

# **SUMMARY OF ASSESSMENTS AND MANAGEMENT PLANS**

**Proposed New Plantings by PT Sawit Makmur Sejahtera,  
Ketapang Regency, West Kalimantan Province, Indonesia**

**First Submission: June 2020**

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## List of Abbreviations

ALS	Assessor Licensing Scheme
AMDAL	Analisis Mengenai Dampak Lingkungan (Environmental Impact Assessment)
EIA	Environmental Impact Assessment
FPIC	Free, Prior and Informed Consent
GHG	Greenhouse Gas
HCS	High Carbon Stock
HCSA	High Carbon Stock Approach
HCV	High Conservation Value
HCVRN	High Conservation Value Resource Network
NDPE	No Deforestation, No Peat, No Exploitation
NGO	Non-Governmental Organization
NPP	New Planting Procedure
P&C	Principles and Criteria
RSPO	Roundtable on Sustainable Palm Oil
SIA	Social Impact Assessment
PT SMS	PT Sawit Makmur Sejahtera
RSPO	Roundtable on Sustainable Palm Oil
SEIA	Social and Environmental Impact Assessment
SIA	Social Impact Assessment

# 1. OVERVIEW AND BACKGROUND

## 1.1. Overview of the management unit

PT Sawit Makmur Sejahtera (SMS) is a subsidiary of Goodhope Asia Holdings, Ltd. (Goodhope). SMS is managing a total of 11,619 ha (16,661.2 ha according to GIS data) of cadastral area issued by the National Land Agency (Badan Pertanahan Nasional-BPN) in 2015 as its concession area. The cadastral area consists of 78.2 % for nucleus area and 21.8% for partnership/plasma area. Currently 10.9% of the concession area is planted with oil palm and the company is planning for new development within the remaining unplanted area.

A total of 3,434.8 ha is to be managed as conservation set-aside area (High Carbon Stock / High Conservation Value) as determined by new HCV assessment approved by HVRN and peer reviewed HCSA Assessment.

HCV Assessment was carried out in 2017 covering three concessions of Goodhope Subsidiaries in Ketapang (i.e. SMS, BMS, and AJB). The assessment area covered a wider landscape within 5 km buffer from the outer boundaries of the three concessions. The assessment identified HCV 1, HCV 3, HCV 4, HCV 5 and HCV 6 in the assessment area. It is comprised of primary and secondary forests, shrubs in hilly areas, water springs, water catchment areas, rivers, and riparian buffers. Specifically within PT SMS concessions area, there are HCV 1, HCV 4, HCV 5, and HCV 6 with total of HCVA and HCVMA covering as much as 3,400.2 ha. Goodhope's Sustainability Policy has been communicated to local stakeholders to ensure cooperation in landscape level for conservation management.

The total Assessment Area 39,939 hectares, is located between 110°24'45.27"E-110°44'41.04"E and 0°54'37.38"S-1°5'43.75"S. The area consists of 11 patches of land, separated by community farmlands, as well as other companies' plantation and mining concessions, settlements, Trans Kalimantan highway and rivers (Figure 1). These are geographically located in the upstream area of the Pawan River, which is a major river in Ketapang District..

The Assessment Area is administratively located in 18 villages of four regencies, all of which are situated in Ketapang District, West Kalimantan. The 18 villages are Benua Krio and Cinta Manis (Hulu Sungai Regency); Lanjut Mekarsari, Bengaras, Sungai Daka and Bayun Sari (Sungai Laur Regency); Alam Pakuan, Pendamar Indah, Randau, Merimbang Jaya, Jago Bersatu, Sandai Kiri, Demit, Petai Patah, Penjawaan, Randau Jungkal, and Sandai Kanan (Sandai Regency); and Pangkalan Suka (Nanga Tayap Regency). Among these regencies, Sandai has the most number of villages (11 villages) and is the largest regency capital in the Assessment Area.

Distances from Sandai to Pontianak (the province capital) and Ketapang City (Ketapang District Capital) are respectively about 300 km and 150 km. However, the time taken to reach them both is almost the same, i.e. five hours. According to field survey, condition of road to Pontianak is better than that to Ketapang. Local communities can use only land route to Pontianak, while



they can use both land and Pawan River routes to reach Ketapang City. Public transportation from Sandai to Pontianak and Ketapang City is always available.

**Table 1. Information of the organization and contact person**

Name of RPSO member	Goodhope Asia Holdings Ltd.
RSPO membership number	1-0175-14-000-00
Date of joining RSPO	December 2, 2014
Name of subsidiary/management unit	PT Sawit Makmur Sejahtera (SMS)
Country of subsidiary/management unit	Indonesia
Province and district of subsidiary/management unit	Hulu Sungai District, Sandai District, and Nanga Tayap District, Ketapang Regency, West Kalimantan Province.
Total area of management unit (ha)	Cadastral: 11,619 (11,661.2 ha according to GIS data)
Contact person	Abrar Ramlan (abrar.ramlan@goodhope.co)

**Table 2. List of legal documents on land and operation permits**

No	License and Recommendation	Issued By	Document Number	Date
1	Deed of Incorporation	Notary Soewanto, S.H.	No. 30, 14 April 2008	14 April 2008
2	Location Permit, covering 14,750 ha area	Head of Ketapang Regency	No. 258 Year 2009	19 June 2009
3	Extension and revision of Location Permit, covering ±14,459 ha area	Head of Ketapang Regency	No. 381/PEM/2012	14 September 2012
4	AMDAL/Environmental Feasibility for plantation and mill	Governor of West Kalimantan	No. 262/BLHD/2010	24 May 2010
5	Plantation Business Permit (IUP)	Regent of Ketapang	No. 331Year 2010 covering of 13,100 Ha area	11 <sup>th</sup> June 2010
6	Environmental Permit	Governor of West Kalimantan	No. 262	24 <sup>th</sup> May 2010
7	Cadastral Boundary, covering 11,619 ha area	National Land Agency (BPN)	No. 20/2017	6 June 2017

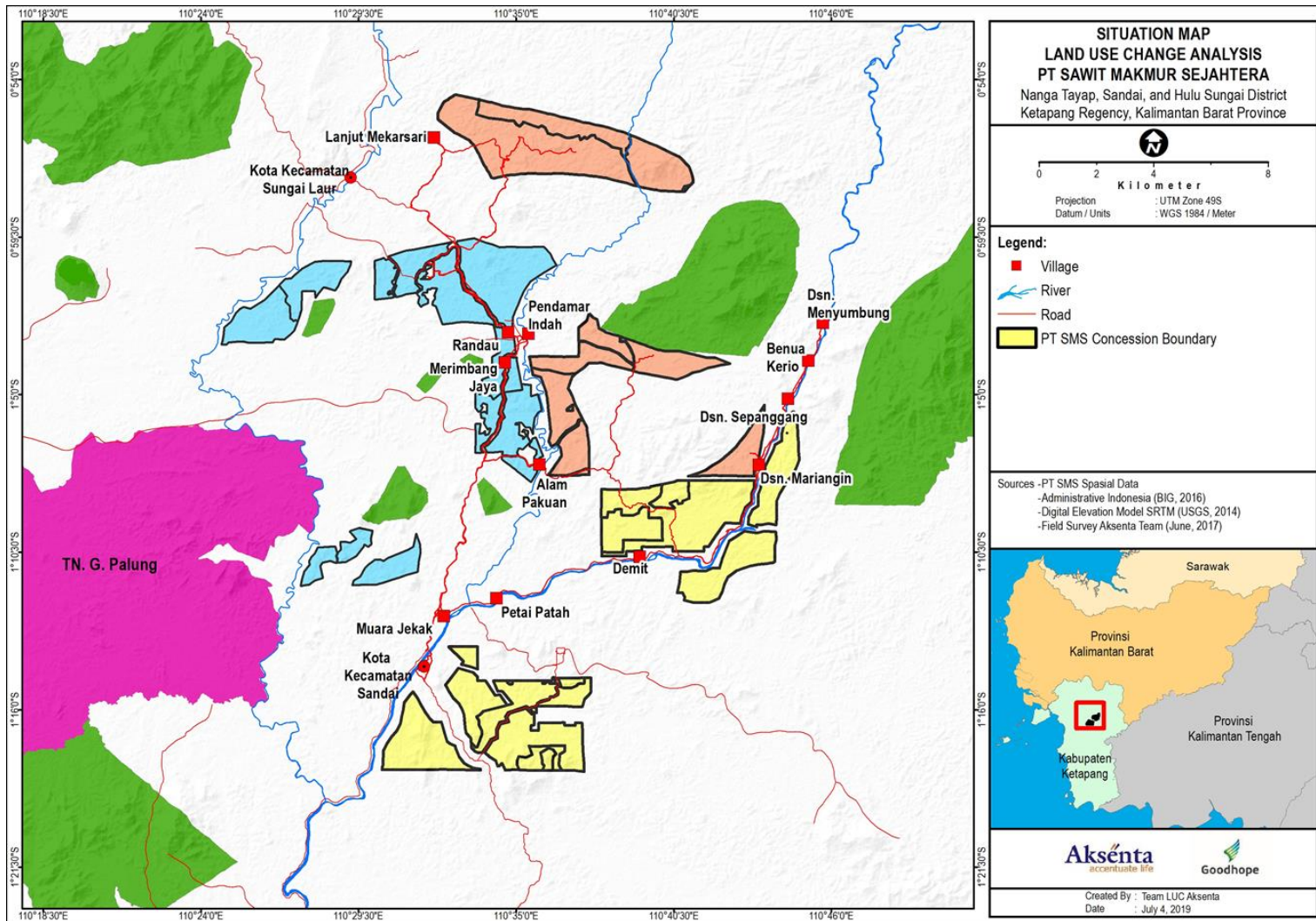
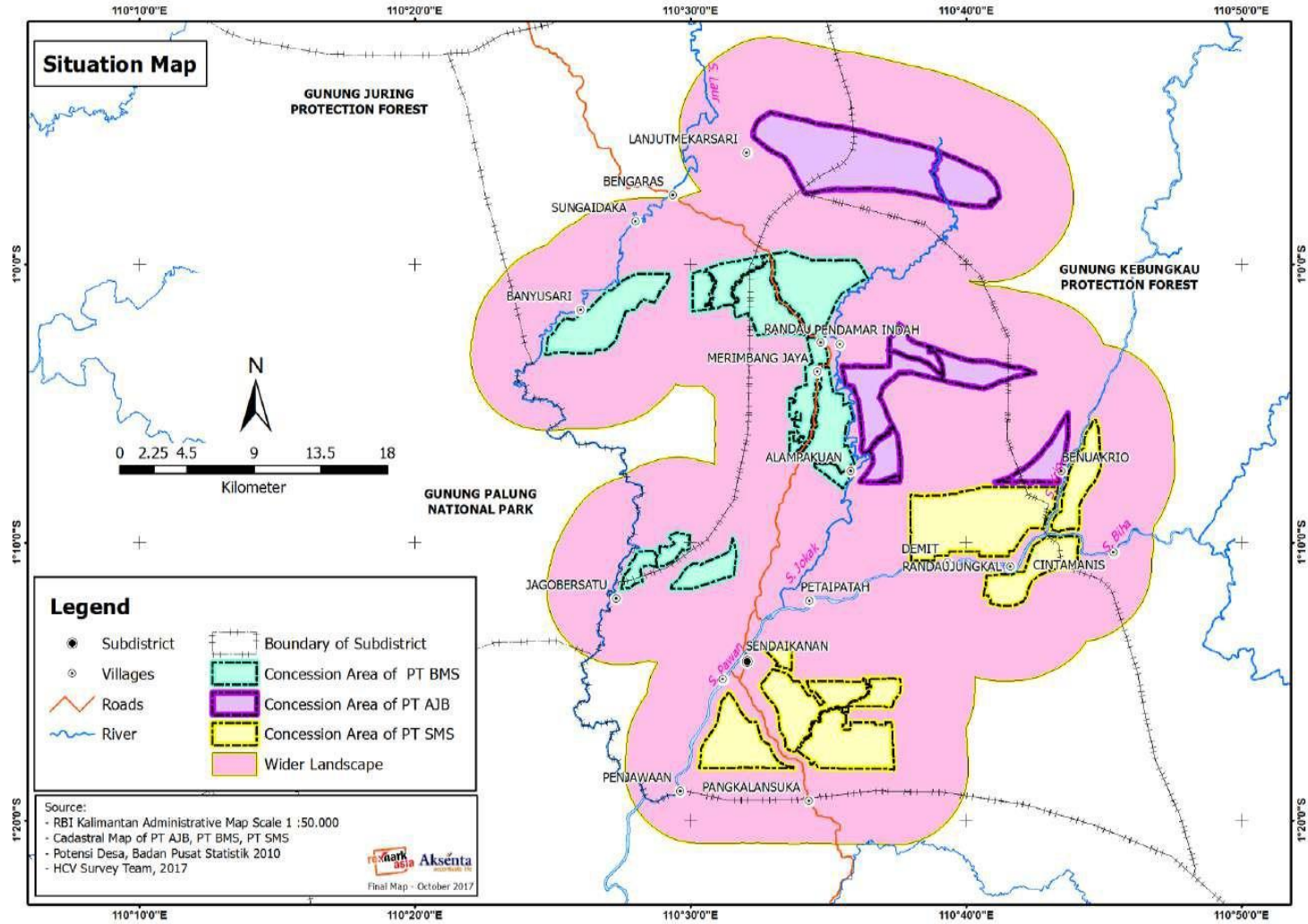


Figure 1. Location of SMS in regional administrative area



## 1.2. New development plan

New development is planned in potential area for new development (i.e. non conservation area). Total area of the proposed area for new development is 7,180.8 ha (5,767.9 ha nucleus (inti) and 1,412.8 ha partnership scheme (plasma)). It is intended that the new development will be completed over a four year periods starting from 2020 (Presented in Table 3 and Figures 3-4).

**Table 3. New development plan of SMS**

<b>Year</b>	<b>Area to be Developed (ha)</b>
<b>Nucleus (Inti) Area</b>	
2020	2,317.5
2021	1,603.3
2022	1,206.9
2023	640.2
Sub-Total of New Development in Nucleus Area	5,767.9
<b>Partnership Scheme (Plasma) Area</b>	
2020	721.8
2021	691.0
2022	-
2023	-
Sub-Total of New Development in Partnership Scheme Area	1,412.8
<b>Total New Development</b>	<b>7,180.8</b>

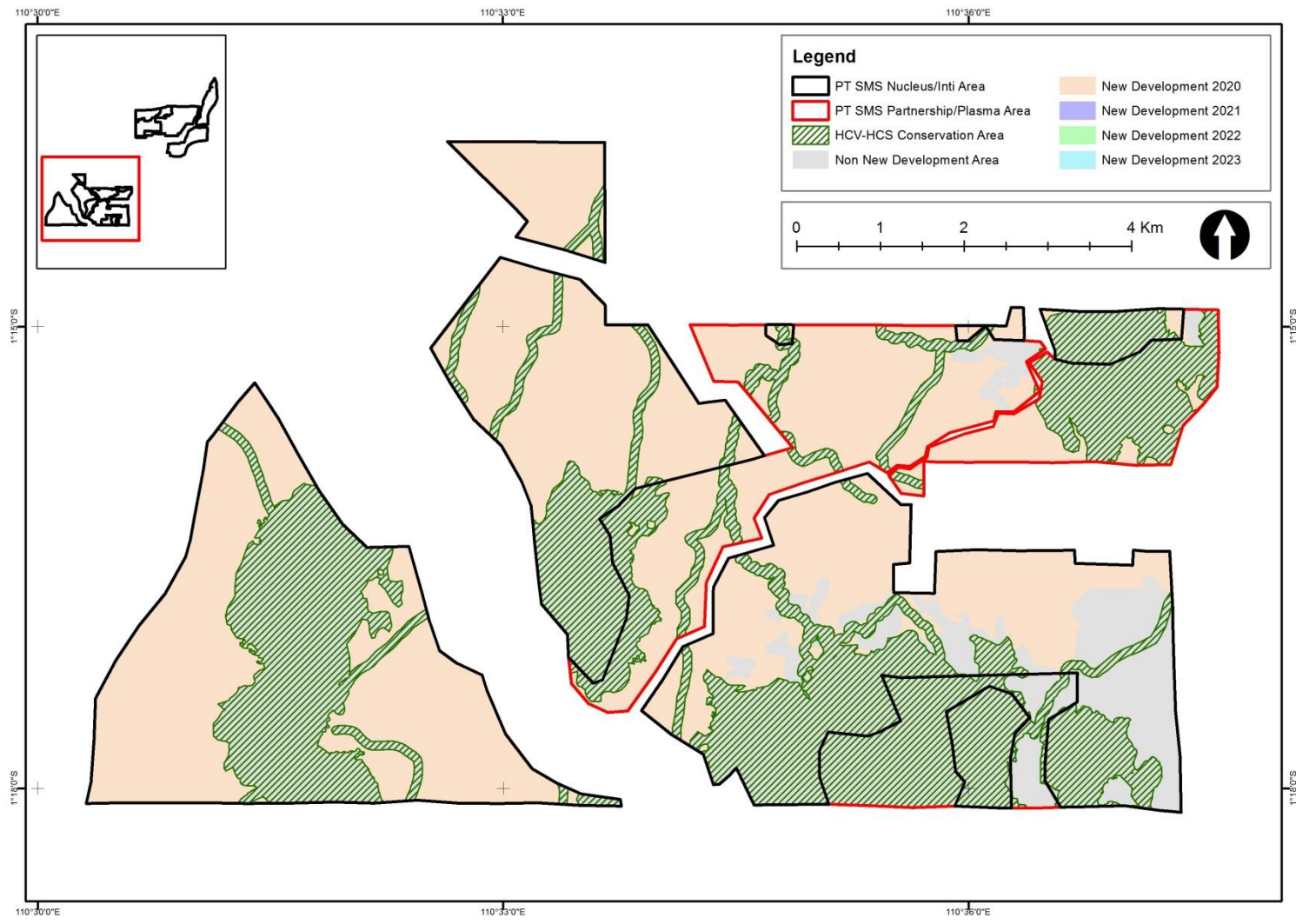


Figure 3. Map depicting new development plan of SMS (Agro Lestari Estate)

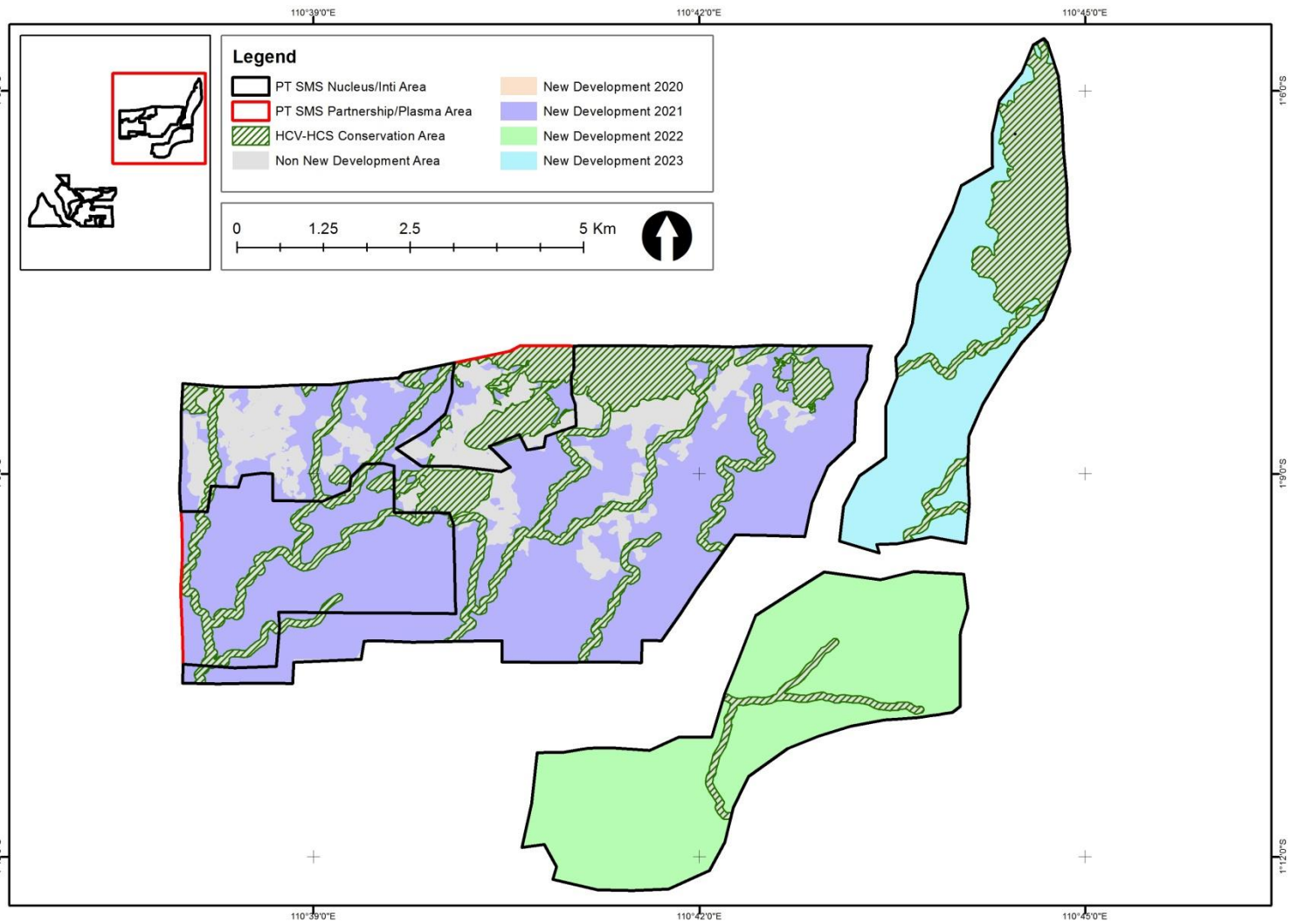


Figure 4. Map depicting new development plan of SMS (Agro Makmur Estate)

### 1.3. Social and environmental contexts of the management unit

SMS concession area is located in plantation land use area (area untuk perkebunan). Overlay on the forest land use map and moratorium map (Peta Indikatif Penundaan Pemberian Izin Baru) showed that the concession is not located in forest land use area (Kawasan Hutan) and there is no peat or primary forest area respectively. According to RePPPProt map, the concession area consists of ultisol and incepticol soil groups which are not in the category of organic soil (peat).

SMS concession area is situated in a landscape dominated by non-forest land cover. Specifically within the concession area, the land cover is dominated by young shrub and agroforest according to the result of LUCA. Remaining extent of forest can be found as secondary forests in hilly areas in the concession. Relatively intact forest area can be found at the West and East of SMS concession area (outside the concession).

Topography in SMS concession area is ranging from flat to hillocky for the most part. According to LUCA, as much as 94% of the concession area is flat to hillocky (slope of 0-40%) whereas the other 6% is categorized as hilly/very steep (slope of >40%). Elevation of the concession area is ranging from 12m ASL to 392 m ASL. There are 4 hill areas within and around the concession area, namely Bukit Gegara, Bukit Dapuk, Bukit Nyutung, and Bukit Aik Beguruh.

There are 9 social communities potentially impacted by company's activities. Six of them are located in Sandai District, namely Desa Alam Pakuan, Desa Sandai Kanan, Desa Penjawan, Desa Petai Patah, Desa Randau Jungkal, Desa Demit; two of them are located in Hulu Sungai District, namely Desa Benua Krio and Desa Cintamanis; and the last one is located in Nanga Tayap District, namely Desa Pangkalan Suka.

The majority of the communities are from Melayu Kayong Ethnic (51%), while the others are from Dayak Kayong (46%), Javanese (2%) and settlers (1%) from Sundanese, Bugis, and Chinese. Those communities are referred to as the local community.

The majority of local community is Moslems, while the others are Catholics and Christians. In addition, community from Dayak Kayong ethnic still carries out their customs that include community figures such as Mantir Duata (religious leader), Lawang Agung (farming ritual leader), Tuha Tobus (salvation ritual leader), and Mantir Buah (fruit harvest season ritual leader); and rituals to pray to god for salvation and blessings in several events such as wedding, birth, pass over, and paddy planting and harvesting.

According to SIA Report, livelihood of the majority of communities (60-90%) is from agricultural farming while the rest are from working in oil palm company, working as civil servant, as fisher, or trader/merchant. Main commodities of the agriculture are rubber and rice. While rubber cultivation is in settled farm, rice farming is following cycles of shifting cultivation. However, shifting cultivation activities have been decreasing since 2015 due to the Provincial Police Notice (Maklumat Kepolisian) No. Mak/01/VII/2015/Polda Kalbar of West Kalimantan Police on prohibition of use of fire (for land clearing or other agricultural practices).

Majority of the villages have village health center (Pusat Kesehatan Desa-Puskesmas) and auxiliary health center (Pusat Kesehatan Masyarakat Pembantu-Pustu), whereas the most advanced health service is available in Desa Sandai Kanan with five community health center (Pusat Kesehatan Masyarakat-

Puskesmas) and one hospital available at the village area. Health services are available in all villages except for Desa Benua Krio. Desa Benua Krio is one of the villages that are located further from the district administrative location. The nearest health facility available for Desa Benua Krio is a Pustu and a Puskesmas of the Desa Demit. Both facilities can be accessed from Desa Benua Krio using road access.

Educational facilities are considered insufficient due to limited number of high schools available for all of the communities. Pre-schools (Pendidikan Anak Usia Dini-PAUD and Taman Kanak-kanak-TK) are available in all villages except for Desa Alam Pakuan with a total of 19 schools available. Elementary schools (Sekolah Dasar-SD) are available in all of the villages with a total of 21 schools. Junior high schools (Sekolah Menengah Pertama-SMP) are available in all of the villages except for Desa Alam Pakuan, Desa Demit, and Desa Pangkalan Suka. Senior high schools are available only in Desa Sandai Kanan with a total of two schools. In addition, several factors are also identified as educational issues in the area, namely facility and infrastructure of the schools, stationary, textbook, teachers, transport, and dropout due to economic reason.



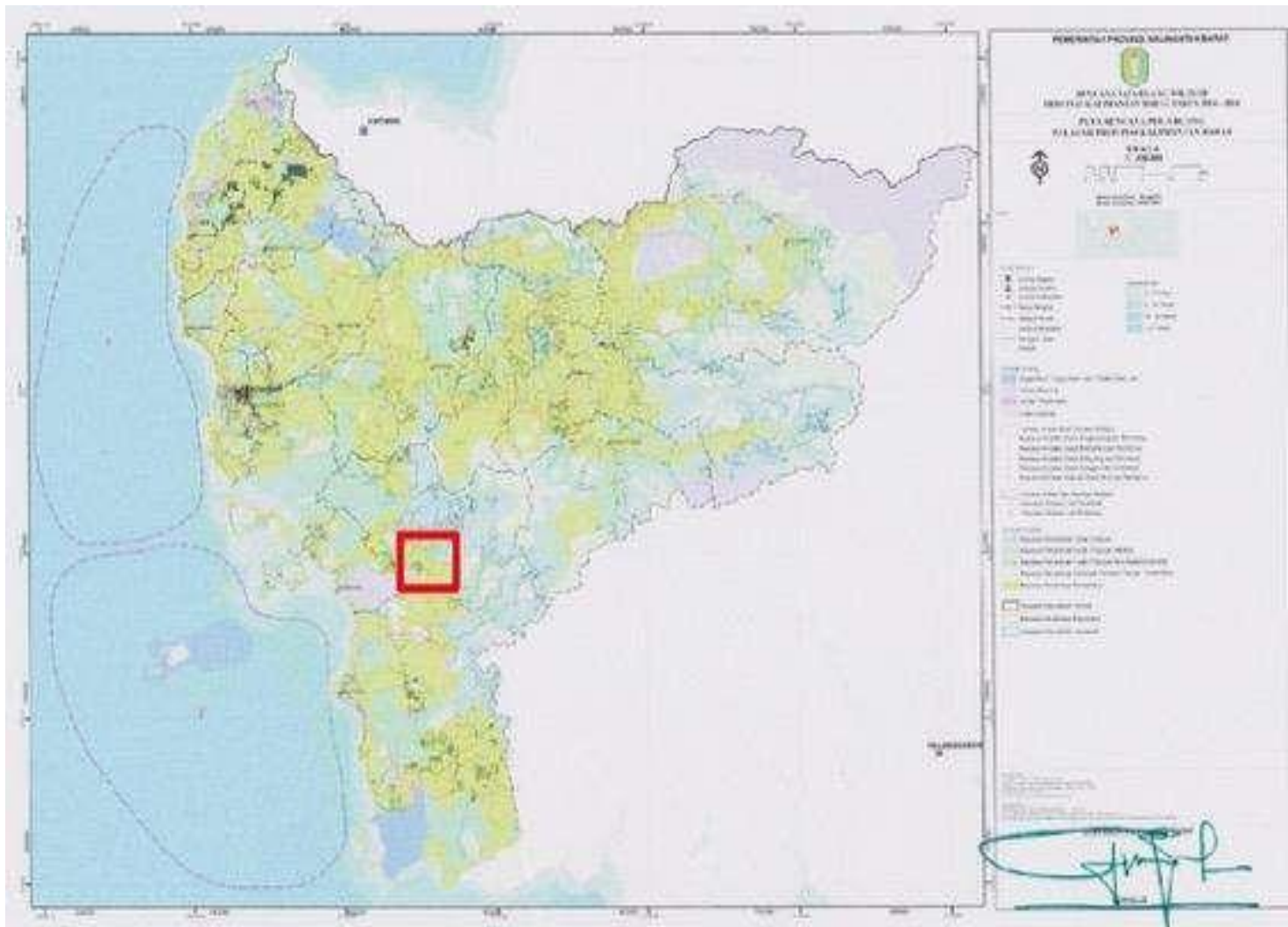


Figure 5. Map of provincial land use planning in West Kalimantan Province

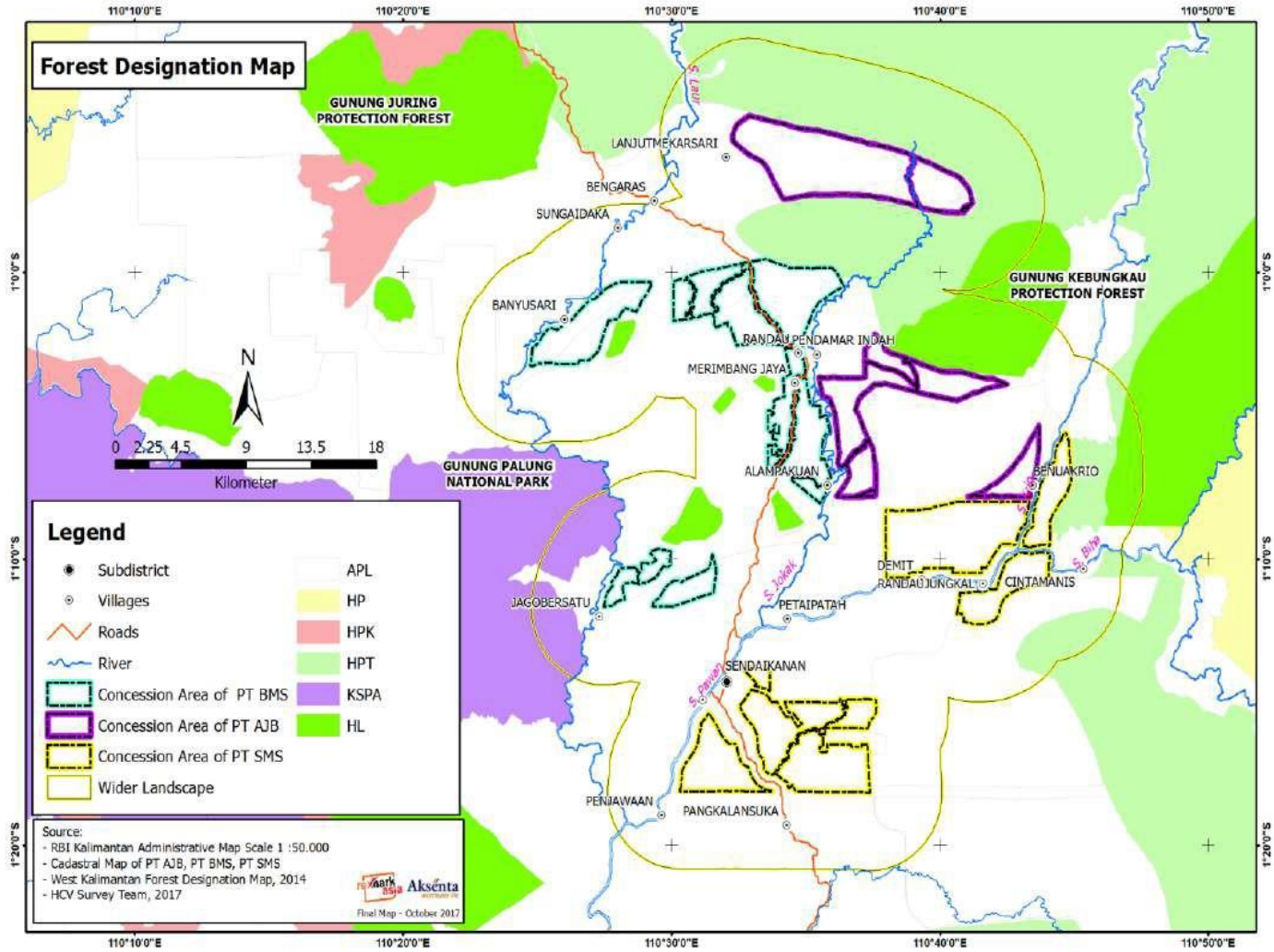


Figure 6. Map showing forest land use area

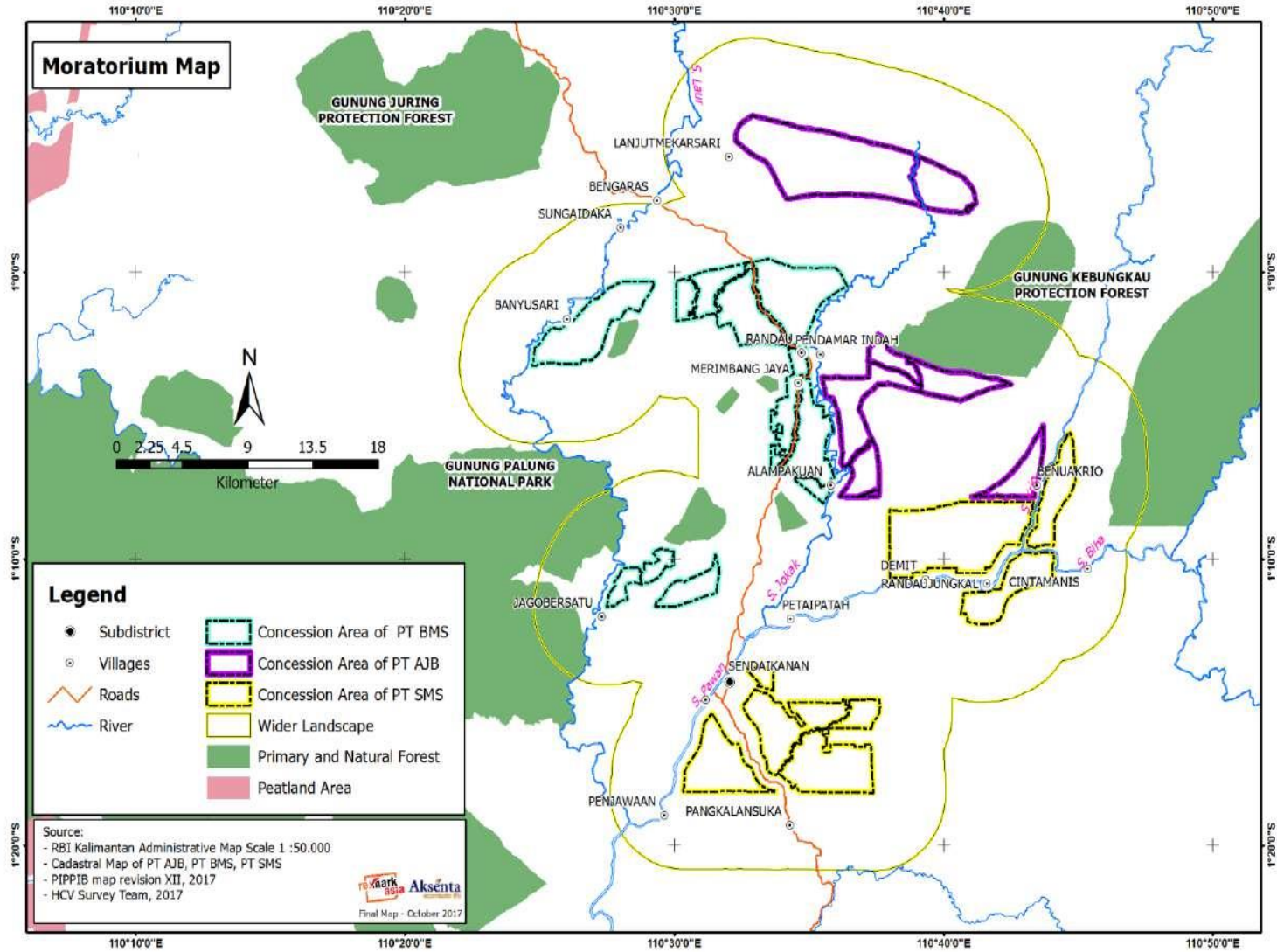


Figure 7. Map showing moratorium areas of primary forest and peatland

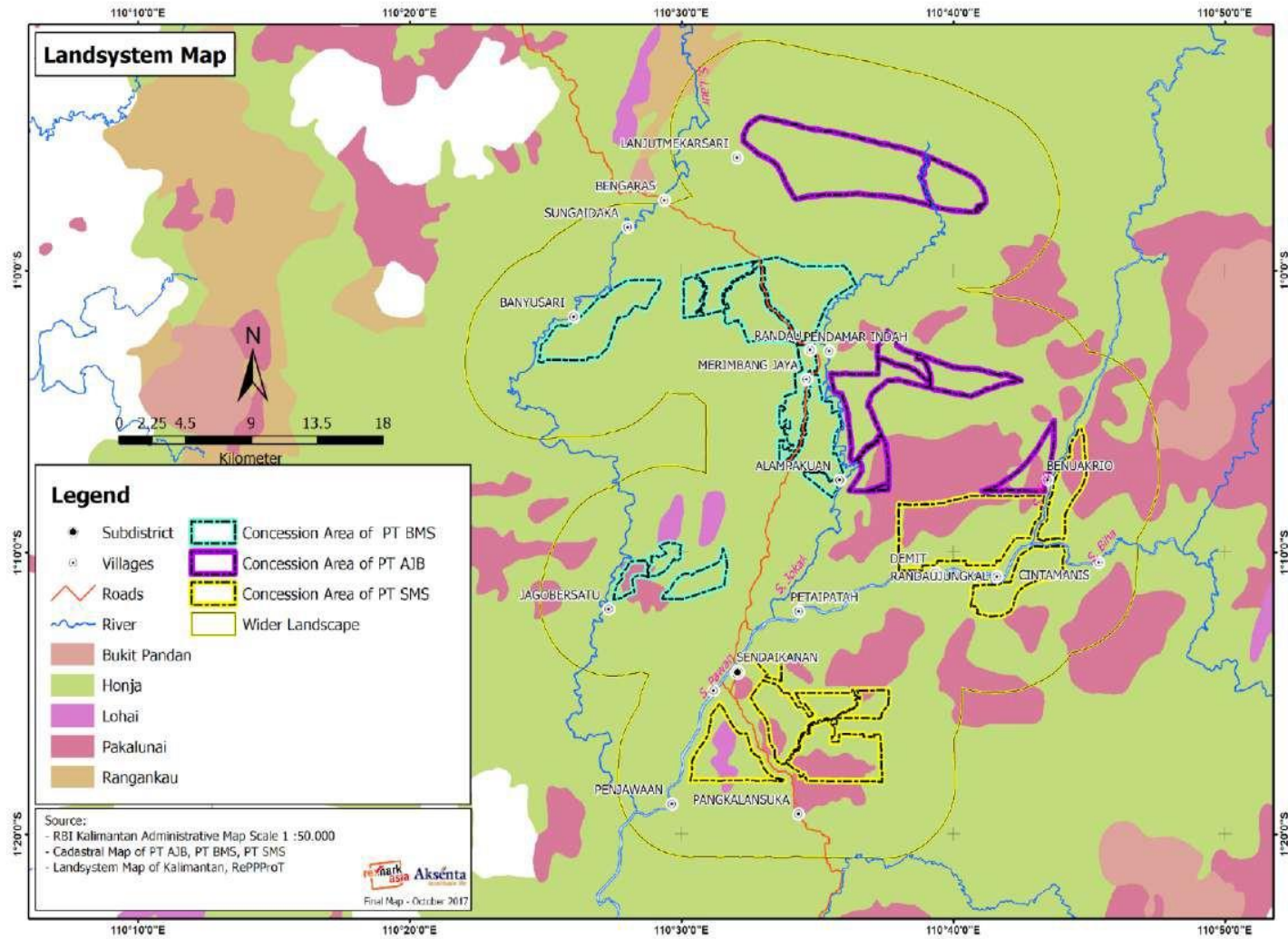
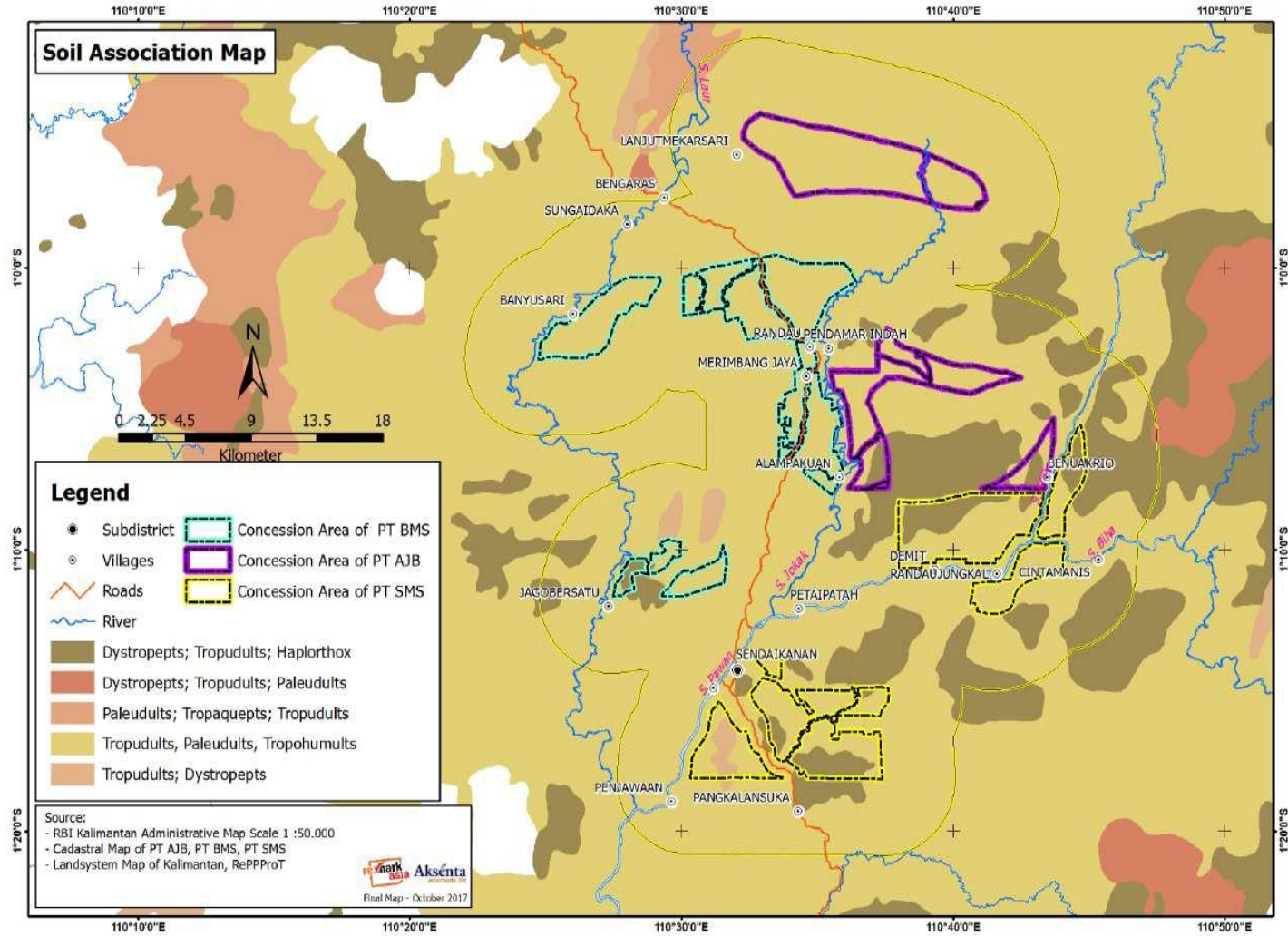


Figure 8. RePPProT map showing land system



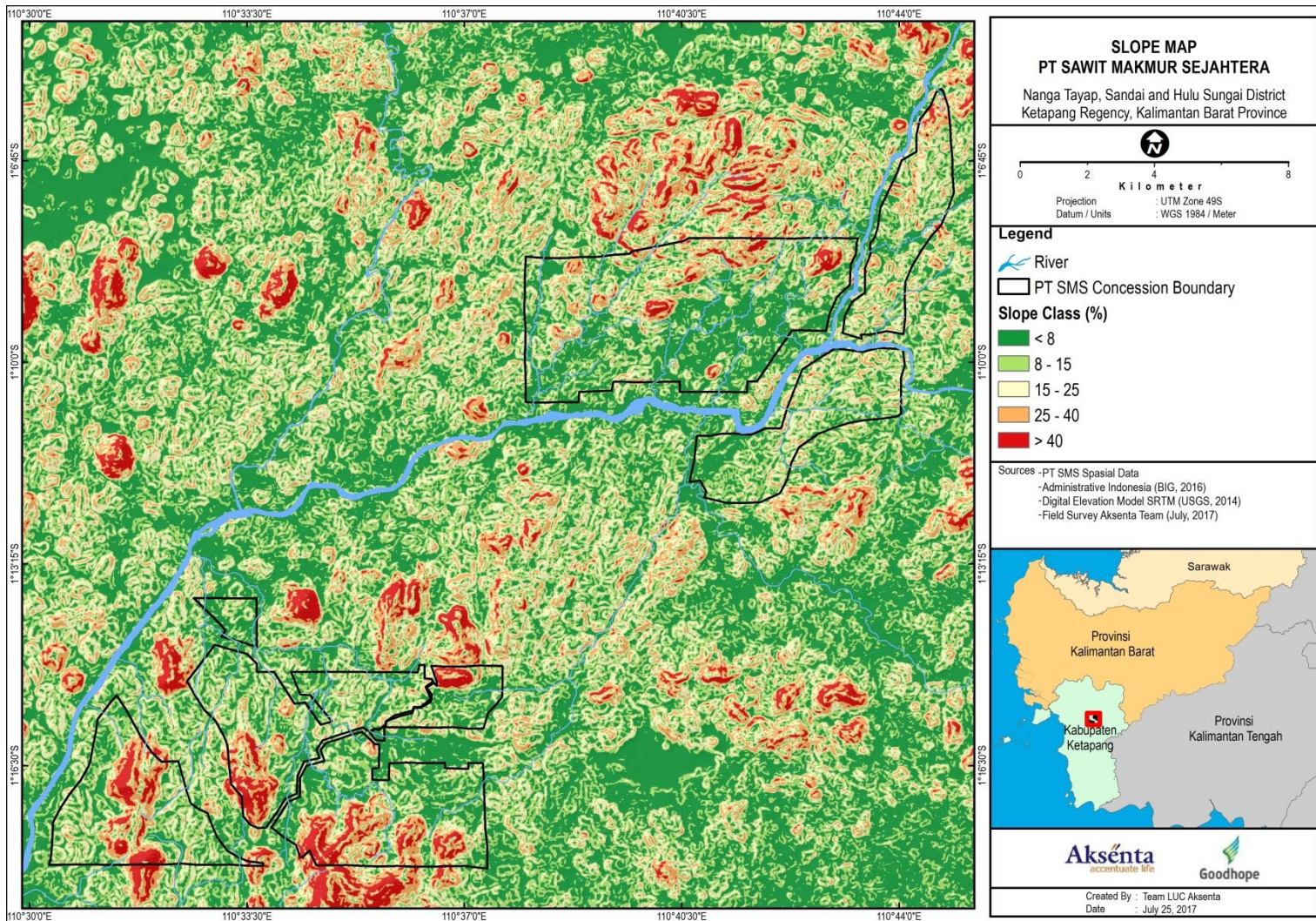


Figure 10. Land slope classification map

## 2. ASSESSMENT PROCESS AND METHODS

### 2.1. Social and environmental impact assessments

The assessment on social and environmental impacts in SMS is comprised of (i) EIA (environmental impact assessment - also known as AMDAL in Indonesia) and (ii) SIA (social impact assessment). EIA was conducted in 2010 and is referred to as the baseline for environmental impact management and monitoring. SIA was first conducted in 2012 and was reassessed in 2017-2018. The social impact reassessment is referred to as the up to date reference and therefore is referred in this NPP.

#### 2.1.1. Date of the assessments

The EIA was conducted in 2010 and the report was issued in April 2010. The SIA was first conducted in 2012 and was reassessed in 2018. The SIA report was issued in March 2018.

#### 2.1.2. Assessment team

The EIA was conducted by team from CV Tiara Chrisandi that is qualified and also recognized by the government. The team is comprised of experts on agriculture, forestry, biology, socio-economics and public health issues (Table 4). The social impact reassessment was conducted by a team from Remark Asia. The team comprised of experts as detailed in Table 5.

**Table 4. Assessor of the EIA and their credentials**

Assessor	Role in Team/Expertise	Credential
Tri Rima Setyawati	Team Leader	Master of Science and AMDAL Assessor
Riyandi	Physics and Chemical	Bachelor of Science and AMDAL Assessor
Eta Fanani		Bachelor of Forestry and AMDAL Assessor
Sariyanto		Bachelor of Science
Togar Fernando Manurung	Biology	Master of Agriculture and Forest Management
Wiwik Ekyastuti		Master of Science and Forest Management
Aris Baharyono	Social Economic and Culture	Master of Science
Romiyanto		Bachelor of Education
Ahmad Falah Rifki	Community Health	Associate's Degree of Environmental Health

**Table 5. Assessor of the social impact reassessment and their credentials**

No	Team	Role	Qualifications
1	Sigit Pamungkas (Team Leader)	Team leader and assessor	Communication and Community Development, Agriculture Development and Rural Assessment, SEIA, <i>Participatory Mapping</i> , FPIC
2	Anisa Swadesi	Assessor	Social Impact Assessment and Facilitation for <i>participatory mapping</i> , SEIA, & FPIC
3	Aslinda Nur Mazida	Assessor	Social Impact Assessment and Facilitation for <i>participatory mapping</i> , SEIA, & FPIC
4	Haris Shantanu	Assessor	Social Impact Assessment and Facilitation for <i>participatory mapping</i> , SEIA, & FPIC
5	Herry Triyana	Assessor	Social Impact Assessment and Facilitation for <i>participatory mapping</i> , SEIA, & FPIC
6	Redy Miraz M	Assessor	Social Impact Assessment and Facilitation for <i>participatory mapping</i> , SEIA, & FPIC

No	Team	Role	Qualifications
7	Risna Amalia	Assessor	Anthropology (Social Culture) and Communication and Community Development
8	Tatang Rohimat	Assessor	Social Impact Assessor and Facilitator for participatory mapping, SEIA, & FPIC

**2.1.3. Methodology**

Data collection in EIA was carried out with a set of environmental and social surveys according to the assessment parameters (i.e. physical-chemical, biology, and social) and predictions of environmental condition in each phase of the company’s operational activities (i.e.y pre-construction, construction, operation, and post operation).

Descriptive and quantitative analysis were used in the analysis of EIA. Result of the analysis was compiled in a matrix to present impact classification from each parameter based on 3 indicators, namely scale of environmental quality, quantity of impact, and remark of the impact (positive vs negative).

Scope of SIA was focused to communities from the 9 villages that are potentially receiving impact from company’s operation. Data collection involved (i) literature study, (ii) dialogue, (iii) field observation, (iv) in-depth interview, (v) data triangulation, and (vi) social learning cycle.

**Table 6. Stages in data collections of SIA**

Stage	Description
Literature study	Literature study was carried out to get an understanding of social - environmental context in assessment area. This was done in the pre-assessment (prior to the field visit) and in the data analysis.
Dialogue	Dialogues were carried out with the communities which is external social component and workers which is internal social component of the company. Dialogues were conducted in formal and informal meetings, and in focused-group discussions. Dialogues were used to identify stakeholders and information gathering on social issues, communities’ aspiration and perceptions, and etc. related to potential impacts from the company.
Field Observation	Field observation was used to derive information and to understand the issues and social impacts that may occur from company’s operation/activities.
In-Depth Interview	In-depth interview was used to derive more specific information from pre-determined key stakeholders. The key-stakeholders that were interviewed chooses based on several criteria, including their knowledge related to the company and/or their role as an actor which receive the impacts directly.
Triangulation (verification)	Triangulation was used to verify the information gathered in the previous stages. Triangulation was conducted with crosschecking on the results derived from previous stages and also additional information derived with integration of methods used in the previous stages. Triangulation was conducted to verify informations gathered from the previous stages (issues, opinion, aspiration, and etc.).
Social-learning cycle	Social-learning cycle is an approach used by assessor to re-digest the information gathered as in the perspective of the communities (stakeholders receiving the impacts). Social Impact assessment is not a linear process that happens once, but rather a cycle’s process which serves as a social learning process to respond to changes in environment that occurs.



## 2.2. HCV assessment

Initial HCV assessment was carried out in 2010. In accordance with a complaint raised regarding with the first assessment, a new HCV assessment was carried out in October 2017 as per required by the RSPO complaints panel for compliance to RSPO NPP. The new HCV Assessments covered three concessions of Goodhope in Ketapang, namely SMS, AJB, and BMS; as a multi sites assessment (see Figure 2). This NPP refers to the new HCV assessment.

### 2.2.1. Date of the assessment

This HCV assessment was carried out from May to August 2017. Activity phases included pre- assessment, field study, stakeholder consultation, data analysis and reporting. See Table 3 for summarized details of the HCV assessment activities.

**Table 7. Timeline of the HCV assessment**

Stage	Objective	Activity	Date
<b>Pre-survey</b>			
<i>Pre-assessment and preparations (three people: GIS, Ecologist, Social)</i>	<ul style="list-style-type: none"> <li>To identify the presence of attribute or element of HCV indication</li> <li>To identify and map the potential HCV areas</li> <li>To identify the landscape context</li> <li>To identify conservation issues, natural resources, land utilization, and the potential threats to HCV areas</li> <li>To designate the methods, design the field surveys, compose the implementing team, and schedule field activities</li> </ul>	<ul style="list-style-type: none"> <li>Scoping Study</li> <li>Collect data and information from the company management and management status</li> <li>Collect data and information from secondary sources</li> <li>Analyze the data and conduct a spatial analysis</li> </ul>	28 May– 10 June 2017
<b>Field Study 1 (Aksenta) (13 experts: Ecologist, Environmental services, Social and GIS))</b>			
<i>Opening meeting</i>	<ul style="list-style-type: none"> <li>To communicate the objectives of the HCV Assessment</li> <li>To gather more data and information on plantation development and management status</li> <li>To enhance the understanding of HCVs (background, aim and objectives, concept, species, key elements or attributes, and identification methods</li> <li>To form the assessment support team</li> </ul>	<ul style="list-style-type: none"> <li>Workshop with the company management unit</li> <li>Training for the company management unit</li> <li>Coordinate planned field activities</li> </ul>	13 June 2017
<i>Participatory mapping</i>	<ul style="list-style-type: none"> <li>To clarify the HCV concept and the potential of HCV areas based on initial study</li> <li>To collect additional data and information on HCV attributes or elements</li> </ul>	<ul style="list-style-type: none"> <li>Workshop with key informants and local communities</li> </ul>	13 June – 20 July 2017
<i>Field Surveys</i>	<ul style="list-style-type: none"> <li>To verify the presence of HCV attributes or elements</li> <li>To identify HCV areas</li> <li>To map the indicative HCV</li> </ul>	<ul style="list-style-type: none"> <li>Field verification on land cover condition</li> <li>Data collection in the field</li> <li>Interviews with triangulation</li> </ul>	13 June– 20 July 2017

Stage	Objective	Activity	Date
	boundaries <ul style="list-style-type: none"> <li>To identify the threats and potential threats to HCV elements and areas</li> </ul>	techniques <ul style="list-style-type: none"> <li><b>*) Note:</b> The indicative HCV map is prepared every evening, and sometimes at nights. The team discusses and analyzes all aspects required for the HCV area mapping. The Indicative HCV map is prepared for the Stakeholder Consultation session</li> </ul>	
<i>Field Data Analysis</i>	<ul style="list-style-type: none"> <li>Daily compilation of field data</li> <li>Mapping of indicative HCV areas which have been identified or verified in the field</li> </ul>	<ul style="list-style-type: none"> <li>Internal coordination</li> <li>Compilation of field data and information, every evening/ night</li> </ul>	13 June – 7 Aug 2017
<i>Stakeholder Consultation</i>	<ul style="list-style-type: none"> <li>To communicate the HCV identification results, as well as the threats, with relevant stakeholders (community, local governments, academics, and NGOs)</li> <li>To consult local stakeholders about the validity of assessment findings</li> <li>To collect additional data and information from all the stakeholders</li> <li>To discuss management recommendations for the HCV management and monitoring plan</li> </ul>	<ul style="list-style-type: none"> <li>Workshop with key persons.</li> <li>FGDs with key stakeholders.</li> <li>Interviews with key persons from the local communities</li> <li>Discussions with NGOs in Ketapang</li> </ul>	13 June – 7 August 2017
<b>Post Field Study</b>			
<i>Stakeholders Consultation</i>	<ul style="list-style-type: none"> <li>To communicate the HCV identification results with relevant stakeholders (community, local governments, academics, and NGOs)</li> <li>To document the input of the stakeholder consultations</li> </ul>	<ul style="list-style-type: none"> <li>Open discussion forum with relevant stakeholders in Ketapang and Pontianak</li> <li>Discussion with NGOs in Jakarta</li> </ul>	8 – 10 August 2017
<b>Field Study 2 (Remark Asia)</b>			
<b>Five experts: (Social, ecologist, GIS)</b>			
<i>Field Survey Revisit</i>	<ul style="list-style-type: none"> <li>To re-assess the determined HCV area</li> <li>To confirm local stakeholder for the result of HCV area (names, location, and justification)</li> </ul>	<ul style="list-style-type: none"> <li>Field verification on 23 sampling points of land cover condition, rivers and hills.</li> <li>Data collection from villagers</li> </ul>	Oct 16 <sup>th</sup> – 20 <sup>th</sup> 2017
<i>Field Survey Revisit</i>	<ul style="list-style-type: none"> <li>To re-assess the determined HCV area</li> <li>To confirm local stakeholder for the result of HCV area (names, location, and justification)</li> </ul>	<ul style="list-style-type: none"> <li>Field verification on 7 sampling points of river, lake, hill, and land cover condition</li> <li>Data collection from villagers</li> </ul>	Oct 26 <sup>th</sup> – 26 <sup>th</sup> 2017
<i>Analysis and Reporting</i>	<ul style="list-style-type: none"> <li>To analyses the final data</li> <li>To prepare the HCV Assessment report according to the ALS format</li> </ul>	<ul style="list-style-type: none"> <li>Data Analysis</li> <li>Spatial Analysis</li> <li>Reporting</li> </ul>	July – 30 August 2017; November 2017

## 2.2.2. Assessment team

This HCV assessment was conducted by 16 experts from Aksenta and 5 experts from Remark Asia. Details of the assessment team are presented in table below.

**Table 8. Team of the HCV Assessment**

Name and email account	Institutions	ALS License	Role	Expertise
<b>Dwi Rahmad Muhtaman</b> <a href="mailto:dwi.muhtaman@remarkasia.com">dwi.muhtaman@remarkasia.com</a>	Remark Asia	Provisionally Licensed Assessor (ALS15022DM)	Team Leader; Lead Assessor; late 2017	Social assessor, participatory approach, facilitator, RSPO auditing, HCV assessor
<b>Iwan Setiawan</b> <a href="mailto:iwan@aksenta.com">iwan@aksenta.com</a>	Aksenta	N/A	Supervisor; early 2017	Tropical Ecologist, Wildlife management, habitat and wildlife population assessment, HCV assessment since 2012
<b>Nandang Mulyana</b> <a href="mailto:nandang@aksenta.com">nandang@aksenta.com</a>		Provisionally Licensed (ALS15037NM)	Team Member; Socio-Cultural assessment	Regional planning and rural development, community empowerment, participatory mapping, HCV assessment since 2009
<b>Herry Triyana</b>	Remark Asia	N/A	Team Member; Socio-Cultural assessment; late 2017	Social assessor, forest management, facilitator of social assessment
<b>Dera Syafrudin</b>	Remark Asia	N/A	Team Member, Biodiversity and landscape; late 2017	Ecologist, ornithologist, facilitator of community biodiversity assessment, HCV assessment since 2011
<b>Reza Pradipta</b>	Remark Asia	N/A	Team Member, GIS specialist; late 2017	GIS and remote sensing analysis for conservation, HCV assessment since 2012
<b>Mustofa</b>	Remark Asia	N/A	Team Member, assessment and Delineation; ate 2017	Ecologist, environmental management planner, community engagement, HCV assessment since 2013
<b>Pupung F Nurwatha</b> <a href="mailto:pupung@aksenta.com">pupung@aksenta.com</a>	Aksenta	N/A	Team Member, Biodiversity and landscape; early 2017	Ecologist, ornithologist, facilitator of community biodiversity assessment, HCV assessment since 2007
<b>Resit Sozer</b> <a href="mailto:resit@aksenta.com">resit@aksenta.com</a>	Aksenta	N/A	Team Member, Biodiversity and landscape; early 2017	Tropical Ecologist, Wildlife management, habitat and wildlife population assessment, HCV assessment since 2017
<b>Yanto Ardiyanto</b> <a href="mailto:yanto@aksenta.com">yanto@aksenta.com</a>	Aksenta	N/A	Team Member, assessment and Delineation; early 2017	Hydrologist, water management, GIS, remote sensing and spatial analysis, HCV assessment since 2010
<b>Fersely Getsemani F.,</b> <a href="mailto:getsa@aksenta.com">getsa@aksenta.com</a>	Aksenta	N/A	Team Member, assessment and Delineation; early 2017	Hydrologist, water management, GIS, remote sensing and spatial analysis, HCV assessment since 2012
<b>Andri Novi Hendratno</b> <a href="mailto:andri.novi@aksenta.com">andri.novi@aksenta.com</a>	Aksenta	N/A	Team Member, Socio-economic; early 2017	Sociologist, participatory mapping, social liability, social analysis on natural resource , HCV assessment since 2008
<b>T. Ade Fachlevi</b> <a href="mailto:adhe@aksenta.com">adhe@aksenta.com</a>	Aksenta	N/A	Team Member, Socio-economic; early 2017	Sociologist, participatory mapping, social liability, social analysis on natural resource, HCV assessment since 2014
<b>Anwar Muzakir</b> <a href="mailto:muzakir@gmail.com">muzakir@gmail.com</a>	Aksenta	N/A	Team Member, Plant ecology; early 2017	<i>Botanist</i> , plant taxonomy, carbon stock assessment, HCV assessment since 2016

Name and email account	Institutions	ALS License	Role	Expertise
<b>Ikhwan Agustian</b> <a href="mailto:ikhwan@aksenta.com">ikhwan@aksenta.com</a>	Aksenta	N/A	Team Member, Plant ecology; early 2017	<i>Botanist</i> , plant taxonomy, carbon stock assessment, HCV assessment since 2013
<b>Pramitama Bayu Saputro</b> <a href="mailto:bayu@aksenta.com">bayu@aksenta.com</a>	Aksenta	N/A	Team Member, GIS specialist; early 2017	GIS and remote sensing analysis for conservation, HCV assessment since 2012,
<b>Reza Abdillah</b> <a href="mailto:reza@aksenta.com">reza@aksenta.com</a>	Aksenta	N/A	Team Member, GIS specialist; early 2017	GIS and remote sensing analysis for conservation, HCV assessment since 2012,
<b>Ryan Karida Pratama</b> <a href="mailto:ryan@aksenta.com">ryan@aksenta.com</a>	Aksenta	N/A	Team Member, Land cover change analysis; early 2017	GIS and remote sensing, land cover change analysis, HCV assessment since 2013
<b>Bias Berlio Pradyatma</b> <a href="mailto:bias@aksenta.com">bias@aksenta.com</a>	Aksenta	N/A	Team Member, Land cover change analysis; early 2017	Land cover analysis, HCV assessment since 2013
<b>Risa Desiana Syarif</b> <a href="mailto:risa@aksenta.com">risa@aksenta.com</a>	Aksenta	N/A	Team Member, Land cover change analysis; early 2017	GIS and remote sensing, land cover change analysis, HCV assessment since 2011
<b>Heidei Putra Hutama</b> <a href="mailto:heidei@aksenta.com">heidei@aksenta.com</a>	Aksenta	N/A	Team Member, Land cover change	GIS and remote sensing, land cover change analysis, HCV assessment since 2016

### 2.2.3. Methodology

This HCV assessment uses the Common Guidance for the Identification of High Conservation Values (Brown et al., 2013) and the HCV Assessment Manual (HCVRN, 2014). Both secondary and primary data is used for the HCV study. The ‘Stepwise screening’ approach is used to harmonize necessary information based on reference scale. HCV 1-3 assessment’s reference scale includes global, regional and national levels. Ground-trothing is carried out after setting the scale. HCV 4-6 are assessed emphasizing local landscape or level (Brown et al., 2013), which is followed by field verification. HCV assessment includes pre-assessment, field data collection, stakeholder consultation, HCV analysis and mapping, and reporting.

In particular the techniques of data collection to carry out the HCVA 5 and HCVA 6 assessment are: (i) Participatory Mapping; (ii) Focus Group Discussions (FGD), (iii) Semi-structured Interviews and (iv) Field Observations, and (v) Documentation by taking GPS coordinates and photographs. The information collected were verified or validated through triangulation process, which is a process to check the truth and accuracy of the information provided by a respondent by asking similar questions to the others. Interviews and FGDs were conducted referring to the key questions.

Based on the information collected through participatory mapping, interviews and FGDs, field survey was carried out at locations in the assessment area identified by the respondents as potential HCVA 5 and/or HCVA 6. Field observation was carried out together with guides from local community and company employees who exactly understand the environmental and social condition within and around the assessment area. As much as possible, this activity also actively involved individuals or families that own, work, control or have interests concerning natural resources and lands in the observed locations.

#### a. Pre-assessment

Main activities during pre-assessment phase include: (i) collection of data and information from the company side concerning both ongoing and planned plantation development and management; (ii) collection of secondary data and information from various sources (report, journal, book, statistic, base

map), including from informants, concerning biodiversity aspects and issues (global, regional, national and, whenever possible, to local levels), environmental service (particularly relating to soil and water conservation) and socio-cultural issues; and (iii) analysis and validation of the collected data and information and spatial analysis over the obtained base map. Documents and background information collected during pre-assessment, or desk-study, are listed in table below.

**Table 9. List of reference used in the HCV Assessment**

Main sources of daya and -information	HCV					
	1	2	3	4	5	6
A Field Guide to The Birds of Borneo, Sumatra, Java and Bali (MacKinnon & Phillipps, 1993)	✓					
A Field guide to The Frogs of Borneo (Inger, R.F. and R.B. Stuebing, 1997)	✓					
A Field guide to The Snake of Borneo (Stuebing, R.B. and Inger, R.F, 1999)	✓					
Appendices I, II and III CITES, valid from 2 January 2017 (CITES, 2017)	✓					
<a href="http://www.iucnredlist.org">IUCN Red List of Threatened Species. www.iucnredlist.org</a>	✓					
Manual of Dipterocarps for Foresters. Borneo Island Light Hardwoods (Newman <i>et al.</i> , 1996a, Newman <i>et al.</i> , 1996b)	✓					
Manual of Dipterocarps for Foresters. Borneo Island Medium and Heavy Hardwoods (Newman <i>et al.</i> , 1996a, Newman <i>et al.</i> , 1996b)	✓					
Flora of Malesiana Seri I and II Volume 1 - 12 Part 1-3, (C.G.G.J. van Steenis and various authors, 1963-1996)	✓					
Panduan Lapangan Mamalia di Kalimantan, Sabah, Sarawak & Brunei Darussalam (Payne <i>et al.</i> , 2000)	✓					
The Mammals of The Indomalayan Region (Corbet & Hill, 1992)	✓					
HCV report PT Agrajaya Baktitama, 2010	✓	✓	✓	✓	✓	✓
HCV report PT Batu Mas Sejahtera, 2010	✓	✓	✓	✓	✓	✓
HCV report PT Sawit Makmur Sejahtera, 2010	✓	✓	✓	✓	✓	✓
Dokumen AMDAL of PT AJB (2008)	✓	✓	✓	✓	✓	✓
Dokumen AMDAL of PT BMS (2009)	✓	✓	✓	✓	✓	✓
Dokumen AMDAL of PT SMS (2009)	✓	✓	✓	✓	✓	✓
Kabupaten Ketapang dalam Angka 2016 (BPS Kabupaten Ketapang, 2016)					✓	✓
Kecamatan Matan Hilir Utara dalam Angka (BPS Kabupaten Ketapang, 2016)					✓	✓
Laporan Kajian Sosial dan Kelembagaan Terkait Dengan Pengelolaan Hutan Dalam Skema REDD di Kabupaten Ketapang, Kalbar (Pusat Kajian Antopologi Universitas Indonesia, 2011)					✓	✓
Review dan Verifikasi HCV PT Agrajaya Baktitama, 2015	✓	✓	✓	✓	✓	✓
Review dan Verifikasi HCV PT Batu Mas Sejahtera, 2015	✓	✓	✓	✓	✓	✓
Review dan Verifikasi HCV PT Sawit Makmur Sejahtera, 2015	✓	✓	✓	✓	✓	✓
The Ecology of Kalimantan (MacKinnon <i>et al.</i> , 1996)	✓	✓	✓			
<a href="http://www.ramsar.org">Ramsar Sites in Indonesia (http://www.ramsar.org)</a>		✓				
Endemic Bird Area Factsheet: Kalimantan (BirdLife International, 2015)		✓				
Important Bird Areas: Key Sites for Conservation (Birdlife International, 2015)		✓				
Citra Landsat 8 (USGS, Januari 2017)		✓	✓			
DEM Shuttle Radar Topography Mission, 30 meter (USGS, 2004)				✓		
Peta Batas area konsesi PT AJB (batas kadastral, sumber: PT AJB)	✓	✓	✓	✓	✓	✓
Peta Batas area konsesi PT SMS (batas kadastral, sumber: PT SMS)	✓	✓	✓	✓	✓	✓
Peta Batas area konsesi PT BMS (batas kadastral, sumber: PT BMS)	✓	✓	✓	✓	✓	✓
Peta Batas Daerah Aliran Sungai (BPDAS Kalimantan Barat)				✓		
<a href="http://www.ethnolog.com">Peta Distribusi Etnik/ Ethnic Distribution maps in Kalimantan, retrieved at http://www.ethnolog.com</a>					✓	✓
Peta Ecosystem of Kalimantan (WWF, 2006)			✓			
Peta Kawasan Lindung/ (protected areas map, Departemen Lingkungan Hidup dan Kehutanan)	✓	✓				
Peta Indikatif Penundaan Pemberian Izin Baru (PIPIB) revisi IX, Lampiran (Kemenlhk, 2015)			✓			
Peta Jenis Tanah (RePPPProt, 1986)				✓		
Peta Ketinggian Tempat (hasil pengolahan berdasarkan data DEM SRTM)				✓		
Peta Kelas Kelerengan (hasil pengolahan berdasarkan data DEM SRTM)				✓		
Intact Forest Landscape Map (downloaded at: <a href="http://www.intactforest.org">http://www.intactforest.org</a> )		✓				
Land Cover Map (result of analysis Landsat Imagery 8, 2016)				✓		

Main sources of data and -information	HCV					
	1	2	3	4	5	6
RTRW Map of Wets Kalimantan, 2014-2024		✓				
Landsystem Map 1:250.000 (RePPProt, 1989)			✓	✓		
Pawan River Watershad Map (Lampiran Keppres No. 12 tahun 2012)				✓		

## b. Scoping study

A scoping Study was carried out between 28 May and 10 June 2017. The scoping study team consisted of 7 experts who did a rapid study in the field.

## c. Field data and information collection

Field data and information collection is focused on areas concluded as potential HCVA's based on the pre-assessment output. Data and information collection emphasizes on HCV attributes or elements employing the combination of the following methods.

### Participatory mapping

This joint mapping is an initial activity in the field to discuss the pre-assessment output and focus the observation area target. This activity is carried out in an integrated manner for all HCV types (biodiversity, environmental services and socio-cultural values). It involves stakeholders in the assessment area and its surroundings, who have knowledge and information concerning areas in and around the assessment area that include the following:

- Presence of forest and other natural ecosystems, as well as wildlife species.
- Presence of water catchment, source and body, as well as stream.
- Presence of areas whose location or natural resources are used traditionally by local communities for meeting basic needs and serving as part of their cultural and traditional identities.

The informants came from community representatives, traditional leaders and representatives of village governments from 18 villages in 4 regencies. These villages are villages where the residents own land and or interact in the study area.

**Table 10. Villages where discussion and participatory mapping were conducted**

Company Names	Kecamatan/ Regency	Desa/Village Names	Semi structure Interview	FGD	Partisipatory Mapping
PT AJB	Sungai Laur	Lanjut Mekarsari		✓	✓
	Sandai	Randau		✓	✓
		Pendamaran Indah		✓	✓
		Alam Pakuan	✓	✓	
	Hulu Sungai	Benua Krio	✓		
PT SMS	Nanga Tayap	Pangkalan Suka	✓	✓	
	Sandai	Sandai		✓	✓
		Penjawaan		✓	✓
		Petai Patah		✓	✓
		Randau Jungkal		✓	✓
		Demit		✓	✓
	Hulu Sungai	Benua Krio	✓		
Cintamanis		✓	✓		
	Sandai	Randau		✓	✓
		Merimbang Jaya		✓	✓
		Alam Pakuan	✓	✓	

Company Names	Kecamatan/ Regency	Desa/Village Names	Semi structure Interview	FGD	Partisipatory Mapping
PT BMS		Sandai Kiri		✓	✓
		Jago Bersatu		✓	✓
	Sungai Laur	Banyun Sari		✓	✓
		Sungai Daka		✓	✓
		Bengaras		✓	✓

There are four villages that no participatory mapping, ie. Alam Pakuan, Benua Krio, Pangkalan Suka, Cintamanis. Assessors accompanied by local people conducted observation on potential HCVs in those villages and based on direct interaction with local people participatory mapping was not needed.

**Ground-trothing**

This activity takes form of direct checking on the ground over the land cover satellite image interpreted during pre-assessment phase. Potential HCVA's presumed to contain relevant HCV attributes or elements are checked according to each field of assessment, i.e. HCV 1-3 (biodiversity), HCV 4 (environmental services) and HCV 5-6 (socio-cultural HCV).

**Field data collection**

Field data is collected in a manner integrated into the ground-trothing activities. This activity aims to verify the presence of HCV attributes or elements to clarify whether or not they are present, based on which an area is concluded to contain HCVs. It is carried out using initial data and information that have been gained from the pre-assessment process, and have already been enriched with the joint (participatory) mapping and interview outputs. This activity is focused on potential HCVA's based on the map that have been generated from the previous work phase (potential HCVA map) and other locations in or around the assessment area that are considered important to check (e.g. to check HCV 1-3 connectivity; compare the presence of RTE species in and outside the assessment area; and check the connection to water catchment, erosion control area and river network in case of HCV 4). HCV 5-6 field data is collected using rapid assessment and purposive interview methods and involving direct observation in select locations. Information collected from interview includes: to what extent a PPA is important to the surrounding communities, what are the rationale behind the importance (or unimportance) of the PPA land, what is the history of local community use of the natural resources, what is the relationship between the communities and the PPA land and between the communities and the company.

**Threat assessment**

The approach used in this threat assessment is the “5S Framework” and the Participatory Conservation Planning developed by The Nature Conservancy (TNC). This threat analysis compares declining conservation values against “critical degradation”, with Stresses (symptoms or proximal cause, such as population reduction), and Sources (causes to stress, such as hunting; Stewart et al., 2008).

**Consultation with communities**

Information concerning the presence of HCV attributes and elements is also collected through interview with select informants, namely community members or company workers and key persons<sup>1</sup> who are knowledgeable of or experienced with the natural surroundings of the assessment area. Information on the presence of HCV attributes or elements includes the current and historical/past occurrences. This secondary information will be verified or validated through triangulation process, in which the truth and accuracy of information from an informant will be checked by asking the same questions to the others. Verification and validation process is also conducted by comparing data and information from an informant to that from reliable sources. As for HCV 5-6, interview is focused on leaders or representatives of local communities and natives who inhabit locations around the proposed project areas, and presently have or in the past have had interaction with the proposed project area.

#### **d. Stakeholder consultation**

Stakeholder consultation during this field study took the form of direct/physical meetings and dialogues with representatives of local key stakeholders from native and local communities, field managers, academics, NGOs, neighboring companies and relevant local governments.

#### **e. Analysis of data and HCV area mapping**

Data gained from field data collection activity is compiled and tabulated based on the area where observation is carried out. In early phase, compilation and tabulation are conducted separately for each field of assessment (biodiversity, environmental services and socio-cultural aspects). For each area, a list is made containing HCV attributes or elements whose presence is already confirmed on the ground. This process continues with analysis to reinforce the justification of including whether or not HCV attributes or elements are found in the surveyed areas in order to delineate the HCVA.

An indicative HCVA map is made for each field of assessment. Therefore, three maps will be produced, i.e. (i) indicative HCVA 1-3 map; (ii) indicative HCVA 4 map; and (iii) indicative HCVA 5-6 map. The three maps will later on be combined into one single indicative HCVA map. Producing a definitive HCVA map requires delineation of the indicative HCVA and taking on-site coordinates. Output of this delineation process will be mapped to revise the indicative HCVA boundaries produced from this HCV assessment.

Throughout the report indicative HCVA and HCVMA maps are final maps, unless otherwise described differently. All identified HCVA and HCVMA are recommended should be no-go areas for plantation development. It is the obligation of the companies to ensure HCVA and HCVMA are definitive for the HCV management and monitoring purposes.

## **2.3. LUC Analysis**

### **2.3.1. Date of the assessment**

LUC analysis (LUCA) in SMS was conducted in June 2017. Analysis to identify non-compliance land clearing and to calculate liabilities according to RaCP was prepared and the report was issued in 2018. Additional

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<sup>1</sup> In this assessment, key persons include native community leaders and pioneering community administrators.



LUCA to identify compliance to completion of the RSPO NPP was carried out in December 2019 (at the same time of preparation and submission of NPP).

### 2.3.2. Assessment team

LUCA of SMS was conducted by a team of 5 experts from Aksenta as listed in table below.

**Table 11. Team conducting LUCA of SMS**

Name	Role in team	Expertise
Bias B Pradyatma	Land use change analysis (team leader)	Land Use Change Cover Analysis, HCV assessment, carbon stock assessment
Ryan K Pratama	Land use change analysis and compensation liability calculation	GIS and remote sensing, land use and land cover analysis, HCV assessment, carbon stock assessment
Risa D Syarif	Land use change analysis and environmental remediation liability calculation	GIS and remote sensing, land use and land cover analysis, HCV assessment, carbon stock assessment
T. Ade Fachlevi	Social Liability	Social liability studies, social economic, social impact, participatory mapping, social and environmental studies, HCV Assessment
Ali A Hutzi	Social Liability	Social liability studies, social economic, social impact, and participatory mapping

### 2.3.3. Methodology

The LUCA was conducted accordingly with the LUCA guidance and RSPO Remediation and Compensation Procedures (RaCP). However, this particular LUCA was also conducted for several purposes, namely:

- To identify land clearance prior to the first HCV assessment
- To identify and calculate liabilities from land clearance prior to HCV assessment
- To identify compliance to the “stop work order” from RSPO complaints panel issued in 28 April 2017 until SMS completed a new HCV assessment as required by the RSPO complaints panel

In order to fulfill the purposes, several Landsat satellite imageries from path/row 120/61 and 121/61 were used in the assessment:

- Landsat TM 5
- Landsat ETM+ 7
- Landsat 8 OLI

List of imagery acquisition dates used in for analysis periods in the LUCA were listed in table below.

**Table 12. List of satellite imagery acquisition dates used in LUCA of SMS**

Period	Date of acquisition	Cloud cover (%)
Before November 1, 2005 (baseline)	August 18, 2004	26%
November 1, 2005	August 5, 2005 February 13, 2006	29% 11%
December 1, 2007	September 12, 2007 September 30, 2008	78% 21%
January 1, 2010	March 25, 2009	17%

Period	Date of acquisition	Cloud cover (%)
	September 24, 2009	29%
May 9, 2014	May 10, 2014	21%
Identification of HCV Area	September 24, 2009 November 7, 2010	29% 40%
Stop Work Order	March 23, 2017	6%
Submission of HCV Report	October 31, 2017	6%
After becoming RSPO member (if relevant)	December 4, 2014	11%
After the management unit acquired	N/A	N/A
Latest satellite image used for ground truthing	June 16, 2016	6%
	December 25, 2016	28%
	March 22, 2017	17%
	July 21, 2017	6%

Land cover analysis and ground-truthing was conducted according with the LUCA Guidance. Land cover classification was conducted using visual interpretation and on screen digitation. The classification then was verified with 99 samples from the field. Accuracy assessment shows that the classification is accurate (overall accuracy of 80.8% and Kappa Accuracy of 77.5%) and therefore is sufficient to be used for liability calculations.

Land use change found in the analysis periods were classified into 2 categories, namely non-corporate land use change and corporate land use change. Categorization of each land use change detected was following several criteria, including size, shape, and time rate of clearance; and changes of land cover into oil palm and or other plantation infrastructure. The categorizations were also verified with field verification, document review, and interview with relevant communities. Only corporate land clearance will be identified as potential of non-compliance.

Liability calculations were carried out in accordance with the LUCA Guidance and RSPO RaCP. Environmental remediation liabilities was assessed based on the relevant environmental physical features in SMS concession area (i.e. topography/land slope classification and river network) using GIS analysis and field verification, while social remediation liabilities was assessed through social liability study involving engagements with the communities and GIS analysis. Compensation liability calculation was carried out referring to the vegetation coefficient as per the LUCA Guidance and RSPO RaCP (see table below).

**Table 13. Land cover vegetation coefficient to calculate liability from land clearing**

Land Cover	Vegetation Coefficient
Primary forest	1
Secondary forest	0.7
Old shrub	0.7
Agroforest	0.4
Shrub, bush	0
Bare land	0
Monoculture/plantation/settlement	0

### Additional LUCA

In order to fulfil the 1 year validity requirement and to identify compliance to NPP, additional LUCA was prepared to identify land cover/use condition of SMS concession area at the time of NPP submission. The

additional LUCA used Sentinel 2 Satellite Imagery (image acquisition on 14 September 2019) with excellent quality, i.e. 10m resolution and <1% cloud/haze cover. Combination of multi-resolution image segmentation (using eCognition Program) and visual interpretation (using ArcGIS Program) was used to derive the land cover/use classification in December 2019.

## 2.4. Carbon stock and GHG assessments

### 2.4.1. Date of the assessment

High Carbon Stock Approach (HCSA) and GHG assessment was conducted as sequence of assessments. Field survey for the HCSA, including forest inventory was conducted in September-October 2017 and was followed by a follow up site visit in November-December 2017. Report of the HCSA was compiled and finalized in July 2018. GHG assessment was following the analysis of HCSA and the report was compiled and finalized also in July 2018.

### 2.4.2. Assessment team

HCSA and GHG assessment were conducted by a team from Ata Marie. List of the team members is provided in table below.

**Table 14. List of team members in HCSA and GHG assessments**

Name	Credential	Role in Team
Alex Thorp	B. For. Sc.	Project Manager
George Kuru	M. For. Sc.	Inventory Data processing
Dadan Setiawan	S. Hut	Senior GIS Engineer
Dadi Ardiansyah	S. Hut	GIS Engineer and Field forester responsible for carbon inventory
Ambriansyah		Botanist for carbon inventory

### 2.4.3. Methodology

Land cover carbon stock assessment and the identification and mapping of high carbon stock (HCS) area was following the HCSA Toolkit Version 2 (2017); whereas the GHG assessment to identify emission from new development was following the RSPO GHG Assessment Procedure for New Development version 3 (October 2016). The assessment covered concessions of PT AJB, PT BMS, and PT SMS as multi-sites assessment. Elaborations on methodology and processes used in both assessments are divided into several parts according to the stages in both assessments.

#### a. Forest inventory

Forest inventory was carried out to assess the land cover/forest biomass. Two concentric circular plot of 0.05 and 0.01 ha were used to first measure the DBH of the trees inside the plots respectively.

In each plot, the following information was collected:

- GPS waypoint
- Plot photographs
- Land cover stratification

- Canopy cover code
- Description of plot site and general surroundings
- Description of topography, soil, and underfoot conditions
- Description of any evidence of human activity

For each tree measured, the following data is collected:

- Species
- Diameter at breast high (DBH)
- Total tree height

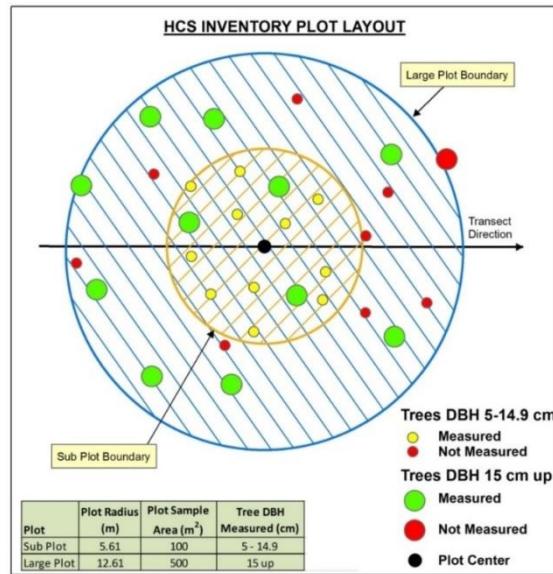


Figure 11. Forest inventory plot

b. Land cover biomass and carbon calculation

Land cover biomass calculation was conducted using land cover classification mapping and data from forest inventory. A standard allometric equation was used to estimate the biomass of each tree measured in the plot.

$$AGLBi = 0.0776[\pi D^2iHi]0.940$$

Where: AGLB = Above ground live biomass in kilograms

D = Diameter at breast height (1.3m above ground) in centimeters

H = Total tree height in meters

ρ = Specific gravity in grams per cubic centimeter

Biomass of each trees were summed and divided by the total size of the plot in the same land cover strata to derive biomass/ha in each land cover strata. Furthermore, land cover carbon stock was calculated using

0.47 fraction of carbon containment of biomass as according to the IPCC. The fraction was used to derive carbon stock/ha in each land cover strata.

In order to identify the confidence and adequacy of the land cover carbon calculation, a set of tests were conducted. The tests comprised of ANNOVA and Scheffe's pairwise multiple comparison tests. The forest inventory samples and the land cover carbon stock stratification is considered adequate if the average carbon stock of each land cover are significantly different at 90% confidence interval according to the tests.

#### c. GHG emission calculation and mitigation scenario development

GHG assessment was using the GHG calculator from RSPO (RSPO GHG Assessment Procedure for New Development version 3, October 2016). Land cover carbon stock was referring to the result from forest inventory of the HCSA while the other data was based on the company's operational database. Source of GHG emission calculated in the assessment comprised of plantation management in the field. Sources of GHG emission from mill is not calculated because the company does not have mill at the time of assessment.

Mitigation scenario was developed by processing calculations with several new plantation development and management scenarios such as high carbon stock area offset/conservation as per the HCSA, HCV conservation, adjustment of the fertilizer and fuel use, and etc. The feasible scenario with lower emission will be put as the mitigation scenario for the new plantation development and management.

## **2.5. Soil and topography assessment**

### **2.5.1. Date of the assessment**

There are several assessments covering the identification of soil and topography, i.e. soil and topography survey as part of the EIA, internal assessment for plantation feasibility, and soil and topography survey as part of HCV and HCSA Assessments. Information of soil and topography in this NPP is referring to the results of survey from the HCV and HCSA assessments as the most recent and up to date information.

### **2.5.2. Assessment team**

See section 2.2.2 and 2.4.2.

### **2.5.3. Methodology**

#### a. Soil assessment

Identification of soil type was conducted using land system classification from the RePPProT (1989). The classifications are provided with comprehensive information such as level of organic material contained in the soil (identification of peat soil), type of soil substrate and origins (identification of marginal soil), topographic condition/landform, etc.

Land system as the main indication of soil type was mapped using the AOI and SMS boundaries to identify which land system is present within the boundaries. The analysis was carried out using GIS software. Map

of land system then was verified in the field survey and by using supporting field data from HCSA and GHG assessment (i.e. forest inventory data).

b. Topographic assessment

Topographic assessment was referring to the topographic information in RePPProT Map (1989) and digital elevation model (DEM) SRTM 30 m. Both data were used to derive a topographic spatial information (map) using GIS software. Topographic map from from the GIS analysis then was also verified using in the field field and by using supporting data from HCSA and GHG assessment (i.e. forest inventory data).

## 2.6. Stakeholder engagement and FPIC study

### 2.6.1. Time of the social engagement

Stakeholder engagements and initiation of FPIC occurred in many activities including ones that is related to company’s operational activity, assessment conducted by external parties, informal meetings, and etc. FPIC study to identify compliance of FPIC was carried out in August-September 2016 by Lingkar Komunitas Sawit (LINKS). Following that, a community engagements were carried out in 2017 by Ata Marie as the social requirement part of HCSA and also in an effort to address the findings from analysis in 2016. The engagements took place in two site visits, namely initial site visit in September-October 2017 and follow up site visit in November-December 2017. Activities int the community engagements include re-initiations of FPIC, discussions, participatory mapping, and consultations regarding with communities’ rights and livelihood, new development plan, and protection of important social and environmental features. Detail of the assessment process is explained in the following sub-sections.

### 2.6.2. Social engagement team

Team conducting social engagements comprised of 2 social experts from Ata Marie as presented in table below.

**Table 15. Team conducting social engagement and FPIC study**

Study/ Institution	Name	Credential	Role in Team
FPIC Gap Analysis/ LINKS	Rudy R Lumuru, S.Pt.	Bachelor of Agriculture; experienced in social studies, sustainability programs, facilitations, and trainings	Project evaluator
	Dr. Feybe E N Lumuru, S.E. M.A.	Postgraduate of Sociology; experienced in social studies, sustainability programs, facilitations, and trainings	Lead assessor
	Widiaji	Bachelor from Communication Science; experienced in social studies and facilitation	Assessor and document review
	Sugeng Santoso, S.Sos.	Bachelor of Sociology; experienced in social studies	Assessor
	Hanifan Yudistira, S.E.	Bachelor of Economic Management, experienced in social surveys	Assessor
	Lukas Nopembrian, M.B. S.Si	Bachelor of Scince; experienced in social studies	Report reviewer

Study/ Institution	Name	Credential	Role in Team
Community Engagement/ Ata Marie	Sofyan Iskandar	Bachelor of Forestry	Community Engagement (Team Leader)
	Asep Wahyu Suherman	Bachelor of Forestry	Participatory Land Use Mapping specialist.

**2.6.3. Methodology**

**FPIC Study**

FPIC gap analysis was carried out using secondary data which was derived from company’s documentation through review process and primary data which was derived from interviews and FGD with communities. Collection of primary data in the analysis was using combination of quantitative and qualitative approaches. Quantitative approach was used to determine minimum sample requirement while the qualitative approach was used in identifying the interviewees/informants through purposive and snow-ball sampling. Criteria used in the purposive selection are community member who has knowledge of or experiencing historical events related with company and documentations of those events; whereas selection of interviewees in snow-ball sampling is based on recommendations from the previous (interviewed) interviewees.

There were three approaches used in this study:

1. Participatory. Actively involves the stakeholders who are potentially receiving impact, such as land owners and other parties deemed strategic as informants.
2. Rapid participatory social assessment. Use of several techniques, namely document review, in-depth interview, and participatory FGD. LINKS team used these techniques to gather information and identify key elements of the compliance to FPIC, analysis, and prepare recommendations
3. Integrated. Use of several references in integrated manner, namely RSPO FPIC Guidance 2008 and IFC Performance Standard

**Community Engagements**

Stakeholder engagement and FPIC initiation was carried out based on the following objectives and approaches:

1. To share information about Goodhope’s environmental and social commitments
2. To share information about the HCS concept and assessment processes with communities
3. To seek community informed consent and participation for planned HCS assessment related activities
4. Together with communities, gather information and knowledge on current and future land use and land tenure at community level
5. Together with communities, prepare a draft integrated conservation land use plan
6. To seek community informed consent in principle to the final draft ICLUP

Community engagement in each village involved the following four steps:

1. Initial engagement (referred to as request for engagement) with community: internal discussion with Head of Village or community representatives to set out a meeting for initial consultation and FGD in the village.
2. Consultation and focused-group discussion (FGD): presentation of information related with the environmental and social commitments of company (Goodhope Ketapang Region) related with new development plan, open discussion with the communities, and focused-group discussion on village history, community land use, community land tenure and land management, food and water security, and etc.
3. Participatory mapping: field visit together with representative of the communities to conduct ground trothing of draft land use map, boundaries of conservation areas, identification of important areas for food and water security, verification of river mapping, identification of additional no-go areas, identification of settlement boundaries, and identification of sacred site.
4. ICLUP consultation (2<sup>nd</sup> FGD): discussion on the proposed conservation areas and other land use mapped in the ICLUP (integrated conservation land use plan).



## **3. SUMMARY OF FINDINGS**

### **3.1. Social and environmental impact assessments**

Findings of the social and environmental impact assessments will be presented separately. Following are the results of EIA and SIA respectively.

#### **3.1.1. Environmental impact assessment**

According to the results of the assessment, there are impacts to physical-chemical aspect, biological aspect, and social aspect from every stage of the company's operational activities (i.e. pre-construction, construction, operation, and post operation). The identified impacts are compiled and analyzed in the following matrix.

**Table 16. Classification of the expected impacts from several stages of SMS operational activities**

Environment's component impacted and Potential Impact	PREDICTION OF ENVIRONMENTAL CONDITION																Remarks for Negative-Positive Impact			
	PRE-CONSTRUCTION			CONSTRUCTION									OPERATION			Post OPERATION				
	Preparation Process	Activity Socialization	Delineation and Land Procurement	Labor Acceptance and Mobilization	Mobilization of Equipment and Material	Land Clearing	Establishment of Infrastructure	Nursery and Planting Preparation	Soil Conservation and Water Conservation	Planting Palm Oil	Maintenance of Immature Plantation	Social Responsibility Programmed	Maintenance of Mature Plantation	Harvesting	Transportation of FFB	Returning of Infrastructure Asset		Termination of Employment		
<b>I. PHYSICAL-CHEMICAL</b>																				
1. Decline of Air Quality				-2TP			-2P			-1TP								NO Impact		
2. Noise Increment				-2P						-1TP					-3P	-2TP	-2TP	NO Impact		
3. Decrease in surface water quality										-2TP	-2TP				+3P	+3P	-3P	-1TP	Negative Impact (1 Scale)	
4. Decrease in ground water quality										-2TP	-2TP				+3P	+3P	+1TP		Negative Impact (1 Scale)	
5. Change in Physical-Chemical and Soil Fertile										-2TP									Positive Impact (2 Scale)	
6. Soil Erosion rate and Sedimentation										-3P	-3P	-3P							Negative Impact (2 Scale)	
7. Potential Impact in Forest Fire and Land Fire										-3P					+3P	+3P			Negative Impact (2 Scale)	
<b>II. BIOLOGY</b>																				
8. Declining in Abundance and Biodiversity of Flora-Fauna				-2TP						-3P	-2TP	-2TP			+3P				Negative Impact (1 Scale)	
9. Declining in Abundance and Diversity of Water Biota				-1TP						-3P	-2TP	-2TP			-2TP	+3P	-1TP	-3P	-3P	Negative Impact (1 Scale)
<b>III. SOCIAL</b>																				

Environment's component impacted and Potential Impact	PREDICTION OF ENVIROMENTAL CONDITION																Remarks for Negative-Positive Impact	
	PRE-CONSTRUCTION			CONSTRUCTION								OPERATION			Post OPERATION			
	Preparation Process	Activity Socialization	Delineation and Land Procurement	Labor Acceptance and Mobilization	Mobilization of Equipment and Material	Land Clearing	Establishment of Infrastructure	Nursery and Planting Preparation	Soil Conservation and Water Conservation	Planting Palm Oil	Maintenance of Immature Plantation	Social Responsibility Programmed	Maintenance of Mature Plantation	Harvesting	Transportation of FFB	Returning of Infrastructure Asset		Termination of Employment
10. Community Structure				+1TP														NO Impact
11. Employment Opportunities				+1TP	+3P	+1TP	+2TP	+2TP	+1TP	+1TP		+1TP	+1TP	+3TP	+2TP			Positive Impact (1 Scale)
12. Loss of Income generation				+1TP	+3P	+1TP	+2TP	+2TP	+1TP	+1TP		+1TP	+1TP	+3TP	+2TP		-2P	Positive Impact (1 Scale)
13. Community Concern			-3P		-3P	-2TP									-1TP		-3P	Positive Impact (2 Scale)
14. Social Conflict																-3P		NO Impact
15. Public Health Disturbance				-1TP		-2TP												Negative Impact (2 Scale)
16. Decline of Environmental sanitation						-3P												Negative Impact (2 Scale)

Notes:

- “+ or –” meaning the nature of the impact with “+” meaning positive impact and “-” meaning negative impact
- “1, 2, 3, 4” meaning the impact intensity with 1 = small impact, 2 = medium impact, 3 = big impact, and 4= very big impact
- “P or TP” meaning the importance of the impact with P = *penting* (important) and TP = *tidak penting* (not important)

### 3.1.2. Social impact assessment

Social impact assessment identified several aspects that include the stakeholders related to SMS and social issues occurred in the social environment of SMS. Based on those aspects, the assessment formalized social impact classifications based on its risk categories. In addition, impacts to the internal social stakeholders were also identified.

#### a. Stakeholders

There are 17 stakeholders related to SMS as follow:

**Table 17. Stakeholders related to SMS**

No	Stakeholder	No	Stakeholder
1	Management*	10	Penduduk Asli (Original/Native Communities)
2	Staff/workers*	11	Pendatang (Settlers/descendants of the settlers)
3	Camat (Regents) of Sandai, Hulu Sungai, and Nanga Tayap	12	Tokoh Ormas (Figures from Community Organizations)
4	Kepala Desa (Head of Village)	13	Tenaga Medis (Medic)
5	Kepala Dusun (Head of Hamlet)	14	Traders/collectors
6	Perangkat Desa (Village Officials)	15	Transportation service providers
7	Kepala Adat Dayak/Tumenggung (Head of Dayak Custom)	16	Farmers
8	Pemuka Adat (Figures of Dayak Custom)	17	Pengurus dan anggota koperasi plasma (Committees and members of the partnership union)
9	Tokoh Masyarakat (Figures of Community)		

\*SMS internal stakeholders

#### b. Social issues

Social issues are defined as strategic issues that occur in the communities. The identified issues are not necessarily emerged as impact from the company but may risk the company's operation in the future if social impacts from the company are not managed and/or addressed/mitigated. Identified issues based on social capitals including CSR were classified into risk categories (i.e. critical, high, medium, and low).

**Table 18. Issues and risk category classification**

Capital	Issues	Risk Category
Natural Resources	Shifting cultivation farming	Medium
	Overlapping area between company's concession and other company's concession, and between company's concession and community's land	Critical
	Lands that are not suitable for development	Medium
	Illegal logging	Critical
Human Resources	Lack of education	Medium
	Low of human resource quality (community member and village official)	High
	Lack of agricultural counseling	Medium
	Unemployment	Medium
Economic Resources	Obscurity of village land treasury	Critical
	Declining of rubber product selling price	Medium
	Limited financial capital	Medium
	Boundary of the villages	High

Capital	Issues	Risk Category
Socio-cultural Resources	Obstruction of village governance due to juristic issue related with head of village	Medium
	Loss of Dayak Cultural Value	Medium
Physical/infrastructural Resources	Poor road access	High
	Limited road access to particular part of the area. Waterway is the only available transportation to access that particular part of the area.	Medium
CSR	Obscurity of CSR program	Medium
	Perception of the community that CSR program is not optimal	Medium
	Impression that response to proposal is slow	Medium

c. External social impact

External social impact is defined as situation or condition that is experienced by the local communities (as the external social environment of the company). There are numbers of identified impacts that are emerged from the company’s presence and activities to its external social environment. The impacts are categorized into positive impact and negative impact as presented in table below.

**Table 19. External Social impacts from SMS**

Impacts association	Impact	Risk Factor
Positive	Improvement of wealth through land compensation	Low
	Availability of alternative to traditional farming as main livelihood	Low
	Availability of working opportunity	Low
	Providence of trainings to improve the capacity of scheme cooperative union (koperasi plasma)	Medium
	Opportunity for local people to work	Low
	Opportunity of having partnership plantation scheme (plasma) as new source of income and asset	Medium
	Contribution to increasing income of the communities	Low
	Opportunity for business	Low
	Incentives for village task force (satlak desa)	Low
	Establishment of independent land acquisition task force from village (Satlak Desa)	Medium
	Social assistance through CSR	Medium
	Opening of accessibility	Low
	Contribution to infrastructure development through CSR	Medium
Negative	Decreasing of land for traditional farming	Medium
	Decreasing of clean water quality	High
	Decreasing of forest area	Medium
	There are lands/areas that have been given but are not developed yet	Critical
	Limited information of working opportunity/recruitment	Medium
	Difficulties to be accepted as worker	High
	Lack of CSR program that orients to human resource improvement	High
	Productivity/return from plasma plantation does not meet expectation	High
	Lack of contribution from plasma cooperative union	High
	Lack of transparency in the management of plasma plantation	Critical
	Impression that response to proposal is slow	Medium
	Perception that CSR is not optimal	High
	Lack of communication between company and community	Medium
	Promise/agreement that has not been realized	High
	Social jealous between communities (there are villages that distribute Dana Sagu Hati (incentives from company) evenly to all of its community members, but there are also villages that distribute Dana Sagu Hati only to certain figures in the village.	Medium
Benefit/advantage from CSR program is not significantly perceived by the communities	High	

Impacts association	Impact	Risk Factor
	Lack of road maintenance	High

d. Internal social impact

Internal social impact is defined as situation or condition experienced by the workers (internal social community of the company) that is emerged as impact from company’s presence and activity. Internal social impacts were categorized into four based on the quality of management implementation (i.e. good, moderate, poor, and very poor).

**Table 20. Internal social impacts from SMS**

Aspect of Impact	Score
Recruitment of worker	Good
Socialization and implementation of occupational health and safety system management	Good
Providence of health facility	Moderate
Signage of the occupational health and safety	Good
Facilities and infrastructure for the occupational health and safety	Moderate
Use of personal protective equipment	Moderate
Health insurance through Jamsostek/BPJS	Good
Health allowance	Moderate
Incentives	Moderate
Housing facilities	Good
Vehicle facilities	Moderate
Facilities for working equipment	Moderate
Education facilities	Poor
Improvement of workers capability	Moderate
Absence of child labour and worker discrimination	Good
Labor union	Poor
Workers cooperative union	Very Poor
<b>Overall Score</b>	<b>Moderate</b>

**3.2. HCV assessment**

In accordance with complaint case regarding with HCV assessment in 2010, new HCV assessment was required for completion of NPP. The new HCV Assessments was carried out in 2017, covering three concessions of Goodhope Subsidiaries in Ketapang, namely AJB, BMS, and SMS as a multi sites assessment (see figure 2).

HCV Assessment report was first submitted to the HCVRN for evaluation by Dwi Rahmat Muhmataman (ALS15022DM) on 31 October 2017. The report was published as satisfactory from evaluation by HCVRN QP on 26 September 2018.

The assessment identified HCV 1, HCV 3, HCV 4, HCV 5 and HCV 6 within the scope area, i.e. in and around the license area of Goodhope Asia Holdings Ltd., Ketapang Region. The HCV areas consist of primary and secondary forests and shrubs in hilly areas, water springs, water catchment areas, rivers, and riparian buffers (details of the HCV findings are presented in section 3.2.2). Specifically in SMS area, HCV area is comprised of 2,966.45 ha, while the total of HCV area and HCV management area is 3,400.18 ha.

Link to the HCV Public Summary Report:

<https://hcvnetwork.org/reports/hcv-goodhope-asia-holdings-ltd-ketapang-region-pt-agraiaya-baktitama-pt-ajb-pt-sawit-makmur-sejahtera-pt-sms-pt-batu-mas-sejahtera-pt-bms-indonesia/>

### 3.2.1. Landscape context

Boundaries of the reassessment landscape are obtained from aggregation of biodiversity, environmental service, and social assessment landscape boundaries. Landscape boundaries are set 5 Km from the outer boundaries of concession, to give an overview of land cover and physical environment condition on wider landscape level. Lastly, social assessment landscape boundaries are set against the boundaries of the smallest administrative unit that includes the Assessment Area, which is village. If such boundaries are unavailable or otherwise invalid, Regency territory boundaries will be used instead.

#### 3.2.1.1. National land use

According to West Kalimantan Province Map of Designated Forest Area<sup>2</sup>, the Assessment Area is located in cultivation zone or Other Uses Zone (APL). Production Forest areas are located to the north of the Assessment Area, while Gunung Palung National Park (TNGPL) Conservation Area is located to the west. In addition, there are spots of APL-surrounded Protected Forest areas, but all of them are located outside the Assessment Area (Figure 6). Based on Indicative Map of New Permit Issuance Moratorium (PIPIB), the Assessment Area is situated outside the moratorium territory (Figure 7). According to West Kalimantan Provincial Spatial Planning (RTRW), the Assessment Area is located in the territories already allocated for plantation development (Figure 5).

#### 3.2.1.2. Physical environmental context

Based on Koppen climate classification, climate in the Assessment Area belongs to Wet Tropical climate category, and based on Oldeman's climate classification the area falls under Class A Climate. Rainfall distribution follows equatorial pattern where 2 peaks of rain season take place in a year, i.e. in February-April and November-December. Average annual rainfall is 2,750-3,350 mm with 150-170 rainy days in a year (Table 21). Such climate condition indicates that at least 1 dry month<sup>3</sup> takes place in a year in the Assessment Area.

**Table 21. Average annual rainfall in the assessment area**

Rainfall measurement in average*	Assessment Area		
	PT AJB	PT BMS	PT SMS
Annual rainfall	3,350 mm	3,000 mm	2,750 mm
Number of rain days	165 days	169 days	150 days
Rainfall during peak of dry season	134 mm (August)	83 mm (August)	88 mm (August)
Rainfall during peak of rainy season	362 mm (March) 469 mm (November)	400 mm (March) 366 mm (December)	277 mm (February) 397 mm (December)

\*Average is derived from rainfall data of (a) PT AJB in 2010-2017, (b) PT BMS in 2011-2017, and (c) PT SMS in 2012-2017.

<sup>2</sup> Map appended to Decree No. SK.733/Menhut-II/2014 on Designation of Forest Area in West Kalimantan Province.

<sup>3</sup> Monthly rainfall is less than 100 mm, Oldeman *et al.* (1975, 1977, 1979)

Based on land system map (RePPProT, 1989), the dominant soil great group in the Assessment Area includes Tropodults (podsollic) and Dystropepts (cambisol, see Table 22). In general, the soil erodibility is considered mild and the texture diverse from loam to sandy loam. Based on Soil Hydrologic Group<sup>4</sup> (SHG), loam falls under SHG B, while sandy clay loam under SHG C. The finer a soil texture, the slower its infiltration rate. For this reason, soils under SHG C category have surface runoff potential larger than that of others under SHG B category.

**Table 22. Soil characteristic in the assessment area**

Parameter	Assessment Area		
	PT AJB	PT BMS	PT SMS
Soil great group	Tropodults (podsollic)	Tropodults (podsollic), Dystropepts (cambisol)	Tropodults (podsollic), Dystropepts (cambisol)
Soil texture	Loam-sandy clay loam	Loam-silty loam-sandy loam	Loam-silty loam-sandy loam
Erodibility <sup>5 6</sup>	0.17 (low)	0.15-0.17 (low)	0.15-0.17 (low)
Soil Hydrological Group	B-C (infiltration rate: high-medium)	B-C (infiltration rate: high-medium)	B-C (infiltration rate: high-medium)

The Assessment Area is located in upstream Pawan watershed and divided into four sub- watersheds, i.e. (i) Laur (PT BMS and PT AJB concessions); (ii) Jokak (PT AJB and PT BMS concessions); (iii) Krio (PT AJB and PT SMS concessions); and (iv) upstream Pawan (PT SMS concession).

The Assessment Area is situated in lowland with elevation range of 24-392 m a.s.l. About 80% of the area elevation is <100 m a.s.l. Topographic conditions in the Assessment Area are relatively the same throughout the area, i.e. undulating to hilly, dominated by undulating areas (Table 23). Steep-slope areas (> 40%) are mostly found in PT SMS concession, while in PT AJB concession such areas are found in Kanau, Kelempeng and Urak Hills (Figure 10). These hills are water catchments highly valuable to the rivers in the Assessment Area. In addition, these hills also function as erosion control areas<sup>7</sup>.

**Table 23. Topography in the assessment area**

Topographic condition	Assessment Area		
	PT AJB	PT BMS	PT SMS
Topographic charcter	Undulating-hilly	Undulating-hilly	Undulating-hilly
Elevation	30-280 m asl	24-180 m asl	12-392 m asl
Steep slope (slope >40%)	Kanau, Ketempeng, Merabu, and Urak Hills	Merabu Hill	Aik Beguruh, Pauh, Nyutung, Dapuk, Gegara, Siberuk, Senanduh, Tudung, Menjuang, Sekolang, Senanggui, and Insuna Hills

<sup>4</sup> Soil Hidrological Group (SHG) is a classification of soil hydrologic characteristics based on the potential of infiltration rate and surface runoff. Rawls *et al.* (1982) classified a number of soil textures into 4 SHGs. SHG A has high infiltration rate, and sandy & loamy sand soil textures. SHG B has moderate infiltration rate, and sandy loam & loam soil textures. SHG C has low infiltration rate, and silt loam & sandy clay loam soil textures. SHG D has very low infiltration rate, and clay loam, silty clay loam, sandy clay, silty clay, and clay soil textures

<sup>5</sup> Centre for Irrigation Research and Development under Bandung Public Work Office in Murdis (1999).

<sup>6</sup> Undang K. and Suwardjo (1984); Dariah (2004).

<sup>7</sup> This depends on the area's land cover. Hill areas containing potential HCVs are those that remain covered with forest, in addition to agroforest or old shrubs that remain undegraded.



Based on RePPPProT land system map (1989), three land systems are found in the Assessment Area, i.e. Honja (HJA), Pakalunai (PLN), and Lohai (LHI).

1. Honja (HJA) land system occupies a hilly landform, covering 90% of the slope area and 10% in the form of peaks. Expands from plutonic parent rock material and metamorphic rocks. Rock types consist of andesite, basalt, granite, granodiorite and schist. Types of minerals belong to mineral felsik, intermediates and basics.
2. Pakalunai (PLN) land system occupies a rather steep hillside landform, covering 100% of slope area. Expands from plutonic parent rock material and metamorphic rocks. Rock types consist of granite, schist, basalt, phyllite, granodiorite. Types of minerals belong to mineral felsik and intermediates.
3. Lohai (LHI) land system occupies hill ridges that long and narrow. The lithology of rocks is sandstone and mudstone. The soil type associations found in LHI land systems are Tropudults and Dystropepts.

LHI is only found in PT BMS and PT SMS concessions (Figure 8), while HJA is the dominant one (75%), taking the form of hilly plain. Lands with both PLN and LHI systems have more potential to deliver important functions in terms of ecosystem services, i.e. as water catchment, downstream flow regime control, and erosion control.

According to Geological formations, the plantation area consists of:

1. Granite Laur Formation (KII): Monzogranite biotite-hornblende, biotite sienogranite and granodiorite hornblende-biotite,
2. Flower Basal Formation (Kubu): Black to solid gray, with dark and grayish andesite gray,
3. Keratai Volcano Rock Formation (Kuk): Consists of dacite and rhythmic lava andesite lava which is partially unrepaved from pyroclastic rocks (ash, lapilli, tuff and tephra, volcanic breccia and conglomerate),
4. Granite Formation Sukadana (Kus): Rock consists of quartz monzonite, monzogranite, sienogranite and alkali granite feldspar, little sienite quartz, quartz monzonite and diorite, and
5. Alluvium Deposition (Qa): Clay of kaolinite and silt inserted sand, peat, gravel and loose boulder, sediment of river and swamp.

### 3.2.1.3. Socio-cultural aspect

Local communities around the Assessment Area are from Malay and Dayak ethnics. Malay peoples are Muslims, while Dayak peoples are Catholics. Only few Dayak people are still embracing traditional belief. In addition, since 1970s where logging activities started, oil palm and mining companies brought in migrant communities in significant number. Both ethnics are relatively open for migrant people. Minority groups in the area include Javanese, Chinese, Sundanese and Balinese peoples, as well as Madurese, Bataks and others from East Nusa Tenggara. Socio-cultural aspects in Dayak peoples are influenced by farming activities, especially rotating farming. Several phases of their farming activities involve traditional ceremonies. Dayak peoples hold traditional ceremonies such as Nyapat Taun, Memo, Pagu Tolak Baru,

Pagu Buah Nanggar and Nuba Adat. They interact with natural sites/resources for spiritual and cultural purposes, especially in some small part of their community who are still embracing traditional beliefs.

### **3.2.2. Findings**

HCVs found in the assessment area are HCV 1, HCV 3, HCV 4, HCV 5 and HCV 6. HCV 1 elements are attributive to the presence of populations of several endemic or RTE species including Bornean white-bearded gibbon, Philippine slow loris, western tarsier and several Dipterocarp species. HCV 3 are attributive to the presence of threatened ecosystems, while HCV 4 elements are attributive to water control as environmental service, HCV 5 elements are found in water source and use of Non-Timber Forest Product (NTFP), and HCV 6 elements relate to historical, cultural, religious values as well as others held sacred. See details in Table 24 for the presence of HCV.

**Table 24. Summary of HCV findings and justifications**

HCV	Definition	Summary of description and justification		
		Present	Potential	Absent
1	Concentrations of biological diversity including endemic species, and rare, threatened or endangered species, that are significant at global, regional or national levels.	Population of several endemic/RTE species such as Bornean white-bearded gibbon, Philippine slow loris, western tarsier; and several Dipterocarp tree species.		
2	Large landscape-level ecosystems and ecosystem mosaics that are significant at global, regional or national levels, and that contain viable populations of the great majority of the naturally occurring species in natural patterns of distribution and abundance.			The Reassessment Landscape is situated outside Intact Forest Landscape and key biodiversity area, and has already been degraded and fragmented by logging, farmlands activities and oil palm plantations.
3	Rare, threatened, or endangered ecosystems, habitats or refugia.	Threatened ecosystems are found.		
4	Basic ecosystem services in critical situations, including protection of catchment areas and control of erosion of vulnerable soils and slopes.	<ul style="list-style-type: none"> <li>• There are hilly areas that remain forested. These areas serve as catchment area, maintain downstream river regime through continuous baseflow. Forested hills protect areas with steep slopes.</li> <li>• Currently sound riverbanks are found in Laur, Jokak, Keriau and Pawan Hulu sub-watersheds, functioning to manage extreme events of water flow, maintain water quality and as vegetated buffer zone or intact floodplain.</li> <li>• Presence of Ensinau Lake functioning as a catchment area, management of extreme events of water flow in Ensinau River, and clean water source.</li> </ul>		
5	Sites and resources fundamental for satisfying the basic necessities of local communities or indigenous peoples (for livelihoods, health, nutrition, water, etc...), identified through engagement with these communities or indigenous peoples.	Important areas are found functioning as sources of protein and water used by local communities (in the form of rivers and springs), as well as <i>tembawang</i> areas used by community to gather NTFPs.		
6	Sites, resources, habitats and landscapes of global or national cultural, archaeological or historical significance, and/or of critical cultural, ecological, economic or religious/sacred importance for the traditional cultures of local communities or indigenous peoples, identified through engagement with these local communities or indigenous peoples.	There are historical and cultural sites, as well as others of religious/sacred functions to local community.		

### 3.2.2.1. HCV 1

According to pre-assessment, it is known that the assessment area is located far away from conservation and biodiversity concentration area. In addition, local community has consistently hunted wildlife and logged trees. However, field survey documented endemic, RTE or protected species, while they were not encountered during the Reassessment and no information was collected concerning species migration in a large number. Flora and fauna species whose presence have been confirmed or otherwise are very likely to be present in the area total to 439 species consisting of 11 endemic species, 38 IUCN Relist species, 54 species of Appendix CITES, and 48 Indonesian government-protected species (Table 25).

**Table 25. Numbers of species identified by group and conservation status**

Group	Species Numbers	Endemic	IUCN			CITES		Protected by Law
			CR	EN	VU	App I	App II	
Bird	102	1	1	0	2	2	12	24
Mammal	36	3	1	1	10	1	11	18
Reptile	14	-	0	1	3	1	7	2
Plant	287	7	5	11	3	0	14	10
Total	439	11	7	13	18	4	44	54

Notes:

IUCN Status: CR= Critically Endangered, EN= Endangered, VU= Vulnerable

CITES Status: App= Appendix

Protected by Law: According to Regulation No. Law 5 of 1990, Government Regulation No. 7/1999 and Government Regulation No. 8/1999; Minister of Agriculture Decree No. 54/Kpts/Um/2/1972; and Ministry of Forestry Decree No. 261/Kpts-IV/1990.

#### Endemic species

Bornean endemic species found in this area include Bornean White-bearded Gibbon (*Hylobates albibarbis*), Dusky Munia (*Lonchura fuscans*), Spear-head Kapur Tree (*Dryobalanops lanceolata*), and Narrow Wing Light-red Meranti (*Shorea stenoptera*). Based on IUCN threatened status, all of these endemic species are listed under IUCN Relist, except for dusky munia whose status is 'least concern'. Because of its wide distribution, the dusky munia, along with two meranti species, a general species widely distributed throughout Borneo. As for Bornean White-bearded Gibbon, this species is an endemic to an area southwestern Borneo between Kapuas and Barito Rivers.

#### Migratory species

The main regions of migratory bird species in Borneo include Ramsar sites, mudflat and floodplain, especially for shore bird and water bird. No locations are found in the assessment area, primarily used by migrant bird species for their stopover or as wintering area. Potential, the assessment area could be visited by migratory raptor species, but taking into account the degraded, and hilly condition of the habitats, it is concluded that the assessment area contains no major stopover habitat for the island.

#### Rare, Threatened or Endangered Species (RTE)

There have been 19 Rare Threatened or Endangered (RTE) animal species documented, including 3 bird species, 12 mammal species and 4 reptile species (Table 26). Out of 95 bird species, only 1 species is Vulnerable (VU), i.e. Bornean Crestless Fireback (*Lophura erithrophthalma*). Out of 36 mammal species, one is 'Critically Endangered' (CR), i.e. Pangolin (*Manis javanica*); 1 is Endangered (EN), i.e. Bornean White-bearded Gibbon (*Hylobates albibarbis*); and 10 are Vulnerable. Among 14 reptile species, 1 is Endangered, i.e. Asian Tortoise (*Mauria emys*); and 2 are Vulnerable, i.e. Asiatic Softshell Turtle (*Amyda cartilaginea*) and Black Marsh Turtle (*Siebenrockiella crassicollis*).

According to pre-assessment, it is known that the assessment area is located far away from conservation and biodiversity concentration area. In addition, local community have consistently hunted wildlife and logged trees. However, field survey documented endemic, RTE or protected species, while they were not encountered during the Reassessment and no information was collected concerning species migration in a large number. Flora and fauna species whose presence have been confirmed or otherwise are very likely to be present in the area total to 439 species consisting of 11 endemic species, 38 IUCN Relist species, 54 species of Appendix CITES, and 48 Indonesian government-protected species (Table 25).

**Table 26. List of RTE fauna species identified in the assessment area**

No	Latin Name	English Name	Distribution	Status			Location		
				IUCN	CITES	Law	PT AJB	PT BMS	PT SMS
<b>Bird</b>									
1	<i>Nisaetus nanus</i>	Wallace's Hawk-Eagle		VU	App II	P			•
2	<i>Lophura erithrophthalma</i>	Crestless Fireback	-	VU					•
3	<i>Rhinoplax vigil</i>	Helmeted Hornbill		CR	App I	P			•
<b>Mammal</b>									
4	<i>Nycticebus coucang</i>	Bornean slow loris		VU	App I	P	••	••	••
5	<i>Tarsius bancanus</i>	Western Tarsier	-	VU	II	-	••	•••	•••
6	<i>Presbytis frontata</i>	White-fronted Langur	-	VU	II	-	•	•	•••
7	<i>Macaca nemestrina</i>	Pig-tailed Macaque	-	VU	II	-	••	••	•••
8	<i>Hylobates albibarbis</i>	Bornean White-bearded Gibbon	E	EN	I	P	••	••	•••
9	<i>Manis javanica</i>	Sunda Pangolin	-	CR	II	P	••	•	••
10	<i>Helarctos malayanus</i>	Sun Bear	-	VU	I	P	•	•	••
11	<i>Aonyx cinerea</i>	Oriental Small-clawed Otter	-	VU	II	P	•••	••	••
12	<i>Arctictis binturong</i>	Bearcat	-	VU	-	P	•	•	•••
13	<i>Neofelis diardi</i>	Sunda Clouded Leopard	-	VU	I	P			••
14	<i>Sus barbatus</i>	Bearded Pig	-	VU	-	-	•••	•••	•••
15	<i>Cervus unicolor</i>	Sambar Deer	-	VU	-	P	•••	•••	•••
<b>Reptile</b>									
16	<i>Tomistoma schlegelii</i>	False Gharial		VU	App I	P			•
17	<i>Amyda cartilaginea</i>	Asiatic Softshell Turtle		VU	II		••	••	••
18	<i>Siebenrockiella crassicollis</i>	Black Marsh Turtle		VU			••	••	••
19	<i>Manouria emys</i>	Asian Tortoise		EN	II				••

IUCN Redlist ver. 2015-1 [www.iucnredlist.org](http://www.iucnredlist.org). Downloaded on 26 July 2017.

CITES, Appendices, valid as of 30 July 2017

Symbol: ••• = presence confirmed; •• = presence highly potential; • = potential

Out of 287 plant species, 19 are RTE have been recorded (Table 27), 17 out of which are from Dipterocarp family, while the rest is from Bombacaceae (*Durio kutejensis*) and Lauraceae (Borneo ironwood/*Eusideroxylon zwageri*). The Dipterocarpaceae species are of Critical status, mainly due to overexploitation and limited seed distribution (only around the distributing tree).

**Table 27. List of RTE plant species identified in the assessment area**

No	Latin Name	English Name	District	Conservation Status	Location
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				IUCN	CITES	Law	AIB	PT BMS	PT SMS
1	<i>Durio kutejensis</i>	Borneo Durian	-	VU	-		+	-	+
2	<i>Anisoptera costata</i>	Ribbed Mersawa	-	EN	-		-	-	+
3	<i>Anisoptera laevis</i>	Mersawa Durian	-	EN	-		+	-	-
4	<i>Dipterocarpus grandiflorus</i>	Starfruit Keruing	-	CR	-		+	-	-
5	<i>Dryobalanops beccarii</i>	Red Kapur/ K. Keladan	-	EN	-		+	+	-
6	<i>Dryobalanops lanceolata</i>	Spear-Head Kapur	E	EN	-	A	+	-	-
7	<i>Hopea beccariana</i>	Beccari Merawan	-	EN	-		-	-	-
8	<i>Hopea mengerawan</i>	Sumatran Merawan	-	CR	-	A	+	+	+
9	<i>Hopea odorata*</i>	Lady Ta-Khian Merawan	-	VU	-		-	+	-
10	<i>Shorea agami</i>	Agam's White Meranti	-	EN	-		-	-	+
11	<i>Shorea cordata</i>	Heart-Shaped White Meranti	-	EN	-		+	-	-
12	<i>Shorea induplicata</i>	Folded Yellow Meranti	-	CR	-		-	-	+
13	<i>Shorea maxwelliana</i>	Maxwell Red Meranti	-	EN	-		+	-	-
14	<i>Shorea palembanica</i>	Light/Dark Red-Meranti	-	CR	-		-	-	+
15	<i>Shorea pauciflora</i>	Dark Red Meranti/Red Lauan	-	EN	-		+	+	-
16	<i>Shorea richetia*</i>	Richet Yellow-Meranti	-	CR	-		-	+	-
17	<i>Shorea stenoptera</i>	Narrow Wing Light-red Meranti	E	EN	-	B	+	-	-
18	<i>Shorea teysmanniana</i>	Teijsmann Red Meranti	-	EN	-		+	+	+
19	<i>Eusideroxylon zwageri</i>	Bornean Ironwood	-	VU	-	B	+	+	+

Source: Aksenat Survey Team, July 2017

Note: \*) English names are according to "hard and medium quality hardwood commercial names".

IUCN Status: CR= Critically Endangered, EN= Endangered, VU= Vulnerable

E= Bornean Endemic; IUCN (2017): CR= Critically Endangered, EN= Endangered, VU= Vulnerable; CITES= App: Appendix; A= protected based on Ministerial Decree of Agricultural Minister No. 54/Kpts/Um/2/1972 (5 February 1972); B= protected if DBH>50 cm according to Ministerial Decree of Minister of Forestry No. 261/Kpts-IV/1990

RTE species in the assessment area are found in fragmentation area in steep hills, particularly in PT SMS concession. Number of wildlife species in PT SMS concession is higher than that in other concessions. Wildlife hunting intensity in the northern part of the assessment area (PT AJB and PT BMS concessions) is higher than that in the southern part (PT SMS). Local communities in the northern part of the assessment area are mostly Catholic Dayak peoples, while others in the southern part are mostly Muslim Malay peoples. It appears that hunting activities are carried out more intensely by Dayak peoples rather than Malay peoples.

Based on situation in the field and upholding prudential principles, it is concluded that HCV 1 is present in the assessment area.

Based on the findings and indications of HCV 1, it can be concluded that HCV 1 within the study area is encountered in:

- Secondary forests that provides habitat for flora and fauna, including some RTE species (Table 27 and Table 28) which is still found in some hills as well as riverbank functioning as corridor to gibbon (Toning river),
- Part of the between PT BMS concession area and IBA Gunung Palung. Note that, in the IBA overlap area (western-most part of PT BMS concession) there is agroforest (38,80 ha) which provides a a canopy that can be used by birds as a shelter or place that provide food, indicating HCVA. The remaining overlapping area with IBA (308,16 ha of young shrub) should become HCVMA with habitat rehabilitation / restoration plan.
- Streams providing habitats to turtles.

See Table 31 for summary of HCVA and HCVMA for HCV 1, and figure 12-16 for information on the distribution.

### 3.2.2.2. HCV 2

According to landscape-level reassessment, it is known that the assessment area is located outside high biodiversity landscape but still within cultivation landscape. In and around the assessment area there are settlements, farmlands, oil palm plantations, and logged over areas. Landscape of the assessment area has been subject to degradation and fragmentation. The area is neither a landscape key function provider, conservation area corridor, nor high biodiversity forest area. Therefore, criteria to meet HCV 2 requirements are not found.

**Table 28. Evaluation of the assessment area in meeting HCV 2 requirements**

Qualification of HCV 2	Indication	Situation in assessment area
Large areas that are relatively far from human settlement, roads or other access.	X	Size of the assessment area is 30,000 hectares with the following condition: fragmented, near to settlement and passed through by Trans-Kalimantan highway.
Smaller areas that provide key landscape functions such as connectivity and buffering	X	Forests are degraded and fragmented, and deliver no connectivity and buffering functions
Large areas that are more natural and intact than most other such areas and which provide habitats of top predators or species with large range requirements.	X	Assessment area is located in farm land environment and not more intact than its surrounding

Note: ✓ = present/found; X= absent

Based on the above conditions, it is concluded that HCV 2 is absent because of the following:

- The assessment area is 30,000 hectares but divided into 11 plots of land located separate away from one another and surrounded by farmlands and settlements. The area is passed through by Kalimantan highway, a road network that was established in 1970 at the time HPH concessions were still operational
- Forest areas in the assessment area and its surroundings have reduced and fragmented, and their quality has degraded out of industrial logging in the past and on-going community logging. Community has long used lands for farming including rubber farming since the commodity was introduced by Dutch colonial government in 1911 (see section land use history). Currently they cultivate oil palm up to production forest areas. There are at least eight oil palm plantation companies that run their operation, i.e. PT TPS, PT MBK, PT SMP, PT CUS, PT LAB, PT CSC, PT AJB, PT BMS, PT SMS.
- The assessment area is far away from Borneo Biodiversity Centers, and located outside HoB, IFL, EBA, and Ramsar Site. The nearest conservation area is Gunung Palung National Park, but no corridor connects the assessment area and the national park.

### 3.2.2.3. HCV 3

According to field survey and secondary data analysis, HCV 3 presence in assessment area of Goodhope Ketapang as present in table below.

**Table 29. Indicators of HCV 3 presence in assessment area**

Situation that would qualify as HCV 3	Presence
Naturally rare because they depend on highly localized soil types, locations, hydrology or other climatic or physical features	Found
Anthropogenically rare, because the extent of the ecosystem has been greatly reduced by human activities compared to their historic extent	Found
Threatened or endangered (e.g. rapidly declining) due to current or proposed operations.	Found
Classified as threatened in national or international systems (such as the IUCN Red List of Ecosystems)	Not Found

There are 2 type of ecosystem in the assessment area. Mix land systems categorized as rare and threatened. HJA (Honja) and PLN (Pakalunai) combination are found on Mixed or hill dipterocarp forest on igneous (granite) ecosystem (< 300 m asl). Topographic conditions in the Assessment Area are relatively the same throughout the area, i.e. undulating to hilly, dominated by undulating areas (Table 23). Steep-sloped areas (> 40%) are mostly found in PT SMS concession (Table 23), while in PT AJB concession such areas are found in Kanau, Kelempeng and Urak Hills, and in PT BMS they are found in Merabu Hills (Table 23). Ecosystem characteristics in the assessment area shows that the distribution of Dipterocarp species are widely and mixed with pioneer plant species from Fabaceae and Euphorbiaceae families. Dominant tree species from Fabaceae family include *Bauhinia semibifida*, *Paraserianthes falcataria* and *Pithecollobium lobatum*, while those from Euphorbiaceae family include *Macaranga bancana*, *Homalanthus populneus*, and *Macaranga triloba*. The current Dipterocarp species populations are not concentrated at one single location; but rather, are found distributed as individual seedlings. Considering the presence of Dipterocarp seedlings, it is considered that it is possible for the ecosystem to recover through natural processes of regeneration.

Field survey result shows there is no intact forest landscape in the assessment area, due to illegal logging (in the past time) and land clearing of oil palm plantation. Most of the forest conversion is becoming cleared area, rubber plantation, and shrubs. According to that, if there a forest cover that has a vegetation composition of Dipterocarp species over HJA, PLN, and LHI land systems, then based on a precautionary approach the area is categorized as a rare and threatened ecosystem.

Given the situation, it can be concluded that naturally rare, anthropogenically rare / threatened or endangered ecosystems due to current or proposed operations are found in the assessment area.

#### 3.2.2.4. HCV 4

Field survey, stakeholder consultation and biophysical condition analysis reveal that the assessment area contains three types of HCVA, i.e. currently well vegetated hilly areas, rivers (water body) and their riverbank.

**Table 30. Indicators of HCV 4 in assessment area**

Location	River&riparian	Water body	Well vegetated hilly area
PT AJB	Semapau, Embawang, Betunu, Empojembe, Embawang Njunit, Toning Sawa, Toning Botang, Toning Plai, Toning Induk, Jokak Besar, and Kangking Rivers in Agro Jaya Estate Jokak Koci, Kindawari, Pemuar, Kurai, Kurai Kumbiar, Putih, Sentawak, Kahayun, Temirang, Teburi, and Cina Mariangin Rivers in Agro Bakti Estat	-	Kanau, Kelempeng, Urak, and Batu Hills have spring (Block I64) in Agro Jaya Estate



Location	River&riparian	Water body	Well vegetated hilly area
PT BMS	Bekayak, Ensinau, Selalang, Jihing, Perampai, Periau Randau, Rantik, Petobang, Rantik Jeronih, Engkaku, Prupai, Kedi and Bayur Rivers	Ensinau Lake	Merabu Hill
PT SMS	Karim, Bekayam, Pendamar, Sapunanga, Tiyakor, Semangka, Panyoh, Tering, Sendumang, Kinun, Hidup, Wang, and Kiakon Demit Rivers in Agro Lestari Estate Nango, Semapau, Betung, Kampung Raya, Tudus Kiangkang, Sepiri, Dokan, Mariangin, Siku, Luhur, Hara, Cina Rawan, and Punggas Rivers in Agro Makmur Estate	-	Aik Beguruh, Nyutung, Pauh, Dapuk, Gegara, and Siberuk Hills in Agro Lestari Estate Senanduh, Tudung, Menjuang, Sekolang, Senanggui, and Insuna Hills in Agro Makmur Estate

**Situations indicating HCV 4:**

- The riparian zone vegetation is mostly in sound condition. It plays an important role as natural filter against a wide range of agrochemicals and erosion sedimentation carried by runoff, allowing the maintained river water quality
- Management of extreme event of water flow including intact flood buffer zone
- Lake as a catchment area and control of extreme event of water flow
- Clean water source provider
- As a catchment area to the surrounding rivers and springs
- Maintenance of downstream river regime due to the presence of baseflow continuously emptying to the river
- Currently sound vegetation condition plays an important role to protect steep to very steep land

**Hilly areas with relatively natural vegetation**

Condition of topography in the PT SMS concession tends to take form of rolling-hilly compared to that in PT BMS and PT AJB concessions. Therefore, more hills are found in PT SMS concession, including Aik Beguruh, Nyutung, Pauh, Dapuk, Gegara, Siberuk, Senanduh, Tudung, Menjuang, Sekolang, Senanggui, and Insuna Hills. PT AJB concession has 4 hills, namely Kanau, Kelempeng, Urak and Batu Hills in Block I64, while PT BMS concession has one, namely Merabu Hill. These hilly areas slope is more than 40% (21.8°). They are still covered with sound vegetation with moderately high density (old shrub - secondary forest). Already degraded or covered by bush, it is necessary to continue managing some parts of the hilly areas to support and improve their important values. Therefore, these areas become part of HCVMA.

**Rivers and riparian**

From hydrologic standpoint, the assessment area belongs to 4 sub-watersheds of Pawan Watershed, namely Laur, Jokak, Krio, and Pawan Hulu. These hydrologic territories divide surface flow direction in the assessment area. See below characteristics of the rivers in the assessment area by the watershed. Widths of riverbank as riparian zone vary from 10 m to 50 m from the riverside following river morphometric condition in the field.

**Water bodies**

Ensinau Lake is catchment area to upstream Ensinau River. This lake was initially a lowland getting dammed because of road construction in the beginning of HPH concession companies' operation. Its surrounding later on became nata'i<sup>8</sup>, functioning as a catchment area with sound water quality and thus preventing the lake from getting dried. Runoff coming out from Ensinau Lake when it floods enters Ensinau River. This lake has important elements that are of conservation values, namely as a

<sup>8</sup> Area higher than its surrounding but lower than hill.

catchment area and control of water flow extreme events, in addition to provider of clean water to the surrounding communities.

HCVA 4 is also found in the assessment area with 3 types, namely currently well vegetated hilly areas, water bodies, and rivers along with their riverbanks.

#### **3.2.2.5. HCV 5**

Survey, interview and consultation based on the Free, Prior and Informed Consent (FPIC) principles with local community indicate that the majority of local community meet their basic needs by buying from local peddlers and small kiosks in their villages, as well as in Regency market (in Sanda and Sungai Luar). However, some areas are found within the scope of HCV 5 definition according to Common Guidance for HCV Identification (2013). They are located in and outside the assessment area (PT AJB, PT BMS and PT SMS concessions). Identified HCVA 5 includes rivers where community fishes (source of protein), river, lake and spring as sources of clean water for drinking and sanitation, tembawang (mixed/fruit garden) as an agroforestry system used by community as one of the sources of vitamin, mineral and cash income.

Social survey for identifying HCV 5 was carried out in 18 villages around the assessment area. These villages were selected based on: (1) PT AJB, PT BMS and PT SMS concession map; (2) overlaying the assessment area with Kalimantan RBI administrative map, Ketapang District's Village Potential (PODES) map and Landsat 8 satellite imagery; and (3) information from local stakeholders (village head/community representative) with participatory mapping.

Based on participatory mapping, Focus Group Discussion (FGD), interview and field survey involving local community the team conclude the following:

##### **Source of food**

###### Carbohydrate

Needs for carbohydrate (rice) are met from buying and cultivation. Rice is normally bought from local kiosks around the villages as well as markets in Sandai and Sungai Laur cities with price ranging between IDR 10,000 and IDR 13,000 per kg. In addition, local community also harvests rice from annual, rotating rice farming. The yield is capable for meeting own families' consumption as staple food for six months to the whole year, while the remaining is sold for cash income.

###### Protein

Sources of protein such as fish and meat are obtained from buying, catching from the river, farming (chicken, pig and cow), fish farming, hunting and snaring. Fish is normally bought with varying prices from local peddlers and markets in Sandai and Sungai Laur cities. Some parts of local community obtain fish from fishing in the rivers around village. According to local community, people fish in Pawan, Laur, Krio, Biya, Semapau, Embawang and Bentunu Rivers. Through consultation, traditional chief and village head stated that people fish using fishing rod, net, trawl and bubu (fish trap).

###### Vitamin and Mineral

Needs for vitamin and mineral are met from buying, own vegetable field, NTFP products from forest as well as fruits and vegetables from tembawang or fruit plantation. Vegetables are normally bought

from peddlers and nearby markets. Community consumes vegetable every day, such as cassava, fern, bamboo shoot, kale, spinach, mustard, tomato, chili, cucumber, eggplant, carrot, potato, cabbage and nuts. Vegetable price ranges from IDR 1,000 to IDR 5,000/bunch or IDR 8,000 to IDR 50,000/kg.

In general, community cultivates vegetables around their settlement/village. Several plots of vegetable fields are found in PT SMS concession. However, they do not meet HCV 5 requirements because of they practically create conflict with biodiversity HCVs and the vitamins that the vegetables contain are not irreplaceable, essential vitamins and alternatives are already available, e.g. from buying.

#### **House construction material and household tools**

Community houses in the assessment area are mostly constructed using cement and rocks that are obtained from buying. However, certain parts still use timber also obtained from buying. Tree species used for construction materials include ironwood, meranti, bengkirai, nyatoh and blangiran. Timber price ranges from IDR 1,000,000 to IDR 3,000,000/m<sup>3</sup>.

Household tool are mostly obtained from buying. They are mostly made out of non-natural materials. Likewise, boat construction materials are mostly obtained from buying. No areas, such as customary forest, are specifically used for timber extraction. Timbers are generally extracted in forested areas on the hill or several forest areas. Hill and forest areas used by community for timber extraction are not included by HCV 5 definition scope, so that they are not mapped as HCVA 5. That is, because timbers are used by local and migrant community for commercial purposes in conflict with other biodiversity HCVAs.

#### **Medicines**

Today local community can already access healthcare in Pustu (auxiliary clinic) located in all villages around the companies' concessions (assessment area) and Puskesmas (local government clinic) located in Regency capital. All Pustus in the villages around the assessment area are manned by medical personnel such as nurse and midwife.

#### **Fuel and electricity**

Community mostly uses 3 kg-LPG gas cylinders for cooking fuel, which are obtained from buying. The price is IDR 25,000-35,000 per unit for 3 kg gas cylinder and IDR 200,000- 230,000 for 12 kg gas cylinder.

They still use firewood, but not as the primary source of cooking fuel. Firewood is collected from house yards, fields and rubber fields. According to them, only few community members use firewood because of distinguished food taste produced out of the use of firewood. All villages in the assessment area, except Cintamanis, Benua Krio (Hulu Sungai Regency) and Lanjut Mekarsari) are already connected to State Electricity Company (PLN) electrical grid. All households in these villages already use electricity to meet their domestic needs for energy.

#### **Water sources**

Local community clean water for consumption and sanitation is sourced from rivers, springs, lakes and dug wells. River water is pumped to local housing, while spring water is distributed using government-aided water installation and lake water is taken using jerry cans.

The rivers, springs and lakes as water sources are included by HCV 5 definition scope, making it necessary to map, protect and manage them. That is, in order to acknowledge local community rights of sovereignty over areas protected according to RSPO mandate as these water sources are vital to them in meeting their needs for water for consumption and sanitation as well as to deal with impacts on local community water availability out of company operations.

### **Livelihoods**

Livelihoods of local community in the assessment area are earned from agricultural sector, mainly from rubber and rice farming. Before the presence of oil palm companies, the majority of local community worked as rubber and rice field farmer, as well as logger. However, most of them have turned to works in oil palm companies. Only few of them work as community gold miner, fisherman, worker, logger, trader and civil servant.

Local communities shifted livelihoods from rubber and dryland rice farmers and logger to oil palm plantation company workers are due to three major factors as follow: (1) low rubber price in the past 10 years; (2) decreasing production of dryland rice field; and (3) decreasing availability of natural resources, particularly from forest (timber and non-timber).

Four forms of HCV 5 are found in the assessment area, i.e. river used for fishing and source of water, springs used for water source, lake for water source, and tembawang whose NTFPs are used by local community.

### **3.2.2.6. HCV 6**

Survey, interviews and consultation regarding the Free, Prior and Informed Consent (FPIC) principles with the local community indicate that the majority of local community already embrace government acknowledged religions. However, areas are found included by HCV 6 definition in and outside PT AJB, PT BMS and PT SMS concessions. The identified areas are tembawang (fruit field) containing historic and cultural values, in addition to sites of religious/sacred values for traditional and spiritual ceremonies.

Social survey was carried out to identify HCV 6 in 18 villages around the assessment area. These villages were selected based on: (1) PT AJB, PT BMS and PT SMS concession maps; (2) overlaying of the Kalimantan RBI administrative map, Ketapang District's Village Potential (PODES) map and Landsat 8 satellite imagery; and (3) information from local stakeholders (village head/community representative) through participatory mapping.

Based on participatory mapping, Focus Group Discussion (FGD), interview and field survey involving local community, the following is concluded.

1. Tembawang (Dayak language) or kebun buah (Malay) is area/site of historical and cultural values to the local communities around the concessions, hence necessary to protect.
2. There are several sites/areas of religious/sacred values to Dayak peoples. They are used for traditional and spiritual ceremonies by Dayak communities around the concessions, hence necessary to protect.

### **Sites acknowledged of high cultural values by national policies and legislation**

In this area there are no sites acknowledged of high cultural values by national policies and legislation. Indonesian policies and legislation only assigned 15 cultural heritages in West Kalimantan Province, and none is located within the assessment area.

The 15 cultural heritages include Keraton Tayan (Sanggau), Al Mukarom (Sintang), Amantubillah (Mempawah), Azwazoekeobillah (Sambas), Landak, Betang House (Kapuas Hulu), Old Church of Santo Friedells (Sejiram), Kadriah Palace (Pontianak), Great Mosque of Pontianak Sultanate, Sambas, Landak, Tayan, Sanggau, and Al Mulkarrom Sintang<sup>9</sup>. Building in this province stipulated as National Cultural Heritage as per Minister Decree No. KM10/PW007/Mkp03 is Sejiram Church in Kapuas Hulu District<sup>10</sup>.

#### **National government and/or international agency officially assigned sites**

Borneo has only one UNESCO-registered site which is listed under 'tentative list', namely 'Sangkulirang-Mangkalihat Karst: Prehistoric rock art area', located in East Kalimantan<sup>11</sup>, far away from the assessment area.

#### **Sites of important historical and cultural values acknowledged, even when unprotected by legislation**

Some of these sites relate to Dayak ethnic, while some others to Malay. What relate to Malay and is acknowledged particularly by the ethnic itself in Sandai District is a burial complex of Sultan M. Haliudin, which is known as Tai Ayam Prince. It is located outside the assessment area, which is in Istana Village bordering Sandai and Muara Jekak Villages. Dayak sacred sites found in the assessment area include Raja Pindah (Akik) sacred site, Temenggung Bertajuk Raja Bertunas and Raja Pana, Tapang Pulau Kakar and Kinjil Pemali, Paguk Buah Nanggar and others described below:

#### **Religious or sacred sites, burial ground or sites where there takes place traditional ceremony of important role to local or traditional community**

This site is also found both in and outside the concessions. Villages containing sacred sites where traditional ceremonies are carried out are Benua Krio (especially Mariangin Sub-Village), Randau, Pendamar Indah, Merimbang Jaya, Alam Pakuan, Lanjut Mekarsari, Bengaras, Sungai Daka and Pangkalan Suka.

Jokak Sekayuk Dayak community from Randau, Sungai Daka, Pendamar Indah, Merimbang Jaya and Alam Pakuan Villages has sacred sites outside the concessions, namely Raja Pindah (Akik) sacred site. Every year, the four villages owning the sacred site hold traditional ceremonies such as Pagu Tolak Barau to clean the villages. In addition, certain people will make prayer in this location

#### **Other sacred sites spread in the several villages.**

Traditional ceremonies are carried out centred in the villages, but this involves making offerings to the tembawang. This means that tembawang is a location important for holding traditional ceremonies.

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<sup>9</sup> <https://m.tempo.co/read/news/2012/05/25/199406052/baru-15-cagar-budaya-kalimantan-barat-yang-diakui>

<sup>10</sup> See [cagarbudaya.kemdikbud.go.id/](http://cagarbudaya.kemdikbud.go.id/)

<sup>11</sup> [whc.unesco.org/](http://whc.unesco.org/)

The presence of tembawang normally relates to pedukuhan (a group of old field huts). Generally, tembawang has burial ground and small creek, or ex-longhouse. Families who have tembawang are deemed to have high social status among their community. Its presence is culturally essential to Dayak peoples as it relates to the traditional rituals to welcome blossoming fruits and after their plants produce fruits.

Several plant species in tembawang are protected by Dayak local custom, such as tengkawang, durian and honey tree. Disturbance to these plants may entail customary punishment. However, this decision will depend on the owner. Two HCVA 6 (areas/sites with historical/cultural and sacred/religious values) are found in the assessment area.

### **3.2.3. Conclusions of HCV findings**

The total indicative HCV areas and Indicative HCVMA specifically within the license area of PT SMS are presented in the following table. HCV areas identified outside the license area mentioned in the relative chapters, and mapped, but their sizes are not included in the below table. Maps are presented in the following figures.

**Table 31. Summary of HCVAs and HCVMA in PT SMS area**

Unit	Location	HCV Type	Description	HCV	HCV + HCVMA*
SMS	Mariangin River	HCV 4; 5	Buffer 50m; functioning as flood control, sediment control and provision of water; important source of protein to the local communities	4.69	9.52
SMS	Sendumang River	HCV 4	Buffer 50m; functioning as flood control, sediment control and provision of water	12.49	12.49
SMS	Aik Beguruh Hill	HCV 1; 4	Functioning as habitat and refugium for wildlife species, important water catchment area, and erosion control	454.70	454.70
SMS	Spring in Segara Hill	HCV 5	Source of clean water of the local community	-	-
SMS	Spring in Air Beguru River	HCV 5	Source of clean water of the local community	-	-
SMS	Tembawang	HCV 5; 6	Historical site marked by old fruit trees (Tembawang); important for cultural identity	-	-
SMS	Kinun River and its tributaries	HCV 4	Buffer 50m; functioning as flood control, sediment control and provision of water	21.25	21.25
SMS	Pauh Hill	HCV 1; 4	Functioning as habitat and refugium for wildlife species, important water catchment area, and erosion control	5.70	5.70
SMS	Karim River and its tributaries	HCV 1; 4	Buffer 50m; habitat and breeding grounds for aquatic species, flood control, sediment control and provision of water (HCV 1 only in water body)	243.03	251.53
SMS	Spring in Tering River	HCV 5	Source of clean water of the local community		
SMS	Pendamar River	HCV 4	Buffer 50m; functioning as flood control, sediment control and provision of water	14.12	14.12
SMS	Nyutung Hill	HCV 1; 4	Functioning as habitat and refugium for wildlife species, important water catchment area, and erosion control	238.90	238.90
SMS	Dapuk Hill	HCV 1; 4	Functioning as habitat and refugium for wildlife species, important water catchment area, and erosion control	434.80	598.20
SMS	Tributaries of Demit River	HCV 4	Buffer 50m; functioning as flood control, sediment control and provision of water	19.13	44.03
SMS	Gegara Hill	HCV 1; 4	Functioning as habitat and refugium for wildlife species, important water catchment area, and erosion control	76.40	110.30
SMS	Siberuk Hill	HCV 1; 4	Functioning as habitat and refugium for wildlife species, important water catchment area, and erosion control	46.90	79.10
SMS	Spring in Siberuk Hill	HCV 5	Source of clean water of the local community		
SMS	Mix Fruit Garden Aju	HCV 5; 6	Historical site marked by old fruit trees (Tembawang); important for cultural identity		
SMS	Nango River and its tributaries	HCV 1; 4	Buffer 50m; habitat and breeding grounds for aquatic species, flood control, sediment control and provision of water (HCV 1 only in water body)	189.9	193.76
SMS	Tembawang Durian	HCV 5; 6	Historical site marked by old fruit trees (Tembawang); important for cultural identity		
SMS	Mix Fruit Garden Lembawang	HCV 5; 6	Historical site marked by old fruit trees (Tembawang); important for cultural identity		

Unit	Location	HCV Type	Description	HCV	HCV + HCVMA*
SMS	Senanduh Hill	HCV 1; 4	Functioning as habitat and refugium for wildlife species, important water catchment area, and erosion control	5.90	5.90
SMS	Tudung Hill	HCV 1; 4	Functioning as habitat and refugium for wildlife species, important water catchment area, and erosion control	45.20	47.00
SMS	Spring in Tudung Hill	HCV 5	Source of clean water of the local community		
SMS	Mix Fruit Garden Tudung Hill	HCV 5; 6	Historical site marked by old fruit trees (Tembawang); important for cultural identity		
SMS	Tembawang	HCV 5; 6	Historical site marked by old fruit trees (Tembawang); important for cultural identity		
SMS	Tembawang Antonius	HCV 5; 6	Historical site marked by old fruit trees (Tembawang); important for cultural identity		
SMS	Mix Fruit Garden	HCV 5; 6	Historical site marked by old fruit trees (Tembawang); important for cultural identity		
SMS	Mix Fruit Garden Ulu Jangkang	HCV 5; 6	Historical site marked by old fruit trees (Tembawang); important for cultural identity		
SMS	Kampung Raya River and its Tributaries	HCV 1; 4; 5	Buffer 50m; habitat and breeding grounds for aquatic species, flood control, sediment control and provision of water (HCV 1 & 5 only in water body)	100.63	128.84
SMS	Mix Fruit Garden Sekolang	HCV 5; 6	Historical site marked by old fruit trees (Tembawang); important for cultural identity		
SMS	Menjuang Hill	HCV 1; 4	Functioning as habitat and refugium for wildlife species, important water catchment area, and erosion control	13.50	55.50
SMS	Sekolang Hill	HCV 1; 4	Functioning as habitat and refugium for wildlife species, important water catchment area, and erosion control	117.10	194.10
SMS	Mix Fruit Garden Kampung Raya	HCV 5; 6	Historical site marked by old fruit trees (Tembawang); important for cultural identity		
SMS	Mix Fruit Garden Kampung Raya	HCV 5; 6	Historical site marked by old fruit trees (Tembawang); important for cultural identity		
SMS	Sepiri River	HCV 4	Buffer 50m; functioning as flood control, sediment control and provision of water	28.00	29.13
SMS	Mix Fruit Garden Kiangkang	HCV 5; 6	Historical site marked by old fruit trees (Tembawang); important for cultural identity		
SMS	Dokan River	HCV 4	Buffer 50m; functioning as flood control, sediment control and provision of water	40.67	41.91
SMS	Senanggui Hill	HCV 1; 4	Functioning as habitat and refugium for wildlife species, important water catchment area, and erosion control	28.10	28.50
SMS	Siku River and its tributaries	HCV 4	Buffer 50m; functioning as flood control, sediment control and provision of water	59.69	59.69
SMS	Tembawang Suit Punggas	HCV 5; 6	Historical site marked by old fruit trees (Tembawang); important for cultural identity		
SMS	Punggas River and its tributary	HCV 4	Buffer 50m; functioning as flood control, sediment control and provision of water	23.09	23.09



Unit	Location	HCV Type	Description	HCV	HCV + HCVMA*
SMS	Cina Rawan River	HCV 1; 4; 5	Buffer 50m; habitat and breeding grounds for aquatic species, flood control, sediment control and provision of water (HCV 1 & 5 only in water body)	34.32	34.32
SMS	Insuna Hill	HCV 1; 4	Functioning as habitat and refugium for wildlife species, important water catchment area, and erosion control	303.10	303.10
SMS	Spring in Hara River	HCV 5	Source of clean water of the local community		
SMS	Hara River	HCV 4	Buffer 50m; functioning as flood control, sediment control and provision of water	1.31	1.31
SMS	Muhur River	HCV 4	Buffer 50m; functioning as flood control, sediment control and provision of water	5.72	5.72
SMS	Spring in Muhur River	HCV 5	Source of clean water of the local community		
SMS	Forest Area	HCV 1	Functioning as habitat and refugium for wildlife species. important water catchment area. and erosion control	398.11	408.47
<b>Total HCV Area and HCVMA*</b>				<b>2,966.45</b>	<b>3,400.18</b>
<b>Size of License Area of PT SMS**</b>				<b>11,619.1</b>	<b>11,619.1</b>
<b>Percentage (%) HCV Area and HCVMA of the License Area</b>				<b>25.53 %</b>	<b>29.26%</b>

Notes:

\*The indicative HCV areas is determined based on GIS acreage, not yet delineated in the field

\*\*The size of the assessment area is based on the Cadastral of PT SMS

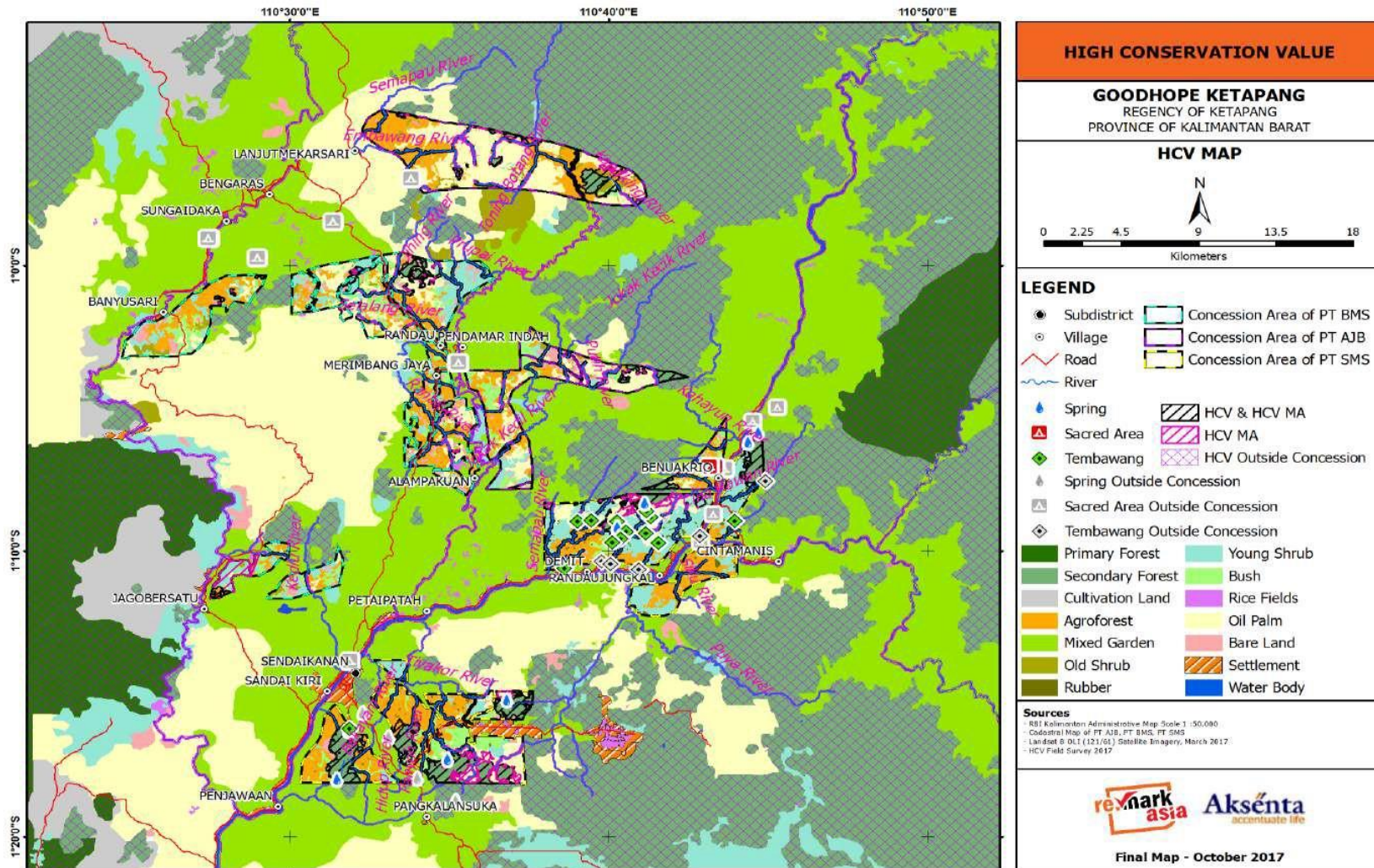


Figure 12. Map of HCVAs and HCVMA in the assessment area

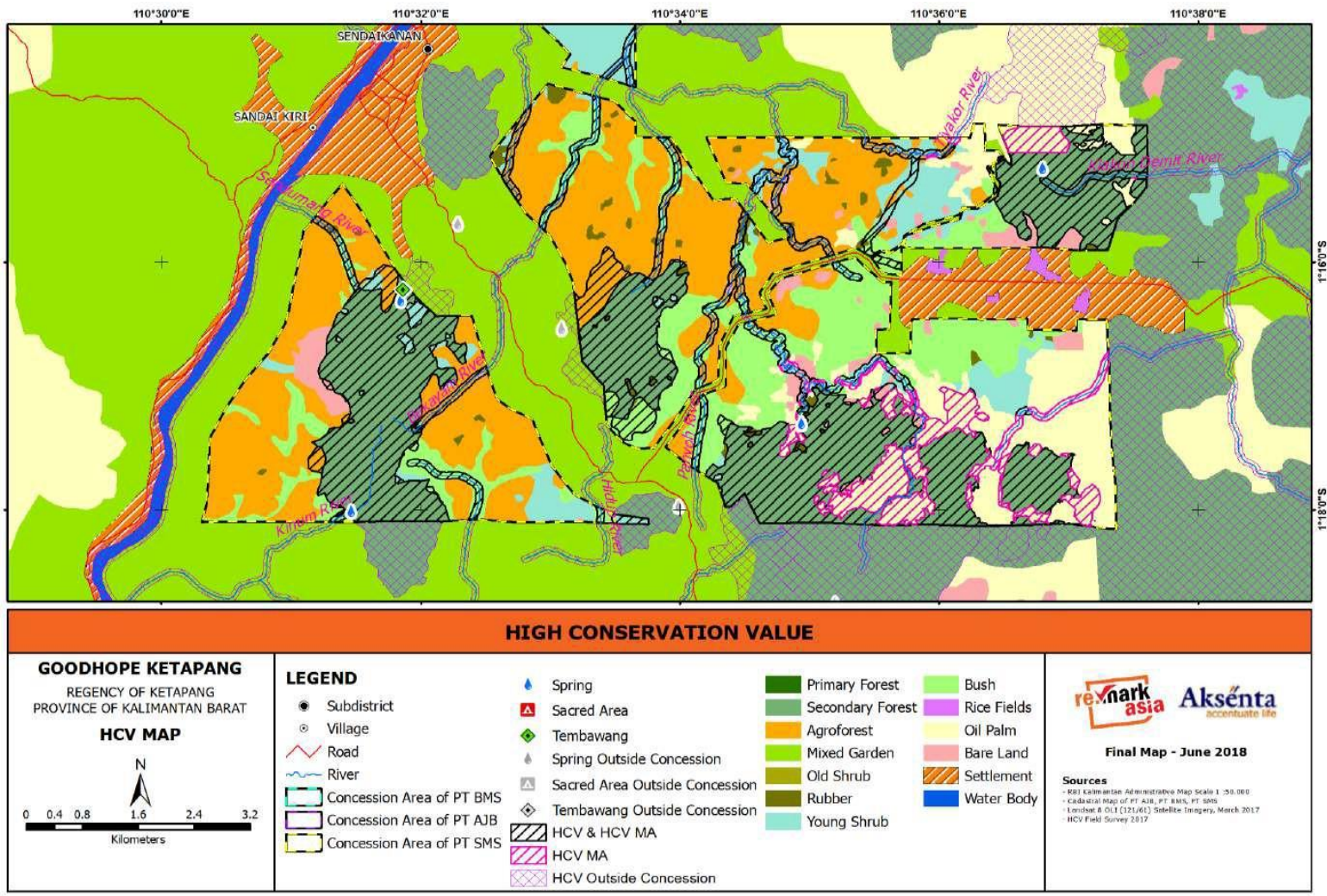


Figure 13. Map of HCVAs and HCVMA in Agro Lestari Estate Area - PT SMS

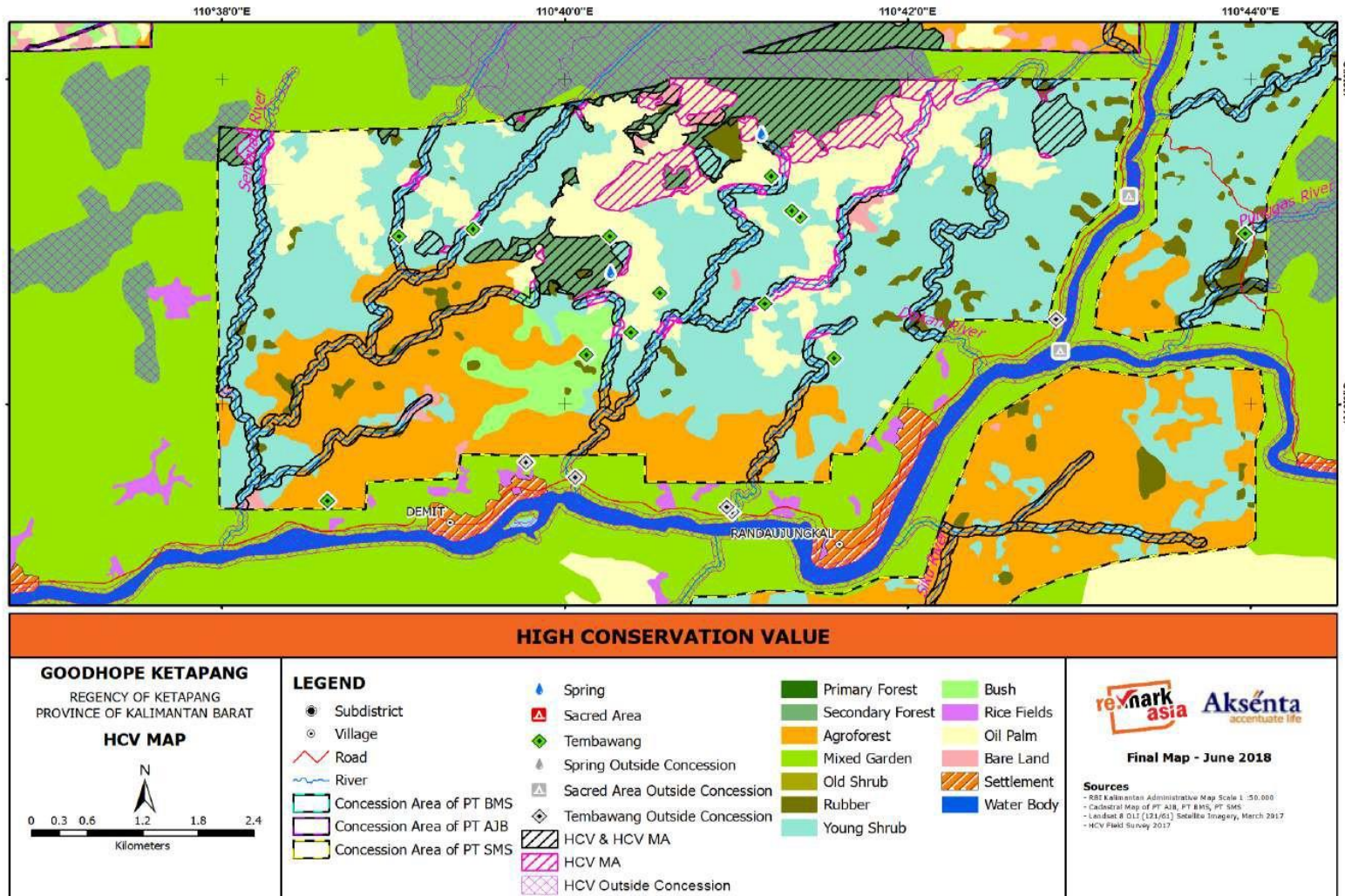


Figure 14. Map of HCVAs and HCVMAs in Agro Makmur Estate Area (Western Part) - PT SMS

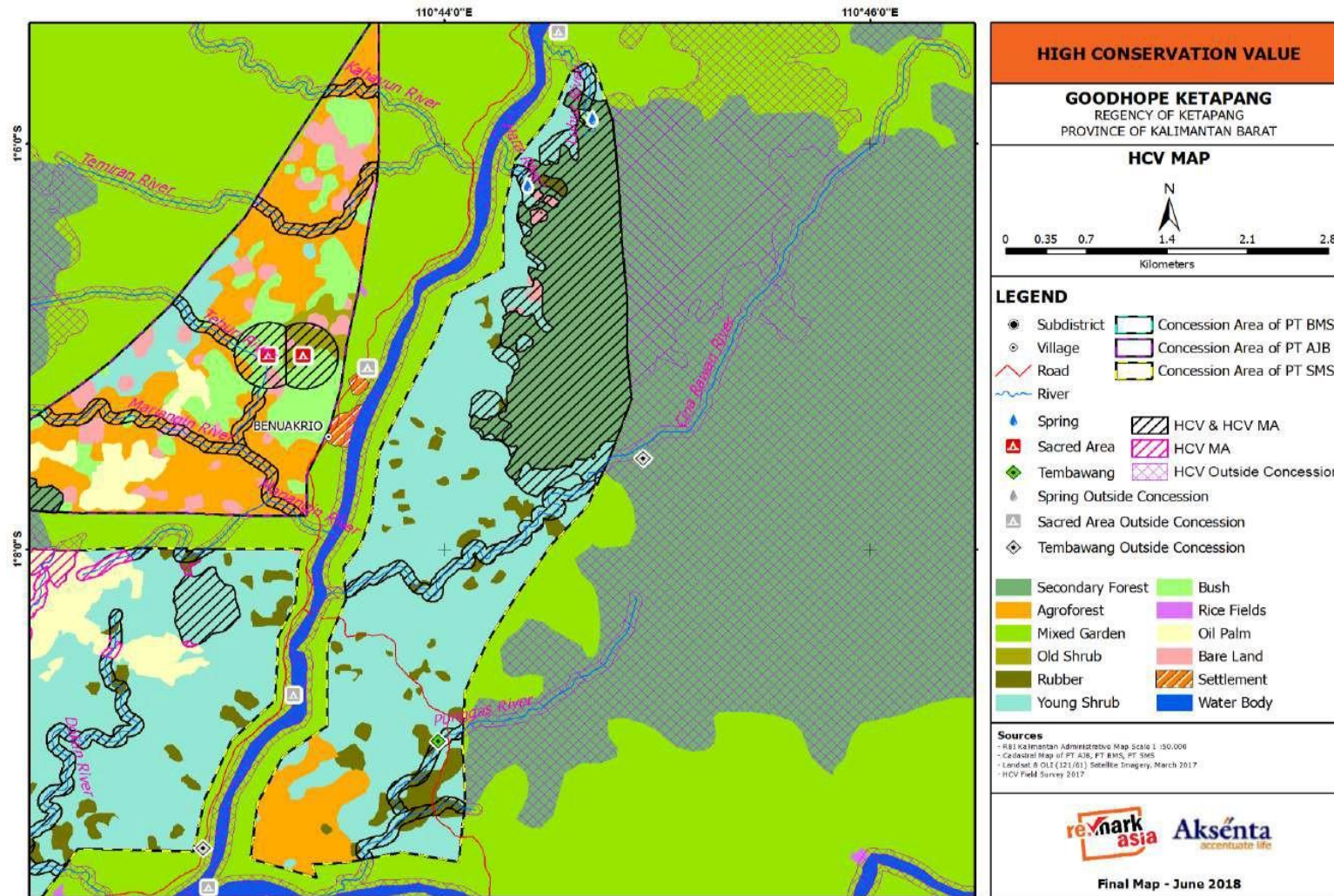


Figure 15. Map of HCVAs and HCVMA in Agro Makmur Estate Area (Eastern Part) - PT SMS

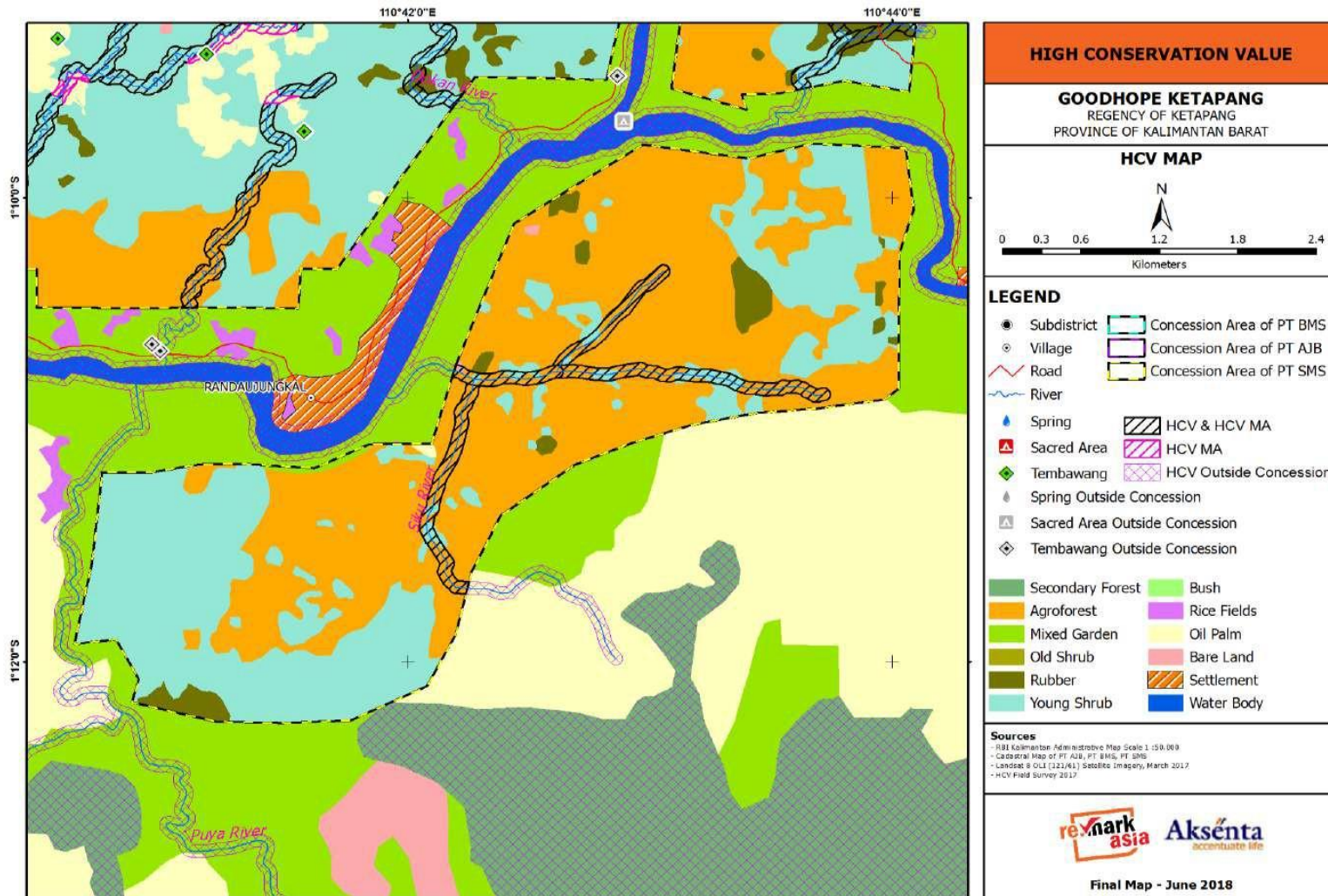


Figure 16. Map of HCVAs and HCVMA in Agro Makmur Estate Area (South-Eastern Part) - PT SMS

### 3.2.4. Stakeholder consultation

Consultations were carried out with four groups of stakeholder, namely (i) local community, (ii) organizations and institutions representing the local community, (iii) environmental organization and academics, and (iv) government. Tables below present approach used in the consultation with each group and summary of consultations.

**Table 32. Summary of stakeholder consulted and the consultation approach**

Stakeholder	Approach used
Local communities as owner/right holder of the land, and as the user of the natural resources including ecosystem service: <ul style="list-style-type: none"> <li>- Communities of the 18 villages around the concessions</li> </ul>	<ul style="list-style-type: none"> <li>- Interview during survey</li> <li>- FGD</li> <li>- Participatory mapping</li> <li>- Formal meeting in presentation of the interim result of the assessment in Pontianak.</li> </ul>
Organizations and institutions representing local community: <ul style="list-style-type: none"> <li>- Village officials of the 18 villages</li> <li>- Customary council</li> </ul>	<ul style="list-style-type: none"> <li>- FGD</li> <li>- Formal meeting in presentation of the interim result of the assessment in Pontianak.</li> </ul>
Environmental organizations and academics: <ul style="list-style-type: none"> <li>- ASRI Foundation</li> <li>- POLITAP (Ketapang State Polytechnic)</li> <li>- IAR Foundation</li> <li>- Palung Polytechnic</li> <li>- Faculty of Mathematics and Natural Sciences of Tanjungpura University</li> <li>- WWF Indonesia</li> <li>- IDH</li> <li>- FFI</li> <li>- GIZ</li> </ul>	<ul style="list-style-type: none"> <li>- Discussion in the office of FFI, Palung Foundation, ASRI, Tanjungpura University, IAR, IDH, and Gunung Palung National Park; in Ketapang.</li> <li>- Formal meeting in presentation of the interim result of the assessment in Pontianak.</li> </ul>
Government: <ul style="list-style-type: none"> <li>- BAPPEDA</li> <li>- Environmental Agency (BLH)</li> <li>- Agriculture and Plantation Agency</li> <li>- Natural Resources and Concesrvation Agency (BKSDA)</li> </ul>	<ul style="list-style-type: none"> <li>- Formal meeting in presentation of the interim result of the assessment in Pontianak.</li> </ul>

**Table 33. Summary of stakeholder consultation in Ketapang**

Date	Time and Venue	Name	Position/ Role	Organisation/ Social Group	Major Concern & Recommendation/ Team Response
17 July 2017	02.30-03.30 p.m. (Mt. Palung National Park office)	Andrianus Muliadi	Forest Ranger	Gunung Palung National Park	<ul style="list-style-type: none"> <li>• Never have orangutan and its nest been directly encountered during 8 months of patrol in Mt. Palung National Park, specifically in the northern part of the area including Sampurna and Cali Villages. The most distribution of orangutan is in the southern part of Gunung Palung, around Nek Doyan Village.</li> <li>• Several days ago, there was information that orangutan passed through community coconut plantation at KM 8 or KM 10 of Riam Berasap Village.</li> <li>• There is information that Randau Village community often hunts, including when they see orangutan.</li> </ul> <p><b>Response:</b> Thank you, Pak Muladi, for your excellent information. Based on our review we were working at the geographical scope that not cover villages mentioned: Nek Doyan Village, Riam Berasap Village. However, we visited Teluk Bayur Village, Jago Bersatu, Pendamar Indah. Those villages are considered Orang Utan distribution areas (IUCN 2016). No Urang Utan encountered.</p>
17 July 2017	04.00-04.30 p.m., Palung Foundation Office	Hajral (085654483726), Dedi, Asbandi, Sari	Staff	Palung Foundation, Sukadana	<ul style="list-style-type: none"> <li>• Several days ago, there was a report on community members keeping orangutan in Sandai area.</li> <li>• Major programme of Gunung Palung Foundation relates to three matters, i.e. community empowerment through organic farming, environmental education and investigation.</li> <li>• Gunung Palung Foundation also assists community in village forestry programme in collaboration with ICCTF in, among others, Penjalaran, Nipah Kuning, Pemangkat, Pulau Kumang, and Pada Banjar Villages.</li> </ul> <p><b>Response:</b> Thank you for the information. The information for orangutan kept by community will be followed up.</p>
17 July 2017	05.00 – 06.00 p.m., ASRI office, Sukadana	Eti, Agus Supriyanto and Nurul Ihsan	Conservation Education, Monitoring and GIS staff	ASRI, Sukadana	<ul style="list-style-type: none"> <li>• Last month there was information on orangutan in Sungai Putri, around Bayur Indah Village.</li> <li>• Yesterday there was information on orangutan passing through community coconut plantation at KM 8 or KM 10, Riam Berasap Village.</li> <li>• Community of Pangkalan Jihing area normally use poison to fish or electrofishing, especially in dry seasons.</li> <li>• ASRI established environmental conservation zones; if a village community is proved to be able to preserve their environment, the village will be labelled 'green zone' to which healthcare will be provided as the compensation.</li> <li>• In general, rivers whose banks are already planted with oil palm are not used by the community.</li> </ul>



Date	Time and Venue	Name	Position/ Role	Organisation/ Social Group	Major Concern & Recommendation/ Team Response
					<ul style="list-style-type: none"> <li>Rivers around Jago Bersatu and Sampurna Villages are polluted by gold mining.</li> <li>In general, rivers in the concessions have been converted into oil palm plantations, except major rivers sourced from Mt. Palung National Park.</li> </ul> <p><b>Response:</b> Thank you for the information. The information for orangutan will be followed up. Other issues such as poisoning fishing, river pollution beyond our scope of assessment.</p>
18 July 2017	10.00 a.m.- 12.30 p.m., IAR Foundation office, Ketapang	Tantyo and Carmele	Head of IAR Indonesia Foundation and IAR Director Ketapang	IAR Foundation, Ketapang	<ul style="list-style-type: none"> <li>Two days ago, IAR rescued an orangutan at KM 10, Riam Berasap Village.</li> <li>Areas where orangutan-human conflicts often take place is Laman Satong.</li> <li>IAR already collaborates with several companies such as PT KAL, focusing on the following activities: establishing taskforce, delivering training and patrol.</li> <li>HCV assessment plays an important role as a baseline to wildlife management and monitoring, especially orangutan for this case.</li> <li>Connectivity is essential for orangutan conservation. IAR initiated Mt. Palung-Sungai Putri corridor pilot project.</li> <li>Today, oil palm plantation companies are relatively better in conservation and nature preservation compared to what they did in the past 10 years.</li> <li>Less established cooperation between neighbouring companies is a problem that IAR often sees in orangutan conservation.</li> </ul> <p><b>Response:</b> Thank you for the information. The information for Orang Utan will be followed up. We expect oil palm company such as Goodhope develop concrete collaboration with IAR or other related organization working on conservation.</p>
18 July 2017	01.00-03.30 p.m., FFI office, Ketapang	Tito	Manager	Flora Fauna International, Indonesia Programme - Ketapang	<ul style="list-style-type: none"> <li>FFI programme in Ketapang focuses on peatlands around Sungai Putri.</li> <li>Community around Sungai Putri declined to surrender their area for social forestry. However, it is still possible to apply non-physical corridor programme in this area.</li> <li>FFI also assists community to have alternative livelihoods, namely business of packaged mineral water distribution from spring in Manjau.</li> <li>Environmental services management and protection relating to water use can be regulated under village regulation based on agreement with community.</li> </ul> <p><b>Response:</b> Thank you for the information.</p>

**Table 34. Summary of stakeholder consultation in Pontianak**

Date	Time and Venue	Name	Position/ Role	Organisation/ Social Group	Major Concern & Recommendation/ Team Response
9 August 2017	10.00 a.m. – 01.00 p.m., Borneo Emerald Hotel, Ketapang.	Edi	Staff	Mt. Palung Foundation	<ul style="list-style-type: none"> <li>▪ Care must be taken concerning the presence of orangutan, especially when land clearing. Cases often occur relating to these animals found during land clearing. For your information, orangutan and hornbill distribution depends on availability of their foods.</li> <li>▪ Plantations in hilly areas also need to act carefully when it comes to the use of agrochemical as these materials would get washed away and enter major rivers.</li> <li>▪ Flow resulted as impact from plantation activities goes down to downstream areas. Downstream Pawan River constantly overflows after land clearing in its upstream areas for oil palm plantations.</li> </ul> <p><b>Response:</b> Thank you, Pak Edi, for your excellent input. Your concern is also public’s concern. This reassessment will be helpful as this has secured HVCAs. However, the future development is worth serious attention, and stakeholders in this reassessment (NGO, student, government) should monitor and watch, not only over Ketapang Project Goodhope Assessment Area, but also the corridor connecting it to the surroundings outside the area.</p>
9 August 2017	10.00 a.m.-01.00 p.m., Borneo Emerald Hotel, Ketapang.	Fahmi	Staff	IAR	<ul style="list-style-type: none"> <li>• Concerning the cover condition, we have some corrections. Concerning orangutan distribution, it goes from Mt. Palung straight to Mt. Tarak, beside GN protection forest. In Tarak there is PT SMA bordering PT SIS. PT SIS borders PT SMS2 (to the south of PT SMS Goodhope Group) near to Pangkalan Suka. On the tip there is Sebadak Raya Village that has Sebadak Raya village forest (about 4,000 ha managed by FFI. This orangutan distribution is heading this location (around PT CSC Genting Group). From landscape standpoint, these areas are contiguous. Some of the land covers are still in sound condition and slightly connect to Sebadak Raya village forest but get disconnected at PT SIS. It is difficult for restoration. Land clearing activities are already started by PT PSM in this village forest. Please secure areas that we can maintain for corridor.</li> <li>• Regarding orangutan distribution, we have conducted orangutan nest survey from Setadah to PT SMS-2. If there would be Orangutans within PT SMS, could it be possible to create a corridor or HCVA?</li> </ul> <p><b>Response:</b> Thank you so much for your input. In this activity we are to collect inputs to enrich management of HCVAs in the Assessment Area. Hilly areas of sound forest in PT SMS1 concession (Goodhope Group) have already been made HCVA.</p>
9 August 2017	10.00 a.m.-01.00 p.m., Borneo Emerald Hotel, Ketapang.	Nelly	Staff	Ketapang District Environmental Agency (BLH)	<ul style="list-style-type: none"> <li>▪ What is riverbank width set in this reassessment?</li> <li>▪ Will conservation be carried out over springs (catchment area) outside the assessment area?</li> </ul>

Date	Time and Venue	Name	Position/ Role	Organisation/ Social Group	Major Concern & Recommendation/ Team Response
					<p><b>Response:</b> In assigning an area as HCVA, several criteria must be met concerning catchment area. And regarding the catchment area: if the catchment area that contains HCV 4 is located within the Assessment Area, it will be considered HCVA and be subject to conservation, even if the spring is outside the area. As to the riverbank, its width varies from 10-50 m, depending on the river's morphometric condition. In the report, all rivers with HCV in the Assessment Area will be secured.</p>
11 August 2017	10.00 a.m.-01.00 p.m., Kini Hotel, Pontianak.	Majo, Sudiro and Hendrikus	Demit community leader, Pendamar Indah Village Head and Randau Sub-Village Head	West Kalimantan Province Natural Resources Conservation Agency (BKSDA)	<ul style="list-style-type: none"> <li>▪ <i>Tembawang</i> (fruit garden) is an area important to community because of the fruits that it produces every year, which are used by the community.</li> <li>▪ In addition, <i>tembawang</i> also has cultural values. Before and after fruit seasons, community holds rituals that, while carried out in the traditional house in their villages, still refer to <i>tembawang</i>.</li> <li>▪ <i>Tembawang</i> has the same values between Dayak and Malay peoples as we share the same ancestors.</li> <li>▪ No need to name <i>tembawang</i>. Rather, mentioning it in a map will suffice.</li> </ul>
11 August 2017	10.00 a.m.-01.00 p.m., Kini Hotel, Pontianak.	Langgeng	Staff	West Kalimantan Province Natural Resources Conservation Agency (BKSDA)	<ul style="list-style-type: none"> <li>▪ Arrowed lines on the planned corridor needs to be considered further when making final report. That is, because we have dealt with several companies' MoU. Forest corridor will help with orangutan conservation.</li> <li>▪ Fragmented areas such as between <i>tembawang</i> and HCVA 1 or HCVA 4 should be integrated to allow the better productivity for other wildlife species.</li> <li>▪ How much is the actual HCVA size that you just presented, along with the percentage against the assessment area?</li> <li>▪ HCV 1 is invariably inherent to other HCVAs. Should HCV 1 be sacrificed for or complete the other HCVs?</li> </ul> <p><b>Response:</b> This question is interesting to us.</p> <ul style="list-style-type: none"> <li>• There might be some chance for the southern part of PT SMS concession to be connected to Sungai Putri through Mt. Tarak protection forest and Mt. Palung National Park. There might also be some chance for small parts in the Assessment Area in terms of connection to the corridor</li> <li>• It is very difficult to combine the nearby HCV 1, 4 and 5 as the Assessment Area constitutes already fragmented urban plantations. Although they are already passed through by Trans Kalimantan highway, gas station and settlements, these fragments remain useful as stepping</li> </ul>

Date	Time and Venue	Name	Position/ Role	Organisation/ Social Group	Major Concern & Recommendation/ Team Response
					<p>stones to species such as hornbill and orangutan so long as the distance is not more than 2 km, especially when they cannot find foods during dry seasons.</p> <ul style="list-style-type: none"> <li>Percentage of this HCVA will be determined upon public consultation.</li> <li>Single HCV 1 very rarely occurs. No such value is found in the Assessment Area.</li> </ul>
11 August 2017	10.00 a.m.-01.00 p.m., Kini Hotel, Pontianak.	Sudiro	Pendamar Indah Village Head		<ul style="list-style-type: none"> <li>As to Urak Hill, we would like the company to avoid making it HGU concession. But if you have to do that, please consider community rights over durian <i>tembawang</i>, whether the plants grow naturally or intentionally planted.</li> <li>What will be the consequences if Urak Hill is excluded from the company HGU concession? What loss will be suffered by the community?</li> </ul> <p><b>Response:</b> Actually, the desired ultimate goal is that the area remains sustainable, whether it is included or excluded by company HGU concession. So, it is the community itself who decides. The company is helping to maintain the hill's sustainability. What is important here is cooperation between community and the company.</p>
11 August 2017	10.00 a.m.-01.00 p.m., Kini Hotel, Pontianak.	Dwi Wahyu Asti / Sari	Staff	West Kalimantan Province Environmental Agency (BLH)	<ul style="list-style-type: none"> <li>West Kalimantan Provincial Government has drafted a draft land-based regulation (currently still listed in provincial legislation programme). It already includes HCV assessment. This provincial regulation concerns about sustainable land-based business management. Together with IDH, the local government also has established green development in 3 locations, i.e. in North Kayong, Ketapang and Kubu Raya Districts.</li> <li>This site-level HCVA description goes into a very deep detail, in contrast to the HCV description in Environmental Impact Statement (ANDAL).</li> <li>We are also preparing Essential Ecosystem Region (KEE), so perhaps the existing data/information could also be shared.</li> </ul> <p><b>Response:</b></p> <ul style="list-style-type: none"> <li>Allocating 3% minimum for conservation area cannot be referred to as standard. That is, because such percentage is obtained from assessments taking place at macro level. In fact, this percentage may even vary from an area to another. For this reason, no generic number can be produced to apply to all cases.</li> <li>In natural resources management, we must be able to tell the difference between 'public property' and 'private property'. The former automatically means that there is no way we can impose a rule, while the latter is involved. If possible, agreement must be reached in the form of MoU between community and the companies in managing Urak Hill to guarantee its sustainability.</li> </ul>

Date	Time and Venue	Name	Position/ Role	Organisation/ Social Group	Major Concern & Recommendation/ Team Response
11 August 2017	10.00 a.m.-01.00 p.m., Kini Hotel, Pontianak.	Lorens		IDH / ELC	<ul style="list-style-type: none"> <li>• If we take a deeper look, there are so many areas of conservation value outside forest areas, thus initiatives are taken by the government. I think the essence is just the willingness to share.</li> <li>• Companies are cannot be transparent when it comes to protection areas outside forest area. Perhaps we can come to agreement with the managements on how the identified areas could be shared. There is no need to worry or get concerned as this will be guaranteed in the future.</li> <li>• Provincial government will provide information centre in joint secretariat so that everyone and all businesspeople can have access to this information.</li> <li>• Ketapang District Government is already familiar with HCV. Mechanisms are in place at local level, and HCV assignment is already ruled under district head regulation.</li> <li>• In institutional context, 'public property' means property of group, be it a village, sub-village or customary group. This will remain sustainable because customary rules will be obeyed so long as the customary institution is in place. In the absence of these components, collaboration should be forged with, for instance, NGO, government or company. And the legal status should be taken into account.</li> </ul>

### 3.2.5. HCV management and monitoring

The HCV Assessment identified HCV 1, HCV 3, HCV 4, HCV 5 and HCV 6 within the scope area, i.e. in and around the license area of Goodhope Asia Holdings Ltd., Ketapang Region. The HCV areas consist of secondary forest and shrubs in hilly areas, water springs, water catchment areas, rivers, and riparian buffers.

The total indicative size of HCV areas is ± 4,819.88 ha, with a total of 5,694.24 ha HCV + HCVMA, respectively 1,206.17 ha HCVA in PT AJB (1,321.79 ha HCV + HCVMA), 647.26 ha HCVA in PT BMS (972.27 ha HCV + HCVMA), and 2,966.45 ha HCVA in PT SMS (3,400.18 ha HCV + HCVMA), or equal to 16,03% of the total license area.

#### **Threat Assessment**

This threat assessment process is implemented to identify the most urgent and grave threats to HCVs, as well as threats that are easy and feasible to mitigate. This process provides the basis for creating priorities in HCV management and will become the basis for rapid response to threats.

Result of the threat assessment for each of the identified HCVs includes potential impacts which vary from low to high (Table 35). Threats to HCV 4 and HCV 5 are relatively more varied compared to those of other HCV types. Most of these threats, which contribute to pressures, originate from external sources. This may be due to at least two factors: (i) HCVAs identified are 'open access' areas; (ii) several HCVAs are yet to be under company management because compensation have yet to be paid.

**Table 35. Summary of HCV threat assessment**

Current Condition/Pressure	Potential Impact on HCV	Causes/Sources (likely contribution to pressure)	Remarks
<b>HCV 1</b>			
Decline in RTE flora and fauna species	High	<ul style="list-style-type: none"> <li>Dayak communities often hunt Bornean White-bearded Gibbons and Pig-tailed Macaques around PT BMS and PT AJB concessions</li> </ul>	<ul style="list-style-type: none"> <li>Communities around PT AJB and PT MBS concessions are Dayak Ethnic who hunt wildlife. Sambar Deer, Bornean Yellow Muntjac, and Mousdeer species are often hunted around PT SMS concession.</li> <li>Migrant people from Sanggau hunt as far as PT BMS and PT AJB concessions.</li> </ul>
Forest degradation or reduced size of HCVA in hilly areas	Medium	<ul style="list-style-type: none"> <li>Timber harvesting by local communities, especially for economically valuable timber such as Ironwood or Red Meranti (<i>Shorea sp.</i>)</li> </ul>	<ul style="list-style-type: none"> <li>Timber harvesting is ongoing in Bukit Kanau and Urak.</li> </ul>
<b>HCV 3</b>			
Forest degradation or reduced size of HCV Area in hilly areas	Medium	<ul style="list-style-type: none"> <li>Timber harvesting by local communities, especially for economically valuable timber such as Ironwood or Red Meranti (<i>Shorea sp.</i>)</li> </ul>	<ul style="list-style-type: none"> <li>Timber harvesting make Dipterocarp species regeneration stop. Since only seedling found and not many big trees left.</li> </ul>
<b>HCV 4</b>			
Declining river water quality	Medium	<ul style="list-style-type: none"> <li>Pesticide and fertilizer residue as well as eroded material can potentially reduce river water quality due to high surface run off</li> <li>Morpho-erosion or rill erosion from roads (plantation), especially in AJ Estate (PT AJB)</li> </ul>	<ul style="list-style-type: none"> <li>Especially during rainy season</li> </ul>
Potential land conversion	Low	<ul style="list-style-type: none"> <li>Overclearing by contractors because HCV boundaries are not appropriately or well-marked on the ground</li> <li>Community agriculture activities</li> </ul>	<ul style="list-style-type: none"> <li>Especially along riverbanks</li> </ul>
Declining forest area and/or quality in catchment area	Medium	<ul style="list-style-type: none"> <li>Timber harvesting by local communities, especially for economically valuable timber such as Ironwood or Red Meranti (<i>Shorea sp.</i>)</li> </ul>	<ul style="list-style-type: none"> <li>Such activities are on going in Bukit Urak</li> </ul>
<b>HCV 5</b>			
Potential land conversion	Low	<ul style="list-style-type: none"> <li>Overclearing b contractors because HCVA boundaries on the ground are incorrectly or poorly marked</li> </ul>	<ul style="list-style-type: none"> <li>All mixed gardens (tembawang) must be delineated and demarcated</li> </ul>
Reduced forest area and/or deteriorating quality in catchment area	Medium	<ul style="list-style-type: none"> <li>Commercial timber collection by local community</li> </ul>	<ul style="list-style-type: none"> <li>Such activities are on going in Bukit Kanau and Urak</li> </ul>
Declining river water quality	High	<ul style="list-style-type: none"> <li>Local communities usually catch fish using poison or electricity (electrofishing)</li> </ul>	<ul style="list-style-type: none"> <li>Poison can pollute the river as well as reduce fish population</li> </ul>
<b>HCV 6</b>			
HCV 6 Area degradation and/or clearing	Medium	<ul style="list-style-type: none"> <li>Land clearing for rubber or oil palm plantations, whether by communities or companies</li> </ul>	<ul style="list-style-type: none"> <li>Overclearing by contractors because HCV boundaries on the ground are incorrectly or poorly marked</li> </ul>

The threat identified can affect a number of HCVs since they threaten HCVA containing one or more HCV types. The threats to catchment area in hilly areas will have impact not only on HCV 4, but also HCV 5, especially if the area contains water sources that local communities use. These identified threats will provide direction for future HCV management and monitoring (Table 36).

**Table 36. Summary of threats to HCV**

HCV	Description of HCV	Main Threat
1	Presence of RTE species	<ul style="list-style-type: none"> <li>• Decline of RTE species population due to poaching</li> <li>• Reduced size of forest area or degradation of forest as wildlife habitat in hilly areas</li> </ul>
3	Mixed or Hill Dipterocarp Forests on igneous (granite) found on HJA and PLN Landsystems as rare and threatened ecosystem	<ul style="list-style-type: none"> <li>• Forest degradation by illegal logging and timber harvesting</li> </ul>
	Forest cover decrease as historic documentation as change to community need	<ul style="list-style-type: none"> <li>• Land conversion from forest cover to other land use</li> </ul>
	Threatened or endangered (e.g. rapidly declining) due to current or proposed operations	<ul style="list-style-type: none"> <li>• Palm oil extensification</li> </ul>
4	Managing water quality	<ul style="list-style-type: none"> <li>• Potential land conversion along riverbanks</li> </ul>
	Provide clean water	<ul style="list-style-type: none"> <li>• Decline in water quality due to intense surface run-off</li> </ul>
	Natural ecosystem as critical stabilizer of steep slope areas	<ul style="list-style-type: none"> <li>• Reduced size of forest area and/or quality in catchment area</li> </ul>
	Aquifer or catchment are protection, especially for tributaries and springs	<ul style="list-style-type: none"> <li>• Potential land conversion</li> </ul>
	Protection of downstream river regime relating to the river base flow	<ul style="list-style-type: none"> <li>• Reduced forest area and/or quality in catchment areas</li> <li>• Potential land conversion</li> </ul>
5	Source of water needed for drinking water and sanitation	<ul style="list-style-type: none"> <li>• Declining forest area size and/or quality in catchment areas</li> </ul>
	Fish (as important source of protein) and other freshwater species that local community relies on	<ul style="list-style-type: none"> <li>• Declining river water quality due to use of poison for fishing</li> </ul>
	Non-timber forest product	<ul style="list-style-type: none"> <li>• Potential land conversion</li> </ul>
6	Religious or sacred sites, burial grounds or sites where traditional ceremonies take place, or significant value for local or native communities	<ul style="list-style-type: none"> <li>• HCVA 6 degradation or clearing</li> </ul>



### 3.3. LUCA

#### 3.3.1. Historical land cover change

According to the cut off dates used in the assessment, LUCA found that corporate land clearing in SMS took place in a period between February 2010 and May 2014. Based on that finding, it is concluded that there is no non-compliance land clearing regarding with the issuance of the stop work order (April 2017) and prior the HCV reassessment (August 2017). Furthermore, additional LUCA regarding with the NPP submission also found that there is no corporate land clearing or new oil palm area up until the time of NPP submission (December 2019). Following tables presents the historical land use change in the assessment periods.

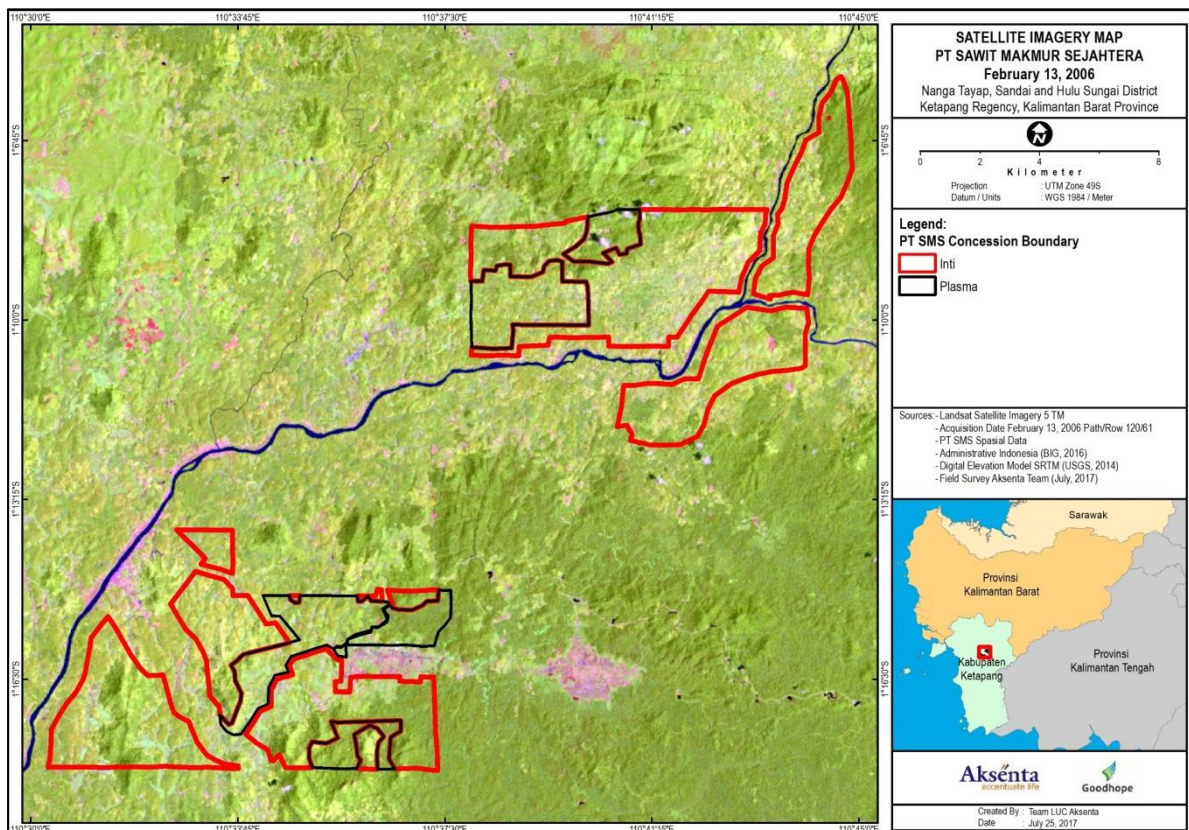


Figure 17. Satellite imagery for November 2005

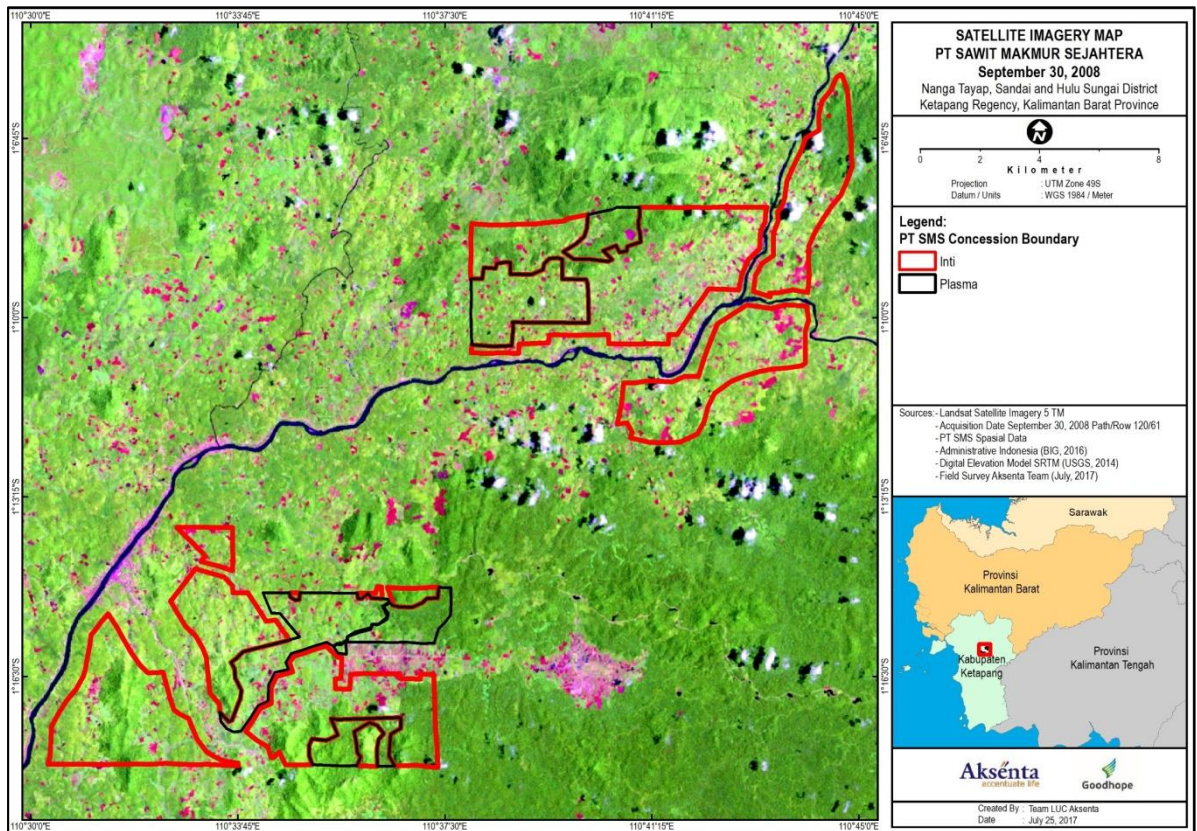


Figure 18. Satellite imagery for November 2007

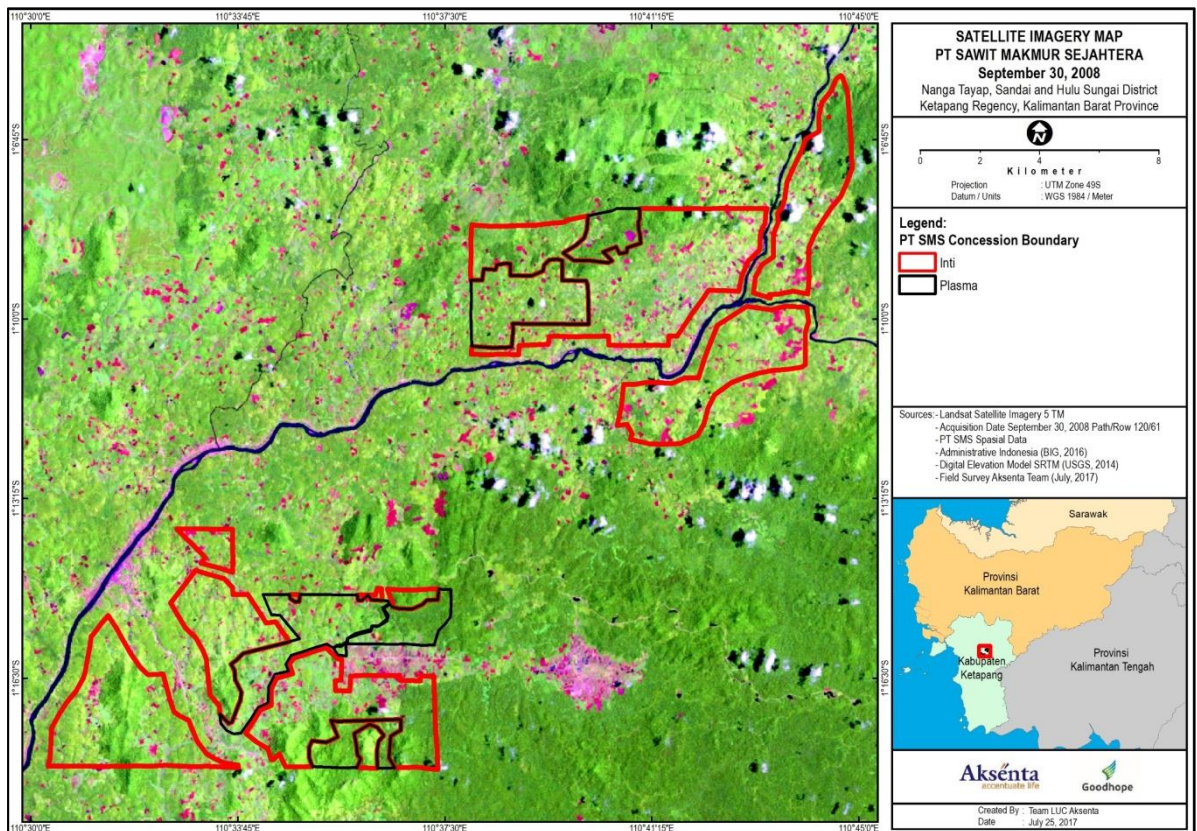


Figure 19. Satellite imagery for December 2009

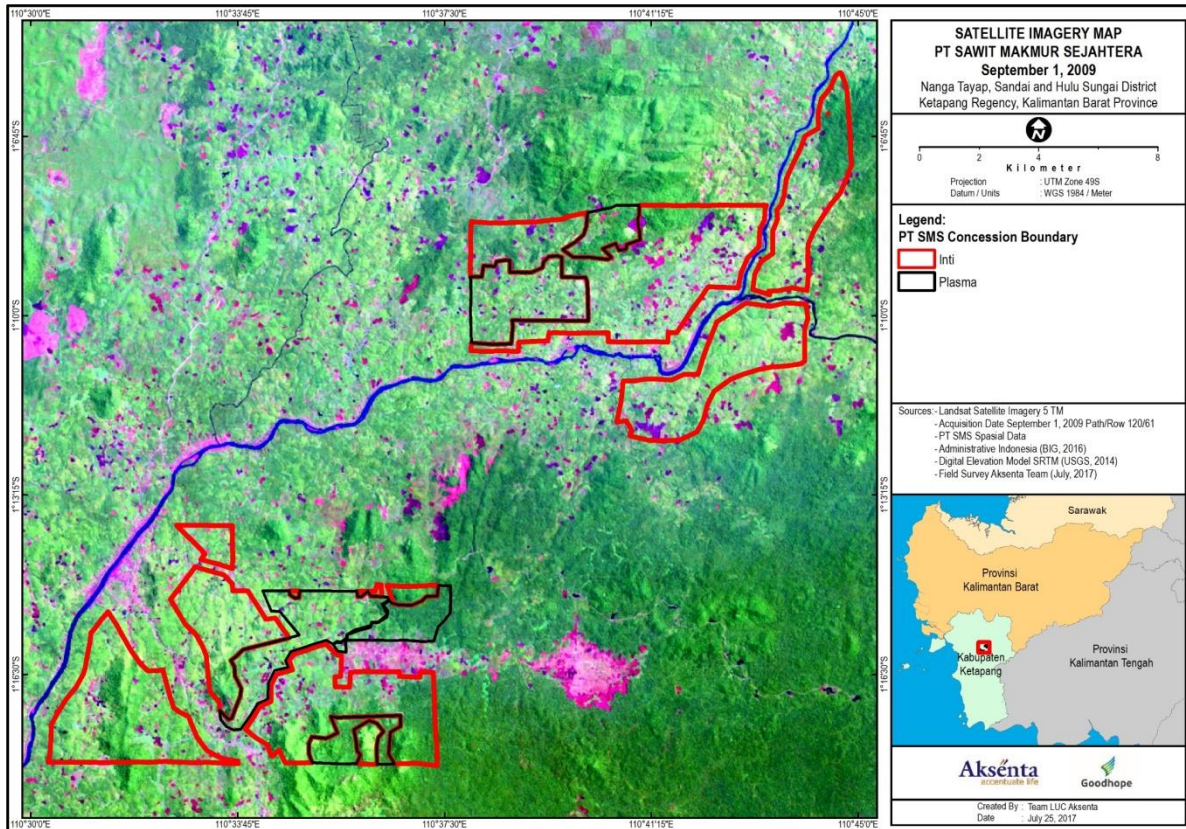


Figure 20. Satellite imagery for February 2010

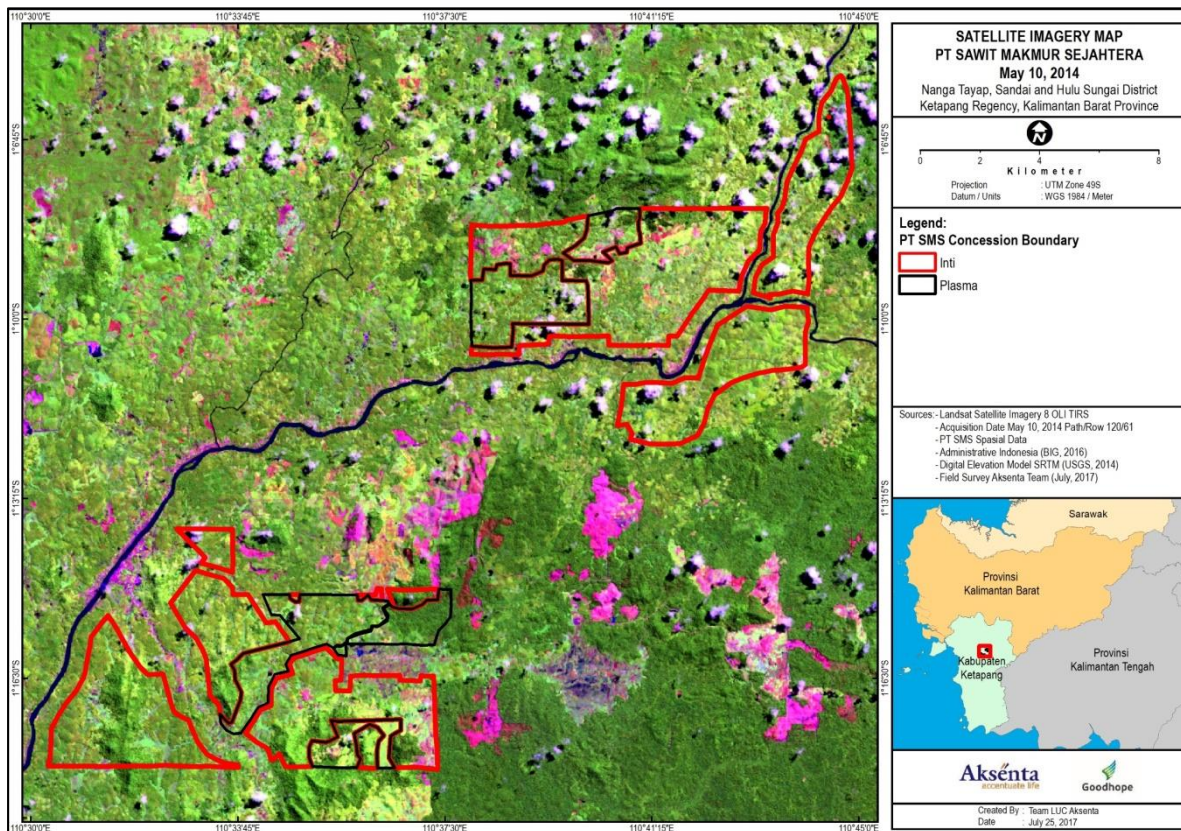


Figure 21. Satellite imagery for May 2014

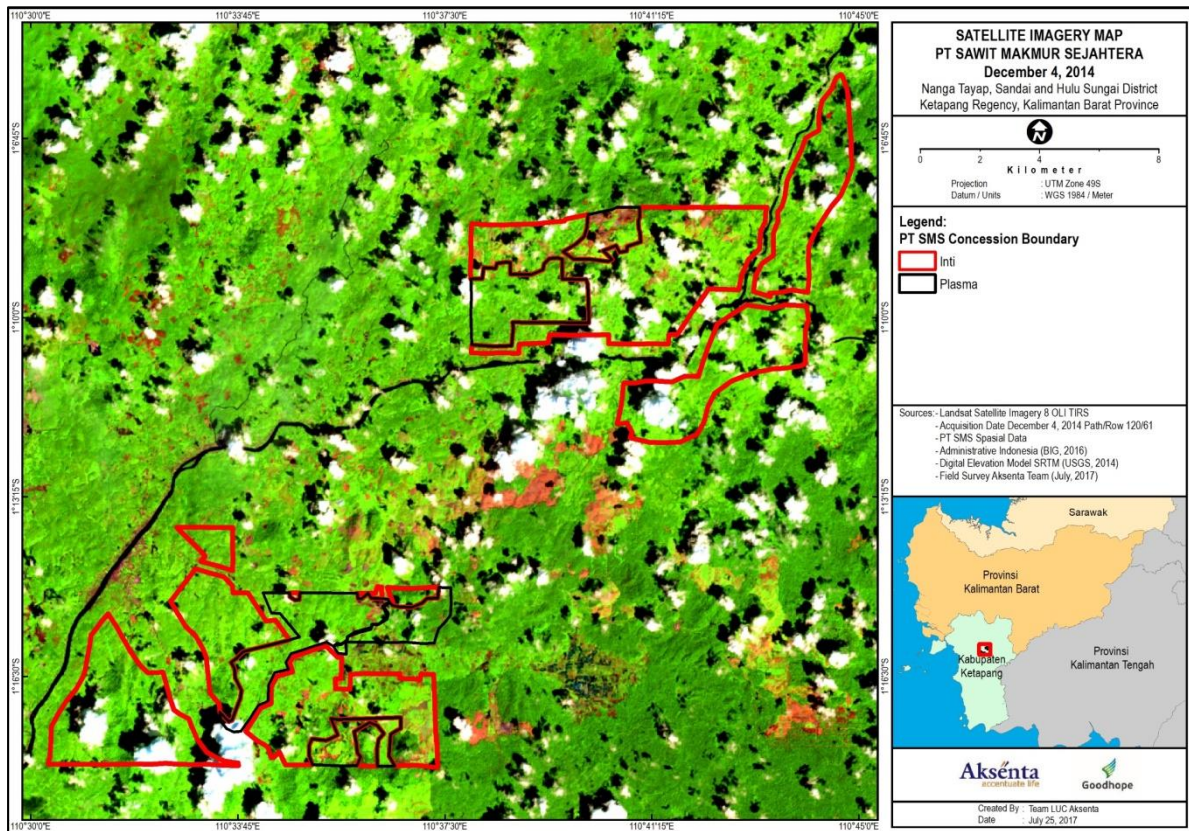


Figure 22. Satellite imagery for December 2014

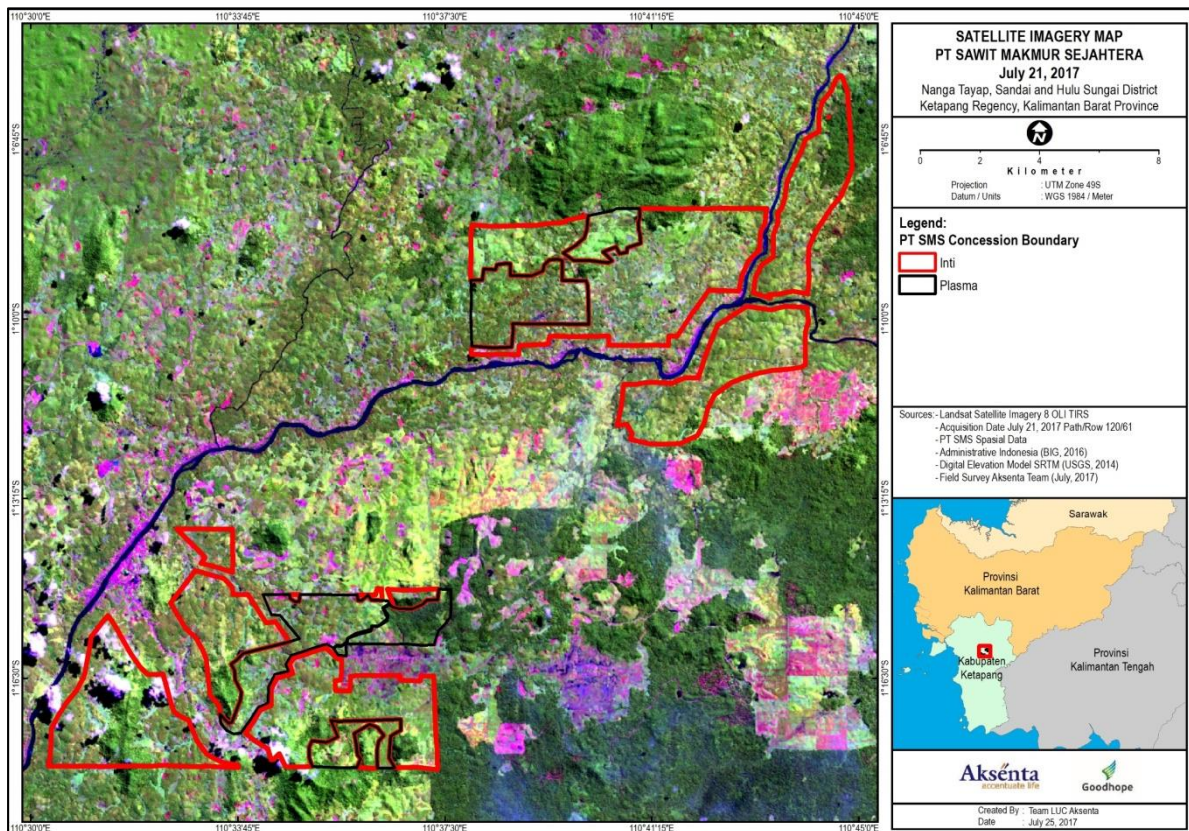


Figure 23. Satellite imagery for July 2017

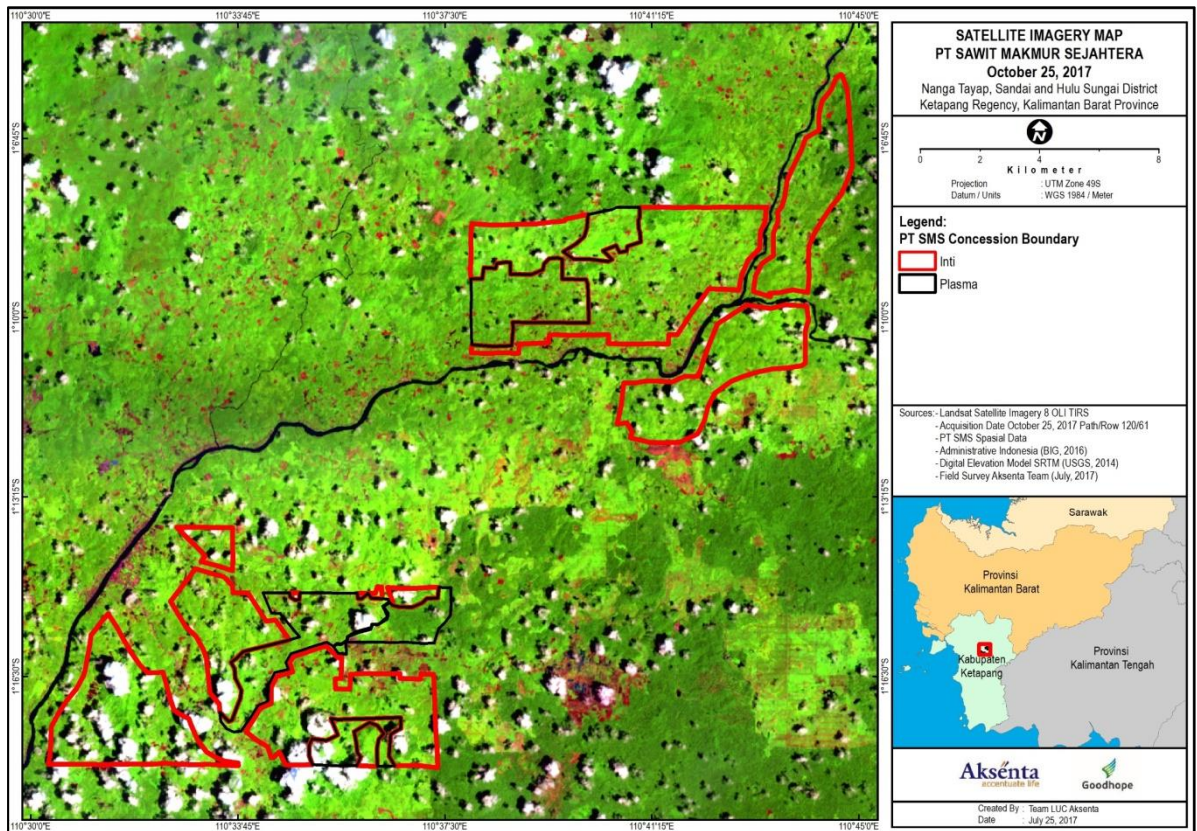


Figure 24. Satellite imagery for October 2017



Figure 25. Satellite imagery for December 2019

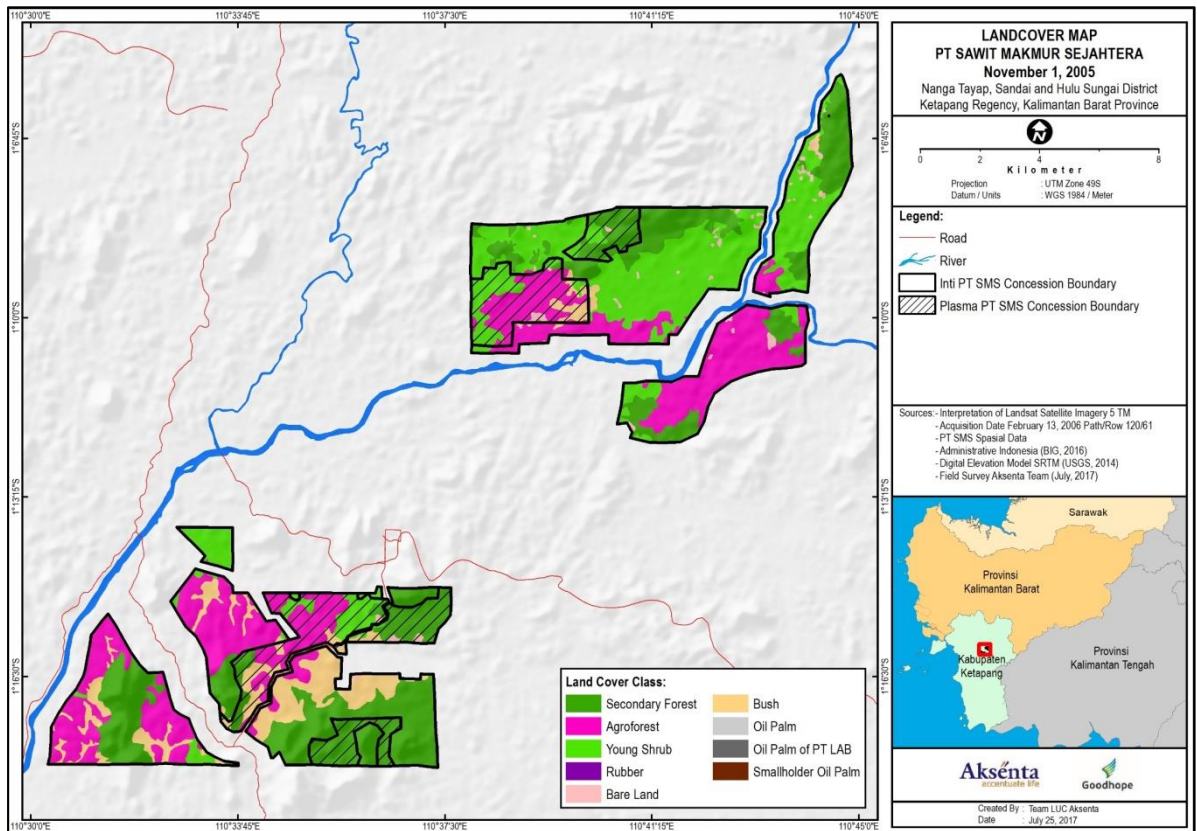


Figure 26. Land cover in November 2005

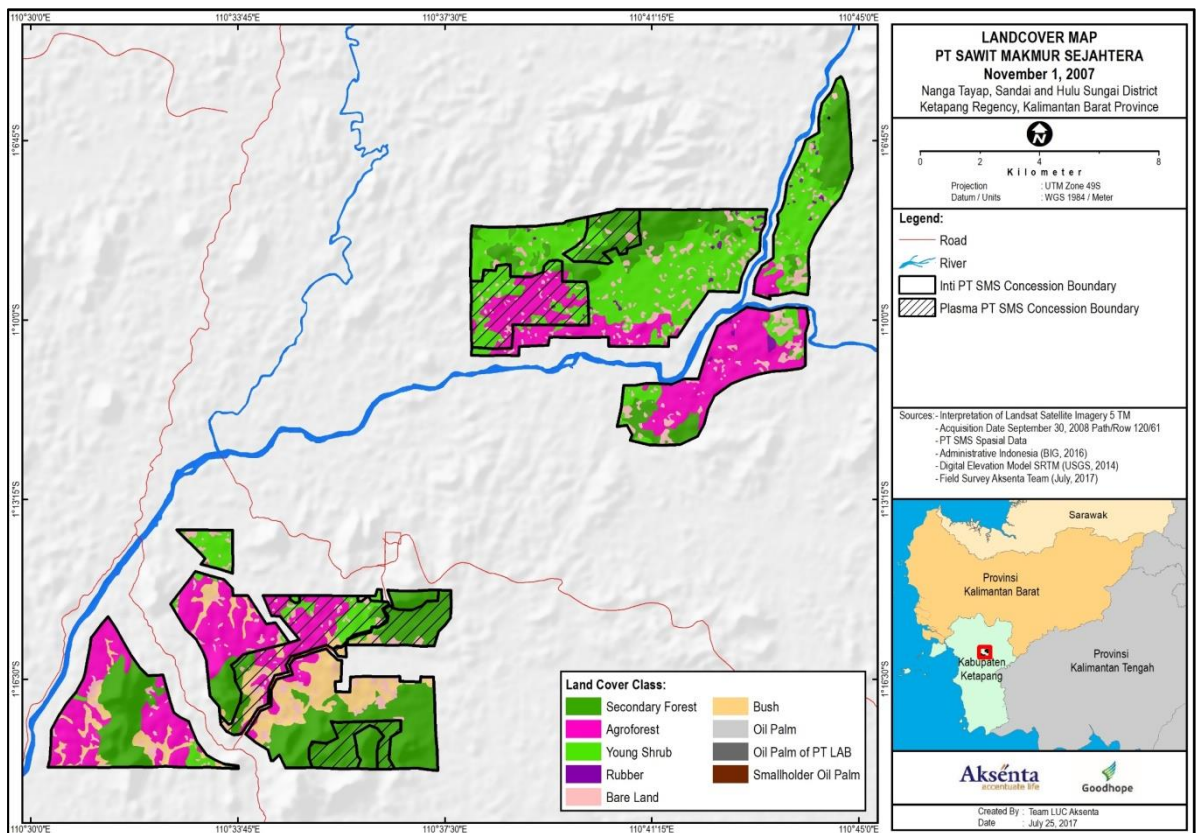


Figure 27. Land cover in November 2007

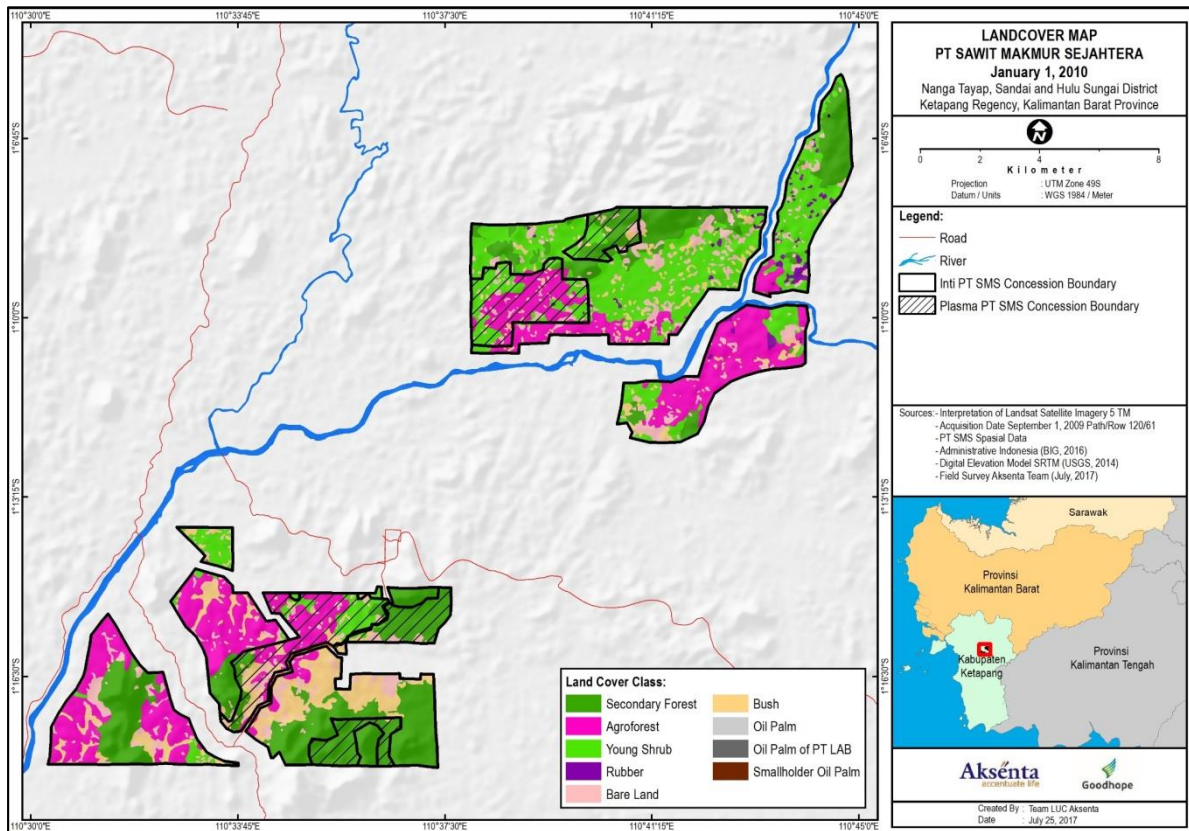


Figure 28. Land cover in December 2009/January 2010

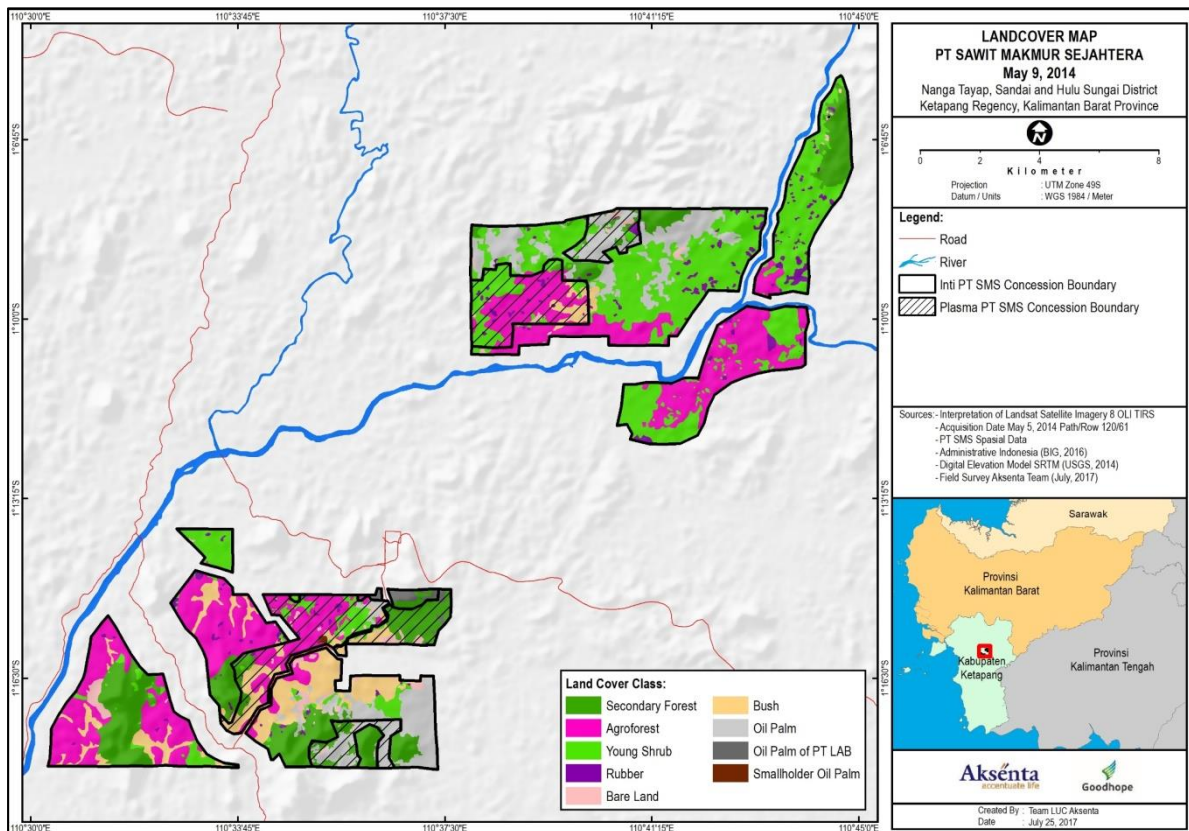


Figure 29. Land cover in May 2014

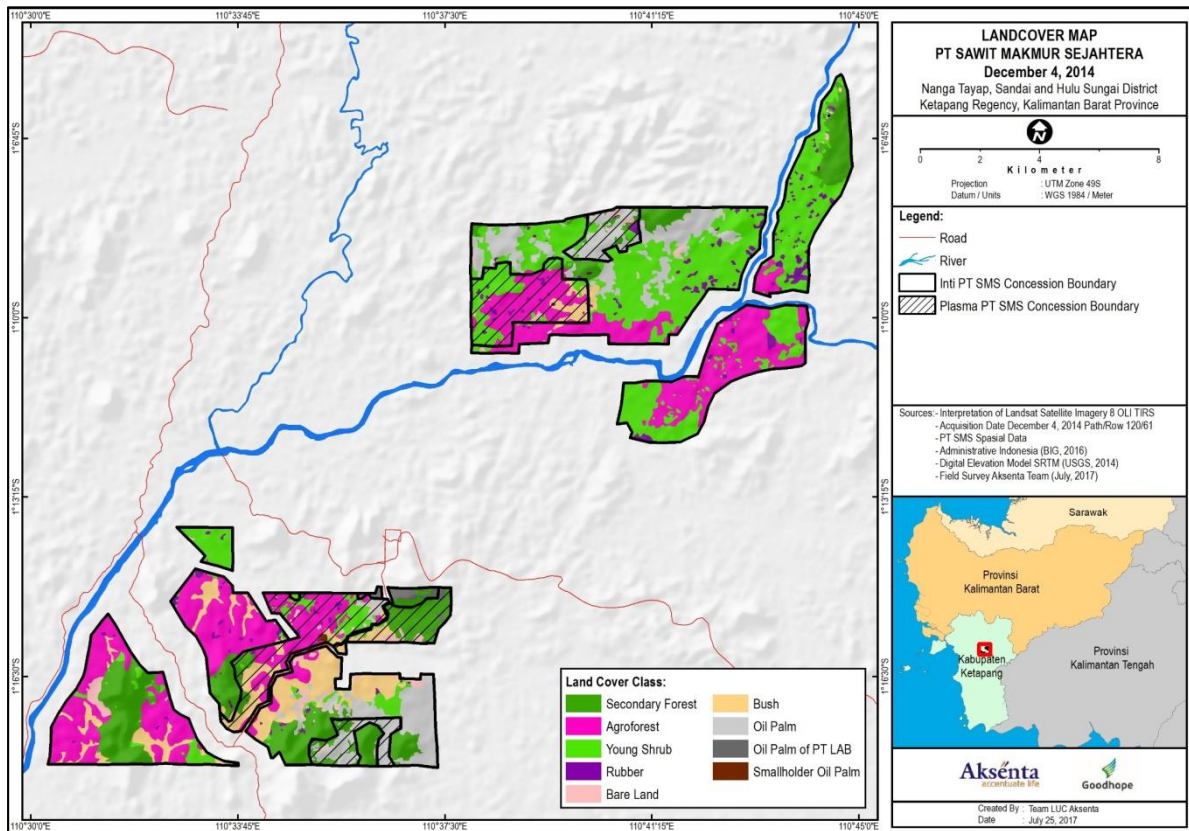


Figure 30. Land cover in December 2014

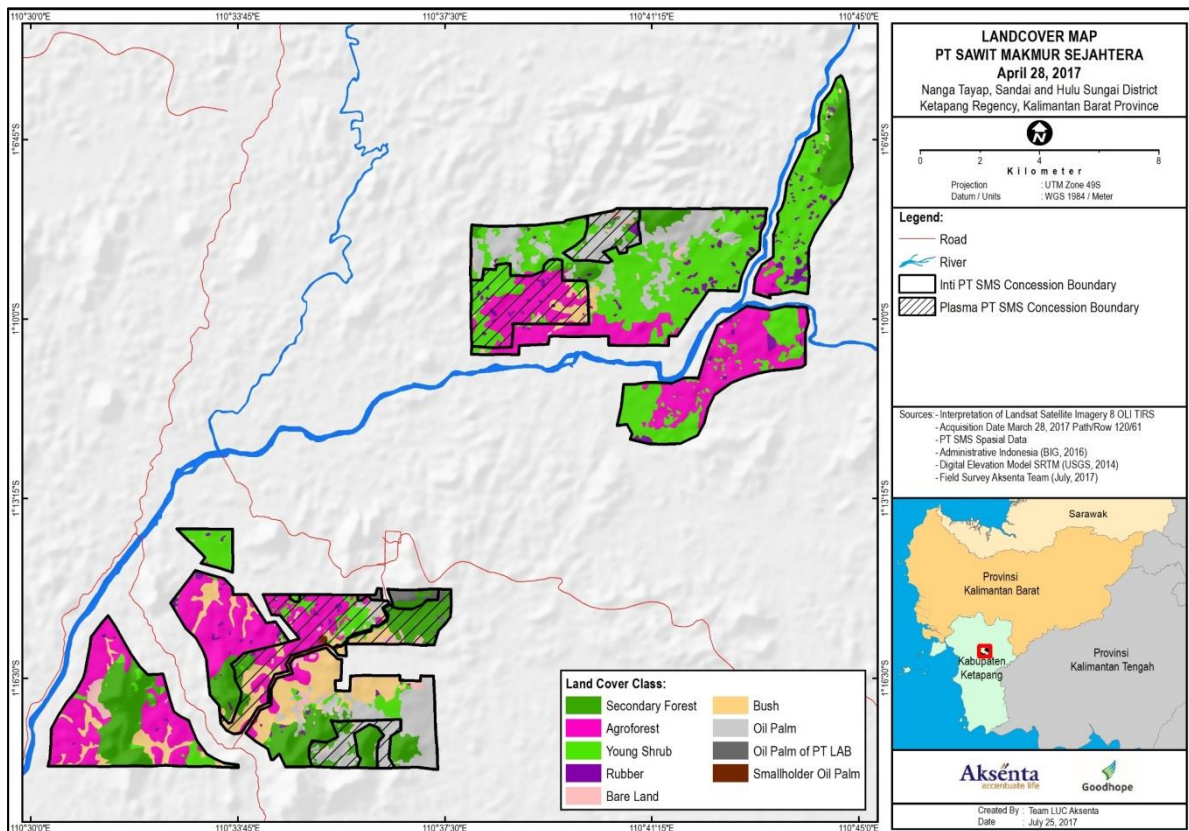


Figure 31. Land cover in April 2017



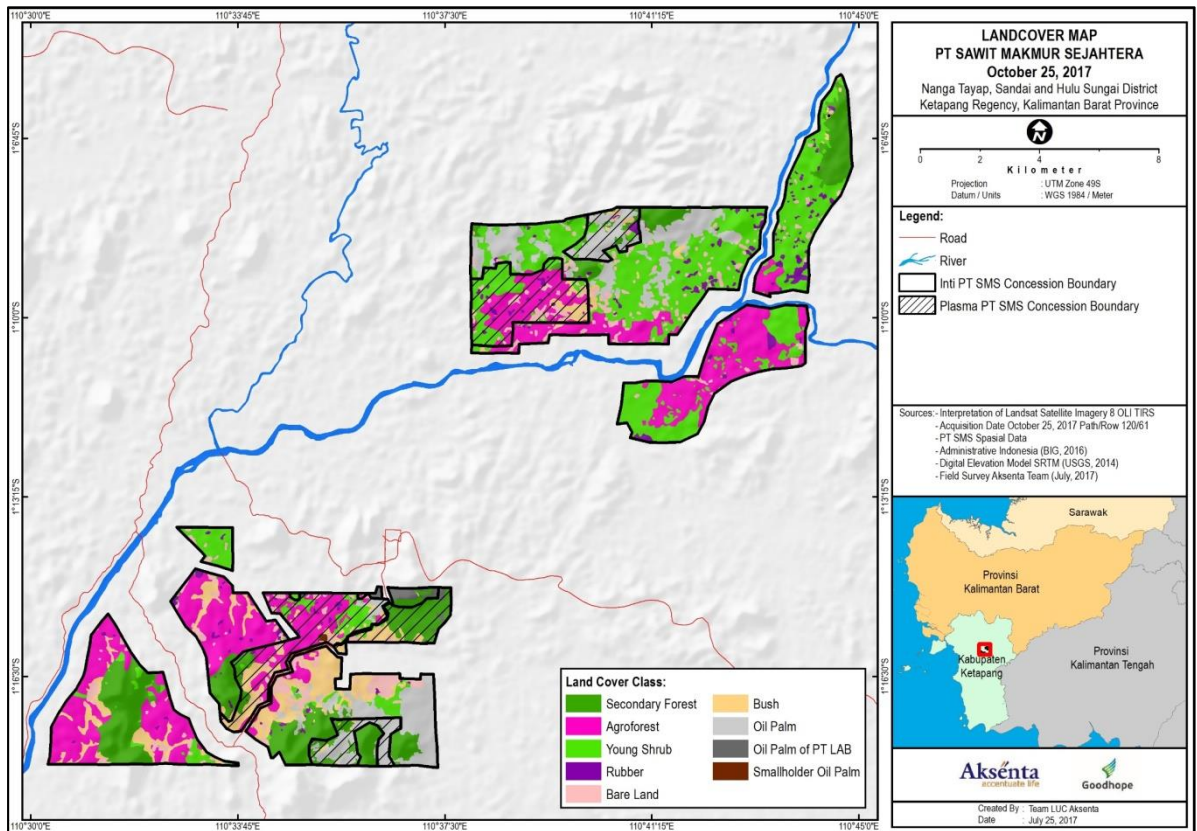


Figure 32. Land cover in October 2017

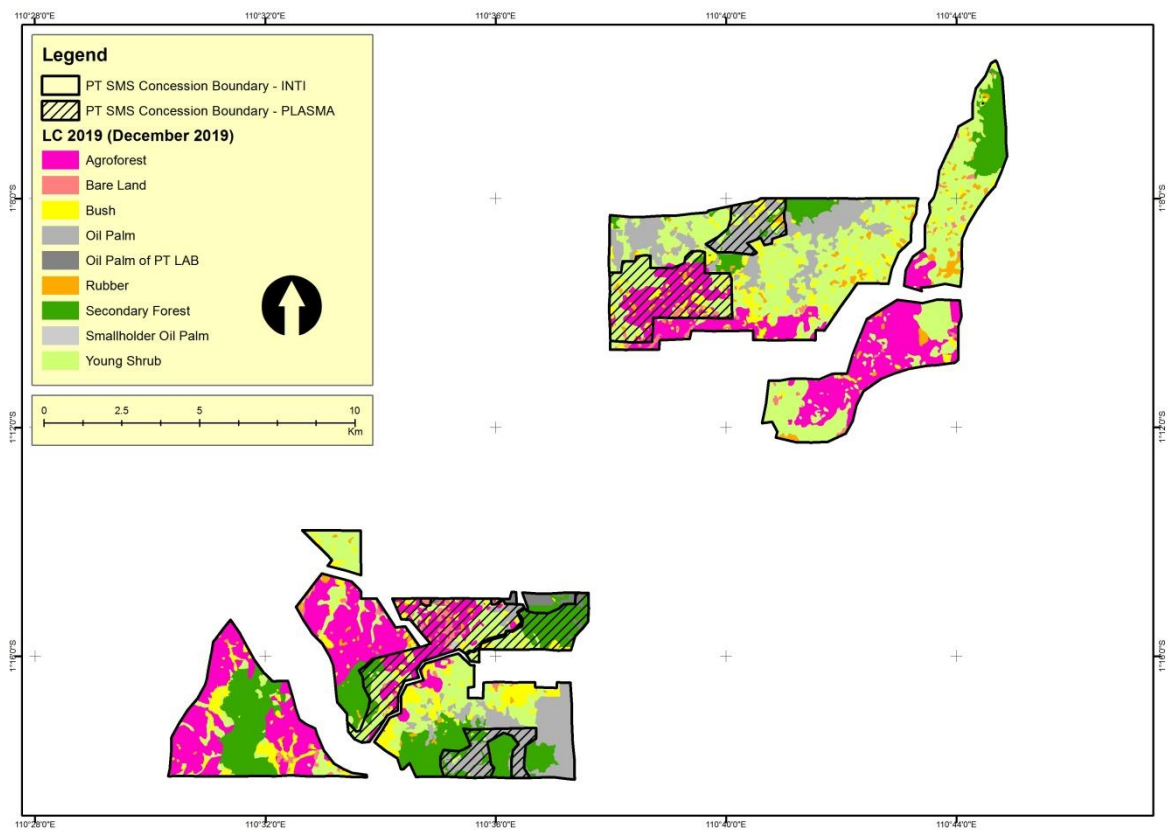


Figure 33. Land cover in December 2019



**Table 37. Contingency matrix in period Nov 2005-Nov 2007**

<b>Inti Area</b>								
<b>Non-corporate</b>								
Land Cover		November, 2007						
		Agroforest	Bare Land	Bush	Rubber	Secondary Forest	Young Shrub	Total in 2005
November, 2005	Agroforest	2,482.5	162.7					2,645.3
	Bare Land		18.2		54.1		30.0	102.3
	Bush		144.1	706.3	0.5		41.1	892.0
	Secondary Forest		169.6	18.0		2,655.5	76.4	2,919.4
	Young Shrub		267.9				2,292.8	2,560.7
	Total in 2007	2,482.5	762.5	724.2	54.7	2,655.5	2,440.3	9,119.7
<b>Corporate</b>								
Land Cover		November, 2007						
		Agroforest	Bare Land	Bush	Rubber	Secondary Forest	Young Shrub	Total in 2005
November, 2005	Agroforest							-
	Bare Land							-
	Bush							-
	Secondary Forest							-
	Young Shrub							-
	Total in 2007	-	-	-	-	-	-	-
<b>Plasma Area</b>								
<b>Non-corporate</b>								
Land Cover		November, 2007						
		Agroforest	Bare Land	Bush	Rubber	Secondary Forest	Young Shrub	Total in 2005
November, 2005	Agroforest	778.1	52.7					830.8
	Bare Land		30.5		2.5		14.8	47.9
	Bush		36.1	141.5			68.3	246.0
	Secondary Forest		19.7			881.9		901.6
	Young Shrub		37.2				478.0	515.2
	Total in 2007	778.1	176.3	141.5	2.5	881.9	561.1	2,541.5
<b>Corporate</b>								
Land Cover		November, 2007						
		Agroforest	Bare Land	Bush	Rubber	Secondary Forest	Young Shrub	Total in 2005
November, 2005	Agroforest							-
	Bare Land							-
	Bush							-
	Secondary Forest							-
	Young Shrub							-
	Total in 2007	-	-	-	-	-	-	-

**Table 38. Contingency matrix in period Nov 2007-Dec 2009/Jan 2010**

<b>Inti Area</b>								
<b>Non-corporate</b>								
Land Cover		December, 2009						Total in 2007
		Agroforest	Bare Land	Bush	Rubber	Secondary Forest	Young Shrub	
November, 2007	Agroforest	2,390.0	92.5					2,482.5
	Bare Land		279.3	375.0	59.6		48.6	762.5
	Bush		110.3	614.0				724.2
	Rubber				54.7			54.7
	Secondary Forest		175.0	43.4		2,386.5	50.5	2,655.5
	Young Shrub		240.1				2,200.1	2,440.3
	Total in 2009	2,390.0	897.3	1,032.4	114.3	2,386.5	2,299.3	9,119.7
<b>Corporate</b>								
Land Cover		December, 2009						Total in 2007
		Agroforest	Bare Land	Bush	Rubber	Secondary Forest	Young Shrub	
November, 2007	Agroforest							-
	Bare Land							-
	Bush							-
	Rubber							-
	Secondary Forest							-
	Young Shrub							-
	Total in 2009	-	-	-	-	-	-	-
<b>Plasma Area</b>								
<b>Non-corporate</b>								
Land Cover		December, 2009						Total in 2007
		Agroforest	Bare Land	Bush	Rubber	Secondary Forest	Young Shrub	
November, 2007	Agroforest	735.5	42.6					778.1
	Bare Land		117.3	59.0				176.3
	Bush		16.9	124.6				141.5
	Rubber				2.5			2.5
	Secondary Forest		31.5	3.0		847.4		881.9
	Young Shrub		40.5				520.6	561.1
	Total in 2009	735.5	248.8	186.6	2.5	847.4	520.6	2,541.5
<b>Corporate</b>								
Land Cover		December, 2009						Total in 2007
		Agroforest	Bare Land	Bush	Rubber	Secondary Forest	Young Shrub	
November, 2007	Agroforest							-
	Bare Land							-
	Bush							-
	Rubber							-
	Secondary Forest							-
	Young Shrub							-
	Total in 2009	-	-	-	-	-	-	-

**Table 39. Contingency matrix in period Jan 2010-Feb 2010**

<b>Inti Area</b>								
<b>Non-corporate</b>								
Land Cover		February, 2010 (HCV Assessment)						Total in 2009
		Agroforest	Bare Land	Bush	Rubber	Secondary Forest	Young Shrub	
December, 2009	Agroforest	2,390.0						2,390.0
	Bare Land		897.3					897.3
	Bush			1,032.4				1,032.4
	Rubber				114.3			114.3
	Secondary Forest					2,386.5		2,386.5
	Young Shrub						2,299.3	2,299.3
	<b>Total in 2010</b>	<b>2,390.0</b>	<b>897.3</b>	<b>1,032.4</b>	<b>114.3</b>	<b>2,386.5</b>	<b>2,299.3</b>	<b>9,119.7</b>
<b>Corporate</b>								
Land Cover		February, 2010 (HCV Assessment)						Total in 2009
		Agroforest	Bare Land	Bush	Rubber	Secondary Forest	Young Shrub	
December, 2009	Agroforest							-
	Bare Land							-
	Bush							-
	Rubber							-
	Secondary Forest							-
	Young Shrub							-
	<b>Total in 2010</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>
<b>Plasma Area</b>								
<b>Non-corporate</b>								
Land Cover		February, 2010 (HCV Assessment)						Total in 2009
		Agroforest	Bare Land	Bush	Rubber	Secondary Forest	Young Shrub	
December, 2009	Agroforest	735.5						735.5
	Bare Land		248.8					248.8
	Bush			186.6				186.6
	Rubber				2.5			2.5
	Secondary Forest					847.4		847.4
	Young Shrub						520.6	520.6
	<b>Total in 2010</b>	<b>735.5</b>	<b>248.8</b>	<b>186.6</b>	<b>2.5</b>	<b>847.4</b>	<b>520.6</b>	<b>2,541.5</b>
<b>Corporate</b>								
Land Cover		February, 2010 (HCV Assessment)						Total in 2009
		Agroforest	Bare Land	Bush	Rubber	Secondary Forest	Young Shrub	
December, 2009	Agroforest							-
	Bare Land							-
	Bush							-
	Rubber							-
	Secondary Forest							-
	Young Shrub							-
	<b>Total in 2010</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>

**Table 40. Contingency matrix in period Feb 2010-May 2014**

<b>Inti Area</b>											
<b>Non-corporate</b>											
Land Cover		May, 2014									
		Agroforest	Bare Land	Bush	Oil Palm	Oil Palm of PT LAB	Rubber	Secondary Forest	Smallholder Oil Palm	Young Shrub	Total in Feb, 2010
February, 2010 (HCV Assessment)	Agroforest	2,374.3	11.5			0.0			2.4		2,388.2
	Bare Land	82.6	60.1	173.2	0.7		64.4		0.1	437.9	819.1
	Bush	48.3	28.4	561.5		0.2	24.9			274.9	938.3
	Rubber						114.3				114.3
	Secondary Forest		29.0	0.7		49.6	2.6	1,504.4		253.0	1,839.2
	Young Shrub		17.7	20.2		11.1	24.9			1,936.3	2,010.2
	Total in 2014	2,505.2	146.7	755.6	0.7	60.9	231.1	1,504.4	2.5	2,902.1	8,109.2
<b>Corporate</b>											
Land Cover		May, 2014									
		Agroforest	Bare Land	Bush	Oil Palm	Oil Palm of PT LAB	Rubber	Secondary Forest	Smallholder Oil Palm	Young Shrub	Total in Feb, 2010
February, 2010 (HCV Assessment)	Agroforest				1.8						1.8
	Bare Land				78.2						78.2
	Bush				94.1						94.1
	Rubber										-
	Secondary Forest				547.3						547.3
	Young Shrub				289.1						289.1
	Total in 2014	-	-	-	1,010.5	-	-	-	-	-	-
<b>Plasma Area</b>											
<b>Non-corporate</b>											
Land Cover		May, 2014									
		Agroforest	Bare Land	Bush	Oil Palm	Oil Palm of PT LAB	Rubber	Secondary Forest	Smallholder Oil Palm	Young Shrub	Total in Feb, 2010
February, 2010 (HCV Assessment)	Agroforest	716.8	8.0			3.6			7.1		735.5
	Bare Land	74.5	27.6	60.9			43.3			32.8	239.0
	Bush	20.3	2.5	127.4		0.2	11.0			17.9	179.2
	Rubber						2.5				2.5
	Secondary Forest		32.5	35.1		17.9		418.3		1.2	505.0
	Young Shrub		13.9	59.8		2.2				389.7	465.6
	Total in 2014	811.5	84.5	283.1	-	23.8	56.8	418.3	7.1	441.5	2,126.7
<b>Corporate</b>											
Land Cover		May, 2014									
		Agroforest	Bare Land	Bush	Oil Palm	Oil Palm of PT LAB	Rubber	Secondary Forest	Smallholder Oil Palm	Young Shrub	Total in Feb, 2010
February, 2010 (HCV Assessment)	Agroforest				0.0						0.0
	Bare Land				9.8						9.8
	Bush				7.4						7.4
	Rubber										-
	Secondary Forest				342.5						342.5
	Young Shrub				55.0						55.0
	Total in 2014	-	-	-	414.7	-	-	-	-	-	-

**Table 41. Contingency matrix in period May 2014-Dec 2014**

<b>Inti Area</b>											
<b>Non-corporate</b>											
Land Cover		December, 2014 (RSPO Membership)									
		Agroforest	Bare Land	Bush	Oil Palm	Oil Palm of PT LAB	Rubber	Secondary Forest	Smallholder Oil Palm	Young Shrub	Total in May, 2014
May, 2014	Agroforest	2,503.9									2,503.9
	Bare Land		146.7								146.7
	Bush			754.1							754.1
	Oil Palm										-
	Oil Palm of PT LAB					60.9					60.9
	Rubber						231.1				231.1
	Secondary Forest							1,497.3			1,497.3
	Smallholder Oil Palm								2.5		2.5
	Young Shrub									2,883.1	2,883.1
Total in Dec, 2014	2,503.9	146.7	754.1	-	60.9	231.1	1,497.3	2.5	2,883.1	8,079.6	
<b>Corporate</b>											
Land Cover		December, 2014 (RSPO Membership)									
		Agroforest	Bare Land	Bush	Oil Palm	Oil Palm of PT LAB	Rubber	Secondary Forest	Smallholder Oil Palm	Young Shrub	Total in May, 2014
May, 2014	Agroforest	1.3									1.3
	Bare Land										-
	Bush			1.5							1.5
	Oil Palm				1,011.2						1,011.2
	Oil Palm of PT LAB										-
	Rubber										-
	Secondary Forest							7.1			7.1
	Smallholder Oil Palm									19.0	19.0
	Young Shrub										-
Total in Dec, 2014	1.3	-	1.5	1,011.2	-	-	7.1	-	19.0	1,040.1	
<b>Plasma Area</b>											
<b>Non-corporate</b>											
Land Cover		December, 2014 (RSPO Membership)									
		Agroforest	Bare Land	Bush	Oil Palm	Oil Palm of PT LAB	Rubber	Secondary Forest	Smallholder Oil Palm	Young Shrub	Total in May, 2014
May, 2014	Agroforest	811.3									811.3
	Bare Land		84.5								84.5
	Bush			283.1							283.1
	Oil Palm										-
	Oil Palm of PT LAB					23.8					23.8
	Rubber						56.8				56.8
	Secondary Forest							418.0			418.0
	Smallholder Oil Palm								7.1		7.1
	Young Shrub									439.5	439.5
Total in Dec, 2014	811.3	84.5	283.1	-	23.8	56.8	418.0	7.1	439.5	2,124.2	
<b>Corporate</b>											
Land Cover		December, 2014 (RSPO Membership)									
		Agroforest	Bare Land	Bush	Oil Palm	Oil Palm of PT LAB	Rubber	Secondary Forest	Smallholder Oil Palm	Young Shrub	Total in May, 2014
May, 2014	Agroforest	0.2									0.2
	Bare Land										-
	Bush										-
	Oil Palm				414.7						414.7
	Oil Palm of PT LAB										-
	Rubber										-
	Secondary Forest							0.3			0.3
	Smallholder Oil Palm										-
	Young Shrub									2.0	2.0
Total in Dec, 2014	0.2	-	-	414.7	-	-	0.3	-	2.0	417.3	

**Table 42. Contingency matrix in period Dec 2014-Apr 2017**

Inti Area											
Non-corporate											
Land Cover		April, 2017 (Stop Work Order)									
		Agroforest	Bare Land	Bush	Oil Palm	Oil Palm of PT LAB	Rubber	Secondary Forest	Smallholder Oil Palm	Young Shrub	Total in May, 2014
December, 2014 (RSPO Membership)	Agroforest	2,505.2									2,505.2
	Bare Land		146.7								146.7
	Bush			755.6							755.6
	Oil Palm										-
	Oil Palm of PT LAB					60.9					60.9
	Rubber						231.1				231.1
	Secondary Forest							1,503.3		1.1	1,504.4
	Smallholder Oil Palm								2.5		2.5
	Young Shrub									2,902.1	2,902.1
Total in Dec, 2014	2,505.2	146.7	755.6	-	60.9	231.1	1,503.3	2.5	2,903.2	8,108.5	
Corporate											
Land Cover		April, 2017 (Stop Work Order)									
		Agroforest	Bare Land	Bush	Oil Palm	Oil Palm of PT LAB	Rubber	Secondary Forest	Smallholder Oil Palm	Young Shrub	Total in May, 2014
December, 2014 (RSPO Membership)	Agroforest										-
	Bare Land										-
	Bush										-
	Oil Palm				1,011.2						1,011.2
	Oil Palm of PT LAB										-
	Rubber										-
	Secondary Forest										-
	Smallholder Oil Palm										-
	Young Shrub										-
Total in Dec, 2014	-	-	-	1,011.2	-	-	-	-	-	-	1,011.2
Plasma Area											
Non-corporate											
Land Cover		April, 2017 (Stop Work Order)									
		Agroforest	Bare Land	Bush	Oil Palm	Oil Palm of PT LAB	Rubber	Secondary Forest	Smallholder Oil Palm	Young Shrub	Total in May, 2014
December, 2014 (RSPO Membership)	Agroforest	811.5									811.5
	Bare Land		84.5								84.5
	Bush			283.1							283.1
	Oil Palm										-
	Oil Palm of PT LAB					23.8					23.8
	Rubber						56.8				56.8
	Secondary Forest							418.3			418.3
	Smallholder Oil Palm								7.1		7.1
	Young Shrub									441.5	441.5
Total in Dec, 2014	811.5	84.5	283.1	-	23.8	56.8	418.3	7.1	441.5	2,126.7	
Corporate											
Land Cover		April, 2017 (Stop Work Order)									
		Agroforest	Bare Land	Bush	Oil Palm	Oil Palm of PT LAB	Rubber	Secondary Forest	Smallholder Oil Palm	Young Shrub	Total in May, 2014
December, 2014 (RSPO Membership)	Agroforest										-
	Bare Land										-
	Bush										-
	Oil Palm				414.7						414.7
	Oil Palm of PT LAB										-
	Rubber										-
	Secondary Forest										-
	Smallholder Oil Palm										-
	Young Shrub										-
Total in Dec, 2014	-	-	-	414.7	-	-	-	-	-	-	414.7



**Table 43. Contingency matrix in period Apr 2017-July 2017**

<b>Inti Area</b>											
<b>Non-corporate</b>											
Land Cover		July, 2017 (HCV Re-assessment)									
		Agroforest	Bare Land	Bush	Oil Palm	Oil Palm of PT LAB	Rubber	Secondary Forest	Smallholder Oil Palm	Young Shrub	Total in May, 2014
April, 2017 (Stop Work Order)	Agroforest	2,443.6	61.6								2,505.2
	Bare Land		38.9	107.8							146.7
	Bush		99.5	656.1							755.6
	Oil Palm										-
	Oil Palm of PT LAB					60.9					60.9
	Rubber						231.1				231.1
	Secondary Forest		1.9					1,501.4			1,503.3
	Smallholder Oil Palm								2.5		2.5
	Young Shrub		79.2							2,824.0	2,903.2
	Total in Dec, 2014	2,443.6	281.0	763.9	-	60.9	231.1	1,501.4	2.5	2,824.0	8,108.5
<b>Corporate</b>											
Land Cover		July, 2017 (HCV Re-assessment)									
		Agroforest	Bare Land	Bush	Oil Palm	Oil Palm of PT LAB	Rubber	Secondary Forest	Smallholder Oil Palm	Young Shrub	Total in May, 2014
April, 2017 (Stop Work Order)	Agroforest										-
	Bare Land										-
	Bush										-
	Oil Palm				1,011.2						1,011.2
	Oil Palm of PT LAB										-
	Rubber										-
	Secondary Forest										-
	Smallholder Oil Palm										-
	Young Shrub										-
	Total in Dec, 2014	-	-	-	1,011.2	-	-	-	-	-	-
<b>Plasma Area</b>											
<b>Non-corporate</b>											
Land Cover		July, 2017 (HCV Re-assessment)									
		Agroforest	Bare Land	Bush	Oil Palm	Oil Palm of PT LAB	Rubber	Secondary Forest	Smallholder Oil Palm	Young Shrub	Total in May, 2014
April, 2017 (Stop Work Order)	Agroforest	759.8	51.7								811.5
	Bare Land		3.5	81.0							84.5
	Bush		16.3	266.8							283.1
	Oil Palm										-
	Oil Palm of PT LAB					23.8					23.8
	Rubber						56.8				56.8
	Secondary Forest		2.4					415.9			418.3
	Smallholder Oil Palm								7.1		7.1
	Young Shrub		7.3							434.2	441.5
	Total in Dec, 2014	759.8	81.2	347.8	-	23.8	56.8	415.9	7.1	434.2	2,126.7
<b>Corporate</b>											
Land Cover		July, 2017 (HCV Re-assessment)									
		Agroforest	Bare Land	Bush	Oil Palm	Oil Palm of PT LAB	Rubber	Secondary Forest	Smallholder Oil Palm	Young Shrub	Total in May, 2014
April, 2017 (Stop Work Order)	Agroforest										-
	Bare Land										-
	Bush										-
	Oil Palm				414.7						414.7
	Oil Palm of PT LAB										-
	Rubber										-
	Secondary Forest										-
	Smallholder Oil Palm										-
	Young Shrub										-
	Total in Dec, 2014	-	-	-	414.7	-	-	-	-	-	-

**Table 44. Contingency matrix in period July 2017-Oct 2017**

<b>Inti Area</b>											
<b>Non-corporate</b>											
Land Cover		October, 2017 (HCV Re-assessment Report Submitted to HCVRN)									
		Agroforest	Bare Land	Bush	Oil Palm	Oil Palm of PT LAB	Rubber	Secondary Forest	Smallholder Oil Palm	Young Shrub	Total in July, 2017
July, 2017 (HCV Re-assessment)	Agroforest	2,384.7	59.0								2,443.6
	Bare Land		274.8	6.3							281.0
	Bush		85.3	678.5							763.9
	Oil Palm										-
	Oil Palm of PT LAB					60.9					60.9
	Rubber						231.1				231.1
	Secondary Forest		15.9					1,485.4			1,501.4
	Smallholder Oil Palm								2.5		2.5
	Young Shrub		138.9							2,685.1	2,824.0
	Total in Oct, 2017	2,384.7	573.9	684.8	-	60.9	231.1	1,485.4	2.5	2,685.1	8,108.5
<b>Corporate</b>											
Land Cover		October, 2017 (HCV Re-assessment Report Submitted to HCVRN)									
		Agroforest	Bare Land	Bush	Oil Palm	Oil Palm of PT LAB	Rubber	Secondary Forest	Smallholder Oil Palm	Young Shrub	Total in July, 2017
July, 2017 (HCV Re-assessment)	Agroforest										-
	Bare Land										-
	Bush										-
	Oil Palm				1,011.2						1,011.2
	Oil Palm of PT LAB										-
	Rubber										-
	Secondary Forest										-
	Smallholder Oil Palm										-
	Young Shrub										-
	Total in Oct, 2017	-	-	-	1,011.2	-	-	-	-	-	-
<b>Plasma Area</b>											
<b>Non-corporate</b>											
Land Cover		October, 2017 (HCV Re-assessment Report Submitted to HCVRN)									
		Agroforest	Bare Land	Bush	Oil Palm	Oil Palm of PT LAB	Rubber	Secondary Forest	Smallholder Oil Palm	Young Shrub	Total in July, 2017
July, 2017 (HCV Re-assessment)	Agroforest	730.8	29.0								759.8
	Bare Land		78.4	2.8							81.2
	Bush		37.5	310.4							347.8
	Oil Palm										-
	Oil Palm of PT LAB					23.8					23.8
	Rubber						56.8				56.8
	Secondary Forest		3.9					412.0			415.9
	Smallholder Oil Palm								7.1		7.1
	Young Shrub		22.6							411.6	434.2
	Total in Oct, 2017	730.8	171.4	313.1	-	23.8	56.8	412.0	7.1	411.6	2,126.7
<b>Corporate</b>											
Land Cover		October, 2017 (HCV Re-assessment Report Submitted to HCVRN)									
		Agroforest	Bare Land	Bush	Oil Palm	Oil Palm of PT LAB	Rubber	Secondary Forest	Smallholder Oil Palm	Young Shrub	Total in July, 2017
July, 2017 (HCV Re-assessment)	Agroforest										-
	Bare Land										-
	Bush										-
	Oil Palm				414.7						414.7
	Oil Palm of PT LAB										-
	Rubber										-
	Secondary Forest										-
	Smallholder Oil Palm										-
	Young Shrub										-
	Total in Oct, 2017	-	-	-	414.7	-	-	-	-	-	-

**Table 45. Contingency matrix in period Oct 2017-Dec 2019**

PT SMS - INTI Area											
Non-Corporate											
Land Cover	Dec-19										Sub-Total Non-Corporate Oct 2017
	Agroforest	Bare Land	Bush	Oil Palm	Oil Palm of PT LAB	Rubber	Secondary Forest	Smallholder Oil Palm	Young Shrub		
Oct-17	Agroforest	2,333.5	18.2	32.9	-	-	-	-	-	-	2,384.7
	Bare Land	-	67.7	506.2	-	-	-	-	-	-	573.9
	Bush	-	9.7	146.5	-	-	-	-	-	528.6	684.8
	Oil Palm	-	-	-	-	-	-	-	-	-	-
	Oil Palm of PT LAB	-	-	-	-	60.9	-	-	-	-	60.9
	Rubber	-	3.2	2.3	-	-	225.6	-	-	-	231.1
	Secondary Forest	-	1.6	10.7	-	-	-	1,473.1	-	-	1,485.4
	Smallholder Oil Palm	-	-	-	-	-	-	-	2.5	-	2.5
Young Shrub	-	41.4	50.7	-	-	-	-	-	2,593.0	2,685.1	
Sub-Total Non-Corporate Dec 2019	2,333.5	141.8	749.4	-	60.9	225.6	1,473.1	2.5	3,121.6	8,108.5	
Corporate											
Land Cover	Dec-19										Sub-Total Corporate Oct 2017
	Agroforest	Bare Land	Bush	Oil Palm	Oil Palm of PT LAB	Rubber	Secondary Forest	Smallholder Oil Palm	Young Shrub		
Oct-17	Agroforest	-	-	-	-	-	-	-	-	-	-
	Bare Land	-	-	-	-	-	-	-	-	-	-
	Bush	-	-	-	-	-	-	-	-	-	-
	Oil Palm	-	-	-	1,011.2	-	-	-	-	-	1,011.2
	Oil Palm of PT LAB	-	-	-	-	-	-	-	-	-	-
	Rubber	-	-	-	-	-	-	-	-	-	-
	Secondary Forest	-	-	-	-	-	-	-	-	-	-
	Smallholder Oil Palm	-	-	-	-	-	-	-	-	-	-
Young Shrub	-	-	-	-	-	-	-	-	-	-	
Sub-Total Corporate Dec 2019	-	-	-	1,011.2	-	-	-	-	-	-	1,011.2
PT SMS - PLASMA Area											
Non-Corporate											
Land Cover	Dec-19										Sub-Total Non-Corporate Oct 2017
	Agroforest	Bare Land	Bush	Oil Palm	Oil Palm of PT LAB	Rubber	Secondary Forest	Smallholder Oil Palm	Young Shrub		
Oct-17	Agroforest	679.9	50.4	0.6	-	-	-	-	-	-	730.8
	Bare Land	-	27.5	144.0	-	-	-	-	-	-	171.4
	Bush	-	8.7	41.2	-	-	-	-	-	263.2	313.1
	Oil Palm	-	-	-	-	-	-	-	-	-	-
	Oil Palm of PT LAB	-	-	-	-	23.8	-	-	-	-	23.8
	Rubber	-	2.6	3.0	-	-	51.2	-	-	-	56.8
	Secondary Forest	-	-	15.2	-	-	-	396.8	-	-	412.0
	Smallholder Oil Palm	-	-	-	-	-	-	-	7.1	-	7.1
Young Shrub	-	12.3	4.1	-	-	-	-	-	395.1	411.6	
Sub-Total Non-Corporate Dec 2019	679.9	101.5	208.1	-	23.8	51.2	396.8	7.1	658.3	2,126.7	
Corporate											
Land Cover	Dec-19										Sub-Total Corporate Oct 2017
	Agroforest	Bare Land	Bush	Oil Palm	Oil Palm of PT LAB	Rubber	Secondary Forest	Smallholder Oil Palm	Young Shrub		
Oct-17	Agroforest	-	-	-	-	-	-	-	-	-	-
	Bare Land	-	-	-	-	-	-	-	-	-	-
	Bush	-	-	-	-	-	-	-	-	-	-
	Oil Palm	-	-	-	414.7	-	-	-	-	-	414.7
	Oil Palm of PT LAB	-	-	-	-	-	-	-	-	-	-
	Rubber	-	-	-	-	-	-	-	-	-	-
	Secondary Forest	-	-	-	-	-	-	-	-	-	-
	Smallholder Oil Palm	-	-	-	-	-	-	-	-	-	-
Young Shrub	-	-	-	-	-	-	-	-	-	-	
Sub-Total Corporate Dec 2019	-	-	-	414.7	-	-	-	-	-	-	414.7

**Table 46. Summary of land use change in SMS concession area**

PT SMS - INTI Area										
Land Cover	Nov 2005	Nov 2007	Dec 2009/ Jan 2010	Feb 2010	May 2014	Dec 2014	Apr 2017	Jul 2017	Oct 2017	Dec 2019
Agroforest	2,645.3	2,482.5	2,390.0	2,390.0	2,505.2	2,505.2	2,505.2	2,443.6	2,384.7	2,333.5
Bare Land	102.3	762.5	897.3	897.3	146.7	146.7	146.7	281.0	573.9	141.8
Bush	892.0	724.2	1,032.4	1,032.4	755.6	755.6	755.6	763.9	684.8	749.4
Oil Palm	-	-	-	-	1,011.2	1,011.2	1,011.2	1,011.2	1,011.2	1,011.2
Oil Palm of PT LAB	-	-	-	-	60.9	60.9	60.9	60.9	60.9	60.9
Rubber	-	54.7	114.3	114.3	231.1	231.1	231.1	231.1	231.1	225.6
Secondary Forest	2,919.4	2,655.5	2,386.5	2,386.5	1,504.4	1,504.4	1,503.3	1,501.4	1,485.4	1,473.1
Smallholder Oil Palm	-	-	-	-	2.5	2.5	2.5	2.5	2.5	2.5
Young Shrub	2,560.7	2,440.3	2,299.3	2,299.3	2,902.1	2,902.1	2,903.2	2,824.0	2,685.1	3,121.6
<b>Total - INTI Area</b>	<b>9,119.7</b>	<b>9,119.7</b>	<b>9,119.7</b>	<b>9,119.7</b>	<b>9,119.7</b>	<b>9,119.7</b>	<b>9,119.7</b>	<b>9,119.7</b>	<b>9,119.7</b>	<b>9,119.7</b>
PT SMS - PLASMA Area										
Land Cover	Nov 2005	Nov 2007	Dec 2009/ Jan 2010	Feb 2010	May 2014	Dec 2014	Apr 2017	Jul 2017	Oct 2017	Dec 2019
Agroforest	830.8	778.1	735.5	735.5	811.5	811.5	811.5	759.8	730.8	679.9
Bare Land	47.9	176.3	248.8	248.8	84.5	84.5	84.5	81.2	171.4	101.5
Bush	246.0	141.5	186.6	186.6	283.1	283.1	283.1	347.8	313.1	208.1
Oil Palm	-	-	-	-	414.7	414.7	414.7	414.7	414.7	414.7
Oil Palm of PT LAB	-	-	-	-	23.8	23.8	23.8	23.8	23.8	23.8
Rubber	-	2.5	2.5	2.5	56.8	56.8	56.8	56.8	56.8	51.2
Secondary Forest	901.6	881.9	847.4	847.4	418.3	418.3	418.3	415.9	412.0	396.8
Smallholder Oil Palm	-	-	-	-	7.1	7.1	7.1	7.1	7.1	7.1
Young Shrub	515.2	561.1	520.6	520.6	441.5	441.5	441.5	434.2	411.6	658.3
<b>Total - PLASMA Area</b>	<b>2,541.5</b>	<b>2,541.5</b>	<b>2,541.5</b>	<b>2,541.5</b>	<b>2,541.5</b>	<b>2,541.5</b>	<b>2,541.5</b>	<b>2,541.5</b>	<b>2,541.5</b>	<b>2,541.5</b>

### 3.3.2. Remediation liability

In accordance with compliance to the RSPO prohibited area for plantation development, LUCA found that there are a total of 96.4 ha of plantation development in riparian areas. Those are categorized as areas requiring remediation.

**Table 47. List of riparian areas requiring remediation**

River	Hectare (ha)
S. Betung	0.5
S. Dokan	1.3
S. Kampung Raya	8.0
S. Karim	17.7
S. Kiangkang	21.7
S. Mariangin	4.8
S. Nanggo	0.8
S. Nanggo 2	1.2
S. Semapau	5.3
S. Sepiri	2.8
S. Tering	1.1
S. Tiyakor	1.7
S. Tudus	4.1
S. Uang	25.3
<b>Total</b>	<b>96.4</b>

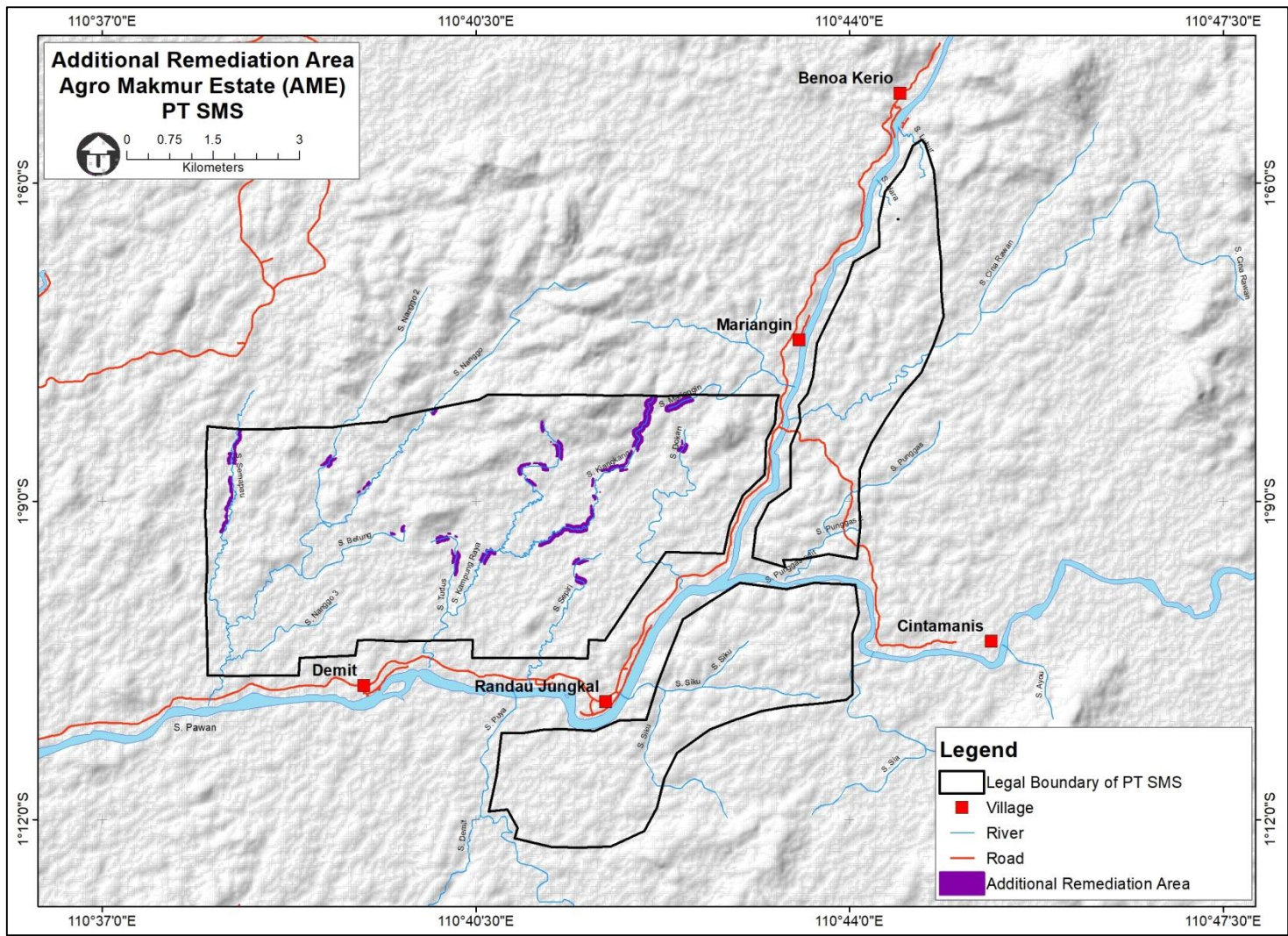


Figure 34. Riparian areas requiring environmental remediation in Agro Makmur Estate Area – PT SMS

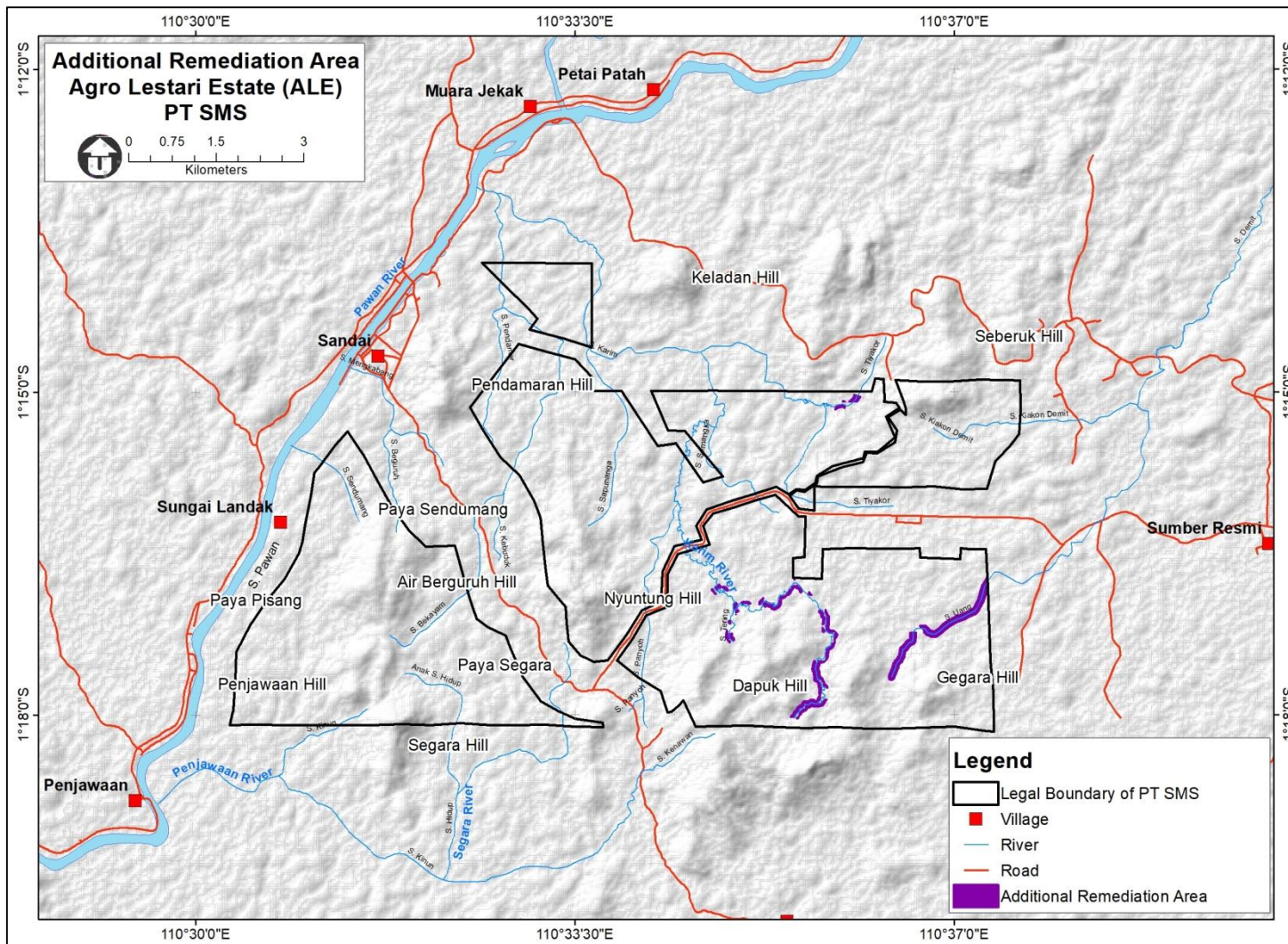


Figure 35. Riparian areas requiring environmental remediation in Agro Lestari Estate Area – PT SMS

### 3.4. Carbon Stock and GHG Assessment

#### 3.4.1. Land cover carbon stock

Assessment of land cover carbon stock identified 13 classes of land cover in the assessment area. Land cover areas with the highest carbon stock according to the assessment are (i) forest with 105.6 tonC/ha, (ii) young regenerating forest with (63.4 tonC/ha), and (iii) agroforest<sup>12</sup> with 57.3 tonC/ha. Table below presents biomass carbon contents in each land cover class in the assessment area.

**Table 48. Land cover carbon stock in assessment area (SMS)**

Land Cover	Above Ground Carbon Stock DBH > 5cm (tonC/ha)*	Above Ground Carbon Stock DBH < 5cm (tonC/ha)**	Below Ground Carbon Stock (tonC/ha)***	Carbon Stock (tonC/ha)	Area (ha)
Forest (hutan)*	78.8	3.0	23.7	105.6	569.5
Young regenerating forest/YRF (hutan muda)*	47.3	1.8	14.3	63.4	732.5
Scrub/MAFL (semak belukar)*	9.8	0.4	3.0	13.2	3337.8
Agroforest/MAFH (kebun campuran tinggi)*	42.8	1.6	12.9	57.3	3487.8
Seasonal agricultural crop (pertanian musiman)**				8.5	135.3
Paddy field (sawah)**				2.0	228.5
Oil palm (kebun sawit)**				20.9	1,387.4
Other company's oil palm (kebun sawit PT lain)**				9.4	22.6
Community's oil palm (kebun sawit masyarakat)**				9.4	161.4
Clear land/LCIP (lahan telah dibuka belum ditanam)**				2.5	64.3
Bare land (lahan terbuka)**				2.5	1,270.3
Infrastructure and facilities (infrastruktur dan fasilitas lain)**				5.0	0.6
Settlement (pemukiman)**				5.0	22.4
Road (jalan)**				-	17.5
Water body (badan air)**				-	0.0
	<b>Total</b>				<b>11,438.1</b>

(\*) Based on carbon stock calculation in HCSA Assessment

(\*\*) Default value

(\*\*\*) Additional calculation in GHG Assessment

<sup>12</sup> Referred to as "kebun campuran tinggi (MAFH) in the GHG Assessment report"



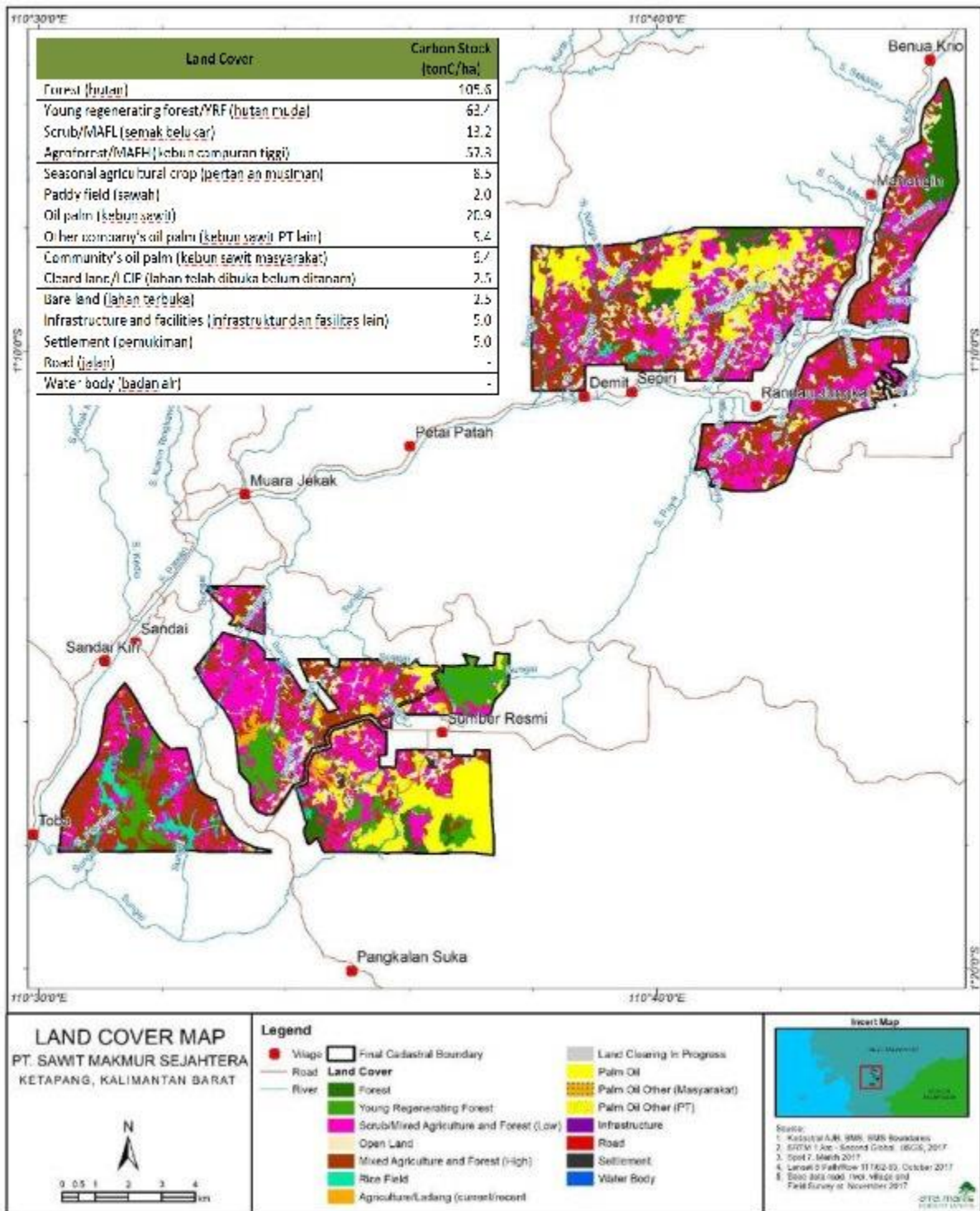


Figure 36. Land cover classification and carbon stock of SMS

### 3.4.2. Peat/organic soil carbon stock

There is no peat/organic soil in SMS concession area.

### 3.4.3. New development scenarios and projections of GHG emission

Four new development scenarios were prepared based on differentiation of land use plan. Calculation of the emission projection considered only land use area that will potentially be cleared for the new

development while setting aside several land use areas that will not be converted to oil palm plantation. Table below presents details of land use areas in SMS area.

**Table 49. Details of potential land use to be converted versus land use will not be converted (SMS)**

Development Status and Land Cover			HCV and HCS Overlap				Total	
			Non HCS/HCV	HCV Incl Overlap HCS	Residual HCS (incl overlap HCVMA)	HCVMA only		
Developed Area	Company Development Area	Oil Palm	1,049.3	15.9	0.0	322.2	1,387.4	
		Land Clearing in Progress	43.6	17.7	0.0	3.0	64.3	
		Roads	14.9	2.4	0.0	0.2	17.5	
		Infrastructure and Amenities	0.6	0.0	0.0	0.0	0.6	
		<b>Sub Total</b>	<b>1,108.4</b>	<b>36.0</b>	<b>0.0</b>	<b>325.4</b>	<b>1,469.9</b>	
	Other Development	Oil Palm Other Company	20.5	0.6	0.0	1.5	22.6	
		Settlements	19.5	2.9	0.0	0.0	22.4	
		<b>Sub Total</b>	<b>40.1</b>	<b>3.5</b>	<b>0.0</b>	<b>1.5</b>	<b>45.0</b>	
	<b>Sub Total Developed Area</b>			<b>1,148.5</b>	<b>39.5</b>	<b>0.0</b>	<b>326.9</b>	<b>1,514.9</b>
Undeveloped Area	Potential HCS Strata:	Forest	0.0	514.8	50.9	3.8	569.5	
		YRF	0.0	513.3	213.1	6.0	732.5	
		<b>Sub Total</b>	<b>0.0</b>	<b>1,028.1</b>	<b>264.0</b>	<b>9.8</b>	<b>1,302.0</b>	
	Non HCS Strata:	Scrub	2,907.7	419.1	1.6	9.4	3,337.8	
		Mixed Agriculture and Forest (High)	2,974.3	511.4	0.0	2.0	3,487.8	
		Oil Palm Smallholder	153.2	7.8	0.0	0.4	161.4	
		Smallholder Agriculture (current/recent)	98.4	37.0	0.0	0.0	135.3	
		Open Land	1,157.6	111.3	0.0	1.4	1,270.3	
		Rice Paddy (sawah)	208.7	19.8	0.0	0.0	228.5	
		Water Body	0.0	0.0	0.0	0.0	0.0	
		<b>Sub Total</b>	<b>7,499.9</b>	<b>1,106.4</b>	<b>1.6</b>	<b>13.3</b>	<b>8,621.2</b>	
	<b>Sub Total Undeveloped Area</b>			<b>7,499.9</b>	<b>2,134.5</b>	<b>265.6</b>	<b>23.1</b>	<b>9,923.2</b>
	<b>Total SMS</b>			<b>8,648.4</b>	<b>2,174.0</b>	<b>265.6</b>	<b>350.0</b>	<b>11,438.1</b>

The first scenario assigns all of the potential land use area to be converted for new development, whereas the second, third, and fourth scenario consider particular areas to be set aside from the new development. Table and figures below describe differentiation of each new development scenario for SMS.

**Table 50. Details of new development scenarios for SMS**

Scenario	Description							
<b>1</b>	All unplanted area for new development							
<b>2</b>	Set aside HCV area with forest land cover from new development plan							
<b>3</b>	Set aside all HCV area from new development plan							
<b>4</b>	Set aside all HCV and HCS areas from new development plan							
Land cover	S1		S2		S3		S4	
	New dev	Cons	New dev	Cons	New dev	Cons	New dev	Cons
Forest	569.50	0.0	50.89	1,037.94	50.89	1,037.94	0.00	1,302.00
Young regenerating forest	732.46		213.14		213.14		0.00	
Scrub	3,337.85		3,337.85		2,909.33		2,909.33	
MAFH	3,487.75		3,487.75		2,974.33		2,974.33	
Seasonal agr crop	135.34		135.34		98.38		98.38	
Cleared land	64.34		64.34		43.62		43.62	
Bare land	1,270.32		1,270.32		1,157.64		1,157.64	
<b>Total</b>	<b>9,597.57</b>	<b>0.0</b>	<b>8,559.64</b>	<b>1,037.94</b>	<b>7,447.33</b>	<b>1,037.94</b>	<b>7,183.30</b>	<b>1,302.00</b>

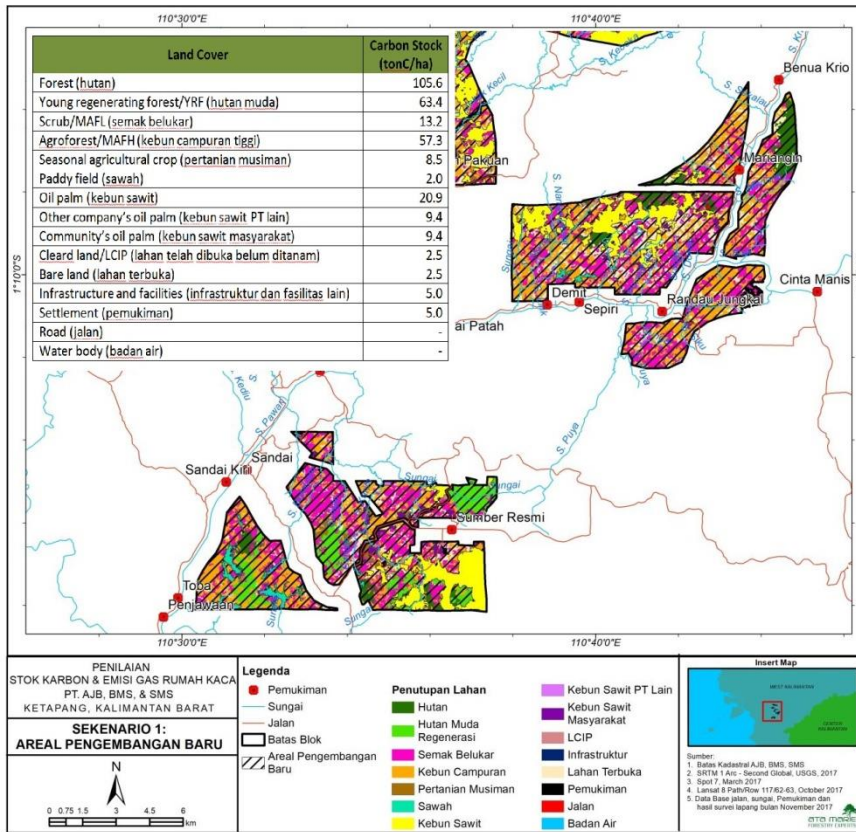


Figure 37. Proposed new development area in scenario 1

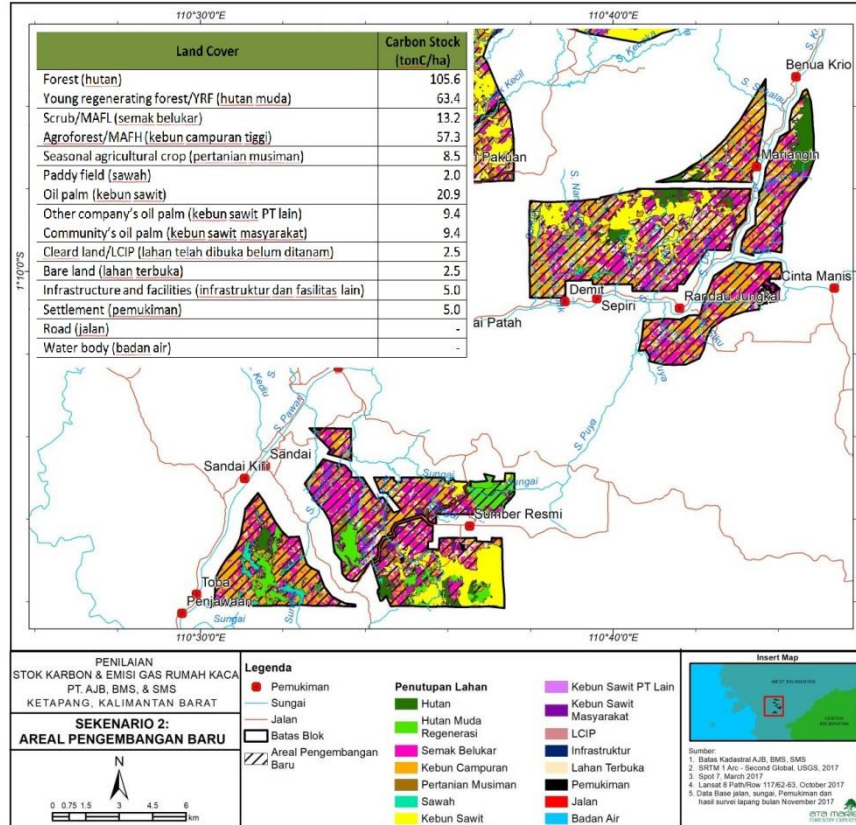


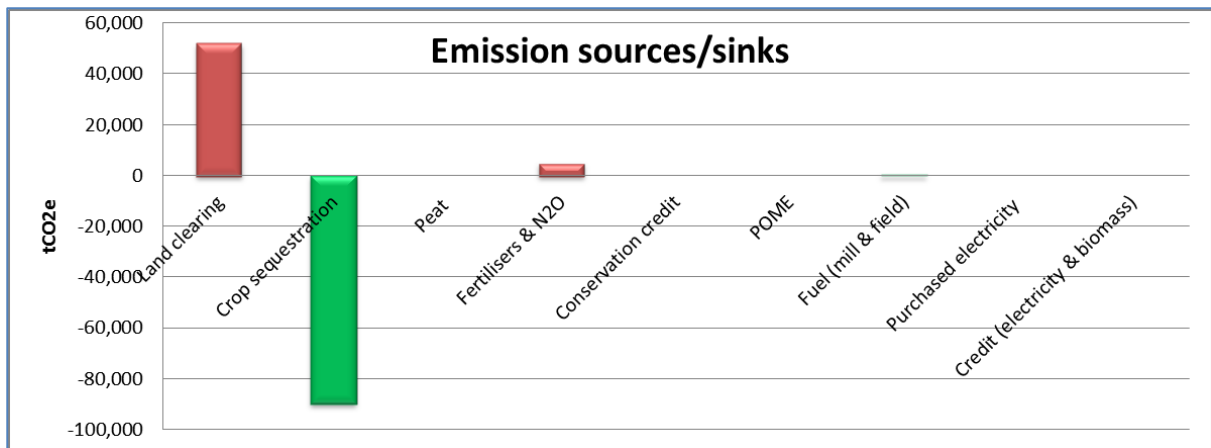
Figure 38. Proposed new development area in scenario 2



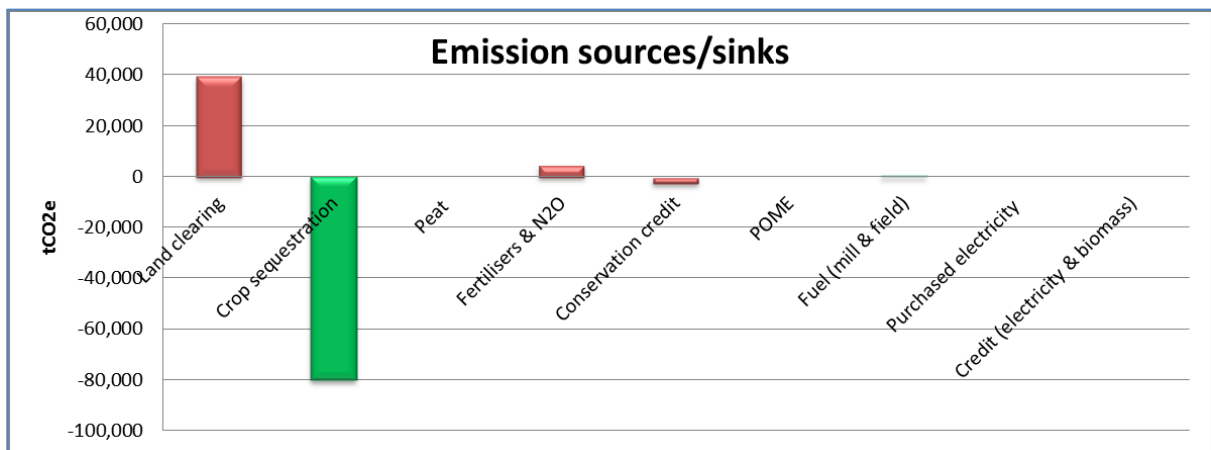
Differentiation of the proposed area for new development leads to variation of amount of the other GHG emission sources to be used in the new plantation management such as fertilizer and fuel. The smaller the new development area, the lower the GHG emission emitted. Projections of GHG emission from each scenario are presented in table below.

**Table 51. Projection of GHG emission from each new development scenario**

No	Source of Emission	Projection of GHG Emission (tonCO <sub>2</sub> e/ha)			
		Scenario 1	Scenario 2	Scenario 3	Scenario 4
1	Land clearing	5.43	4.58	4.56	4.34
2	Crop sequestration	-9.36	-9.36	-9.32	-9.36
3	Fertilizer	0.32	0.32	0.32	0.32
4	N <sub>2</sub> O	0.21	0.21	0.21	0.21
5	Field fuel	0.06	0.06	0.06	0.06
6	Peat	0.00	0.00	0.00	0.00
7	Conservation credit	0.00	-0.030	-0.35	0.45
<b>Total</b>		<b>-3.34</b>	<b>-4.49</b>	<b>-4.55</b>	<b>-4.88</b>



**Figure 41. GHG emission amount per source from scenario 1**



**Figure 42. GHG emission amount per source from scenario 2**

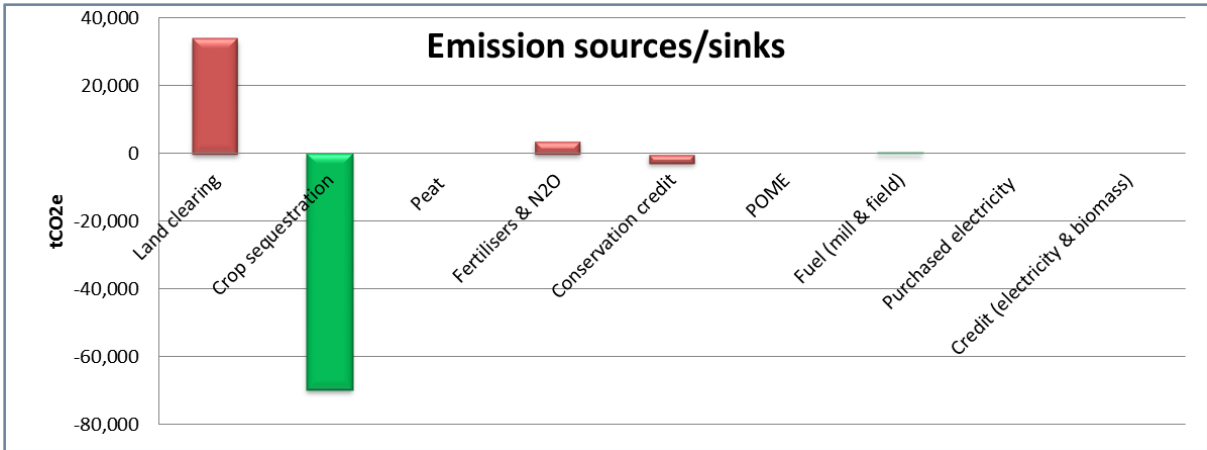


Figure 43. GHG emission amount per source from scenario 3

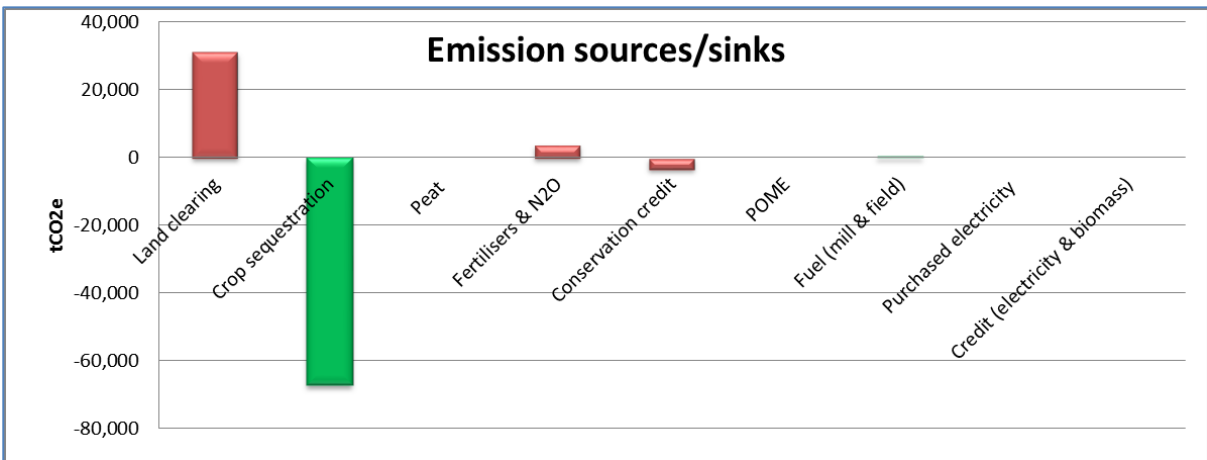


Figure 44. GHG emission amount per source from scenario 4

### 3.4.4. Scenario selection

The company agrees to select scenario 4, which is to set aside all of the HCV and HCS area for conservation. The selected scenario would decrease as much as 1.54 tonCO<sub>2</sub>e/ha compare to the baseline scenario. Details of new development plan and projection of GHG emission according to the selected scenario are presented in figure below.

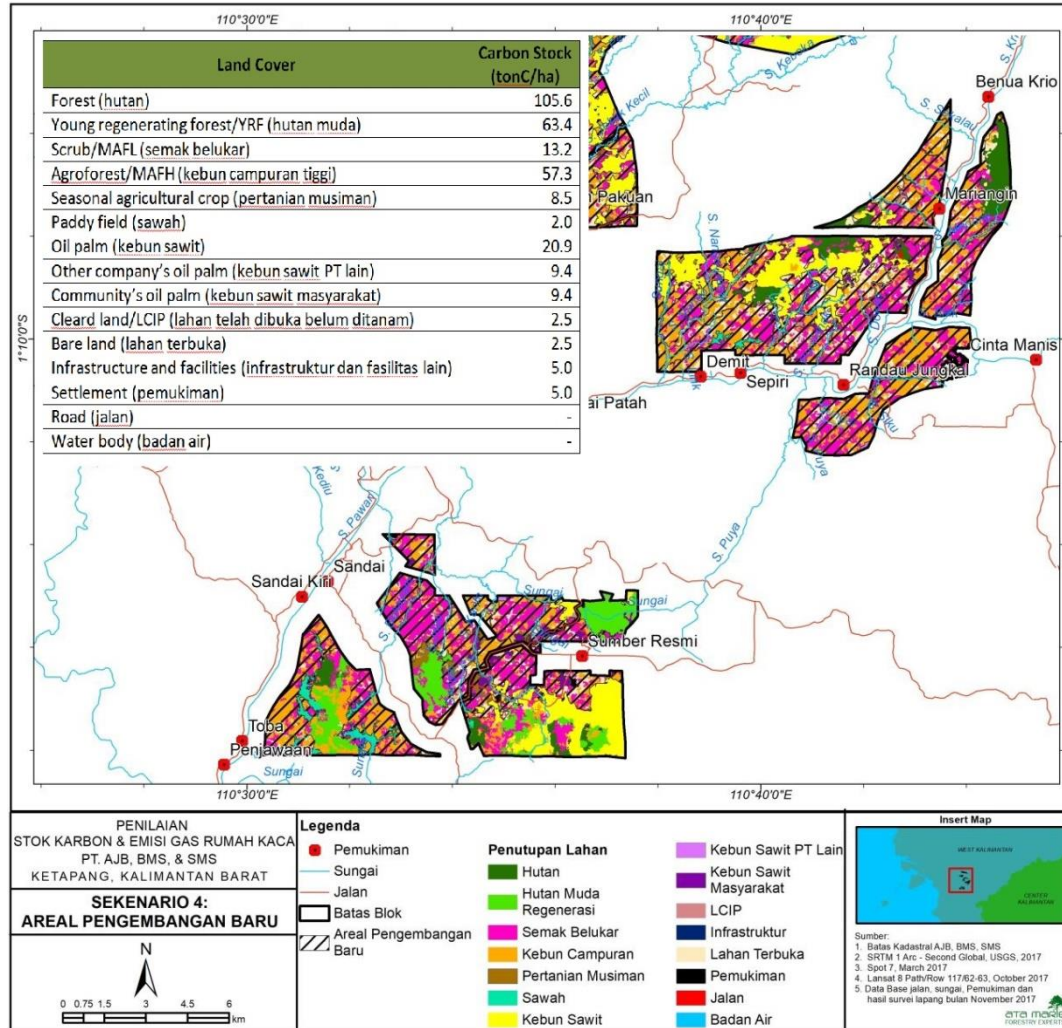


Figure 45. Proposed area for new development in the selected scenario

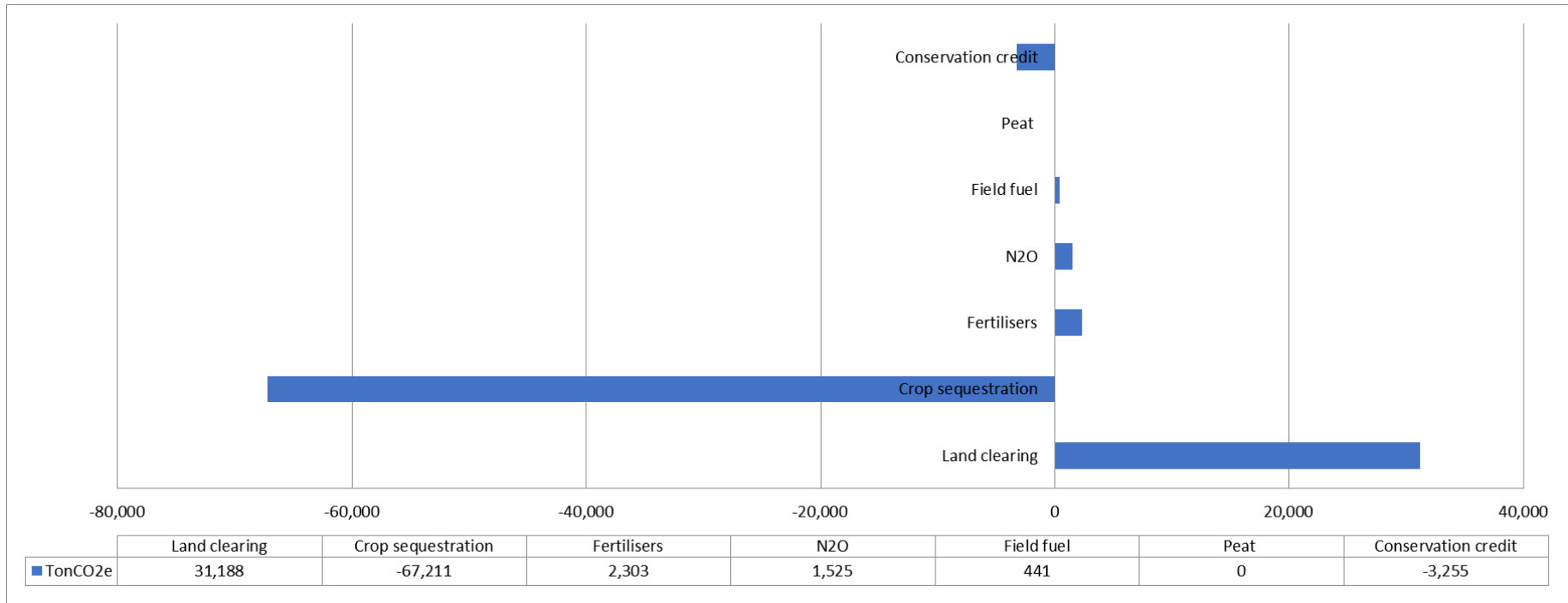


Figure 46. Summary of GHG emission based on sources in the selected scenario



### 3.5. Soil and topography assessment

See section 3.2.1.2.

### 3.6. Stakeholder engagement and FPIC study

FPIC study carried out by LINKS in 2016 analyzed five aspects of compliance to FPIC principles. Summary of findings and recommendations from LINKS team are described in the following pointers. Findings and recommendations from LINKS team were then used as part of the basis in assessing social requirements in 2017 that includes social engagements, participatory mapping, and consultations (presented in following sub-sections).

- Stakeholder engagement and participatory mapping: company has not identified stakeholders in formal manner that should be evidence with demonstrable documentation as the mean of social risk scoping (term of social risk scoping was adopted from IFC standard).
- Socialization: Socializations regarding with company's development plan have been carried out in 2008-2011. However, LINKS team identified that information regarding with environmental aspects and detailed management plan of plasma were not sufficiently socialized at the time. Therefore, LINKS team recommends the company to provide detail information regarding with environmental aspects and more detailed management plan of plasma plantation.
- Negotiation and land acquisition: according to the interviewees, room for negotiation was not given to them; however, according to the company, there were negotiations prior to the agreement of the amount/price for land compensation and documentations (*berita acara*) were made and are available in the office of the company. LINKS team also found that there were unscrupulous brokers (*oknum*) in the community that cause the amount/price for land compensation was not fully received by the owner/right holder. Based on that finding, LINKS team recommends company to keep and/or improve the opportunity for negotiation prior to any compensation as per required by company's land acquisition SOP and to provide copy of compensation process documentation for the community receiving compensation.
- Sufficient social and environmental analysis: Company has carried out several social and environmental studies. Based on that, LINKS team recommends company to carry out thorough consultations with public/community to ensure that the community is receiving prior information, consulted, and can give their opinion; so that they can negotiate and give their consent on establishment of conservation area.
- Conflict handling: LINKS team found that complaints and conflicts from communities are handled accordingly with company's SOP. LINKS team recommends the company to keep providing and/or improving documentations throughout the complaint or conflict handling processes; and to socialize the SOPs related with complaint and conflict handlings with the community.

### 3.6.1. Initial engagements with communities

Initial engagements with representative of the communities such as village authorities were carried out to inform the proposed assessment and to discuss planning for further engagements with the communities for consultations and participatory mapping. Following table present activities and information shared and gathered in the initial engagements.

**Table 52. Activities and information shared/gathered in initial engagement**

Activity	Output/result of engagement
Initial discussion with Kepala Desa or representative: <ul style="list-style-type: none"> <li>• Explain the HCS assessment concept and planned activities.</li> <li>• Request a schedule to carry out initial consultation and FGD with a broad group of community members.</li> <li>• Set out the target groups requested to attend:               <ul style="list-style-type: none"> <li>• Desa leaders - formal (Kepala Desa/Ketua BPD)</li> <li>• Cultural leaders – non-formal</li> <li>• Community Representatives (youth, women, farmer, etc.)</li> <li>• Others from the community willing to attend</li> </ul> </li> </ul>	Agreement to co-operate to organize initial consultation. Schedule and location for initial consultation agreed. Target groups identified and invited.

### 3.6.2. Consultations and focused group discussions

Consultations and FGD were carried out in every village in the area. Table below describes information gathered during the consultation and FGD.

**Table 53. Activities and information shared/gathered in consultations and FGD**

Activity	Output/information gathered
<b>Opening Presentation:</b> <ul style="list-style-type: none"> <li>• Introduction</li> <li>• Meeting agenda &amp; objectives</li> <li>• Brief explanation of:               <ul style="list-style-type: none"> <li>• Goodhope’s environmental and social commitments.</li> <li>• HCS and HCV concepts and integrated conservation planning.</li> <li>• HCS Assessment objectives and role of Ata Marie.</li> <li>• Explanation of planned HCS activities.</li> <li>• Role of communities in conservation planning.</li> </ul> </li> </ul> Rights of community to give or withhold consent and seek external representation.	The communities are made aware of the company development plan and their environmental and social commitments. The communities are made aware of the HCS concept, the proposed HCS assessment activities, and their role in conservation planning. The communities are informed of their right to give or withhold consent to HCS assessment and seek external representation.
<b>Open Discussion:</b> <ul style="list-style-type: none"> <li>• Question and answer session</li> <li>• Seek consent from Attendees to continue with meeting, FGD and subsequent field activities.</li> <li>• Discussion regarding community involvement in HCS activities and of support needed from community leaders and local community.</li> </ul>	Obtain consent for implementation of the HCS assessment activity plan. Community representatives who will participate in assessment activities are selected and briefed. Schedules and logistical aspects are agreed.
<b>Focus Group Discussion on the following:</b> <ul style="list-style-type: none"> <li>• Village history.</li> <li>• Community land use and land cover (using pre-printed maps of land cover and indicative HCV/HCS).</li> <li>• Community land tenure and land management (owners, managers, users).</li> <li>• Food and water security and related land requirements.</li> <li>• Settlement expansion.</li> </ul>	Information gathered on: <ul style="list-style-type: none"> <li>• Community land ownership and utilisation systems</li> <li>• Food and water sources and dependence on land for food security</li> <li>• Plans and programs related to future land use</li> <li>• Any existing conservation areas</li> <li>• Potential HCS areas and other potential conservation</li> </ul>

Activity	Output/information gathered
<ul style="list-style-type: none"> <li>• Sacred site identification (confirmation of HCV 6).</li> <li>• Existing or upcoming land or agriculture development programs (primarily government programs).</li> <li>• Initial identification of potential conservation areas.</li> <li>• Identify priority survey targets for participatory mapping activities.</li> </ul> land owner identification (focusing on potential HCS areas).	<p>areas identified by communities, including indicative information on their ownership status.</p> <p>Target locations for participatory mapping identified.</p> <p>Berita acara and daftar hadir.</p>
<b>Data collection</b>	<p>Demographic dataset updated and cross checked.</p> <ul style="list-style-type: none"> <li>• Population.</li> <li>• Education and health facilities.</li> <li>• Socio economic data</li> </ul>

### 3.6.3. Participatory mapping

Participatory mapping were carried out together with the communities. Activities in the participatory mapping includes discussions and field surveys that carried out by the assessment team and representatives of the communities. Table below presents details of activities and output from the participatory mapping.

**Table 54. Activities and information shared/gathered in participatory mapping**

Activity	Output
<p><b>Participatory mapping surveys:</b></p> <ul style="list-style-type: none"> <li>• Ground truthing of draft land cover and land use maps.</li> <li>• Ground truthing of boundaries of potential HCS conservation areas and identification of affected land owners.</li> <li>• Identification of land areas important for community food security, i.e. land currently used or planned for use for long term agriculture. In particular, padi fields (sawah) and other food production areas.</li> <li>• Improved mapping of rivers, streams and springs requiring buffering, with particular focus on clean water supply sources.</li> <li>• Identification of additional no-go or sensitive land uses requiring additional joint discussion with communities: <ul style="list-style-type: none"> <li>• Productive rubber plantation land</li> <li>• Tembawang areas.</li> <li>• Adat or other communally owned land areas</li> <li>• Land used for collection of forest products (timber and non- timber).</li> </ul> </li> <li>• Identification of settlement area boundaries and land for planned expansion of settlements.</li> <li>• Sacred site identification (confirmation of HCV 6).</li> </ul>	<p>Land cover and land use dataset ground checked.</p> <p>Hydrology and water source data ground checked.</p> <p>Boundaries of potential HCS areas ground checked.</p> <p>Land owners of potential HCS areas identified and initial consultation held.</p> <p>Additional no-go areas and sites important to communities identified in the field.</p> <p>Settlement expansion areas identified in the field. Berita acara.</p>
<p><b>Integration of results into the First Draft ICLUP:</b></p> <p>Finalisation of Editing of land cover and land use datasets - GIS activity after the first field visit.</p>	<p>Improved Land cover, landuse land ownership and hydrology maps.</p> <p>First draft land use plan produced.</p>

### 3.6.4. Summary of findings

#### Land tenure

Land tenure data was collected throughout the engagements with communities. Most of the land in SMS and its surroundings are owned by/under land use rights of individuals and family. Lands of shifting cultivations are also included in this category of land tenure. Furthermore, land ownership/land use rights are hereditary following customary process and can be traded.

In addition, there are also lands controlled by communities (communal land). Majority of these lands are hills that are traditionally conserved to maintain water supply. Some areas of the hill are found as non-forest, however new land clearings are no longer permitted in hill areas according to informal/normative agreements within the communities. Table and figure below presents details of hill areas that are controlled by the communities (communal land). Moreover, those hills were also identified as conservation areas in HCV and HCS assessments.

**Table 55. List of communal land areas in SMS and its surroundings**

Index	Location	Desa	Area (ha)
1	Bukit Kanau	Lanjut Mekar Sari	18
2	Bukit Urak	Pendamar Indah	234
3	Bukit Toning	Lanjut Mekar Sari	31
4	Bukit Batu	Randau	43
5	Bukit Gegara	Pangkalan Suka	110
6	Bukit Dapuk	Sandai dan Pangkalan Suka	599
7	Bukit Nyutung	Tanah Dusun (Tumbang Pauh)	239
8	Bukit Tudung	Demit	47
9	Bukit Menjuang	Demit	56
10	Bukit Senanggui	Benua Krio	29
11	Bukit Insuna	Benua Krio dan Cinta Manis	304
12	Bukit Sekolang	Randau Jungkal	190
13	Bukit Aik Beguruh	Penjawaan	83
Total			1,982

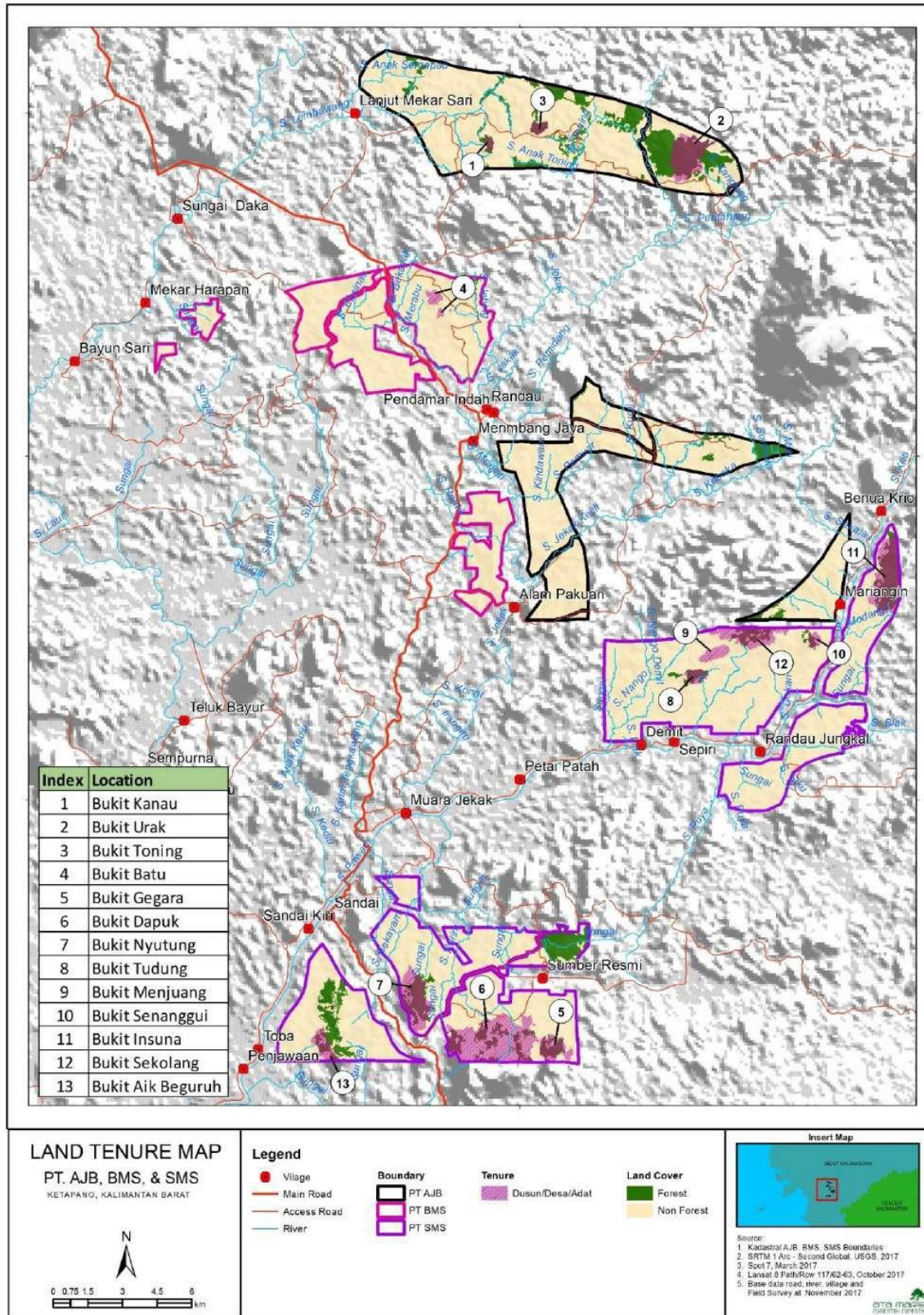


Figure 47. Map of communal lands in SMS and its surroundings

### **Food security and community agricultural activities**

There are two types of agricultural activities of the communities, (i) dry land paddy cultivation to produce rice for subsistence use and (ii) rubber and oil palm plantation business for income generation. In relation with the aforesaid, food security of the communities are fulfilled with combination of subsistence agriculture and buy-sell activity with money.

Traditional dry land paddy cultivation can still be found in the assessment area as rice is the main source of carbohydrate of the communities. However, recently, availability to develop next paddy cultivation land as required in the cycles of shifting cultivation are limited due to expansion of oil palm plantation (corporate and smallholder) and prohibition of land clearing using fire by the government.

Wet paddy field (sawah) area with a total of 375 ha has also been identified. These paddy fields are located on lowland swampy areas. Availability to expand paddy cultivation on wet field is also limited due to topographic conditions of the area. Therefore, in order to participate to the food security for the communities, Goodhope and its subsidiaries are committed to set aside these areas from the new development plan. Moreover, food security from owning paddy field is also part of the customs of Dayak Community that is respected by the communities and company.

Analysis on availability of land for food security using the 0.5 ha approach was also carried out. Result of the analysis shows that hypothetically the communities still have more than enough lands outside the company's concession for their food security. However, it is acknowledged that actual minimum size of land for food security of the communities varies depending on many factors that may occur in the livelihood and culture of the community.

### **Existing and potential expansion of settlement areas**

Existing settlement areas and reserves for potential future settlement expansion are located along the road access as in accordance with the official land use and development plan of the government. Those areas are excluded from the company's concession area during the cadastral survey and mapping.

### **Land acquisition process**

The communities acknowledged that SMS and two other oil palm plantation concessions in the area (AJB and SMS) were acquired by Goodhope in 2010. Since then land acquisition (GRTT) and development of partnership scheme plantation (plasma) were initiated by Goodhope.

Communities confirmed that the land acquisition process carried out by the companies was following a set of procedure. The process was transparent and participative. Land acquisition process involved land measurement, negotiation, and agreement which are vetted by representatives of Kecamatan and Desa as the authorities and independent party.

There were also records of complaints/grievances raised regarding with overlapping ownership and mutual ownership claim. However, those grievances were successfully closed with demonstrable documentations of the land acquisition process and discussions with the complainant and the recognized owners.

### **Preception about the company's development plan**

SMS and the other oil palm plantations in the area are the main support in improvement of the economic and livelihood of the communities. The communities support the development of company's plantation and their plasma plantation, and the mill development plan in the area. SMS and other oil palm plantation companies were also contributed in the acceleration of infrastructure development such as road accessibility.

In addition to plasma, company's operational activity is also expected to support communities' economic livelihood by the work opportunity in the companies. However, recently the communities found that working opportunities are limited mainly because most of the available work opportunity is for daily casual labor (not as long-term contracted staff). The communities expect improvement in the local labor recruitment through prioritization according to capacity and competencies.

Village governments are also expecting development of village treasury (Tanah Kas Desa) for the income of village. Recently there are a total of 6 ha of village treasury to be developed by SMS and the other companies for the income of village.

Perception of the communities about company's development plan is positive, except for the Desa Penjawan. Representatives of Desa Penjawan are pessimistic about the development plan due to the long postpone of land acquisition process and development. However, the issue were partially addressed with the discussions about the requirements and commitments to be fulfilled by SMS and Goodhope prior to the development plan. The communities, including Desa Penjawan are expecting the company to accomplish the procedures and to realize the development plan.

### **3.6.5. Recommendations**

Following are the recommendations regarding with social engagement and participatory mapping process:

1. Finalization and field demarcation of conservation areas should be carried out with participation and consultation with stakeholders (including communities).
2. Monitoring of conservation areas should involve communities.
3. Conservation areas are recommended to be acquired (through land acquisition process/GRTT) to avoid risk of deforestation.

## 4. Summary of Management and Monitoring Plans

Management of SMS commits to carry out management and monitoring activities in accordance with Goodhope Group’s Sustainability Policy and RSPO Principles and Criteria. Sustainability team of the company and Goodhope will be responsible in the development and implementation of management plan. Below is the organizational structure of sustainability team of SMS and Goodhope.

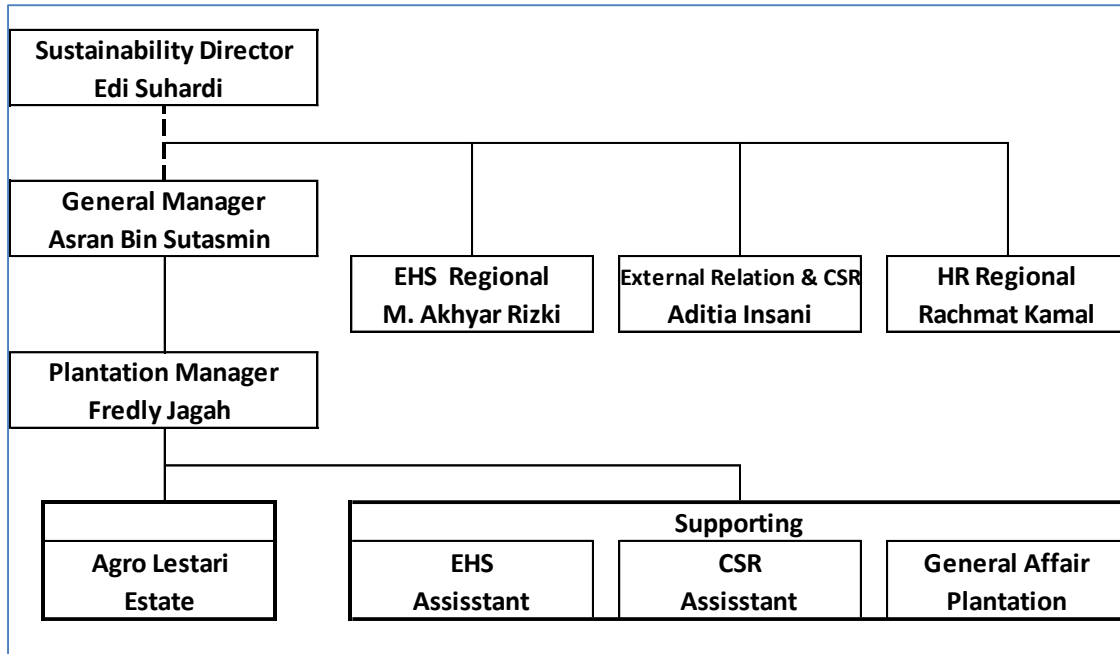


Figure 48. Diagram of organizational structure of sustainability division of SMS

### 4.1. Social and environmental impact management and monitoring plans

In order to ensure the effectiveness of social and environmental impact management and monitoring, company was recommended to:

1. To cooperate with local governments to improve quality of human resources in the local area, especially health and education.
2. To cooperate with local government and service providers of basic infrastructure development to support the livelihoods of the affected communities.
3. To cooperate with local government and other related parties to alleviate poverty in the local area.
4. To cooperate with local government and village authorities to strengthen the capacity of village officials and to improvement the quality of administrative services.
5. To cooperate with local government especially the Regional Disaster Management Agency (BPBD) and other relevant parties and local communities in mitigations of disaster risk in the local area.
6. To cooperate with local government, customary institution, and military (TNI)/Police (Kepolisian) to improve law enforcement in the local area.



7. To encourage other relevant stakeholders (e.g. government, other concession manager, community) for development of collaborative landscape management.
8. To cooperate with local government, customary institutions, religious institutions (church, MUI, etc.) and other stakeholders to strengthen the cultural and religious practices for communities in the local area.
9. To cooperate with local government and other stakeholders to strengthen capacity of the communities, such as cooperative union, youth organization, women's organization, etc.
10. To develop feedback and complaints handling mechanisms.
11. To facilitate process of agreements arrangement between the management unit and the community.
12. To develop and implement participatory regular monitoring plan.

Management and monitoring plan for environmental impact has been prepared as part of the AMDAL of SMS whereas the management plan for social impact was prepared from social impact assessment of SMS. Details of the environmental impact and social impact management and monitoring plans are provided in the following tables.

**Table 56. Environmental impact management plan**

No	Management Object	Source of Impact	Indicator	Management System	Location
A. Physical-chemical aspect					
1	Micro climate	Land clearing and land preparation	Monthly rainfall	To carry out land clearing gradually (according to planned phases) and to provide natural area as buffer/supporting area.	Plantation area
2	Air quality	Land clearing and land preparation; transportation of equipment and material; and transportation of FFB	Government Regulation No 41 Year 1999 about Control of air pollution and stationary emission.	<ul style="list-style-type: none"> <li>- To carry out land clearing gradually (according to the planned phases);</li> <li>- To protect HCV and riparian conservation areas;</li> <li>- To carry out water spraying prior to land physical activities (e.g. land clearing and land preparation) to avoid dust dispersment (especially in dry season)</li> </ul>	Plantation area
3	Loudness	Land clearing and land preparation; mobilization of wquipment and material; and transportation of FFB	Ministrial Decree of Minister of Environment No. 48/MENLH/11/1996 on Threshold of loudness level.	To protect HCV and riparian conservation areas as natural loud reducer	Plantation area
4	Surface water quality	Land clearing and land preparation.	Government Regulation No. 82 Year 2001 on Management of water quality and control of water pollution.	<ul style="list-style-type: none"> <li>- Intensive management of potential sources of pollution to rivers to avoid spread to settlement areas.</li> <li>- To protect natural riparian areas to improve ecological function of the riparian as self purification;</li> <li>- To carry out land clearing gradually and prioritizing non-forest area. To plant the cleared land with LCC immediately.</li> </ul>	Riparians in the plantation area
5	Land fire	Land clearing and land preparation	Government Regulation No. 18 Year 2004 on agricultural plantation.	<ul style="list-style-type: none"> <li>- To not use fire in land clearing according to the government regulation;</li> <li>- To establish fire fighter taskforce incuding sufficient equipments and to carry out regular patrol in company's operational area;;</li> <li>- To provide water reservoir that can be used as source of water in fire fighting.</li> <li>- To establish water channels as firebreaks;</li> <li>- To establish monitoring tower at strategic areas to monitor the company's operational area;</li> </ul>	Plantation area

No	Management Object	Source of Impact	Indicator	Management System	Location
				- To establish signboards of fire preventions and fire warnings in strategic areas.	
B. Biological aspect					
6	Plant diversity and richness	Land clearing and land preparation	Protection of HCV and riparian areas.	<ul style="list-style-type: none"> <li>- To protect natural riparian as protection area in company's concession;</li> <li>- To plant natural species trees in riparian;</li> <li>- To protect natural plant in and around the company's concession;</li> <li>- To establish sign board of prohibition of cutting tree according to regulation.</li> <li>- To plant LCC of leguminocceae in plantation area.</li> </ul>	HCV and riparian areas
7	Fauna diversity and richness	Land clearing and land preparation	Comparison of wildlife quantity and quality between initial condition and time of management implementation.	<ul style="list-style-type: none"> <li>- To carry out identification of wildlife in company's concession area;</li> <li>- To protect natural area in riparian and protection area in company's concession and wildlife habitat;</li> <li>- To carry out regular patrol on protection of conservation area and to avoid wildlife hunting;</li> <li>- To establish signboard and socialization on prohibition of wildlife hunting.</li> </ul>	HCV and riparian areas
8	Aquatic species diversity and richness	Land clearing and land preparation	Comparison of aquatic biota quantity and quality between initial condition and time of management implementation.	<ul style="list-style-type: none"> <li>- To protect natural area in riparian that has ecological function for aquatic biota;</li> <li>- To establish signboard explaining prohibition of logging in riparian areas;</li> <li>- To protect plant species that has ecological function for fish species.</li> </ul>	Rivers in company's concession
9	Production forest and protection forest areas	Land clearing and land preparation	Clearing/degradation of buffer zone and protection area	<ul style="list-style-type: none"> <li>- To delineate and demark boundaries between operation area and buffer zone;</li> <li>- To establish signboard explaining prohibition of destructive activities in the buffer zone;</li> <li>- To socialize with the community presence of riparian buffer and its protection;</li> <li>- To involve communities in protection of buffer zone and protection area.</li> </ul>	In buffer zone, HCV, and riparian areas
10	Pest and plant disease	Introduction of oil palm crop	Spread of pest and disease as much as >10% of total planted palms.	<ul style="list-style-type: none"> <li>- To carry out preliminary detection on pest and disease in plots to avoid spreading of pest and disease.</li> <li>- To develop semi-mechanical and biological approach in prevention and control of pest and disease;</li> <li>- To carry out seed selection to produce high quality plants that are resistant to pest and disease.</li> </ul>	Plantation area
C. Social, economic, and cultural condition					

No	Management Object	Source of Impact	Indicator	Management System	Location
11	Working and business opportunities	Construction in company's concession	Improvement of workforce and communities' income	<ul style="list-style-type: none"> <li>- To provide opportunities for impacted communities to be able to work according to their qualifications and need of workforce in the company;</li> <li>- To provide information of recruitment transparently;</li> <li>- To maximize recruitment of local workforce;</li> <li>- To participate in developing/improving economic of the local communities through establishment of village organization or environment management division.</li> <li>- To coordinate with village officials in planning and implementation of partnership program with communities.</li> </ul>	Villages related with company's concession/communities receiving impacts
12	Income of the community	Working and business opportunity	The lowest income by workin in company is equal to the Provincial Minimum Standard.	<ul style="list-style-type: none"> <li>- Recruitment is carried out transparently and according to procedures;</li> <li>- To implement wage system according to Provincial/Regional Minimum Standard;</li> <li>- To establish and provide assistance for joint venture group;</li> <li>- To develop partnership to improve the local economic.</li> </ul>	Villages related with company's concession/communities receiving impacts

**Table 57. Environmental impact monitoring plan**

No	Monitoring Object	Source of Impact	Indicator	Monitoring Method	Location	Time bound
A. Physical-chemical aspect						
1	Micro climate	Land clearing and land preparation	Rainfall	Measurement using rain gauge	Pakupahit (location of rainfall measurement installation)	Daily
2	Air quality	Land clearing and land preparation; mobilization of equipment and material; and transportation of FFB	Concentration of dust and CO	Measurement using high flow dust sampler and gravimetric method	Impacted community settlement areas	Every six months
3	Noise	Land clearing and land preparation; mobilization of equipment and material; and transportation of FFB	Loudness level	Measurement using sound level meter	Impacted community settlement areas	Every six months
4	Surface water quality	Land clearing and land preparation	Temperature, pH, BOD, COD, TSS	Lab analysis	Rivers (sampling location) in concession area	Every six months
5	Land fire and forest fire	Land clearing and land preparation	Logs (from land clearing) and bushes	Direct observation	Plantation area	Daily
B. Biological aspect						
6	Plant diversity and richness	Land clearing and land preparation	Plant diversity	Vegetation analysis	Riparian of Ngaso River	Every six months
7	Fauna diversity and richness	Land clearing and land preparation	Fauna diversity	Visual encounter survey (VES)	Plantation area	Every six months
8	Aquatic species diversity and richness		Plankton and benthos diversity	Lab analysis	Rivers in concession area	Every six months
9	Production forest and protection forest areas	Land clearing and land preparation	Area (size) of protection forest	Direct observations	HCV and riparian areas in concession area	Every six months
10	Pest and plant disease	Introduction of oil palm crop	Spread of pest and disease as much as >10% of total planted palms.	PMA	Plantation area	Daily
C. Social, economic, and cultural aspect						
11	Working and business opportunities	Construction in company's concession	Working and business opportunities	Quantitative survey	Impacted community settlement areas	Every six months
12	Income of the community	Working and business opportunity	Increase of income	Quantitative survey	Impacted community settlement areas	Every six months

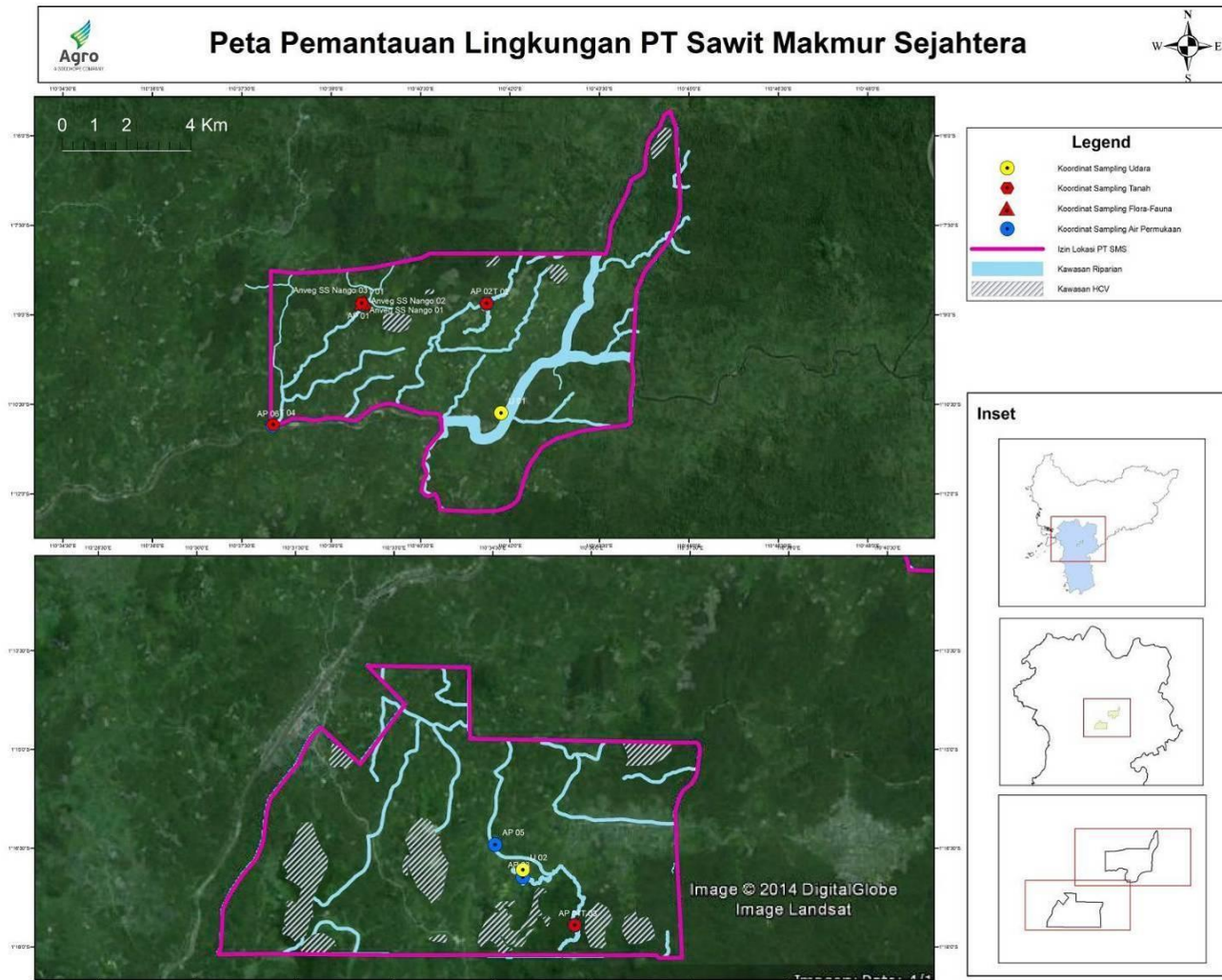


Figure 49. Map of environmental monitoring location in SMS

**Table 58. Management and monitoring plan for social issues**

Risk Category	Issues	Management strategy/action plan	Outcome to be monitored	Monitoring implementation	Reporting time plan
Critical	Overlapping area between PT SMS concession and other company's concession; and between PT SMS concession and community's land	<ul style="list-style-type: none"> <li>- Provide facilitation/mediation when necessary</li> <li>- Socialization of the new development plan</li> <li>- Examination/preparation of SOP to cover:                             <ul style="list-style-type: none"> <li>- Grievance and complaint handling</li> <li>- Conflict handling and resolution</li> <li>- Land boundary demarcation</li> <li>- Participatory mapping</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>- Gradually reduced number of land-based conflicts due to overlapping ownership</li> <li>- 80% of the community is receiving socialization on land acquisition process that has been completed in the past</li> <li>- 100% of SOP related with overlapping land/area ownership is available and implemented when necessary</li> </ul>	Continuously	Program/activity based reporting and six months recapitulation reporting
Critical	Illegal logging	Socialization of importance of conservation of natural resources or high conservation value	<ul style="list-style-type: none"> <li>- Illegal logger communities are gradually changing their livelihood to any activities that is not causing deforestation</li> <li>- Community illegal logger is informed and acknowledged the company's conservation area</li> </ul>	Continuously	Program/activity based reporting and six months recapitulation reporting
Critical	Boundary of the villages	<ul style="list-style-type: none"> <li>- Provide facilitation/mediation and participate when necessary</li> <li>- Examination/preparation of SOP to cover:                             <ul style="list-style-type: none"> <li>- Public consultation and disclosure plan</li> <li>- Stakeholder engagement plan</li> </ul> </li> </ul>	Gradually reduced number of land-based conflicts due to obscurity of village boundary	Continuously	Program/activity based reporting and six months recapitulation reporting
High	Lack of human resource quality (community members and village officials)	<ul style="list-style-type: none"> <li>- Provide/facilitate counseling or assistance for village officials and governance</li> <li>- Establish partnership with village government</li> </ul>	3-5 of village official members are receiving counseling or training or assistance	Continuously	Program/activity based reporting and six months recapitulation reporting
High	Obscurity of village treasury land	<ul style="list-style-type: none"> <li>- Establish partnership with Satlak to assist and coordination on plantation development in village treasury land</li> </ul>	There is at least 1 village treasury land for each village	Continuously	Program/activity based reporting and six months recapitulation reporting
Poor road access	Poor road access	<ul style="list-style-type: none"> <li>- CSR program on road maintenance/service of road access</li> <li>- Examination/preparation of SOP to cover road maintenance/service</li> </ul>	At least 60 % of village roads are maintained/serviced	Continuously	Program/activity based reporting and six months recapitulation reporting
Medium	Shifting cultivation farming	Provide counseling on agriculture farming, plantation, fishery, and livestock	<ul style="list-style-type: none"> <li>- Development of village treasury land and paddy field are realized</li> <li>- Improvement of village agricultural productivity</li> </ul>	Continuously	Program/activity based reporting and six months recapitulation reporting
Medium	Lands that cannot be developed	<ul style="list-style-type: none"> <li>- Re-socialization of potential area for new development and company's development plan</li> <li>- Provide counseling on agriculture farming, plantation, fishery, and livestock</li> <li>- Examination/preparation of SOP to cover:                             <ul style="list-style-type: none"> <li>- Grievance and complaint handling</li> </ul> </li> </ul>	At least 40% of community's land can be acquired and developed by company or managed under partnership with company	Continuously	Program/activity based reporting and six months recapitulation reporting

Risk Category	Issues	Management strategy/action plan	Outcome to be monitored	Monitoring implementation	Reporting time plan
		- Conflict handling and resolution			
Medium	Lack of education	- CSR program on scholarship - Examination/preparation of SOP to cover: - Governance of social/CSR on scholarship - Monitoring and evaluation of CSR on scholarship	- Numbers of unemployment and criminals are gradually reducing - At least 2-3 of community members can continue to higher education - At least 2-3 of dropouts can continue their education	Continuously	Program/activity based reporting and six months recapitulation reporting
Medium	Lack of agricultural counseling	- Provide counseling on agriculture farming, plantation, fishery, and livestock - Examination/preparation of SOP to cover: - Assistance and trainings for community - Monitoring and evaluation of assistance and trainings for community	- Communities are receiving counseling on agriculture - Productivity and income of the farmer communities are improved	Continuously	Program/activity based reporting and six months recapitulation reporting
Medium	Unemployment	- CSR program on trainings and assistance for entrepreneurship based on local potential - Socialization on labor recruitment - Examination/preparation of SOP to cover: - Social/CSR governance - Monitoring and evaluation of CSR - CSR program related with unemployment issue	- At least 2-5 of community members are working in company - 40% of the community are receiving counseling on entrepreneurship	Continuously	Program/activity based reporting and six months recapitulation reporting
Medium	Declining selling price of rubber	Provide counseling on agriculture farming, plantation, fishery, and livestock	- Rubber farmer communities are receiving counseling - Company provide assistance for community members who are willing to join partnership and convert their rubber farm to oil palm	Continuously	Program/activity based reporting and six months recapitulation reporting
Medium	Limited facility and infrastructure of economic	CSR program on community economic development/improvement	Company contribute to community business by receiving logistic supply from community (equipped with MoU)	Continuously	Program/activity based reporting and six months recapitulation reporting
Medium	Juristic issue related with head of village	Develop/govern communication environment with village officials	Obscurity of village governance related with company can be addressed	Continuously	Program/activity based reporting and six months recapitulation reporting
Medium	Loss of Dayak Cultural Value	Facilitation for cultural/customary activities or events	There are contributions from company for cultural/customary activity or event	Continuously	Program/activity based reporting and six months recapitulation reporting
Medium	Limited road access	Work together with provincial/regional government to establish/expand road network	There are contributions from company to development/expansion of road network	Continuously	Program/activity based reporting and six months recapitulation reporting



**Table 59. Management and monitoring plan for external social impact**

Risk Factor	Impact association	Impact	Management strategy/action plan	Outcome to be monitored	Monitoring implementation	Reporting time plan
Critical	Negative	There are lands/areas that have been given but are not developed yet	<ul style="list-style-type: none"> <li>- Socialization of land acquisition plan and realization</li> <li>- Examination/preparation of SOP to cover:                             <ul style="list-style-type: none"> <li>- Grievance and complaint handling</li> <li>- Land-based dispute/conflicts handling</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>- Community receive information of land acquisition plan and the progress of realization</li> <li>- Development of lands that have been acquired are progressing according to development plan</li> </ul>	Continuously	Program/activity based reporting and six months recapitulation reporting
Critical	Negative	Lack of transparency in the management of plasma plantation	<ul style="list-style-type: none"> <li>- Governance of communication environment</li> <li>- Improvement of transparency</li> </ul>	<ul style="list-style-type: none"> <li>- Community receive information of land acquisition plan and the progress of realization</li> <li>- Development of lands that have been acquired are progressing according to development plan</li> </ul>	Continuously	Program/activity based reporting and six months recapitulation reporting
High	Negative	Decreasing quality of clean water	<ul style="list-style-type: none"> <li>- CSR program on clean water providence through community development</li> <li>- Governance of CSR program</li> <li>- Examination/preparation of SOP to cover:                             <ul style="list-style-type: none"> <li>- CSR governance on clean water providence</li> <li>- CSR monitoring and evaluation</li> </ul> </li> </ul>	There are 5-10 of artesian well or tube well and 1 reservoir for each village	Continuously	Program/activity based reporting and six months recapitulation reporting
High	Negative	Difficulties to be accepted as worker	<ul style="list-style-type: none"> <li>- Examination/preparation of SOP to cover:                             <ul style="list-style-type: none"> <li>- Grievance and complaint handling</li> <li>- Recruitment of worker from local community</li> </ul> </li> </ul>	20% of workers are from local community	Continuously	Program/activity based reporting and six months recapitulation reporting
High	Negative	Lack of CSR program that orients to human resource improvement/capacity development	<ul style="list-style-type: none"> <li>- Preparation of CSR program on community development</li> <li>- Examination/preparation of SOP to cover:                             <ul style="list-style-type: none"> <li>- Community development governance</li> <li>- Grievance and complaint handling</li> <li>- Communication environment governance</li> </ul> </li> </ul>	Communities receive CSR program on capacity development	Continuously	Program/activity based reporting and six months recapitulation reporting
High	Negative	Productivity/return from plasma plantation does not meet expectation	<ul style="list-style-type: none"> <li>- Examination/preparation of SOP to cover:                             <ul style="list-style-type: none"> <li>- Management and agronomy of plasma plantation</li> <li>- Partnership mechanism</li> <li>- Transparency of management information</li> <li>- Grievance and complaint handling for plasma cooperative union</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>- There are transparency of information of plasma plantation management</li> <li>- There are improvement in the management of plasma plantation</li> </ul>	Continuously	Program/activity based reporting and six months recapitulation reporting
High	Negative	Lack of contribution from plasma cooperative union	<ul style="list-style-type: none"> <li>- Mechanism of plasma plantation management</li> <li>- Examination/preparation of SOP to cover:                             <ul style="list-style-type: none"> <li>- Management of plasma plantation</li> <li>- Partnership scheme and assistance for plasma cooperative union</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>- There are improvement in the management of cooperative union</li> <li>- Independency of cooperative union is gradually improved</li> </ul>	Continuously	Program/activity based reporting and six months recapitulation reporting
High	Negative	Perception that CSR is not optimal	<ul style="list-style-type: none"> <li>- Examination/preparation of SOP to cover:                             <ul style="list-style-type: none"> <li>- Monitoring and evaluation of CSR program</li> </ul> </li> </ul>	- PT SMS management (social relation) is participating in village	Continuously	Program/activity based reporting

Risk Factor	Impact association	Impact	Management strategy/action plan	Outcome to be monitored	Monitoring implementation	Reporting time plan
			<ul style="list-style-type: none"> <li>- Governance of community development or CSR</li> <li>- Grievance and complaint handling</li> <li>- Communication environment governance</li> </ul>	<ul style="list-style-type: none"> <li>development plan forum (Musrenbang Desa)</li> <li>- Monitoring and evaluation of CSR is implemented</li> </ul>		and six months recapitulation reporting
		Promise/agreement that has not been realized	<ul style="list-style-type: none"> <li>- Examination/preparation of SOP to cover:</li> <li>- Communication environment governance</li> <li>- Grievance and complaint handling</li> </ul>	<ul style="list-style-type: none"> <li>- Promise/agreements are gradually fulfilled</li> <li>- MoU of promise/agreement is prepared and available as reference</li> </ul>	Continuously	Program/activity based reporting and six months recapitulation reporting
High	Negative	Benefit/advantage from CSR program is not significantly perceived by the communities	<ul style="list-style-type: none"> <li>- Examination/preparation of SOP to cover:</li> <li>- Monitoring and evaluation of CSR program</li> <li>- Community development governance</li> <li>- Grievance and complaint handling</li> <li>- Communication environment governance</li> </ul>	<ul style="list-style-type: none"> <li>- CSR program is prepared based on social condition and necessity in order to improve the economic</li> <li>- Satlak and/or other stakeholders are involved in CSR program</li> </ul>	Continuously	Program/activity based reporting and six months recapitulation reporting
High	Negative	Lack of road maintenance	<ul style="list-style-type: none"> <li>- Examination/preparation of SOP to cover:</li> <li>- Maintenance and service of roads in village area and plasma plantation area</li> <li>- Communication environment governance</li> </ul>	There are road maintenance/service for roads	Continuously	Program/activity based reporting and six months recapitulation reporting
Medium	Positive	Providence of trainings to improve the capacity of scheme cooperative union (koperasi plasma)	<ul style="list-style-type: none"> <li>- Provide counseling and assistance for plasma cooperative union</li> <li>- Plasma plantation management</li> </ul>	Members of cooperative union is receiving trainings/counseling	Continuously	Program/activity based reporting and six months recapitulation reporting
Medium	Positive	Opportunity of having partnership plantation scheme (plasma) as new source of income and asset	<ul style="list-style-type: none"> <li>- Provide counseling and assistance for plasma cooperative union</li> <li>- Examination/preparation of SOP to cover:</li> <li>- Management of plasma plantation</li> <li>- Partnership scheme</li> <li>- Communication environment governance</li> </ul>	<ul style="list-style-type: none"> <li>- Partnership scheme plantation is contributing to improvement of social economic</li> <li>- Communications between members and management of cooperative union and company is established</li> </ul>	Continuously	Program/activity based reporting and six months recapitulation reporting
Medium	Positive	Establishment of independent land acquisition task force from village (Satlak Desa)	<ul style="list-style-type: none"> <li>- Examination/preparation of SOP to cover:</li> <li>- Counseling of function and task of Satlak</li> <li>- Communication environment governance</li> </ul>	<ul style="list-style-type: none"> <li>- There is at least 1 Satlak Desa Team in each village</li> <li>- Team of Satlak Desa is receiving counseling on the function and task of Satlak</li> </ul>	Continuously	Program/activity based reporting and six months recapitulation reporting
Medium	Positive	Social assistance through CSR	<ul style="list-style-type: none"> <li>- Examination/preparation of SOP to cover:</li> <li>- Governance of community development or CSR</li> <li>- Monitoring and evaluation</li> <li>- Communication environment governance</li> </ul>	<ul style="list-style-type: none"> <li>- Community acknowledged the CSR program/plan to be implemented in their village</li> <li>- CSR program is implemented according to the plan</li> </ul>	Continuously	Program/activity based reporting and six months recapitulation reporting
Medium	Positive	Contribution to infrastructure development through CSR	<ul style="list-style-type: none"> <li>- Examination/preparation of SOP to cover:</li> <li>- CSR on development of facility/infrastructure</li> <li>- Monitoring and evaluation</li> <li>- Communication environment governance</li> </ul>	Support of heavy equipment is available when necessary	Continuously	Program/activity based reporting and six months

Risk Factor	Impact association	Impact	Management strategy/action plan	Outcome to be monitored	Monitoring implementation	Reporting time plan
						recapitulation reporting
Medium	Negative	Decreasing of land for traditional farming	<ul style="list-style-type: none"> <li>- Counseling on agricultural farming and plantation</li> <li>- Governance of CSR on agricultural counseling</li> </ul>	Farmer community receives CSR program on agricultural counseling	Continuously	Program/activity based reporting and six months recapitulation reporting
Medium	Negative	Decreasing of forest area	<ul style="list-style-type: none"> <li>- Counseling on agricultural farming and plantation</li> <li>- Governance of CSR on agricultural counseling</li> </ul>	Farmer community receives CSR program on agricultural counseling	Continuously	Program/activity based reporting and six months recapitulation reporting
Medium	Negative	Limited information of working opportunity/recruitment	<ul style="list-style-type: none"> <li>- Recruitment of workers from local community</li> <li>- Grievance and complaint handling</li> </ul>	Company informs the community (through village officials) about recruitment	Continuously	Program/activity based reporting and six months recapitulation reporting
Medium	Negative	Impression that response to proposal is slow	Designation of program-based CSR to gradually supersede proposal-based CSR	Company is more responsive in receiving and giving feedback on proposal	Continuously	Program/activity based reporting and six months recapitulation reporting
Medium	Negative	Lack of communication between company and community	<ul style="list-style-type: none"> <li>- Examination/preparation of SOP to cover: <ul style="list-style-type: none"> <li>- Social governance</li> <li>- Monitoring and evaluation of CSR</li> <li>- Grievance and complaint handling</li> <li>- Communication environment governance</li> </ul> </li> </ul>	Communication is established between company and community (at least through village officials)	Continuously	Program/activity based reporting and six months recapitulation reporting
Medium	Negative	Social jealous regarding with Dana Sagu Hati (incentives from company)	<ul style="list-style-type: none"> <li>- Examination/preparation of SOP to cover: <ul style="list-style-type: none"> <li>- Communication environment governance</li> <li>- Grievance and complaint handling</li> <li>- External conflict handling</li> </ul> </li> </ul>	Community receives socialization of SOP on communication environment, grievance and complaint handling, and external conflict handling	Continuously	Program/activity based reporting and six months recapitulation reporting
Low	Positive	Improvement of wealth through land compensation	<ul style="list-style-type: none"> <li>- Socialization on land acquisition plan and realization</li> <li>- Examination/preparation of SOP to cover: <ul style="list-style-type: none"> <li>- Land compensation and acquisition process</li> <li>- Grievance and complaint handling</li> <li>- Land suitability survey</li> <li>- Land demarcation</li> <li>- Participatory mapping</li> <li>- Public consultation and disclosure plan</li> <li>- Stakeholder engagement plan</li> <li>- FPIC</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>- Compensation is completed accordingly with FPIC process and agreement</li> <li>- Participatory mapping is carried out in the process of land acquisition</li> <li>- Land acquisition is documented according to SOP</li> </ul>	Continuously	Program/activity based reporting and six months recapitulation reporting

Risk Factor	Impact association	Impact	Management strategy/action plan	Outcome to be monitored	Monitoring implementation	Reporting time plan
Low	Positive	Availability of alternative to traditional farming as main livelihood	<ul style="list-style-type: none"> <li>- Counseling on agricultural farming and plantation</li> <li>- CSR governance on agricultural counseling</li> </ul>	Community receives counseling on agricultural farming and plantation	Continuously	Program/activity based reporting and six months recapitulation reporting
Low	Positive	Availability of working opportunity	Recruitment of workers from local community	Local community is recruited as workers of the company	Continuously	Program/activity based reporting and six months recapitulation reporting
Low	Positive	Opportunity for local people to work	Recruitment of workers from local community	Local community is recruited as workers of the company	Continuously	Program/activity based reporting and six months recapitulation reporting
Low	Positive	Contribution to increasing income of the communities	Examination/preparation of SOP to cover: <ul style="list-style-type: none"> <li>- Salary and compensation</li> <li>- Communication environment governance</li> </ul>	There is improvement of economic of the community, especially for those who work in the company	Continuously	Program/activity based reporting and six months recapitulation reporting
Low	Positive	Opportunity for business	Examination/preparation of SOP to cover: <ul style="list-style-type: none"> <li>- Communication environment governance</li> <li>- CSR on economic</li> <li>- Monitoring and evaluation of CSR</li> </ul>	There are community based business that affiliates with company	Continuously	Program/activity based reporting and six months recapitulation reporting
Low	Positive	Incentives for village task force (satlak desa)	<ul style="list-style-type: none"> <li>- Counseling of function and task of Satlak</li> <li>- Communication environment governance</li> </ul>	<ul style="list-style-type: none"> <li>- Member of Satlak team is receiving incentives</li> <li>- Member of Satlak team is capable on carrying their task and function</li> </ul>	Continuously	Program/activity based reporting and six months recapitulation reporting
Low	Positive	Opening of accessibility	Examination/preparation of SOP to cover: <ul style="list-style-type: none"> <li>- Grievance and complaint handling</li> <li>- Communication environment governance</li> </ul>	There is development of road access that provides connections between villages/settlements	Continuously	Program/activity based reporting and six months recapitulation reporting

**Table 60. Management and monitoring plan for internal social impact**

Score of current implementation	Aspect of Impact	Management strategy/action plan	Outcome to be monitored	Monitoring implementation	Reporting time plan
Very Poor	Workers cooperative union	<ul style="list-style-type: none"> <li>- Provide management training for workers cooperative union</li> <li>- Prepare monitoring evaluation form for cooperative union</li> </ul>	Cooperative union of workers is established	Continuously	Program/activity based reporting and six months recapitulation reporting
Poor	Education facilities	<ul style="list-style-type: none"> <li>- CSR program on tuition/scholarship for worker's family</li> <li>- Development/improvement of education facilities in the area</li> </ul>	<ul style="list-style-type: none"> <li>- CSR program on tuition/scholarship is available for workers family</li> <li>- Eeducational facilities (school, books, etc) are improved</li> </ul>	Continuously	Program/activity based reporting and six months recapitulation reporting
Poor	Labour union	<ul style="list-style-type: none"> <li>- Support/assistance from company to establish labor union</li> <li>- Develop mechanism of internal conflict resolution</li> <li>- Develop mechanism of conflict resolution in industrial relationship</li> </ul>	<ul style="list-style-type: none"> <li>- Labor union is established</li> <li>- There is channel for complaint and recommendation from workers available (e.g. complaint and recommendation box)</li> </ul>	Continuously	Program/activity based reporting and six months recapitulation reporting
Moderate	Providence of health facility	<ul style="list-style-type: none"> <li>- Medical checkup for new worker by plantation clinic</li> <li>- Regular medical checkup for workers who are interact with chemical by plantation clinic</li> </ul>	<ul style="list-style-type: none"> <li>- All of new workers are going through medical checkup in plantation clinic</li> <li>- All of workers interacting with chemicals are going through medical checkup regularly in plantation clinic</li> </ul>	Continuously	Program/activity based reporting and six months recapitulation reporting
Moderate	Facilities and infrastructure for the occupational health and safety	Maintenance of required equipment such as first aid kit, fire extinguisher, etc	<ul style="list-style-type: none"> <li>- Required equipment and facilities and infrastructure for occupational health and safety are available in appropriate condition</li> <li>- SOP on occupational health and safety is available</li> </ul>	Continuously	Program/activity based reporting and six months recapitulation reporting
Moderate	Use of personal protective equipment	<ul style="list-style-type: none"> <li>- Provide and maintain the required equipment for workers according to regulation</li> <li>- Monitoring and evaluataion of use of equipment including sanction of violation</li> </ul>	<ul style="list-style-type: none"> <li>- Required protective equipment is provided by company in appropriate condition</li> <li>- SOP on protective equipment is available</li> </ul>	Continuously	Program/activity based reporting and six months recapitulation reporting
Moderate	Health allowance	<ul style="list-style-type: none"> <li>- Management of plantation clinic according to SOP</li> <li>- Monitoring and evaluation of allowance policy to support health of workers and family</li> </ul>	<ul style="list-style-type: none"> <li>- Workers are receiving appropriate health allowance according to company's policy</li> <li>- Plantation clinic is operating in accordance with the SOP</li> </ul>	Continuously	Program/activity based reporting and six months recapitulation reporting
Moderate	Incentives	<ul style="list-style-type: none"> <li>- Provide appropriate salary according to regional standard or higher</li> <li>- Socialize standard of salary based on years of service</li> </ul>	<ul style="list-style-type: none"> <li>- Workers receive appropriate salary according to company's policy</li> </ul>	Continuously	Program/activity based reporting and six months recapitulation reporting

Score of current implementation	Aspect of Impact	Management strategy/action plan	Outcome to be monitored	Monitoring implementation	Reporting time plan
		<ul style="list-style-type: none"> <li>- Socialize calculation mechanism of salary adjustment</li> <li>- Socialize calculation mechanism incentives for overtime, premium/bonus</li> </ul>	<ul style="list-style-type: none"> <li>- Workers acknowledge the calculation mechanism of salary and other incentives</li> </ul>		
Moderate	Vehicle facilities	<ul style="list-style-type: none"> <li>- Inventory, monitoring, and evaluation of the operational vehicle provided for worker</li> <li>- Preparation of shuttle vehicle for workers</li> </ul>	<ul style="list-style-type: none"> <li>- Operational vehicle are safe to use</li> <li>- Availability of shuttle vehicle for workers</li> </ul>	Continuously	Program/activity based reporting and six months recapitulation reporting
Moderate	Facilities for working equipment	<ul style="list-style-type: none"> <li>- Preparation of standard working equipment</li> <li>- Provide the required equipment</li> <li>- Preparation of monitoring form</li> </ul>	<ul style="list-style-type: none"> <li>- SOP on working equipment is available</li> <li>- Workers are using appropriate working equipment according to SOP</li> <li>- Working equipment is provided by company in appropriate condition</li> </ul>	Continuously	Program/activity based reporting and six months recapitulation reporting
Moderate	Improvement of workers capability	<ul style="list-style-type: none"> <li>- Preparation/examination of SOP to cover training for competency improvement based on working position</li> <li>- Preparation of measurable training program for workers according to working position</li> </ul>	Workers receive trainings according to working position and required competency/capacity	Continuously	Program/activity based reporting and six months recapitulation reporting
Good	Recruitment of worker	<ul style="list-style-type: none"> <li>- Prioritization of recruitment from local community</li> <li>- Preparation/examination of SOP to cover recruitment of worker</li> </ul>	<ul style="list-style-type: none"> <li>- Recruitment is carried out according to SOP</li> <li>- Local community is prioritized to be recruited</li> </ul>	Continuously	Program/activity based reporting and six months recapitulation reporting
Good	Socialization and implementation of occupational health and safety system management	<ul style="list-style-type: none"> <li>- Maintain implementation of occupational health and safety system management according to SOP</li> <li>- Regular socialization of occupational health and safety to workers</li> </ul>	Occupational health and safety management system is implemented appropriately according to SOP	Continuously	Program/activity based reporting and six months recapitulation reporting
Good	Signage of the occupational health and safety	<ul style="list-style-type: none"> <li>- Maintain condition of the signage</li> <li>- Add/adjust the position of signage when necessary</li> </ul>	Signage are in good conditions and clearly visible/readable/understandable	Continuously	Program/activity based reporting and six months recapitulation reporting
Good	Health insurance through Jamsostek/BPJS	Provide facilitation for workers to register into BPJS	Workers are registered as BPJS members	Continuously	Program/activity based reporting and six months recapitulation reporting
Good	Housing facilities	<ul style="list-style-type: none"> <li>- Provide housing appropriate facility</li> <li>- Preparation of SOP on housings and housekeeping</li> <li>- Socialization and mediation on social jealousy between workers</li> </ul>	Worker's houses are appropriate (healthy and security) and managed according to SOP	Continuously	Program/activity based reporting and six months recapitulation reporting
Good	Absence of child labour and worker discrimination	<ul style="list-style-type: none"> <li>- Provision of minimum age for workers</li> <li>- Socialization about worker recruitment system including required qualification and gender equality</li> </ul>	There is no child labor and gender discrimination in company's management	Continuously	Program/activity based reporting and six months recapitulation reporting

Score of current implementation	Aspect of Impact	Management strategy/action plan	Outcome to be monitored	Monitoring implementation	Reporting time plan
		- Provide instrument for monitoring and evaluation of child labor			

## 4.2. HCV management and monitoring plan

HCV management and monitoring plan was prepared in accordance with the recommendations from HCV assessment. The management and monitoring of HCV is focused on the protection of the HCV areas and elements based on the identified threats to HCV. The threat assessment and approach to its mitigation were prepared in the HCV assessment by involving consultations with stakeholders (see HCV assessment stakeholder consultation section). Moreover, preparation of the management and monitoring plan was also incorporating commitments to HCV and HCS requirements that include:

1. Protect rare, threatened and endangered species and safeguard rare ecosystems.
2. Prevent deforestation or degradation of High Carbon Stock forest.
3. Prohibit any new development on HCS area.
4. Implement Best Management Practices for the development and management of oil palm plantations with minimal environmental impacts, e.g. to protect from the effects of soil erosion and sedimentation to safeguard watersheds and minimize the risks of flooding.
5. Ensure local and indigenous communities have sustainable access to basic needs and cultural values and that their rights are fully respected.

The implementation of management and monitoring plans will incorporate other key stakeholders including government institutions, NGOs and local communities in a collaborative manner. General recommendations to be implemented regarding the integrated management of HCV and HCS are as follows:

1. Designate HCVA/HCSA. This activity comprises HCVA/HCSA map delineation, verification of the delineated areas, and determining the final results as HCVA/HCSA map. Company must document this process in an HCVA delineation report. This is followed up by setting up HCVA/HCSA boundary markers and signboards.
2. Appropriately and effectively disseminate information to:
  - a. the companies' internal (field workers, staff and members of partnership cooperative);
  - b. the surrounding communities (land users, clan leaders, customary institutions); and
  - c. relevant institutions (consultation).
3. Develop HCV/HCS Management Plan and Monitoring Plan, with the following considerations:
  - a. Species protection, which includes reducing poaching and protecting wildlife corridors between HCVA/HCSAs as well as in riverbanks and forested areas around the Reassessment Area;
  - b. Connectivity of HCVA/HCSA to the local landscape.
  - c. Strengthening communication with neighbouring companies to develop joint HCV/HCS management and protection action plans;
  - d. Local community engagement, because the interest and benefits of HCVA/HCSAs belong to all stakeholders;
  - e. Implement the existing company procedures and policies.
4. Disseminate information on presence, shape and significance of HCVA/HCSAs, including company commitment to protect them. This is especially aimed at land clearing contractors, company staff and workers, communities, and local governments.



5. Develop organization/team to manage HCVAs/HCSAs;
  - a. Designate management unit to ensure effectiveness and accomplishment of HCV/HCS management;
  - b. Train staff and, if needed, recruit qualified staff to manage HCVAs/HCSAs;
  - c. Develop HCV/HCS management SOP and policies.
6. Develop HCV/HCS management, monitoring and evaluation capacity:
  - a. HCV/HCS monitoring training: basic wildlife and vegetation species identification, water quality measurement, stakeholder engagement and other topics relevant to HCV/HCS sustainability;
  - b. Consistently implement policies and SOPs.
7. Create and communicate stakeholder list, and collaborate with all relevant stakeholders on HCVA management, especially for HCVA 5 and HCVA 6.

Objective of HCV management is to protect HCVA elements from degradation as well as to maintain and enhance their values or functions. HCV management plan must aim to protect and manage HCV areas and elements. Table below provides management and monitoring activities.

**Table 61. HCV management and monitoring plan**

HCV	Threats	Management	Monitoring	Time	PiC
1	<ul style="list-style-type: none"> <li>Decline in RTE species diversity due to poaching</li> </ul>	<ul style="list-style-type: none"> <li>Ensure that all staff, workers and surrounding communities, including migrant community do not poach RTE species.</li> <li>Raise community awareness on RTE species (Launch awareness programs regarding the RTE species which need to be protected (both local communities, as well as company's employees)</li> <li>Collaborate with communities to provide alternative protein sources to reduce poaching.</li> <li>Protect wildlife habitats, by gazettement of the HCV areas, and regular patrolling</li> <li>Maintain wildlife corridors, and safeguard connectivity of wildlife habitats</li> </ul>	<ul style="list-style-type: none"> <li>Monitor poaching of RTE species (patrol) every six months.</li> <li>Carry out routine monitoring over the presence of RTE species every six months.</li> </ul>	Start in 2020 and continuously	EHS, Plantation, and GIS
	<ul style="list-style-type: none"> <li>Reduced forest area or forest degradation</li> </ul>	<ul style="list-style-type: none"> <li>Protect HCVMA, especially forested hilly areas and wildlife corridor on riverbank, in collaboration with local communities</li> <li>Carry out replanting and rehabilitation in HCVMA.</li> <li>Zero deforestation policy</li> </ul>	<ul style="list-style-type: none"> <li>Monitor HCVMA and HCVMA size and quality every six months.</li> <li>Monitor wildlife corridor from poaching and illegal logging every six months.</li> <li>Wildlife monitoring activity every six months.</li> </ul>	Start in 2020 and continuously	EHS and GIS
3	<ul style="list-style-type: none"> <li>Mixed or hill dipterocarp forest on igneous (granite) found on HJA and PLN as rare and threatened landsystem</li> </ul>	<ul style="list-style-type: none"> <li>Sign board for illegal logging activity on forest area and riverbank</li> <li>Patrol and protection team</li> </ul>	<ul style="list-style-type: none"> <li>Monitor to ensure no illegal logging activity every six months.</li> </ul>	Start in 2020 and continuously	EHS and Plantation
	<ul style="list-style-type: none"> <li>Land converting from forest cover to another land use</li> </ul>	<ul style="list-style-type: none"> <li>Zero deforestation policy</li> <li>Patrol and protection team</li> </ul>	<ul style="list-style-type: none"> <li>Monitor to ensure no illegal logging activity every six months.</li> </ul>	Start in 2020 and continuously	EHS and Plantation
4	<ul style="list-style-type: none"> <li>Declining river water quality</li> </ul>	<ul style="list-style-type: none"> <li>Apply civil-technical structures to conserve the soil and water, such as terraces and construction of silt pit (2 x 1 x 1 m) in areas</li> </ul>	<ul style="list-style-type: none"> <li>Monitor water quality (every 6 months) in inlets and outlets of rivers that flow</li> </ul>	Start in 2020 and continuously	EHS and GRDC/Agronomy

HCV	Threats	Management	Monitoring	Time	PIC
		<p>with rolling hill topography, in planting areas or roadsides, to increase retention and infiltration and protect against erosion.</p> <ul style="list-style-type: none"> <li>● Construct gully plugs or sediment traps for tributaries (width &lt;4 m) to prevent sedimentation in the HCV areas.</li> <li>● Reinforcement of degraded riverbanks which are prone to erosion.</li> <li>● Install sign-boards to prohibit or limit the use of agro-chemicals in the riparian buffer zones and in or near water bodies, and conduct induction sessions to make the employees aware, especially the <i>sprayers</i>.</li> <li>● Practice manual weeding and limit fertiliser and pesticide application (at least 10 m from riverbank, depending on the buffer zone width).</li> </ul>	<p>through the Reassessment Area, especially Jokak Koci, Kahayau and Cina Mariangin Rivers in PT AJB; Rantik River in PT BMS; and Nango, Kampung Raya and Karim Rivers in PT SMS.</p>		
	<ul style="list-style-type: none"> <li>● Declining forest area size and/or quality in catchment areas</li> <li>● Potential land conversion</li> </ul>	<ul style="list-style-type: none"> <li>● Monitor land clearing, especially those taking place close to HCVAs.</li> <li>● Enrich degraded parts of catchment areas.</li> <li>● Collaborate with local communities, government and neighbouring companies to protect rivers, riverbanks and catchment areas.</li> <li>● Planting of natural vegetation along the rivers of which the buffers are degraded</li> </ul>	<ul style="list-style-type: none"> <li>● Monitor size and quality of vegetation cover in catchment areas every six months.</li> <li>● Supervise land clearing contractors (following the land clearing timeplan).</li> <li>● Record and document land clearing (following the land clearing timeline).</li> </ul>	Start in 2020 and continuously	EHS and GIS
5 & 6	Degradation or land clearing of HCVA 5 and HCVA 6.	<ul style="list-style-type: none"> <li>● Monitor land clearing, especially those taking place close to HCVAs; activities should be participatory with stakeholder engagement.</li> <li>● Develop agreements between company and local communities regarding the collaborative management of HCV 5 and HCV 6 areas.</li> <li>● Provide access for communities to carry out their activities in HCVA 5 and HCVA 6.</li> <li>● Collaborate with local communities, government and surrounding companies to protect rivers, riverbanks and catchment areas.</li> </ul>	<ul style="list-style-type: none"> <li>● Monitor size and quality of catchment areas every six months.</li> <li>● Supervise land clearing contractors (following land clearing timeline).</li> <li>● Record and document land clearing (following land clearing timeline).</li> </ul>	Start in 2020 and continuously	EHS, Plantation, and GIS

### 4.3. GHG emission mitigation management and monitoring plan

Management and monitoring plan for the GHG emission mitigation is focused on the new development land use plan as in accordance with the scenario selection in carbon stock and GHG assessments. Table 62 and Figure 50 provide the details of new development land use plan to be followed by the company.

**Table 62. New development scenario and details of new development area**

Scenario	Description	
4	Set aside all HCV and HCS areas from new development plan	
Land cover	S4	
	New development	Conservation
Forest	0.00	1,301.97
Young regenerating forest	0.00	
Scrub	2,909.33	
MAFH	2,974.33	
Seasonal agr crop	98.38	
Cleared land	43.62	
Bare land	1,157.64	
<b>Total</b>	<b>7,183.30</b>	

In order to optimize the GHG emission mitigation, the company also adopts general mitigation measures within the plantation operational activities. The general mitigation measures include the following points and details in Table 63.

1. Periodic monitoring of carbon stocks / greenhouse gas emissions to monitor changes against baseline data.
2. Regulated use of fertilizers and pesticides, monitoring and optimizing the type and dose of fertilizer used.
3. Management and monitoring of conservation areas to maintain and enhance carbon stocks:
  - a. Management of conservation areas and fire prevention in the areas;
  - b. Rehabilitation of degraded riparian zones / HCV areas/HCS Areas;
  - c. Monitoring and maintaining forested areas from disturbances (especially illegal logging).

**Table 63. General activities to GHG emission mitigation**

Source of Emissions	Mitigation Approaches	PIC	Time Plan
Land Clearing and Planting (Land Use Change)	<ul style="list-style-type: none"> <li>• Adopted Zero Burning Land Clearing methods</li> <li>• Adopted and Comply with Procedure and Documentation Required for New Planting in Indonesian Regulation (EIA/AMDAL) and Other Standards (RSPO, ISPO, etc.)</li> <li>• No Land Clearing in areas that identified as HCV/HCS area</li> <li>• Keep the HCV/HCS area as Carbon Stock /sequestration.</li> <li>• Socialization to employees and communities related with conservation and Green House Gas Mitigation program</li> </ul>	EHS Dept and Plantation Dept	2020 and Continuousl y
Heavy equipment for Land Clearing	<ul style="list-style-type: none"> <li>• Routine Maintenance heavy equipment</li> <li>• Regularly emission test on heavy equipment</li> <li>• Socialization the impact of Green House Gas Emission to the worker</li> </ul>	Plantation Dept and EHS Dept	2020 and Continuousl y

Source of Emissions	Mitigation Approaches	PiC	Time Plan
Degradation of forest	<ul style="list-style-type: none"> <li>Rehabilitation of degraded HCV areas including riparian areas.</li> <li>Routine inspection and patrol to avoid disturbance (especially illegal logging and fires) in forested areas, especially peatland.</li> <li>Socialization on forest conservation.</li> </ul>	EHS Department and Plantation Dept	2020 and Continuously
Fertilizer	<ul style="list-style-type: none"> <li>Effective fertilizing based on dosages and recommendation from Agronomy Department</li> <li>Using EFB for mulching programme to reduce inorganic fertilizer usage</li> <li>No Fertilizing on Rainy Day</li> <li>No fertilizing on Riparian Zone</li> <li>Socialization to employee about Company's policy on Fertilizing</li> </ul>	Plantation Dept	2020 and Continuously
Pesticides	<ul style="list-style-type: none"> <li>Actively monitor Pest-Diseases build-up and if so required</li> <li>Implement an effective control measures in order to minimize the potential loss of yield due to outbreak;</li> <li>Inspected all blocks first by plantation staff prior to spraying in order to enable appropriate selection of Herbicides and equipment to suit the field conditions;</li> <li>Seek advice from Agronomy Advisor for the use of any new Herbicides that are constantly coming onto the market</li> <li>Adopted in formulating desirable Pest-Disease control strategy and biological control agents: Introduction of Barn Owl, and adoption of appropriate weed management methods with beneficial plants.</li> <li>No chemical use in Riparian</li> <li>Educate and awareness the worker regularly to implement good practices in chemical use activities</li> </ul>	Plantation Dept	2020 and Continuously
Transport (Harvesting and Maintenance)	<ul style="list-style-type: none"> <li>Routine Maintenance for Transportation</li> <li>Regularly emission test on Transport</li> <li>Socialization the impact of Green House Gas Emission to the worker</li> </ul>	Plantation Dept	2020 and Continuously
Housing Complex electricity	<ul style="list-style-type: none"> <li>Energy conservation campaign.</li> </ul>	EHS Dept	2020 and Continuously
Household waste to Landfill	<ul style="list-style-type: none"> <li>Reduce, Reuse, Recycling Programs.</li> </ul>	Plantation Dept	2020 and Continuously
Mill Power: Boiler and Generatorset (Genset) for electricity	<ul style="list-style-type: none"> <li>Regularly conducted emission test in Boiler and Genset.</li> <li>Routine maintenance of boiler and genset.</li> <li>3. Using Shell and Fiber from FFB Process as a Fuel to reduce Fossil Fuel Use for Boiler.</li> </ul>	Mill Operation Dept	2020 and Continuously
POME (Palm Oil Mill Effluent)	<ul style="list-style-type: none"> <li>Digested POME for Land Application to replace inorganic fertilizer (the location of application is around the Mill Location).</li> </ul>	Mill Operation Dept	2020 and Continuously

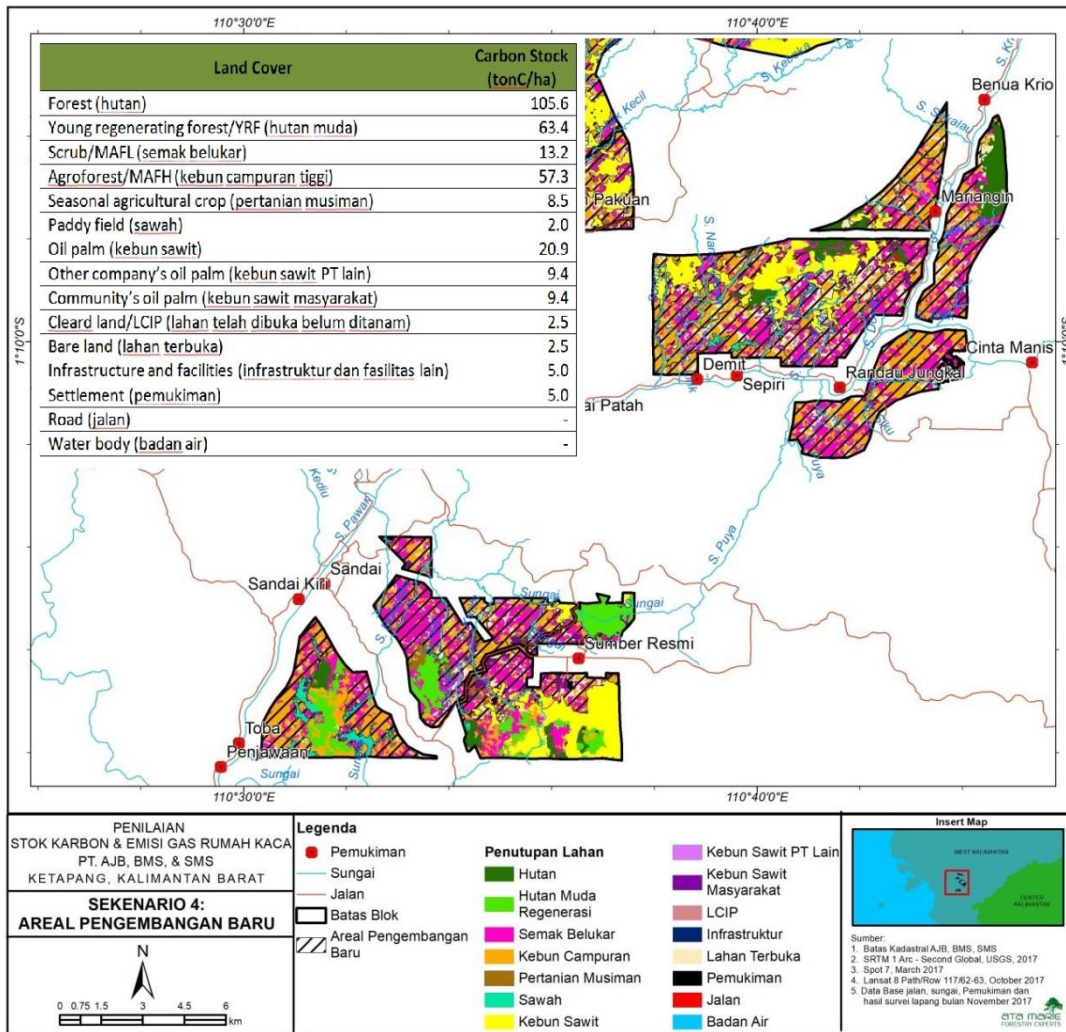


Figure 50. Map showing new development area of SMS

#### 4.4. Soil and water conservation management and monitoring plan

Management and monitoring plan for the conservation of marginal soil and water conservation is following the management and monitoring of HCV 4 area as described in Table 61.

## 5. References

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- HCS Report: High Carbon Stock Assessment of PT. Agrajaya Baktitama, PT Batu Mas Sejahtera, and PT Sawit Makmur Sejahtera, Ketapang, West Kalimantan, Indonesia. Dated July 2018. Conduct and prepared by PT Ata Marie, Jakarta, Indonesia.
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- RSPO GHG Assessment Procedure for New Development version 3, October 2016.
- SIA Assessment Report: SIA Assessment of PT Sawit Makmur Sejahtera, dated 2018. Conduct and prepared by Remark Asia, Jakarta, Indonesia
- Social and Environmental Impact Assessments (AMDAL) of PT Sawit Makmur Sejahtera was finalized in April 2010. Conduct and prepared by CV Tiara Chrisandi Consultant, Kalimantan Barat, Indonesia.

## 6. Internal Responsibility

### 6.1. Acceptance of interpretations

Content in this report summarizes the information in (i) Social Environment Impact Assessment (SEIA), (ii) High Conservation Value (HCV) Assessment, (iii) Land Use Change Analysis (LUCA) Assessment and (iv) Carbon Stock and GHG Assessments. Assessor of the assessments and representative of the Management of SMS confirm that information in the assessment reports has been accurately interpreted here in this Summary of Assessments and Management Plans.

Signed for and on behalf of PT Sawit Makmur Sejahtera (SMS)



Edi Suhardi  
Director Sustainability

Signed for and on behalf of PT Remark Asia



Dwi Rahmad Muhtaman  
Direktur Utama

Signed for and on behalf of PT Ata Marie



Alex Thorp  
Director

Alex Thorp  
Director



## 6.2. Acceptance of responsibility

Outcomes of all assessments as documented in the reports have been accepted by the Management of PT Sawit Makmur Sejahtera (SMS). Management and monitoring plans based on the result of the assessments that includes:

- Social and environmental impact management and monitoring plan
- HCV management and monitoring plan
- GHG emission mitigation management and monitoring plan
- Soil and water conservation management and monitoring plan

will be applied in the development and management of PT Sawit Makmur Sejahtera (SMS).

Management of PT Sawit Makmur Sejahtera (SMS)



Edi Suhardi  
Director Sustainability