concessions is mostly owned by communities who have lived in the area for a long time, either owned by individuals or groups using the land as plantation land or mixed fruit land. This can be seen from the historical tracking information of control and management of land around the PT MI and PT SEC areas. Most of the community areas were included in potential HCV and HCS areas. Long before the company entered, they had cultivated them with management forms such as settlements, agriculture, plantations, agroforestry and forestry. The results of the analysis carried out related to land use around the landscapes of PT SEC and PT MI show that at least about 60% ($\pm 33,000$ Ha of the total $\pm 54,000$ Ha) is the area that is still owned by the community, both individually and communally, this condition shows that the level of The average land tenure for the total number of people in 15 villages with an average number of people of 2,200 people / village is 1.05 Ha / person.

Table 23. Calculation of land requirement area compared to total population and area of rural areas

No	Sub-district	Village Name	Population (Person)	Village Size Administratively	Land Necessity (0,5 ha/Person)
1	Sajad	Mekar Jaya	3196	3631	1598
2	Sajad	Beringin	1160	7004	580
3	Sajad	Tengguli	3697	960	1848.5
4	Sambas	Lubuk Dagang	2636	2785	1318
5	Sambas	Lumbang	4634	4000	2317
6	Sambas	Sei Rambah	3338	3020	1669
7	Sambas	Sumber Harapan	2522	2252	1261
8	Sambas	Sungai Rambah	3040	2320	1520
9	Sejangkung	Sepantai	1335	25000	667.5
10	Sejangkung	Semanga	5155	6070	2577.5
11	Sejangkung	Perigi Limus	1562	550	781
12	Subah	Sabung	1573	11429	786.5
13	Subah	Karaban Jaya	916	1153	458
14	Subah	Sei Deden	2391	2025	1195.5

No	Sub-district	Village Name	Population (Person)	Village Size Administratively	Land Necessity (0,5 ha/Person)
15	Subah	Bukit Mulya	2601	1925	1300.5

The condition of open access to the area with various types of main work means that the economic conditions in this region are influenced not only from agricultural livelihoods, but many of the population is both public and private employees and also the trade sector. With an average community land ownership above an average of 0.5 Ha, the communities around the oil palm plantations get food sources apart from their own agricultural products as well as from market trade found in the urban center of Sambas and other residential centers. It can be said that the food security condition in this region is in quite good and adequate condition.

3.2.5.1 HCV 1: Concentration on Biodiversity

The existence of biodiversity in the PT SEC and PT MI areas can still be found in forested areas and community gardens with 273 types of flora and 134 species of fauna. Types of flora that are commonly found in areas that are still forested in hilly areas, river basins, and peat areas such as Mahang (*macaranga Pruinosa*), (*Gironniera nervosa*), Leban (*Vitek pubescens*), (*Vernonia arborea*), Temau (*Cratoxylum glaucum*) and plants fruits in community plantation areas such as Durian (*Durio zibethinus*), Rambutan (*Nepheillum lappaceum*) Rubber (*Hevea brasiliensis*) and so on. As well as types of fauna in the form of the Rat Eagle (*Elanus caeruleus*) Brontok Eagle (*Spizaetus cirrhatus*) Tongtong Stork (*Leptoptilos javanicus*) Owa / gibbon (*Hylobates abbotti*) spiny turtle (*Heosemys spinosa*).

Based on the field study, not all species included in the RTE category were found directly but data were also obtained based on consultations and village interviews, where several species such as sun bears, slow lorises and deer were sometimes found in several study locations. The type of primate commonly encountered by residents is the type of gibbon (*Hylobates abbotti*) which lives in groups and is sometimes found in community rubber and durian gardens.

Documents from past studies, interviews with the community and company management related to how large the population of *Pongo pygmaeus pygmaeus* and *Presbytis chrysomelas* are not

known / found, but taking into account that each individual species or subspecies critically endangered is important as a successor of generations for their species. then this critical species is part of the existence of HCV 1, this is also strengthened that the study area is a home range based on the recognition of the local community also states that on several occasions they can still find gibbons (*Hylobates abboti*) in community rubber and durian gardens even though they farther away from the study area where the study is located, there are 15 bird species, 7 types of mammals, 2 types of reptiles, and 10 types of vegetation which are endemic or RTE (rare, threatened or endangered) species that are protected under national and international regulations.

Table 24. List of HCV 1 findings

HCV 1	Findings
Rare, Threatened or Endangered (RTE) Species	There are. Based on the results of the analysis of 20 species of fauna included in the appendic list I and II of the CITES, while based on the IUCN category, 1 species were included in the CR category, 2 species were included in the EN category and 5 species were included in the VU category, and based on the IUCN category 4 types of flora were included in the category CR, 4 species are included in the EN category and 5 species are included in the VU category, based on the CITES category 3 species are included in the APP II category, and 4 species are Kalimantan endemic flora
Temporal Concentration of Species	There are not. In the area of PT. SEC and PT MI and the surrounding landscape had no temporal concentrations of the species habitat
Concentration of Biodiversity	Potentially. In the PT SEC and PT MI location permits, there are no RAMSAR Sites, Conservation areas, Protected Forests, EBA and IBA areas but these areas are potentially included in the Bornean Orangutan distribution. Therefore, in the national and international context, the PT SEC and PT MI location permits will provide a support function for the surrounding area which is potential as an Orangutan Habitat area.
Protected Areas for Concentration of Biodiversity	There are. Areas that are inside the PT SEC and MI Location Permit areas that are planned as protected areas because they include HCV areas include: rivers and their borders, forested areas, Kalimantan orangutan distribution areas, heavy TBE areas, and sacred places / cultural sites.
Natural Habitat with Good Conditions	There are. In the PT SEC and PT MI location permits, areas with secondary dryland forest and secondary peat forest are still found that can provide support for existing biodiversity.

Peatland area	There are peat areas within the PT SEC and PT MI location permits that can provide support functions for local biodiversity and as water management for the surrounding area.
Animal corridor	Yes, although in the PT SEC and PT MI concessions there are no conservation areas found, this area is an orangutan distribution so that the potential has a high chance and around the area there is a riparian zone with natural vegetation cover and community plantation areas that can function as animal corridors..

Based on the data above, it is known that within the PT SEC and PT MI location permits there are areas identified as HCV 1 with an area of 359.4 Ha in PT MI and 764.43 Ha in PT SEC which is a forested area in PT MI with an area of 103.7 Ha. and PT SEC covering an area of 231.63 hectares, riverbanks in PT MI covering an area of 237.8 hectares and PT SEC covering an area of 500.3 hectares and river bodies in PT MI covering an area of 17.95 hectares and PT SEC covering an area of 32.5 hectares (**Figure 15**) . It can be seen in **Figure 14****Figure 15** as well that the presence of HCV 1 in New Concession Area PT SEC (Proposed New Development Area PT SEC) was found.

HCV 1	Findings
Concentrations of biodiversity including endemic species, and rare, threatened or endangered (RTE) species that are significant at global, regional or national levels.	Yes

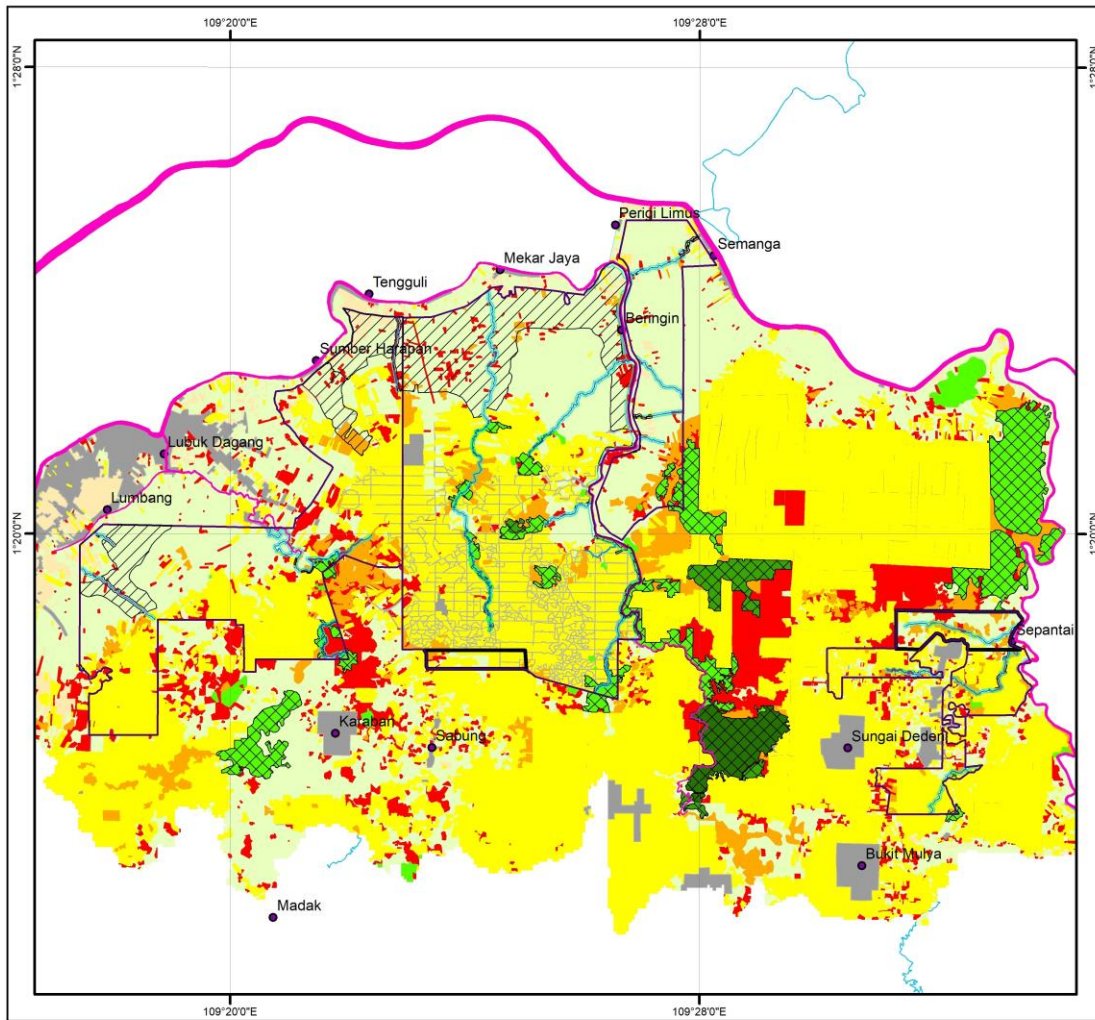


Figure 15. Distribution Map of HCV 1 in and in the Landscape around PT SEC and PT MI

3.2.5.2 HCV 2: Large Landscape

The area of PT SEC and PT MI location permits is an area that has been largely managed by the community for plantation, agriculture and cultivation land. The results of field identification and inventory indeed found that there are still forested areas that still remain, which are areas with secondary forest cover and old shrubs with a relatively small area. Within the landscape boundary of this HCV and HCS assessment, there are no longer intact forests with an area of more than 50,000 ha. Therefore, at the landscape level, Intact Forest Landscape (IFL) is not found in the assessment area, the closest distance between the IFL and the study location is approximately 260 km to the East.

The assessment area is located separately from natural landscapes and other important areas, and is not directly adjacent to buffer zones or conservation zones with high species diversity habitats. The closest conservation area is TWA Asuansang, Melintang about 29 km north of the study area and the Gunung Nyiut National Park conservation area which is located about 37 km southeast of the study area. However, there is no corridor connecting the study area with the conservation area. The study area is also located far from the IBA-EBA area, the closest distance to IBA is 29 km to the north and the closest distance to the EBA is 15 km to the north of the area. From the explanation above, it can be concluded that the presence of HCV 2 in the PT SEC and PT MI location permits was not found.

HCV 2	Findings
Large landscape-level ecosystems and a mosaic of ecosystems and intact forest landscapes that are significant at global, regional or national levels, and that include viable populations of most natural species with natural distribution and abundance patterns	No

3.2.5.3 HCV 3: Rare Ecosystem

The existence of a certain type of ecosystem is generally determined by the climate, soil/hydrological properties and land forms that exist in a biogeographic unit. The RePPProT (Regional Physical Planning Program for Transmigration) mapping program carried out by the Government of Indonesia in the 1980s has defined and mapped 414 land systems throughout Indonesia through the cultivation of topographic, geological, climate, hydrological/water system

factors, soil and organisms in a certain way. The RePPPProT land system classification can be combined with land cover and topographic maps to produce estimates of the distribution of ecosystem types and their past and present sizes. In general, the soil characteristics on the island of Borneo range from very weathered acid *Ultisols* and young *Inceptisols*. In the southern part of the alluvial plains combined with vast peat soils. Most of the land has been developed on undulating plains and mountains above sedimentary rock and old igneous rock. Based on the Land System Map (RePPPProT, 1991), the majority (60.87%) of the study area are located on undulating sedimentary plains (Lawanguwang/LWW) and 36.86% are alluvial plains of Kahayan/KHY). Shallow peat (Mendawai/MDW; 2.8%. The shallow peat swamp area is located in the basins behind the floodplains (backswamps) of the Sambas Kecil River and the Sambas Besar River. In general, the soil types in the study area can be grouped into three parts. : (i) sandy mineral soils: Podsol, (ii) organic soils: Red-yellow Organosols and Podcols (PMK) and (iii) non-sandy mineral soils: Alluvial and Latosols.

Justification of threatened ecosystem

In order to determine the existence of a threatened ecosystem, an analysis approach is carried out on the loss of forest cover in the study area. The data used in calculating and analyzing this is by using the Biogeographic region data from the RePPPProT land system source plus the KLHK forest cover dataset 1990 - 1995. The proportion of lost ecosystem area is calculated using the formulation:

Percentage of deforestation = $100 \times (\text{area of deforestation } 1990\text{-}2017 / \text{forest area } 1990)$. The loss of forest ecosystem area by more than 50% in that period, indicates that the ecosystem is under threat.

Table 25. Calculation of loss of forest area

Land System	Forest area in 1990 (ha)	Forest area in 2017 (ha)	Deforestation area 1990-2017 (ha)	Proportion of deforestation 1990 - 2017 (%)	Remaining Current forest cover (%)
MDW & KHY	2434.61	713.51	1,721.10	70.69	29.31
LWW	19598.77	2,023.46	17,575.31	89.68	10.32

Based on the table above, it can be seen that the three land systems experienced an area loss of more than 50%. The results of the analysis on the level of scarcity of PT SEC and PT. MI is located in two biophysiographies, namely *Northern Coastal Swampland* and *Western plains and Mountains* where based on the results of these two Biophiological analyzes, it has lost more than 50% of natural land cover where in *Northern Coastal Swampland* only 17.30% of natural land cover remains and *Western plains and Mountains* only remaining 12.36% natural land cover. Both analyzes confirm that the study area indicates an HCV 3 value.

Where, based on the results of field studies conducted at this time, there are still areas categorized as HCV 3 areas in the form of Riparian areas that still have the potential for protected flora and fauna biodiversity, although the area is not too significant.

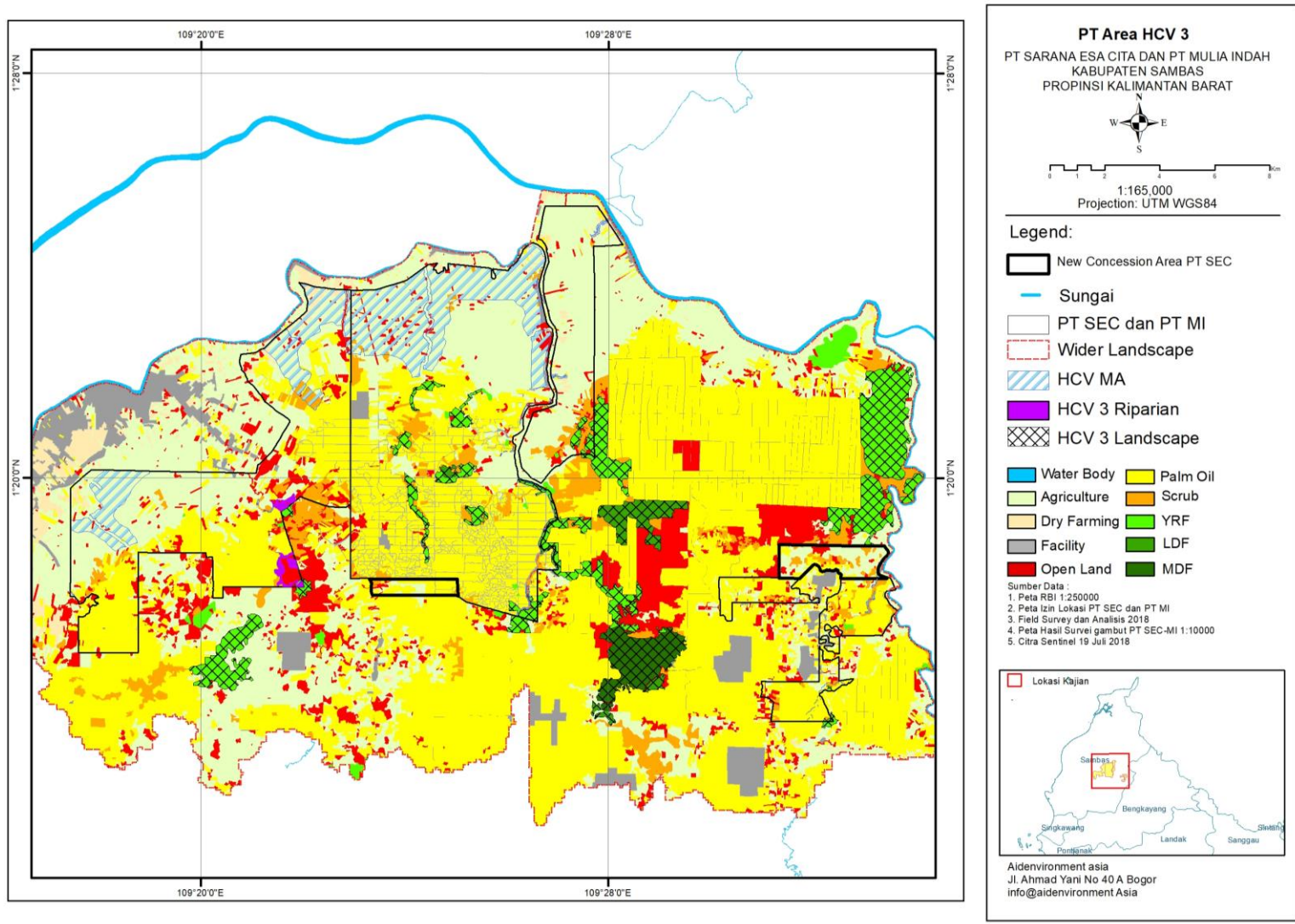


Figure 16. Map of HCV 3 areas inside the concession and the landscape around the study site

Based on the data above, it is known that within the PT SEC and PT MI location permits there are areas identified as HCV 3 areas in the form of riparian zones in PT Sarana Esa Cita covering an area of 42.98 Ha and PT Mulia Indah covering an area of 63.98 Ha (**Figure 16**). It can be seen in **Figure 16** as well that the presence of HCV 3 in New Concession Area PT SEC (Proposed New Development Area PT SEC) was absence.

Table 26. Identification of HCV 3 using a precautionary approach for indication of peat swamp forest and freshwater swamp forest ecosystems

Question	Answer	Instructions	Example / criteria
1. Are one or more ecosystems categorized as threatened or rare (i) inside the MU area, or (ii) outside the MU area but are likely to be affected by the MU's planned use?	Yes	There are 3 types of land systems	Peat swamp forest and freshwater swamp within the SEC and MI concessions are linked to peat swamp ecosystems outside the concession based on BRG data.
2. Whether the ecosystem is vegetation on peatlands	Yes	There is 1 peat ecosystem	The company's concession area contains shallow peat areas as well as areas that are inundated by river water.
3. Has the ecosystem undergone drastic changes that make it difficult to rehabilitate it again according to its ecosystem function?	Yes	Continue	Most of the peat and swamp areas have become other uses for plantations that have been managed by the community, only needing protection and enrichment by natural or native species
4. Has the ecosystem undergone drastic land cover changes so that it meets the criteria for "unproductive land" based on the Minister of Forestry Decree No.21 / Kpts-II / 2001.	No	Continue	Even though there has been a change in forest cover, because it has turned into a plantation, even so the conditions in the field are still forested because it is an old rubber plant.
5. Is it still possible that the ecosystem can be restored through natural processes if it is not converted by considering the following factors: (i) the ecological attributes or characteristics of the related	Yes	The HCV area is under company permits for PT SEC and MI	i).Peat swamp forest has connectivity with the surrounding peat swamp ecosystem in the company's concession area under the AOI ii).the condition of the ecosystem has been

Question	Answer	Instructions	Example / criteria
ecosystem, (ii) the condition and status of the surrounding land, (iii) the prevailing spatial planning, and(iv) regional development planning.			fragmented which is bounded by Das and SUB das iii).Located in another area of use iv).enter into the development of oil palm plantations/dry land agriculture.

HCV 3	Findings
Rare, threatened, or endangered ecosystems, habitats or refugia	Yes

3.2.5 Peat Ecosystem

The Potential existence of peat ecosystems in the PT SEC and PT MI location permits was identified through desk study and field verification activities, several references used in the desk study were, the Peat Map from the Ministry of Agriculture 2012, the Peat Map of the Peat Restoration Agency (BRG). As well as data from field survey results by the Internal Team of PT SEC and PT MI. Based on the results of the analysis, it is known that there is peatland in the PT SEC and PT MI location permits.

Table 27. The total area of peat as a result of the Study at PT Sarana Esa Cita and PT Mulia Indah

PT.SEC	PT.MI	Total Size in AOI (Ha)	Information
Size (Ha)			
540,31	475,47	NA	Peat Survey Results of PT SEC and PT MI
		823,98	Peat without canals Restoration Priority (protected zone) – FEG
		6717,19	Peat With Canal Restoration Priority (cultivation zone) – FEG
1.015,8		7.541,17	Grand Total

Based on the table above, it can be seen that based on the results of the survey conducted by the manager, it was found that the distribution of peat in PT SEC was 540.31 Ha and in PT MI an area of 475.47 Ha, whereas based on the area of AOI, it can be seen that 823.98 Ha is peat with the priority category of dome restoration. peat without canals (protected zone) and 6,717.19 Ha are

priority peat restoration peat with canal (cultivation zone). It can be seen in **Figure 17** as well and **Figure 23** that the presence of peat in New Concession Area PT SEC (Proposed New Development Area PT SEC) was found.

The difference in area is related to the accuracy of mapping carried out by BRG at the landscape scale level (1: 250,000) and mapping by management at the operational level (1: 10,000), however, as an illustration and future study material for plantation management and development, it is certainly a part of the important attention and follow up. From the results of the identification of the peat ecosystem, it is also classified based on the land cover in the concession area, which can be seen in the table below:

Table 28. Size of land cover based on soil type

Land Cover	Peat Soil (Ha)	Mineral Soil (Ha)	Total (Ha)
Medium Density Forest (MDF)	0.0	4.1	4.1
Low Density Forest (LDF)	0.0	22.4	22.4
Old Scrub (YRF)	14.6	513.2	527.8
Shrub (S)	143.2	1,285.5	1,428.7
Agriculture	627.0	6,635.9	7,262.9
Dry Farm (DF)	0.0	222.6	222.6
Public Facilities	2.7	125.2	127.9
Open Land (OL)	77.7	766.1	843.8
Palm plantations	141.9	6,489.3	6,631.2
Road	8.7	314.1	322.8
Water Body (WB)	0.0	16,384.3	17,400.1

Source : Reprot dan FEG, KLHK

From the table above, it can be seen that more of the peat areas are found to have become plantations, this is confirmed by the results of field verification during the soil and peat survey.

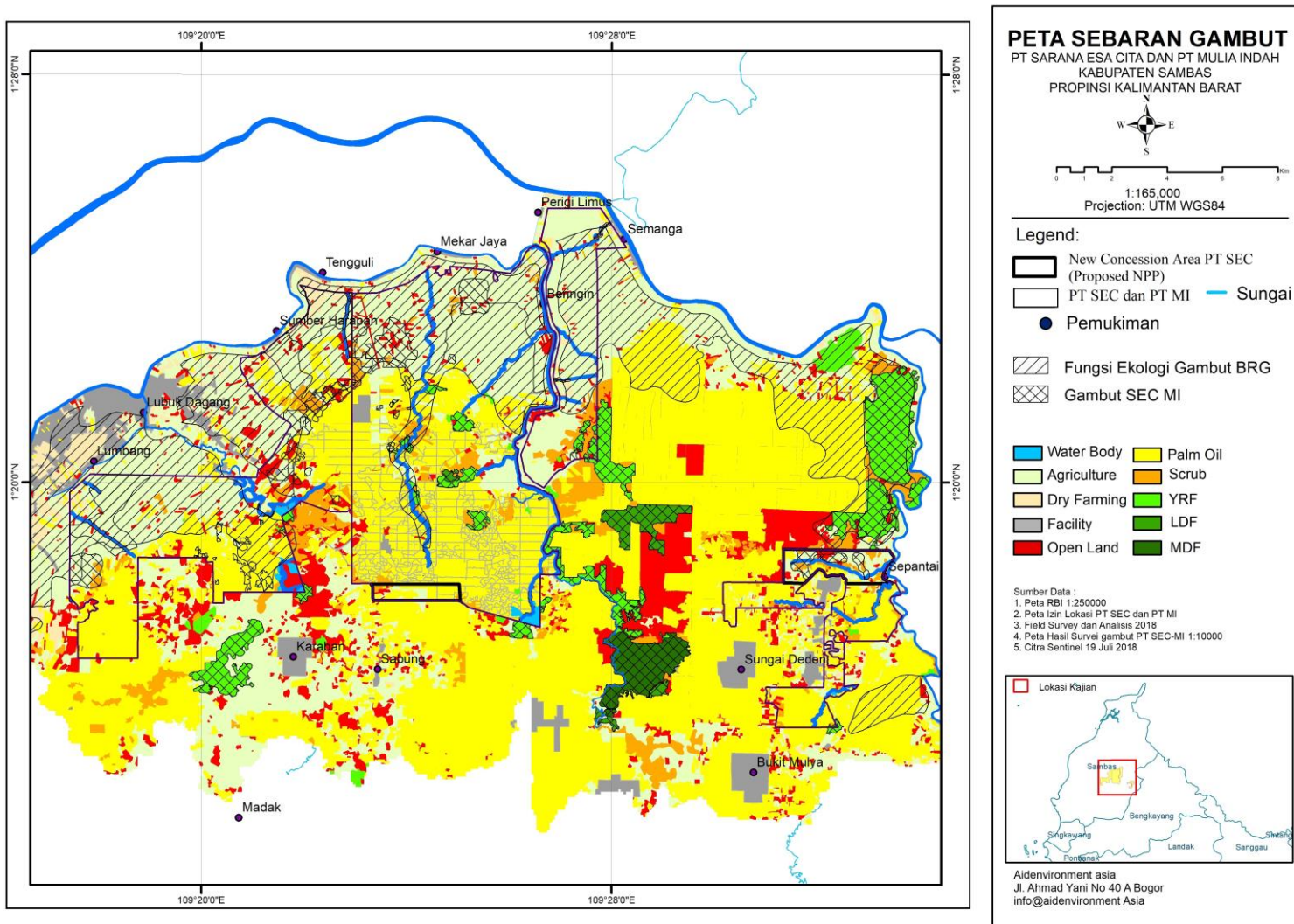


Figure 17. Peat distribution map based on field survey and peat distribution of BRG in the study area

3.2.6 Patch Analysis

From the process of field data analysis, it is necessary to analyze patches for each stratification class that has been carried out previously to be able to conclude the areas that need to be conserved or developed into plantation. This analysis uses a spatial approach, taking into account the area of each patch, the presence of a core zone with a buffer width of 100 meters, the distance between HCS patches as a consideration for connectivity, level of threat (roads, rivers, housing) and land cover analysis in the watershed landscape (DAS). The result of patch analysis is the area of each patch category, as well as information on whether or not further studies are needed in these patches, for example Pre-RBA or RBA.

The *Patch Analysis* process is carried out following the 13 steps set out in the HCSA Toolkit version 2.0.

a) Stage 1. Integration of HCS land cover classes with other data.

This stage is the process of interpreting land cover based on the HCS study land cover class. In carrying out this stage, the assessment team carried out an initial stratification process which was then updated based on information from the field according to actual conditions. In this stage, the results of HCS class land cover are integrated with other relevant information such as the HCV area, the results of Participatory Mapping, peat areas and riparian areas within the assessment area. The maps Integration of final land cover classes with HCS forest partitions can be found in **Figure 18**. It can be seen in **Figure 18** as well that the presence of HCS in New Concession Area PT SEC (Proposed New Development Area PT SEC) was absence.

b) Stage 2. Incorporation of all HCS class areas into the connected patch

This stage is the stage of merging several connected HCS classes into the same patch, and numbering the patch identities for the convenience of the next process.

c) Stage 3. Identification of Core Patch Areas and Priority Patch Areas

In this stage, the core area of each identified patch is identified using an area buffer approach and then based on the area class priority areas are determined.

- d) Stage 4 and 5. Identification of connectivity with HPP areas and analysis of HPP and LPP connectivity

In this stage, the identification of connectivity between the High Priority Patch areas, the approach used is to use a buffer area of 200 m which is connected via another patch.

- e) Stage 6. Separation of Medium and Low Priority Patch areas

Areas that are not connected to HPP and are not recommended as conservation areas are then further analyzed by separating the patches into two classes, namely Medium and Low Priority Patches, which in the next process will be analyzed to see whether the risk level is still feasible to be maintained as a conservation area or can be carried out in stages development.

- f) Stage 7. The risk assessment stage

In this risk assessment analysis is carried out on MPP patches that are not included in the conservation recommendation area, the approach is carried out using proximity to transportation access and residential areas. Meanwhile, the LPP area will be analyzed whether based on the area of landscape forest cover it is included in the area that can be built or recommended to be included in the take and give process. Based on the analysis of the overall forest area at the landscape level, it is known that the area is 3,314 ha or only around 6% of the landscape area, this shows that the assessment area is in the area of "low forest cover landscape, so it is likely that the LPP area can be recommended as an indication area for development.

- g) Stage 8. Analyze the existence and size of the forest

This forest presence analysis activity is needed to obtain recommendations for forest areas that are in high risk locations but have an area of more than 10 ha.

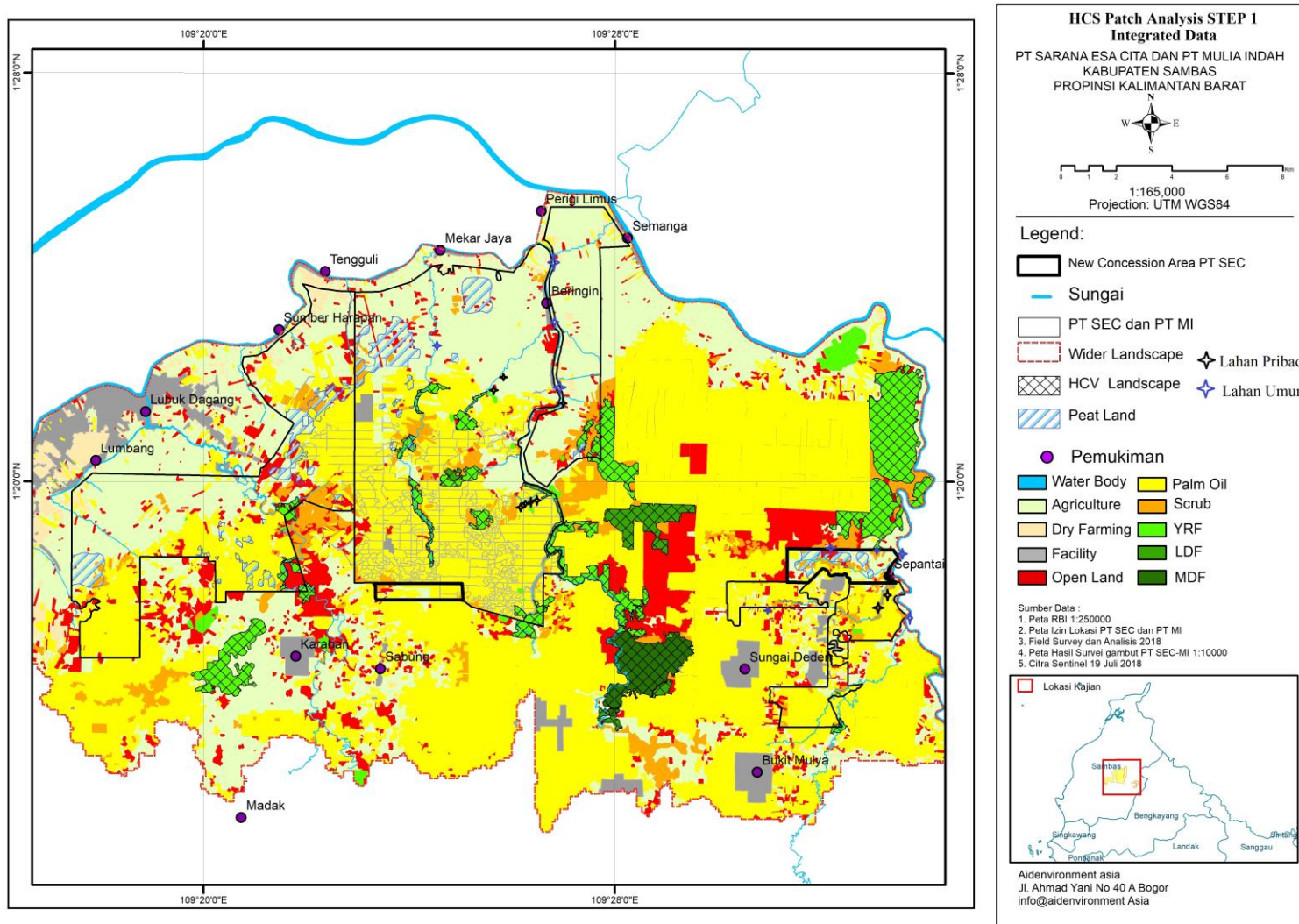


Figure 18. Maps Integration of final land cover classes with HCS forest partitions

h) Stage 9 and 10. Analysis of Pre-RBA and RBA results

In this stage, an analysis of the potential patches that still have the possibility of being an HCS area suitable for conservation is carried out based on certain criteria. In this stage, the recommended areas for Pre-RBA are overlaid with the HCV areas that have also been assessed at the same time as the HCV assessment.

i) Stage 11-12 Analysis of integration of conservation areas and consideration of landscape connectivity

In stage 11, several layers of information on areas that are suitable for conservation are carried out, starting from HCV areas, peat areas and other conservation areas. The next step that can be taken is in the form of consideration of a wider landscape area, especially the relationship with forest areas that still have important habitat protection value.

j) Stage 13 Finalization of land use planning

The final stage to conduct before field verification activities is land use planning by looking at take and give opportunities that can be done with the consideration of increasing the presence of the value of protection of HCV habitats and the existence of forest ecosystems in the assessment area.

This stage is basically looking at the final recommendations from the patch analysis process stage that has been carried out by taking into account the connectivity between patches which can provide viability and optimization of areas that have the potential for conservation and protection of forest areas as well as the biodiversity values contained therein while providing space for land use that can be used. utilized as an economic development area.

Table 29. Results of HCS Patch analysis at PT SEC and PT MI

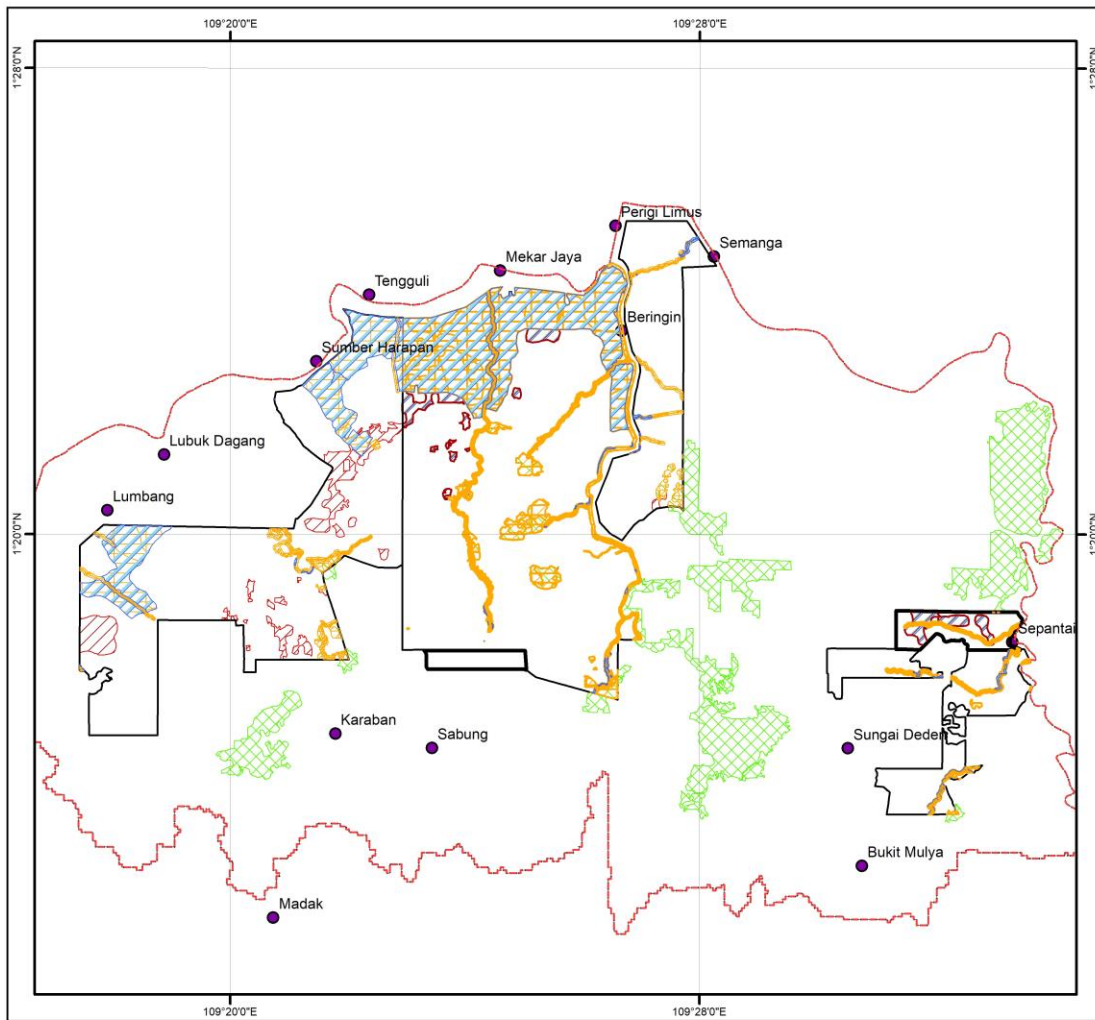
Patch Analysis Recommendations	Size in concession (Ha)		Size in landscape (Ha)
	SEC	MI	
Conservation Indicative	343.12	113.96	2583.24
Indicative Develop - Community Land	23.84	5.54	244.73
Total Size	366.96	119.5	2827.97

According to the results of the patch analysis, an area of 244.73 ha of this area is included in the area of 'low forest landscape', this condition allows for areas with low priority class (LPP) can be supported as an indicative area to be developed (indicative development). An area of 2583, 24 ha from the results of the patch analysis has connectivity with HCV areas, it is known that most of the HCS areas are in HCV areas, especially in riparian areas where natural vegetation remains as an indicative area for conservation areas. However, given the very high factor of community ownership of land, to be able to define definitive boundaries requires approval from the community. In this regard, a field checking process as well as further FPIC on the community is needed.

3.2.7 Threat Assessment

Threat assessment is a stage in the decision-making steps for area management and development. Threats to potential HCV areas can come from external as well as internal areas, both in groups and individually. The threat assessment is intended to minimize possible threats accompanied by a strategic process of preventive action by area managers in the context of oil palm plantations.

Threat assessment is carried out using the *Site Conservation Planning* (SCP) tool where the *tools* use the 5-S framework in *Site Conservation Planning*. This method provides a model that is conceptually well tested to develop effective strategies to achieve tangible conservation action results. The 5-S approach is focused on the components below with an illustration of the relationship between components, where the 5-S components of site conservation planning are: 1) System, 2) Stress, 3) Source of Stress (Stressor), 4 Strategy, and 5) Success. Threat assessment is carried out in each identified HCV, from the results of the field assessment of threats that can reduce or eliminate the HCV value including: habitat loss, hunting, conversion of the area to community plantations and conversion of the area integrity. The Map of HCV-HCS-Peat Areas Draft Management in PT SEC and PT MI (included New Concession PT SEC proposed new development area) provided in **Figure 19**.



MANAGEMENT AREA HC-HCS AND PEATLAND
 PT SARANA ESA CITA DAN PT MULIA INDAH
 KABUPATEN SAMBAS
 PROPINSI KALIMANTAN BARAT

W N E
 S

0 1 2 4 6 8 Km
 1:165,000
 Projection: UTM WGS84

Legend:

- New Concession Area PT SEC
- PT SEC dan PT MI
- Wider Landscape
- HCS Conservation Area
- HCV Management Area
- HCV Conservation Area
- Peat Conservation Area
- Pemukiman

Sumber Data :
 1. Peta RBI 1:250000
 2. Peta Izin Lokasi PT SEC dan PT MI
 3. Field Survey dan Analisis 2018
 4. Peta Hasil Survei gambut PT SEC-MI 1:10000
 5. Citra Sentinel 19 Juli 2018

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Figure 19. Map of HCV-HCS-Peat Areas Draft Management

3.2.10 Overall Summary

This HCV assessment has identified 5 types of HCV, namely HCV 1, HCV 3, HCV 4, HCV 5 and HCV 6 in the area and around the study landscape where the HCV area consists of Young Scrub, Young Regeneration Forest, Secondary Forest, Rivers and their borders, Sacred and historical sites and areas that still have significant value both at the local and landscape levels. HCV 1 areas are forested areas within the area and river basins and borders within the area, HCV 3 consists of riparian areas that are still forested, HCV 4 areas are hilly areas and water catchments, as well as rivers and their boundaries. HCV 5 all rivers within the area and HCV 6 sacred areas in the study Landscape. The identified value is a very important part in determining the management area. HCV Management Areas are areas covered in a site, management unit or landscape where appropriate management decisions need to be made and implemented to maintain or enhance HCVs. Each management area is determined and the source of the threat is identified, this is to determine the direction and recommendations for future management.

The HCS assessment analyzes current patches of forested areas where the results of these patches will result in patches that are connected to HCV and have good forest density. The integrity of the two assessments will provide an overview of the area that will be managed and monitored as conservation areas within the company's concessions.

Table 30. Summary of Values identified

Environmental and social values that must be protected	Area (Ha) where the value is found (In management units)	Management area (Ha) in the management unit
Forest areas, hilly areas, river bodies, Riparians, community plantations and riverbanks within the area.	1.185,20	3.306,90

Table 31. Size of each HCV Class in PT Sarana Esa Cita and PT Mulia Indah

No	HCV Category	Information	Area (Ha) where the value is found (In management units)		Management area (Ha) in the management unit)	
			PT MI	PT SEC	PT MI	PT SEC
1	HCV 1	Forested area	103.68	231.63	878.68	1633.32
		River border	237,8	500,30		
		River bodies	17,95	32,50		
2	HCV 3	Riparian Zone	63,98	42,98	878.68	1633.32
3	HCV 4	Riparian Zone	63,98	42,98		
		River Border	237,98	500,33		
		Hilly area	-	199,61		
4	HCV 5	River bodies	17,95	32,50		
5	HCV 6	Sacred sites (OutsideConcession)	2,69	0,70		
	HCV	TotalSize Overlap	359.1	826.1		

Overall the HCVs identified in the PT SEC and MI study areas are as shown below:

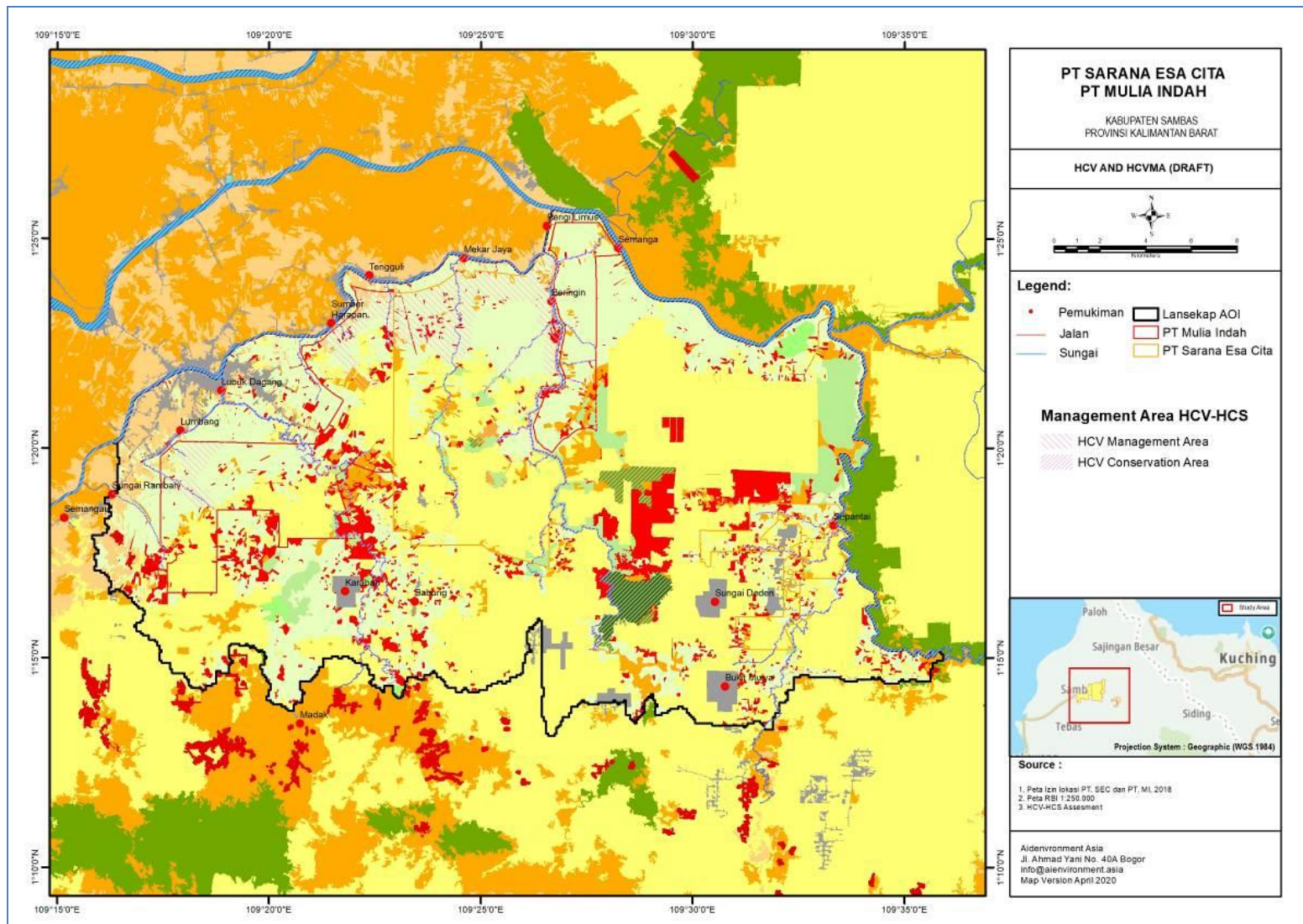


Figure 20. Map of HCV and HCVMA areas in the landscape at the study site

Herewith the specific HCVs identified in the New Consession Area of PT SEC area (Proposed NPP) of 597.64 ha on table and figure below.

Table 32. Size of each HCV Class in New Consession Area of PT Sarana Esa Cita

No	HCV Category	Information	Size of each HCV Class in New Consession Area PT Sarana Esa Cita
1	HCV 1	Forested area	-
		River border ¹⁾	2.10
		River bodies ²⁾	42.47
2	HCV 3	Riparian Zone	-
3	HCV 4	Riparian Zone	-
		River Border	2.10
		Hilly area	-
4	HCV 5	River bodies	42.47
5	HCV 6	Sacred sites (Outside Concession)	-
	HCV	Total Size Overlap³⁾	44.57

¹⁾ The area overlaps with HCV 4 river border

²⁾ The area overlaps with HCV 5 river bodies

³⁾ These areas are not additive because of overlaps

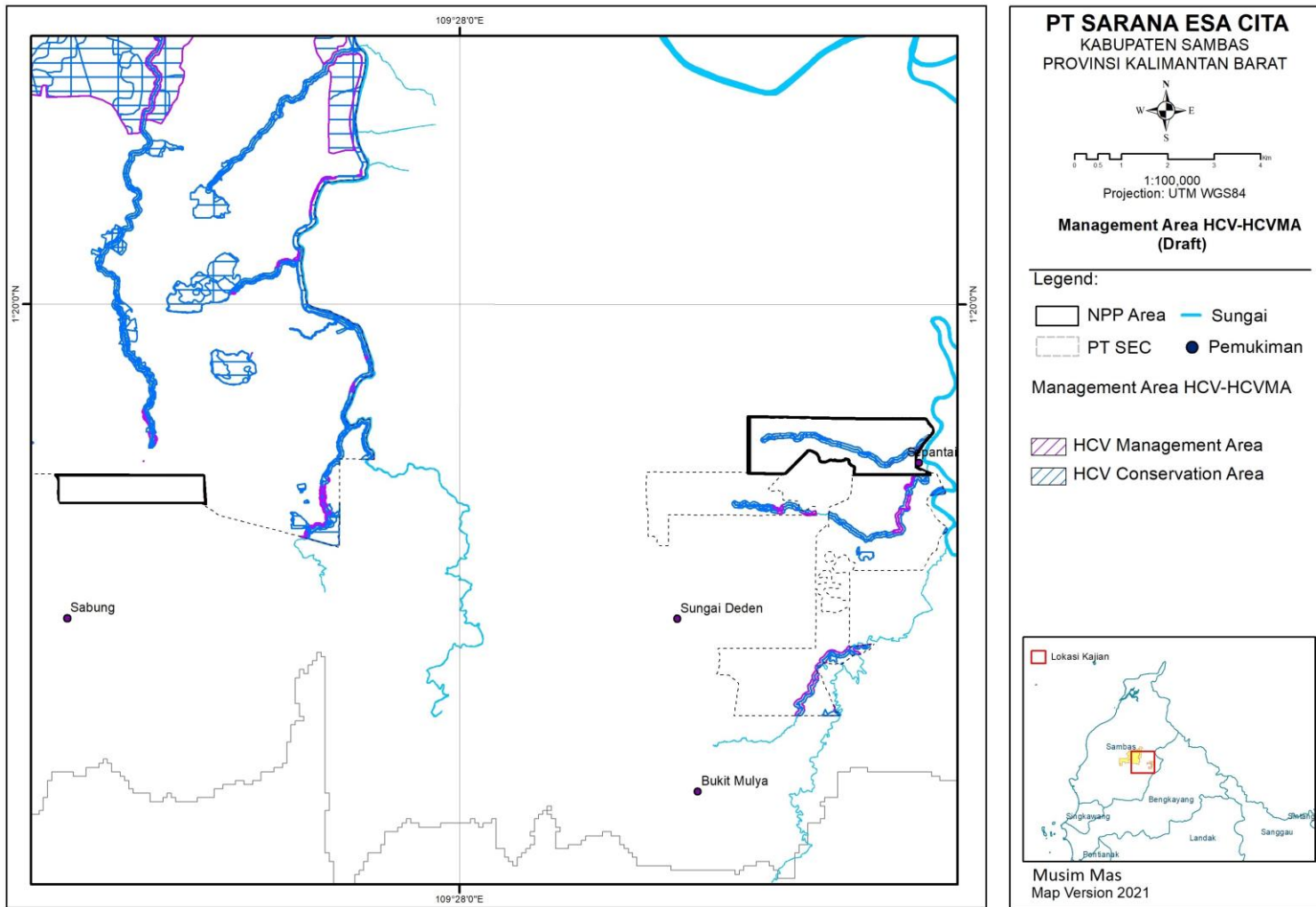


Figure 21. Map of HCV and HCVMA areas in the NPP PT SEC Area

3.2.11 Final Consultation Summary

The process and results of the HCV and HCS assessment are written in the form of a final report and need to go through a public consultation process with all interested parties. The transparency of the results of the assessment is needed to obtain input from a wider range of parties on the results of the assessment and recommendations given to companies in order to formulate HCV and HCS management plans.

In this assessment, the final consultation stage is carried out in stages, namely at the district and village levels. The final public consultation at the Regency level was held in Sambas District on May 8 2018 by inviting representatives from the District, Local Government Offices, Community Organizations and other relevant parties.

Group Name	Position/Role of Spokesperson	Organisation/social group	Place Date	
District Level Public Consultation	T	Social Office, Agriculture and Food Crops Office, BKSDA, Sub-Districts, Villages and Non-Governmental Organizations	Hotel Pantura Jaya, 11 April 2018	T
<p>Describe how the consultation took place (eg group meeting, phone call, individual interview)</p> <p>Consultations were carried out at the district level by inviting several stakeholders who were in the assessment area, where in the consultation process, it was started with the presentation of the results of the identification of the potential existing HCV and HCS, then after the presentation was carried out a question and answer session and a session providing input and suggestions from stakeholders. The next process of this consultation was carried out by Discussion focus groups to discuss in detail the results of the identification, management plan and management area mapping.</p>				

Main concerns and recommendations

- Environmental management and conservation of PT. SEC and MI are important to work with the community and related stakeholders.
- Important incentives to be able to agree on conservation areas with community cultivating land.
- Conservation areas can be managed in the form of ecotourism (example).
- Villages can allocate village funds (DD) for programs to protect water sources and conserve nature.
- Currently, conservation efforts must have an economic perspective to gain community support
- Animal conflicts have occurred, especially from attacks by apes and beruk on community garden locations.
- The conservation area can be directed as a place for enrichment of herbal medicines.
- That HCV species can be relocated under certain conditions.
- River borders are important to maintain the quality of river water as a source of drinking water.
- Community groups managing HCVs can be formed (for example in Paloh pokmaswas – turtles).
- Clear scheme of HCV designation - fear of being sanctioned only to cultivators, and fear of land transfer.
- HCV management - Requires commitment from the company from the start.
- Incentives are important when not gardening at river borders
- Integration - HCV management - village planning – CSR
- Protection of borders and related rivers is still used as a source of drinking water and the fishing profession.
- Coordination of management of HCV areas that are connected (corridors) with important neighboring plantations can be coordinated by the local government.
- Aspects of legality/law of HCV area management are important to consider strengthening (including institutional and forms of cooperation)

Assessment team response

- Delivered that managing plantations is bound by various regulations at the regional, provincial, national and international levels.
- Expect public consultation activities to serve as a space for discussion that will generate input and ideas on plantation development in the SEC and MI
- Informed that the SS area in MM's plantation area so far had made efforts to plant forestry plants

- Expect ideas from the forum to be formulated in effective and beneficial programs for all parties
- Will make efforts to integrate with CSR programs through the development of incentives, especially those related to conservation, for example by building fire free community programs

In addition to conducting public consultations on results at the district level, the assessment team together with managers also conducted consultations at the sub-district level with participants coming from village representatives and important stakeholders in the village and sub-district. This consultation activity was carried out on 17-19 July 2018 involving 6 villages, namely Sepantai, Sabung, Beringin, Mekar Jaya, Sumber Harapan and Lumbang Villages, determining the village with the consideration that the village area has a designation for a wider conservation area. In this second stage of consultation, the implementation team presented several agendas, including:

1. Presenting the results of the assessment.
2. Verify and further confirm the results of the assessment
3. Prepare management and monitoring plans for HCS-HCV areas in the area of each sub-district.
4. Delivering the initiation of the conservation area management incentive scheme.

Consultation of the final results for each of these villages:

Group Name	Position/Role of Spokesperson	Organisation/social group	Place Date	
Sepantai Village Community	Village head	Sepantai Village	Sepantai Village Office, 17 July 2018	T

Describe how the consultation took place (eg group meeting, phone call, individual interview)

Consultations were carried out face-to-face in group meetings at the village head's office by inviting stakeholders and communities in Sepantai Village which involved 20 community members and village officials.

Main concerns and recommendations.

- The village is in the process of mapping the areas for which the community plans to open up oil palm plantations.
- Threats to HCV areas in the form of land fires, community expansion for agricultural development, especially for Trans areas.
- The village has ideas and plans to develop potential commodities.

Assessment team response

- Developing a conservation-based garden, requires input from the community for the management of its conservation area.
- Incentives from SEC and MIN to protect the area from fires of 25 million / year / village with a village distance of 5 km from the concession.
- There is fire monitoring from Musim Mas.
- For commodity development, it is necessary to hold incentives in the form of: mapping of potential areas of ownership, socialization to the community of plans for support for agricultural development such as jengkol, and compilation of joint work plans.

Group Name	Position/Role of Spokesperson	Organisation/social group	Place Date	
Sabung Village Community	Head of BPD	Sabung Village	Sabung Village Office, 17 July 2018	T

Describe how the consultation took place (eg group meeting, phone call, individual interview)

Consultations were carried out face-to-face in group meetings at the village head's office by inviting stakeholders and the community in Sabung Village, involving 13 community members and village officials..

Main concerns and recommendations.

- HCV areas in the form of forest are owned by the village to be maintained as forest areas,

and involve villagers as joint patrol officers.

- Installation of signboard to SEC and rural cooperation for protection.
- Threats of encroachment by people from outside Sabung
- Part of the land ownership belongs to the community
- The village develops non-timber forest products such as bees, durian, petai, rattan.

Assessment team response

- There are NPP areas such as the Sekuan river border owned by the community that have been compensated.
- Conduct meetings with individual land owners to identify letters and marking of plantation areas.
- The obligation to manage HCV by the company, land ownership becomes the Village Treasury area, legally remains owned by the village with joint management with the company
- For commodities, there are enrichment opportunities such as petai by employing the community for patrol and maintenance.

Group Name	Position/Role of Spokesperson	Organisation/social group	Place Date	
Beringin Village Community	Village head	Beringin Village	Beringin Village Office 18 July 2018	T

Describe how the consultation took place (eg group meeting, phone call, individual interview)

The consultation was carried out face-to-face in a group meeting at the village head's office by inviting stakeholders and communities in the village of Beringin, involving 21 community members and village officials..

Main concerns and recommendations.

- There are several active rubber plantation locations owned by residents within the company's location permits that responding well to the support from incentives for their managed land.
- What about the identified rubber lands and will be designated in conservation areas.
- What about the benefits for the community

Assessment team response

- Rubber locations that are identified as HCV areas will still be included in management but need to consider a joint management while still able to harvest the rubber
- Benefits are felt both directly and indirectly, for the usage that will be carried out by the community, it can still be done without damaging it

Group Name	Position/Role of Spokesperson	Organisation/social group	Place Date	
Mekar Jaya Village Community	Village Head	Mekar Jaya Village	Mekar Jaya Village Office, 18 July 2018	T

Describe how the consultation took place (eg group meeting, phone call, individual interview)

Consultations were carried out face-to-face in group meetings at the village head's office by inviting stakeholders and the community in Mekar Jaya Village, involving 21 community members and village officials.

Main concerns and recommendations.

- The Sekuan River (SS) as the location of the community's source of livelihood is currently difficult to get fish after the opening of the garden and fire, it is necessary to normalize the rearrangement to remain sustainable.
- Agree to protect SS as wide as 10 meters right and left side.
- Expectations that arise from this conservation program

Assessment team response

- Unlike the previous approach, the current approach model is more on long-term use, for example, land fires, hunting
- Hopefully in the future it can be useful and broaden horizons, hope MM does not end here, when there is a recommendation to share / discuss to determine the program through mutual agreement to be formulated

Group Name	Position/Role of Spokesperson	Organisation/social group	Place Date	
Sumber Harapan Village Community	Village Head	Sumber Harapan Village	Sumber Harapan Village Office, 19 July 2018	T
<p>Describe how the consultation took place (eg group meeting, phone call, individual interview)</p> <p>Consultations were carried out face-to-face in group meetings at the village head's office by inviting stakeholders and communities in Sumber Harapan Village, involving 17 community members and village officials.</p> <p>Main concerns and recommendations.</p> <ul style="list-style-type: none"> • There are several ditches and rivers that are prone to pollution, it must be anticipated • Plantation to improve the economy, but what is increasing is the presence of pests by the occurrence of animals entering community gardens and rivers, needs a solution to this. • The company has a commitment and needs to be socialized with a statement. • Delivering appreciation with the aim of building a cooperation program related to conservation areas, the understanding of the village government is clear and the point is that the community responds to this activity in the context of preserving natural resources or the environment. <p>Assessment team response</p> <ul style="list-style-type: none"> • Will develop forested areas along the river. • Village communities can send letters to discuss and invite community representatives, village representatives to see waste treatment so that they are not mistaken and having misperception. • There is a mutual desire to protect the conservation area with a scheme that must be discussed together. • The next stage will be a discussion with the company, the community and the facilitators to identify and compile the program. 				

Group Name	Position/Role of Spokesperson	Organisation/social group	Place Date	
Lumbang Village Community	Village head	Lumbang Village	Lumbang Village Office, 19 July 2018	T

Describe how the consultation took place (eg group meeting, phone call, individual interview)

Consultations were carried out face-to-face in group meetings at the village head's office by inviting stakeholders and communities in Lumbang Village, involving 17 community members and village officials.

Main concerns and recommendations.

- Geniang River before normalization was still natural, after 2 years it started to become shallow, fishing activity was getting more difficult because there were lots of disturbing algae growths, aktivitas pencarian ikan semakin sulit karena banyak tumbuh ganggang yang mengganggu.
- The width of the 5 meter border is too small for the river border, it can be widened for enrichment of beneficial tree planting
- The village has the potential for durian development as a durian tourism plan area, including the opportunity to increase knowledge on the development of durian commodities as a source of income

Assessment team response

- The company wishes to work with the community for management.
- The company is committed to assisting in the management of areas protected by the community because it is in line with the conservation program
- Tree planting is required to assist pollinating agents to increase durian yields

3.2.12 Next Step

The process of analyzing and identifying HCV-HCS integration is an activity that forms the basis for making decisions on oil palm plantation development. In the next process, important steps are required after the results of this identification, namely:

- a. Most of the results of identification of conservation areas are still in the form of delineation

and map analysis that are temporary in nature and as a direction in the management process in a more directed way, so that field boundary measurements are required.

- b. Conduct designation of areas identified as HCV areas as conservation areas
- c. Develop a management and monitoring plan based on the results of participatory HCV identification with the community
- d. Digging data and information in 7 villages that were not covered in the HCV-HCSA assessment to complement and strengthen the results of the HCV 4, 5 and 6 studies including the management and monitoring plan
- e. Installing information signboards that contain information on HCV conservation areas.
- f. Conduct regular monitoring to see the development of HCV and HCS conservation areas as well as threats that arise in the existence of these areas (see recommendation points) including updating land cover in these areas to ensure the integrity of land cover in conservation areas.
- g. HCV management in the PT SEC and MI areas must be socialized internally, synchronously and integrated with various other existing programs in the company. HCV management policies must be understood and realized starting from the head office level down to the implementing level in the field, so that there is no gap in understanding the importance of HCVs that can hinder its implementation.
- h. There needs to be an organizational structure and adequate and competent human resources in the management and monitoring of HCVs both at the central and field levels.
- i. It is necessary to have facilities and infrastructure that will be used in the management and monitoring of HCV areas.
- j. Revisions and updates. It is necessary to develop Standard Operating Procedures (SOP) which will be used as guidelines in implementing HCV management and monitoring.
- k. Considering that the assessment process has been going on for a long time (2017-2018), the condition of land cover in the SEC and MI areas is likely to change either due to community activities in community controlled areas or due to company activities on land controlled by the company. In order for the company to commit itself to not clearing areas that are indicated as conservation areas and for areas that are still controlled by the community, the company needs to take concrete steps to prevent forest clearing by

providing understanding and involving the community in protecting these areas.

- l. It is necessary to conduct outreach to the community, government offices, and other related institutions, considering that HCV management is not only on site, but also influenced by other activities outside the PT SEC and MI areas, besides that HCV management is multidimensional
- m. Coordinating with related agencies (BAPPEDA, Forest Office, and other relevant offices) in the context of implementing HCV management and monitoring.

3.3 Soil Survey and Topography

3.3.1 Land System

As mention in section 3.2.2 Landscape Context based on the Land System Map (RePPPProT, 1991), most (60.87%) of the study area are located in undulating sedimentary plains (Lawanguwang/LWW) and 36.86% are Kahayan/KHY alluvial plains as shown in **Figure 22**.

3.3.2 Soil Type

See section 3.2.5 Peat Ecosystem, it can be seen that based on the results of the survey conducted by the manager, it was found that the distribution of peat in PT SEC was 540.31 Ha and in PT MI an area of 475.47 Ha, whereas based on the area of AOI, it can be seen that 823.98 Ha is peat with the priority category of dome restoration. Peat without canals (protected zone) and 6,717.19 Ha are priority peat restoration peat with canal (cultivation zone). From the **Table 28**, it can be seen that more of the peat areas are found to have become plantations, this is confirmed by the results of field verification during the soil and peat survey.

Based on detail soil survey by PT SEC's RnD Team, Soil Series were found on PT. Sarana Esa Cita comprised 29 soil series and calssified as 3 soil class. The soil map from the soil survey is used to determine the type of land in the concession.

Each series of the land as follows:

a. Mineral Soil

- Minerals deep effective < 50 cm : Tanah Putih (TNP), Sungai Napo (SNP), Sungai Lelan (SLN)
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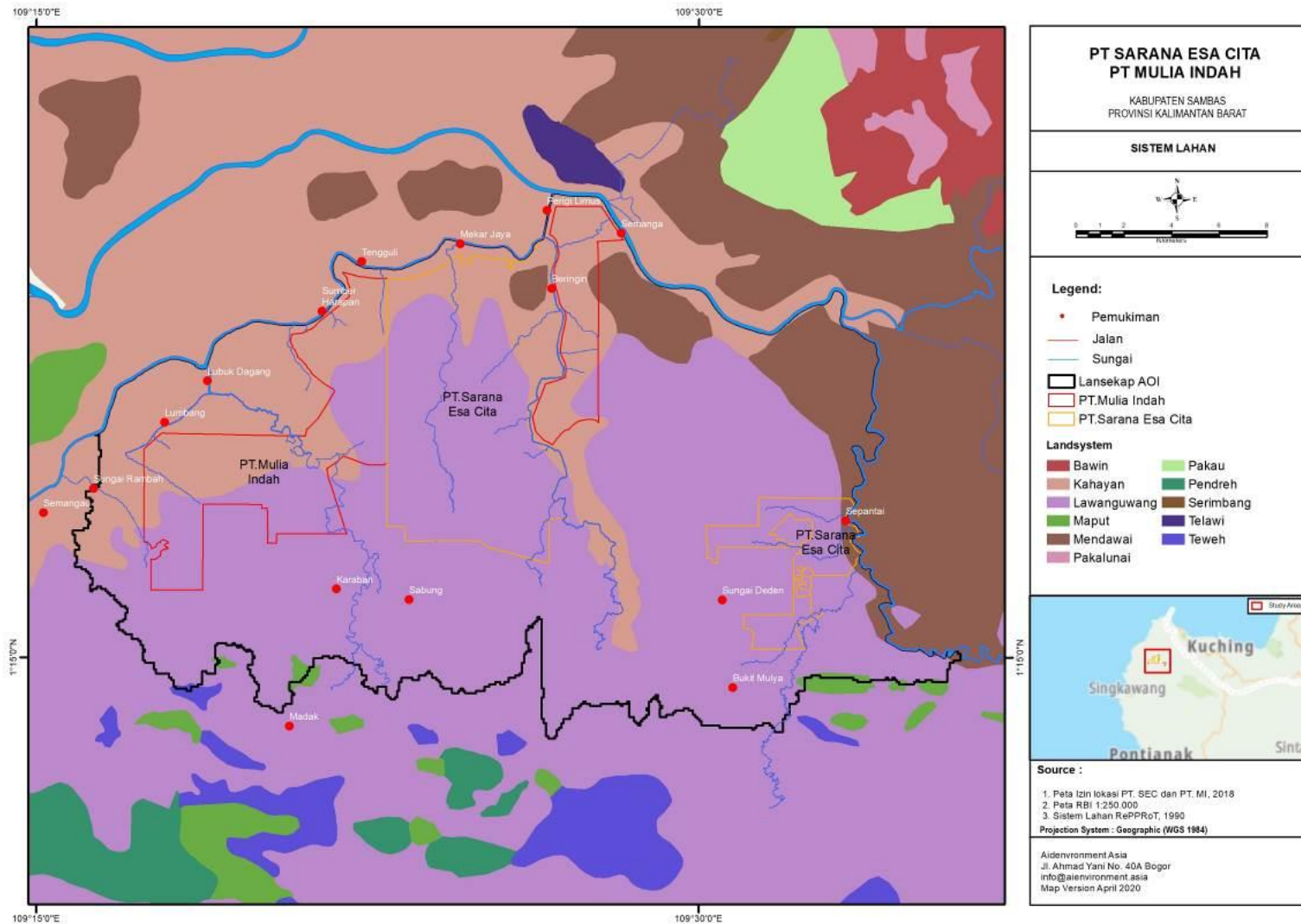


Figure 22. Land System of the proposed development area

- Minerals deep effective 50-100 cm : Ayer Putih, Cemas (CMR), Jaro (JRO), Kesuma (KSM), Kota Besi (KTB), Natai (NTI), Sambas (SBS), Sungai Letam, Pelangisan (PLG).
- Minerals deep effective > 100 cm : Berlian Jaya (BJA), Cempaka (CPK), Jahitan (JHT), Sabung (SBG), Tungkal (TKL), Telaga Pulang (TLP), Tengguli (TGL),
- b. Peat Soil : Binti
- c. Sand : Handil (HDL), Pondok Damar (PDD), Parebak (PRB), Rege (RGE), Rongkang (RKG), Sampit (SPT).

The development areas area dominated by mineral soil, the peat soil with an area of 110.51 ha. The total area for each soil type at the proposed development areas are shown in **(Figure 23)**. The peat areas will set aside as conservation area.

3.3.3 Topography and Elevation

As refer to Semi Detail Soil Survey was done based on the SRTM Digital Elevation Model (DEM) Image with a spatial resolution of 90 meters, the topography of the new concession area PT SEC is shown in **Figure 24** and the slope map is shown in **Figure 25**.

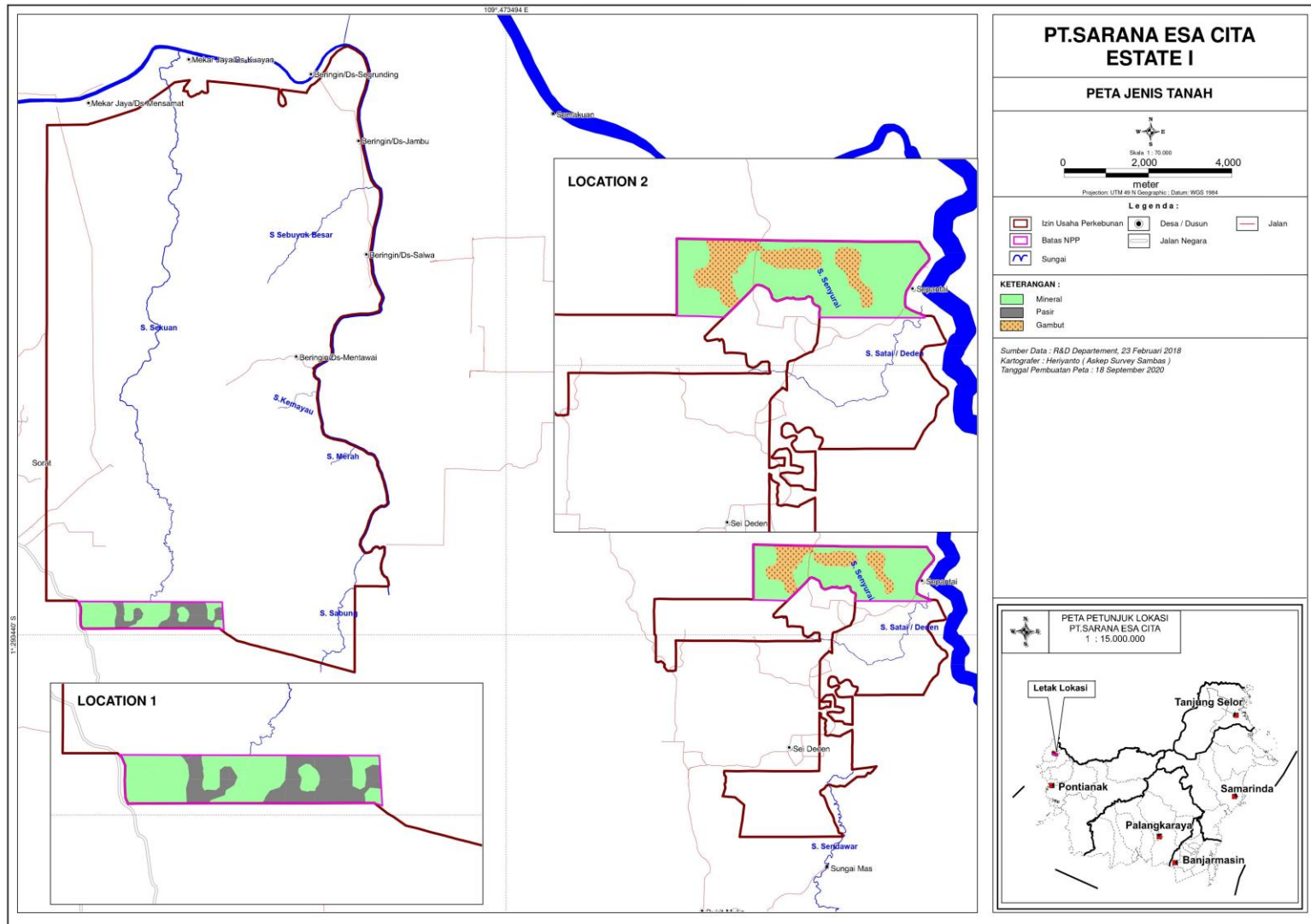


Figure 23. Soil Type in Proposed New Development Areas

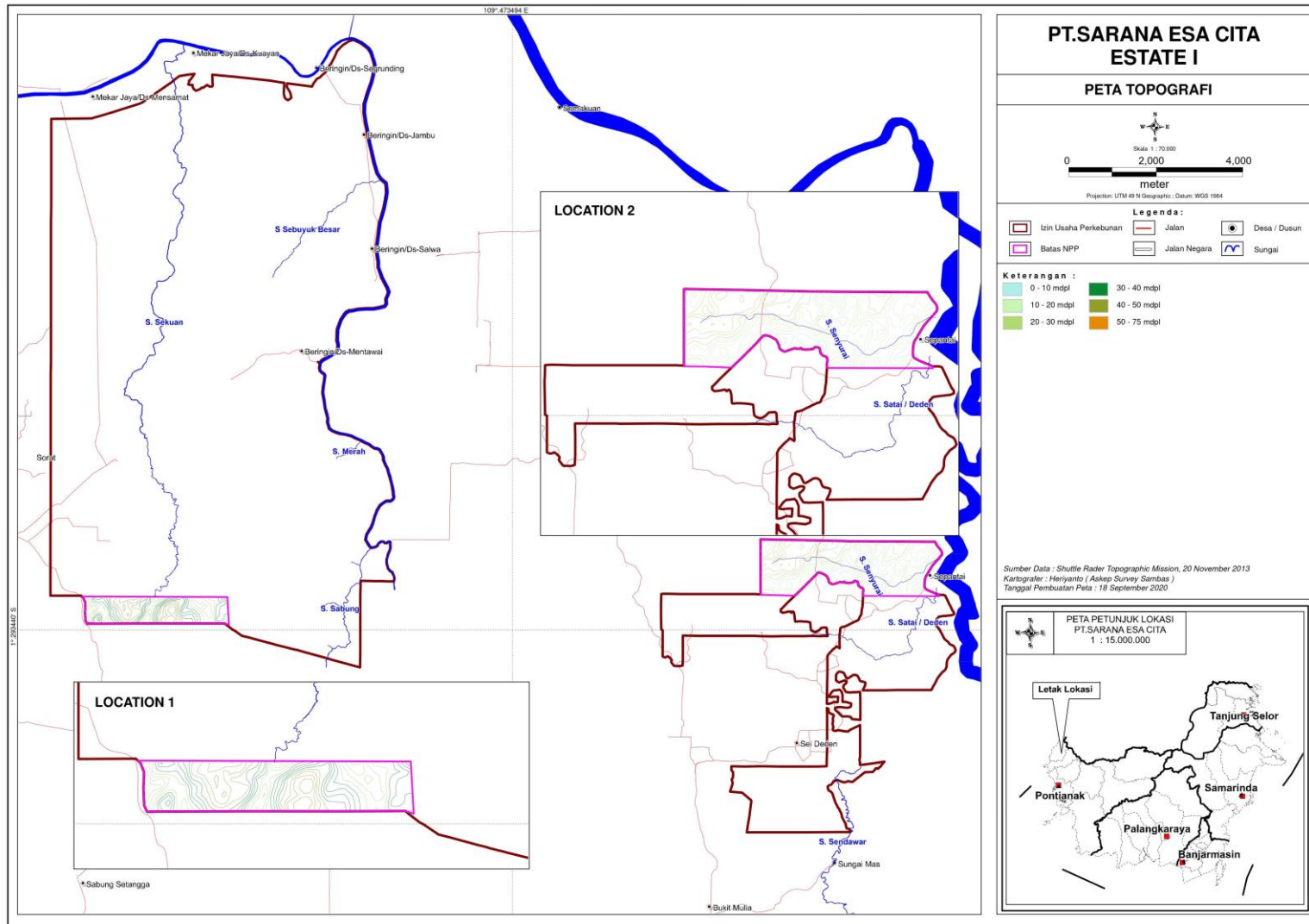


Figure 24. Topography Map of the Proposed Development Areas

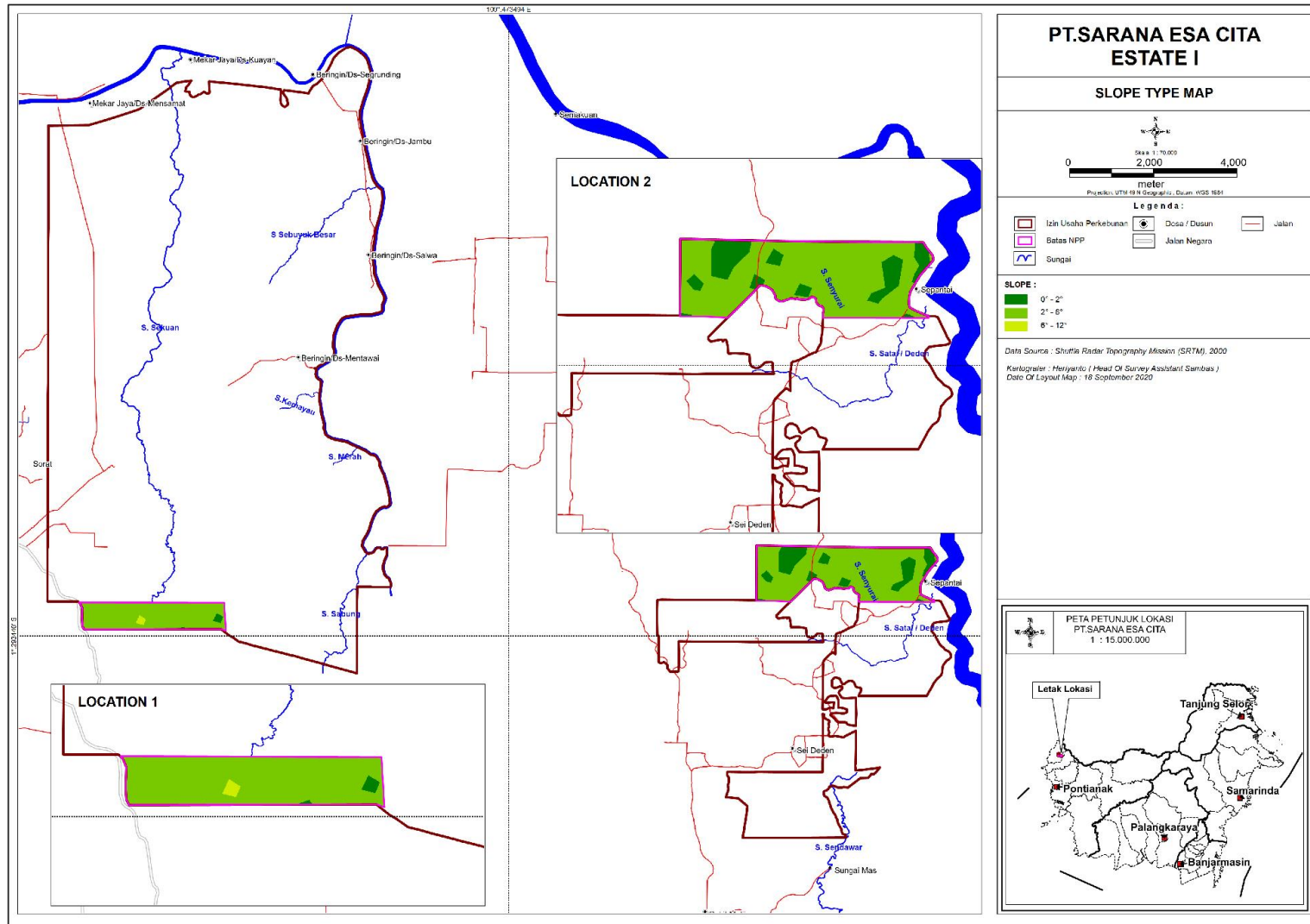


Figure 25. Slope Map of the Proposed Development Areas

3.4 GHG Assessment

The land cover used in this assessment were taken from PT. SEC and PT MI Integrated HCV-HCSA Assessment Report that was conducted in July 2018 by PT. Aidenvionment Asia and attained satisfactory in HCVRN Website in December 2020. Table below presents land cover classification in PT SEC including PT MI area.

Table 33. Land Cover Stratification

Land Cover Class	Amount in Hectares		Total Amount in Hectares	% of Total Management Unit
	PT MI	PT SEC		
HCS Potential Class :				
Mediom Density Forest (MDF)	2.3	1,87	4.17	0.02
Low Density Forest (LDF)	-	22.44	22.44	0.13
Young Regenerating Forest (YRF)	114.99	335.94	450.93	2.59
Sub-total	117.29	360.25	477.54	2.75
Non HCS Class :				
Young Scrubs	354.02	550.38	904.4	5.20
Open Land (OL)	543.71	407.39	951.1	5.47
Mining Area, Community Plantation, Company Plantation, etc	6,495.33	8,556.49	15,051.82	86.58
Sub-total	7,390.06	9,514.26	16,907.32	97.25
TOTAL	7,507.35	9,874.51	17,384.86	100

Each of the AGB&BGB values and final carbon stock values used in this report was tabulated in **Table 34** below, while **Figure 26** shows the land cover classification and carbon stock of new concession area for proposed development PT SEC (597.64 Ha). Since the PT. SEC and PT MI Integrated HCV-HCSA Assessment Report did not feature the measurement of carbon stock of oil palm and agriculture strata, default value from RSPO New Development GHG Calculator version 2.0 was used (RSPO, 2016).

Table 34. Final Carbon Stock Values

Vegetation strata	Above ground biomass (AGB) carbon stock (tC/ha)	BGB:AGB ratio	Below ground biomass (BGB) carbon stock (tC/ha)	Final Carbon Stock Value (tC/ha)
Medium Density Forest	134.4	0.18	24.19	158.59

Vegetation strata	Above ground biomass (AGB) carbon stock (tC/ha)	BGB:AGB ratio	Below ground biomass (BGB) carbon stock (tC/ha)	Final Carbon Stock Value (tC/ha)
Low Density Forest	80.5		14.49	94.99
Young Regenerating Forest	56.3		10.13	66.43
Young Scrubs	24.6		4.43	29.03
Open Land	5.9		1.06	6.96
Agriculture	NA		NA	75
Oil Palm	NA		NA	63.83

Two land use scenarios are developed. Their potential emissions are estimated using the New Development GHG Calculator released in August 2016. The two scenarios (permutations) considered are as follow:

Scenario 1: Conversion of all areas outside conservation areas (HCV and peat areas)

Scenario 2: Conversion of open land and agriculture land

Musim Mas group has committed to equip all of its mills with methane capture so in all of the scenarios, POME will be treated in a methane capture mill. The potential GHG emissions or sequestrations from the scenarios are calculated using New Development GHG Calculator simplified PalmGHG excel spreadsheet (August 2016).

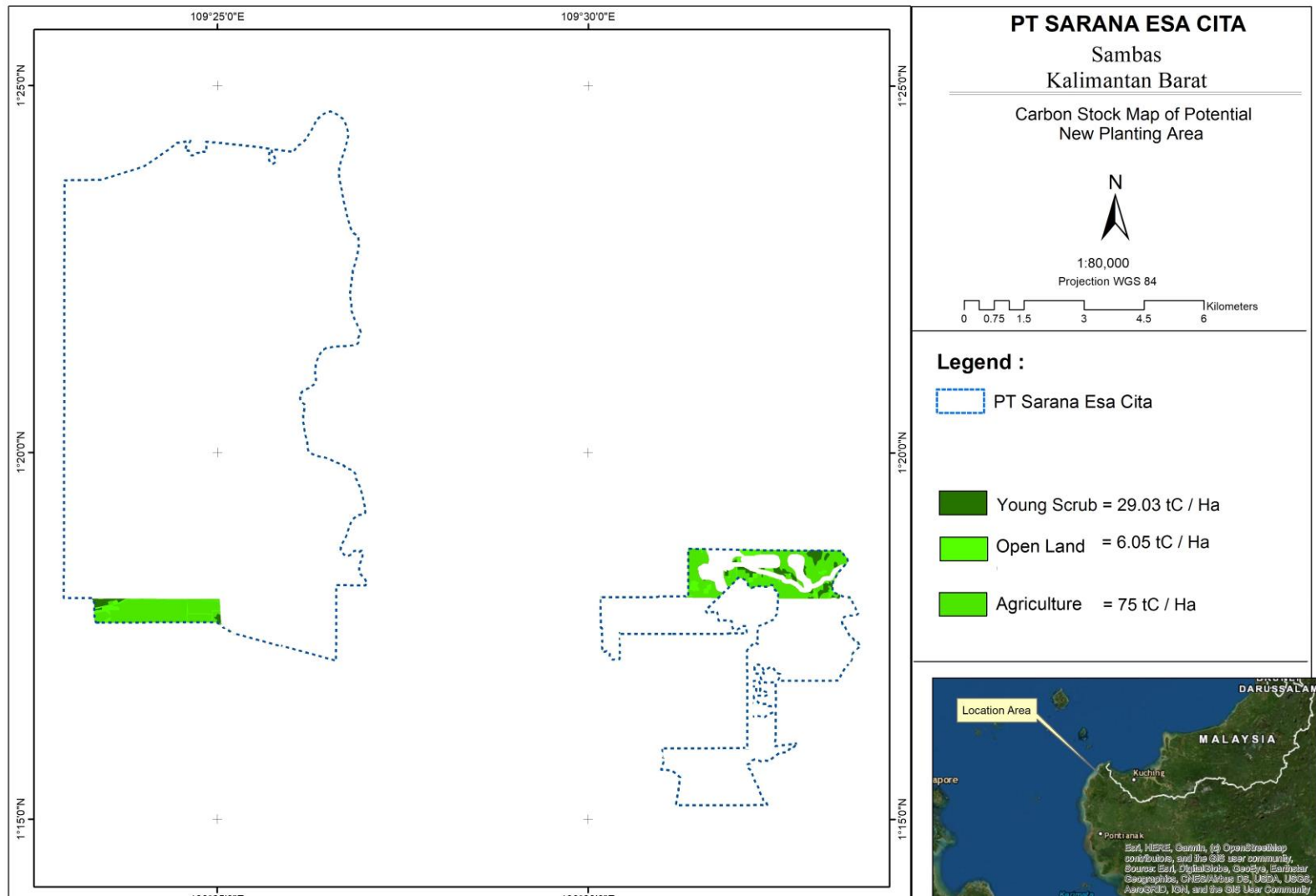


Figure 26. Land Cover Classification and carbon stock of Ne Concession Area of PT SEC according to GHG Assessment Report

The New development GHG Calculator estimates emissions from the production of oil palm, and from the change of land use. The net GHG emissions are over the full crop cycle (the default value is 25 years). Projected fertilizer use and fuel use are added in to simulate future operational emission. The projected fertilizer and fuel use are given in **Table 35** below.

Table 35. Projected Fertilizer and Fuel Use for Estate and Mill

Category	Value	Unit
General info		
FFB Yield	25	tFFB/ha.yr
OER	25	%
KER	5	%
Estate fuel		
Diesel consumption	1.5	l/ha
PME consumption	20	l/ha
Gasoline consumption	8	l/ha
Estate fertilizer		
Urea consumption	400	kg/ha
MOP consumption	500	kg/ha
RP consumption	200	kg/ha
Kieserite consumption	160	kg/ha
Dolomite consumption	40	kg/ha
Mill fuel		
Diesel consumption	0.1	l/tFFB processed

The emissions are presented as t CO₂ equivalents (CO₂e) per unit of product: i.e. per tonne of Crude Palm Oil (CPO) or per tonne of Crude Palm Kernel Oil (CPKO). The boundary of the analysis is from the estates up to the mill.

The average carbon stock value for each land cover strata is taken from the result of high carbon stock assessment conducted by PT Aidenvironment Asia in 2018. The HCS assessment did not measure the average carbon stock for cultivated land and oil palm, so the default value from RSPO GHG Assessment Procedure for New Development was used.

The land cover analysis was conducted using the Sentinel-2 and Landsat-8 dated 4th July 2017. The area of interest for the GHG calculation cover an area of 597.64 Ha.

Scenario 1: Conversion of all areas outside conservation areas (HCV and Peat areas)

In this scenario the land area is 452.04 Ha with the following land covers and carbon stock:

Table 36. Vegetation carbon stock change for scenario 1

Land Cover	Total Area (Ha)		Carbon Stock/ ha (tC/ Ha)	Total Carbon Stock	
	Before Conversion	After Conversion		Before Conversion	After Conversion
Young Scrubs	46.70	0.00	29.03	1,355.70	0.00
Open Land	38.08	0.00	6.96	265.04	0.00
Agriculture Land	367.26	0.00	75.00	27,544.50	0.00
Oil palm	0.00	452.04	63.83	0.00	28,853.71
Total				29,165.24	28,853.71
C Stock/Ha (tC/ha)				64.52	63.83

Scenario 2: Conversion of open land and agriculture land

In this scenario the land area is about 405.34 ha with the following land covers:

Table 37. Vegetation carbon stock change for scenario 2

Land Cover	Total Area (Ha)		Carbon Stock/ ha (tC/ Ha)	Total Carbon Stock	
	Before Conversion	After Conversion		Before Conversion	After Conversion
Open Land	38.08	0.00	6.96	265.04	0.00
Agriculture Land	367.26	0.00	75.00	27,544.50	0.00
Oil palm	0.00	452.04	63.83	0.00	28,853.71
Total				27,809.54	28,853.71
C Stock/Ha (tC/ha)				61.52	63.83

Potential GHG emission calculations from each scenario are conducted with the simplified PalmGHG excel spreadsheet using operational assumptions from **Table 38**.

Table 38. Potential GHG Emissions for Each Scenario

No	Description	Scenario 1		Scenario 2	
		tCO ₂ e	tCO ₂ e/ tCPO	tCO ₂ e	tCO ₂ e/ tCPO
Estate emission					
1	Land conversion	4,277.57	1.33	4,078.73	1.42
2	Crop sequestration	-4,011.26	-1.25	-3,596.86	-1.25
3	Fertiliser (mineral) manufacture transport	536.58	0.17	481.14	0.17
4	N ₂ O emission	510.35	0.16	457.62	0.16
5	Fuel consumption	11.43	0.00	10.25	0.00
6	Peat oxidation	0.00	0.00	0.00	0.00

No	Description	Scenario 1		Scenario 2	
		tCO ₂ e	tCO ₂ e/ tCPO	tCO ₂ e	tCO ₂ e/ tCPO
7	Sequestration Conservation areas	0.00	0.00	0.00	0.00
Mill emission					
8	POME	218.37	0.07	195.81	0.07
9	Diesel fuel	3.34	0.00	3.00	0.00
10	Imported electricity	0.00	0.00	0.00	0.00
11	Mill electricity credit	0.00	0.00	0.00	0.00
12	POME electricity credit	0.00	0.00	0.00	0.00
13	Shell credit	0.00	0.00	0.00	0.00
14	EFB power credit	0.00	0.00	0.00	0.00
TOTAL		1,546.38	0.48	1,629.70	0.57

Potential GHG emissions from the four scenarios as presented in **Figure 27** are as follows:

- Scenario 1 resulted in potential GHG emission of 0.48 tCO₂e/tCPO
- Scenario 2 resulted in potential GHG emission of 0.57 tCO₂e/tCPO

Potential GHG emissions from both scenarios are net positive due to the higher carbon stock value for agriculture land as compared to that of oil palm of 63.83 tC/ha provided in the RSPO PalmGHG. This has resulted in reduction in carbon stock values after land conversion and hence higher GHG emission (see **Table 36** and **Table 37** Error! Reference source not found.). GHG emission in Scenario 2 is higher than Scenario 1 because the carbon stock of scrub measured in the HCSA assessment is lower than the carbon stock of oil palm thus converting scrub to oil palm results in net sequestration. Scenario 1 entail the conversion of all scrub into oil palm thus results in lower net GHG emission than scenario 2.

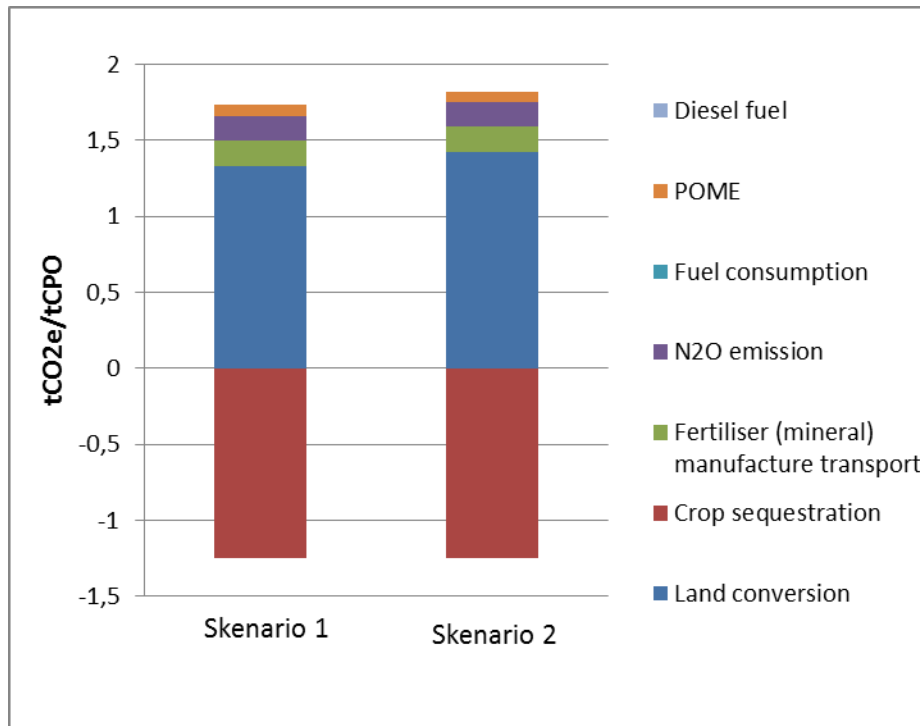


Figure 27. Breakdown of emission from the two scenarios

The scenario chosen for the development plan is scenario 1. Scenario 1 is selected because it provides the best balance between conservation and development. Scenario 1 included development of scrub. The conversion of these patches provide tangible economic benefit to the company with minimum environmental impact. Please note as per our explanation above, there is no conservation neither HCV nor HCS area in this proposed development.

There are 145.58 ha conservation area, which comprised of HCV areas with the total of 44.57 ha and peat areas with the total of 110.51 ha (9.50 ha overlapped to HCV area) . There is no HCS Area. All of them will be set aside and no planting will be done on them and no planting will be done on them. The Potential Oil Palm Expansion Area and the areas to be avoided (conservation areas) for new planting within The Assessment Area and its Current Land Cover provided on **Figure 28** .

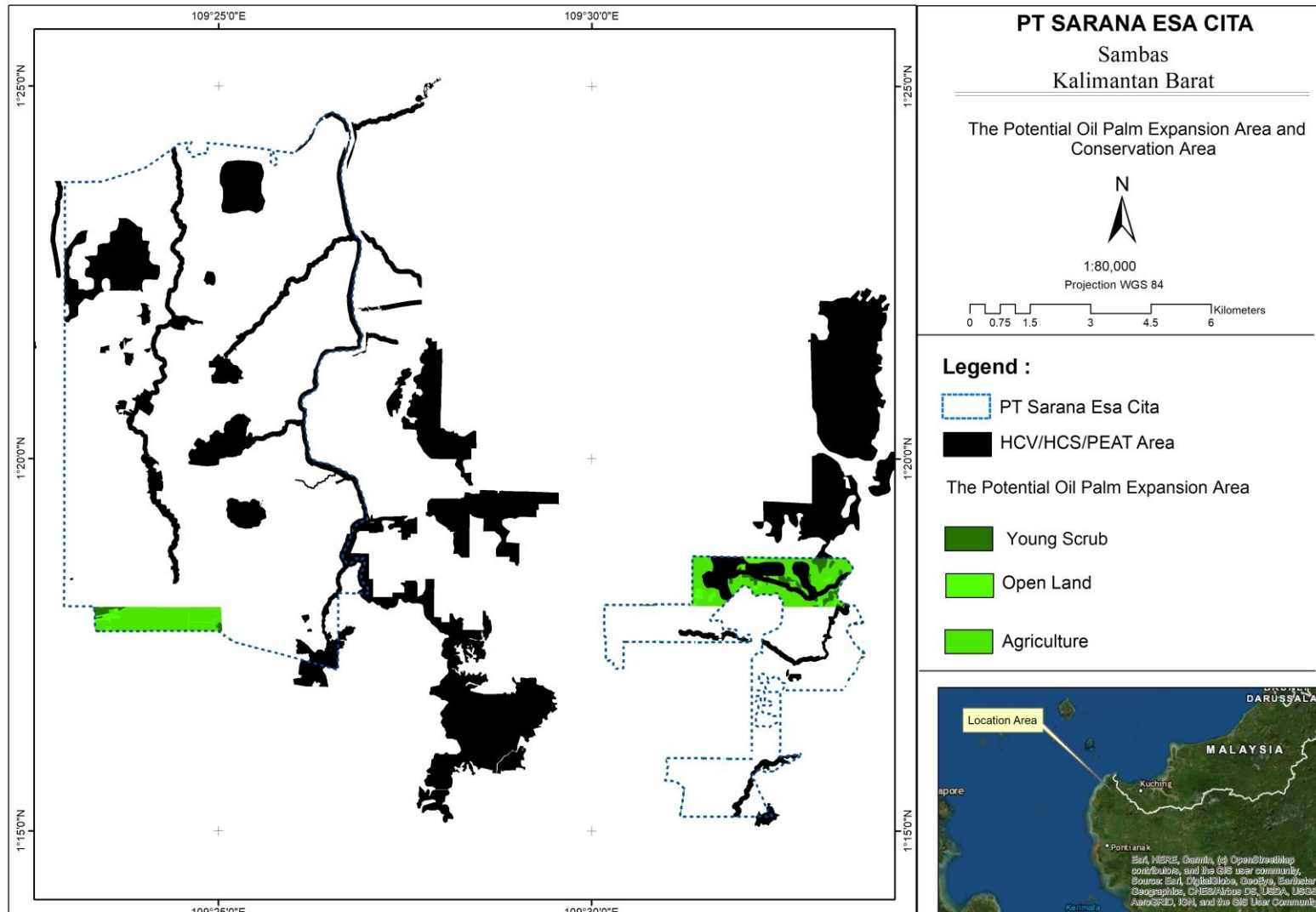


Figure 28. The Potential Oil Palm Expansion Area within The Assessment Area and its Current Land Cover

3.5 LUCA Assessment

Classification of land cover is an effort to group various types of land cover or land use into a similarity according to a particular system. Visual land cover classification is an activity of image identification through the ability of interpreters assisted with elements of image interpretation to recognize an object. The conclusion of the object or condition of an area depicted in the image is used more than one element, each of which leads to a conclusion of land cover.

The area of interest LUCA study is proposed development area with the total area of 597.64 Ha. Multi-temporal analysis of land cover was used to look at the dynamics of land cover that occurred in the new concession area PT SEC as proposed development areas from 2005, 2007, 2009, 2014 and the current field conditions in 2019 and 2020 and updated to February 2021.

Liability calculation based on land cover change that has taken place since 2005 up to the HCV and HCS Integrated Assessment (2018) indicates that the company has no compensation liability and no area is subject to environmental remediation. There is no compensation and remediation liability according to the RSPO Remediation and Compensation Procedure (RaCP). No operational plantation activity until PT SEC has undergone Integrated HCV HCS Assessment and completed NPP.

The results of the analysis shows that The New Concession Area PT SEC The results of the 2021 Landsat image land cover analysis, shows that from the areas of assessment was dominated by cultivated land that cover an area of 424.54 (71%) . Land cover change in the secondary forest category was from an area of 48.02 Ha in 2005 to become 17.57 Ha in May 2014 and there was no secondary forest since August 2018. The changes in landcover Open Land and Cultivated Land that occurred in the proposed development areas tended to occur due to land use activities in the form of land clearing by the local community (non commercial) both for agriculture and mixed garden include oil palm land for their livelihoods. Detail the land covers analysis for each period from 2005 – 2021 presented in the **Table 39** . Matrix of land cover change in the period show on **Table 40** to **Table 46** respectively. The satellite images showing new concession area PT SEC area area provide in **Figure 29** and **Figure 30**.The maps of 2005 – 2021 changes of land cover in new concession area PT SEC area provided in **Figure 31** and **Figure 32**.

Table 39. Result of Land Cover Analysis For Each Period

Land cover	Cut off Land Cover For Each Period							
	Before 1 st Nov 2005	31 st Nov 2007	27 th May 2008	31 st Dec 2009	Jan 2010 – 9 th May 2014	After 9 th May 2014	Aug 2018	Feb 2021
	(Ha)	(Ha)	(Ha)	(Ha)	(Ha)	(Ha)	(Ha)	(Ha)
Secondary forest	48.02	21.22	21.22	20.39	18.33	17.57	0.00	0.00
	8,03%	3,55%	3,55%	3,41%	3,07%	2,94%	0,00%	0,00%
Shrub Land	120.68	75.29	75.29	66.59	66.59	50.72	0.00	0.00
	20,19%	12,60%	12,60%	11,14%	11,14%	8,49%	0,00%	0,00%
Young Scrubs	330.06	352.42	442.70	471.48	434.17	414.26	72.10	59.57
	55,23%	58,97%	74,07%	78,89%	72,65%	69,32%	12,06%	9,97%
Cultivated Land	29.62	18.62	19.02	10.21	77.11	105.66	474.61	424.54
	4,96%	3,12%	3,18%	1,71%	12,90%	17,68%	79,41%	71,04%
Open Land	69.26	130.09	39.41	28.97	1.44	9.43	50.93	113.53
	11,59%	21,77%	6,59%	4,85%	0,24%	1,58%	8,52%	19,00%
Total (Ha):	597.64	597.64	597.64	597.64	597.64	597.64	597.64	597.64
	100%	100%	100%	100%	100%	100%	100%	100%

Table 40. The period of Matrix of land cover change in the period of 2005 – November 2007

Landcover 2005	Landcover November 2007					Total
	Secondary Forest	Shrubland	Cultivated Land	Young Scrub	Openland	
Secondary Forest	21.22	0.00	0.38	0.00	26.42	48.02
Shrubland	0.00	75.29	0.00	6.94	38.45	120.68
Cultivated Land	0.00	0.00	18.24	10.98	0.4	29.62
Young Scrub	0.00	0.00	0.00	280.06	50	330.06
Openland	0.00	0.00	0.00	54.44	14.82	69.26
Total	21.22	75.29	18.62	352.42	130.09	597.64

Table 41. The period of Matrix of land cover change in the period of November 2007 – May 2008

Landcover November 2007	Landcover May 2008					Total
	Secondary Forest	Shrubland	Cultivated Land	Young Scrub	Openland	
Secondary Forest	21.22	0.00	0.00	0.00	0.00	21.22

Landcover November 2007	Landcover May 2008					Total
	Secondary Forest	Shrubland	Cultivated Land	Young Scrub	Openland	
Shrubland	0.00	75.29	0.00	0.00	0.00	75.29
Cultivated Land	0.00	0.00	18.62	0.00	0.00	18.62
Young Scrub	0.00	0.00	0.00	321.2	31.22	352.42
Openland	0.00	0.00	0.4	121.5	8.19	130.09
Total	21.22	75.29	19.02	442.7	39.41	597.64

Table 42. The period of Matrix of land cover change in the period of May 2008 – December 2009

Landcover May 2008	Landcover December 2009					Total
	Secondary Forest	Shrubland	Cultivated Land	Young Scrub	Openland	
Secondary Forest	20.39	0.67	0.16	0.00	0.00	21.22
Shrubland	0.00	65.92	0.00	0.00	9.37	75.29
Cultivated Land	0.00	0.00	10.05	8.62	0.35	19.02
Young Scrub	0.00	0.00	0.00	423.45	19.25	442.7
Openland	0.00	0.00	0.00	39.41	0.00	39.41
Total	20.39	66.59	10.21	471.48	28.97	597.64

Table 43. The period of Matrix of land cover change in the period of December 2009 – May 2014

Landcover December 2009	Landcover Period January 2010 to May 2014					Total
	Secondary Forest	Shrubland	Cultivated Land	Young Scrub	Openland	
Secondary Forest	18.33	0.00	2.06	0.00	0.00	20.39
Shrubland	0.00	66.59	0.00	0.00	0.00	66.59
Cultivated Land	0.00	0.00	8.53	1.68	0.00	10.21
Young Scrub	0.00	0.00	51.45	418.59	1.44	471.48
Openland	0.00	0.00	15.07	13.9	0.00	28.97
Total	18.33	66.59	77.11	434.17	1.44	597.64

Table 44. The period of Matrix of land cover change in the period of After May 2014

Landcover Period January 2010 to May 2014	Landcover After May 2014					Total
	Secondary Forest	Shrubland	Cultivated Land	Young Scrub	Openland	
Secondary Forest	17.57	0.00	0.76	0.00	0.00	18.33

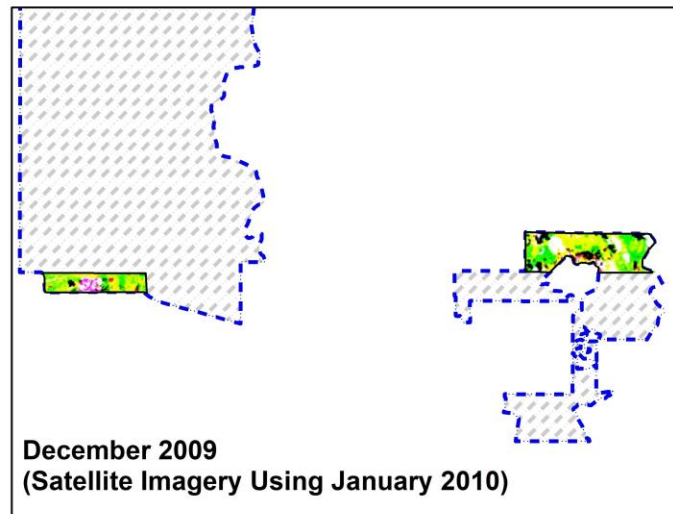
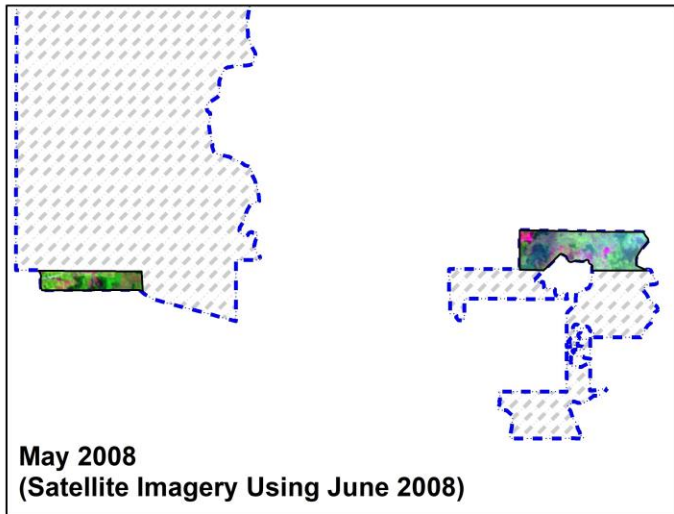
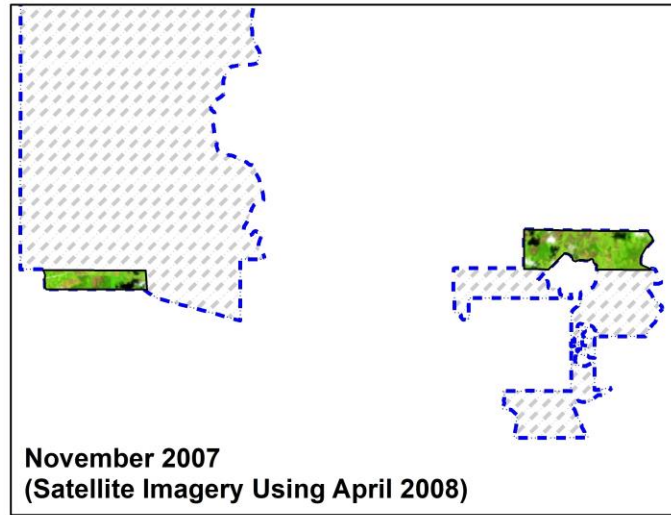
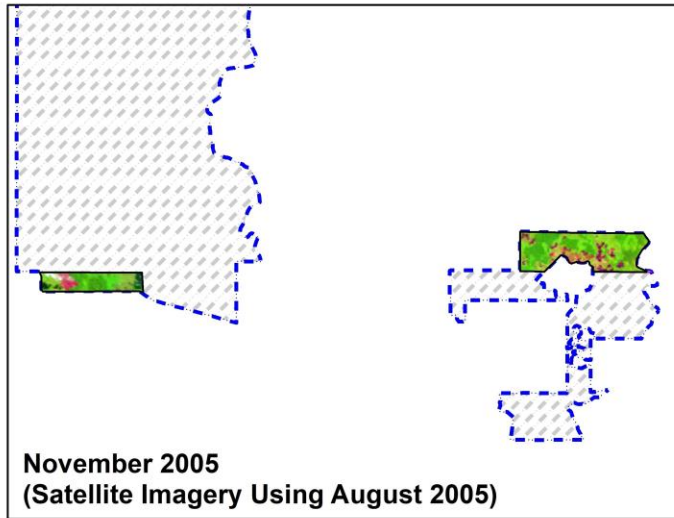
Landcover Period January 2010 to May 2014	Landcover After May 2014					Total
	Secondary Forest	Shrubland	Cultivated Land	Young Scrub	Openland	
Shrubland	0.00	50.72	0.00	15.87	0.00	66.59
Cultivated Land	0.00	0.00	76.69	0.00	0.42	77.11
Young Scrub	0.00	0.00	28.21	396.95	9.01	434.17
Openland	0.00	0.00	0.00	1.44	0.00	1.44
Total	17.57	50.72	105.66	414.26	9.43	597.64

Table 45. The period of Matrix of land cover change in the period of May 2014 - August 2018

Landcover May 2014	Landcover August 2018					Total
	Secondary Forest	Shrubland	Cultivated Land	Young Scrub	Openland	
Secondary Forest	0.00	0.00	8.72	8.84	0.01	17.57
Shrubland	0.00	0.00	35.32	10.74	4.66	50.72
Cultivated Land	0.00	0.00	100.51	1.36	3.79	105.66
Young Scrub	0.00	0.00	325.04	49.06	40.16	414.26
Openland	0.00	0.00	5.02	2.1	2.31	9.43
Total	0.00	0.00	474.61	72.1	50.93	597.64

Table 46. The period of Matrix of land cover change in the period of August 2018 - February 2021

Landcover August 2018	Landcover February 2021					Total
	Secondary Forest	Shrubland	Cultivated Land	Young Scrub	Openland	
Secondary Forest	0.00	0.00	0.00	0.00	0.00	0.00
Shrubland	0.00	0.00	0.00	0.00	0.00	0.00
Cultivated Land	0.00	0.00	390.97	0.00	83.64	474.61
Young Scrub	0.00	0.00	0.00	59.57	12.53	72.1
Openland	0.00	0.00	33.57	0.00	17.36	50.93
Total	0.00	0.00	424.54	59.57	113.53	597.64




PT SEC

N

0 0.75 1.5 3 4.5 6 Kilometers

Projection WGS 84 ; 49N
1:167,000

 New Concession Area


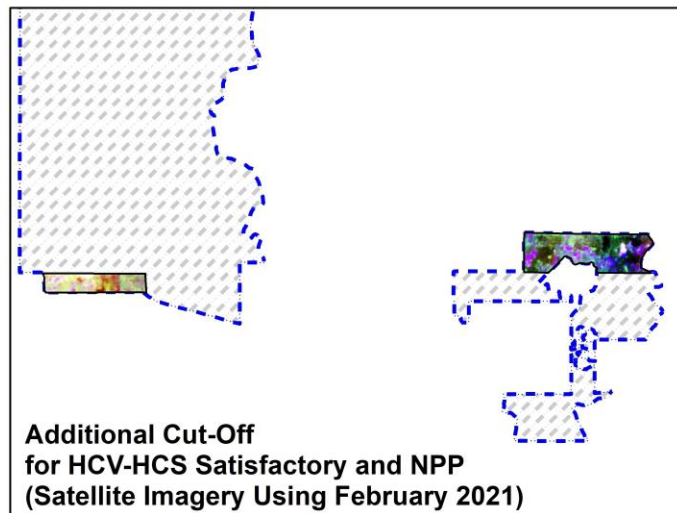
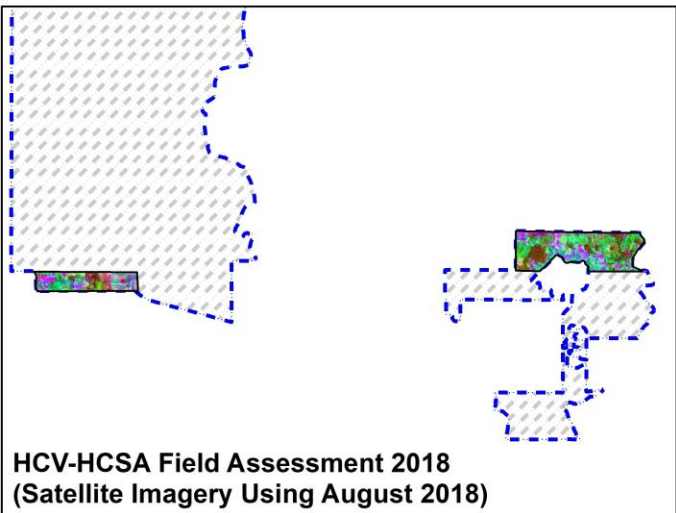
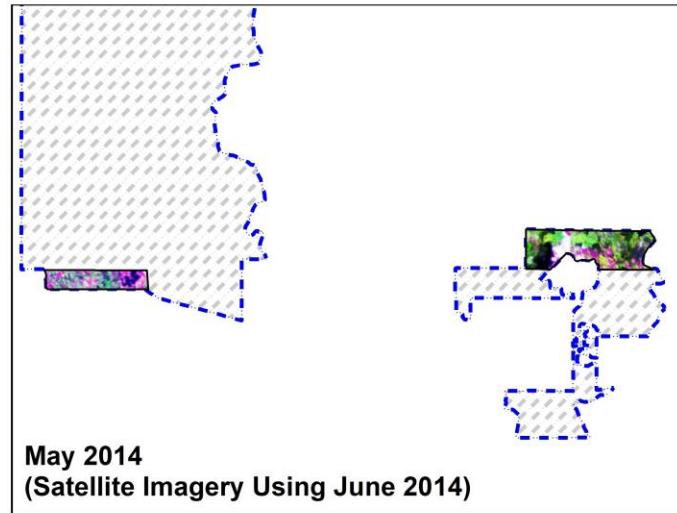
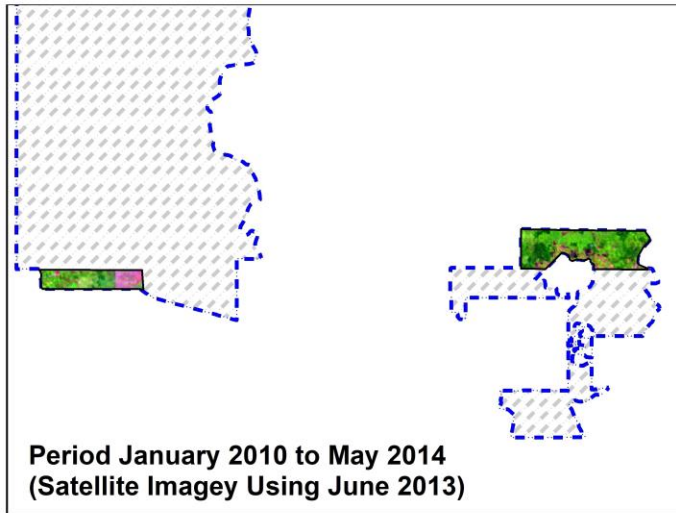
 Existing Area

Figure 29. 2005 - 2009 Satellite Images Showing in New Concession Area PT SEC as Proposed NPP




PT SEC

N

0 0.75 1.5 3 4.5 6 Kilometers

Projection WGS 84 ; 49N
1:167,000

 New Concession Area


 Existing Area

Figure 30. 2010 - 2021 Satellite Images Showing in New Concession Area PT SEC as Proposed NPP

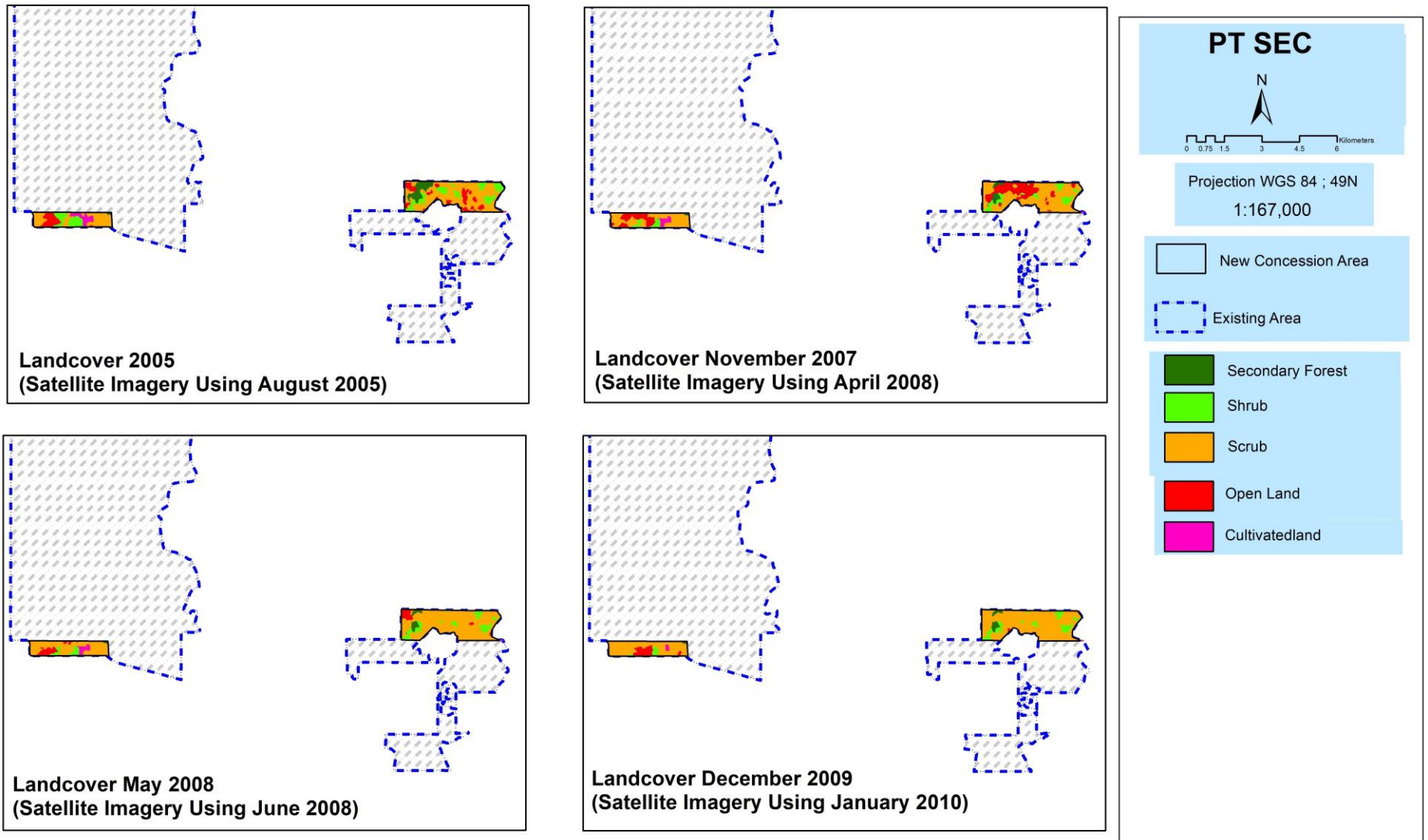


Figure 31. 2005 – 2009 Changes of Land Cover in New Concession Area PT SEC as Proposed NPP

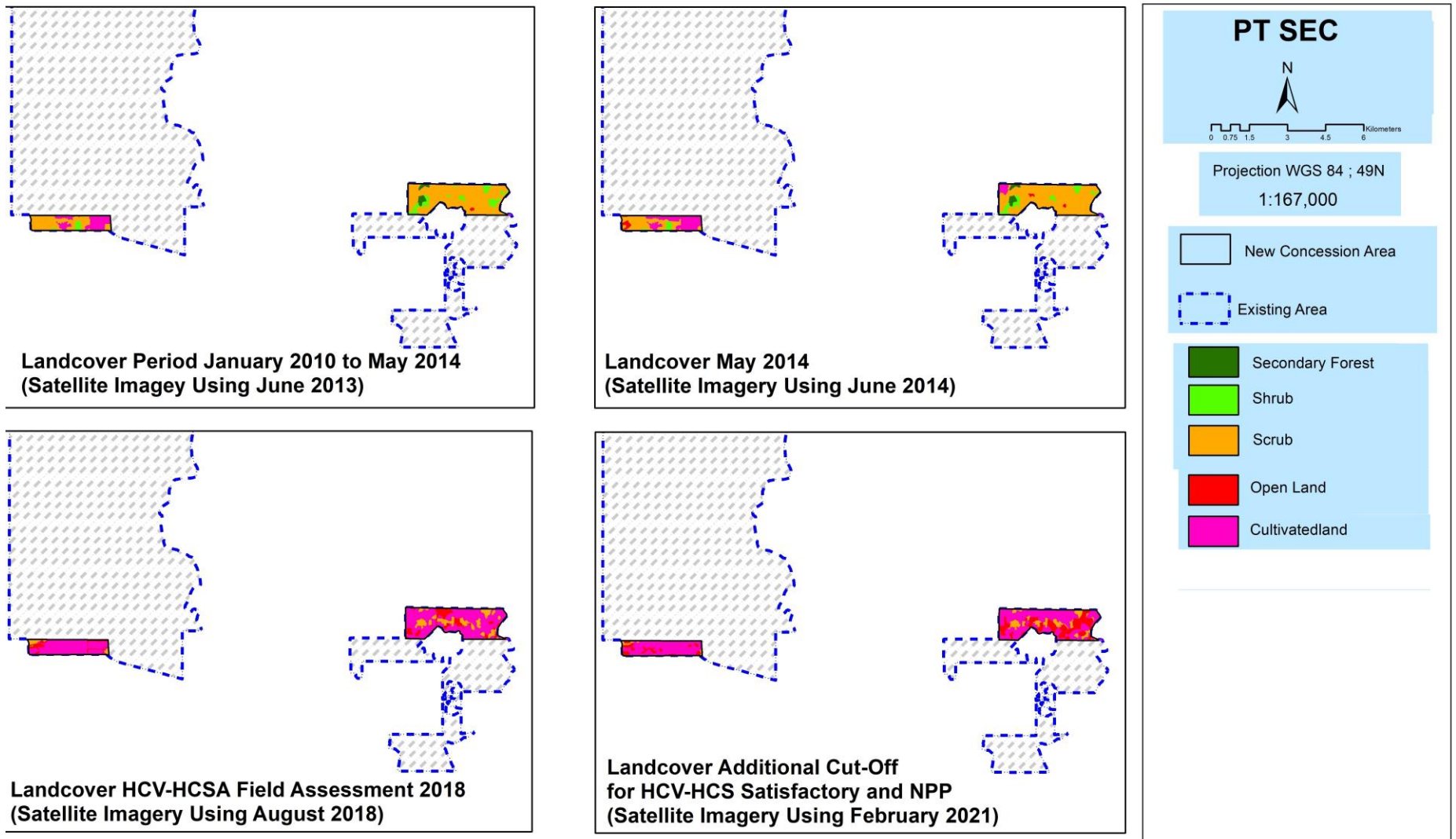


Figure 32. 2010 – 2021 Changes of Land Cover in New Concession Area PT SEC as Proposed NPP

3.6 FPIC and Social Impact Assessment

The auditor had conducted the FPIC documents using **RSPO Guidance Checklist** . FPIC was being conducted by PT SEC in line with their SOPs. Consent was given by the communities to undertake the assessment and the proposed new development areas.

The follow-up actions at the end of the due diligence section involved checking all these documents that are mentioned in result section of FPIC. These documents existed and available on sit. Additionally, the company had commissioned a PM, Stakeholder Consultation, SOPs, and SIA to confirm the FPIC has implemented .

Additionally, FPIC related SOPs such as SOP *Konsultasi dengan Stakeholder*, SOP *Penanganan Permasalahan Lahan*, SOP FPIC, SOP *Permintaan Informasi dan Kunjungan Stakeholder*, SOP *Ganti Rugi Lahan* are in place.

During the audit the FPIC SOP is the specification of the mechanism for subsequent interactions between communities and the company. The implemented of FPIC record being made of the meetings that have taken place, including attendees, content and outcomes.

From the Social Impact Assessment during discussions, interviews with stakeholders, observations and review of documents, the following conclusions can be concluded that the development of PT Sarana Esa Cita (PT SEC) oil palm plantation located in Sambas Regency, West Kalimantan Province has positive impacts for local communities. The main positive impacts is opened job opportunity for local community, open road access, the existence of CRS programs, increased knowledge and skills in oil palm plantations management, establishment of plasma cooperatives, and indirect impacts such as economic growth in the form establishment food stall, groceries, motorcycles workshop, etc.

The negative impact of existences PT SEC which is felt by local communities is mainly the pollution of the river by the application of fertilizers, control of weeds and pests (hazardous chemical) by the palm oil companies and illegal gold mining in the upstream river, so the river that was previously used for consumption for drinking water is now limited only for toilets. Another negative impacts is the reduced yield of forest resources and natural resources such as wood, rottan, fish, honey, and animals.

The existence of the company has an impact on the life of the community and the development of the

local economy and contributes to the improvement of the community's economy through employment that supports the family's economic stability and opens access to land roads, although it is still constrained because there are no bridges to Sepantai and Sungai Deden Villages. The impact continued after being able to plan family finances by paying for children's education so as to increase the average level of community education.

Company communication with external parties needs to be improved so that harmonious social relations are formed. The participation of PT SEC Management is required to take an active role in encouraging the role of plasma cooperatives and community farmer groups (plantations, fisheries, agriculture, household crafts, etc.), so that they can operate and play a professional role and can increase sources of income from other sectors according to potential SDA, human resources and community interests of each village. This is also expected to reduce the dependence of the surrounding community on PT SEC companies, especially the needs for employment.

Good social relations and a high level of community trust in the PT SEC company are expected to increase public confidence in being able to surrender their land which has not been managed optimally by the community to the PT SEC company, especially those within the company's permit area. There are still community lands that have not been handed over for management to the PT SEC company which is within the location permit. This is also a social risk to PT SEC such as the risk of land fires, community complaints because they are disturbed by plantation management activities and there are still lands inside the area of the PT SEC location permit that is managed by the community (spots) which causes the management fee to be high per hectare.

Other conditions based on the Risk Factor Assessment are High Conditions that need special attention, namely:

1. The unavailability of traffic signs at the intersection of the PT SEC plantation exit and the asphalt road in Sabung Village.
2. Harvesting and loading and unloading of FFB at PT Sarana Esa Cita (PT SEC) 's plantation location is carried out around the entrance to SDN 10 Sungai Deden Village which poses a risk to the safety and security of the school environment.
3. There are still unresolved land claim issues according to certain community parties. Some of the people who complained were transmigration residents and they still hold proof of legal land ownership in the form of SHM as evidence that they did not surrender the land.

4. The FFB truck activities at PT Sarana Esa Cita (PT SEC) 's plantation location II are still using the village road (Desa Sungai Deden) which causes damage to the road due to the direct contribution of PT SEC in the repair of the road.

3.6.1 Recommendations on Company External Relations

Continuing CSR programs that have been planned and arranged in a sustainable manner according to the company's CSR program framework, namely The Worker Empowerment Program, including:

- a) Education and training for high-achieving workers to training centers;
- b) Socializing the Manpower Law, opening job opportunities for companies;
- c) Establishing plantation cooperatives and employee cooperatives;
- d) Establishing P2K3 (*Panitia Pembina Kesseamatan dan Kesehatan Kerja*) to accommodate K3L (*Keselamatan, Kesehatan Kerja dan Lingkungan*) programmes.
- e) Gender Committee to accommodate campaigns for gender equality and women's empowerment provide gender campaign; and
- f) Establishing labor unions.

In addition, the company must also pay attention to the risk factor analysis of external issues and impacts that are critical, high, and moderate by paying attention to action plans that can be carried out in the future.

3.6.2 Recommendations for Internal Company Relations

Based on the results of questionnaires, interviews and FGDs with workers and employees, information was obtained regarding their hopes in the future for oil palm plantation management activities and PKS carried out by PT SEC, namely:

- a. Expectations for an increase in progress for the company and the company can improve the welfare of workers and employees both in terms of economy and social relations within the company and with residents of the surrounding villages, so that they feel comfortable working at PT SEC;
- b. Can increase knowledge and skills and can increase career paths while working at PT SEC in accordance with the level of education, knowledge, skills and work experience;
- c. Communication between subordinates and superiors is conveyed in good, polite and polite speech, so that there is no feeling of working under pressure from the superiors;
- d. By working in a company, the hope is that they can save for their own (independent) business capital;
- e. Prioritizing workforce from local residents;
- f. Can work and serve in PT SEC company until retirement.

In addition, for the company's internal environment in establishing relationships with the external environment of the PT SEC company, it is recommended to develop a plan that includes:

- a. Development of human resource capacity and institutional (management) social impact management.
- b. Improving the administrative system, such as the design of monitoring and evaluation instruments for each social / community program (CD / CSR program) that will be implemented in the community.
- c. Development of collaborative institutions that are able to formulate and implement policies and programs from various stakeholders or multi-parties in the success of sustainable social / community programs (CD / CSR Programs).

- d. Development of social programs or community programs with program principles: participatory, based on community needs, based on local potential and wisdom, sustainability, partnerships, and encouraging community independence.
- e. In implementing social programs or community programs, strategies that can be applied are starting with the development of local institutional capacity, development of three-party partnerships, effective mentoring, periodic monitoring, evaluation and measurement of impacts, and an integrated social management system.

3.6.3 Recommendation of Social Impact Management Plan

The purpose of the Social Impact Management Plan is to provide a reference for the implementation of corporate social management programs and / or activities so that the resources owned can be focused in a more directed, integrated and effective manner in achieving the company's social vision. In the context of managing social impacts and developing company relationships with the community, social management programs take the form of management activities to achieve the company's social vision as follows:

1. Management activities are carried out in order to minimize negative social impacts and / or social risks, as well as those that can develop positive social impacts.
2. Social impact management involves parties who have a direct relationship, namely the parties that provide and receive the impact,
3. Management activities are carried out to strengthen social capital for social sustainability and
4. The form of the program / activity is carried out by considering as far as possible it has a direct relationship with the competence and core business of the company (core business).

3.6.4 Recommendation of Social Impact Monitoring Plan

In addition to a social management plan, a social monitoring plan is also prepared. The social monitoring efforts carried out are basically a follow-up monitoring of the implementation or implementation of a predetermined management. Social monitoring efforts are carried out based on technical considerations, financing, social aspects and other related aspects.

4 Summary of Management Plans

4.1 Team Responsible for Developing Management Plans

In order to enable effective implementation of the programs, it is required that human resources competencies, sufficient knowledge and skills to implement the planned activities are in place. It is also essential to provide appropriate tools and facilities so that implementation of the activities can be smoothly carried out. Implementation, management and monitoring in the field will be implemented by the management of PT SEC, onsite Sustainability team and Public relation team. The implementation is also supported by other team such as audit and certification team. Below is the organisational structure of the team responsible for implementation, management and monitoring in the field.

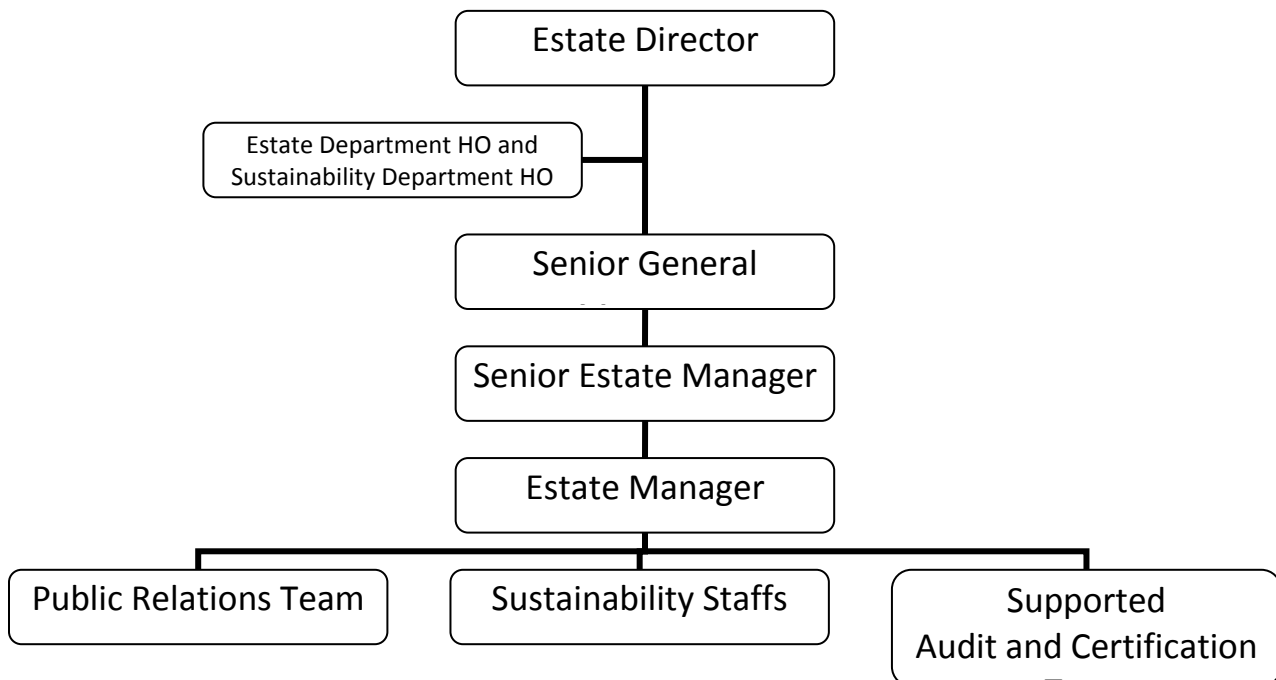


Figure 33. Organisational Structure of The Team Responsible for Implementation, Management and Monitoring in The Field

The overall responsibilities and accountability are listed below:

- a. The overall conservation programme will be under the purview of the Estates Department with support from the Head Office (HO) in Medan and the Sustainability Department Head Office (HO)

will provide the overall guidance and technical support to enable effective implementation of the management and monitoring plan in the field.

- b. The Senior General Manager is accountable and responsible to ensure that the overall development plan including the management and monitoring plan is implemented according to the time plan and budget. The specific responsibilities are:
 - Hold meeting to review results of implementation and results of monitoring.
 - Review action plans when necessary.
- c. The Senior Estate Manager is responsible to fulfill the requirements of the management and monitoring plan. The specific responsibilities are:
 - Cross check the implementation of management and monitoring plan in the estates under his charge.
 - Ensure timely and effective implementation of the management and monitoring plan.
 - Analyze monitoring results and review mitigation actions where needed.
- d. The Estate Manager is directly responsible for the implementation of the management and monitoring plans. The specific responsibilities are:
 - Implementation of the management and monitoring plan and review periodically.
 - Organize and implement actions specified in the management and monitoring plan.
 - Organize and implement monitoring activities.
 - Organize socialization / training where required in the management and monitoring plan.
- e. The Public Relations Team has a role in communicating with the related stakeholders around the concession of PT SEC. Specifically, the roles and responsibility are as follows:
 - Communicate with related stakeholder around the concession to implement the management and monitoring plan at the landscape level.
 - Communicate with related stakeholder to schedule meetings among with PT SEC.
- f. A Sustainability Staff is located in PT SEC to assist the management team in the implementation of the management and monitoring plans that has been approved by the management. The Sustainability Staff is responsible to:
 - Work hand in hand with the estate management team in implementing the management and monitoring plan that has been approved.

- Conduct training, work in collaboration with Estate and Public Relation personnel on stakeholders' engagement and consultation.
 - Review results and identify further actions that are necessary and communicate it to the management of PT SEC.
 - Prepare a progress report of the management and monitoring for the management of PT SEC and Sustainability Head Office.
- g. Audit and Certification Team supported the implementation of management and monitoring plans including policies and procedures.
- h. These programmes will be reviewed and evaluated by the local and top management regularly. These will include evaluation of the activities implemented as they are expected; whether the outputs of the process are as they were projected previously; and whether the resources investments (human, fund, time etc.) are as they were planned before. The objective is to measure the achievements, effectiveness, efficiencies, impacts, and sustainability of the programs.

4.2 Elements to be included in management plans

4.2.1 Social Management Plan

The development that this Social cover is supposed to benefit the community welfare, particularly:

- incomes of community members
- food security
- access to ecosystem services
- access to social and economic infrastructure.

The company's activities should benefit the communities' incomes and infrastructure. This will be through creation of employment and CSR contributions. Similarly, bringing agricultural industry to the area will require better roads, which in turn will benefit the community.

It is recommended there is periodic collection and analysis of information on key socio-economic indicators that together provide insight into the actual impacts of the company's operations on the welfare of local communities.

4.2.2 ICLUP and Integrated HCV-HCS

The recommendations for maintaining and enhancing the HCV-HCS encountered are based on the strategy and policy of Sustainability. The monitoring and management actions are aimed at mitigating negative and the environmental and socio-economic impacts and maximizing positive outcomes. Integrated HCV-HCS management & mitigation plan of the threats identified. The successful implementation of these actions requires the support and close oversight of PT SEC management.

PT SEC have arranged the ICLUP based on the HCV-HCS assessment, the participation mapping and SIA. This result has commenced and socialize with the local community. The planning of the development and monitoring HCV have been intergrated. This ICLUP implementation was such as follow:

- To maintain the existence of the conservation area which have been agreed by all the parties involved. This conservation areas include: HCV, HCS forests, area of buffering rivers and important community lands.
- To ensure land development that does not threaten the existence of conservation areas and people's rights to their land.
- To maintain or increase the value that exists in conservation areas.
- To develop an optimal land use plan for palm oil cultivation.

The management and monitoring activities of the conservation include:

1. Clearly marking the boundary of the conservation areas through the installation and maintenance of boundary markers.
2. Socialization of the conservation areas to the local communities around the conservation areas about the existence and the importance of protecting the conservation areas.
3. Socialization of the conservation areas to the employees.
4. Planning and execution of activities to achieve:
 - a. Preservation of habitat of rare and threatened animals.
 - b. Preservation of water sources.
 - c. Preservation of the functions of river buffer zone.
 - d. Minimization of erosion.
 - e. Preservation of cultural and /or religious sites.

- f. Planting of trees in river buffer zone.
- 5. Identification of threats to the conservation areas (such as fires, encroachment, etc).
- 6. Development of strategies to monitor and overcome the threats to the conservation areas.
- 7. Periodical review of the efficacy of the management and monitoring efforts. Improvement opportunities to the existing system when available will be pursued vigorously.
- 8. Community engagement, negotiation and mediation with FPIC approach.
- 9. Participatory and collaborative with community for implementation of management and monitoring plan.

Agreements have been made with the community through the village where, the community in principle supports the efforts of conservation area management and monitoring plan while respecting the rights of the local community. These processes will continue to be carried out gradually and continuously in accordance with the agreements made.

Table 47. Social & Environment management mitigation plan

No	Management Aspect	Recommendation of AMDAL	Recommendation of SIA	Activities	Frequency Monitoring Implementation	Management Institution
1	Health	<ul style="list-style-type: none"> • Use mask at work hour • Medical check up for field worker • Provide clinic • Build healthy-post • Provide supplements • Provide health insurance • Provide sanitation • Provide medical team 		<ul style="list-style-type: none"> • Following BPJS for Health and Employment programs • Provide health facilitate and infrastructure • Set up structure of P2K3 • Facilitation of clinic • Facilitation the use of clean water 	<ul style="list-style-type: none"> • Every Month (Jan – Dec) • Every Month (Jan – Dec) • If any structure reform • Every Month (Jan – Dec) • Every Month (Jan – Dec) 	PT. Sarana Esa Cita
	Safety and Security	<ul style="list-style-type: none"> • Conseling using PPE • Provide PPE • Provide tools and facilitate emergency 	<ul style="list-style-type: none"> • Coordination with village government 	<ul style="list-style-type: none"> • Develop CSR program • Install the traffic signs • Socialization and Stakeholder consultation • Security Patrol duties • Maintain transportation access • Provide PPE for worker 	<ul style="list-style-type: none"> • Every Six Month (Jan – Dec) • If any new installation • Every Year • Every Day • Every Month (Jan – Dec) • Every Day) 	
2	Education	<ul style="list-style-type: none"> • Implementation od technology, socio-economic and institutional approach 	<ul style="list-style-type: none"> • Deliberated with related parties 	<ul style="list-style-type: none"> • Scholarship programs for local community • Internship Programs • Develop CSR program in education 	<ul style="list-style-type: none"> • If any new scholarship • If any new internship • Every Year 	

No	Management Aspect	Recommendation of AMDAL	Recommendation of SIA	Activities	Frequency Monitoring Implementation	Management Institution
				<ul style="list-style-type: none"> • Community consultation 	<ul style="list-style-type: none"> • Every Year 	
3	Skill and knowledge	<ul style="list-style-type: none"> • Socialization and conseling to community about palm oil mill and plantation • Improve skill local younger people • Improve spirite of local worker • Couching Organizations • Facilitated the employee to improved their skill 	<ul style="list-style-type: none"> • The process of implementatio n KKPA partnership scheme • Transparancy communication with Smallholder or KKPA • Agriculture, Plantation, Fisheries, and livestock Conseling. • Improve employee's skill regularya 	<ul style="list-style-type: none"> • Socialization of Palm oil cultivation to the communities • Collaboration with the community in partnership program • External and internal training 	<ul style="list-style-type: none"> • If any new partnership scheme • If any new partnership program • Every Month (Jan – Dec) 	
4	Natural Capital	<ul style="list-style-type: none"> • Provide an overview of environmental improvement • Plant land cover crops • Take measurement of air quality • Environmental management and monitoing • Not logging in greenbelt areas • Maintain the waterways • Construct and maintain drainage 	<ul style="list-style-type: none"> • At the time of controlling weeds by chemicals, need to consider the environmental and social impacts and 	<ul style="list-style-type: none"> • Socialization of protect the environment to community and worker • Carry out the HCV management and monitoring • Develop the CSR program – Community Development • Socialization of palm oil 	<ul style="list-style-type: none"> • Every Four Months (Jan – Dec) • Every Month (Jan – Dec) • Every Six Month (Jan – Dec) 	

No	Management Aspect	Recommendation of AMDAL	Recommendation of SIA	Activities	Frequency Monitoring Implementation	Management Institution
		<ul style="list-style-type: none"> • River normalizations • Maintain water absorption • Conseling on the importance of protect and conserve soil and water, conservation area and riparian zone • Land clearing without fire • Maintain water river quality • Procurement of seeds for rehabilitation • Responsible environmental Management • Provide conservation areas • Install the board prohibiting disturb of protect flora 	affected related parties.	agronomic practice <ul style="list-style-type: none"> • Socialization of animals protected to the community 	<ul style="list-style-type: none"> • Every Month (Jan – Dec) • Every Four Months (Jan – Dec) 	
5	Financial Capital	<ul style="list-style-type: none"> • Facilitation of community to pro-active in economy activities • Allocation of financing to community economic activities • Participate of the local community's economy growth in study area • Coordination with village government • Collaboration with the community and economy community institution 	<ul style="list-style-type: none"> • Refer to MoU has been mutually agreed. • Plasma Plantation management mechanism • Provide guidance and assistance to plasma cooperation 	<ul style="list-style-type: none"> • Palm oil cultivation collaboration in plantation partnership programs • Deliberation in plantation partnership programs • Socialization of development plantation partnership • Implementation the CSR programs 	<ul style="list-style-type: none"> • If any new partnership program • If any new partnership program • If any new partnership program • Every Month (Jan – Dec) 	
6	Social Capital	<ul style="list-style-type: none"> • Socialization to the community 	<ul style="list-style-type: none"> • Build a 	<ul style="list-style-type: none"> • Implementation SOP of the 	<ul style="list-style-type: none"> • If any new land 	

No	Management Aspect	Recommendation of AMDAL	Recommendation of SIA	Activities	Frequency Monitoring Implementation	Management Institution
		<ul style="list-style-type: none"> • Build a relationship with the community • Coordination with government • Implementation of the CSR program • Resolve the community problem • Consuling of aquicition land procedure 	<p>communication with the community and government</p> <ul style="list-style-type: none"> • Priority the local labor 	<p>land compensation</p> <ul style="list-style-type: none"> • Socialization and consultation to community regulary • Recruitment of the local labor • Implementation of CSR program 	<p>compensation</p> <ul style="list-style-type: none"> • Every year • If any new recruitment of labor • Every Month (Jan – Dec) 	
7	Psysical Capital	<ul style="list-style-type: none"> • Maintain the road facilitate by harderning and leveling the road surface 	<ul style="list-style-type: none"> • Repair the roads in plantation and another affected roads • Compile SOPs of communication environment, complaint and grievances, and social governance 	<ul style="list-style-type: none"> • Collaboration with village government to repair the infrastructure in the village • Compile CSR program with the community 	<ul style="list-style-type: none"> • If any new repairing infrastructure • Regarding CSR Program Implemented 	
8	CSR/CD	<ul style="list-style-type: none"> • Socialization to the community • Carry out the various activity of public intesert • Build up environmental management organization 	<ul style="list-style-type: none"> • Compile governance mechanism to empowerment the community or CSR program 	<ul style="list-style-type: none"> • Implementation the company's CSR program • Socialization and consultation regulary of CSR/CD implementation • Improve Free Fire Alliance 	<ul style="list-style-type: none"> • Every Month (Jan – Dec) • Every Month (Jan – Dec) • Every Year (Jan – Dec) 	

Table 48. Summary of HCV – HCS Integrated Management and Monitoring Plan

Value Identified	Threats	Management Plan	Monitoring Plan	Time	Monitoring Frequency	PIC
<p>HCS Forest</p> <ul style="list-style-type: none"> • Lumbang Village HCS area • Lubuk Perdagangan Village HCS area • Sabung Village HCS area • Mekar Jaya Village HCS area • Beringin Village HCS area • Sepantai Village HCS area 	<ul style="list-style-type: none"> • Illegal Logging. • Reduced HCS areas due to conversion by local communities into gardens and fields. 	<ul style="list-style-type: none"> • Update land cover conditions based on current conditions, especially land cover which still has low identification accuracy (Scrub, Old Scrub, Dry Farming) • Perform boundary marking and maintenance of forest area boundary markers in strategic locations with active involvement of the stakeholders. • Conduct internal and external HCS socialization. • Prevent, protect and control disturbances to HCS management areas (illegal logging and area conversion) through the following activities: installing and maintaining HCV / HCS markings in strategic access points, as well as regular patrols. 	<ul style="list-style-type: none"> • Develop a regular monitoring system (The monitoring period can be adjusted according to the threat level in each HCS area with a minimum monitoring is every semester) to ensure that illegal logging and land conversion activities are minimized. • Conduct regular monitoring of the effectiveness of prevention, protection and control activities against disturbances in the HCS management area that have 	<p>Start in 2021 and continuously</p>	<ul style="list-style-type: none"> • Every Month (Jan-Des) • Every Month (Jan-Des) • Every Month (Jan-Des) 	<ul style="list-style-type: none"> • Sustainability • Estate Operational • Humas

Value Identified	Threats	Management Plan	Monitoring Plan	Time	Monitoring Frequency	PIC
		<ul style="list-style-type: none"> • Coordinating with the Sub-District Muspika, Police Office and Koramil, Forestry Office, in order to minimize illegal logging, and conversion of areas within the location permit area as well as law enforcement effectively. • Coordinate and synergize management with the company and surrounding communities to play an active role in maintaining HCS areas at a Landscape scale. 	<p>been carried out.</p> <ul style="list-style-type: none"> • Monitor the intensity of disturbance to HCS areas on a regular basis, including the potential threat of illegal logging and area conversion. • Monitoring and recording findings of significant land cover changes at the landscape scale by companies, communities and other stakeholders. • Verify the condition of land cover in the HCS area to get an update on the land cover. 		<ul style="list-style-type: none"> • Every Six Month • Every Six Month 	

Value Identified		Threats	Management Plan	Monitoring Plan	Time	Monitoring Frequency	PIC
HCV 1	The population of Gibbon/Owa (<i>Hylobates abotti</i>) decreases at Point 23 of Beringin Village, 24 Mekar jaya 11 Sumber Harapan	<ul style="list-style-type: none"> Habitat area decreases due to land function change Illegal Logging. Reduced habitat area due to the conversion of peat and forested areas in the form of secondary forest due to the conversion carried out by the community into gardens / agricultural fields. 	<ol style="list-style-type: none"> Monitoring the presence of animals and habitats on a regular basis Conduct monitoring related to HCV area boundaries. Consistent application of SOP. 	<ol style="list-style-type: none"> Socialization to employees and the local community Installation of the advisory signboard Establishment of HCV area boundaries Collaboration with related stakeholders. Monitoring at least once a year to see the existence of this animal. 	Start in 2021 and continuously	<ol style="list-style-type: none"> Every Four Months Once at establishment of HCV area and every four months Every Four Months Every Year (Incidental) Every Month (Jan – Dec) 	<ul style="list-style-type: none"> Sustainability Estate Operational Humas
		Decreased population due to hunting	<p>Ensure that there is no hunting of RTE animals through:</p> <ol style="list-style-type: none"> Formation of an HCV area management group with one of its duties, namely monitoring the threat of hunting animals (including gibbons) Installation of information 	<ol style="list-style-type: none"> Establishment of animal patrol teams that can: detect emerging species; identify potential conflicts; have the ability to mitigate conflicts and save animals in collaboration with 	Start in 2021 and continuously	<ol style="list-style-type: none"> Every Month (Jan – Dec) 	<ul style="list-style-type: none"> Sustainability Estate Operationa Humas

Value Identified		Threats	Management Plan	Monitoring Plan	Time	Monitoring Frequency	PIC
			boards containing the prohibition of hunting important animals (particularly protected animals, including gibbons) and their legal warnings; 3. Reporting to BBKSDA West Kalimantan when the hunt of protected animals occurs.	the local BKSDA and related conservation agencies; If a violation occurs, it will be handled according to law.			
Population of Orangutan (<i>Pongo pygmaeus</i>) decreasing at Location ID 7	<ul style="list-style-type: none"> Habitat area and food sources are shrinking due to land use changes Habitat area decreases due to land function change Illegal logging. Reduced habitat area due to the conversion of peat and forested areas in the form of secondary forest due to the conversion carried out by the 	<ol style="list-style-type: none"> Monitoring the presence of animals and habitats on a regular basis Conduct monitoring related to HCV area boundaries. Consistent application of SOP Relocation of species if found in the assessment Landscape 	<ol style="list-style-type: none"> Socialization to employees and the local community Installation of the advisory signboard Establishment of HCV area boundaries Collaboration with related stakeholders. Monitoring at least once a year to see the existence of this animal. 	Start in 2021 and continuously	<ol style="list-style-type: none"> Every Four Months Once at establishment of HCV area and every four months Every Four Months Every Year (Incidental) Every Month (Jan – Dec) 	<ul style="list-style-type: none"> Sustainability Estate Operational Humas 	

Value Identified		Threats	Management Plan	Monitoring Plan	Time	Monitoring Frequency	PIC
		community into gardens/agricultural fields.					
		Decreased population due to hunting	<p>Ensure that there is no hunting of RTE animals through:</p> <ol style="list-style-type: none"> 1. Formation of an HCV area management group with one of its duties, namely monitoring the threat of hunting animals (including gibbons) 2. Installation of information boards containing the prohibition of hunting important animals (particularly protected animals, including gibbons) and their legal warnings; 3. Reporting to BBKSDA West Kalimantan when the hunt of protected animals occurs. 	<ol style="list-style-type: none"> 1. Establishment of animal patrol teams that can: detect emerging species; identify potential conflicts; have the ability to mitigate conflicts and save animals in collaboration with the local BKSDA and related conservation agencies; If a violation occurs, it will be handled according to law. 	Start in 2021 and continuously	1. Every Month (Jan – Dec)	<ul style="list-style-type: none"> • Sustainability • Estate Operational • Humas

Value Identified		Threats	Management Plan	Monitoring Plan	Time	Monitoring Frequency	PIC
	<p>Spiny turtle (<i>Heosemys spinosa</i>) population decrease d. ID 4 Lubuk Dagang Village</p>	<ul style="list-style-type: none"> Habitat area decreases due to land function change Pollution of river water due to the use of chemicals (fertilizers and pesticides) from the company's oil palm plantations and community farms/fields. Decrease in river water quality due to land clearing, leaching / runoff of fertilizers & pesticides or other pollution from oil palm plantations that enter rivers. 	<ol style="list-style-type: none"> Monitoring the presence of animals and habitats on a regular basis Conduct monitoring related to HCV area boundaries. Consistent application of SOP 	<ol style="list-style-type: none"> Socialization to employees and the local community Installation of the advisory signboard Establishment of HCV area boundaries Collaboration with related stakeholders. Monitor and provide reports to related parties regarding water quality in rivers periodically which can be carried out simultaneously with environmental monitoring activities (RKL / RPL) Establishment of animal patrol teams that can: detect emerging species; 	Start in 2021 and continuously	<ol style="list-style-type: none"> Every Four Months Once at establishment of HCV area and every four months Every Four Months Every Year (Incidental) Every Six Months Every Month 	

Value Identified		Threats	Management Plan	Monitoring Plan	Time	Monitoring Frequency	PIC
				identify potential conflicts; have the ability to mitigate conflicts and save animals in collaboration with the local BKSDA and related conservation agencies; If a violation occurs, it will be handled according to law.			
	Meranti Rawa (<i>Shorea Platycarpa</i>) population decreased in ID 19 Sumber Harapan Village	<ul style="list-style-type: none"> Habitat area decreases due to land function change Illegal Logging. Reduced habitat area due to the conversion of peat and forested areas in the form of secondary forest due to the conversion carried 	<ol style="list-style-type: none"> Monitoring the presence of animals and habitats on a regular basis Conduct monitoring related to HCV area boundaries. Consistent application of SOP Arrangement of areas designated as HCV 1 areas 	<ol style="list-style-type: none"> Socialization to employees and the local community Installation of the advisory signboard Establishment of HCV area boundaries Collaboration with related stakeholders Monitoring at least once a year in important 	Start in 2021 and continuously	<ol style="list-style-type: none"> Every Four Months Once at establishment of HCV area and every four months Every Four Months Every Year (Incidental) Every Year 	<ul style="list-style-type: none"> Sustainability Estate Operational Humas

Value Identified		Threats	Management Plan	Monitoring Plan	Time	Monitoring Frequency	PIC
		out by the community into gardens/agricultural fields.		vegetated areas categorized as RTE.			
	The population of <i>Shorea seminis</i> (Terindak) decreased. ID 15 Lubuk Dagang Village and ID 17 Sabung Village	<ul style="list-style-type: none"> Habitat area decreases due to land function change Illegal Logging. Reduced habitat area due to the conversion of peat and forested areas in the form of secondary forest due to the conversion carried out by the community into gardens/agricultural fields. 	<ul style="list-style-type: none"> Monitoring the presence of animals and habitats on a regular basis Conduct monitoring related to HCV area boundaries. Consistent application of SOP Arrangement of areas designated as HCV 1 areas 	<ol style="list-style-type: none"> Socialization to employees and the local community Installation of the advisory signboard Establishment of HCV area boundaries Collaboration with related stakeholders Monitoring at least once a year in important vegetated areas categorized as RTE. 	Start in 2021 and continuously	<ol style="list-style-type: none"> Every Four Months Once at establishment of HCV area and every four months Every Four Months Every Year (Incidental) Every Year 	<ul style="list-style-type: none"> Sustainability Estate Operational Humas
	<i>Dipterocarpus lowii</i> (keruing) population decreased by ID 1	<ul style="list-style-type: none"> Habitat area decreases due to land function change Illegal Logging. Reduced habitat area due to the conversion of 	<ol style="list-style-type: none"> Monitoring the presence of animals and habitats on a regular basis Conduct monitoring related to HCV area boundaries. Consistent application of 	<ol style="list-style-type: none"> Socialization to employees and the local community Installation of the advisory signboard Establishment of HCV area 	Start in 2021 and continuously	<ol style="list-style-type: none"> Every Four Months Once at establishment of HCV area and every four 	<ul style="list-style-type: none"> Sustainability Estate Operational Humas

Value Identified		Threats	Management Plan	Monitoring Plan	Time	Monitoring Frequency	PIC
	and ID 3 in Sabung Village	peat and forested areas in the form of secondary forest due to the conversion carried out by the community into gardens/agricultural fields.	SOP 4. Arrangement of areas designated as HCV 1 areas	boundaries 4. Collaboration with related stakeholders 5. Monitoring at least once a year in important vegetated areas categorized as RTE.		months 3. Every Four Months 4. Every Year (Incidental) 5. Every Year	
	<i>Hopea Kerangasensis</i> Population Decreased ID 14 outside SEC and MI Concessions But inside AOI	<ul style="list-style-type: none"> Habitat area decreases due to land function change Illegal Logging. Reduced habitat area due to the conversion of peat and forested areas in the form of secondary forest due to the conversion carried out by the community into gardens/agricultural fields. 	<ol style="list-style-type: none"> Monitoring the presence of animals and habitats on a regular basis Conduct monitoring related to HCV area boundaries. Consistent application of SOP Arrangement of areas designated as HCV 1 areas 	<ol style="list-style-type: none"> Socialization to employees and the local community Installation of the advisory signboard Establishment of HCV area boundaries Collaboration with related stakeholders Monitoring at least once a year in important vegetated areas categorized as RTE. 	Start in 2021 and continuously	<ol style="list-style-type: none"> Every Four Months Once at establishment of HCV area and every four months Every Four Months Every Year (Incidental) Every Year 	<ul style="list-style-type: none"> Sustainability Estate Operational Humas
	The population	<ul style="list-style-type: none"> Habitat area decreases due to 	<ol style="list-style-type: none"> Monitoring the presence of animals and habitats on 	<ol style="list-style-type: none"> Socialization to employees and the 	Start in 2021 and	<ol style="list-style-type: none"> Every Four Months 	<ul style="list-style-type: none"> Sustainability Estate

Value Identified		Threats	Management Plan	Monitoring Plan	Time	Monitoring Frequency	PIC
	on of Dyera lowii has decreased. ID 2 Lubuk Dagang Village and ID 18 Beringin Village	<ul style="list-style-type: none"> land function change Illegal Logging. Reduced habitat area due to the conversion of peat and forested areas in the form of secondary forest due to the conversion carried out by the community into gardens/agricultural fields. 	<ul style="list-style-type: none"> a regular basis 2. Conduct monitoring related to HCV area boundaries. 3. Consistent application of SOP 4. Arrangement of areas designated as HCV 1 areas 	<ul style="list-style-type: none"> local community 2. Installation of the advisory signboard 3. Establishment of HCV area boundaries 4. Collaboration with related stakeholders 5. Monitoring at least once a year in important vegetated areas categorized as RTE. 	continuously	<ul style="list-style-type: none"> 2. Once at establishment of HCV area and every four months 3. Every Four Months 4. Every Year (Incidental) 5. Every Year 	<ul style="list-style-type: none"> Operational Humas
	<i>Cotylelobium melanoxylon</i> population decreased ID 0 and ID 4 in the Beringin village	<ul style="list-style-type: none"> Habitat area decreases due to land function change Illegal Logging. Reduced habitat area due to the conversion of peat and forested areas in the form of secondary forest due to the conversion carried out by the community 	<ul style="list-style-type: none"> 1. Monitoring the presence of animals and habitats on a regular basis 2. Conduct monitoring related to HCV area boundaries. 3. Consistent application of SOP 4. Arrangement of areas designated as HCV 1 areas 	<ul style="list-style-type: none"> 1. Socialization to employees and the local community 2. Installation of the advisory signboard 3. Establishment of HCV area boundaries 4. Collaboration with related stakeholders 5. Monitoring at least once a year in important 	Start in 2021 and continuously	<ul style="list-style-type: none"> 1. Every Four Months 2. Once at establishment of HCV area and every four months 3. Every Four Months 4. Every Year (Incidental) 	<ul style="list-style-type: none"> Sustainability Estate Operational Humas

Value Identified		Threats	Management Plan	Monitoring Plan	Time	Monitoring Frequency	PIC
		into gardens/agricultural fields.		vegetated areas categorized as RTE.		5. Every Year	
	<i>Dipterocarpus crinitus</i> population decreased ID 19 Sabung Village	<ul style="list-style-type: none"> Habitat area decreases due to land function change Illegal Logging. Reduced habitat area due to the conversion of peat and forested areas in the form of secondary forest due to the conversion carried out by the community into gardens/agricultural fields. 	<ol style="list-style-type: none"> Monitoring the presence of animals and habitats on a regular basis Conduct monitoring related to HCV area boundaries. Consistent application of SOP Arrangement of areas designated as HCV 1 areas 	<ol style="list-style-type: none"> Socialization to employees and the local community Installation of the advisory signboard Establishment of HCV area boundaries Collaboration with related stakeholders Monitoring at least once a year in important vegetated areas categorized as RTE. 	Start in 2021 and continuously	<ol style="list-style-type: none"> Every Four Months Once at establishment of HCV area and every four months Every Four Months Every Year (Incidental) Every Year 	<ul style="list-style-type: none"> Sustainability Estate Operational Humas
	The population of <i>Combretocarpus rotundatus</i> has decreased. ID 20 Beringin	<ul style="list-style-type: none"> Habitat area decreases due to land function change Illegal Logging. Reduced habitat area due to the conversion of peat and forested areas in 	<ol style="list-style-type: none"> Monitoring the presence of animals and habitats on a regular basis Conduct monitoring related to HCV area boundaries. Consistent application of SOP 	<ol style="list-style-type: none"> Socialization to employees and the local community Installation of the advisory signboard Establishment of HCV area boundaries 	Start in 2021 and continuously	<ol style="list-style-type: none"> Every Four Months Once at establishment of HCV area and every four months 	<ul style="list-style-type: none"> Sustainability Estate Operational Humas

Value Identified		Threats	Management Plan	Monitoring Plan	Time	Monitoring Frequency	PIC
	village	the form of secondary forest due to the conversion carried out by the community into gardens/agricultural fields.	4. Arrangement of areas designated as HCV 1 areas	4. Collaboration with related stakeholders 5. Monitoring at least once a year in important vegetated areas categorized as RTE.		3. Every Four Months 4. Every Year (Incidental) 5. Every Year	
	The population of <i>Shorea macrophylla</i> is decreasing in Beringin Village	<ul style="list-style-type: none"> Habitat area decreases due to land function change Illegal Logging. Reduced habitat area due to the conversion of peat and forested areas in the form of secondary forest due to the conversion carried out by the community into gardens/agricultural fields. 	<ol style="list-style-type: none"> Monitoring the presence of animals and habitats on a regular basis Conduct monitoring related to HCV area boundaries. Consistent application of SOP Arrangement of areas designated as HCV 1 areas 	<ol style="list-style-type: none"> Socialization to employees and the local community Installation of the advisory signboard Establishment of HCV area boundaries Collaboration with related stakeholders Monitoring at least once a year in important vegetated areas categorized as RTE. 	Start in 2021 and continuously	<ol style="list-style-type: none"> Every Four Months Once at establishment of HCV area and every four months Every Four Months Every Year (Incidental) Every Year 	<ul style="list-style-type: none"> Sustainability Estate Operational Humas
HCV 3	Scrub and secondary forest	<ul style="list-style-type: none"> The area has shrunk due to the conversion of the area's function to a 	<ol style="list-style-type: none"> Conduct monitoring on a regular basis Conduct monitoring 	<ol style="list-style-type: none"> Socialization to employees and the local community 	Start in 2021 and continuously	<ol style="list-style-type: none"> Every Four Months Once at 	<ul style="list-style-type: none"> Sustainability Estate Operational

Value Identified		Threats	Management Plan	Monitoring Plan	Time	Monitoring Frequency	PIC
	areas in the river borders of Sabung Village, ID 1, 2 and 4 Sepantai ID 7 and Lubuk Perdagangan ID 3, 5 and 6	<p>community garden area.</p> <ul style="list-style-type: none"> Community agriculture 	<p>related to HCV area boundaries.</p> <ol style="list-style-type: none"> Consistent application of SOP Arrangement of areas designated as HCV 3 areas 	<ol style="list-style-type: none"> Installation of the advisory signboard Establishment of HCV area boundaries Collaboration with related stakeholders Monitoring at least once a year in important vegetated areas categorized as RTE. 		<p>establishment of HCV area and every four months</p> <ol style="list-style-type: none"> Every Four Months Every Year (Incidental) Every Year 	<ul style="list-style-type: none"> Humas
HCV 4	Riverbanks within the area, at PT MI Terusan Lama River Border, Sikut River Border, Sebuyok Kecil River Border, Sallok River Border, Singkape	<ul style="list-style-type: none"> Sedimentation, changing the function of river borders to become plantation and agricultural areas Residual chemicals carried by surface runoff Illegal logging. Potential loss of land cover in the form of dry land forest and shrubs 	<ol style="list-style-type: none"> Conduct monitoring on a regular basis Conduct monitoring related to HCV area boundaries. Consistent application of SOP SOP for the use of chemicals in the vicinity of areas designated as HCV 4. Carry out <i>manual weeding</i> in the riverbank area in the form of oil palm plantations 	<ol style="list-style-type: none"> Conducted data and information mining in 7 villages that had not been covered in the HCV-HCS assessment to complement and strengthen the results of the HCV 4 assessment. Socialization to employees and the local community Installation of the advisory signboard 	Start in 2021 and continuously	<ol style="list-style-type: none"> Every Year Every Four Months Once at establishment of HCV area and every four months Every Four Months Every Year (Incidental) Every six 	<ul style="list-style-type: none"> Sustainability Estate Operational Humas

Value Identified	Threats	Management Plan	Monitoring Plan	Time	Monitoring Frequency	PIC
k River Border, Sangku River Border, Change River Border, Geniang River Border, Munggu k Tabang River Border, Mbawan g River Border , Arung Malaban River Border, Terusan Lama River Border, Usar River Border, Tanjung Baru River, Teberau River	<p>in river border areas.</p> <ul style="list-style-type: none"> Pollution of river water due to the use of chemicals (fertilizers and pesticides) from the company's oil palm plantations and community farms / fields. <p>The company's operational activities will result in silting rivers, increasing river water discharge in the rainy season and decreasing river water discharge in the dry season, and will increase erosion</p> <ul style="list-style-type: none"> Pollution of community 	<p>6. Collaboration and cooperation with the community, government (from village to regional level), other companies, and NGOs in relation to river conservation and protection programs</p> <p>7. Collaboration and cooperation with the government and the community regarding waste management;</p> <p>8. Socialization to LC contractors regarding river boundaries to avoid over-clearing;</p> <p>9. Not replanting in the river boundary area according to the bufferzone width of each river</p> <p>10. Strengthening river banks that are prone to landslides in the management area or enrichment of vegetation</p>	<p>4. Establishment of HCV area boundaries</p> <p>5. Collaboration with related stakeholders</p> <p>6. Check water quality periodically (at least once every 6 months) at water monitoring points, namely river inlets that are within the PSR management area, inspection is carried out both visually and laboratory tests;</p> <p>7. Periodically (at least every 3 months), monitor the boundaries of river boundaries that become HCV areas;</p> <p>8. Monitor the condition of the technical building and document it; and/or vegetation growth.</p>		<p>Month</p> <p>7. Every Three Months</p> <p>8. Every Year</p>	

Value Identified	Threats	Management Plan	Monitoring Plan	Time	Monitoring Frequency	PIC
Border. At PT SEC Sendawa r River Border Satai River Crossing Sabung River Border Sekuan River Border Red River Border Senyurai River Border Sambas River Border Sambas Kecil River Border Sebuyok Besar	household waste. <ul style="list-style-type: none"> Loss of water supply needed by downstream communities. 	(enrichment with native tree species and / or those with deep and strong roots is recommended)				

Value Identified	Threats	Management Plan	Monitoring Plan	Time	Monitoring Frequency	PIC
<p>River Border Kemayau River Border Unknown River Border Sendawar River Border</p> <p>The border zone of Lubuk Dagang village ID 3, 5 and 6, Sabung Village ID 1, 2 and 4 and Sepantai villages ID 7. and hilly areas, Bukit 1,3 and part</p>						

Value Identified		Threats	Management Plan	Monitoring Plan	Time	Monitoring Frequency	PIC
	of hill 2 in Beringin village and part of hill 2 in Sabung village						
HCV 5	Sungai Rambah Village: Arung Melaban River, Village: Lumbang Sungai Mungguk Tabang and Geniang River, Lubuk Dagang Village: Usar River,	<ul style="list-style-type: none"> • Pollution of river water due to the use of chemicals (fertilizers and pesticides) from the company's oil palm plantations and community farms / fields. • Pollution of community household waste. • Loss of drinking water sources due to contamination of river water. 	<ol style="list-style-type: none"> 1. Conduct monitoring on a regular basis 2. Conduct monitoring related to HCV area boundaries. 3. Consistent application of SOP 4. SOP for the use of chemicals in the vicinity of areas designated as HCV 4. 5. Carry out <i>manual weeding</i> in the riverbank area in the form of oil palm plantations 6. Collaboration and cooperation with the community, government (from village to regional 	<ol style="list-style-type: none"> 1. Conducted data and information mining in 7 villages that had not been covered in the HCV-HCS assessment to complement and strengthen the results of the HCV 5 assessment. 2. Socialization to employees and the local community 3. Installation of the advisory signboard 4. Establishment of HCV area 	Start in 2021 and continuously	<ol style="list-style-type: none"> 1. Every Year 2. Every Four Months 3. Once at establishment of HCV area and every four months 4. Every Four Months 5. Every Year (Incidental) 6. If any revise SOP (Current SOP is applicable/accordance with the 	<ul style="list-style-type: none"> • Sustainability • Estate Operational • Humas

Value Identified	Threats	Management Plan	Monitoring Plan	Time	Monitoring Frequency	PIC
Ubah River, Teberau River, Tanjung Baru River, Sorat River, Sabung Village: Mbawang River, Sabung River, Sansang River and Sekuan river, Sumber Harapan Village: Sallok River and S Aksi River.		level), other companies, and NGOs in relation to river conservation and protection programs 7. Collaboration and cooperation with the government and the community regarding waste management; 8. Socialization to LC contractors regarding river boundaries to avoid over-clearing; 9. Not replanting in the river boundary area according to the bufferzone width of each river 10. Strengthening river banks that are prone to landslides in the management area 11. Co-management development with the surrounding community in the management of	boundaries 5. Collaboration with related stakeholders. 6. Revise the SOP for the use of chemicals in accordance with the results of the HCV study		results of the HCV study)	

Value Identified	Threats	Management Plan	Monitoring Plan	Time	Monitoring Frequency	PIC
<p>Tengguli Village: Saka River. Mekar Jaya Village: Sekuan River. Beringin Village: Sebuyok Besar River, Kemayau River, Singkapek River, Sangku River, Sebuyok Kecil River, Old Canal River, Red River and</p>		<p>the conservation area, eg vegetation enrichment (recommended enrichment with native tree species and / or those with deep and strong roots) and local fruit trees.</p>				

Value Identified		Threats	Management Plan	Monitoring Plan	Time	Monitoring Frequency	PIC
	Small Sambas River. Sepantai Village: Satai River, Senyurai River, Sambas River and Sendawar River..						
HCV 6	Sansang Orchard ID 7, Pekong ID 3, Brunai Scared Tomb ID 2, Tomb of Syeikh Abdul Jalil al-Fathani ID 1, Sambas Sultanate Palace	The area has been converted into plantation area, although the threat is relatively insignificant because the site is recognized, valued and protected by the local community..	<ol style="list-style-type: none"> 1. Conduct monitoring on a regular basis 2. Conduct monitoring related to HCV area boundaries. 3. Consistent application of SOP 4. Maintaining communication with relevant stakeholders; 5. Encourage the development of a management plan to 	<ol style="list-style-type: none"> 1. Conducted data and information mining in 7 villages that had not been covered in the HCV-HCS assessment to complement and strengthen the results of the HCV 6 assessment. 2. Socialization to employees and 	Start in 2021 and continuously	<ol style="list-style-type: none"> 1. Every Year 2. Every Four Months 3. Once at establishment of HCV area and every four months 4. Every Four Months 5. Every Year (Incidental) 	<ul style="list-style-type: none"> • Sustainability • Estate Operational • Humas

Value Identified	Threats	Management Plan	Monitoring Plan	Time	Monitoring Frequency	PIC
/ Alwatzik oebillah Palace ID 6, Masjid Jami 'Sambas ID 5		conserve each HCV site in a participatory manner.	<p>the local community</p> <ol style="list-style-type: none"> 3. Installation of the advisory signboard 4. Establishment of HCV area boundaries 5. Collaboration with related stakeholders. 6. Community involvement during land clearing activities, especially those located adjacent to or adjacent to HCV 6 areas to avoid disturbance to existing sites. 7. Conducted Meetings to discuss matters related to HCV 6 annually. 		<ol style="list-style-type: none"> 6. If any land clearing activities 7. Every Year 	

Value Identified	Threats	Management Plan	Monitoring Plan	Time	Monitoring Frequency	PIC
Peat in Lumbang, Sei Rambah, Lubuk Dagang, Sumber Harapan, Tengguli, Mekar Jaya, Beringin and Sepantai Village	Damage to the peat ecosystem, illegal logging, reduced peat and forested areas due to the conversion carried out by the community into gardens/agricultural fields.	<ol style="list-style-type: none"> 1. Patrol and protect peat areas, especially fire prevention 2. Consistent application of SOP. 3. Collaborative and participatory management with the community. 4. Restoring degraded peat areas 5. Conduct semi-detailed surveys on peat areas within concessions and if possible at the landscape level. 6. Minimizing the decrease in water level by ensuring the canal blocking is functioning and complies with the prevailing regulations 	<ol style="list-style-type: none"> 1. Socialization to employees and the local community 2. Installation of the advisory signboard 3. Regular monitoring of groundwater levels. 4. Regular monitoring of peat subsidence 5. Collaborative and participatory monitoring with communities 6. Collaboration with related stakeholders. 7. Conduct periodic monitoring of rehabilitation and restoration activities in peat areas 8. Regularly monitor sluice gates and other technical equipment. 	Start in 2021 and continuously	<ol style="list-style-type: none"> 1. Every Year 2. Every Four Months 3. Every Month (Jan - Dec) 4. Every Year (Incidental) 5. Every Year (Incidental) 	<ul style="list-style-type: none"> • Sustainability • Estate Operational • Humas

4.2.3 Soil Management Plan

Based on the soil survey, there are three soil type comprised of sand, mineral and peat. The peat area has been set aside as conservation area. The management and monitoring plan for the peat area refer to **Table 48**.

For the mineral and sand soil, the company has strategy and technical guidance such as SOPs (*Konservasi Tanah dan Air Pada Areal Lereng, Aplikasi Decanter Solid Untuk Tanah Pasir*) and Policy (*Penanaman Sawit di Areal Perkebunan Baru, Zero Burning*) . The soil management and monitoring plan refer to table below.

Table 49. Soil and Management and Monitoring Plan

Soil Type	Soil Management Plan	Monitoring Management Plan	Monitoring Frequency
Mineral Soil with Shallow Depth (<100 cm)	<ol style="list-style-type: none"> 1. In mineral soil with not good drainage, will conduct the drainage established 2. In mineral soil with low maturity and potential erosion will conduct adding organic matter (Dry Decanter Solid) and maintain natural cover crop (soft grasses) 	<ol style="list-style-type: none"> 1. Monitoring flooding (tergenang) area 2. Monitoring Realisasi Dry Decanter Solid base on recommendation 	<ol style="list-style-type: none"> 1. If any flooding area will be monitored until the water subsided 2. Every Month (January – December)
Sand	<ol style="list-style-type: none"> 1. Conduct organic matter application such as Dry Decanter Solid to add quality of chemical and physical soil. 2. Maintain natural cover crop (soft grasses) 	<ol style="list-style-type: none"> 1. Monitoring Realisasi Dry Decanter Solid base on recommendation 	<ol style="list-style-type: none"> 1. Every Month (January – December)

4.2.4 Carbon and GHG Management Plan

PT SEC will implement several measures which would assist in minimizing GHG emissions from oil palm cultivation & processing:

Table 50. GHG Management and Monitoring

No	Threat	Management recommendation	Monitoring recommendation	Monitoring Frequency
Measures taken to maintain and enhance carbon stocks within the new development areas				
1	<ul style="list-style-type: none"> Emission from land use change. Emission from fire incident. 	<ul style="list-style-type: none"> Ensure that the identified and assigned HCV areas are conserved and in a well managed state so that their HCV functions are well preserved. Enhance the administration of the management and monitoring in the sense that the process is carried out more systematically according to RSPO and the legal procedures. Continue the management and monitoring system of the HCV area that had been put in place in PT SEC to the expansion areas. Clearly marking the boundary of the conservation areas through the installation and maintenance of boundary markers. Socialization of the conservation areas to the employees and local communities around the conservation areas about the existence and the importance of protecting the conservation areas. Periodical review of the efficacy of the management and monitoring efforts. Improvement opportunities to the existing system when available will be pursued vigorously. 	<ul style="list-style-type: none"> Threats monitoring on the conservation areas. Fire monitoring. Land covers monitoring. Wildlife monitoring Water quality monitoring. 	<ul style="list-style-type: none"> Every month (Jan-Des) Every month (if any fire) Every month (Jan – Des) Every Month (Jan – Des) Every six months

No	Threat	Management recommendation	Monitoring recommendation	Monitoring Frequency
Measures that will be taken to mitigate net GHG emissions associated with oil palm cultivation and processing in the new development				
1	<ul style="list-style-type: none"> • High emission from palm oil mill effluent (POME) • Emission from fossil fuel used in operation. • Emission from fertilizer used. 	<ul style="list-style-type: none"> • Construction of methane captures system as soon as PT SEC has commission its palm oil mills. This methane captures system will generate electricity which greatly reduced the GHG emission from palm oil mill effluent (POME) treatment. In addition, excess electricity generated by the methane capture system was sold to the national grid generating emission credits. • Installation of an aerobic treatment system to augment the emission reduction from methane captures system. • Switching fuels used in fruit transports and generator sets from fossil diesel to biodiesel. Biodiesel has zero GHG emission. • Utilization of decanter solid in the plantation to compliment inorganic fertilizer. • Improvement in harvesting logistics to optimize the use of PME. • Implementation of zero burning policy. • Maintain high carbon stock areas. 	<ul style="list-style-type: none"> • GHG emission calculation • Fuel consumption monitoring • Fertilizer monitoring • Fire monitoring 	<ul style="list-style-type: none"> • Every year • Every month (Jan – Des) • Every month (Jan – Des) • Every month (Jan – Des)

5. REFERENCE

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6. INTERNAL RESPONSIBILITY



6.1 Formal Signing off by assessors and grower

The following assessors formally accept our interpretation of their findings and management recommendation as summarized in this report:

Assessment	Name of Lead Assessor	Signature
Integrated HCV HCS Assessment	<u>Haryono Sadikin</u>	
Social Environmental Impact Assessment (SEIA)	Derry <u>Yulianto, S.Hut</u>	
Land Use Change Analysis (LUCA)	Erickson Purba	
Green House Gas Assessment	Dr. Gan <u>Lian Tiong</u>	
Social Impact Assessment	<u>Dwi Rahmad Muhtaman</u>	

6.2 Statement of acceptance of responsibility for assessment and formal signing off of management plans

This document is the public summary of the integrated SEIA, HCV & HCS management for new developments at PT SEC and has been approved by management.

<u>Periannan Chellamuthu</u> Senior General Manager	Date : January 2021
	
<u>Dr. Gan Lian Tiong</u> Director of Sustainability	Date : January 2021
	

6.3 Organizational Information and Contact Persons

Company Name	: PT Sarana Esa Cita
Deed of Establishment	: Notary EDY, SH, No: 277 Dated 25 th April 2013
Location Permit	: No. 582/029/BPMPPT/2015 Dated 4 th November 2015
Taxpayer Notification Number	: 31.815.115.6-702.001
Company Address	: Spring Tower, 11 – 07 Jl. K. L. Yos Sudarso Tanjung Mulia – Medan 20241
Type of business	: Oil Palm Plantation & Processing
Contact person	: Dr. Gan Liantiong
Email	: liantiong.gan@musimmas.com
Phone	: +62 61 661 5511

6.4 Personnel information involved in planning and implementation.

1. Periannan Chellamuthu (Senior General Manager)
2. Dr. Gan Lian Tiong (Director of Sustainability)
3. Iwan Efendy (Senior Estate Manager)
4. Anju Purba (Estate Manager)
5. Susanto (Public Relation Manager)
6. Budi Triprasetya (Manager of Sustainability)
7. Feri Isnu (Staff of Sustainability)
8. Andre Pratama Ginting (Staff of Sustainability)