SUMMARY OF ASSESSMENTS AND MANAGEMENT PLANS

Proposed New Plantings by PT Batu Mas 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 BMS	PT Batu Mas Sejahtera
RSPO	Roundtable on Sustainable Palm Oil
SEIA	Social and Environmental Impact Assessment
SIA	Social Impact Assessment

1. OVERVIEW AND BACKGROUND

1.1. Overview

PT Batu Mas Sejahtera (BMS) is a subsidiary of Goodhope Asia Holdings, Ltd. (Goodhope). BMS is managing a total of 9,122.3 ha (9,122.1 ha according to GIS data) of concession area based on Cadastral issued in 2015 by the National Land Agency (Badan Pertanahan Nasional-BPN). BMS obtain the license for plantation business (Izin Usaha Perkebunan-IUP) in 2009, covering a total of 14,588 ha (based on the Location Permit issued in 2008) (Table 2). Currently BMS has 14.2% of its concession planted with oil palm.

As part of the New Planting Procedures, HCV Assessment covering three concessions of Goodhope Subsidiaries in Ketapang was commissioned in 2017. They are PT BMS, PT AJB, and PT SMS.

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.

HCV assessment identified HCV 1, HCV 3, HCV 4, HCV 5 and HCV 6 in the concessions of Goodhope Ketapang Region. The HCVs are comprised of primary and secondary forests and shrubs in hilly areas, water springs, water catchment areas, rivers, and riparian buffers. Specifically within BMS area, the assessment identified HCV 1, HCV 4, HCV 5, and HCV 6 with the total of HCVA and HCVMA covering 972.3 ha.

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 Batu Mas Sejahtera (BMS)

Country of subsidiary/management unit	Indonesia
Province and district of subsidiary/management unit	Sungai Laur District and Sandai District, Ketapang Regency, West Kalimantan Province.
Total area of management unit (ha)	Cadastral: 9,122.3 ha (9,122.1 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.	Act. No. 44	15 December 2006
2	Decree on Location Permit: Location permit for oil palm plantation covering 13,000 ha area	Head of Ketapang Regency	No. 42/2007	12 December 2007
3	Decree on Revision to Previous Decree: Location permit for oil palm plantation covering 13,000 ha area and POM with capacity of 60 ton/hr	Head of Ketapang Regency	No. 323/2008	26 August 2008
4	Decree on Revision to Previous Decree: Location permit for oil palm plantation covering 15,000 ha area and POM with capacity of 60 ton/hr	Head of Ketapang Regency	No 492/2008	30 December 2008
5	AMDAL/Decree on Feasibility of Environment: Management of Oil Palm Plantation and POM of BMS is environmentally feasible	Governor of West Kalimantan	No. 285 Year 2009	20 May 2009
6	Environmental Permit	Governor of West Kalimantan	No. 285/2009	20 May 2009
7	Plantation Business Permit (IUP) covering 14,588 ha	Head of Ketapang Regency	No. 266/2009	25 June 2009
8	Decree on Revision to Previous Decree: Location permit for oil palm plantation covering 13,780 ha area and POM with capacity of 60 ton/hr	Head of Ketapang Regency	No. 78 Year 2011	21 March 2011
9	Cadastral: Cadastral Area covering 9,122.3 ha	BPN	No. 013-14.07-2015	13 March 2015

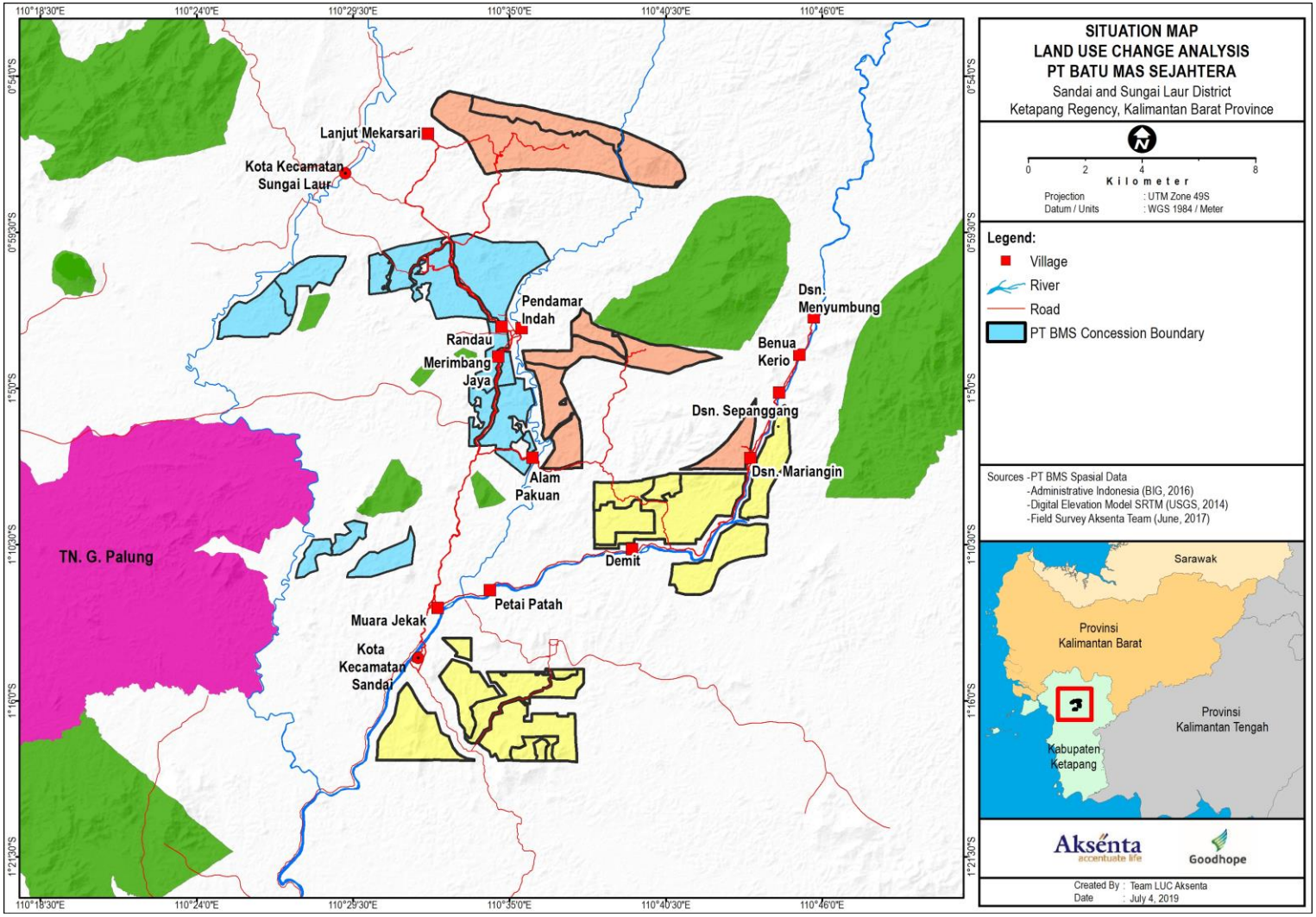


Figure 1. Location of BMS in regional administrative area

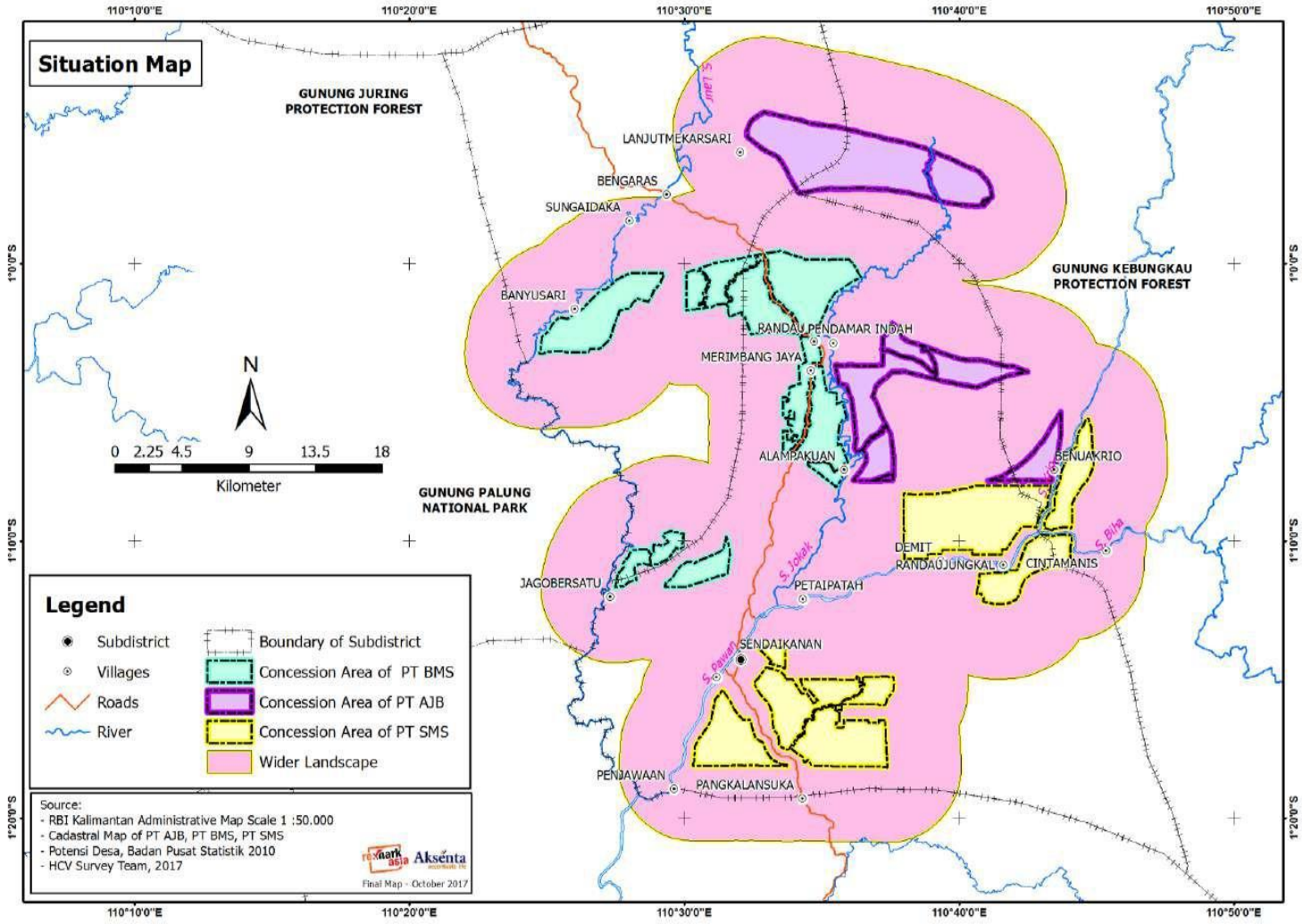


Figure 2. Situation map of BMS

1.2. New development plan

New development plan in PT BMS is comprised of new plantings for company nucleus (inti) plantation as much as 1,709.7 ha and for partnership scheme (plasma) plantation as much as 373.8 ha (covers a total of 2,083.5 ha). It is intended that the new development will be completed over a three years periods starting from 2020 (Table 3 and Figure 3-5)

Table 3. New development plan of BMS

Year	New Planting Remark	Area to be Developed (hectare)
2020	Nucleus/inti plantation	1,709.7
2021	Partnership/plasma plantation	100.2
2022	Partnership/plasma plantation	273.6
	Total New Planting 2020-2022	**2,083.5**

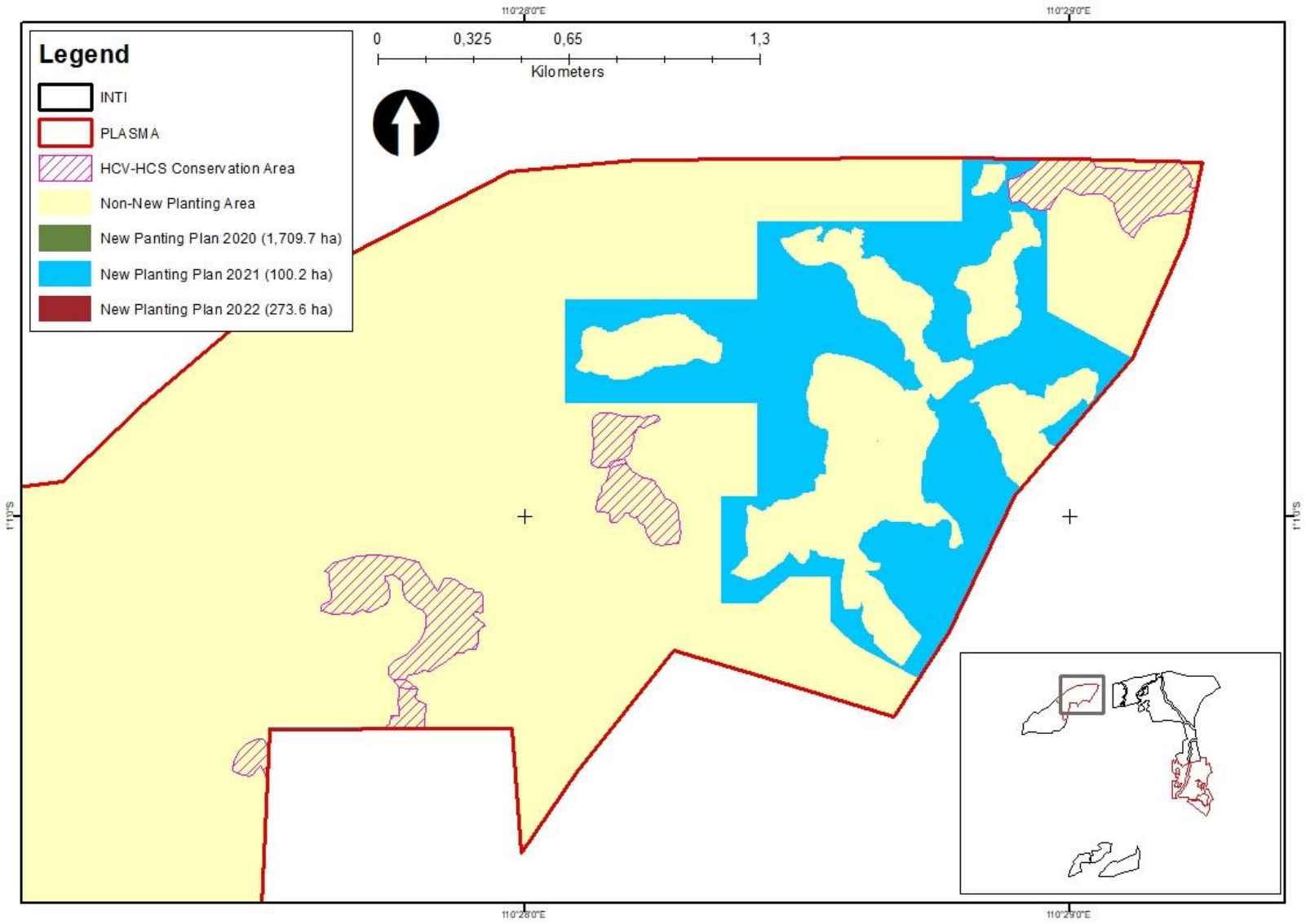


Figure 3. Map depicting new development plan of BMS (Part A)

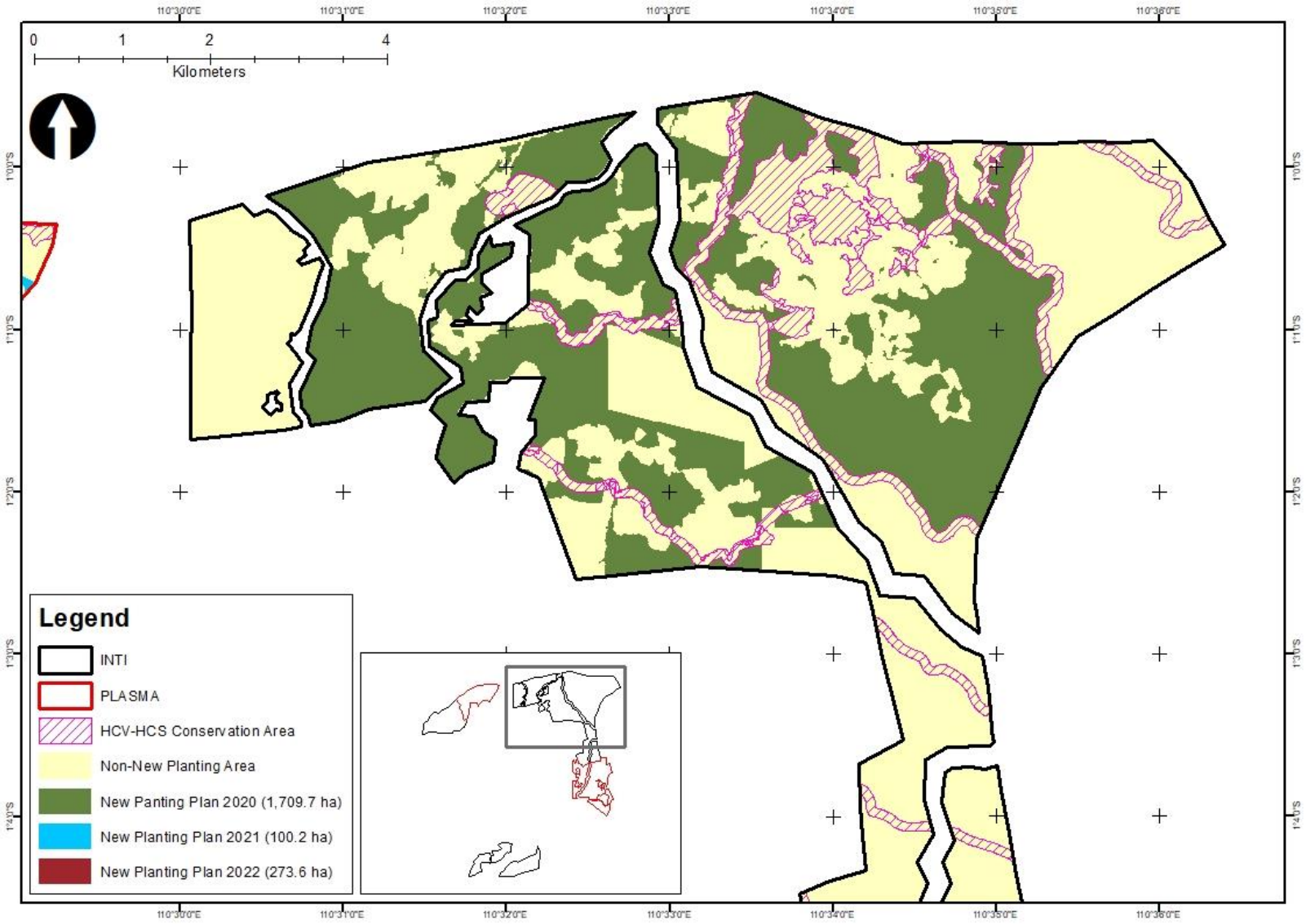


Figure 4. Map depicting new development plan of BMS (Part B)

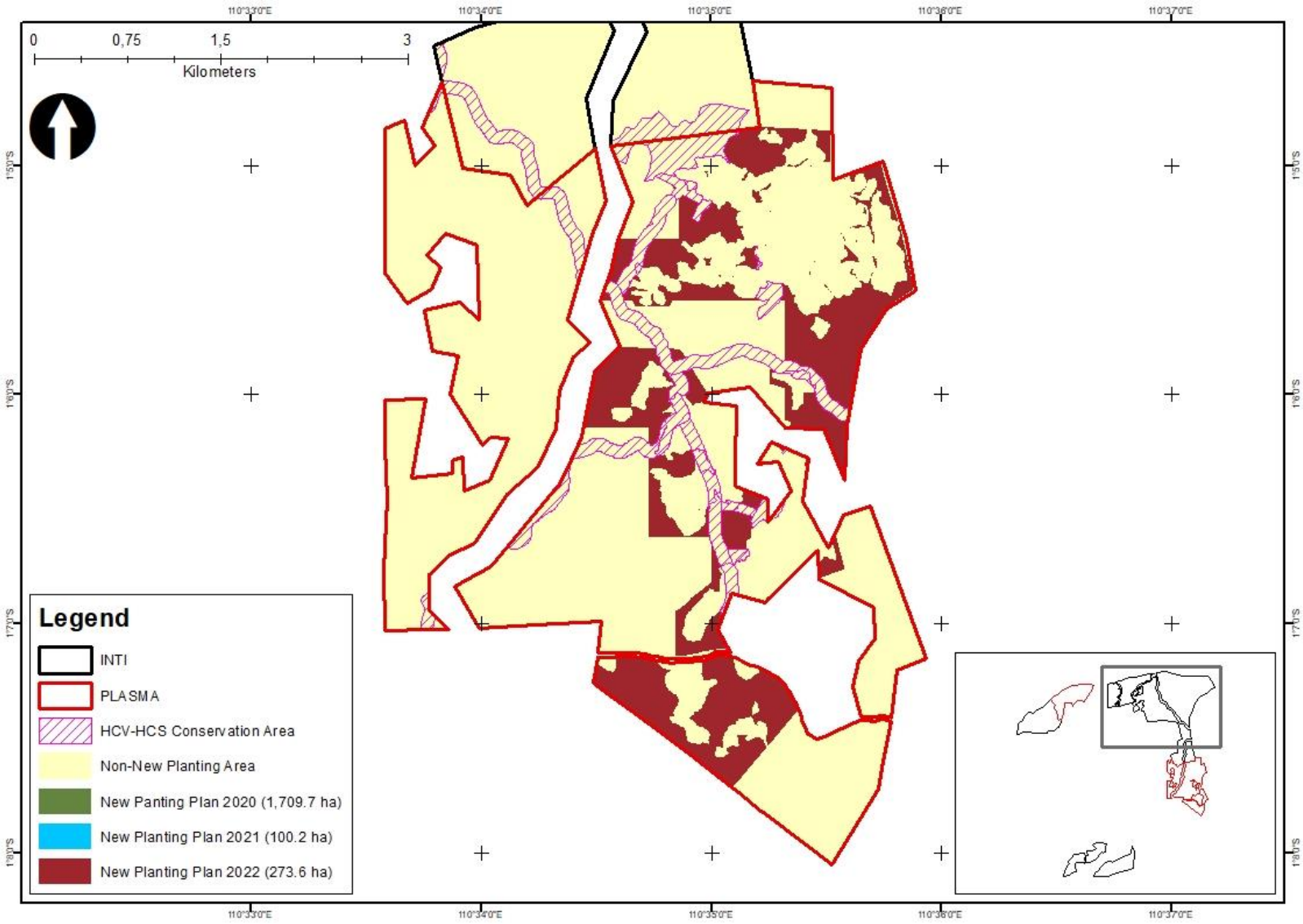


Figure 5. Map depicting new development plan of BMS (Part C)

1.3. Social and environmental contexts of the management unit

BMS 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) confirmed that the concession is not located in forest area (Kawasan Hutan) and peat or primary forest area respectively. According to RePPProt map, the concession area consists of ultisol and incepticol soil groups which are not in the category of organic soil (peat).

BMS concession area is situated in a landscape dominated by non-forest land cover. Specifically, the concession area is dominated by agroforest, young shrubs, and oil palm plantation according to the result of LUCA. Remaining extent of forest can be found as small patches in the concession. Relatively intact forest area can be found at the West and East of BMS concession area (outside the concession).

Topography in BMS concession area is ranging from flat to hillocky for the most part. According to LUCA, as much as 98% of the concession area is flat to hillocky (slope of 0-40%) whereas the other 2% is categorized as hilly/very steep (slope of >40%). Elevation of the concession area is ranging from 24m ASL to 180 m ASL. There are 5 hill areas within and around the concession area, namely Kuana Hill, Ensinau Hill, Merabu Hill, Rempangi Hill, and Bayur Hill.

There are 8 social communities potentially receiving impacts from activities of BMS. Five of them are located in Sandai District, namely Desa Merimbang Jaya, Desa Sandai Kiri, Desa Jago Bersatu, Desa Randau Jekak, and Desa Alam Pakuan; whereas the other three are located in Sungai Laur District, namely Desa Banyun Sari, Desa Sungai Daka, and Desa Bengaras. Majority of the communities are from Dayak Kayung Ethnic (60%), while the others are Malays (35%) and settlers (5%) from Java, Banjar, Bugis, China, Sunda, and Batak. Those communities are referred to as the local community. Dayak communities are Cahtolics, Christians, or embracing Kaharingan (traditional believes of Dayak People); while the others are Moslems for the majority. Though the local communities are diverse; there is no conflicts related with ethnicities and/or religions.

According to SIA Report, livelihood of the majority of the communities (75-90%) is from agricultural farming while the rest are from working in oil palm company, working as civil servant, as logger, or as fisher. Main commodities of the agriculture are rubber, oil palm, and rice. While rubber and oil palm cultivations are in settled farm, majority of the rice farming is following cycles of shifting cultivation. There is only one settled paddy field with traditional irrigation which is found in Desa Jago Bersatu. 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).

Health services are available only in 7 of the 8 villages. Each of Desa Alam Pakuan, Desa Jago Bersatu, Desa Merimbang Jaya, and Desa Sungai Daka has 1 village health center (Pusat Kesehatan Desa-Puskesdes); while Desa Randau Jekak has 1 village health center and 1 auxilary health center (Pusat Kesehatan Masyarakat Pembantu-Pustu) and Desa Bengaras does not have any health center.

Educational facilities are considered limited due to uneven availability of schools in the villages. Pre-school facilities such as early childhood education programs (*Pendidikan Anak Usia Dini*-PAUD) and pre-school

(TK-Taman Kanak-kanan) are available in every village except for Desa Banyun Sari. Moreover, Elementary school (Sekolah Dasar-SD) is available in every village except for Desa Merimbang Jaya. Junior High School (Sekolah Menengah Bawah-SMP) is available only in Desa Alam Pakuan, Desa Banyun Sari Desa Randau Jekak, and Desa Sandai Kiri; while Senior High School (Sekolah Menengah Atas-SMA) is available only in Desa Banyun Sari. 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.

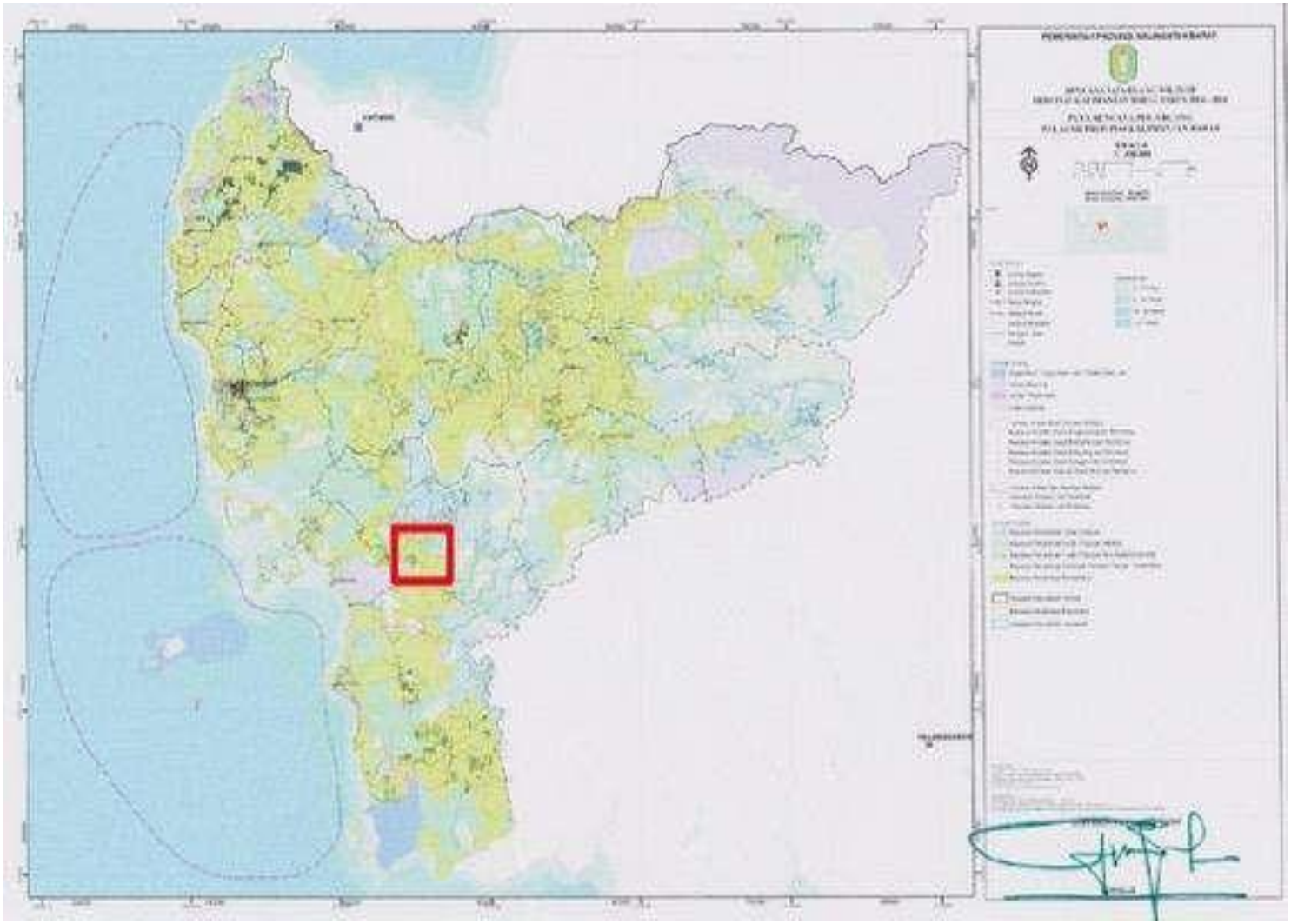


Figure 6. Map of provincial land use planning

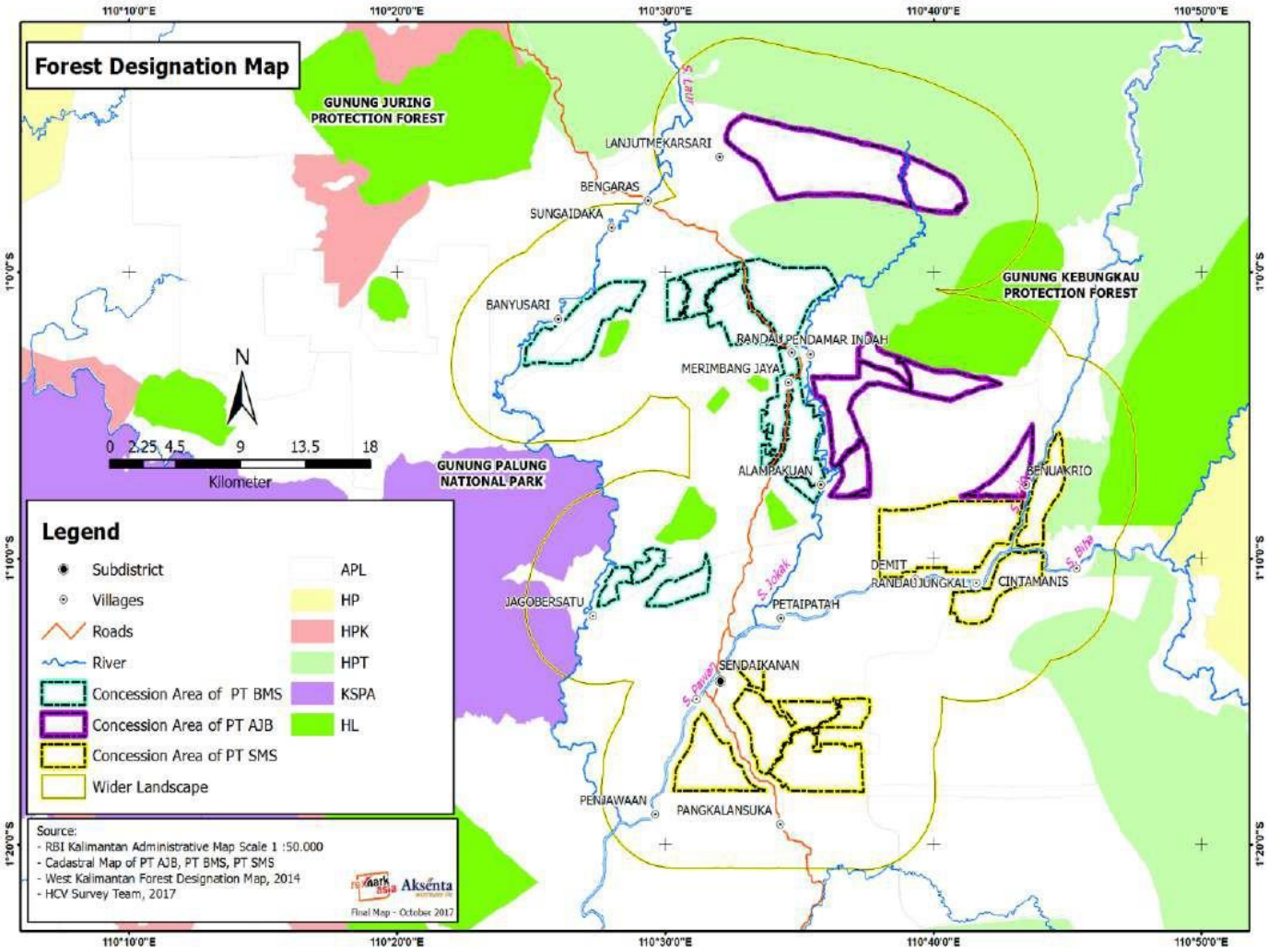


Figure 7. Map showing forest land use area

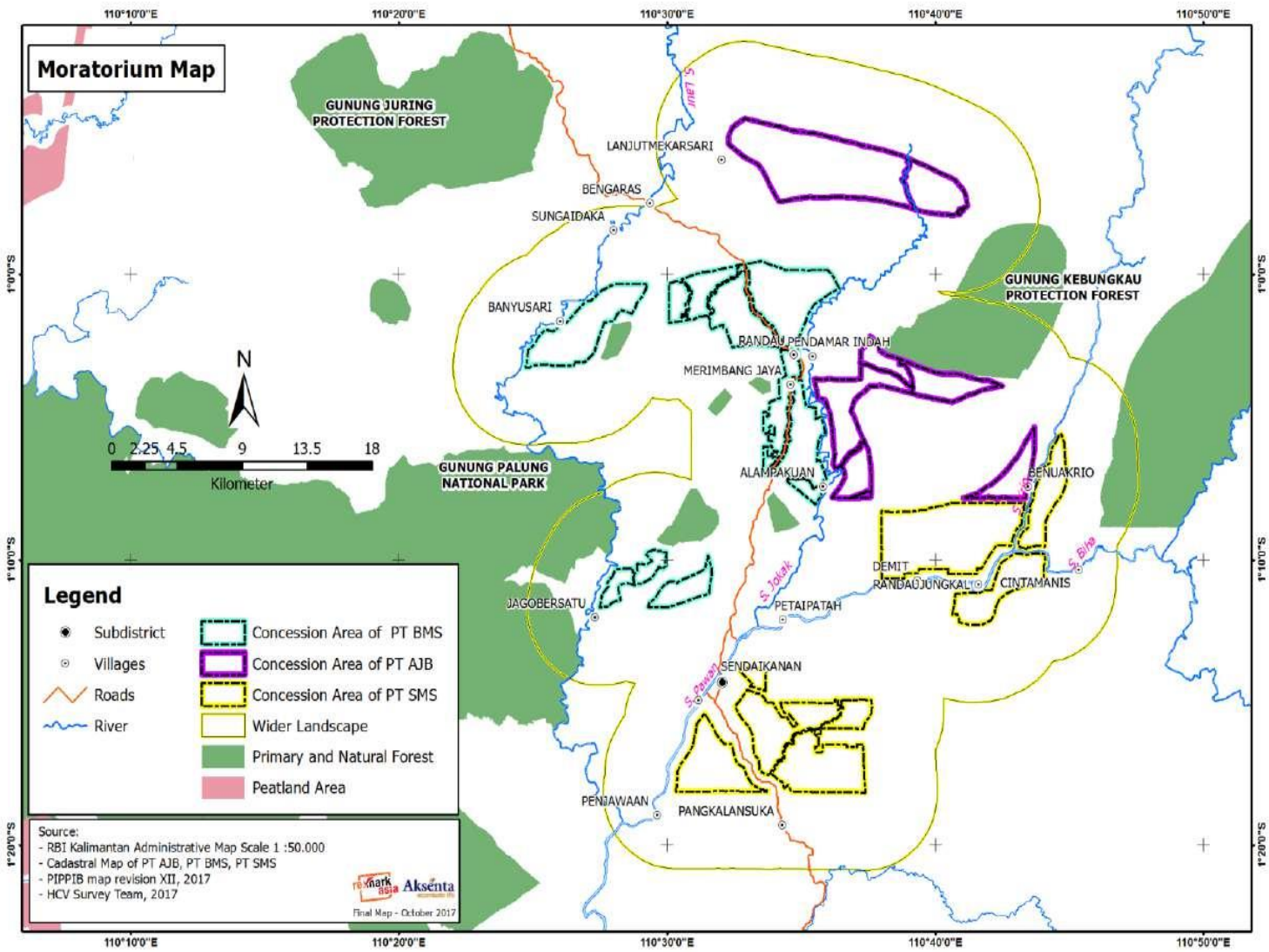


Figure 8. Map showing moratorium areas of primary forest and peatland

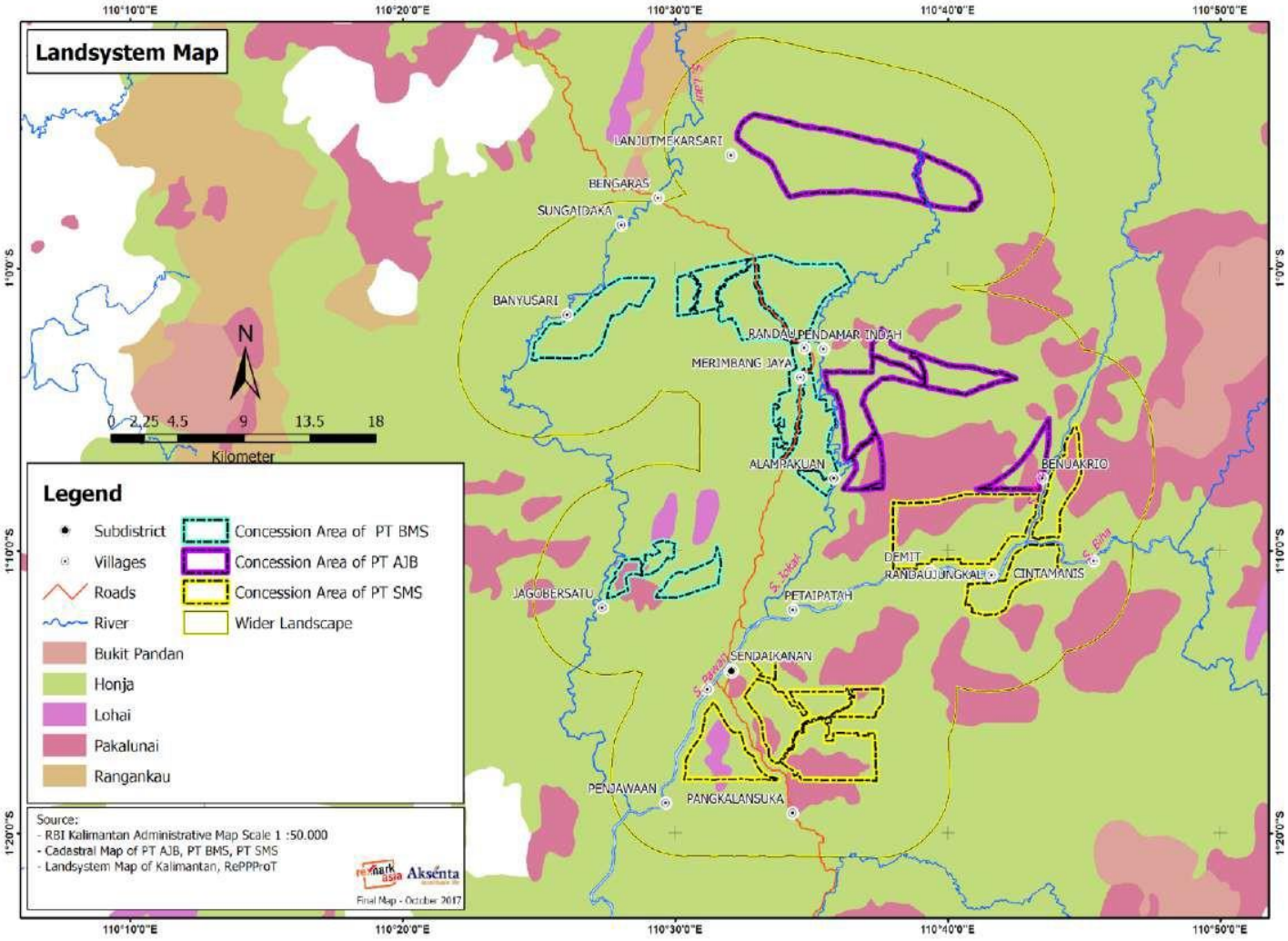


Figure 9. RePPProT map showing land system

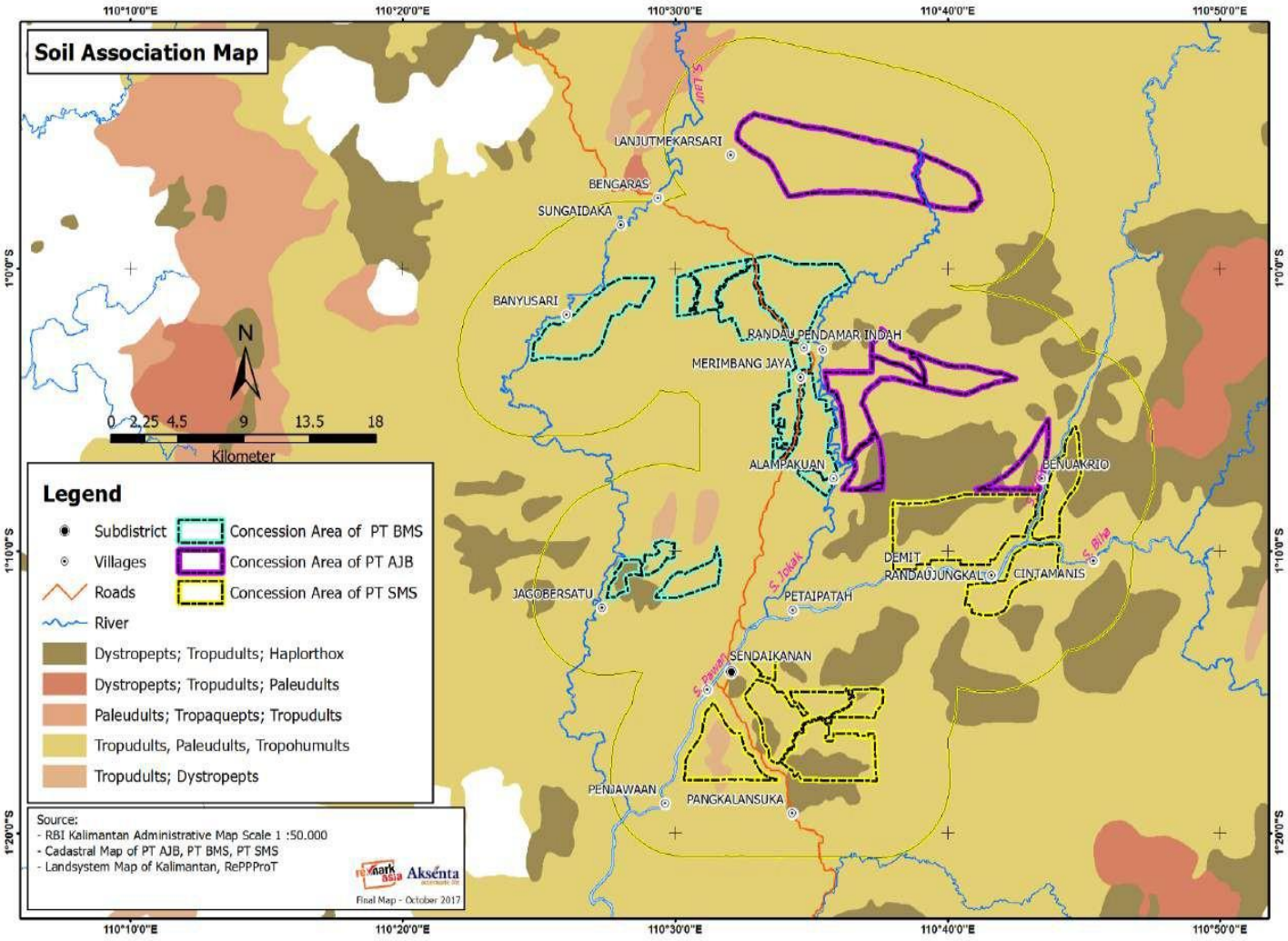


Figure 10. Map showing soil association

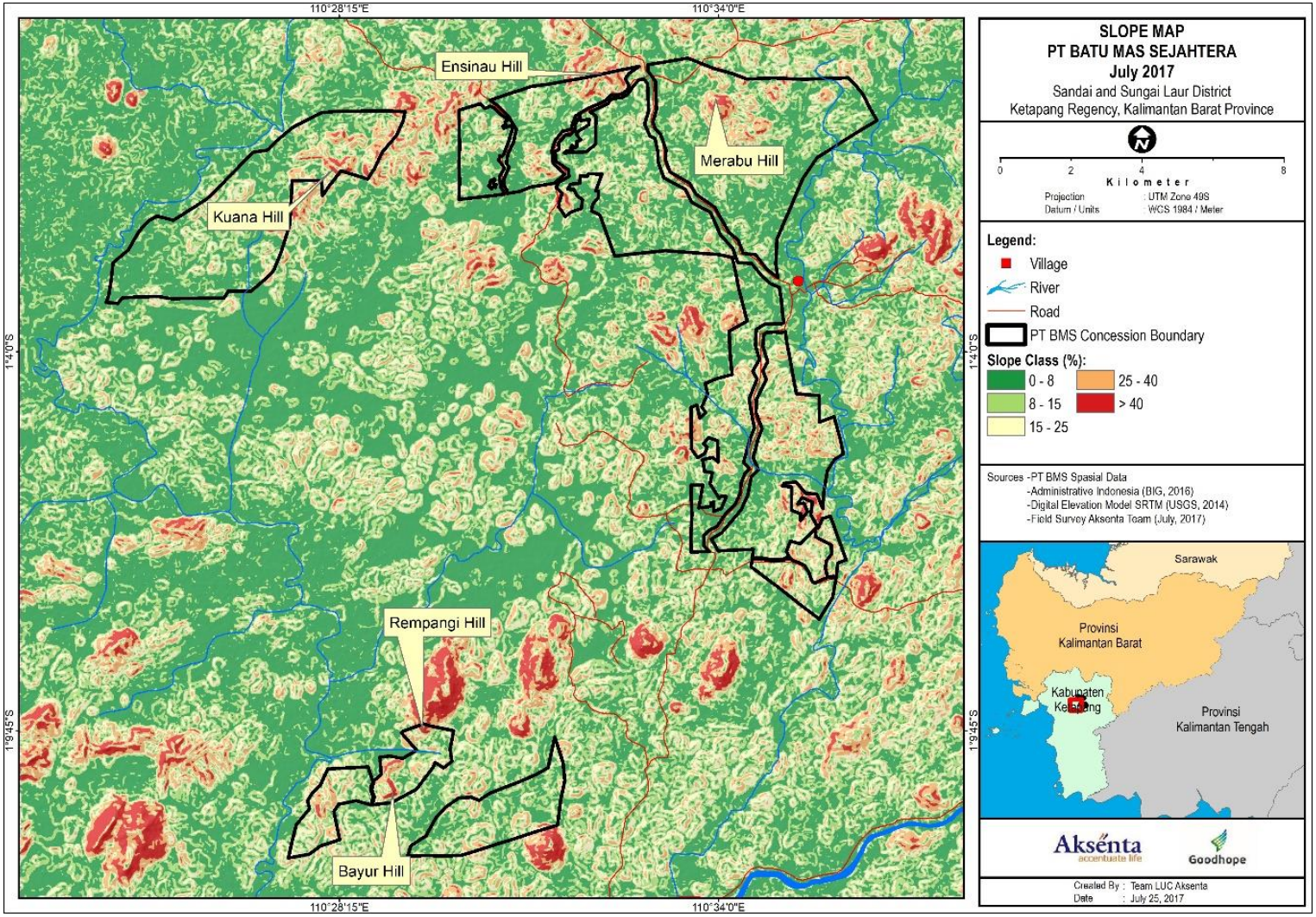


Figure 11. Land slope classification map

2. ASSESSMENT PROCESS AND METHODS

2.1. Social and environmental impact assessments

The assessment on social and environmental impacts in BMS comprised of (i) EIA (environmental impact assessment - also known as AMDAL in Indonesia) and (ii) SIA (social impact assessment). EIA was conducted in 2009 and is refered to as the baseline for environmental impact management and monitoring. SIA was first conducted in 2012 and was reasassessed in 2017-2018. The social impact reassessment is refered to as the up to date reference and therefore is refered in this NPP.

2.1.1. Date of the assessments

The EIA was conducted in early 2009 and the report was issued in May 2009. 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

EIA was conducted by team from CV Inhasa Persada that is qualified and also recognized by the government. The team is comprised of experts on agriculture, forestry, biology, socio-economic, and public health.

Table 4. Assessor of the EIA and their credentials

Assessor	Role in Team	Qualification
Stefan Agung Dhewandanu, S.Si.	Team Leader	Biologist (AMDAL B)
Ir. Edy Syafril Hayat, MP	Physics and Chemical Expert	Agronomist and Soil Expert
Ir. Sigit Sugiardi, MP		Agriculture (AMDAL A&B)
Yuan Adhi Negara, SPi.		Fishery
Diana, S.P, MSi.		Agriculture and Environment (AMDAL A)
Dian Susanti, ST		Environment
Nurul Pudji Nurwulan, S.Si.	Biology Expert	Biologist (AMDAL B)
Ir. Togar F. Manurung, MP		Forestry
Dewi Sartika, S.Hut.,		Forestry
Endang Mulyadi, AK, SHut., MSi.	Social-Culture Expert	Socio-Economic and Forestry
Dr. Rahmatullah Rizieq		Socio-Economic
dr. Eni Nuraeni, MKes.		Community Health

SIA was conducted by a team from Remark Asia. The team comprised of experts as detailed in table below.

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, *Participatory Mapping*, FPIC
2	Anisa Swadesi	Assessor	Social Impact Assessment and Facilitation for *participatory mapping*, SEIA, & FPIC
3	Aslinda Nurmazida	Assessor	Social Impact Assessment and Facilitation for *participatory mapping*, SEIA, & FPIC
4	Haris Shantanu	Assessor	Social Impact Assessment and Facilitation for *participatory mapping*, SEIA, & FPIC

No	Team	Role	Qualifications
5	Herry Triyana	Assessor	Social Impact Assessment and Facilitation for *participatory mapping*, SEIA, & FPIC
6	Redy Miraz M	Assessor	Social Impact Assessment and Facilitation for *participatory mapping*, SEIA, & FPIC
7	Risna Amalia	Assessor	Anthropology (Social Culture) and Communication and Community Developement
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. 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) (Table 16).

Scope of SIA was focused to communities from the 8 villages related to BMS. Data collection invoved (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 preceptions, 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 occure 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 choosed 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 cyclus process which serves as a social leraning process to respond to changes in environment that occurs.

2.2. HCV assessment

2.2.1. Date of the assessment

The HCV assessment was carried out from May to August 2017. Assessment stages include the pre-assessment, field study, stakeholder consultation, data analysis, and reporting. Table below provide details of the activities conducted in every stage of the assessment and timeline.

Table 7. Timeline of the HCV assessment

Stage	Objective	Activity	Date
Pre-survey			
Pre-assessment and preparations (three people: GIS, Ecologist, Social)	• To identify the presence of attribute or element of HCV indication • To identify and map the potential HCV areas • To identify the landscape context • To identify conservation issues, natural resources, land utilization, and the potential threats to HCV areas • To designate the methods, design the field surveys, compose the implementing team, and schedule field activities	• Scoping Study • Collect data and information from the company management on plantation development and management status • Collect data and information from secondary sources • Analyze the data and conduct a spatial analysis	28 May-10 June 2017
Field Study 1 (Aksenta) **(13 experts: Ecologyst, Environmentasl services, Social and GIS))**			
Opening meeting	• To communicate the objectives of the HCV Assessment • To gather more data and information on plantation development and management status • To enhance the understanding of HCVs (background, aim and objectives, concept, species, key elements or attributes, and identification methods • To form the assessment support team	• Workshop with the company management unit • Training for the company management unit • Coordinate planned field activities	13 June 2017
Participatory mapping	• To clarify the HCV concept and the potential of HCV areas based on initial study • To collect additional data and information on HCV attributes or elements	• Workshop with key informants and local communities	13 June- 20 July 2017
Field Surveys	• To verify the presence of HCV attributes or elements • To identify HCV areas • To map the indicative HCV boundaries • To identify the threats and potential threats to HCV elements and areas	• Field verification on land cover condition • Data collection in the field • Interviews with triangulation techniques • ***) Note:** 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	13 June-20 July 2017

Stage	Objective	Activity	Date
		session	
Field Data Analysis	• Daily compilation of field data • Mapping of indicative HCV areas which have been identified or verified in the field	• Internal coordination • Compilation of field data and information, every evening/night	13 June-7 August 2017
Stakeholder Consultation	• To communicate the HCV identification results, as well as the threats, with relevant stakeholders (community, local governments, academics, and NGOs) • To consult local stakeholders about the validity of assessment findings • To collect additional data and information from all the stakeholders • To discuss management recommendations for the HCV management and monitoring plan	• Workshop with key persons. • FGDs with key stakeholders. • Interviews with key persons from the local communities • Discussions with NGOs in Ketapang	13 June-7 August 2017
Post Field Study			
Stakholder Consultation	• To communicate the HCV identification results with relevant stakeholders (community, local governments, academics, and NGOs) • To document the input of the stakeholder consultations	• Open discussion forum with relevant stakeholders in Ketapang and Pontianak • Discussion with NGOs in Jakarta	8-10 August 2017
Field Study 2 (Remark Asia) **Five experts: (Social, ecologyst, GIS)**			
Field Survey Revisit	• To re-assess the determined HCV area • To confirm local stakeholder for the result of HCV area (names, location, and justification)	• Field verification on 23 sampling points of land cover condition, rivers and hills. • Data collection from villagers	16–20 October 2017
Field Survey Revisit	• To re-assess the determined HCV area • To confirm local stakeholder for the result of HCV area (names, location, and justification)	• Field verification on 7 sampling points of river, lake, hill, and land cover condition • Data collection from villagers	26-29 October 2017
Analysis and Reporting	• To analyse the final data • To prepare the HCV Assessment report according to the ALS format	• Data Analysis • Spatial Analysis • Reporting	30 July-August 2017; November 2017

2.2.2. Assessment team

The assessment team comprised of 16 experts from Aksenta and 5 experts from Remark Asia. Details of the assessment team are presented in Table 8.

Table 8. Team of the HCV Assessment

Name and email account	Institutions	ALS Licence	Role	Expertise
Dwi Rahmad Muhtaman dwi.muhtaman@re-markasia.com	Remark Asia	Provisionally Licensed Assessor (ALS15022DM)	Team Leader; Lead Assessor; late 2017	Social assessor, participatory approach, facilitator, RSPO auditing, HCV assessor
Iwan Setiawan iwan@aksenta.com	Aksenta	N/A	Supervisor; early 2017	Tropical Ecologist, Wildlife management, habitat and wildlife population assessment, HCV assessment since 2012
Nandang Mulyana nandang@aksenta.com		Provisionally Licensed (ALS15037NM)	Team Member; Socio-Cultural assessment	Regional planning and rural development, community empowerment, participatory mapping, HCV assessment since 2009
Herry Triyana	Remark Asia	N/A	Team Member;	Social assessor, forest management, facilitator

Name and email account	Institutions	ALS Licence	Role	Expertise
			Socio-Cultural assessment; late 2017	of social assessment
Dera Syafrudin	Remark Asia	N/A	Team Member, Biodiversity and landscape; late 2017	Ecologist, ornithologist, facilitator of community biodiversity assessment, HCV assessment since 2011
Reza Pradipta	Remark Asia	N/A	Team Member, GIS specialist; late 2017	GIS and remote sensing analysis for conservation, HCV assessment since 2012
Mustofa	Remark Asia	N/A	Team Member, assessment and Delineation; ate 2017	Ecologist, environmental management planner, community engagement, HCV assessment since 2013
Pupung F Nurwatha pupung@aksenta.com	Aksenta	N/A	Team Member, Biodiversity and landscape; early 2017	Ecologist, ornithologist, facilitator of community biodiversity assessment, HCV assessment since 2007
Resit Sozer resit@aksenta.com	Aksenta	N/A	Team Member, Biodiversity and landscape; early 2017	Tropical Ecologist, Wildlife management, habitat and wildlife population assessment, HCV assessment since 2017
Yanto Ardiyanto yanto@aksenta.com	Aksenta	N/A	Team Member, assessment and Delineation; early 2017	Hydrologist, water management, GIS, remote sensing and spatial analysis, HCV assessment since 2010
Fersely Getsemani F., getsa@aksenta.com	Aksenta	N/A	Team Member, assessment and Delineation; early 2017	Hydrologist, water management, GIS, remote sensing and spatial analysis, HCV assessment since 2012
Andri Novi Hendratno andri.novi@aksenta.com	Aksenta	N/A	Team Member, Socio-economic; early 2017	Sociologist, participatory mapping, social liability, social analysis on natural resource , HCV assessment since 2008
T. Ade Fachlevi adhe@aksenta.com	Aksenta	N/A	Team Member, Socio-economic; early 2017	Sociologist, participatory mapping, social liability, social analysis on natural resource, HCV assessment since 2014
Anwar Muzakir muzakkir@gmail.com	Aksenta	N/A	Team Member, Plant ecology; early 2017	*Botanist*, plant taxonomy, carbon stock assessment, HCV assessment since 2016
Ikhwan Agustian ikhwan@aksenta.com	Aksenta	N/A	Team Member, Plant ecology; early 2017	*Botanist*, plant taxonomy, carbon stock assessment, HCV assessment since 2013
Pramitama Bayu Saputro bayu@aksenta.com	Aksenta	N/A	Team Member, GIS specialist; early 2017	GIS and remote sensing analysis for conservation, HCV assessment since 2012,
Reza Abdillah reza@aksenta.com	Aksenta	N/A	Team Member, GIS specialist; early 2017	GIS and remote sensing analysis for conservation, HCV assessment since 2012,
Ryan Karida Pratama ryan@aksenta.com	Aksenta	N/A	Team Member, Land cover change analysis; early 2017	GIS and remote sensing, land cover change analysis, HCV assessment since 2013
Bias Berlio Pradyatmabias@aksenta.com	Aksenta	N/A	Team Member, Land cover change analysis; early 2017	Land cover analysis, HCV assessment since 2013
Risa Desiana Syarif risa@aksenta.com	Aksenta	N/A	Team Member, Land cover change analysis; early 2017	GIS and remote sensing, land cover change analysis, HCV assessment since 2011
Heidei Putra Hutama heidei@aksenta.com	Aksenta	N/A	Team Member, Land cover change analysis, early 2017	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 harmonise necessary information based on reference scale. HCV 1-3 assessment's reference scale includes global, regional and national levels. Ground-truthing is carried out after setting the scale. HCV 4-6 are assessed emphasising 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)	✓					
IUCN Red List of Threatened Species. www.iucnredlist.org	✓					
Manual of Dipterocarps for Foresters. Borneo Island Light Hardwoods (Newman *et al.*, 1996a, Newman *et al.*, 1996b)	✓					
Manual of Dipterocarps for Foresters. Borneo Island Medium and Heavy Hardwoods (Newman *et al.*, 1996a, Newman *et al.*, 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 et al., 2000)	✓					
The Mammals of The Indomalayan Region (Corbet & Hill, 1992)	✓					
HCV report PT Agrajaya Baktitama, 2010	✓	✓	✓	✓	✓	✓
HCV report PT Batu Mas Sejahtera, 2010	✓	✓	✓	✓	✓	✓

Main sources of daya and -information	HCV					
	1	2	3	4	5	6
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 et al., 1996)	✓	✓	✓			
Ramsar Sites in Indonesia (http://www.ramsar.org)		✓				
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 Alran Sungai (BPDAS Kalimantan Barat)				✓		
Peta Distribusi Etnik/ Ethnic Distribution maps in Kalimantan, retrieved at http://www.ethnolog.com.					✓	✓
Peta Ecosystem of Kalimantan (WWF, 2006)			✓			
Peta Kawasan Lindung/ (protected areas map, Departemen Lingkungan Hidup dan Kehutanan)	✓	✓				
Peta Indikatif Penundaan Pemberian Izin Baru (PIPPIB) revisi IX, Lampiran (Kemenlhk, 2015)			✓			
Peta Jenis Tanah (RePPProt, 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: http://www.intactforest.org)		✓				
Land Cover Map (result of analysis Landsat Imagery 8, 2016)				✓		
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 HCVAs based on the pre-assessment output. Data and information collection emphasises 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:

(a) Presence of forest and other natural ecosystems, as well as wildlife species.
(b) Presence of water catchment, source and body, as well as stream.
(c) 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	✓	✓	
PT BMS	Sandai	Randau		✓	✓
		Merimbang Jaya		✓	✓
		Alam Pakuan	✓	✓	
		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.

GroundPartic-truthing

This activity takes form of direct checking on the ground over the land cover satellite image interpreted during pre-assessment phase. Potential HCVAs 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-truthing 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 HCVAs 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[1] 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, neighbouring 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

[1] In this assessment, key persons include native community leaders and pioneering community administrators.

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 HCVAs.

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

Table 11. Team conducting LUCA of BMS

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 Assessmnet
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 BMS 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 liseted in table below.

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

Period	Date of acquisition	Cloud cover (%)
Before November 1, 2005 (baseline)	August 17, 2004 August 5, 2005	0% 29%
November 1, 2005	November 16, 2005 December 3, 2005 February 13, 2006	7% 43% 11%
December 1, 2007	September 28, 2007 May 16, 2008 September 1, 2009 September 24, 2009	26% 22% 29% 22%
January 1, 2010	February 8, 2010	54%
Identification of HCV Area (February 2010)	February 8, 2010 March 4, 2010 May 14, 2010 June 26, 2010	54% 61% 11% 57%
May 9, 2014	April 15, 2014 May 10, 2014 August 8, 2014	30% 0% 25%
After becoming RSPO member (December 2, 2014)	October 8, 2014 July 7, 2015	5% 0%
Submission of new HCV Report (October 31, 2017)	September 14, 2017 October 25, 2017 November 17, 2017 December 3, 2017	14% 15% 10% 12%

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 64 samples from the field. Accuracy assessment shows that the classification is accurate (overall accuracy of 77.0% and Kappa Accuracy of 81.2%) and therefore is sufficient to be used for liability calculations.

Land use change found in the analysis periodes were calssified 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 and shape 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 BMS 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
Agroforestry/mixed forest/non-monoculture rubber	0.4
Bush/old shrub	0
Barren land	0
Monoculture/plantation/agriculture/developed land	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 BMS 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 multiresolution 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

In order to mitigation of GHG emission from the new development, carbon and GHG assessment was carried out as part of the completion of NPP. The assessment was carried out specifically for in scope area covering a total of 4,069.5 ha within BMS Cadastral Area. Details of the assessment process are described in the following sub-sections.

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

HCSA assessment was following the HCSA Toolkit Version 2 (2017) whereas the GHG assessment 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. Specificcally for BMS, the assessment used cadastral boundary as the scope of assessment. Elaborations on methodology and processes used in both assessments are divided into several parts according to the stages in constitution of both.

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 is collected:

- GPS waypoint
- Plot photographs
- Land cover stratification
- Canopy cover code
- Descrioption of plot site and general surroundings
- Description of topography, soil, and underfoot conditions
- Description of any evidene of human activity

For each tree measured, the following data is collected:

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

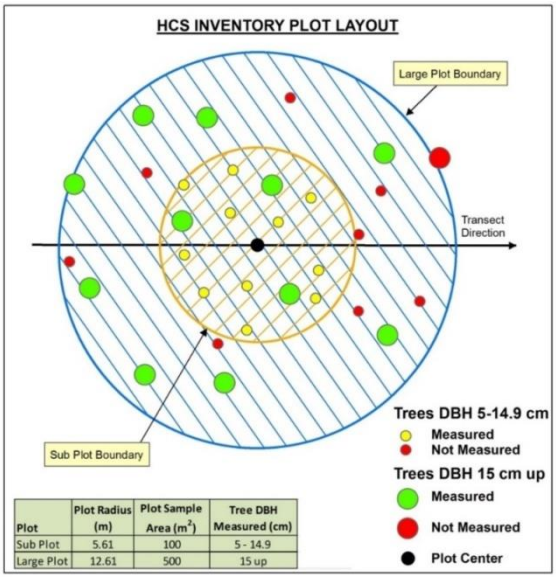


Figure 12. Forest inventory plot

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[ρi D2iHi]0.940

Where: AGLB = Above ground live biomass in kilograms

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

H = Total tree height in metres

ρ = Specific gravity in grams per cubic centimetre

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 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 Assessmets. 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 in BMS 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 BMS boundaries to identify which land system is present within the boundaries using GIS software. Map of land system then was verified in the field survey and by using supporting field data (i.e. forest inventory data) from HCSA and GHG assessment.

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 softwares. Topographic map from from the GIS analysis then was also verified using in the field field and by using supporting data (i.e. forest inventory data) from HCSA and GHG assessment.

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 engangements 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
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 determin 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 docmentations of those events; whereas selection of interviewess 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. Integratedly. 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 (refered 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 BMS (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 (2nd 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-costruction, 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 BMS operatinal activities

Environment's component impacted and Potential Impact	PREDICTION OF ENVIROMENTAL CONDITION																	
	PRE-CONSTRUCTION			CONSTRUCTION									OPERATION			Post OPERATION		Remarks for Negative-Positive Impact
	Preparation Process	Activity Socialization	Deliniation and Land Procurement	Labour Acceptence and Mobilization	Mobilization of Equipmenmt and Material	Land Clearing	Establishment of Infrastructure	Nurserey and Planting Preparatuion	Soil Conservation and Water Conservation	Planting Palm Oil	Maintanence of Immature Plantation	Social Responsibility Programme	Maintanence of Mature Plantation	Harvesting	Transportation of FFB	Returning of Infrastructure Asset	Termination of Employment	
I. PHYSICAL-CHEMICAL																		
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)
II. BIOLOGY																		
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)
III. SOCIAL																		

Environment's component impacted and Potential Impact	PREDICTION OF ENVIROMENTAL CONDITION																	
	PRE-CONSTRUCTION			CONSTRUCTION								OPERATION			Post OPERATION		Remarks for Negative-Positive Impact
	Preparation Process	Activity Socialization	Deliniation and Land Procurement	Labour Acceptence and Mobilization	Mobilization of Equipmenmt and Material	Land Clearing	Establishment of Infrastructure	Nurserey and Planting Preparatuion	Soil Conservation and Water Conservation	Planting Palm Oil	Maintanence of Immature Plantation	Social Responsibility Programme	Maintanence 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 Helth 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 including the stakeholders related to BMS and social issues occurred in the social environment of BMS. 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 15 stakeholders related to BMS as follow:

Table 17. Stakeholders related to BMS

No	Stakeholder	No	Stakeholder
1	Management*	9	Tokoh Masyarakat (Figures of the Community)
2	Staff/workers*	10	Penduduk Asli (Original/Native Communities)
3	Camat (Regent)	11	Pendatang (Settlers/descendants of the settlers)
4	Kepala Desa (Head of Village)	12	Traders/collectors
5	Kepala Dusun (Head of Hamlet)	13	Transportation service providers
6	Perangkat Desa (Officials of Village)	14	Farmers
7	Kepala Adat/Tumenggung (Head of Custom)	15	Pengurus dan anggota koperasi plasma (Committees and members of the partnership union)
8	Dewan Adat Dayak (Board of Dayak Custom)		

*BMS 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
	Difficulty to get clean water	High
	Declining of community agricultural productivity	
	Overlapping area between company's concession and other company's concession, and between company's concession and community's land	Critical
Human Resources	Lack of education	Medium
	Low of human resource quality (community member and village official)	High
	Lack of agricultural counseling	Medium
Economic Resources	Limited financial capital	Medium
	Obscurity of village land treasury	High
	Declining of rubber product selling price	Medium
Socio-cultural Resources	Boundary of the villages	Critical
	Crisis of trust to the management of partnership (plasma) plantation cooperative union	Medium
	Oil palm thievery	Medium

Capital	Issues	Risk Category
Physical/infrastructural Resources	Poor road access	High
	Lack of health facilities/infrastructure	Medium
CSR	Implementation of CSR/CD is not in accordance with the socialization	Medium
	There are supports from CSR but they are under expectations	Medium
	Lack of respond from the company to proposals from community. When it is accepted, the support from CSR is lower than the expected number as in proposal	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 BMS

Impacts association	Impact	Risk Factor
Positive	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 of having partnership plantation scheme (plasma) as new source of income and asset	Medium
	Contribution to increasing income of the communities	Low
	Establishment of independent land acquisition task force from village (Satlak Desa)	Medium
	Social assistance through CSR	Medium
	Opening of accessibility	Low
Negative	Decreasing of land for traditional farming	Medium
	Decreasing of clean water quality	High
	Decreasing of forest area	Medium
	Limited information of working opportunity/recruitment	Medium
	Perception of difficulity to be recruited as worker in the company	High
	Lack of CSR program that orients to human resource improvement	High
	Poor managamement of partnership (plasma) plantation	Critical
	Location of partnership (plasma) plantation is not according to the village administrative area (difficulities in ownership administration)	High
	Communities still withhold consent to the proposed HGU license area of BMS	High
	Lack of contribution from the village taskforce (satlak)	Medium
	Response on CSR proposal from community is under expectation	Medium
	Perception the the company's CSR is not optimal	Medium
	Implementation of CSR/CD is not in accordance with the socialization	High
	Lack of communication between company and community	Medium
	Land based conflict	Critical
	Lack of maintenance/service for road access	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 BMS

Aspect of Impact	Score
Recruitment of worker	Moderate
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	Moderate
Vehicle facilities	Moderate
Absence of child labour and worker discrimination	Good
Facilities for working equipment	Poor
Capacity building for workers	Moderate
Labour union	Poor
Workers cooperative union	Very Poor
Education facilities	Poor

3.2. HCV assessment

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

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 the 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 BMS area, HCV comprised of 647.3 ha, while the total of HCV area and HCV management area is 972.3 ha.

Link to the HCV Public Summary Report:

https://hcvnetwork.org/reports/hcv-goodhope-asia-holdings-ltd-ketapang-region-pt-agrajaya-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[2], 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 7). Based on Indicative Map of New Permit Issuance Moratorium (PIPIB), the Assessment Area is situated outside the moratorium territory (Figure 8). According to West Kalimantan Provincial Spatial Planning (RTRW), the Assessment Area is located in the territories already allocated for plantation development (Figure 6).

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[3] 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.

Based on land system map (RePPProT, 1989), the dominant soil great group in the Assessment Area includes Tropodults (podsolic) 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[4] (SHG), loam falls under SHG B, while sandy clay loam under SHG C. The finer a soil texture, the slower its

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

[3] Monthly rainfall is less than 100 mm, Oldeman *et al.* (1975, 1977, 1979).

[4] 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.

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 (podsolic)	Tropodults (podsolic), Distropepts (cambisol)	Tropodults (podsolic), Distropepts (cambisol)
Soil texture	Loam-sandy clay loam	Loam-silty loam-sandy loam	Loam-silty loam-sandy loam
Erodibility[5] [6]	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 11). These hills are water catchments highly valuable to the rivers in the Assessment Area. In addition, these hills also function as erosion control areas[7].

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

Based on RePPProT 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

[5] Centre for Irrigation Research and Development under Bandung Public Work Office in Murdis (1999).

[6] Undang K. and Suwardjo (1984); Dariah (2004).

[7] 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.

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 9), while HJA is the dominant one (75%), taking the form of hillocky 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 (Kll): Monzogranite biotite-horenblenda, biotite sienogranite bit and granodiorite horenblenda-biotite,
2. Flower Basal Formation (Kubu): Black to solid gray, with dasit and grayish andesite gray,
3. Keratai Volcano Rock Formation (Kuk): Consists of dacit and rhythmic lava andesite lava which is partially unrepaired from pyroclastic rocks (ash, lapilli, tuff and cedar, volcanic breccia and anglomerate),
4. Granite Formation Sukadana (Kus): Rock consists of quartz monzonite, monzogranite, sienogranite and alkali granite feldspar, little sienite quartz, quartz monovodite and diorite, and
5. Aluvium 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 Barau, 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 25 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.	• 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. • 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. • Presence of Ensinau Lake functioning as a catchment area, management of extreme events of water flow in Ensinau River, and clean water source.		
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 *tembawang* 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 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 RedList species, 54 species of Appendix CITES, and 48 Indonesian government-protected species (Table 25).

Table 25. Numbers of species identified by froup 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	-	-	1	3	1	7	2
Plant	287	7	5	11	3	-	14	10
Total	439	11	7	13	18	4	44	54

Notes:
IUCN Status: CR= Critically Endangered, EN= Endangered, VU= Vulnerable
CITES: 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 threatenedness status, all of these endemic species are listed under IUCN RedList, 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 eritrhophthalma*). 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*).

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
Bird									
1	*Nisaetus nanus*	Wallace's Hawk-Eagle		VU	App II	P			•
2	*Lophura eritrhophthalma*	Crestless Fireback	-	VU					•
3	*Rhinoplax vigil*	Helmeted Hornbill		CR	App I	P			•
Mammal									
4	*Nycticebus coucang*	Bornean slow loris		VU	App I	P	••	••	••
5	*Tarsius bancanus*	Western Tarsier	-	VU	II	-	••	•••	•••
6	*Presbytis frontata*	White-fronted Langur	-	VU	II	-	•	•	•••
7	*Macaca nemestrina*	Pig-tailed Macaque	-	VU	II	-	••	••	•••
8	*Hylobates albibarbis*	Bornean White-bearded Gibbon	E	EN	I	P	••	••	•••
9	*Manis javanica*	Sunda Pangolin	-	CR	II	P	••	•	••
10	*Helarctos malayanus*	Sun Bear	-	VU	I	P	•	•	••
11	*Aonyx cinerea*	Oriental Small-clawed Otter	-	VU	II	P	•••	••	••
12	*Arctictis binturong*	Bearcat	-	VU	-	P	•	•	•••
13	*Neofelis diardi*	Sunda Clouded Leopard	-	VU	I	P			••
14	*Sus barbatus*	Bearded Pig	-	VU	-	-	•••	•••	•••
15	*Cervus unicolor*	Sambar Deer	-	VU	-	P	•••	•••	•••
Reptile									
16	*Tomistoma schlegelii*	False Gharial		VU	App I	P			•
17	*Amyda cartilaginea*	Asiatic Softshell Turtle		VU	II		••	••	••
18	*Siebenrockiella crassicollis*	Black Marsh Turtle		VU			••	••	••
19	*Manouria emys*	Asian Tortoise		EN	II				••

IUCN Redlist Ver. 2017-1 www.iucnredlist.org. Downloaded on 26 July 2017
CITES, Appendices, valid as of 30 July 2017
Presence identificatioin: •••= 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	Distribution	Conservation Status			Location		
				IUCN	CITES	Law	PT AJB	PT BMS	PT SMS
1	*Durio kutejensis*	Borneo Durian	-	VU	-		+	-	+
2	*Anisoptera costata*	Ribbed Mersawa	-	EN	-		-	-	+
3	*Anisoptera laevis*	Mersawa Durian	-	EN	-		+	-	-
4	*Dipterocarpus grandiflorus*	Starfruit Keruing	-	CR	-		+	-	-
5	*Dryobalanops beccarii*	Red Kapur/ K. Keladan	-	EN	-		+	+	-
6	*Dryobalanops lanceolata*	Spear-Head Kapur	E	EN	-	A	+	-	-
7	*Hopea beccariana*	Beccari Merawan	-	EN	-		-	-	-
8	*Hopea mengerawan*	Sumatran Merawan	-	CR	-	A	+	+	+
9	*Hopea odorata**	Lady Ta-Khian Merawan	-	VU	-		-	+	-
10	*Shorea agami*	Agam's White Meranti	-	EN	-		-	-	+
11	*Shorea cordata*	Heart-Shaped White Meranti	-	EN	-		+	-	-
12	*Shorea induplicata*	Folded Yellow Meranti	-	CR	-		-	-	+
13	*Shorea maxwelliana*	Maxwell Red Meranti	-	EN	-		+	-	-
14	*Shorea palembanica*	Light/Dark Red-Meranti	-	CR	-		-	-	+

No	Latin Name	English Name	Distribution	Conservation Status			Location		
				IUCN	CITES	Law	PT AJB	PT BMS	PT SMS
15	*Shorea pauciflora*	Dark Red Meranti/Red Lauan	-	EN	-		+	+	-
16	*Shorea richetia**	Richet Yellow-Meranti	-	CR	-		-	+	-
17	*Shorea stenoptera*	Narrow Wing Light-red Meranti	E	EN	-	B	+	-	-
18	*Shorea teysmanniana*	Teijsmann Red Meranti	-	EN	-		+	+	+
19	*Eusideroxylon zwageri*	Bornean Ironwood	-	VU	-	B	+	+	+

Source: Aksenta Survey Team, July 2017
Note: *) English names are according to hard and medium quality hardwood commercial names.
E= Bornean Endemic
IUCN(2017): CR= Critical; EN= Endangered; VU= Vulnerable
CITES: App.= Appendix
Law: according to Law No. 5 of 1990, Government Regulation No. 7/1999, 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: A= protected based on Ministrial Decree of Agricultural Minister No. 54/Kpts/Um/2/1972 (5 February 1972) and B= protected if DBH>50 cm according to Ministrial 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 32 for summary of HCVA and HCVMA for HCV 1, and figure 16-19 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

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 Biodivercity 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 is 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 Euphorbiacea 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
PT BMS	Bekayak, Ensinau, Selalang, Jihing, Perampai, Periau Randau, Rantik, Petobang, Rantik Jeronih, Engkaku, Prupai, Kediu and Bayur Rivers	Ensinau Lake	Merabu Hill
PT SMS	Karim, Bekayam, Pendamar, Sapunanga, Tiyakor, Semangka, Panyoh, Tering, Sendumang, Kinun, Hidup, Wang, and	-	Aik Beguruh, Nyutung, Pauh, Dapuk, Gegara, and Siberuk Hills in Agro Lestari Estate

Location	River&riparian	Water body	Well vegetated hilly area
	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		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^{o}). 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[8], 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 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.

[8] Area higher than its surroundings but lower than hill.

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/m3.

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), Azwazoekoebillah (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[9]. Building in this province stipulated as National Cultural Heritage as per Minister Decree No. KM10/PW007/Mkp03 is Sejiram Church in Kapuas Hulu District[10].

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[11], 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.

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.

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

[10] See cagarbudaya.kemdikbud.go.id/

[11] whc.unesco.org/

3.2.3. Conclusions of HCV findings

The total indicative HCV areas and Indicative HCVMAs specifically within the license area of PT BMS 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 HCVMAs in PT BMS area

Unit	Location	HCV Type	Description	HCV	HCV + HCVMA*
BMS	Tembawang B1	HCV 5; 6	Historical site marked by old fruit trees (*Tembawang*); important for cultural identity	2.40	2.40
BMS	Tembawang B2	HCV 5; 6	Historical site marked by old fruit trees (*Tembawang*); important for cultural identity	10.90	10.90
BMS	Tembawang B3	HCV 5; 6	Historical site marked by old fruit trees (*Tembawang*); important for cultural identity	4.40	4.40
BMS	Tembawang B4	HCV 5; 6	Historical site marked by old fruit trees (*Tembawang*); important for cultural identity	2.50	2.50
BMS	Tembawang B5	HCV 5; 6	Historical site marked by old fruit trees (*Tembawang*); important for cultural identity	9.00	9.00
BMS	Ensinau Lake	HCV 4; 5	Buffer 100m; functioning as flood control. sediment control and provision of water	20.27	22.82
BMS	Bekayak River	HCV 4	Buffer 50m; functioning as flood control. sediment control and provision of water	76.68	80.54
BMS	Ensinau River	HCV 4	Buffer 50m; functioning as flood control. sediment control and provision of water	24.01	27.88
BMS	Merabu Hill	HCV 4	Functioning as habitat and refugium for wildlife species. important water catchment area. and erosion control	31.70	32.40
BMS	Tembawang B6	HCV 4; 5; 6	Erosion control; Historical site marked by old fruit trees (Tembawang); important for cultural identity	8.50	8.50
BMS	Tembawang B7	HCV 5; 6	Historical site marked by old fruit trees (Tembawang); important for cultural identity	1.60	1.60
BMS	Jihing River	HCV 4	Buffer 50m; functioning as flood control. sediment control and provision of water	35.98	37.47
BMS	Bluluk River	HCV 4	Buffer 50m; functioning as flood control. sediment control and provision of water	15.47	15.47
BMS	Selalang River	HCV 4	Buffer 50m; functioning as flood control. sediment control and provision of water	30.12	42.97
BMS	Tembawang B8	HCV 5; 6	Historical site marked by old fruit trees (Tembawang); important for cultural identity	3.80	3.80
BMS	Perampai River	HCV 4	Buffer 50m; functioning as flood control. sediment control and provision of water	17.61	17.61
BMS	Periau Randau River	HCV 4	Buffer 50m; functioning as flood control. sediment control and provision of water	18.08	18.08
BMS	Rantik River	HCV 4	Buffer 50m; functioning as flood control. sediment control and provision of water	48.55	49.73
BMS	Petobang River	HCV 4	Buffer 50m; functioning as flood control. sediment control and provision of water	8.4	8.75
BMS	Rantik Jeronih River	HCV 4	Buffer 50m; functioning as flood control. sediment control and provision of water	18.81	23.61
BMS	Engkaku River	HCV 4	Buffer 50m; functioning as flood control. sediment control and provision of water	7.62	15.37
BMS	Kediu River	HCV 4	Buffer 50m; functioning as flood control. sediment control and provision of water	12.73	12.73
BMS	Bayur River	HCV 4	Buffer 50m; functioning as flood control. sediment control and provision of water	15.05	17.02
BMS	Prupai River	HCV 4	Buffer 50m; functioning as flood control. sediment control and provision of water	22.25	22.25
BMS	Forest Area	HCV 1	Functioning as habitat and refugium for wildlife species. important water catchment area. and erosion control	162.03	176.31
BMS	Important Bird Area Overlapped	HCV 1	Important Bird Area	38.80	308.16
			Total HCV Area and HCVMA*	647.26	972.27
			Size of License Area of PT BMS**	**9,122.3**	**9,122.3**
			Percentage (%) HCV Area and HCVMA of the License Area	**7.10%**	**10.66%**

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 Izin Lokasi of PT BMS

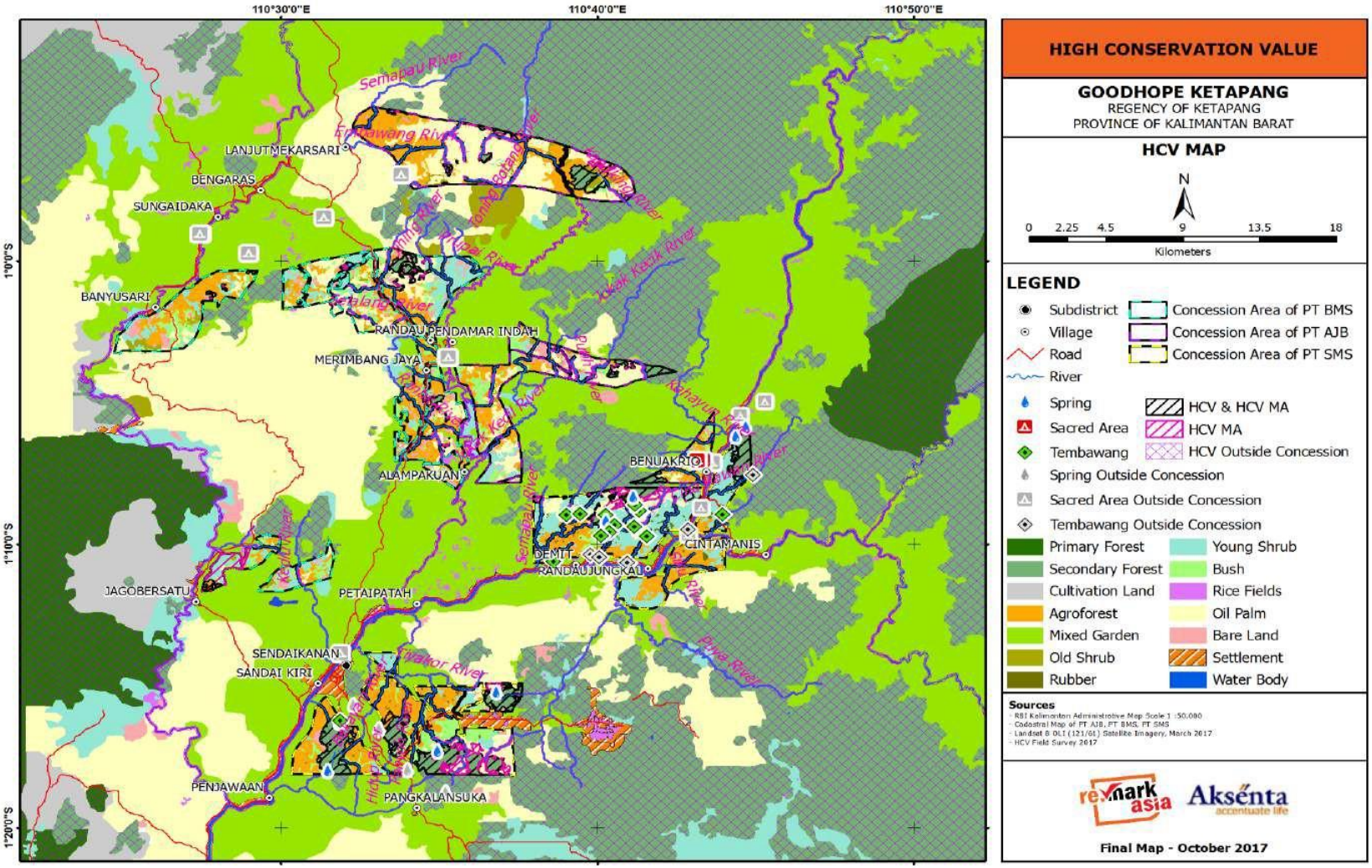


Figure 13. Map of HCVAs and HCVMAs in the assessment area

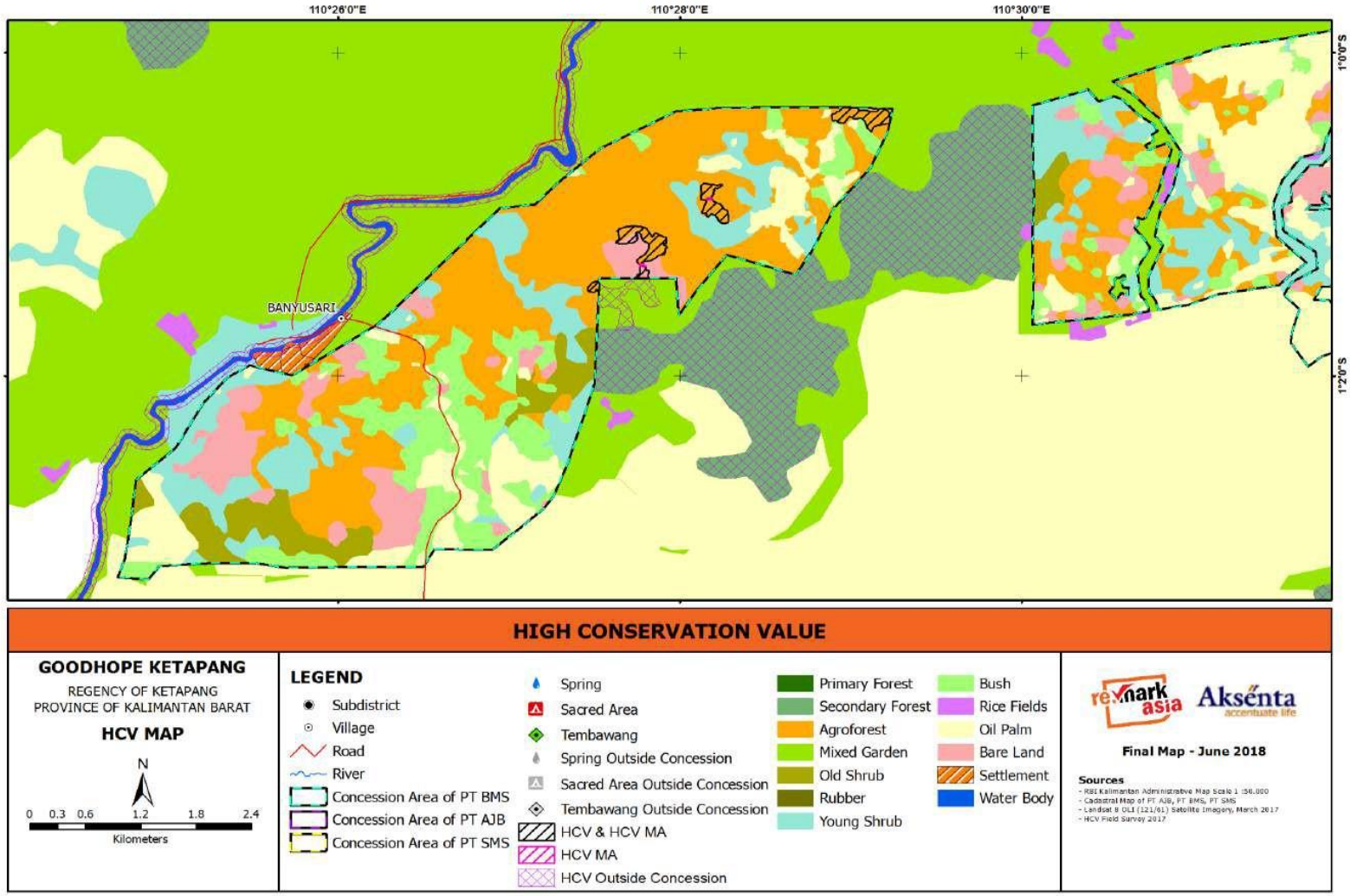


Figure 14. Map of HCVAs and HCVMAs in Division 1 Area of PT BMS

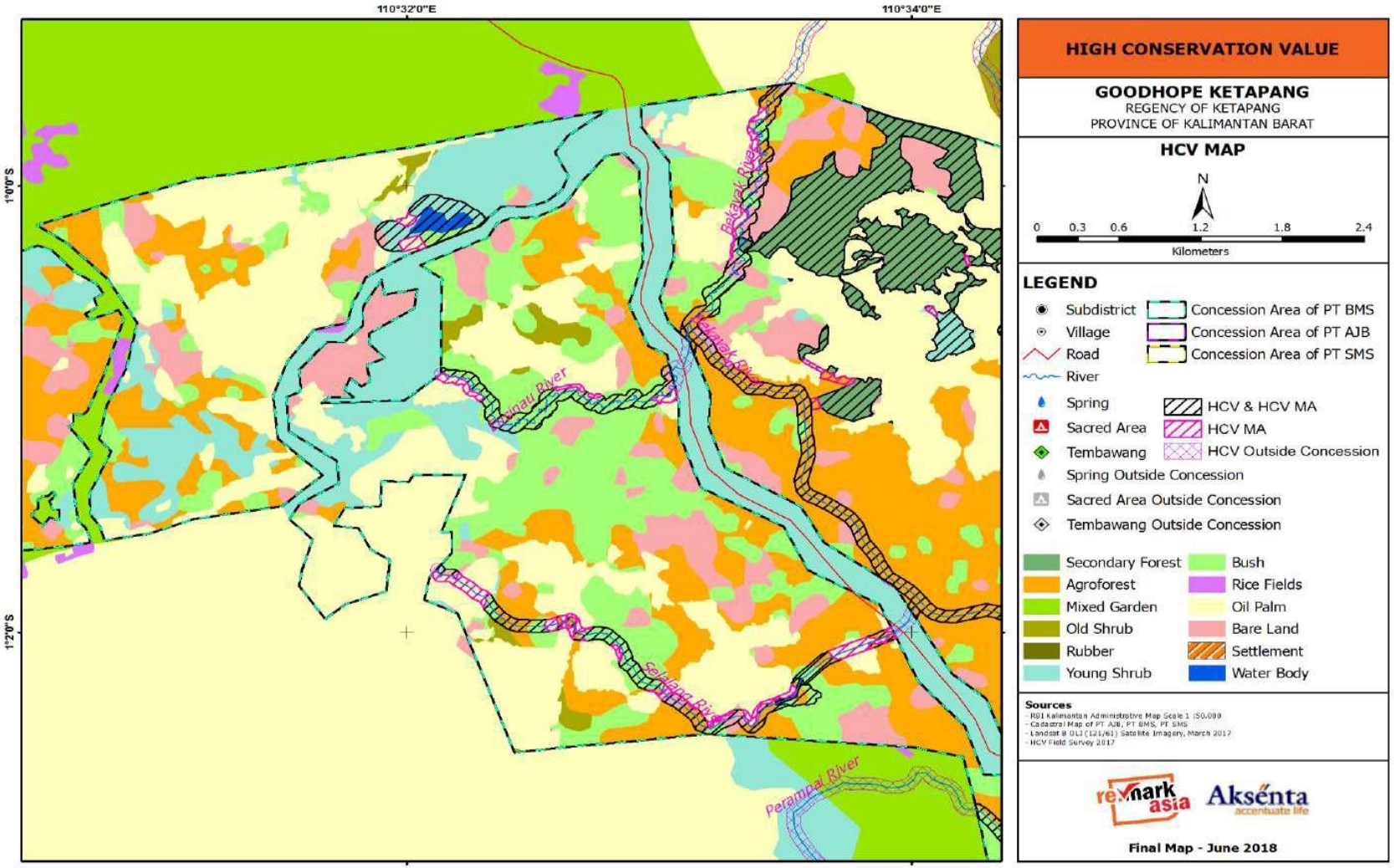


Figure 15. Map of HCVAs and HCVMAs in Division 2 Area of PT BMS

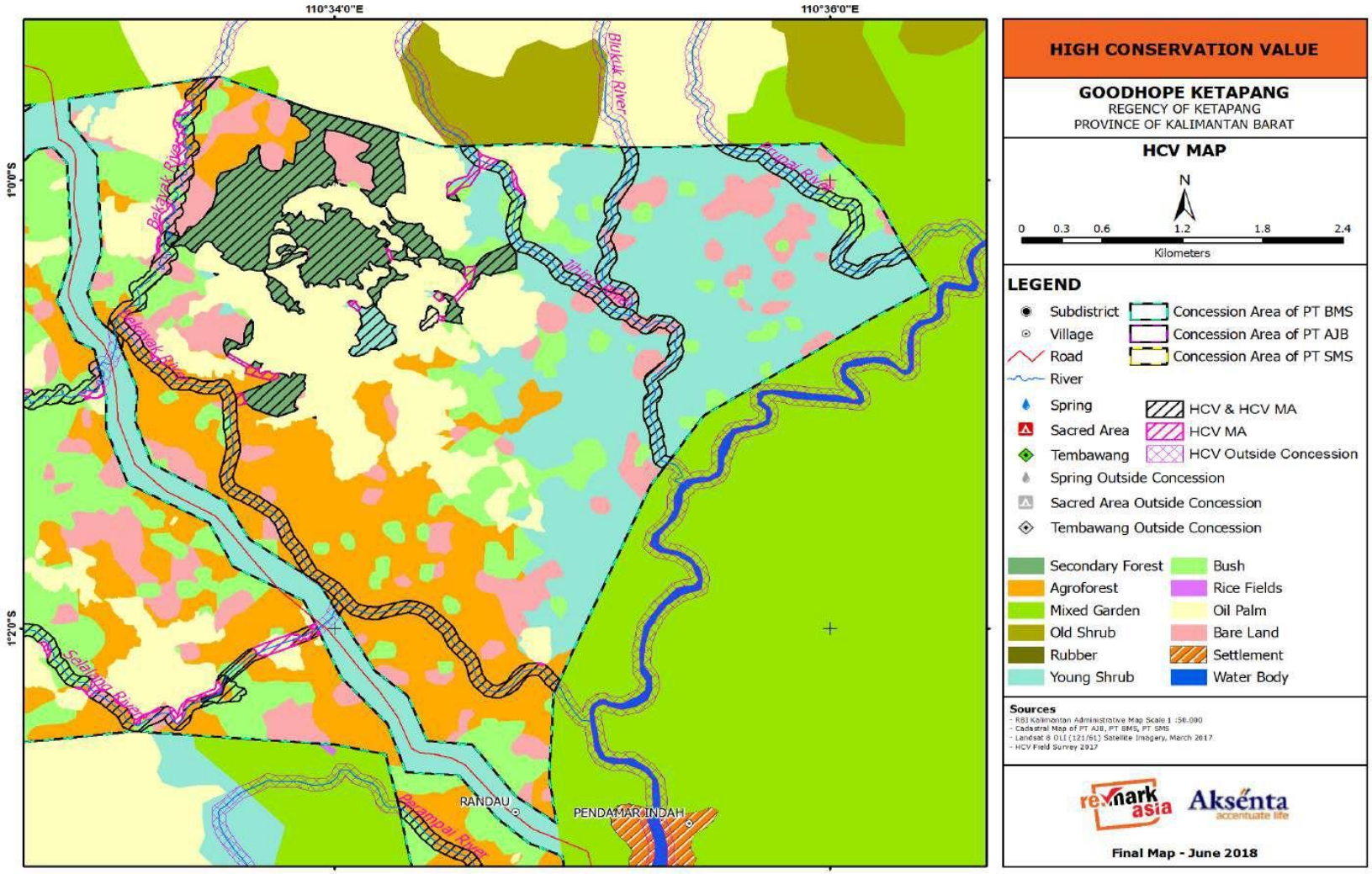


Figure 16. Map of HCVAs and HCVMAs in Division 3 Area of PT BMS

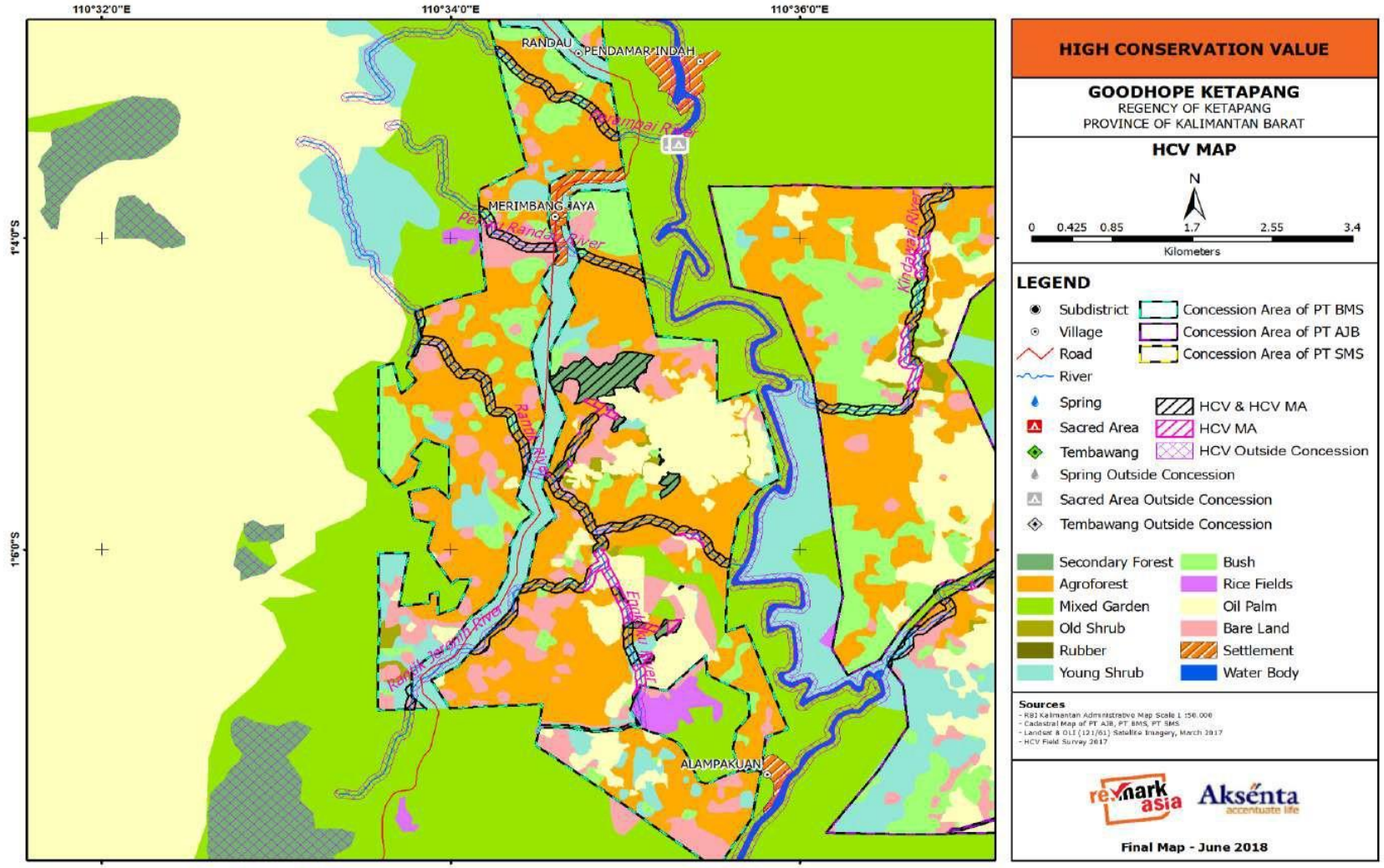


Figure 17. Map of HCVAs and HCVMAs in Northern Part of Division 4 Area of PT BMS

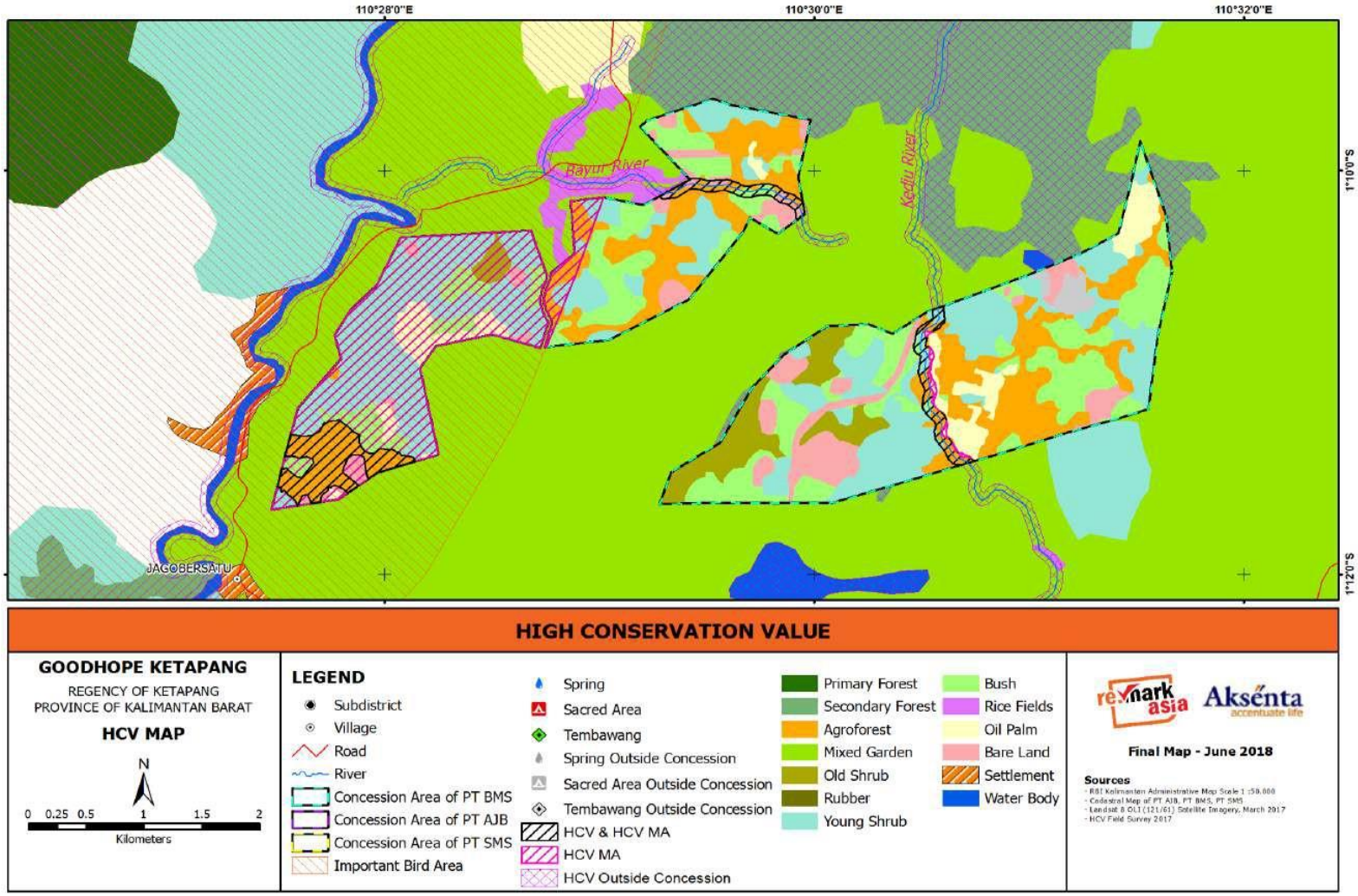


Figure 18. Map of HCVAs and HCVMAs in Southern Part of Division 4 Area of PT BMS

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: - Communities of the 18 villages around the concessions	- Interview during survey - FGD - Participatory mapping - Formal meeting in presentation of the interim result of the assessment in Pontianak.
Organizations and institutions representing local community: - Village officials of the 18 villages - Customary council	- FGD - Formal meeting in presentation of the interim result of the assessment in Pontianak.
Environmental organizations and academics: - ASRI Foundation - POLITAP (Ketapang State Polytechnic) - IAR Foundation - Palung Polytechnic - Faculty of Mathematics and Natural Sciences of Tanjungpura University - WWF Indonesia - IDH - FFI - GIZ	- Discussion in the office of FFI, Palung Foundation, ASRI, Tanjungpura University, IAR, IDH, and Gunung Palung National Park; in Ketapang. - Formal meeting in presentation of the interim result of the assessment in Pontianak.
Government: - BAPPEDA - Environmental Agency (BLH) - Agriculture and Plantation Agency - Natural Resources and Concesrvation Agency (BKSDA)	- Formal meeting in presentation of the interim result of the assessment in Pontianak.

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	• 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. • Several days ago, there was information that orangutan passed through community coconut plantation at KM 8 or KM 10 of Riam Berasap Village. • There is information that Randau Village community often hunts, including when they see orangutan. **Response:** 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.
17 July 2017	04.00-04.30 p.m., Palung Foundation Office	Hajral (085654483726), Dedi, Asbandi, Sari	Staff	Palung Foundation, Sukadana	• Several days ago, there was a report on community members keeping orangutan in Sandai area. • Major programme of Gunung Palung Foundation relates to three matters, i.e. community empowerment through organic farming, environmental education and investigation. • 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. **Response:** Thank you for the information. The information for orangutan kept by community will be followed up.
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	• Last month there was information on orangutan in Sungai Putri, around Bayur Indah Village. • Yesterday there was information on orangutan passing through community coconut plantation at KM 8 or KM 10, Riam Berasap Village. • Community of Pangkalan Jihing area normally use poison to fish or electrofishing, especially in dry seasons. • 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. • In general, rivers whose banks are already planted with oil palm are not used by the community.

Date	Time and Venue	Name	Position/ Role	Organisation/ Social Group	Major Concern & Recommendation/ Team Response
					• Rivers around Jago Bersatu and Sampurna Villages are polluted by gold mining. • In general, rivers in the concessions have been converted into oil palm plantations, except major rivers sourced from Mt. Palung National Park. **Response:** Thank you for the information. The information for orangutan will be followed up. Other issues such as poising fishing, river pollution beyond our scope of assessment.
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	• Two days ago, IAR rescued an orangutan at KM 10, Riam Berasap Village. • Areas where orangutan-human conflicts often take place is Laman Satong. • IAR already collaborates with several companies such as PT KAL, focusing on the following activities: establishing taskforce, delivering training and patrol. • HCV assessment plays an important role as a baseline to wildlife management and monitoring, especially orangutan for this case. • Connectivity is essential for orangutan conservation. IAR initiated Mt. Palung-Sungai Putri corridor pilot project. • Today, oil palm plantation companies are relatively better in conservation and nature preservation compared to what they did in the past 10 years. • Less established cooperation between neighbouring companies is a problem that IAR often sees in orangutan conservation. **Response:** 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.
18 July 2017	01.00-03.30 p.m., FFI office, Ketapang	Tito	Manager	Flora Fauna International, Indonesia Programme - Ketapang	• FFI programme in Ketapang focuses on peatlands around Sungai Putri. • 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. • FFI also assists community to have alternative livelihoods, namely business of packaged mineral water distribution from spring in Manjau. • Environmental services management and protection relating to water use can be regulated under village regulation based on agreement with community. **Response:** Thank you for the information.

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	▪ 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. ▪ 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. ▪ 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. **Response:** 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.
9 August 2017	10.00 a.m.-01.00 p.m., Borneo Emerald Hotel, Ketapang.	Fahmi	Staff	IAR	• 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. • 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? **Response:** 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.
9 August 2017	10.00 a.m.-01.00 p.m., Borneo Emerald Hotel, Ketapang.	Nelly	Staff	Ketapang District Environmental Agency (BLH)	▪ What is riverbank width set in this reassessment? ▪ Will conservation be carried out over springs (catchment area) outside the assessment area?

Date	Time and Venue	Name	Position/ Role	Organisation/ Social Group	Major Concern & Recommendation/ Team Response
					Response: In assigning an area as HCVA, several criteria must be met concerning catchment area. And regarding the catchment area: it 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.
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)	▪ *Tembawang* (fruit garden) is an area important to community because of the fruits that it produces every year, which are used by the community. ▪ In addition, *tembawang* 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 *tembawang*. ▪ *Tembawang* has the same values between Dayak and Malay peoples as we share the same ancestors. ▪ No need to name *tembawang*. Rather, mentioning it in a map will suffice.
11 August 2017	10.00 a.m.-01.00 p.m., Kini Hotel, Pontianak.	Langgeng	Staff	West Kalimantan Province Natural Resources Conservation Agency (BKSDA)	▪ Arrowed lines on the planed 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. ▪ Fragmented areas such as between *tembawang* and HCVA 1 or HCVA 4 should be integrated to allow the better productivity for other wildlife species. ▪ How much is the actual HCVA size that you just presented, along with the percentage against the assessment area? ▪ HCV 1 is invariably inherent to other HCVAs. Should HCV 1 be sacrificed for or complete the other HCVs? **Response:** This question is interesting to us. • 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 • 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

Date	Time and Venue	Name	Position/ Role	Organisation/ Social Group	Major Concern & Recommendation/ Team Response
					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. • Percentage of this HCVA will be determined upon public consultation. • Single HCV 1 very rarely occurs. No such value is found in the Assessment Area.
11 August 2017	10.00 a.m.-01.00 p.m., Kini Hotel, Pontianak.	Sudiro	Pendamar Indah Village Head		• 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 *tembawang*, whether the plants grow naturally or intentionally planted. • What will be the consequences if Urak Hill is excluded from the company HGU concession? What loss will be suffered by the community? **Response:** 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.
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)	• 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. • This site-level HCVA description goes into a very deep detail, in contrast to the HCV description in Environmental Impact Statement (ANDAL). • We are also preparing Essential Ecosystem Region (KEE), so perhaps the existing data/information could also be shared. **Response**: • 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. • 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.

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	• 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. • 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. • Provincial government will provide information centre in joint secretariat so that everyone and all businesspeople can have access to this information. • 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. • 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.

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, rvers, 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 36). 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 threats assessment

Current Condition/Preassure	Potential Impact on HCV	Causes/Sources (likely contribution to preassure)	Remarks
HCV 1			
Decline in RTE flora and fauna species	High	• Dayak communities often hunt Bornean White-bearded Gibbons and Pig-tailed Macaques around PT BMS and PT AJB concessions	• 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. • Migrant people from Sanggau hunt as far as PT BMS and PT AJB concessions.
Forest degradation or reduced size of HCVA in hilly areas	Medium	• Timber harvesting by local communities, especially for economically valuable timber such as Ironwood or Red Meranti (*Shorea sp.*)	• Timber harvesting is ongoing in Bukit Kanau and Urak.
HCV 3			
Forest degradation or reduced size of HCV Area in hilly areas	Medium	• Timber harvesting by local communities, especially for economically valuable timber such as Ironwood or Red Meranti (*Shorea sp.*)	• Timber harvesting make Dipterocarp species regeneration stop. Since only seedling found and not many big trees left.
HCV 4			
Declining river water quality	Medium	• Pesticide and fertilizer residue as well as eroded material can potentially reduce river water quality due to high surface run off • Morpho-erosion or rill erosion from roads (plantation), especially in AJ Estate (PT AJB)	• Espeially during rainy season
Potential land conversion	Low	• Overclearing by contractos because HCV boundaries are not appropriately or well-marked on the ground • Community agriculture activities	• Especially along riverbanks
Declining forest area and/or quality in catchment area	Medium	• Timber harvesting by local communities, especially for economically valuable timber such as Ironwood or Red Meranti (*Shorea sp*)	• Such activities are on going in Bukit Urak
HCV 5			
Potential land conversion	Low	• Overclearing b contractors because HCVA boundaries on the ground are incorrectly or poorly marked	• All mixed gardens (tembawang) must be delineated and demarcated
Reduced forest area and/or deteriorating quality in catchment area	Medium	• Commercial timber collection by local community	• Such activities are on going in Bukit Kanau and Urak
Declining river water quality	High	• Local communities usually catch fish using poison or electricity (electrofishing)	• Poison can pollute the river as wall as reduce fish population
HCV 6			
HCV 6 Area degradation and/or clearing	Medium	• Land clearing for rubber or oil palm plantations, whether by communities or companies	• Overclearing by contractors because HCV boundaries on the ground are incorrectly or poorly marked

The threat identified can affect a number of HCVs since they threaten HCVAs 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	• Decline of RTE species population due to poaching • Reduced size of forest area or degradation of forest as wildlife habitat in hilly areas
3	Mixed or Hill Dipterocarp Forests on igneous (granite) found on HJA and PLN Landsystems as rare and threatened ecosystem	• Forest degradation by illegal logging and timber harvesting
	Forest cover decrease as historic documentation as change to community need	• Land conversion from forest cover to other land use
	Threatened or endangered (e.g. rapidly declining) due to current or proposed operations	• Palm oil extensification
4	Managing water quality	• Potential land conversion along riverbanks • Decline in water quality due to intense surface run-off
	Provide clean water	
	Natural ecosustem as critical stabilizer of steep slope areas	• Reduced size of forest area and/or quality in catchment area • Potential land conversion
	Aquifer or catchment are protection, especially for tributaries and springs	
	Protection of downstream river regime relating to the river base flow	• Reduced forest area and/or quality in catchment areas • Potential land conversion
5	Source of water needed for drinking water and sanitation	• Declining forest area size and/or quality in catchment areas • Declining river water quality due to use of poison for fishing
	Fish (as important source of protein) and other freshwater species that local community relies on	
	Non-timber forest product	• Potential land conversion
6	Religious or sacred sites, burial grounds or sites where traditional ceremonies take place, or significant value for local or native communities	• HCVA 6 degradation or clearing

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 was taking place in two periods, i.e. (i) between February 2010 and May 2014, and (ii) May 2014 and December 2014. There is no new corporate land clearing as indicated by the size of oil palm area in after December 2014. That concludes that there is no non-compliance land clearing due to the issuance of the stop work order (April 2017) and prior the HCV reassessment (August 2017). Furthermore, additional LUCA regarding with the new 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.

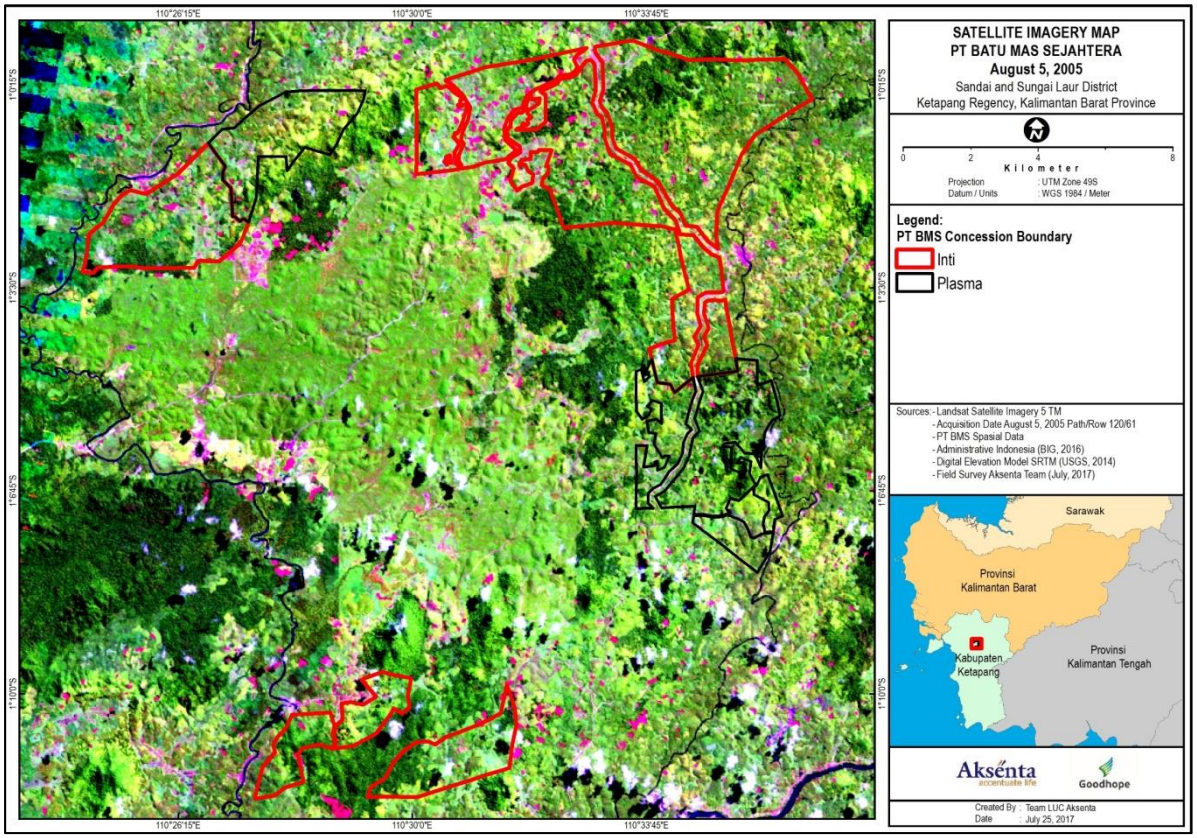


Figure 19. Satellite imagery for November 2005

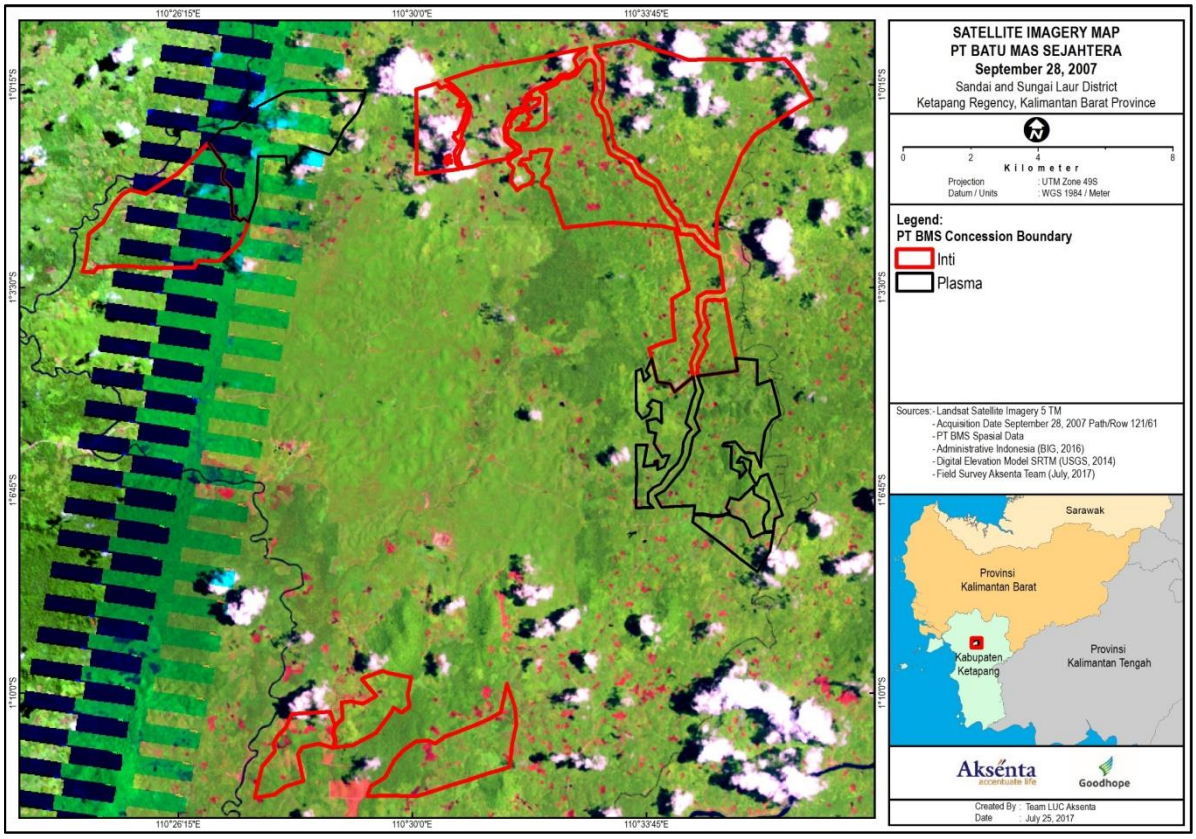


Figure 20. Satellite imagery for November 2007

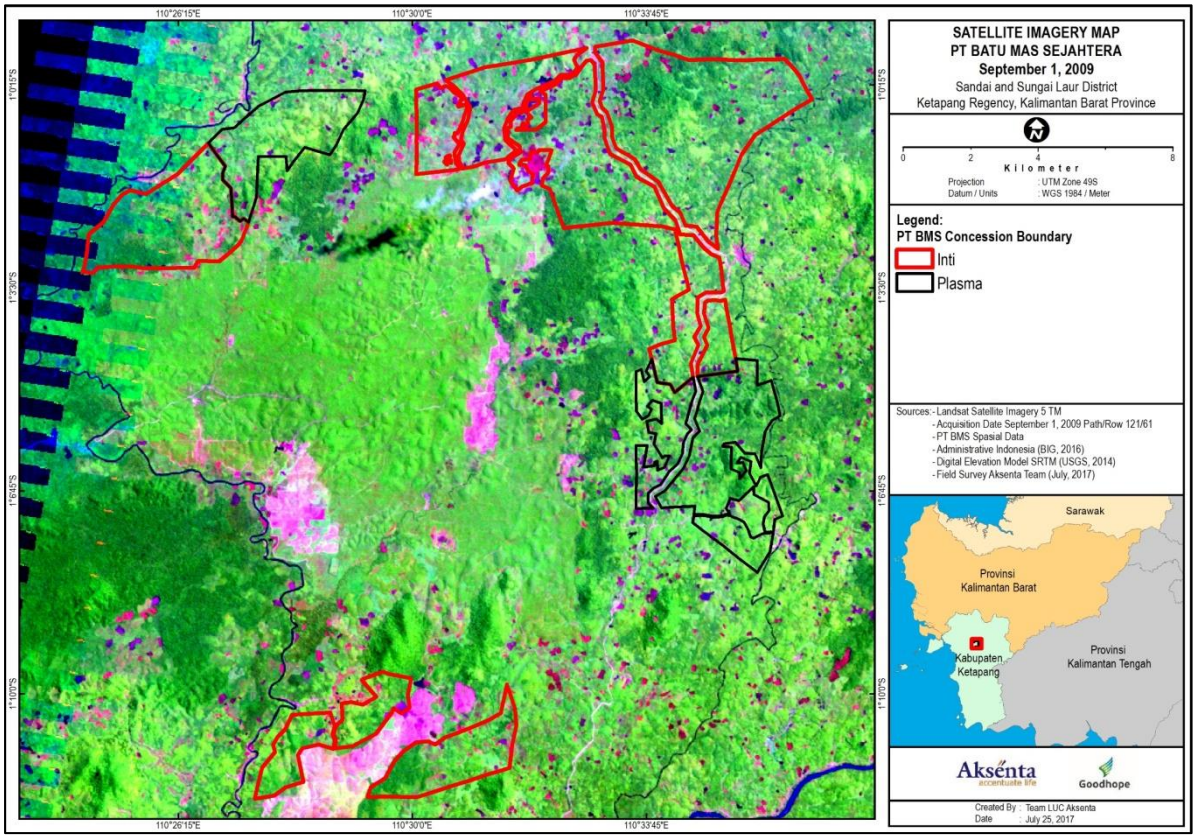


Figure 21. Satellite imagery for December 2009

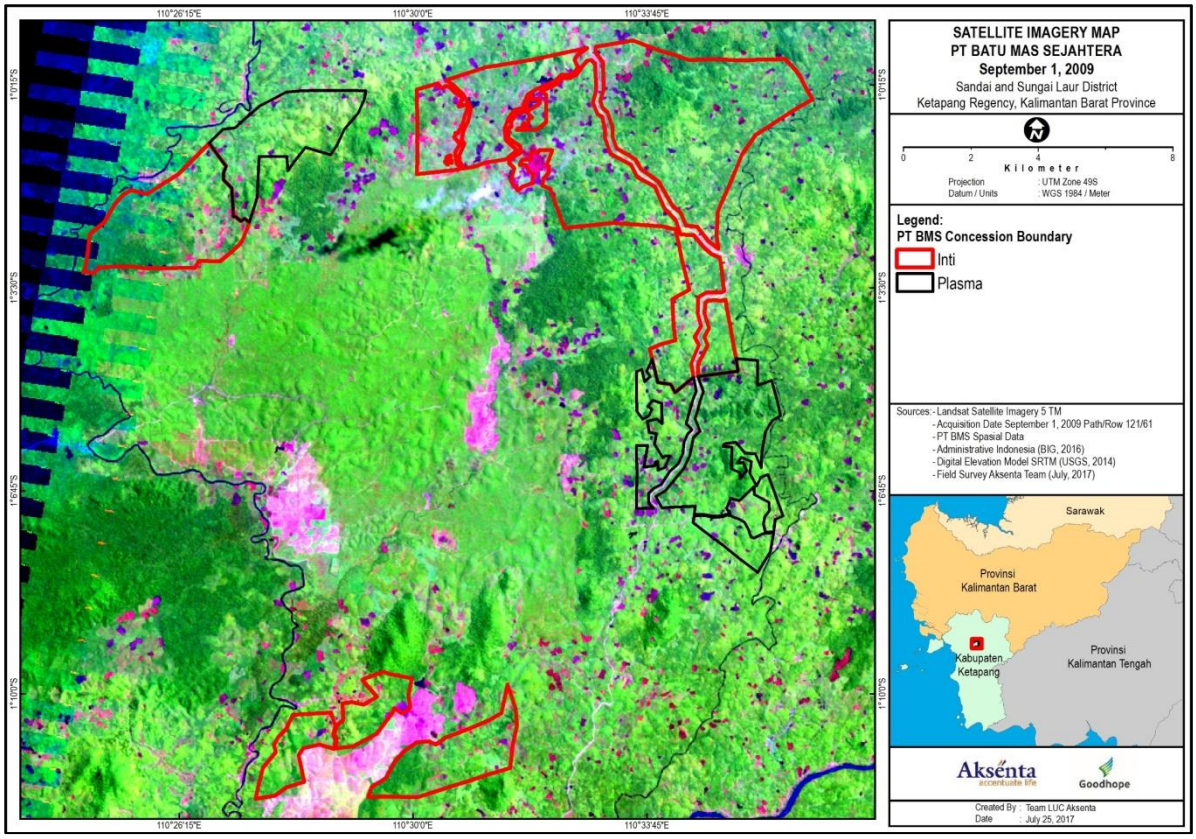


Figure 22. Satellite imagery for February 2010

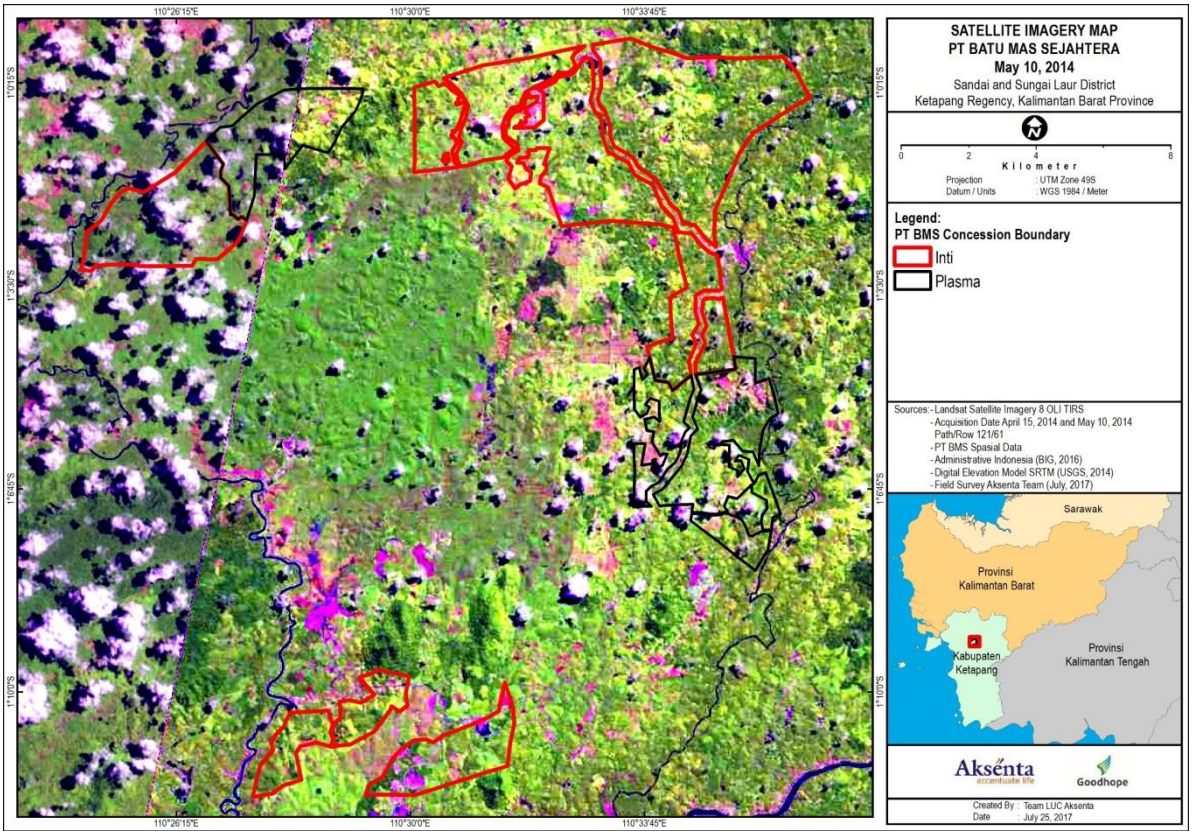


Figure 23. Satellite imagery for May 2014

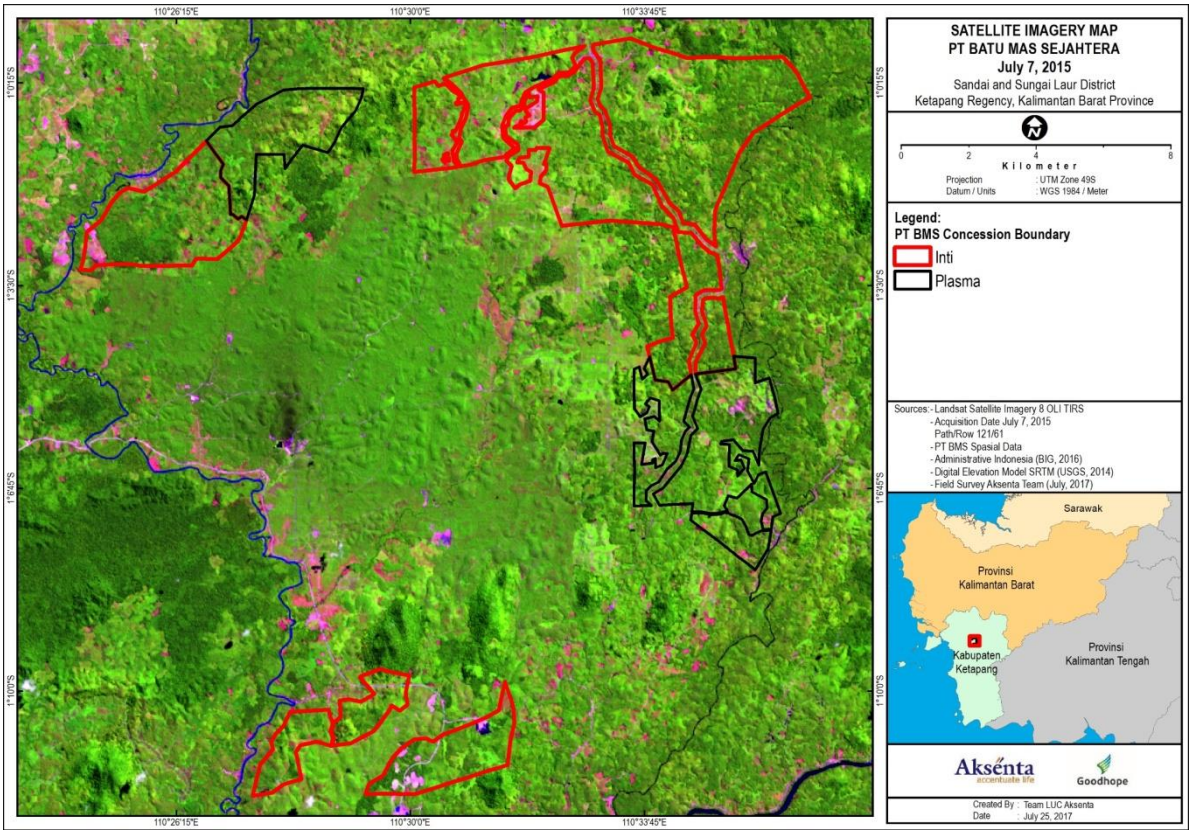


Figure 24. Satellite imagery for December 2014

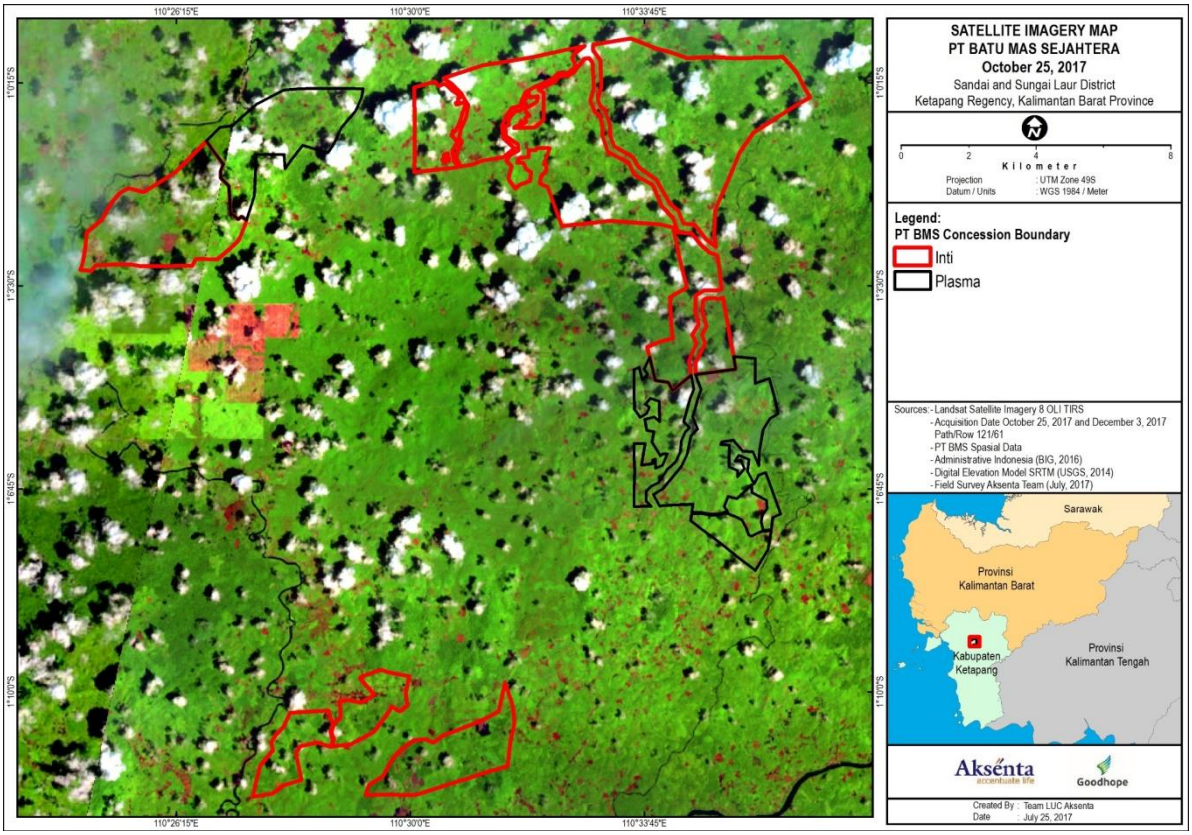


Figure 25. Satellite imagery for October 2017

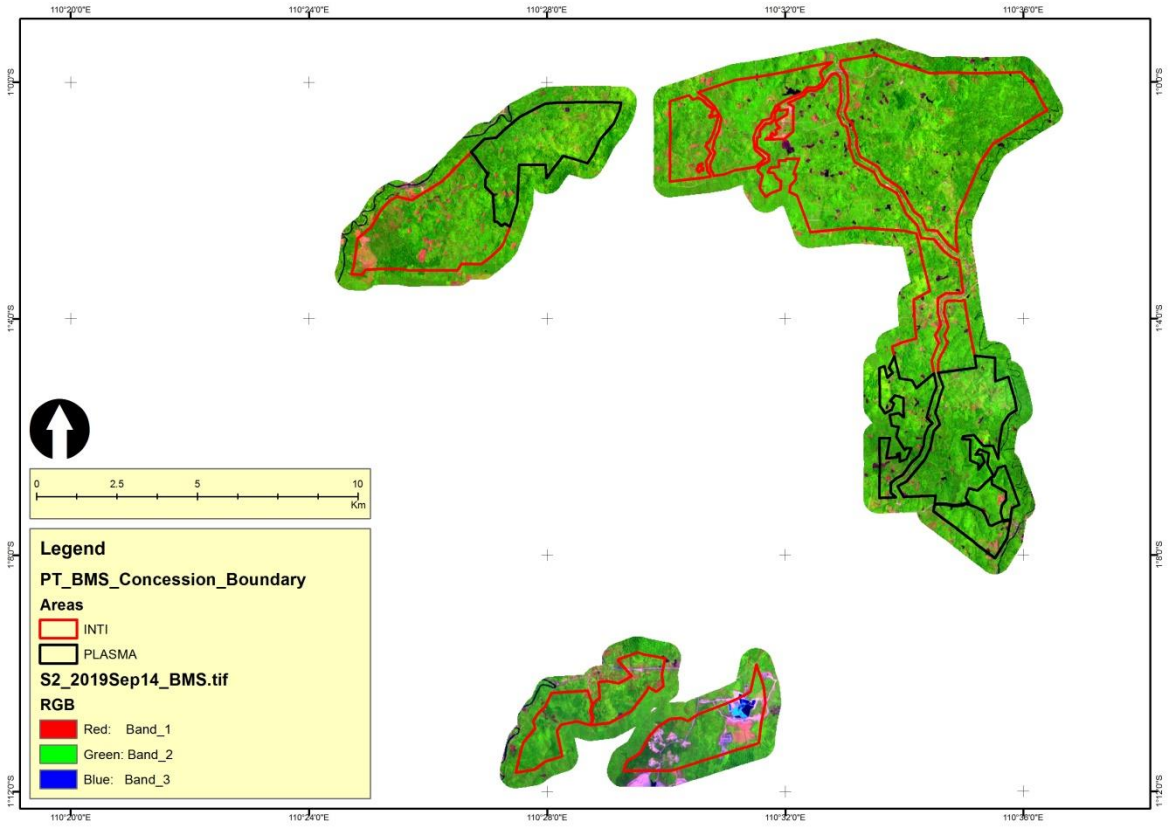


Figure 26. Satellite imagery for December 2019

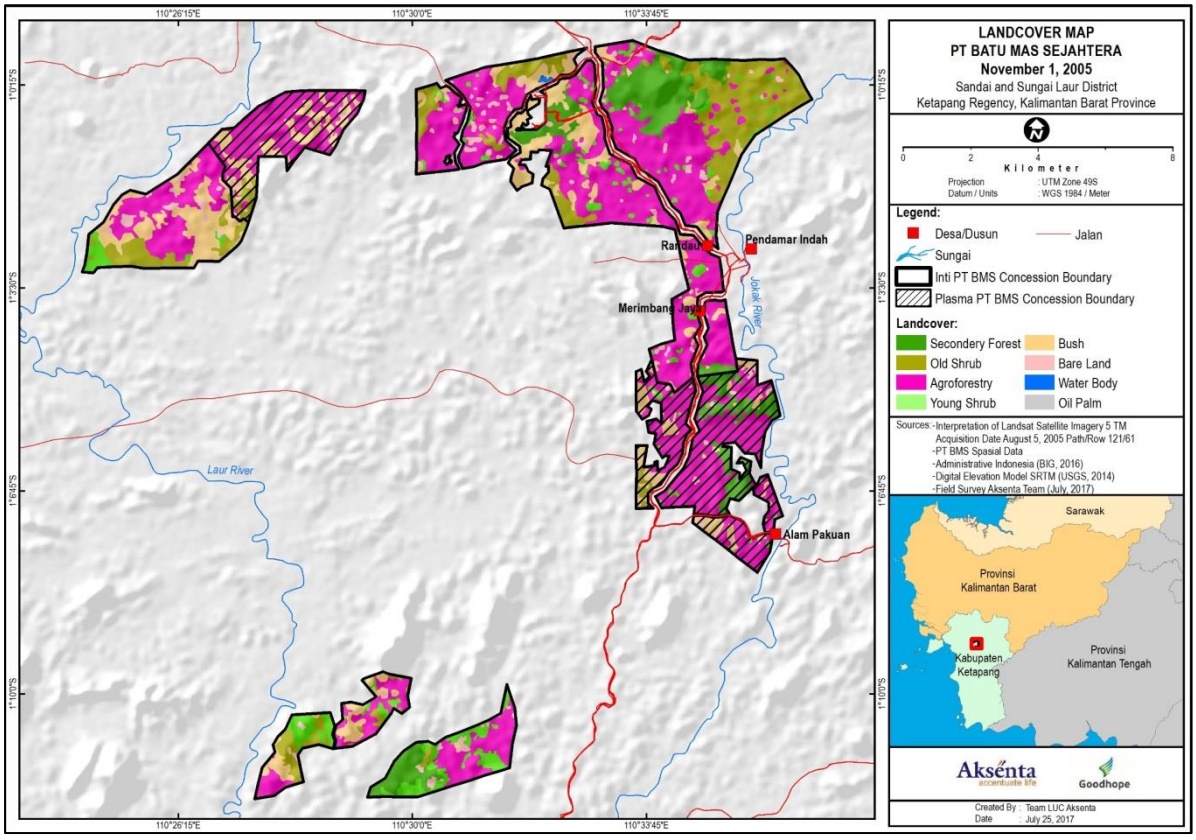


Figure 27. Land cover in November 2005

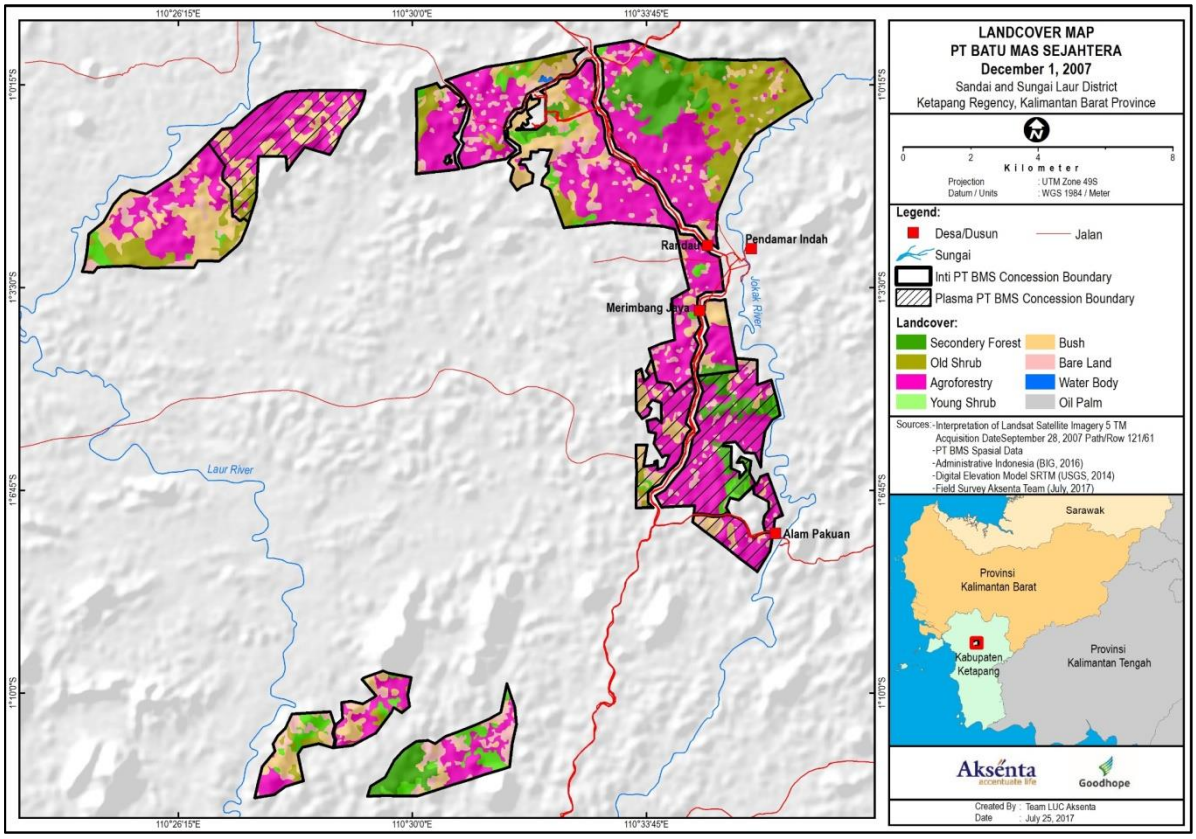


Figure 28. Land cover in November 2007

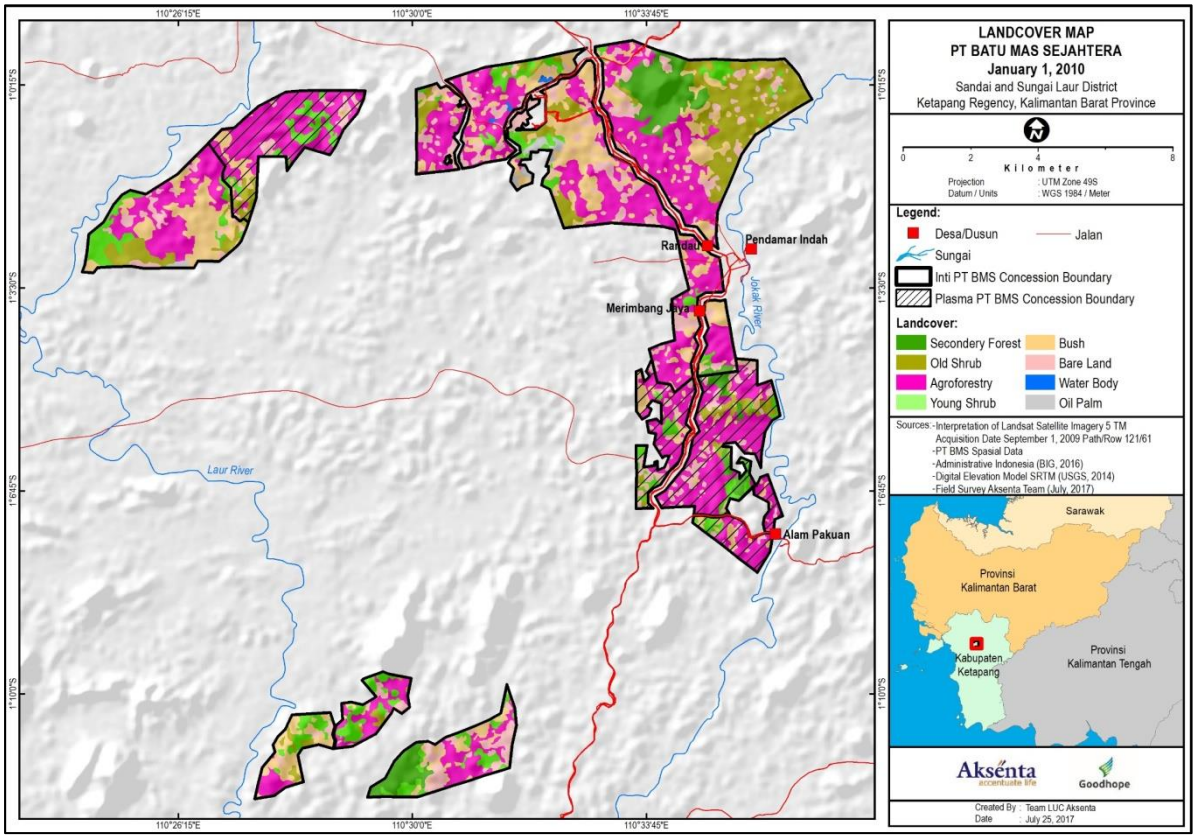


Figure 29. Land cover in December 2009

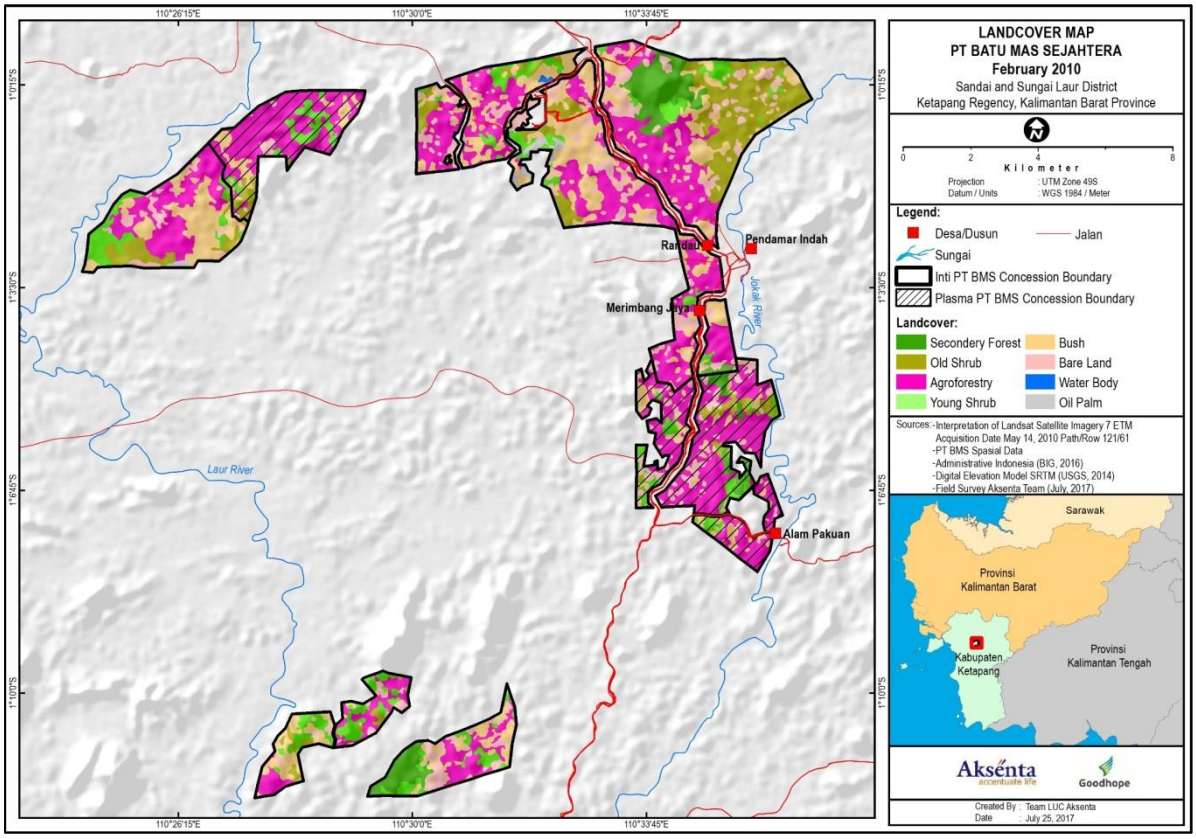


Figure 30. Land cover in February 2010

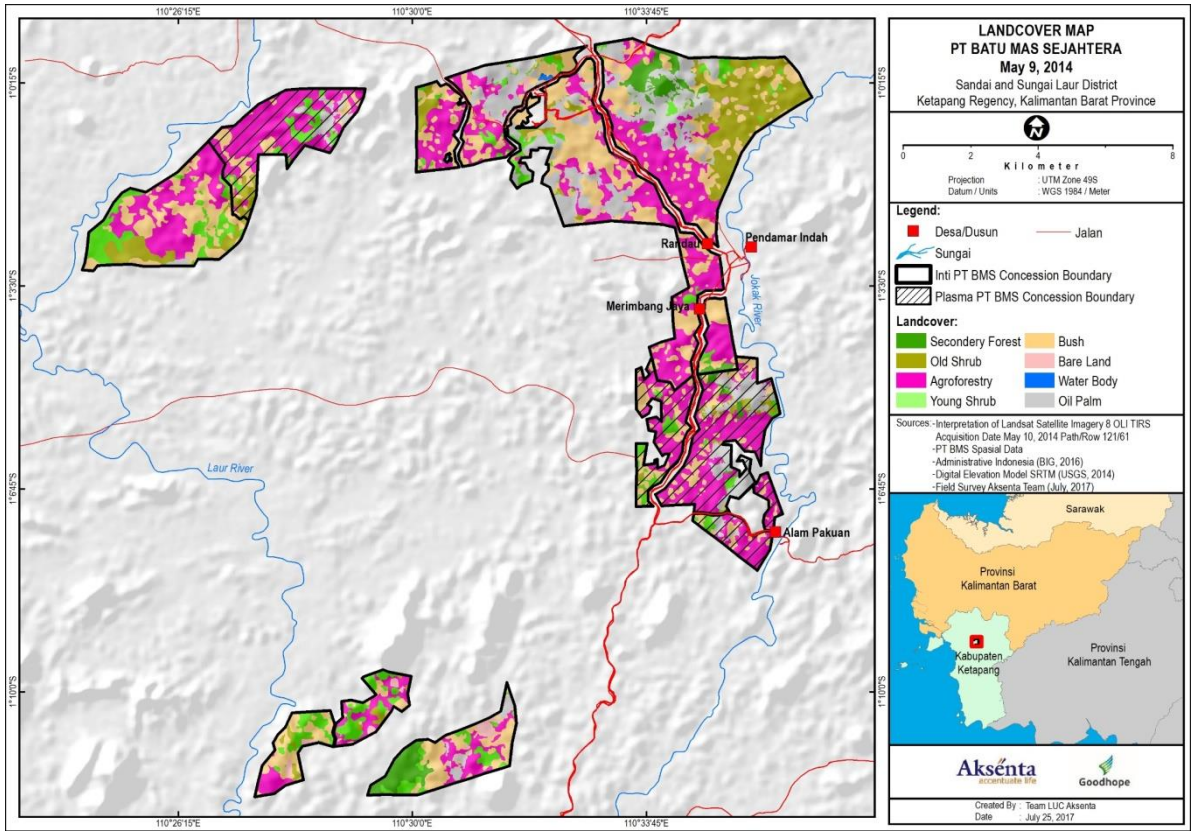


Figure 31. Land cover in May 2014

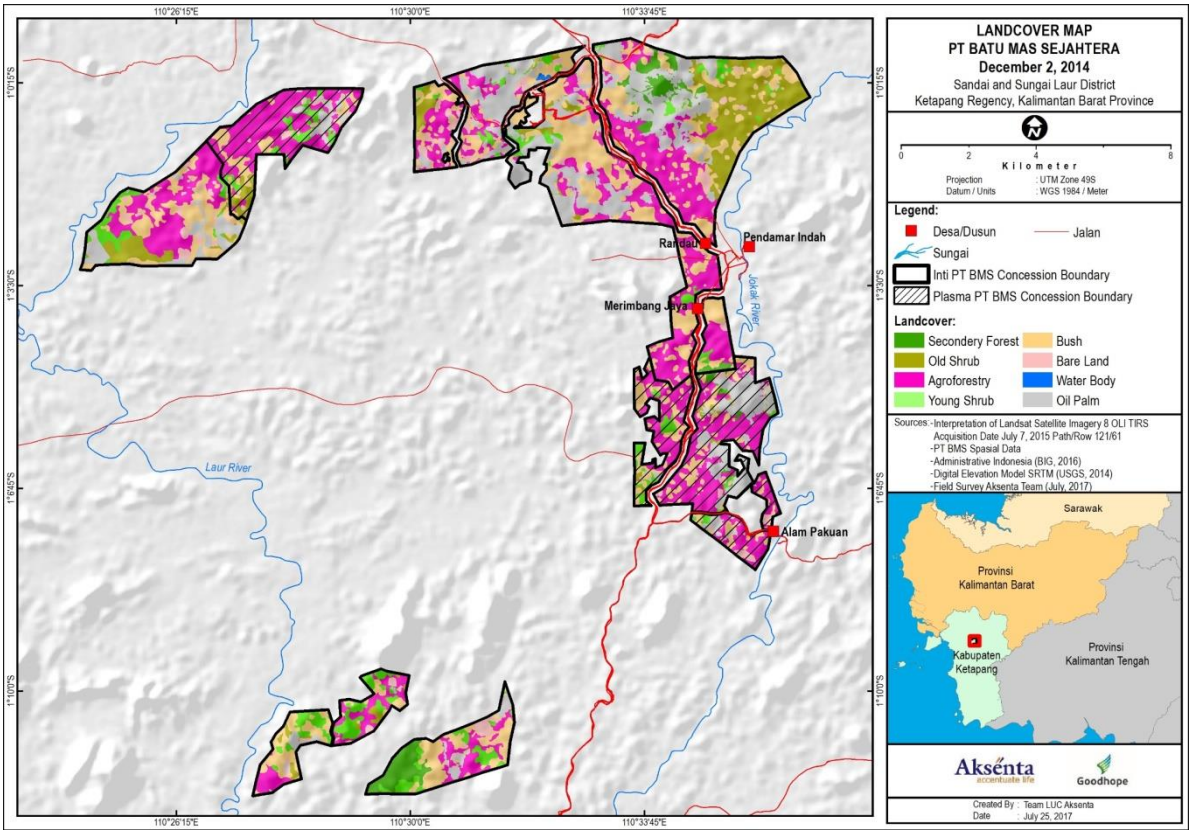


Figure 32. Land cover in December 2014

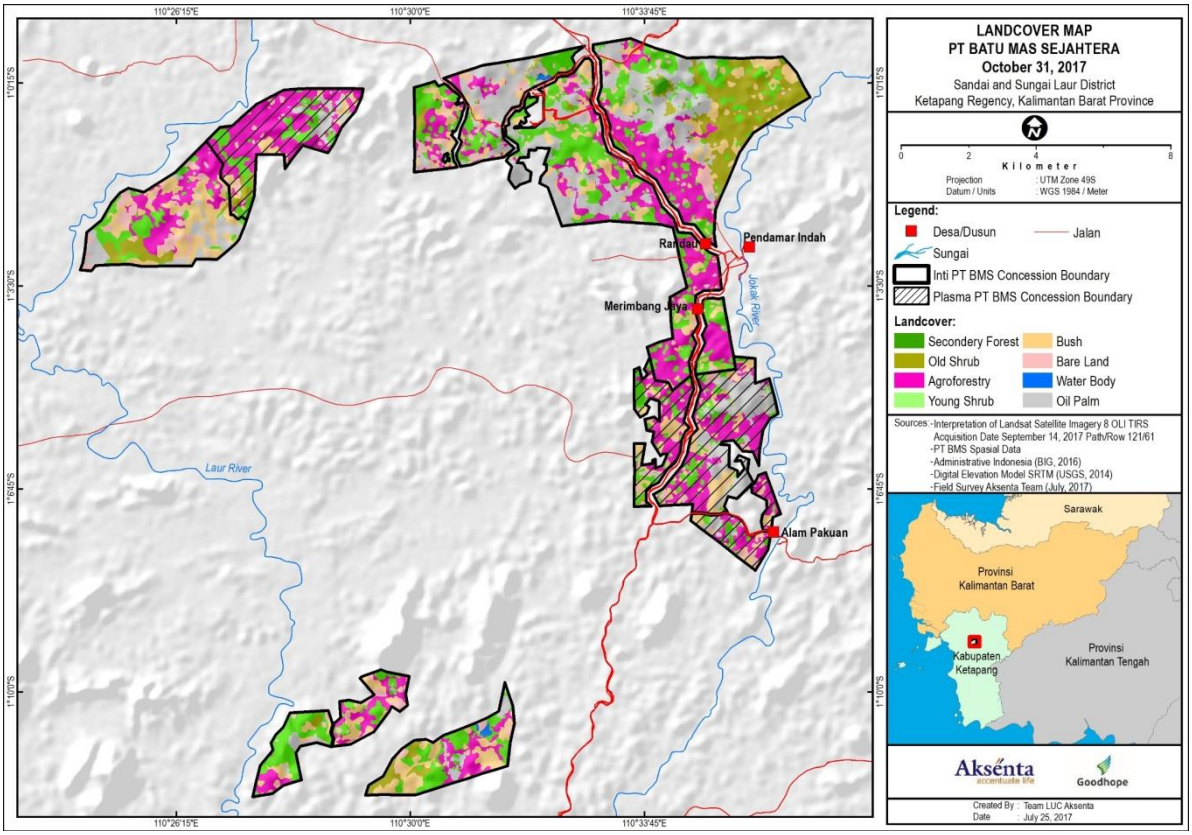


Figure 33. Land cover in October 2017

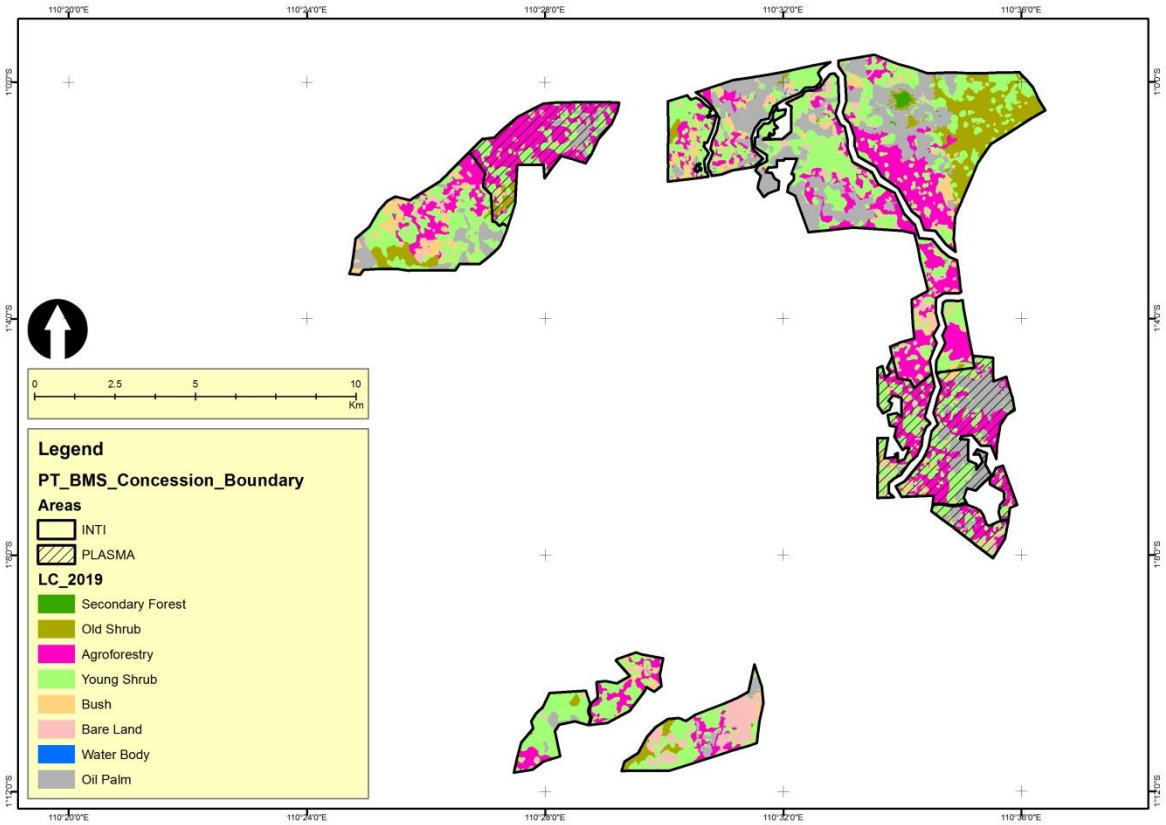


Figure 34. Land cover in December 2019

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

INTI PT BMS

Corporate

	Land cover	November 31, 2007							
		SC	OS	AF	YS	B	BL	WB	**Total Nov 05**
November 1, 2005	SC	-	-	-	-	-	-	-	-
	OS	-	-	-	-	-	-	-	-
	AF	-	-	-	-	-	-	-	-
	YS	-	-	-	-	-	-	-	-
	B	-	-	-	-	-	-	-	-
	BL	-	-	-	-	-	-	-	-
	WB	-	-	-	-	-	-	-	-
	Total Nov 07	-	-	-	-	-	-	-	-

Non-Corporate

	Land cover	November 31, 2007							
		SC	OS	AF	YS	B	BL	WB	**Total Nov 05**
November 1, 2005	SC	637.1	23.5	-	28.4	15.1	32.8	-	**736.8**
	OS	-	1,016.0	-	89.1	57.9	48.2	-	**1,211.3**
	AF	-	-	2,816.4	-	74.9	168.0	-	**3,059.3**
	YS	-	-	-	242.7	41.1	242.5	-	**526.3**
	B	-	-	-	13.6	939.2	72.9	-	**1,025.6**
	BL	-	-	-	-	38.7	235.1	-	**273.8**
	WB	-	-	-	-	-	-	6.0	**6.0**
	Total Nov 07	**637.1**	**1,039.5**	**2,816.4**	**373.9**	**1,166.9**	**799.4**	**6.0**	**6,839.1**

PLASMA PT BMS

Corporate

	Land cover	November 31, 2007							
		SC	OS	AF	YS	B	BL	WB	**Total Nov 05**
November 1, 2005	SC	-	-	-	-	-	-	-	-
	OS	-	-	-	-	-	-	-	-
	AF	-	-	-	-	-	-	-	-
	YS	-	-	-	-	-	-	-	-
	B	-	-	-	-	-	-	-	-
	BL	-	-	-	-	-	-	-	-
	WB	-	-	-	-	-	-	-	-
	Total Nov 07	-	-	-	-	-	-	-	-

Non-Corporate

	Land cover	November 31, 2007							
		SC	OS	AF	YS	B	BL	WB	**Total Nov 05**
November 1, 2005	SC	172.4	-	-	48.2	6.6	8.9	-	**236.1**
	OS	-	71.7	-	8.4	-	2.0	-	**82.0**
	AF	-	-	1,405.3	-	16.5	38.1	-	**1,459.9**
	YS	-	-	-	-	5.9	26.1	-	**32.0**
	B	-	-	-	-	382.1	26.0	-	**408.1**
	BL	-	-	-	-	3.3	61.6	-	**64.9**
	WB	-	-	-	-	-	-	-	**-**
	Total Nov 07	**172.4**	**71.7**	**1,405.3**	**56.5**	**414.4**	**162.7**	**-**	**2,283.0**

Note:

SC: Secondary Forest; OS: Old Shrub; AF: Agroforest; YS: Young Shrub; B: Bush; BL: Bare Land; WB: Water Body

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

INTI PT BMS										
Corporate										
	Land cover	**December 31, 2009**								
		SC	OS	AF	YS	B	BL	WB	OP	**Total Nov 07**
December 1, 2007	SC	-	-	-	-	-	-	-	-	-
	OS	-	-	-	-	-	-	-	-	-
	AF	-	-	-	-	-	-	-	-	-
	YS	-	-	-	-	-	-	-	-	-
	B	-	-	-	-	-	-	-	-	-
	BL	-	-	-	-	-	-	-	-	-
	WB	-	-	-	-	-	-	-	-	-
	Total Dec 09	-	-	-	-	-	-	-	-	-
Non-Corporate										
	Land cover	**December 31, 2009**								
		SC	OS	AF	YS	B	BL	WB	OP	**Total Nov 07**
December 1, 2007	SC	479.0	64.6	-	39.4	17.9	36.1	-	-	**637.1**
	OS	-	867.8	-	39.9	49.4	82.4	-	-	**1,039.5**
	AF	-	-	2,268.3	-	213.3	333.6	-	1.1	**2,816.4**
	YS	-	-	-	242.3	88.2	43.4	-	-	**373.9**
	B	-	-	-	289.7	629.7	196.5	-	50.9	**1,166.9**
	BL	-	-	-	-	539.8	241.9	6.1	11.6	**799.4**
	WB	-	-	-	-	-	-	6.0		**6.0**
	Total Dec 09	**479.0**	**932.4**	**2,268.3**	**611.4**	**1,538.3**	**933.9**	**12.1**	**63.6**	**6,839.1**
PLASMA PT BMS										
Corporate										
	Land cover	**December 31, 2009**								
		SC	OS	AF	YS	B	BL	WB	OP	**Total Nov 07**
December 1, 2007	SC	-	-	-	-	-	-	-	-	-
	OS	-	-	-	-	-	-	-	-	-
	AF	-	-	-	-	-	-	-	-	-
	YS	-	-	-	-	-	-	-	-	-
	B	-	-	-	-	-	-	-	-	-
	BL	-	-	-	-	-	-	-	-	-
	WB	-	-	-	-	-	-	-	-	-
	Total Dec 09	-	-	-	-	-	-	-	-	-
Non-Corporate										
	Land cover	**December 31, 2009**								
		SC	OS	AF	YS	B	BL	WB	OP	**Total Nov 07**
December 1, 2007	SC	74.3	77.6	-	9.6	-	10.8	-	-	**172.4**
	OS	-	64.0	-	-	-	7.6	-	-	**71.7**
	AF	-	-	1,324.8	-	-	80.5	-	-	**1,405.3**
	YS	-	-	-	51.5	-	5.0	-	-	**56.5**
	B	-	-	-	177.5	154.4	82.4	-	-	**414.4**
	BL	-	-	-	-	72.4	90.3	-	-	**162.7**
	WB	-	-	-	-	-	-	-	-	**-**
	Total Dec 09	**74.3**	**141.6**	**1,324.8**	**238.7**	**226.9**	**276.8**	**-**	**-**	**2,283.0**

Note:

SC: Secondary Forest; OS: Old Shrub; AF: Agroforest; YS: Young Shrub; B: Bush; BL: Bare Land; WB: Water Body; OP: Oil Palm

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

INTI PT BMS										
Corporate										
	Land cover	**February 2010**								
		SC	OS	AF	YS	B	BL	WB	OP	**Total Jan 10**
January 1, 2010	SC	-	-	-	-	-	-	-	-	-
	OS	-	-	-	-	-	-	-	-	-
	AF	-	-	-	-	-	-	-	-	-
	YS	-	-	-	-	-	-	-	-	-
	B	-	-	-	-	-	-	-	-	-
	BL	-	-	-	-	-	-	-	-	-
	WB	-	-	-	-	-	-	-	-	-
	OP	-	-	-	-	-	-	-	-	-
	Total Feb 10	-	-	-	-	-	-	-	-	-
Non-Corporate										
	Land cover	**February 2010**								
		SC	OS	AF	YS	B	BL	WB	OP	**Total Jan 10**
January 1, 2010	SC	435.9	-	-	35.9	5.2	2.1	-	-	**479.0**
	OS	-	883.2	-	4.2	38.4	6.7	-	-	**932.4**
	AF	-	-	2,214.9	-	35.6	17.7	-	-	**2,268.3**
	YS	-	-	-	604.5	1.3	5.6	-	-	**611.4**
	B	-	-	-	11.5	1,519.9	6.8	-	-	**1,538.3**
	BL	-	-	-	-	129.0	805.0	-	-	**933.9**
	WB	-	-	-	-	2.5	3.7	6.0		**12.1**
	OP	-	-	-	-	-	-	-	63.6	**63.6**
	Total Feb 10	**435.9**	**883.2**	**2,214.9**	**656.1**	**1,731.8**	**847.6**	**6.0**	**63.6**	**6,839.1**
PLASMA PT BMS										
Corporate										
	Land cover	**February 2010**								
		SC	OS	AF	YS	B	BL	WB	OP	**Total Jan 10**
January 1, 2010	SC	-	-	-	-	-	-	-	-	-
	OS	-	-	-	-	-	-	-	-	-
	AF	-	-	-	-	-	-	-	-	-
	YS	-	-	-	-	-	-	-	-	-
	B	-	-	-	-	-	-	-	-	-
	BL	-	-	-	-	-	-	-	-	-
	WB	-	-	-	-	-	-	-	-	-
	OP	-	-	-	-	-	-	-	-	-
	Total Feb 10	-	-	-	-	-	-	-	-	-
Non-Corporate										
	Land cover	**February 2010**								
		SC	OS	AF	YS	B	BL	WB	OP	**Total Jan 10**
January 1, 2010	SC	74.3	-	-	-	-	-	-	-	**74.3**
	OS	-	138.4	-	3.2	-	-	-	-	**141.6**
	AF	-	-	1,323.2	-	-	1.6	-	-	**1,324.8**
	YS	-	-	-	238.7	-	-	-	-	**238.7**
	B	-	-	-	-	226.9	-	-	-	**226.9**
	BL	-	-	-	-	47.7	229.1	-	-	**276.8**
	WB	-	-	-	-	-	-	-	-	-
	OP	-	-	-	-	-	-	-	-	-
	Total Feb 10	**74.3**	**138.4**	**1,323.2**	**241.9**	**274.5**	**230.7**	**-**	**-**	**2,283.0**

Note:

SC: Secondary Forest; OS: Old Shrub; AF: Agroforest; YS: Young Shrub; B: Bush; BL: Bare Land; WB: Water Body; OP: Oil Palm

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

INTI PT BMS										
Corporate										
	Land cover	**May 9, 2014**								
		SC	OS	AF	YS	B	BL	WB	OP	**Total Feb 10**
February 2010	SC	-	-	-	-	-	-	-	137.4	**137.4**
	OS	-	-	-	-	-	-	-	108.6	**108.6**
	AF	-	-	-	-	-	-	-	258.7	**258.7**
	YS	-	-	-	-	-	-	-	107.7	**107.7**
	B	-	-	-	-	-	-	-	187.4	**187.4**
	BL	**-**	**-**	**-**	**-**	**-**	**-**	**-**	84.8	**84.8**
	WB	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
	OP	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
	Total May 14	-	-	-	-	-	-	-	**884.7**	**884.7**
Non-Corporate										
	Land cover	**May 9, 2014**								
		SC	OS	AF	YS	B	BL	WB	OP	**Total Feb 10**
February 2010	SC	298.4	-	-	-	-	-	-	-	**298.4**
	OS	-	765.6	-	-	-	8.9	-	-	**774.5**
	AF	-	-	1,933.0	-	-	23.3	-	-	**1,956.3**
	YS	-	-	-	543.2	-	5.2	-	-	**548.5**
	B	-	-	-	92.8	1,415.8	35.7	-	-	**1,544.4**
	BL	-	-	-	-	727.5	35.3	-	-	**762.7**
	WB	-	-	-	-	-	-	6.0	-	**6.0**
	OP	-	-	-	-	-	-	-	63.6	**63.6**
	Total May 14	**298.4**	**765.6**	**1,933.0**	**636.1**	**2,143.3**	**108.4**	**6.0**	**63.6**	**5,954.4**
PLASMA PT BMS										
Corporate										
	Land cover	**May 9, 2014**								
		SC	OS	AF	YS	B	BL	WB	OP	**Total Feb 10**
February 2010	SC	-	-	-	-	-	-	-	40.7	**40.7**
	OS	-	-	-	-	-	-	-	37.4	**37.4**
	AF	-	-	-	-	-	-	-	111.3	**111.3**
	YS	-	-	-	-	-	-	-	62.5	**62.5**
	B	-	-	-	-	-	-	-	38.9	**38.9**
	BL	**-**	**-**	**-**	**-**	**-**	**-**	**-**	4.5	**4.5**
	WB	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
	OP	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
	Total May 14	-	-	-	-	-	-	-	**295.3**	**295.3**
Non-Corporate										
	Land cover	**May 9, 2014**								
		SC	OS	AF	YS	B	BL	WB	OP	**Total Feb 10**
February 2010	SC	27.5	-	-	-	-	6.1	-	-	**33.6**
	OS	-	101.0	-	-	-	-	-	-	**101.0**
	AF	-	-	1,211.5	-	-	0.4	-	-	**1,211.9**
	YS	-	-	-	179.4	-	-	-	-	**179.4**
	B	-	-	-	4.9	230.7	0.1	-	-	**235.7**
	BL	-	-	-	-	224.7	1.5	-	-	**226.2**
	WB	-	-	-	-	-	-	-	-	**-**
	OP	-	-	-	-	-	-	-	-	**-**
	Total May 14	**27.5**	**101.0**	**1,211.5**	**184.3**	**455.4**	**8.1**	**-**	**-**	**1,987.8**

Note:

SC: Secondary Forest; OS: Old Shrub; AF: Agroforest; YS: Young Shrub; B: Bush; BL: Bare Land; WB: Water Body; OP: Oil Palm

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

INTI PT BMS										
Corporate										
	Land cover	**December 2, 2014**								
		SC	OS	AF	YS	B	BL	WB	OP	**Total May 14**
May 10, 2014	SC	-	-	-	-	-	-	-	27.0	**27.0**
	OS	-	-	-	-	-	-	-	1.9	**1.9**
	AF	-	-	-	-	-	-	-	17.7	**17.7**
	YS	-	-	-	-	-	-	-	1.6	**1.6**
	B	-	-	-	-	-	-	-	9.8	**9.8**
	BL	-	-	-	-	-	-	-	6.5	**6.5**
	WB	-	-	-	-	-	-	-	-	**-**
	OP	-	-	-	-	-	-	-	884.7	**884.7**
	Total Dec 14	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**949.2**	**949.2**
Non-Corporate										
	Land cover	**December 2, 2014**								
		SC	OS	AF	YS	B	BL	WB	OP	**Total May 14**
May 10, 2014	SC	264.3	-	-	-	-	7.2	-	-	**271.5**
	OS	-	727.3	-	-	-	11.0	-	25.4	**763.7**
	AF	-	-	1,780.5	-	-	93.7	-	41.2	**1,915.3**
	YS	-	-	-	472.6	-	9.4	-	152.5	**634.5**
	B	-	-	-	-	1,978.6	114.4	-	40.5	**2,133.5**
	BL	-	-	-	-	-	88.4	-	13.5	**101.9**
	WB	-	-	-	-	-	-	6.0	-	**6.0**
	OP	-	-	-	-	-	-	-	63.6	**63.6**
	Total Dec 14	**264.3**	**727.3**	**1,780.5**	**472.6**	**1,978.6**	**324.0**	**6.0**	**336.7**	**5,889.9**
PLASMA PT BMS										
Corporate										
	Land cover	**December 2, 2014**								
		SC	OS	AF	YS	B	BL	WB	OP	**Total May 14**
May 10, 2014	SC	-	-	-	-	-	-	-	6.0	**6.0**
	OS	-	-	-	-	-	-	-	25.5	**25.5**
	AF	-	-	-	-	-	-	-	30.3	**30.3**
	YS	-	-	-	-	-	-	-	6.4	**6.4**
	B	-	-	-	-	-	-	-	6.2	**6.2**
	BL	-	-	-	-	-	-	-	0.4	**0.4**
	WB	-	-	-	-	-	-	-	-	**-**
	OP	-	-	-	-	-	-	-	295.3	**295.3**
	Total Dec 14	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**370.1**	**370.1**
Non-Corporate										
	Land cover	**December 2, 2014**								
		SC	OS	AF	YS	B	BL	WB	OP	**Total May 14**
May 10, 2014	SC	21.3	-	-	-	-	0.2	-	-	**21.5**
	OS	-	72.2	-	-	-	3.2	-	0.1	**75.5**
	AF	-	-	1,123.5	-	-	53.0	-	4.7	**1,181.2**
	YS	-	-	-	156.3	-	14.8	-	6.8	**177.9**
	B	-	-	-	-	435.8	6.4	-	7.0	**449.2**
	BL	-	-	-	-	-	7.6	-	-	**7.6**
	WB	-	-	-	-	-	-	-	-	**-**
	OP	-	-	-	-	-	-	-	-	**-**
	Total Dec 14	**21.3**	**72.2**	**1,123.5**	**156.3**	**435.8**	**85.2**	**-**	**18.7**	**1,912.9**

Note:

SC: Secondary Forest; OS: Old Shrub; AF: Agroforest; YS: Young Shrub; B: Bush; BL: Bare Land; WB: Water Body; OP: Oil Palm

Table 42. Contingency matrix in period Dec 2014-Oct 2017

INTI PT BMS										
Corporate										
	Land cover	**October 31, 2017**								
		SC	OS	AF	YS	B	BL	WB	OP	**Total Dec 14**
December 3, 2014	SC	-	-	-	-	-	-	-	-	**-**
	OS	-	-	-	-	-	-	-	-	**-**
	AF	-	-	-	-	-	-	-	-	**-**
	YS	-	-	-	-	-	-	-	-	**-**
	B	-	-	-	-	-	-	-	-	**-**
	BL	-	-	-	-	-	-	-	-	**-**
	WB	-	-	-	-	-	-	-	-	**-**
	OP	-	-	-	-	-	-	-	949.2	**949.2**
	Total Oct 17	-	-	-	-	-	-	-	**949.2**	**949.2**
Non-Corporate										
	Land cover	**October 31, 2017**								
		SC	OS	AF	YS	B	BL	WB	OP	**Total Dec 14**
December 3, 2014	SC	20.7	83.6	-	92.8	47.0	20.3	-	-	**264.3**
	OS	-	571.7	-	96.8	44.7	14.1	-	-	**727.3**
	AF	-	-	1,537.7	-	96.3	140.0	-	6.4	**1,780.5**
	YS	-	18.9	-	270.3	150.5	32.9	-	-	**472.6**
	B	-	-	-	1,005.4	803.3	169.9	-	-	**1,978.6**
	BL	-	-	-	140.2	84.5	89.2	10.1	-	**324.0**
	WB	-	-	-	-	-	-	6.0	-	**6.0**
	OP	-	-	-	-	-	-	-	336.7	**336.7**
	Total Oct 17	**20.7**	**674.3**	**1,537.7**	**1,605.4**	**1,226.2**	**466.5**	**16.1**	**343.1**	**5,889.9**
PLASMA PT BMS										
Corporate										
	Land cover	**October 31, 2017**								
		SC	OS	AF	YS	B	BL	WB	OP	**Total Dec 14**
December 3, 2014	SC	-	-	-	-	-	-	-	-	-
	OS	-	-	-	-	-	-	-	-	-
	AF	-	-	-	-	-	-	-	-	-
	YS	-	-	-	-	-	-	-	-	-
	B	-	-	-	-	-	-	-	-	-
	BL	-	-	-	-	-	-	-	-	-
	WB	-	-	-	-	-	-	-	-	-
	OP	-	-	-	-	-	-	-	370.1	**370.1**
	Total Oct 17	-	-	-	-	-	-	-	**370.1**	**370.1**
Non-Corporate										
	Land cover	**October 31, 2017**								
		SC	OS	AF	YS	B	BL	WB	OP	**Total Dec 14**
December 3, 2014	SC	-	1.8	-	7.2	5.8	6.6	-	-	**21.3**
	OS	-	32.6	-	32.4	5.1	2.1	-	-	**72.2**
	AF	-	-	962.5	-	95.3	65.7	-	-	**1,123.5**
	YS	-	4.0	-	71.6	71.5	9.2	-	-	**156.3**
	B	-	-	-	229.9	167.2	38.7	-	-	**435.8**
	BL	-	-	-	44.3	25.3	15.6	-	-	**85.2**
	WB	-	-	-	-	-	-	-	-	**-**
	OP	-	-	-	-	-	-	-	18.7	**18.7**
	Total Oct 17	**-**	**38.3**	**962.5**	**385.3**	**370.2**	**137.9**	**-**	**18.7**	**1,912.9**

Note:

SC: Secondary Forest; OS: Old Shrub; AF: Agroforest; YS: Young Shrub; B: Bush; BL: Bare Land; WB: Water Body; OP: Oil Palm

Table 43. Contingency matrix in period Oct 2017-Dec 2019

INTI PT BMS

Corporate

	Land cover	Dec-19								Total Oct 2017
		Agroforestry	Bare Land	Bush	Oil Palm	Old Shrub	Secondary Forest	Water Body	Young Shrub	
Oct-17	Agroforestry									-
	Bare Land									-
	Bush									-
	Oil Palm				949.2					949.2
	Old Shrub									-
	Secondary Forest									-
	Water Body									-
	Young Shrub									-
	Total Dec 2019	-	-	-	949.2	-	-	-	-	949.2

Non-Corporate

	Land cover	Dec-19								Total Oct 2017
		Agroforestry	Bare Land	Bush	Oil Palm	Old Shrub	Secondary Forest	Water Body	Young Shrub	
Oct-17	Agroforestry	1,381.4	112.9	43.4						1,537.7
	Bare Land		66.2	372.2					28.1	466.5
	Bush		153.7	48.0					1,024.5	1,226.2
	Oil Palm				343.1					343.1
	Old Shrub		12.3			661.9				674.3
	Secondary Forest						20.7			20.7
	Water Body		14.3					1.8		16.1
	Young Shrub		108.7	16.0					1,480.7	1,605.4
	Total Dec 2019	1,381.4	468.1	479.6	343.1	661.9	20.7	1.8	2,533.4	5,889.9

PLASMA PT BMS

Corporate

	Land cover	Dec-19								Total Oct 2017
		Agroforestry	Bare Land	Bush	Oil Palm	Old Shrub	Secondary Forest	Water Body	Young Shrub	
Oct-17	Agroforestry									-
	Bare Land									-
	Bush									-
	Oil Palm				370.1					370.1
	Old Shrub									-
	Young Shrub									-
	Total Dec 2019	-	-	-	370.1	-	-	-	-	370.1

Non-Corporate

	Land cover	Dec-19								Total Oct 2017
		Agroforestry	Bare Land	Bush	Oil Palm	Old Shrub	Secondary Forest	Water Body	Young Shrub	
Oct-17	Agroforestry	937.5	25.0							962.5
	Bare Land		21.6	116.3						137.9
	Bush	1.2	12.0						357.1	370.2
	Oil Palm				18.7					18.7
	Old Shrub		2.0			36.3				38.3
	Young Shrub	3.2	14.4						367.8	385.3
	Total Dec 2019	941.9	74.9	116.3	18.7	36.3	-	-	724.8	1,912.9

Table 44. Summary of land use change in BMS concession

INTI PT BMS								
Land Cover Class	**November 1, 2005**	**November 31, 2007**	**January 1, 2010**	**February 2010**	**May 9, 2014**	**December 2, 2014**	**October 31, 2017**	**December, 2019**
Secondary Forest	736.8	637.1	479.0	435.9	298.4	264.3	20.7	20.7
Old Shrub	1,211.3	1,039.5	932.4	883.2	765.6	727.3	674.3	661.9
Agroforest	3,059.3	2,816.4	2,268.3	2,214.9	1,933.0	1,780.5	1,537.7	1,381.4
Young Shrub	526.3	373.9	611.4	656.1	636.1	472.6	1,605.4	2,533.4
Bush	1,025.6	1,166.9	1,538.3	1,731.8	2,143.3	1,978.6	1,226.2	479.6
Bare Land	273.8	799.4	933.9	847.6	108.4	324.0	466.5	468.1
Water Body	6.0	6.0	12.1	6.0	6.0	6.0	16.1	1.8
Oil Palm	-	-	63.6	63.6	948.3	1,285.9	1,292.3	1,292.3
Total (i)	**6,839.1**	**6,839.1**	**6,839.1**	**6,839.1**	**6,839.1**	**6,839.1**	**6,839.1**	**6,839.1**
PLASMA PT BMS								
Land Cover Class	**November 1, 2005**	**November 31, 2007**	**January 1, 2010**	**February 2010**	**May 9, 2014**	**December 2, 2014**	**October 31, 2017**	**December, 2019**
Secondary Forest	236.1	172.4	74.3	74.3	27.5	21.3	-	-
Old Shrub	82.0	71.7	141.6	138.4	101.0	72.2	38.3	36.3
Agroforest	1,459.9	1,405.3	1,324.8	1,323.2	1,211.5	1,123.5	962.5	941.9
Young Shrub	32.0	56.5	238.7	241.9	184.3	156.3	385.3	724.8
Bush	408.1	414.4	226.9	274.5	455.4	435.8	370.2	116.3
Bare Land	64.9	162.7	276.8	230.7	8.1	85.2	137.9	74.9
Water Body	-	-	-	-	-	-	-	-
Oil Palm	-	-	-	-	295.3	388.8	388.8	388.8
Total (ii)	**2,283.0**	**2,283.0**	**2,283.0**	**2,283.0**	**2,283.0**	**2,283.0**	**2,283.0**	**2,283.0**
Total (i+ii)	**9,122.1**	**9,122.1**	**9,122.1**	**9,122.1**	**9,122.1**	**9,122.1**	**9,122.1**	**9,122.1**

3.3.2. Remediation liability

In accordance with areas prohibited for plantation development, LUCA found that there are 41.7 ha of plantation development in riparian areas. Those are categorized as areas requiring remediation.

Table 45. List of riparians requiring remediation

Riparian	Liability (ha)
Bekayak River	3.8
Engkaku River	7.8
Ensinau River	3.9
Jihing River	1.5
Kediu River	1.5
Petobang River	0.3
Rantik Jeronih River	4.8
Rantik River	1.2
Selalang River	17.0
Total	**41.7**

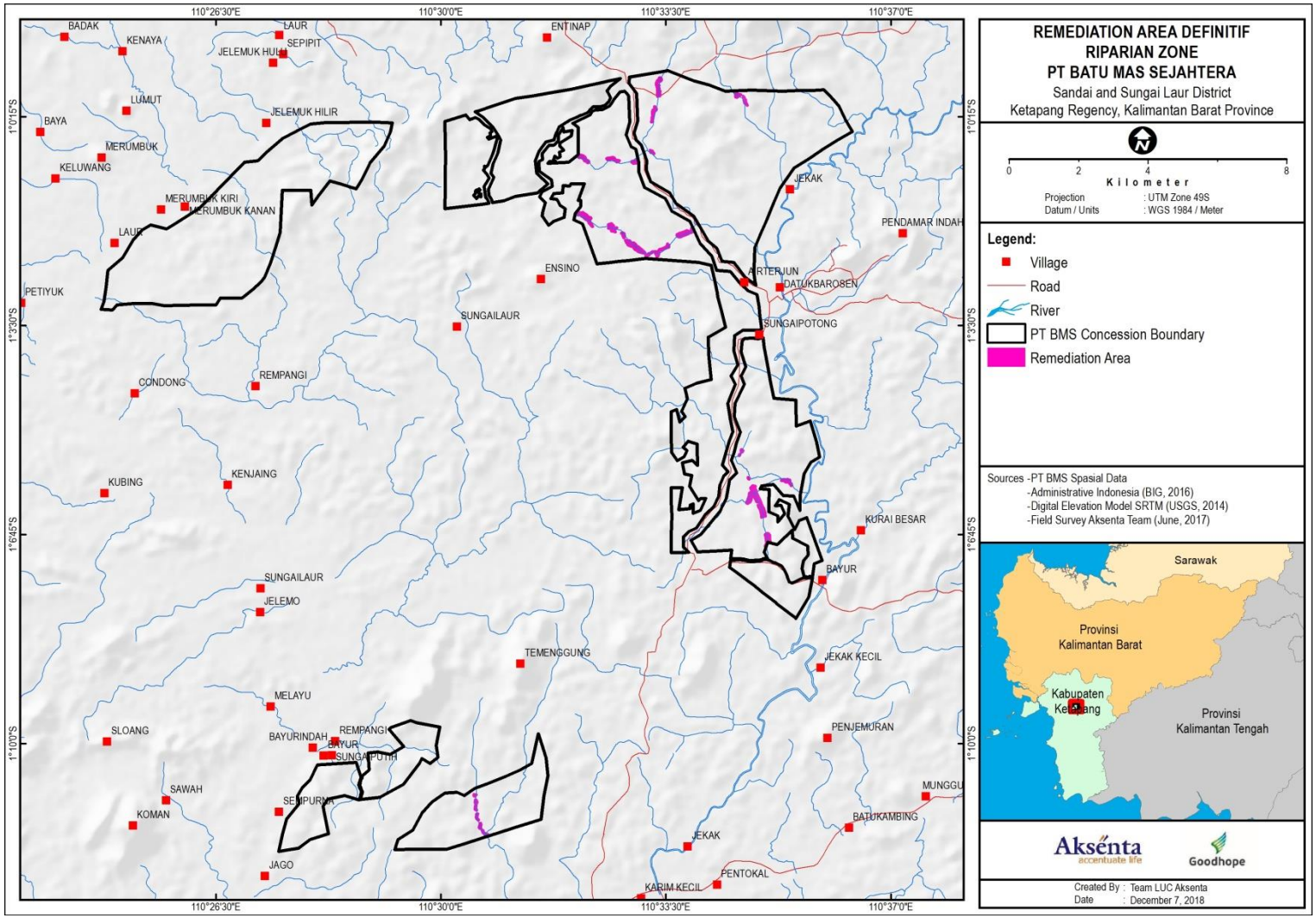


Figure 35. Areas requiring environmental remediation in BMS

3.4. Carbon Stock and GHG Assessment

3.4.1. Land cover carbon stock

Assessment of land cover carbon stock indentified 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[12] with 57.3 tonC/ha. Table below presents biomass carbon contents in each land cover class in BMS area.

Table 46. Land cover carbon stock in BMS area

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	0.0
Young regenerating forest/YRF (hutan muda)*	47.3	1.8	14.3	63.4	12.4
Scrub/MAFL (semak belukar)*	9.8	0.4	3.0	13.2	595.0
Agroforest/MAFH (kebun campuran tiggi)*	42.8	1.6	12.9	57.3	1,142.5
Seasonal agricultural crop (pertanian musiman)**				8.5	137.2
Paddy field (sawah)**				2.0	115.3
Oil palm (kebun sawit)**				20.9	1,283.8
Other company's oil palm (kebun sawit PT lain)**				9.4	31.4
Community's oil palm (kebun sawit masyarakat)**				9.4	188.2
Cleard land/LCIP (lahan telah dibuka belum ditanam)**				2.5	93.8
Bare land (lahan terbuka)**				2.5	451.7
Infrastructure and facilities (infrastruktur dan fasilitas lain)**				5.0	2.3
Settlement (pemukiman)**				5.0	2.1
Road (jalan)**				-	7.5
Water body (badan air)**				-	6.3
Total					**4,069.5**

(*) Based on carbon stock calculation in HCSA Assessment
(**) Default value
(***) Additional calculation in GHG Assessment

[12] Referred to as "kebun campuran tinggi (MAFH) in the GHG Assessment report"

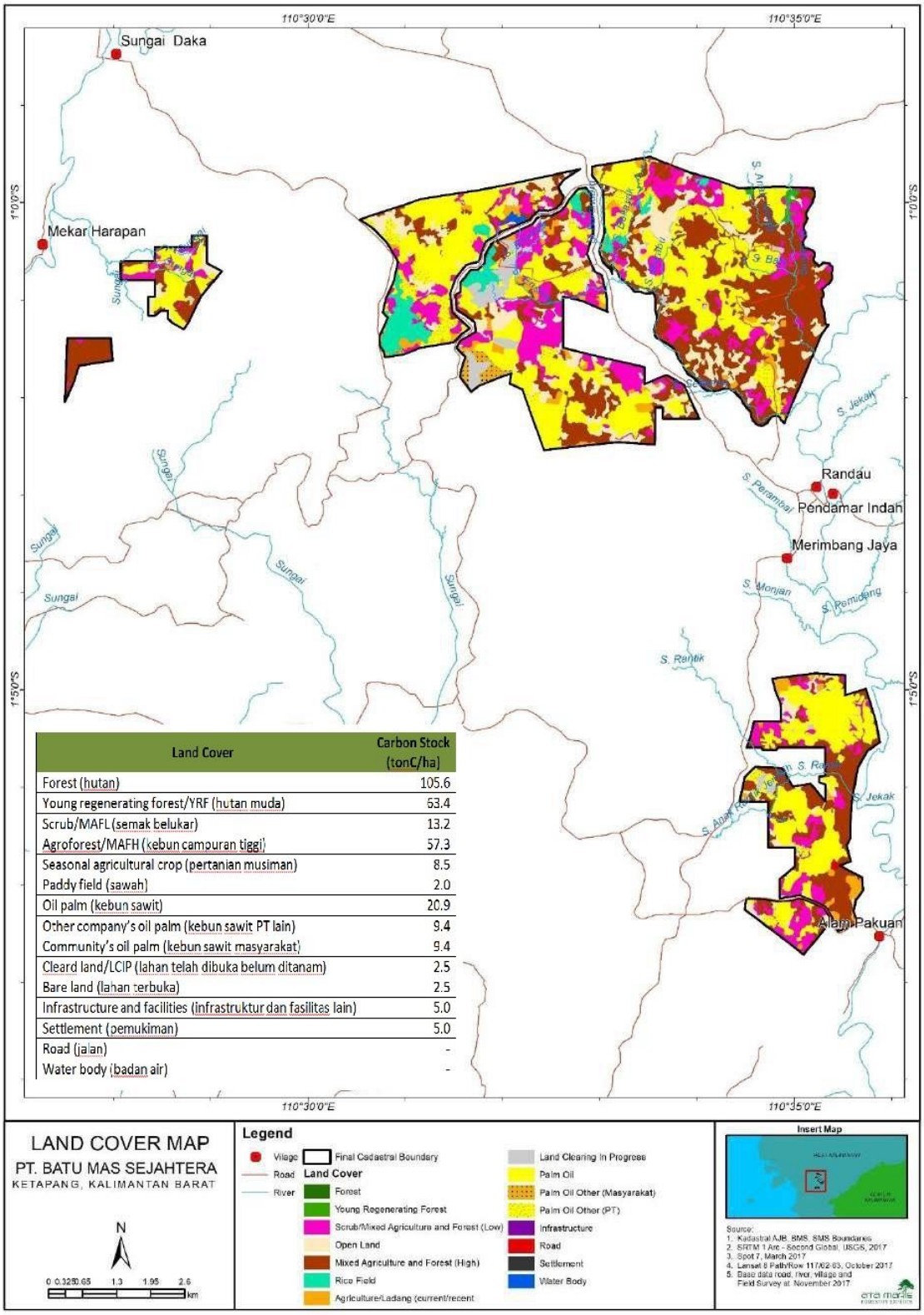


Figure 36. Land cover classification and carbon stock of BMS according to GHG Assessment Report

3.4.2. Peat/organic soil carbon stock

GHG Assessment found that there is no peat/organic soil in BMS 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 within the Non-HCS Strata in the development status derived from HCSA Assessment. Calculation of the emission projection considered only land use area that will potentially be cleared for the new development (see Non-HCS Strata in Table 47) and to set aside several land use areas that will not be converted to oil palm plantation (see categories of company development area, other development area, and potential HCS strata in Table 47). Table below presents details of land cover areas based on the development status in BMS area.

Table 47. Deatails of land cover area based on the development status (BMS)

Development Status and Land Cover			HCV and HCS Overlap				
			Non HCS/HCV	HCV Incl Overlap HCS	Residual HCS (incl overlap HCVMA)	HCVMA only	Total
Developed Area	Company Development Area	Oil Palm	1,276.9	0.5	0.0	6.4	1,283.8
		Land Clearing in Progress	93.1	0.0	0.0	0.6	93.8
		Roads	7.4	0.1	0.0	0.0	7.5
		Infrastructure and Amenities	2.3	0.0	0.0	0.0	2.3
		Sub Total	**1,379.6**	**0.7**	**0.0**	**7.1**	**1,387.4**
	Other Development	Oil Palm Other Company	31.4	0.0	0.0	0.0	31.4
		Settlements	2.1	0.0	0.0	0.0	2.1
		Sub Total	**33.4**	**0.0**	**0.0**	**0.0**	**33.4**
	Sub Total Developed Area		**1,413.0**	**0.7**	**0.0**	**7.1**	**1,420.8**
Undeveloped Area	Potential HCS Strata:	Forest	0.0	0.0	0.0	0.0	0.0
		YRF	0.0	0.4	12.0	0.0	12.4
		Sub Total	**0.0**	**0.4**	**12.0**	**0.0**	**12.4**
	Non HCS Strata:	Scrub	587.7	7.3	0.0	0.0	595.0
		Mixed Agriculture and Forest (High)	1,054.1	88.1	0.0	0.3	1,142.5
		Oil Palm Smallholder	186.5	1.7	0.0	0.0	188.2
		Smallholder Agriculture (current/recent)	133.2	3.9	0.0	0.0	137.2
		Open Land	445.4	6.3	0.0	0.0	451.7
		Rice Paddy (sawah)	115.2	0.2	0.0	0.0	115.3
		Water Body	0.0	6.3	0.0	0.0	6.3
		Sub Total	**2,522.1**	**113.8**	**0.0**	**0.3**	**2,636.3**
	Sub Total Undeveloped Area		**2,522.1**	**114.2**	**12.0**	**0.3**	**2,648.6**
Total BMS			**3,935.2**	**114.9**	**12.0**	**7.4**	**4,069.4**

The first scenario assigns all of the potential land use area (in the non HCS Strata category in Table 47) to be converted for new development, whereas the second, third, and four consider particular areas for conservation. Table and figures below describe differentiation of each new development scenario for BMS.

Table 48. Details of new development scenarios for BMS

Scenario	Description							
1	All unplanted area for new development							
2	Set aside HCV area with forest land cover from new development plan							
3	Set aside all HCV area from new development plan							
4	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	-	0.0**	-	0.4**	-	107.0**	-	118.9**
Young regenerating forest	12.4		12.0		12.0		-	
Scrub	595.0		595.0		587.7		587.7	
Agroforest	1,142.5		1,142.5		1,054.1		1,054.1	
Seasonal agr crop	137.2		137.2		133.2		133.2	
Cleared land	93.8		93.8		93.1		93.1	
Bare land	451.7		451.7		445.4		445.4	
Total	**2,432.5**	**0.0**	**2,432.1**	**0.4**	**2,325.5**	**107.0**	**2,313.6**	**118.9**

(*) Scenario testing is made only to the Non-HCS Strata in development status of BMS (see Table 47)

(**) Covers only conservation land use within the “non HCS Strata” category in Table 47.

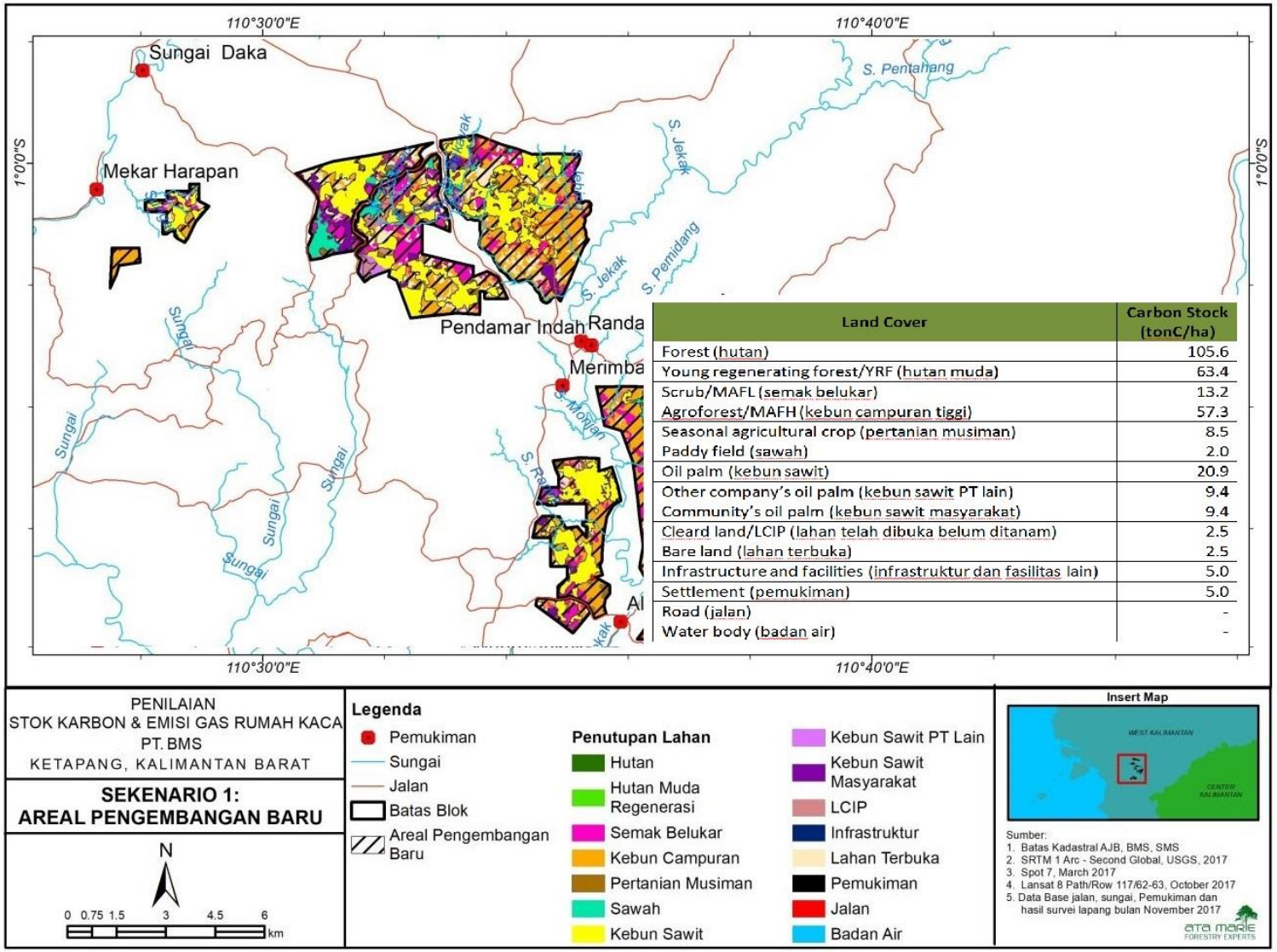


Figure 37. Proposed new development area in scenario 1

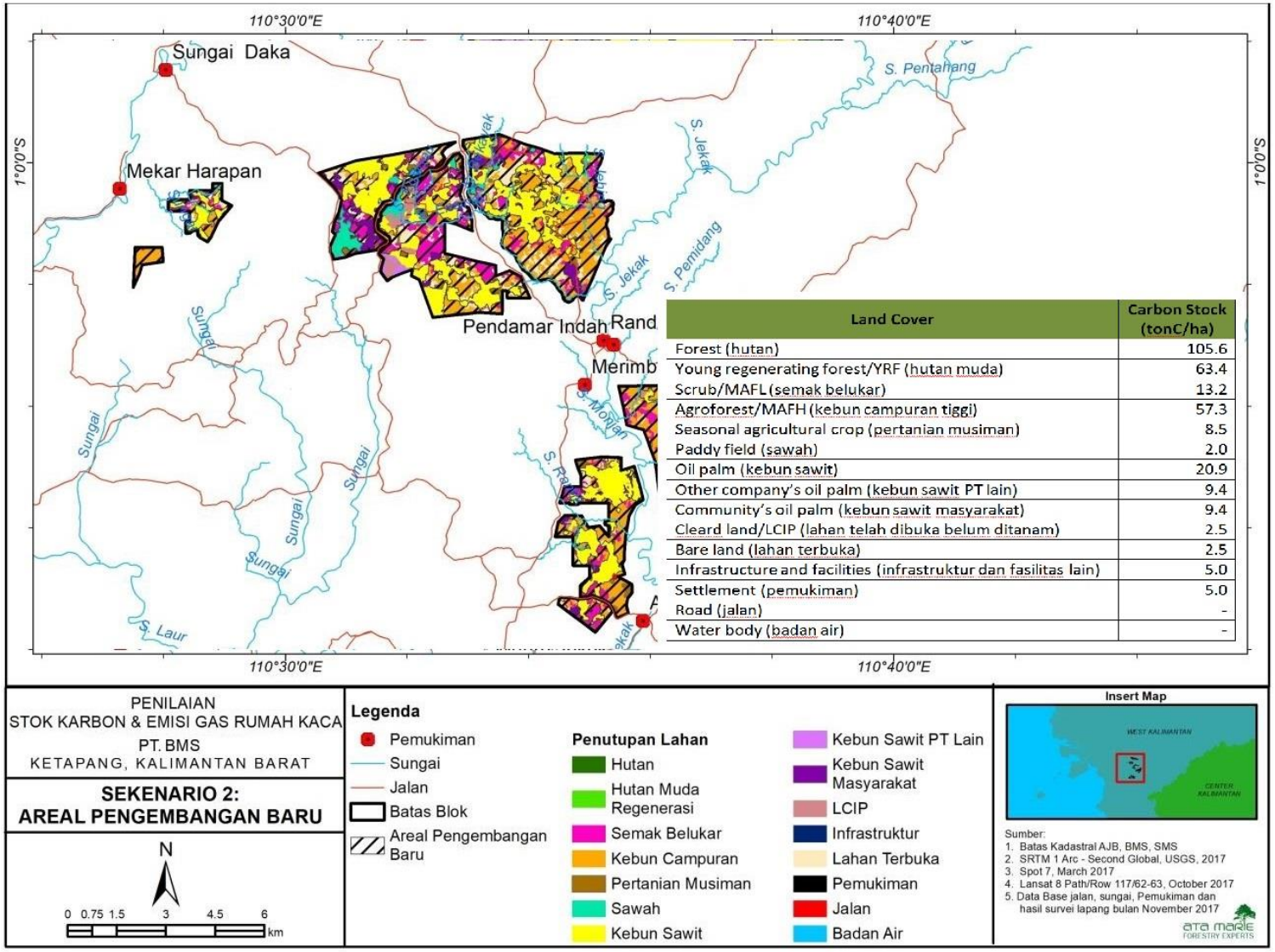
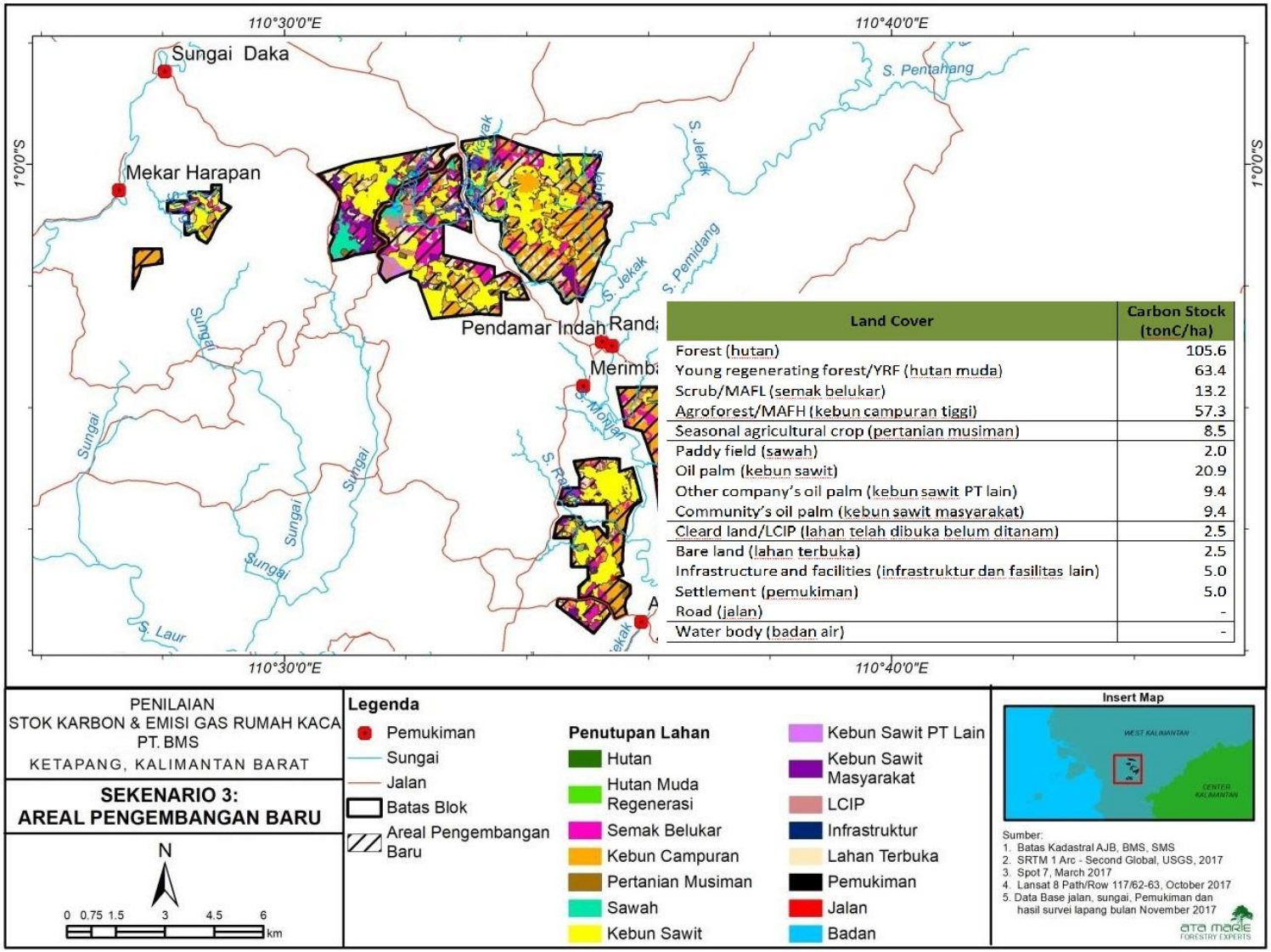


Figure 38. Proposed new development area in scenario 2



Land Cover	Carbon Stock (tonC/ha)
Forest (hutan)	105.6
Young regenerating forest/YRF (hutan muda)	63.4
Scrub/MAFL (semak belukar)	13.2
Agroforest/MAFH (kebun campuran tiggi)	57.3
Seasonal agricultural crop (pertanian musiman)	8.5
Paddy field (sawah)	2.0
Oil palm (kebun sawit)	20.9
Other company's oil palm (kebun sawit PT lain)	9.4
Community's oil palm (kebun sawit masyarakat)	9.4
Cleard land/LCIP (lahan telah dibuka belum ditanam)	2.5
Bare land (lahan terbuka)	2.5
Infrastructure and facilities (infrastruktur dan fasilitas lain)	5.0
Settlement (pemukiman)	5.0
Road (jalan)	-
Water body (badan air)	-

Figure 39. Proposed new development area in scenario 3

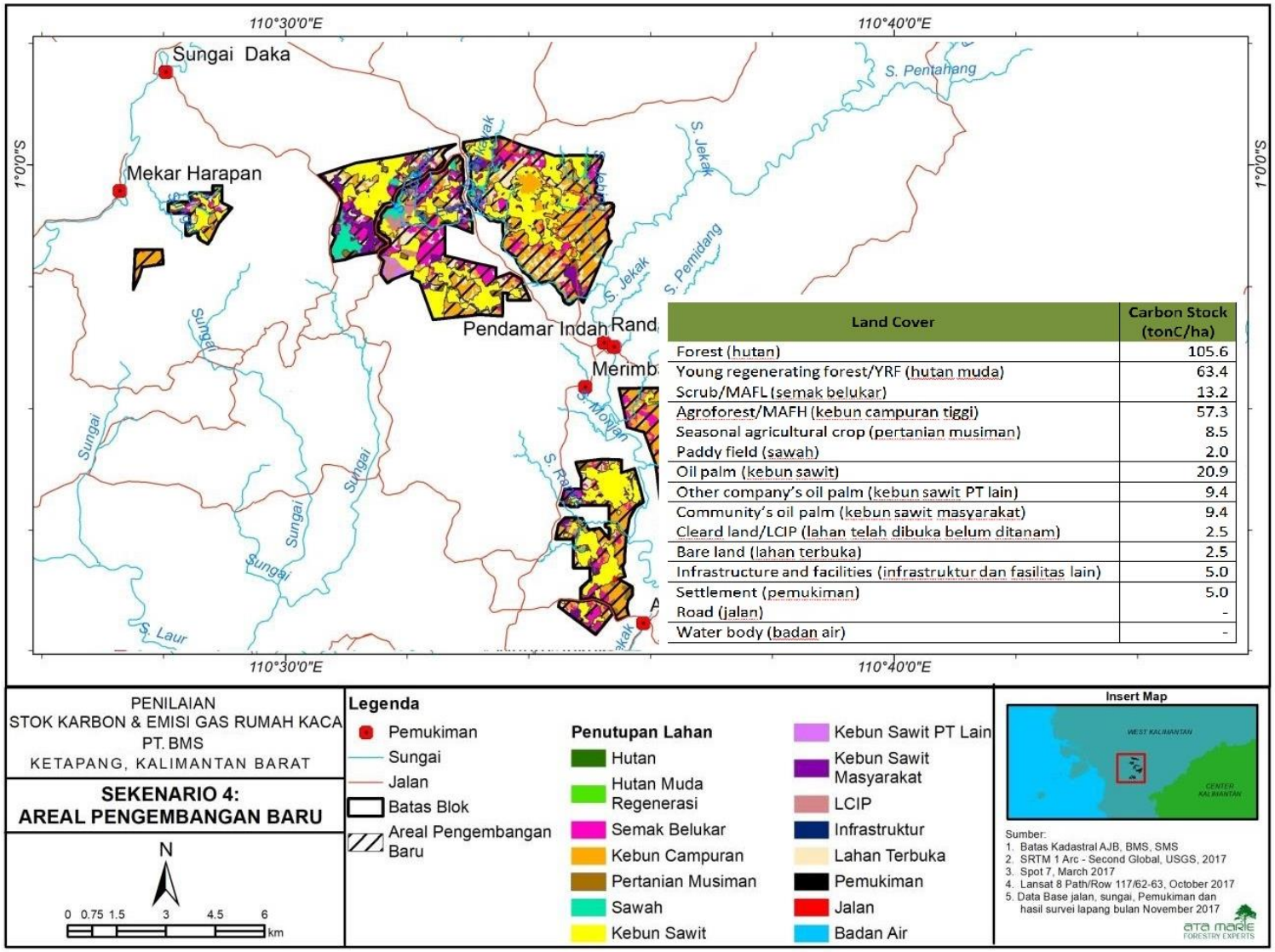


Figure 40. Proposed new development area in scenario 4

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 49. Projection of GHG emission from each new development scenario

No	Source of Emission	Projection of GHG Emission (tonCO2e/ha)			
		Scenario 1	Scenario 2	Scenario 3	Scenario 4
1	Land clearing	5.52	4.90	4.91	4.28
2	Crop sequestration	-9.36	-9.36	-9.36	-9.36
3	Fertilizer	0.32	0.32	0.32	0.32
4	N2O	0.25	0.25	0.25	0.25
5	Field fuel	0.00	0.00	0.00	0.00
6	Peat	0.00	0.00	0.00	0.00
7	Conservation credit	0.00	-0.21	-0.42	0.46
Total		**-3.27**	**-4.10**	**-4.30**	**-4.97**

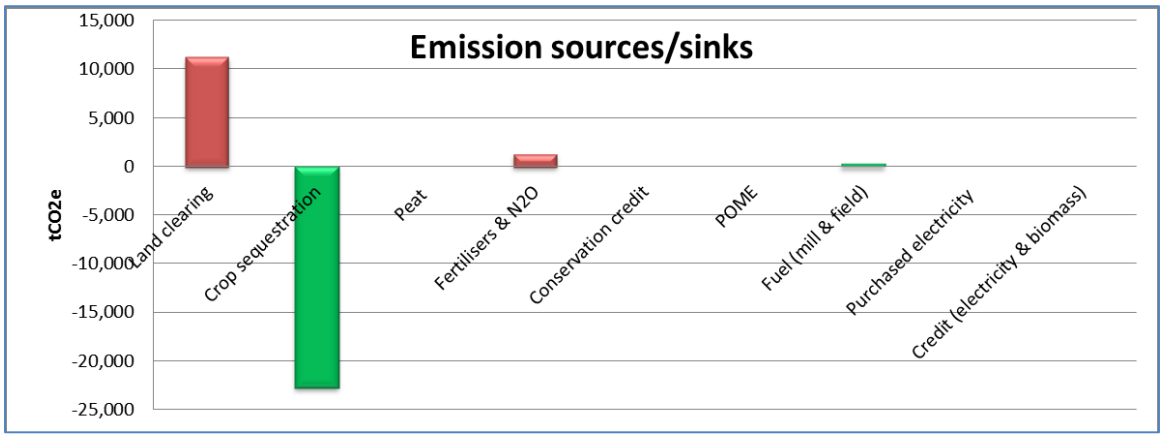


Figure 41. GHG emission amount per source from scenario 1

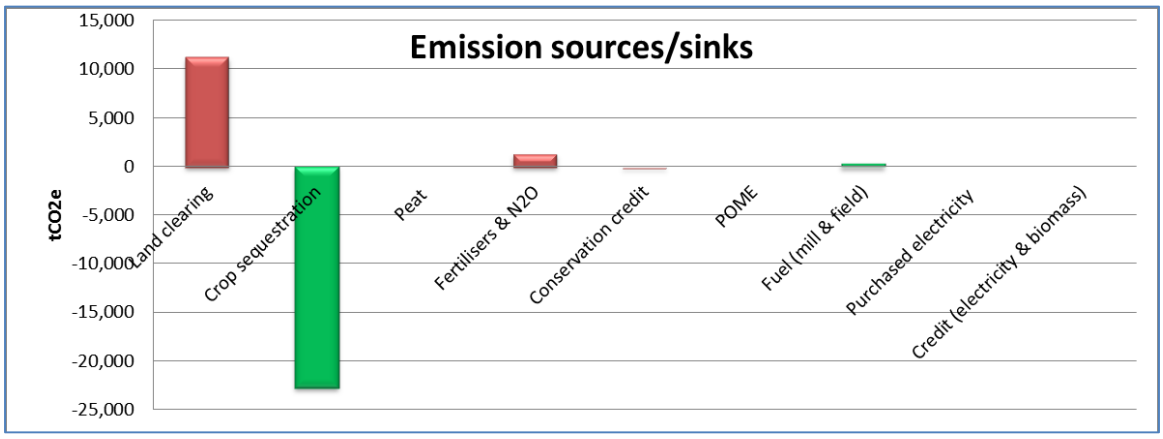


Figure 42. GHG emission amount per source from scenario 2

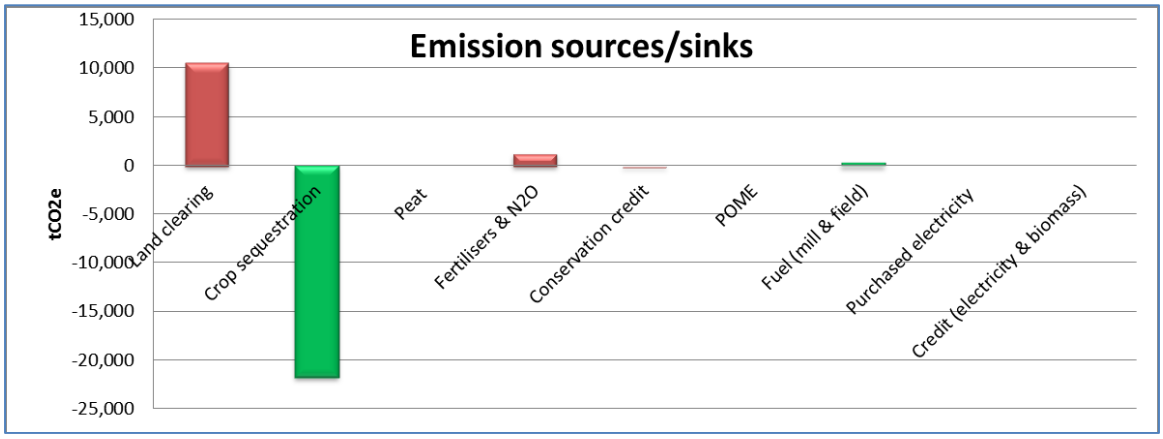


Figure 43. GHG emission amount per source from scenario 3

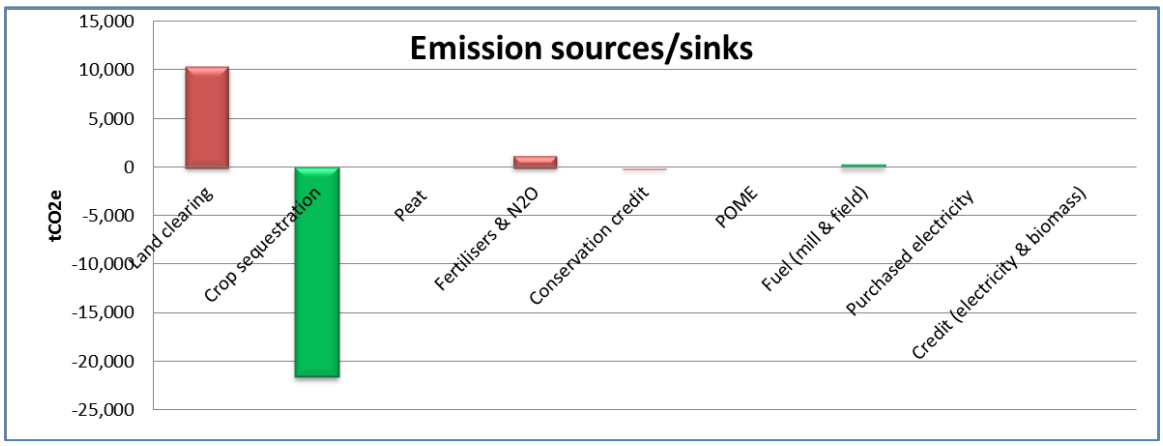


Figure 44. GHG emission amount per source from scenario 4

3.4.4. Scenario selection

The company is agreed to select the scenario 4, which is to set aside all of the HCV and HCS area for conservation. The selected scenario would decrease as much as 1.7 tonCO2e/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.

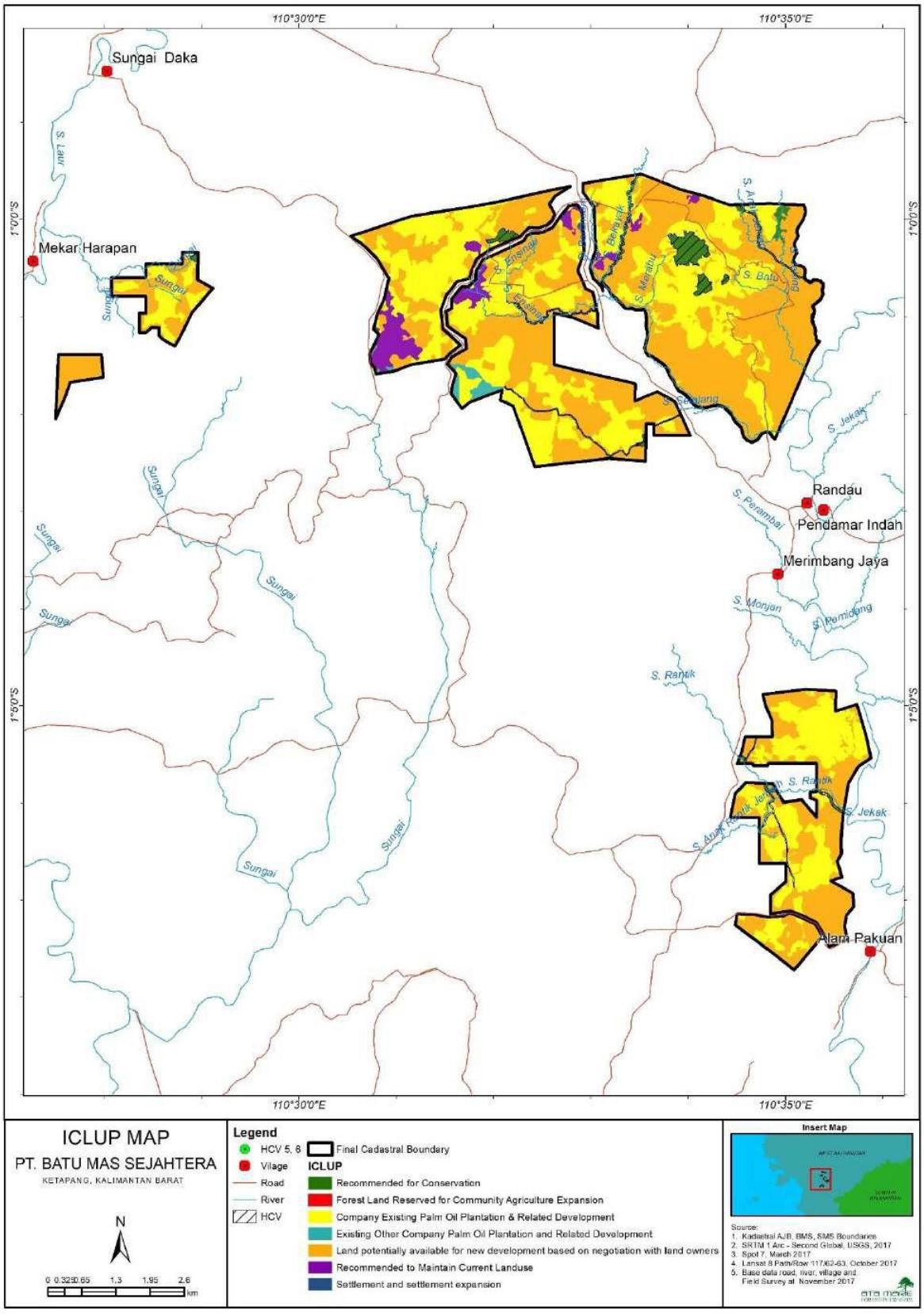
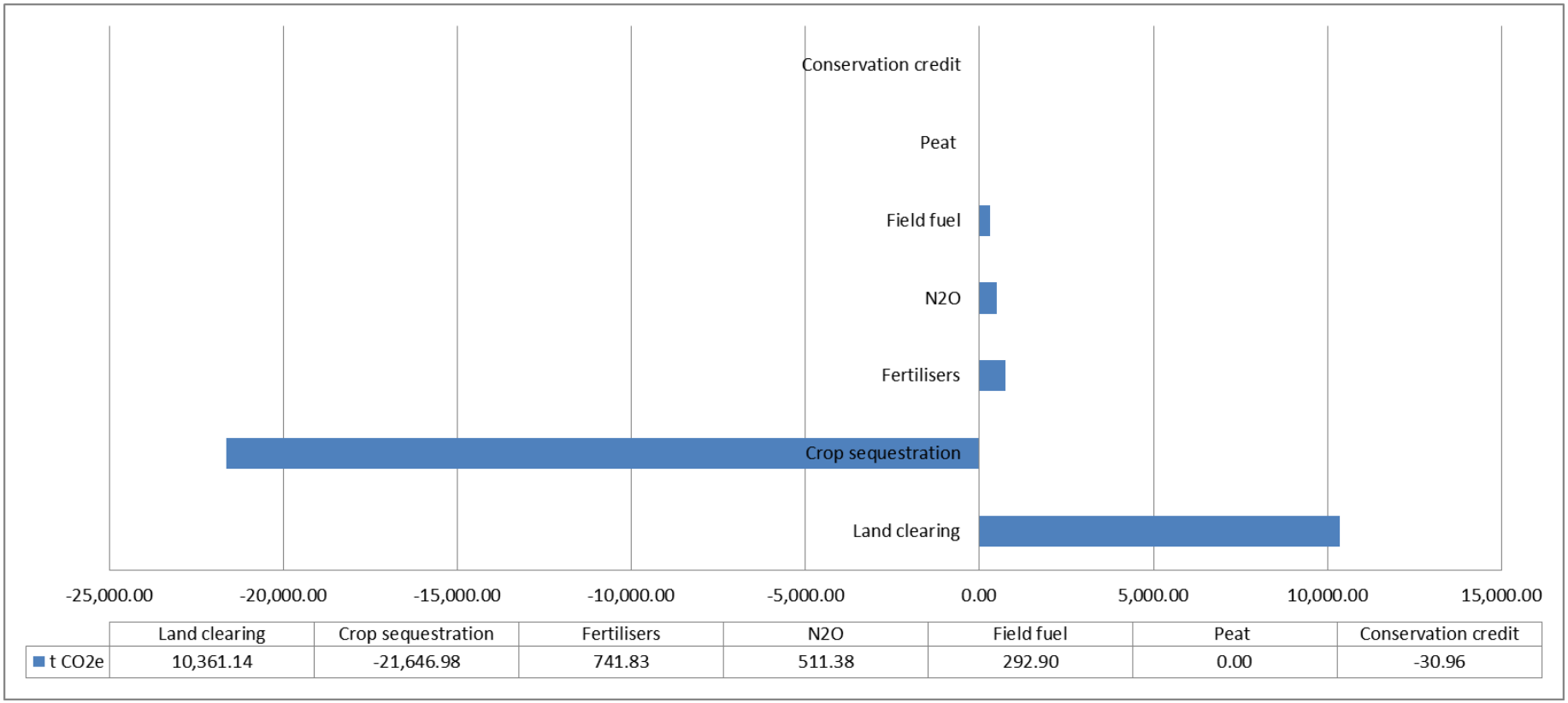


Figure 45. Proposed area for new development in the selected scenario



	Land clearing	Crop sequestration	Fertilisers	N2O	Field fuel	Peat	Conservation credit
t CO2e	10,361.14	-21,646.98	741.83	511.38	292.90	0.00	-30.96

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 grouped compliance to FPIC into five aspects. Findings and recommendations from LINKS team were then used as part of the basis in conducting social requirement of social engagements, participatory mapping, and consultations in 2017 (explained in the following sub-sections). Summary of findings and recommendations from LINKS team are described in the following pointers:

- 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 sufficientny socialized at the time. Therefore, LINKS team recommends the company to provide detail information regarding with environmental asperct and more detailed management plan of plasma plantation.
- Negotiation and land acquisition: according to the interviewees, room for negotioation 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 cmplaints 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 engangement 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 50. Activities and information shared/gathered in initial engagement

Activity	Output/result of engagement

Initial discussion with Kepala Desa or representative:
• Explain the HCS assessment concept and planned activities.
• Request a schedule to carry out initial consultation and FGD with a broad group of community members.
• Set out the target groups requested to attend:
  • Desa leaders - formal (Kepala Desa/Ketua BPD)
  • Cultural leaders – non-formal
  • Community Representatives (youth, women, farmer, etc.)
  • Others from the community willing to attend
	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 51. Activities and information shared/gathered in consultations and FGD

Activity	Output/information gathered

Opening Presentation:
• Introduction
• Meeting agenda & objectives
• Brief explanation of:
  • Goodhope's environmental and social commitments.
  • HCS and HCV concepts and integrated conservation planning.
  • HCS Assessment objectives and role of Ata Marie.
  • Explanation of planned HCS activities.
  • Role of communities in conservation planning.
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.

Open Discussion: • Question and answer session • Seek consent from Attendees to continue with meeting, FGD and subsequent field activities. • Discussion regarding community involvement in HCS activities and of support needed from community leaders and local community.	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.
Focus Group Discussion on the following: • Village history. • Community land use and land cover (using pre-printed maps of land cover and indicative HCV/HCS). • Community land tenure and land management (owners, managers, users). • Food and water security and related land requirements. • Settlement expansion.	Information gathered on: • Community land ownership and utilisation systems • Food and water sources and dependence on land for food security • Plans and programs related to future land use • Any existing conservation areas • Potential HCS areas and other potential conservation

Activity	Output/information gathered
• Sacred site identification (confirmation of HCV 6). • Existing or upcoming land or agriculture development programs (primarily government programs). • Initial identification of potential conservation areas. • Identify priority survey targets for participatory mapping activities. land owner identification (focusing on potential HCS areas).	areas identified by communities, including indicative information on their ownership status. Target locations for participatory mapping identified. Berita acara and daftar hadir.
Data collection	Demographic dataset updated and cross checked. • Population. • Education and health facilities. • Socio economic data

3.6.3. Participatory mapping

Participatory mapping were carried out together with the communities. Acitivities 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 52. Activities and information shared/gathered in participatory mapping

Activity	Output

Participatory mapping surveys:
• Ground truthing of draft land cover and land use maps.
• Ground truthing of boundaries of potential HCS conservation areas and identification of affected land owners.
• 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.
• Improved mapping of rivers, streams and springs requiring buffering, with particular focus on clean water supply sources.
• Identification of additional no-go or sensitive land uses requiring additional joint discussion with communities:
  • Productive rubber plantation land
  • Tembawang areas.
  • Adat or other communally owned land areas
  • Land used for collection of forest products (timber and non- timber).
• Identification of settlement area boundaries and land for planned expansion of settlements.
• Sacred site identification (confirmation of HCV 6).
	Land cover and land use dataset ground checked.
	Hydrology and water source data ground checked.
	Boundaries of potential HCS areas ground checked.
	Land owners of potential HCS areas identified and initial consultation held.
	Additional no-go areas and sites important to communities identified in the field.
	Settlement expansion areas identified in the field. Berita acara.

Integration of results into the First Draft ICLUP: Finalisation of Editing of land cover and land use datasets - GIS activity after the first field visit.	Improved Land cover, landuse land ownership and hydrology maps. First draft land use plan produced.

3.6.4. Summary of findings

Land tenure

Land tenure data was collected throughout the engagements with communities. Most of the land in BMS 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 aggrements 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 53. List of communal land areas in BMS 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

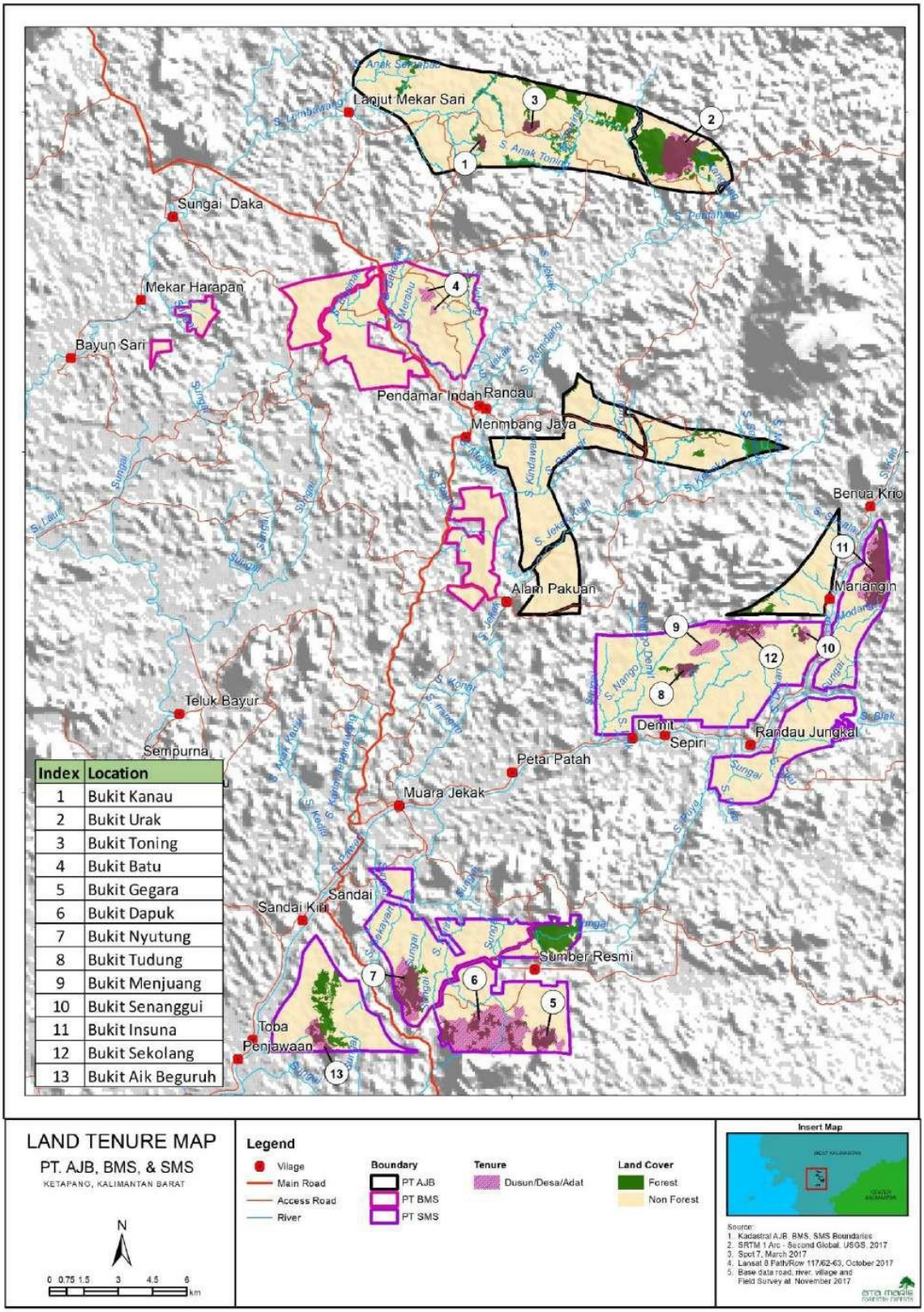


Figure 47. Map of communal lands in BMS and its surroundings

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 subsitence agriculture and buy-sell activity with money.

Traditional dry land paddy cultivation can still be found in BMS and its surroundings as rice is the main source of carbohydrate of the communities. However, recently, availability to develop next paddy cultivation land as required in the cylces 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, BMS and Goodhope are committed to set aside thses 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 acknowledeged 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 communitty.

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 BMS 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 partisipative. 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

BMS 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. BMS 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 expcted 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 labour (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 BMS and the other companies for the income of village.

Preception 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 BMS 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 BMS commits to carry out management and monitoring activities in accordance with the Goodhope Group's Sustainability Policy and RSPO Principles and Criteria. Sustainability team of the company and Goodhope will be responsible in the development of the management plans and its implementation. Below is the organizational structure of sustainability team of BMS and Goodhope.

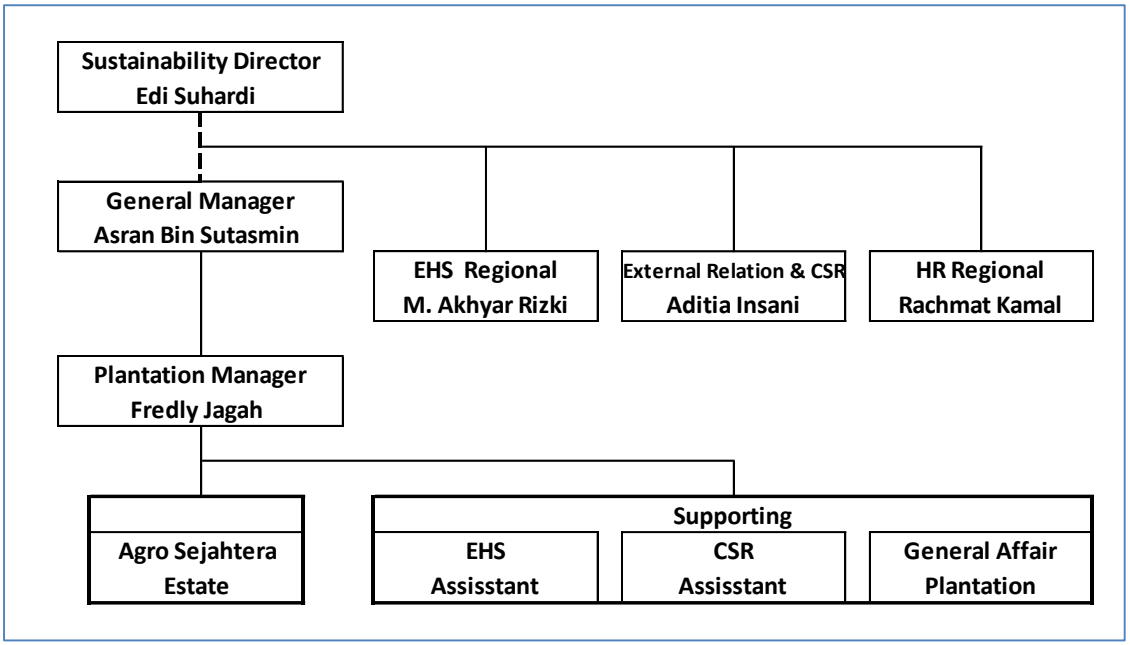


Figure 48. Structural diagram of team responsible for implementation of management and monitoring plans

4.1. Social and environmental impact management and monitoring plans

In order to ensure the effectiveness of the social and environmental impact management and monitoring, the 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 aleviate 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 administraitive 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 enforecement in the local area.
7. To encourage other relevant stakeholders (e.g. government, other concession manager, community) for development of colaborative 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 BMS whereas the management plan for social impact was prepared from social impact assessment of BMS. Details of the environmental impact and social impact management and monitoring plans are provided in the following tables.

Table 54. 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.	- To carry out land clearing gradually (according to the planned phases); - To protect HCV and riparian conservation areas; - To carry out water spraying prior to land physical activities (e.g. land clearing and land preparation) to avoid dust dispersement (especially in dry season)	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.	- Intensive management of potential sources of pollution to rivers to avoid spread to settlement areas. - To protect natural riparian areas to improve ecological function of the riparian as self purification; - To carry out land clearing gradually and prioritizing non-forest area. To plant the cleared land with LCC immediately.	Riparians in the plantation area
5	Land fire	Land clearing and land preparation	Government Regulation No. 18 Year 2004 on agricultural plantation.	- To not use fire in land clearing according to the government regulation; - To establish fire fighter taskforce incuding sufficient equipments and to carry out regular patrol in company's operational area;; - To provide water reservoir that can be used as source of water in fire fighting. - To establish water channels as firebreaks; - To establish monitoring tower at strategic areas to monitor the company's operational area;	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.	- To protect natural riparian as protection area in company's concession; - To plant natural species trees in riparian; - To protect natural plant in and around the company's concession; - To establish sign board of prohibition of cutting tree according to regulation. - To plant LCC of leguminocceae in plantation area.	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.	- To carry out identification of wildlife in company's concession area; - To protect natural area in riparian and protection area in company's concession ans wildlife habitat; - To carry out regular patrol on protection of conservation area and to avoid wildlife hunting; - To establish signboard and socialization on prohibition of wildlife hunting.	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.	- To protect natural area in riparian that has ecological function for aquatic biota; - To establish signboard explaining prohibition of logging in riparian areas; - To protect plant species that has ecological function for fish species.	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	- To delineate and demark boundaries beween operation area and buffer zone; - To establish signboard explaining prohibition of destructive activities in the buffer zone; - To socialize with the community presence of riparian buffer and its protection; - To involve communities in protection of buffer zone and protection area.	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.	- To carry out preliminary detection on pest and disease in plots to avoid spreading of pest and disease. - To develop semi-mechanical and biological approach in prevention and control of pest and disease; - To carry out seed selection to produce high quality plants that are resistant to pest and disease.	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	- To provide opportunities for impacted communities to be able to work according to their qualifications and need of workforce in the company; - To provide information of recruitment transparently; - To maximize receruitment of local workforce; - To participate in developing/improving economic of the local communities through establishment of village organization or environment management division. - To coordinate with village officials in planning and implementation of partnership program with communities.	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.	- Recruitment is carried out transparently and according to procedures; - To implement wage system according to Provincial/Regional Minimum Standard; - To establish and provide assistance for joint venture group; - To develop partnership to improve the local economic.	Villages related with company's concession/communities receiving impacts

Table 55. 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 communitiy 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 communitiy 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 communitiy settlement areas	Every six months
12	Income of the community	Working and business opportunity	Increase of income	Quantitative survey	Impacted communitiy settlement areas	Every six months

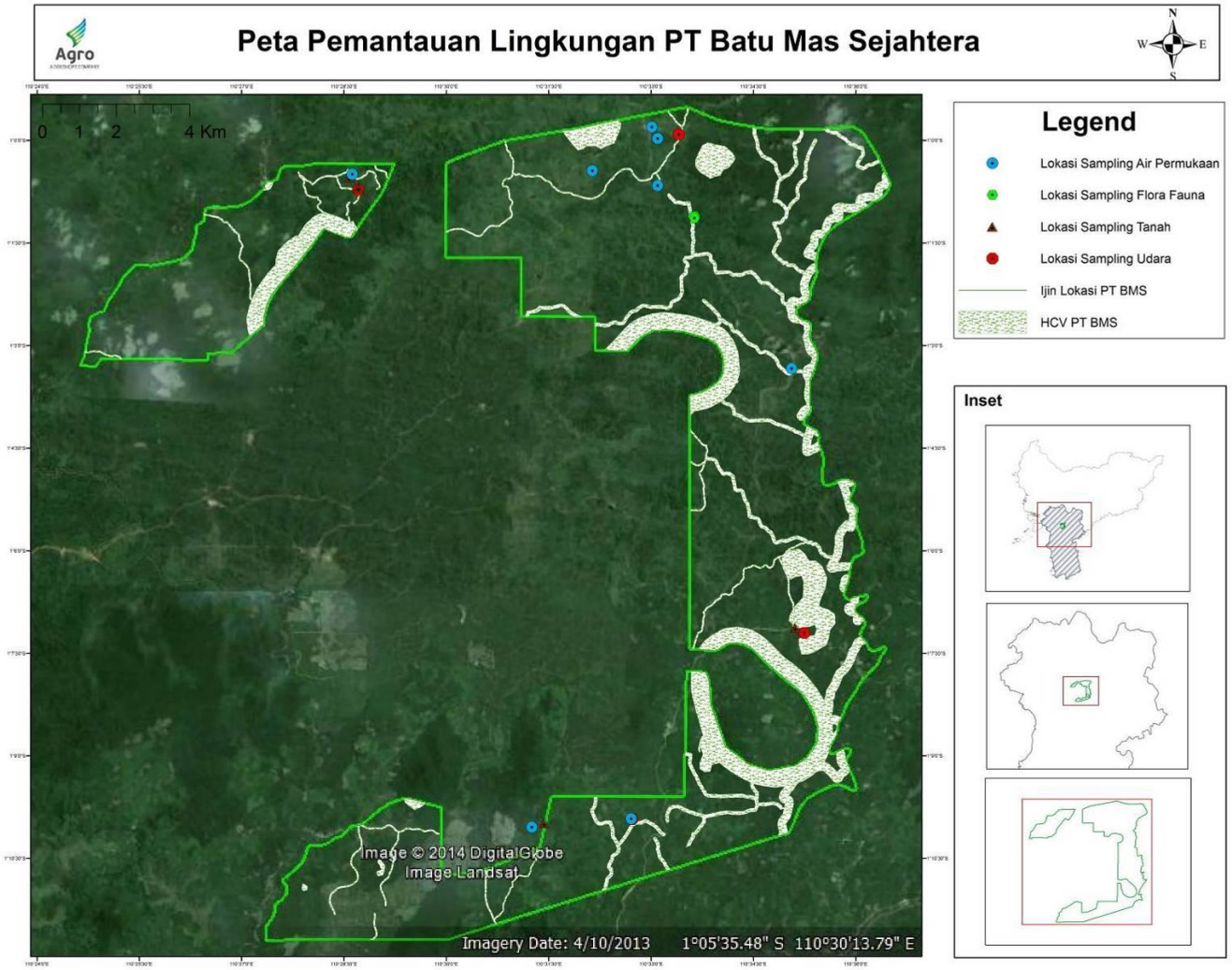


Figure 49. Map of sampling location in environmental management and monitoring of BMS

Table 56. 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 BMS concession and other company's concession; and between BMS concession and community's land	- Initiate discussion to resolve overlapping issue - Provide facilitation/mediation when necessary	Gradually reduced number of land-based conflicts due to overlapping ownership	Continuously	Program/activity based reporting and six months recapitulation reporting
Critical	Boundary of the villages	- Provide facilitation/mediation when necessary	Gradually reduced number of land-based conflicts due to obscurity of village boundary	Continuously	Program/activity based reporting and six months recapitulation reporting
High	Difficulity to get clean water	- CSR program on clean water providence through community development - Preparation/examination of SOP to cover CSR program gevernance on clean water providence and its monitoring and evaluation	Improvement of availability and access to clean water Development of 5-10 artesian well and 1 reservoir per village	Continuously	Program/activity based reporting and six months recapitulation reporting
High	Obscurity of village treasury land	Develop partnership with Satlak to assist and coordination on plantation development in village treasury land	Transparency of development plan for village treasury and its realization There is at least 1 village treasury plantation per village	Continuously	Program/activity based reporting and six months recapitulation reporting
High	Poor road access	- Develop partnership with village officials on maintenance/service of road access - CSR program on road maintenance/service of road access	Improvement and maintenance of road quality	Continuously	Program/activity based reporting and six months recapitulation reporting
Medium	Shifting cultivation farming	- Provide counseling on agriculture farming, plantation, fishery, and livestock - Initiate partnership in development of paddy field	Contribution from company to reduce shifting cultivation issue through partnership in paddy field development	Continuously	Program/activity based reporting and six months recapitulation reporting
Medium	Declining of community agricultural productivity	Improvement of income through plasma plantation	- Plasma plantation is productive - Transparency of development and management plan of plasma plantation	Continuously	Program/activity based reporting and six months recapitulation reporting
Medium	Lack of education	- CSR program on tuituin/scholarship	- Scholarship/tuition CSR program for at least 2-3 community members - Reduction of dropout number	Continuously	Program/activity based reporting and six months recapitulation reporting
Medium	Low of human resource quality (community member and village official)	- Provide/facilitate counceling and assistance to village officials - Community development program to improve human resource quality and independency in business/entrepreneurship (food, furniture, automotife, agriculture, fishery, etc) through partnership with village	3-5 village officials are receiving counseling and assistance	Continuously	Program/activity based reporting and six months recapitulation reporting
Medium	Lack of agricultural counseling	Provide/facilitate counseling on agriculture farming, plantation, fishery, and livestock	Community members are receiving counseling	Continuously	Program/activity based reporting and six

Risk Category	Issues	Management strategy/action plan	Outcome to be monitored	Monitoring implementation	Reporting time plan
					months recapitulation reporting
Medium	Limited financial capital	- Contribute to improvement of cooperative union through partnership - Provide/facilitate support for community business through loan facility on financial capital, seed, fertilizer, etc. - Provide counseling on business management for community - Preparation or examination of SOP to cover governance of communication environment and partnership	- Improvement of business activity of the cooperative union - Loan are used in productive manner - Improvement of community business management	Continuously	Program/activity based reporting and six months recapitulation reporting
Medium	Declining of rubber product selling price	- Provide/facilitate counseling on agriculture farming, plantation, fishery, and livestock - Partnership (outside plasma) with community who are willing to convert plantation crop to oil palm (whenever possible)	- Community members are receiving counseling - When possible, there is partnership (outside plasma) with community who are planting oil palm	Continuously	Program/activity based reporting and six months recapitulation reporting
Medium	Crisis of trust to the management of partnership (plasma) plantation cooperative union	Provide/facilitate training of management and transparency for cooperative union	- Cooperative union is receiving training on management and transparency - Trust to the cooperative union is improved	Continuously	Program/activity based reporting and six months recapitulation reporting
Medium	Oil palm/FFB thievery	- CSR/community development program to improve the economic of community - Socialization of regulation on FFB thievery	- Community is receiving socialization - Number of FFB thievery is reduced - Improvement of community economic through support from CSR program	Continuously	Program/activity based reporting and six months recapitulation reporting

Table 57. 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	Poor managamement of partnership (plasma) plantation	- Improvement of management practices and monitoring involving cooperative union - Preparation or examination of SOP to cover mechanisms of plasma plantation management, partnership with cooperative union, and transparency of plasma plantation management	Community are regularly updated and able to access information of plasma plantation management from the cooperative union	Continuously	Program/activity based reporting and six months recapitulation reporting
Critical	Negative	Land based conflict	- Socialize company's development plan and land acquisition process - To carry out well documented participatory mapping especially for the land to be acquired by company - Preparation or examination of SOP to cover socialization of land acquisition, compensation, complaint and grievance mechanism, conflict resolution, land suitability survey, area demarcation, participatory mapping, and implementation of FPIC	- Community acknowledges the land compensation process and procedures, and the new development plan - Community are giving consent according to FPIC principles - Demonstrable documentation of land acquisition process and its FPIC is available	Continuously	Program/activity based reporting and six months recapitulation reporting
High	Negative	Decreasing of clean water quality	- Preparation or examination of SOP to cover governance of CSR program, CSR monitoring and evaluation, and CSR program on clean water - CSR program on clean water through community development	Company support development of 5-10 artesian well and 1 reservoir in each village	Continuously	Program/activity based reporting and six months recapitulation reporting
High	Negative	Lack of CSR program that orients to human resource improvement	- Preparation of CSR program on development/improvement of human capital - Preparation/examination of SOP to cover governance of CSR program or community development, complaint and grievance, and governance of communication environment	Community are receiving CSR program on community development	Continuously	Program/activity based reporting and six months recapitulation reporting
High	Negative	Communities still withhold consent to the proposed HGU license area of BMS (because new development has been delayed)	To carry out socialization of the proedures should be followed and challenges experienced by the company; and carry out discussion to seek agreement following FPIC principles	- Community is informed about the procedures should be followed and challenges experienced by the company - Discussion to seek agreement according to FPIC pronciples are carried out	Continuously	Program/activity based reporting and six months recapitulation reporting
High	Negative	Perception of difficulity to be recruited as worker in the company	Socialization of working opportunity and the recruitment mechanism, including working	- Community is informed about recruitment of workers, including its	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
			position, required qualification, and recruitment period.	required qualification and the recruitment period - Increase of number of workers from local community		recapitulation reporting
High	Negative	Location of partnership (plasma) plantation is not according to the village administrative area (difficulities in ownership administration)	Socialization on development plan of plasma plantation including realization progress and challenges experienced by company	Community is informed about the new development plan, implementation progress, procedures, and challenges experienced by the company	Continuously	Program/activity based reporting and six months recapitulation reporting
High	Negative	Implementation of CSR/CD is not in accordance with the socialization	- Carry out CSR/CD according to socialization - Preparation and improvement of program-based CSR to gradually supersede proposal-based CSR program - Develop CSR program plan in partisipatory manner with communities and documented in MoU - Provide information about progress of program-based CSR/CD implementation	- CSR/CDprogram is implemented according to CSR - CSR is gradually changing from proposal based into program based - MoU of program-based CSR/CD program is arranged - Community is informed about the progress of the program-based CSR/CD	Continuously	Program/activity based reporting and six months recapitulation reporting
High	Negative	Lack of maintenance/service for road access	Preparation or examination of SOP to cover road maintenance and service in plantation area including plasma plantation area	There is maintenance/service of road in plantation area including plasma plantation area	Continuously	Program/activity based reporting and six months recapitulation reporting
Medium	Positive	Providence of trainings to improve the capacity of cooperative union (koperasi plasma)	Preparation or examination of SOP to cover partnership and assistance for cooperative union and mechanism of plasma plantation management	Regular training for cooperative union is maintained	Continuously	Program/activity based reporting and six months recapitulation reporting
Medium	Positive	Opportunity of having partnership scheme plantation(plasma) as new source of income and asset	- Provide assistance for the cooperative union - Preparation or examination of SOP to cover mechanism of plasma plantation management, partnership, and communication environment	Management of plasma plantation development and productivity is maintained and/or improved	Continuously	Program/activity based reporting and six months recapitulation reporting
Medium	Positive	Establishment of independent land acquisition task force from village (Satlak Desa)	Preparation or examination of SOP on preparation and counseling of function and task of Satlak; and communication environment	- There is at least 1 Satlak Team in each village - Members of Satlak Team are receiving counseling of function, task, and responsibility of Satlak Team	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
Medium	Positive	Social assistance through CSR	- Preparation and improvement of program-based CSR to gradually supersede proposal-based CSR program - Develop CSR program plan in partisipatory manner with communities - Provide information about progress of program-based CSR/CD implementation	- Community member acknowledge the CSR program plan for the village - MoU of program based CSR is available - Documentation of progress of program based CSR implementation is available	Continuously	Program/activity based reporting and six months recapitulation reporting
Medium	Negative	Decreasing of land for traditional farming	- Provide/facilitate counseling on crop farming, plantation, fishery, and livestock - Preparation or examination of SOP to cover complaint and grievance mechanism, and conflict resolution	- Community is receiving counseling on crop farming, plantation, fishery, and livestock - SOP covering complaint and grievance mechanism, and conflict resolution is provided	Continuously	Program/activity based reporting and six months recapitulation reporting
Medium	Negative	Decreasing of forest area	- Provide/facilitate counseling on crop farming, plantation, fishery, and livestock - CSR program on house restoration for poor community member	- Communities are receiving counseling on crop farming, plantation, fishery, and livestock - Use of wood from forest for construction/house of poor community member is decreased by support from CSR program on house restoration for poor community member	Continuously	Program/activity based reporting and six months recapitulation reporting
Medium	Negative	Limited information of working opportunity/recruitment	Socialization of working opportunity and the recruitment mechanism, including working position, required qualification, and recruitment period	Community is informed about recruitment of worker ncluding working position, required qualification, and recruitment period	Continuously	Program/activity based reporting and six months recapitulation reporting
Medium	Negative	Lack of contribution from the village taskforce (satlak)	Provide counseling or facilitation to prepare or examine Satlak SOPs to cover function, task, and responsibilities of Satlak	- Satlak is receiving counseling about function, task, and responsibility of Satlak - SOP of Satlak is available and implemented	Continuously	Program/activity based reporting and six months recapitulation reporting
Medium	Negative	Perception the the company's CSR is not optimal	- Improvement of CSR governance - Develop CSR program plan in partisipatory manner with communities - Provide information about progress of program-based CSR/CD implementation	- Information of CSR program according to MoU and progress of the realization is available for community - Improvement of effects from CSR program to community	Continuously	Program/activity based reporting and six months recapitulation reporting
Medium	Negative	Lack of communication between company and community	- Improovement of capacity for company's representative (Humas) - Improvement of communication including formal and informal manner - Communication environment mechanism	- Community representative (Humas) is receiving counseling/training/capacity improvement	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
				- More intense communication through formal and informal occasions		
Medium	Negative	Response to CSR proposal is under expectation	- Improvement of CSR governance - Develop CSR program plan in partisipatory manner with communities - Provide information about progress of program-based CSR/CD implementation	- Company is more responsive to proposal (shorten the time needed before responding proposal) - Information of CSR program plan and implementation progress are available for community	Continuously	Program/activity based reporting and six months recapitulation reporting
Low	Positive	Availability of alternative to traditional farming as main livelihood	Provide/facilitate counseling on crop farming, plantation, fishery, and livestock	Community is receiving counseling on crop farming, plantation, fishery, and livestock	Continuously	Program/activity based reporting and six months recapitulation reporting
Low	Positive	Availability of working opportunity	- Recruitment of local workers - Contribute to community empowerment through counseling on entrepreneurship/business management	- Improvement of number of local workers recruited - Community is receiving counselings on business management/entrepreneurship	Continuously	Program/activity based reporting and six months recapitulation reporting
Low	Positive	Contribution to increasing income of the communities	Provide CSR program focusing on local economic development	CSR program focusing on local economic development is prepared	Continuously	Program/activity based reporting and six months recapitulation reporting
Low	Positive	Opening of accessibility	- Mechanism of communication environment - Mechanism of complaint and grievance	There is coordination with community about maintenance/service and/or development of plantation road	Continuously	Program/activity based reporting and six months recapitulation reporting

Table 58. 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	- Provide management training for workers cooperative union - Prepare monitoring evaluation form for cooperative union	- Members of workers cooperative union receive trainings - Monitoring and evaluation form is available for workers cooperative union - Implementation of monitoring and evaluataion	Continuously	Program/activity based reporting and six months recapitulation reporting
Poor	Education facilities	- CSR program on tuition/scholarship for worker's family - Development/improvement of education facilities in the area	- CSR program on tuition/scholarship is available for workers family - Eeducational facilities (school, books, etc) are improved	Continuously	Program/activity based reporting and six months recapitulation reporting
Poor	Labour union	- Support/assistance from company to establish labor union - Develop mechanism of internal conflict resolution - Develop mechanism of conflict resolution in industrial relationship	- Labor union is established - Resolution mechanisms of internal conflict and industrial relationship conflict are available	Continuously	Program/activity based reporting and six months recapitulation reporting
Moderate	Recruitment of worker	- Prioritization of recruitment from local community - Preparation/examination of SOP to cover recruitment of worker	- Recruitment is carried out according to SOP - Local community is prioritized to be recruited	Continuously	Program/activity based reporting and six months recapitulation reporting
Moderate	Providence of health facility	- Medical check up for new worker by plantation clininc - Regular medical check up for workers who are interact with chemical by plantation clininc	- All of new workers are going through medical check up in plantation clinic - All of workers interacting with chemicals are going through medical check up regularly in plantation clininc	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	Required equipment and facilities and infrastructure for occupational health and safety are available in appropriate condition	Continuously	Program/activity based reporting and six months recapitulation reporting
Moderate	Use of personal protective equipment	- Provide and maintain the required equipment for workers according to regulation - Monitoring and evaluataion of use of equipment including sanction of violation	- Required protective equipment is provided by company - Required protective equipment is used by workers - Required protective equipment is in appropriate condition	Continuously	Program/activity based reporting and six months recapitulation reporting
Moderate	Health allowance	- Managemeont of plantation clinic according to SOP - Monitoring and evaluation of allowance policy to support health of workers and family	- Workers are receiving appropriate health allowance according to company's policy - Plantation clinic is operating in accordance with the SOP	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
Moderate	Incentives	- Provide appropriate salary according to regional standard or higher - Socialize standard of salary based on years of service - Sosialize calculation mechanism of salary adjustment - Socialize calculation mechanism incentives for overtime, premium/bonus	- Workers receive appropriate salary according to company's policy - Workers acknowledge the calculation mechanism of salary and other incentives	Continuously	Program/activity based reporting and six months recapitulation reporting
Moderate	Housing facilities	- Provide housing appropriate facility - Preparation of SOP on housings and housekeeping - Sociallization and mediation on social jealousy between workers	Worker's houses are appropriate (healthy and security) and managed according to SOP	Continuously	Program/activity based reporting and six months recapitulation reporting
Moderate	Vehicle facilities	- Inventory, monitoring, and evaluation of the operational vehicle provided for worker - Preparation of shuttle vehicle for workers	- Operational vehicle are safe to use - Availability of shuttle vehcle for workers	Continuously	Program/activity based reporting and six months recapitulation reporting
Moderate	Capacity building for workers	- Preparation/examination of SOP to cover training for competency improvement based on working position - Preparation of measurable training program for workers accoriding to working position	Workers receive trainings according to working position and required competenciy/capacity	Continuously	Program/activity based reporting and six months recapitulation reporting
Good	Socialization and implementation of occupational health and safety system management	- Maintain implementation of occupational health and safety system management according to SOP - Regular socialization of occupational health and safety to workers	Occupational health and safty 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	- Maintain condition of the signage - Add/adjust the position of signage when necessary	Signages 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	Absence of child labour and worker discrimination	- Provision of minimum age for workers - Socialization about worker recruitment system including required qualification and gender equality - Provide instrument for monitoring and evaluation of child labor	There is no child labor and gender discrimination in company's management	Continuously	Program/activity based reporting and six months recapitulation reporting

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 of 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 minimise 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 incorporates other key stakeholders including government institutions NGOs and local communities in collaborative manner. General recommendations to be implemented regarding with the integrated management of HCV and HCS are as follow:

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 HCVMA/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 HCVAs 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 HCVAs/HCSAs belong to all stakeholders;
    e. Implement the existing company procedures and policies.
4. Disseminate information on presence, shape and significance of HCVAs/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 59. HCV management and monitoring plan

HCV	Threats	Management	Monitoring	Time	PiC
1	● Decline in RTE species diversity due to poaching	● Ensure that all staff, workers and surrounding communities, including migrant community do not poach RTE species. ● 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) ● Collaborate with communities to provide alternative protein sources to reduce poaching. ● Protect wildlife habitats, by gazetting the HCV areas, and regular patrolling ● Maintain wildlife corridors, and safeguard connectivity of wildlife habitats	● Monitor poaching of RTE species (patrol) every six months. ● Carry out routine monitoring over the presence of RTE species every six months.	Start in 2019 and continuosly	EHS, Plantation, andGIS
	● Reduced forest area or forest degradation	● Protect HCVMA, especially forested hilly areas and wildlife corridor on riverbank, in collaboration with local communities ● Carry out replanting and rehabilitation in HCVMA. ● Zero deforestation policy	● Monitor HCVA and HCVMA size and quality every six months. ● Monitor wildlife corridor from poaching and illegal logging every six months. ● Wildlife monitoring activity every six months.	Start in 2019 and continuosly	EHS and GIS
3	● Mixed or hill dipterocarp forest on igneous (granite) found on HJA and PLN as rare and threatened landsystem	● Palcement of sign board of prohibition of illegal logging activity on forest area and riverbank ● Establishment and maintenance of patrol and protection team ● Engage with the Regent/Provincial Forestry Service (Dinas Kehutanan Kabupaten/Provinsi) for mitigation and handling of illegal logging	● Monitor to ensure no illegal logging activity every six months.	Start in 2019 and continuosly	EHS and Plantation
	● Land converting from forest cover to another land use	● Zero deforestation policy ● Patrol and protection team	● Monitor to ensure no illegal logging activity every six months.	Start in 2019 and continuosly	EHS and Plantation
4	● Declining river water quality	● 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	● Monitor water quality (every 6 months) in inlets and outlets of rivers that flow	Start in 2019 and continuosly	EHS and GRDC/Agronomy

HCV	Threats	Management	Monitoring	Time	PiC
		with rolling hill topography, in planting areas or roadsides, to increase retention and infiltration and protect against erosion. ● Construct gully plugs or sediment traps for tributaries (width <4 m) to prevent sedimentation in the HCV areas. ● Reinforcement of degraded riverbanks which are prone to erosion. ● 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 *sprayers*. ● Practice manual weeding and limit fertiliser and pesticide application (at least 10 m from riverbank, depending on the buffer zone width).	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.		
	● Declining forest area size and/or quality in catchment areas ● Potential land conversion	● Monitor land clearing, especially those taking place close to HCVAs. ● Enrich degraded parts of catchment areas. ● Collaborate with local communities, government and neighbouring companies to protect rivers, riverbanks and catchment areas. ● Planting of natural vegetation along the rivers of which the buffers are degraded	● Monitor size and quality of vegetation cover in catchment areas every six months. ● Supervise land clearing contractors (following the land clearing timeplan). ● Record and document land clearing (following the land clearing timeline).	Start in 2019 and continuosly	EHS and GIS
5 & 6	Degradation or land clearing of HCVA 5 and HCVA 6.	● Monitor land clearing, especially those taking place close to HCVAs; activities should be participatory with stakeholder engagement. ● Develop agreements between company and local communities regarding the collaborative management of HCV 5 and HCV 6 areas. ● Provide access for communities to carry out their activities in HCVA 5 and HCVA 6. ● Collaborate with local communities, government and surrounding companies to protect rivers, riverbanks and catchment areas.	● Monitor size and quality of catchment areas every six months. ● Supervise land clearing contractors (following land clearing timeline). ● Record and document land clearing (following land clearing timeline).	Start in 2019 and continuosly	EHS, Plantation, and GIS

4.3. GHG emission mitigation management 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 60 and Figure 50 provide the details of new development land use plan to be followed by the compay.

Table 60. New development scenario and details of new development area

Selected Scenario	Description		
4	- To set aside all HCV and HCS conservations areas from new development plan - To develop only non-HCV and low carbon stock land cover areas as described below		
Land cover Area	**New Development Area**	**Conservation Area**	**Other non new development area**
Forest	-		
Young regenerating forest	-		
Scrub	587.7		
Agroforest	1,054.1		
Seasonal agr crop	133.2		
Cleared land	93.1		
Bare land	445.4		
Total	**2,313.6**		

In order to optimize the GHG emission mitigation, the company also adopts general mitigation measures within the plantaion operational activities. The general mitigation measures include the following points and details in Table 60.

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 61. HCV management and monitoring plan

Source of Emissions	Mitigation Approaches	PiC	Time Plan
Land Clearing and Planting (Land Use Change)	• Adopted Zero Burning Land Clearing methods • Adopted and Comply with Procedure and Documentation Required for New Planting in Indonesian Regulation (EIA/AMDAL) and Other Standards (RSPO, ISPO, etc.) • No Land Clearing in areas that identified as HCV/HCS area • Keep the HCV/HCS area as Carbon Stock /sequestration. • Socialization to employees and communities related with conservation and Green House Gas Mitigation programme	EHS Dept and Plantation Dept	2019 and Continuosly

Source of Emissions	Mitigation Approaches	PiC	Time Plan
Heavy equipment for Land Clearing	• Routine Maintanence heavy equipment • Regularly emission test on heavy equipment • Socialization the impact of Green House Gas Emission to the worker	Plantation Dept and EHS Dept	2019 and Continuosly
Degradation of forest	• Rehabilitation of degraded HCV areas including riparian areas. • Routine inspection and patrol to avoid disturbance (especially illegal logging and fires) in forested areas, especially peatland. • Socialization on forest conservation.	EHS Departement and Plantation Dept	2019 and Continuosly
Fertilizer	• Effective fertilizing based on dosages and recommendation from Agronomy Department • Using EFB for mulching programme to reduce inorganic fertilizer usage • No Fertilizing on Rainy Day • No fertilizing on Riparian Zone • Socialization to employee about Company's policy on Fertilizing	Plantation Dept	2019 and Continuosly
Pesticides	• Actively monitor Pest-Diseases build-up and if so required • Implement an effective control measures in order to minimize the potential loss of yield due to outbreak; • Inspected all blocks first by plantation staff prior to spraying in order to ennable appropriate selection of Herbicides and equipments to suit the field conditions; • Seek advice from Agronomy Advisor for the used of any new Herbicides that are constantly coming onto the market • Adopted in formulating desirable Pest-Disese control strategy and biological control agents: Introduction of Barn Owl, and adoption of appropriate weed management methods with beneficial plants. • No chemical use in Riparian • Educate and awareness the worker regularly to implement good practices in chemical use activities	Plantation Dept	2019 and Continuosly
Transport (Harvesting and Maintenance)	• Routine Maintenance for Transportation • Regularly emission test on Transport • Socialization the impact of Green House Gas Emission to the worker	Plantation Dept	2019 and Continuosly
Housing Complex electricity	• Energy conservation campaign.	EHS Dept	2019 and Continuosly
Household waste to Landfill	• Reduce, Reuse, Recycling Programs.	Plantation Dept	2019 and Continuosly
Mill Power: Boiler and Generatorset (Genset) for electricity	• Regularly conducted emission test in Boiler and Genset. • Routine maintanence of boiler and genset. • 3. Using Shell and Fiber from FFB Process as a Fuel to reduce Fossil Fuel Use for Boiler.	Mill Opretaion Dept	2019 and Continuosly

Source of Emissions	Mitigation Approaches	PiC	Time Plan
POME (Palm Oil Mill Effluent)	• Digested POME for Land Application to replace inorganic fertilizer (the location of application is around the Mill Location).	Mill Opretaion Dept	2019 and Continuosly

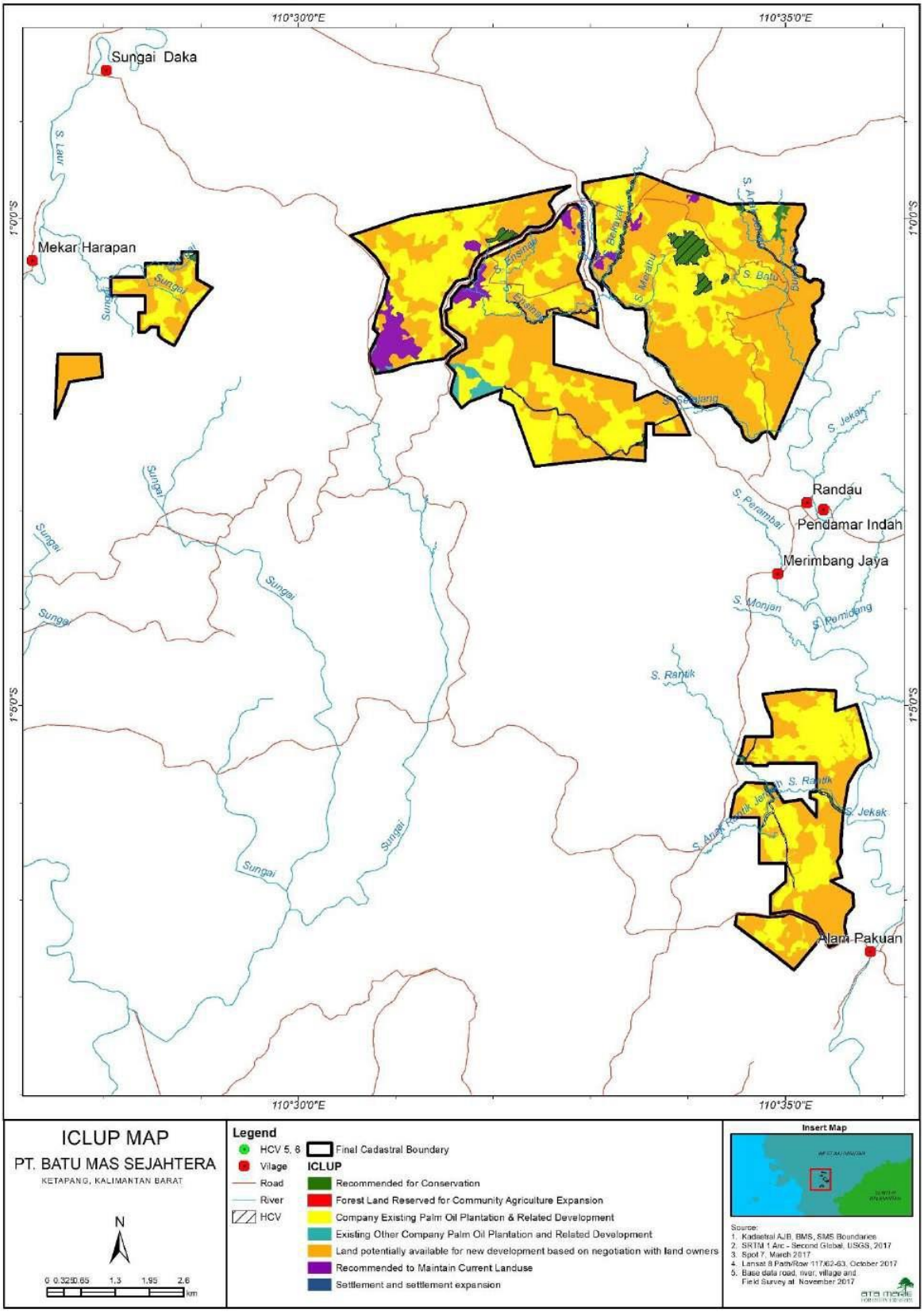


Figure 50. Map showing new development area of BMS

4.4. Soil and water conservation

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 59.

5. Refrerences

Brown, E. and M.J.M. Senior. 2014. Common Guidance for the Management and Monitoring of High Conservation Values: A Good Practice Guide for the Adaptive Management of HCVs. HCV Resource Network. Oxford, UK.

Brown, E., N. Dudley, A. Lindhe, D. R. Muhtaman, C. Stewart and T. Synnott. 2013. Common Guidance for the Identification of High Conservation Values: A Good Practice Guide For Identifying HCVs Across Different Ecosystems and Production Systems. HCV Resource Network. Oxford, UK.

FPIC Gap Analysis of PT Agrajaya Baktitama, PT Batu Mas Sejahtera, and PT Sawit Makmur Sejahtera carried out by Lingkar Komunitas Sawit (LINKS) in 2016 (Laporan Gap Analisis Pemenuhan FPIC Pada Pembangunan Perkebunan Kelapa Sawit Goodhope Group Di Kabupaten Ketapang Provinsi Kalimantan Barat).

Social Liability Assessment of PT PT Batu Mas Sejahtera carried out by PT Gagas Dinamiga Aksenta in May 2018.

GHG Assessment Report and Carbon Stock Calculation of PT Agrajaya Baktitama, PT Batu Mas Sejahtera, and PT Sawit Makmur Sejahtera:, dated July 2018. Conduct and prepared by PT Ata Marie, Jakarta, Indonesia.

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.

HCV Assessment Report: HCV Assessment of PT. Agrajaya Baktitama, PT Batu Mas Sejahtera, and PT Sawit Makmur Sejahtera, dated July 2018 Conduct and prepared by Remark Asia, Jakarta, Indonesia.

HCV-Resource Network. 2014. HCV Assessment Manual. HCV Resource Network and ProForest, Oxford, UK.

Land Use Change Analysis Report PT Batu Mas Sejahtera, dated March 2018. Conduct and prepared by PT Gagas Dinamiga Aksenta, Jakarta, Indonesia.

RSPO GHG Assessment Procedure for New Development version 3, October 2016.

SIA Assessment Report: SIA Assessment of PT Batu Mas Sejahtera, dated February 2018. Conduct and prepared by Remark Asia, Jakarta, Indonesia

Social and Environmental Assessments (AMDAL) of PT Batu Mas Sejahtera was finalized in 2009. Conduct and prepared by CV Inhasa Persada 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 BMS 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 Batu Mas Sejahtera (BMS)

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

6.2. Acceptance of responsibility

Outcomes of all assessments as documented in the reports have been accepted by the Management of PT Batu Mas Sejahtera (BMS). Management and monitoring plans as listed in this document 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 the new plantation of PT Batu Mas Sejahtera (BMS).

Management of PT Batu Mas Sejahtera (BMS)

Edi Suhardi
Director Sustainability