03/12/2017

Public Summary
HCV Assessment Report
PT Raya Sawit Manunggal

Extension areas, Ketapang District, West Kalimantan Indonesia

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Cover Page

Date of Report	:	02 June 2017
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Location	:	Matan Hilir, Sungai Melayu and Tumbang Titi Sub-Regency, Ketapang, West Kalimantan, Indonesia
Assessment Period	:	April 2016 – Mei 2017
Planned land use	:	Oil Palm Plantation
Size of Assessment (ha)	:	2,085 ha.
Legal Status of Assessment Area	:	Izin Lokasi by Ketapang District Government No. 84/PEM/2016
HCV findings	:	187.49 hectares
HCVMA	:	2,085 hectare
Certification Scheme	:	RSPO New Planting Procedure
Peer Reviewed	:	December 2016, by Dr. Kunkun Jaka Gurmaya Email Peer Reviewer : kunjgurmaya@yahoo.co.id

Abbreviation and term

AMDAL	:	Analisis mengenai dampak lingkungan – Environmental and social impact assessment
ALS-HCV	:	Assessor licensing scheme-high conservation value
CSR	:	Corporate social responsibility
DAS	:	Daerah Aliran Sungai – water catchment
SIA	:	*Social Impact Assessment*
NKT/HCV	:	Nilai Konservasi Tinggi/High conservation value
NPP – RSPO	:	*New planting procedure RSPO*
HCV RN	:	High Conservation Value Resource Network
HCVA	:	High Conservation Value Area
HCVMA	:	High Conservation Value Management Area
HCSA	:	High Carbon Stock Approach
HGU	:	Hak guna usaha
IAR	:	International Animal Rescue
IBA	:	Important bird area
EBA	:	Endemic bird area
KBA	:	Key biodiversity area
FSC	:	Forest Stewardship Council
EBA – IBA	:	Endemic – Important Bird Area
P&C	:	Principle and Criteria
GFC	:	Global Forest Change
GRTT	:	Ganti Rugi Tanam Tumbuh (land compensation)
IUCN	:	International Union for Conservation of Nature and Natural Resources, now World Conservation Union.
CITES	:	Convention on International Trade in Endangered Species of Wild Fauna and Flora
Appendix I	:	List of wildlife species that should not be traded commercially.
Appendix II	:	List of wildlife species that can be traded internationally with certain quota restrictions.
Refugia	:	Refuge / protection site of wildlife animal at a critical time
RTRWK/P	:	District/Province spatial planning
RTE	:	Rare, threatened and endangered – the protection status of species
PIR-Trans	:	plantation development scheme as combination of private nucleus and plasma smallholder plantation and transmigration program.
RUSLE	:	Revised universal soil loss equation
UKL – *UPL*	:	Environmental management unit - environmental monitoring unit, part of Amdal document in the prevention of pollution and / or environmental damage.
WWF	:	World Wildlife Fund for Nature.

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Part 1. Introduction and background

PT Raya Sawit Manunggal (PT RSM) is the subsidiary of PT Inti Sawit Lestari (PT ISL), where PT ISL is also the subsidiary of Bumitama Agri Ltd (BGA). PT RSM is in Ketapang District, West Kalimantan. Overall the operational area of Bumitama's subsidiaries are in Riau, West Kalimantan and Central Kalimantan in total area 225,000 ha[1]. Bumitama has 13 Palm Oil Mill (POM) which can produce 5.04 million-ton FFB per year. The number of mature plants areas are increasing from 21,230 ha to 143,704 ha in December 2016, the number of mature plants area has reach 82% from the total area of Bumitama Group.

Map 1. Screen shot location of Bumitama plantations and mills

Ketapang district is one of the most important area for Bumitama Group, where there are two subsidiaries manage the 14 concessions in total area 112,629 ha or 50% from all the land which is belong to Bumitama Group.

Next is the detail information of organization commissioning of this HCV assessment.

Organization Commissioning the Assessment	:	PT Raya Sawit Manunggal, Jl. Melawai Raya No.10, Kebayoran Baru, Jakarta Selatan, DKI Jakarta 12160
Organization Commissioning Contact person	:	Hidayat Aprilianto, Head Department of Sustainability System Development and Mitigation, Bumitama Gunajaya Agro, hidayat.aprilianto@bumitama.com mobile +62 81250870599
location	:	Kecamatan Matan Hilir, Sungai Melayu dan Tumbang Titi. Kabupaten Ketapang, Kalimantan Barat, Indonesia
Planned land use	:	Palm oil plantation
Assessment period	:	April 2016 – Mei 2017
Size of the assessment area	:	2,085 ha.
Certification scheme	:	RSPO New Planting Procedure
Legal status	:	Initial license (Izin lokasi)

PT. RSM hold two type of license which are HGU 4,034 hectar and Izin Lokasi 2,085 hectar as the extension of HGU area. Both of the licence occupying former PIR Trans project which was under PT Bangun Maya Indah license as one of subsidiary of PT. Benua Indah Group (PT. BIG). In this situation planning project development of PT RSM occupied brownfield areas. Furhter when the HCV assessment start the operational for both license areas of PT. RSM still not yet commenced. Areas licence of Izin Lokasi as extension areas of HGU defined as the target of this HCV assessment since HGU area is not eligible to follow NPP scheme. The HGU areas of PT. RSM replacing previous HGU of PT BMI where the plantation actively manage until the ownership transfer to PT. RSM.

[1] http://www.bumitama-agri.com/asset/upload/storage/report/Bumitama_Agri_AR2016.pdf

a. Objective of HCV assessment

b. To identify the presence, potential presence or the absence of the HCVs within the assessment area.
c. To develop HCV management and monitoring plan document for ensure future the plantation development activities not adversely effect on HCVs
d. To comply with RSPO NPP procedure

e. HCV Guidance and Reference

Indonesian toolkit for the identification high conservation values, 2008 used as the main guidance, where the Common guidance for the identification of High Conservation Values, HCV Resource Network 2013 used as the secondary guidance of this HCV assessment. Several others HCV guidance are used in this assessment such as the HCV assessment manual, *HCV Resource Network ALS, 2014 and* Common guidance for the management and monitoring *of HCV, HCVRN 2014.* The next following are the definition of the 6 HCV in between the toolkits.

Table 1. The 6 categories of HCV

Toolkit for identification high conservation values in Indonesia, 2008	Common guidance for the identification of High Conservation Values, HCV Resource Network, 2013
HCV 1 Areas with Important Levels of Biodiversity 1.1 Areas that Contain or Provide Biodiversity Support Function to Protection or Conservation Areas **1.2** Critically Endangered Species **1.3** Areas that Contain Habitat for Viable Populations of Endangered, Restricted Range or Protected Species **1.4** Areas that Contain Habitat of Temporary Use by Species or Congregations of Species	**HCV 1 Species diversity** Concentrations of biological diversity including endemic species, and rare, threatened or endangered species, that are significant at global, regional or national levels
HCV 2 Natural Landscapes & Dynamics 2.1 Large Natural Landscapes with Capacity to Maintain Natural Ecological Processes and Dynamics 2.2 Areas that Contain Two or More Contiguous Ecosystems **2.3** Areas that Contain Representative Populations of Most Naturally Occurring Species	**HCV 2 Landscape-level ecosystems, ecosystem mosaics and IFL.** 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.
HCV 3 Rare or Endangered Ecosystems	**HCV 3 Ecosystems and habitats** Rare, threatened, or endangered ecosystems, habitats or refugia.
HCV 4 Environmental Services 4.1 Areas or Ecosystems Important for the Provision of Water and Prevention of Floods for Downstream communities 4.2 Areas Important for the Prevention of Erosion and Sedimentation **4.3** Areas that Function as Natural Barriers to the Spread of Forest or Ground Fire	**HCV 4 Ecosystem services** Basic ecosystem services in critical situations, including protection of water catchments and control of erosion of vulnerable soil and slopes

HCV 5 Natural Areas Critical for Meeting the Basic Needs of Local People Basic needs are defined as: a. Food, b. Water, c. Clothing, d. Materials for building and tools, e. Firewood, f. Medicines, g. Fodder for livestock	**HCV 5 Community needs** 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.
HCV 6 Areas Critical for Maintaining the Cultural Identity of Local Communities	**HCV 6 Cultural values** 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.

Other references used in this study include forms of secondary data and thematic maps related to the study area and its wider landscape, among others; land cover, soil type, slopes, ecosystems, distribution of rare, threatened and endangered species (RTE) and socio-cultural data related to the landscape. The reference data analyzed on early stage of the assessment to be able to estimate the opportunity of HCVs presence in the concession area or in the wider landscape, further the outcome will be determining the method of the HCV assessment field assessment.

Table 2. Secondary data refenced in the PT RSM HCV assessment process

Thematic	Source and literature
Basic data	✓ Concession boundaries – license map of PT. RSM ✓ UKL-UPL ✓ SIA report – *Social impact assessment* ✓ Land acquisition – (GRTT) ✓ Province and district spatial planning. ✓ Administrative map. ✓ Blocking area design – concession infrastructure plan development map ✓ IFL - intact forest landscape ✓ High resolution satellite image 1,5-meter, Spot-6, 2014 ✓ High resolution satellite image 10-meter, Sentinel-2, 2016 ✓ High resolution satellite image 15 meter, Landsat 8
HCV 1	✓ Protected area map – Forest and land designation west Kalimantan, 2014 ✓ IUCN Red List of Threatened Species. www.iucnredlist.org ✓ CITES Appendices I, II and III, ✓ A Field Guide to The Birds of Borneo, Sumatra, Java and Bali (MacKinnon &Philipps, 1993) ✓ The Mammals of The Indomalayan Region (Corbet & Hill, 1992) ✓ IBA – Important bird area, EBA – Endemic bird area ✓ A Field Guide to The Snakes of Borneo (Stuebing & Inger, 1999) ✓ Panduan Lapangan Mamalia di Kalimantan, Sabah, Sarawak & Brunei Darussalam (Payne et al., 2000) ✓ The Ecology of Kalimantan (MacKinnon et al,1996) ✓ IUCN RTE species distribution

HCV 2	✓ Protected area map – Forest and land designation west Kalimantan, 2014 ✓ Landcover map, Ministry of Environment and Forestry-KLHK 2015 ✓ Updated landcover based on high resolution satellite, Sentinel 2016 ✓ The Ecology of Kalimantan (MacKinnon et al,1996) ✓ Repprott land system
HCV 3	✓ Landcover map, Ministry of Environment and Forestry-KLHK 2015 ✓ Repprott land system
HCV 4	✓ Repprott land system ✓ Elevation digital (SRTM) ✓ Wetland, peat and hydrology data ✓ Updated landcover based on high resolution satellite, Sentinel 2016 ✓ hotspot (FIRSM) dan burn-scar Landsat 8 tm
HCV 5	✓ Ketapang district statistical data ✓ village monographs dan mid-term development plan (RPJM) ✓ Dayak Pesaguan on Sungai Melayu dan Tumbang Titi, socio cultures
HCV 6	✓ Ethnologue linguistic and Indonesia cutomary land data registration, BRWA ✓ Dayak Pesaguan on Sungai Melayu dan Tumbang Titi, socio cultures

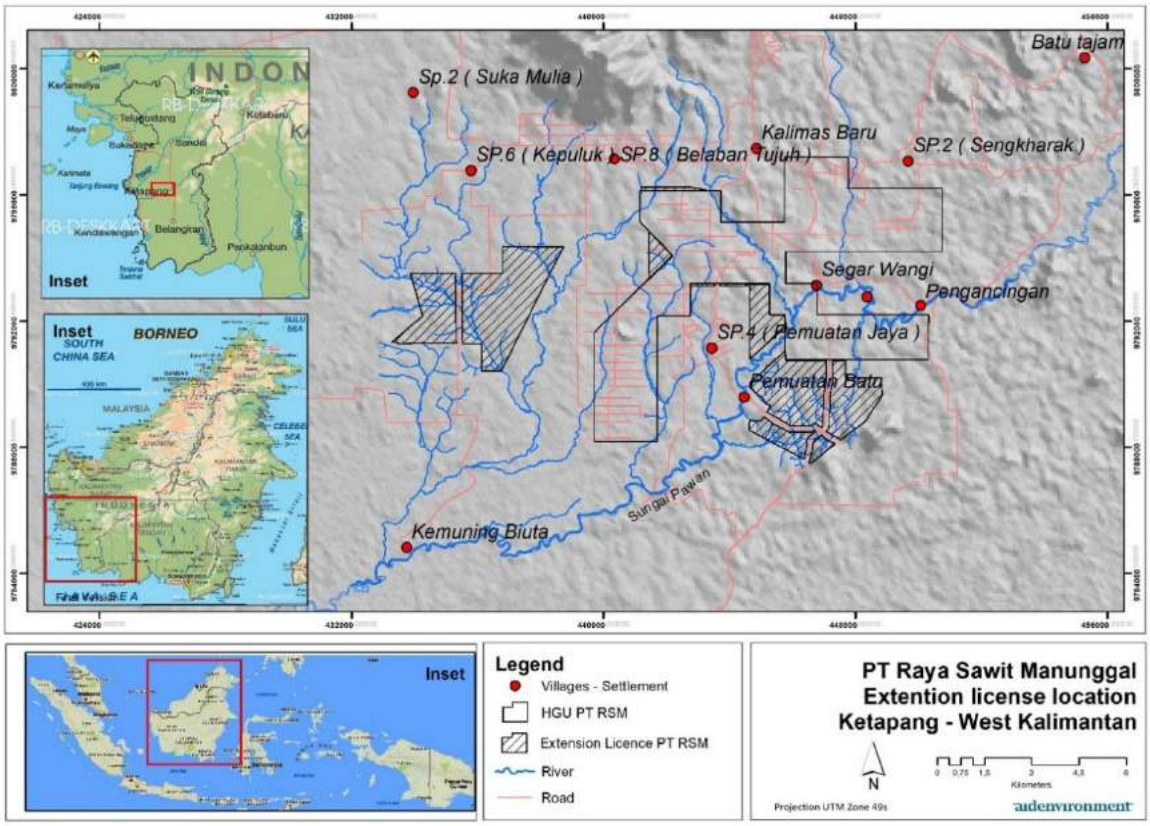
Part 2. Description of assessment area

PT Raya Sawit Manunggal is located in between coordinates 110°23'55.73" - 110°32'24.65 East and 1°50'35.57" - 1°55'21.25 South. Other concession on immediate boundaries of PT RSM are PT. Artu Borneo Plantation (PT. ABP – Eaglehigh group) on the south and west and PT. Sentosa Prima Agro (PT SPA - BGA group) on the north. The land use status of PT.RSM concession is fall into APL (*Areal Penggunaan lain)* land status or non-forestland area. The APL status is an areas alocated for development for infrastructure, agriculture and plantation which outside of forestry scheme development, in this case the development planning of oil palm plantations by PT RSM can be done in those area.

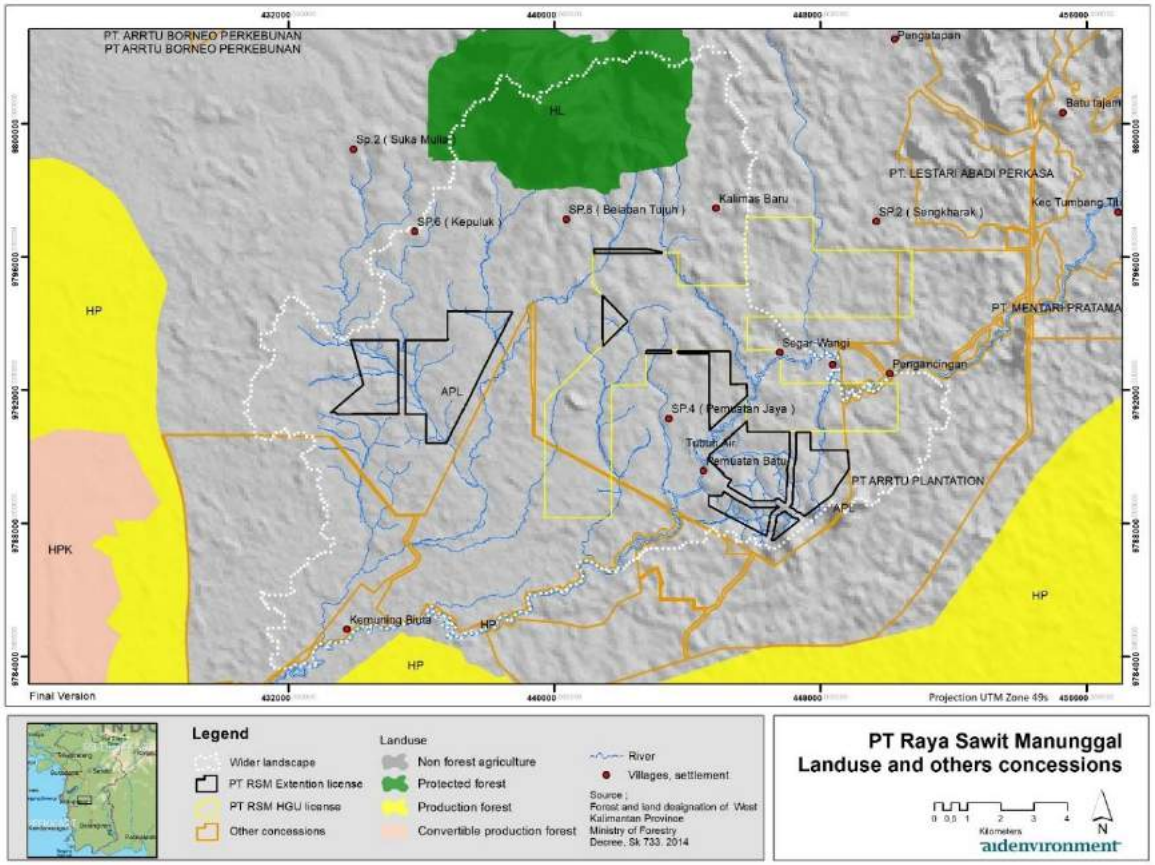
The legal status of the study area is "*izin lokasi"* in total area of 2,085 ha, this location is the extension area of prior PT. RSM HGU of 4,034 ha. The history of Izin Lokasi of PT. RSM start when was PT. RSM winning the auction process of HGU of 4,034 hectares in April 2015. The HGU area prior to acquisition by Bumitama is the area of HGU from PT Bangun Maya Indah (PT BMI) subsidiary of PT Benua Indah Group (PT.BIG), whereby PT. BMI in 2009 was declared bankrupt by the Indonesian Court. As the HGU obtained consider not prospective from palm oil plantation business where contain old not productive trees, Bumitama proposed extension areas to Ketapang district government. On February 10, 2016 Ketapang district government award Bumitama with extension areas with Location Permit license (*Izin lokasi*) of 2,085 ha through the district decree number 84/PEM/2016. This extension license area is subject to this HCV assessment as Bumitama targeted this as new planting for PT.RSM, since all HGU consider as replanting areas and not classified as new planting.

The land use history of the landscape surrounding of the study area is the location of several logging companies (HPH) in the 1970-1980 era and in the 1990s the oil palm plantation development program was initiated through the PIR-Trans scheme by the government in partnership with PT Benua Indah Group with several subsidiaries

Map 2. Location of PT RSM



Map 3. Land use surrounding PT RSM landscape



Overview area concession and it landscape features on the pre-assessment stage will decisive the need of certain expertise of HCV assessment team. The HCV assessment team arranged based on the highest opportunity of HCVs within precautionary approach. HCV assessment team arranged from biodiversity expert on landscape ecology, environmental service, flora, fauna, socio-culture, GIS and mapping. List of the HCV assessment CV team member can be found in the attachment of the report.

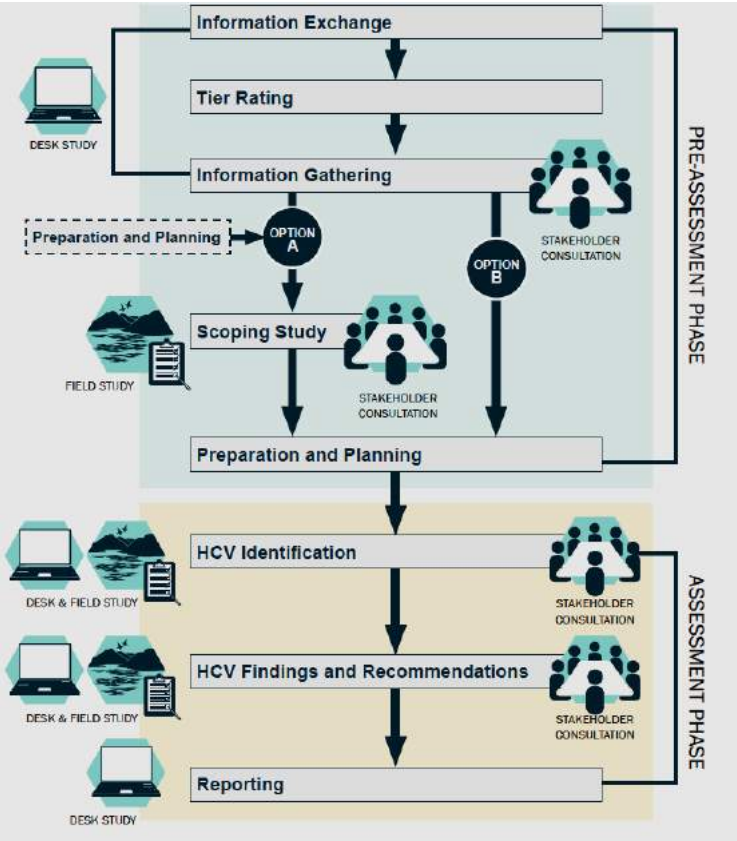
Table 3. HCV assessment team members

Name	ALS License	Role	Expertise
Haryono Haryono@aidenvironment.asia	Provisional ALS15017HH	Team leader	Forest and landscape ecology, hydrology & Ecosystem services, PRA & Participatory mapping, GIS analysis
Ivan Valentina Ivan@aidenvironment.asia	N/a	Team member Social team leader	Legal and social economy
Muzva Dharma dharma@aidenvironment.asia	N/a	Social team member	Social economy, Rural development and PRA
Eka Kurnia eka_man22@yahoo.co.id	N/a	Team member Biodiversity team leader	Botany, forest inventory dan GIS analysis
Salman Salman@aidenvironment.asia	N/a	Biodiversity team member on Environmental service	Social forestry, Hydrology dan GIS analysis.
Berman Manurung Berman.manurung@gmail.com	N/a	Biodiversity team member on Wildlife survey	Wildlife ecology dan survey
Ignatius Ignasiussuriyanto422@gmail.com	N/a	Biodiversity team member on plant survey	Botanist and forest inventory

Part 3. Step and methods

Generally, there are two main steps on the HCV assessment, which divided into pre-assessment and the field assessment, these steps follow the assessment step in common guidance for the identification of High Conservation Values. HCV Resource Network. 2013

Image 1. The step of HCV assessment



Source; HCV RN, Common guidance for Identification of High Conservation Value, September 2013

a. Timeline of HCV assessment

Table 4. Timeline of PT RSM HCV assessment

Step	Program	Dates
Pre-assessment	Landscape analysis Watershed analysis Status development analysis Social survey design Species and landscape ecology survey design.	April 11- 22, 2016
Field scooping study	Land use and landcover verification Slope and topographic verification	April 19, 2016
	FGD on 3 villages Kemuning Biutak, Segar wangi dan Sungai Melayu	April 20, 2016
	Initial public consultation	May 4, 2016
Field assessment 1	Plant and wildlife survey Social survey	April 20 – May 3, 2016

	Consultation with PT. RSM management	December, 2016
Peer review	Peer review	December, 2016
Field assessment 2	2nd plant survey	April 18-20, 2017
	Public consultation on 3 villages Kemuning Biutak dan Sungai Melayu Segar Wangi	April 20, 2017 April 21, 2017
Report finalization and review process to HCVRN	Review by HCV RN	Juni, 2017
Report revision resubmission to HCV RN	Report revision submission for review	November, 2017

b. Pre assessment and scooping

In the pre-assessment stage, secondary data analysis related to the study area is related to the purpose and objective of HCV assessment, followed by tier-rating related to the scale, intensity of the development project plan and the risk level both within and around the study area. Secondary data are the data related to basic information. The land use and series of sattelite image used to identify status of the assessment areas which may fall into *greenfield* or *brownfield* and to assess the compliance of the assessment areas with the NPP RSPO scheme as the main objective of this HCV assessment. Scoping field of study was done at the end of this pre-assessment stage in the form of field verification and clarification related to the outcome of secondary data analysis. The momentum of field scoping studies was optimized to convey the understanding of HCVs to the local stakeholder as well as to get input, expectations, problem and threats form relate to the HCV and project planning development of PT RSM.

c. Landcover update

The updated of land cover data in the HCV assessment is crucial regarding areas with high possible finding of HCVs which including the biodiversity concentration, environmental service and socio-cultural. In this study, High Carbon Stock approach (HCSA) methodology used to determine the different classes of land cover including degraded lands. The land cover class in the HCS approach is structured based on its carbon content, the density forest class divided into 4 sub-classes; high, medium, low density forest (HDF, MDF, LDF) and young regeneration forest (YRF). In addition, this approach also identifies the degraded land cover which not classified as HCS forest such as open land, shrubs, farmland, plantations, roads, settlements and others.

Image 2. The ilustration of HCS approach landcover

Sources; HCS Approach toolkit Versi 1 Agustus 2015

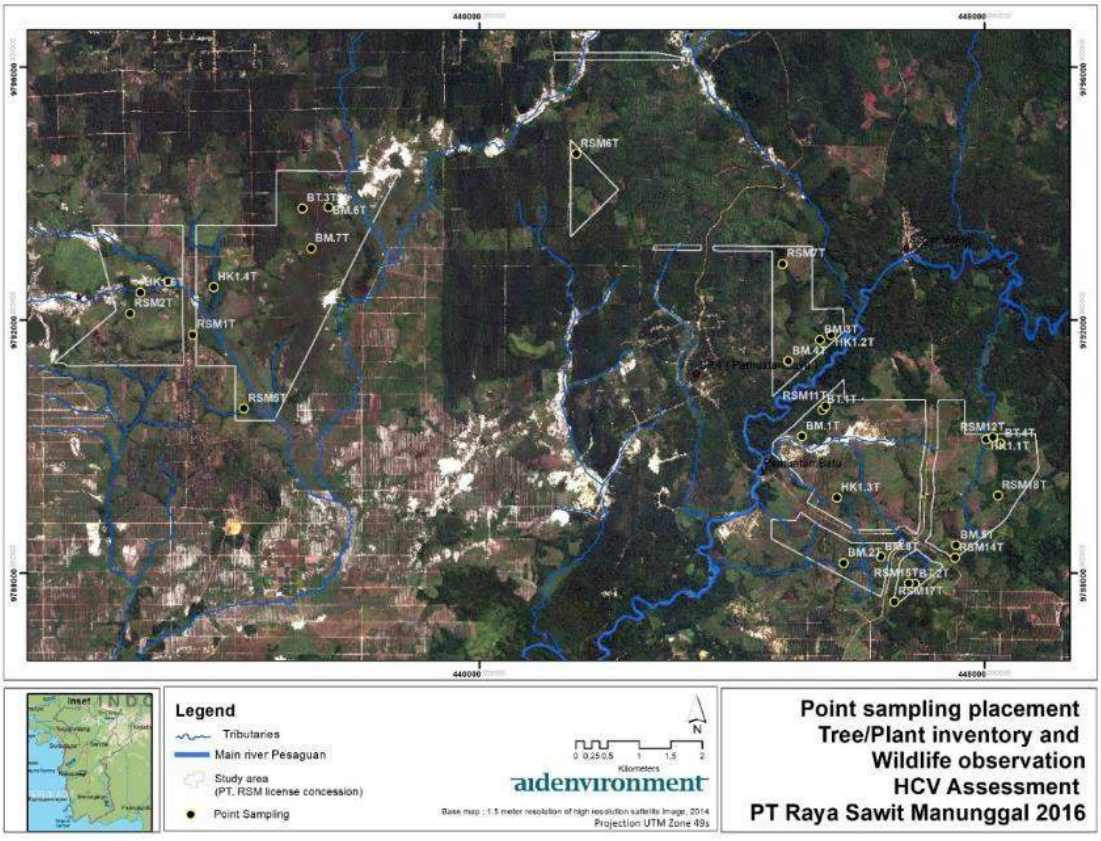
d. Vegetation – plant species sampling

Vegetation-plant sampling is conducting to find out the existence the HCV plant species. The sampling vegetation result will be using to refine the land cover data from the initial stratification which conducted during pre-assessment phase. The initial interpretation of the land cover will be guided the method of vegetation sampling plot placement. Stratified random sampling method chosen regarding to the result of initial stratification informing the vegetation condition already heavily degraded and fragmented. The first stage of stratified random sampling is to select the areas that have highest opportunity of HCV of plant species for being discovered, it regarding to the habitat quality observed on the class of the initial landcover, the second stage is to spread the sampling points evenly across all the areas specified in the first stage. Vegetation-plant sampling point constructed in a form of 25 x 25 meters square main plot and a sub plot is 5 x 5 meters. In plots 25m x 25m all trees with diameters greater than 15cm recorded. In plots 5m x 5m all trees with diameters in between 5cm - 15cm recorded while also record for others non-trees plant species

e. Wildlife observation

Wildlife observation conducted visually of the presence of traces on the ground as well as their traces on vegetation and the sounds of wildlife species. From the landscape analysis regarding to the potential population distribution of wildlife the most probability of wildlife occurrence in the landscape are species of mammals, primates, birds and reptiles. Due to the habitat condition in the landscape which already fragmented in some small patches are not possible to implement line transect method of wildlife observation. The observation of wildlife conducted by point count method. The point observation conducted at the same location with the vegetation-plant point sampling.

Map 4. Vegetation-plant sampling plot together with point of wildlife observation



f. Potential soil erosion risk analysis

Potential soil erosion analysis conducted through secondary data which related with erosion and sedimentation. The potential soil erosion analysis following RUSLE (*revised soil loss equation)* formula.

RUSLE = R x K x LS where

R: is the erosivity factor of rainfall
K: is the soil erodibility factor
LS: is a factor of length of the slope level.

To measure the areas with potential soil risk erosion this formula not consider variable of land management (P) and landcover (C), as its variable include in the original formula.

Further outcome from RUSLE formula will be combine with the depth of soil solum to classify level of potential soil risk erosion, it describes on next following table;

Table 5. Reclassifying analysis process of potential soil risk erotion

Kedalaman Tanah (*solum depth*)	Estimasi erosi (ton/ha/tahun)				
	<15	15-60	60-180	180-480	>480
Dalam (>90 cm)	SR	R	S	B	SB
Sedang (60-90 cm)	R	S	B	SB	SB
Dangkal (30-60 cm)	S	B	SB	SB	SB
Sangat Dangkal (<30 cm)	B	SB	SB	SB	SB

Keterangan:
SR = Sangat Rendah, R = Rendah, S = Sedang, B = Berat, SB = Sangat Berat

Source; HCV Indonesian Toolkit, 2009

g. Social survey and consultation

Social survey and cosultation targeted 3 native villages; Desa Sungai Melayu, Kemuning Biutak Segar Wangi and 4 transmigrant settlement; SP.6 Kepuluk, SP.8 Belaban Tujuh, SP. 3 Kalimas Baru, and SP4 Pemuatan Jaya. The population of 3 native villages with total 2,167 household with 7,420 individu and 1,313 household from 4 transmigrant settlement. The population figures clarifies that the 10% respondent required in the social survei as indicated in the Indonesian toolkit 2008 cannot fulfiled by social team HCV regard with time limitation and the wide distribution of the settlement in the landscape. The approach was done by grouping the respondents by reviewing the heterogenity status of respondents from the ethnicity aspect and the isolation level of the settlement of which these aspect will determine the land use pattern and forest dependency as the basic livelihood fulfillment of the community group.

The field pre-assessment outccome indicate that the heterogenity of local community from the land use aspect in three villages tends to be homogeneous, while the livelihood fulfillment of the transmigration community is mainly met from 2 hectares land allocation of the trans-PIR project of as main agricultural land and 0.5 hectare as residential and yard land. The transmigration community greatly appreciated with the land use patterns and socio-cultural values of local peoples, to utilize land beyond the land of transmigration allocations it conducting in form of renting or buying to local people. In the view of accessibility or the isolation level of the settlement, all the settlement in the landscape study can be access by road and is not an isolated settlement. This accessibility aspect will be related to how communities access the market regard with fulfillment of their living needs.

The overview of the aspect of the land use pattern and the accessibility of the settlement, the socio-culture survey method chooce are FGD (focus group discussion), participatory mapping and interview

on confirming the dubious information outcome from FGD and participatory mapping to the several respondent. The interview in specific number of respondents were not conducted in this HCV assessment. The social survey location conduct is in three native villages; Sungai Melayu village, Kemuning Biutak village and Segar Wangi village and in the SP transmigration village.

Consultation method for the public consultation were interview, participatory mapping, FGD (Focus Group Discussion) and seminar. The Interview method, participatory mapping and FGD held when the field assessment is conducted. The workshop seminar method was held when scooping study from the result of pre-assessment and during final consultation of this study wth presenting data analysis result, HCV findings and HCV management recommendation.

h. Threat assessment

The assessment conducted in qualitative threat assessment method, the threat data recorded in each steps of HCV assessment. The other purpose of the qualitative threat assessment is to be developing the qualitative analysis which will give general level of threat indication which might be happen in to an HCV. The threat measured and recorded based on its probability and the impact level consequences to a HCV. The other purpose of this threat assessment is to propose proper recommendation into management on how to mitigate and recover the HCVs impacted from the threat.

The qualitative threat analysis can also make use of quantitative data in which result from the threat observation estimation, prediction, conclusion, or suspected to be limited. Result of the analysis depend on the knowledge, experience, and the intuition of the expert for identifying, assessing, and proposing the proper management. In the process of threat assessment, all the relevant data collected. The propose recommendation on management and monitoring of the threat will be based on the available information, expert judgement needed if the specific knowledge of the HCVs are not available.

i. Outline method of the 6 HCV component

Assessment method of HCV in PT RSM are following the Indonesia HCV Toolkit, 2008. Here is the resume of the HCV Assessment method that been used along the assessment.

HCV 1. Areas that contain or provide biodiversity support function to protection or conservation areas

HCV 1.1. To verify the presence or absence of functions of area that have an impact on the conservation status of biodiversity within a protected or conservation area.

HCV 1.2 The purpose of HCV 1.2 is to identify Critically Endangered species (CR-IUCN) that are present in a MU or nearby and likely to be affected by off-site impacts of the MU. Management action must be undertaken by the MU to protect each individual of such species.

HCV 1.3 HCV 1.3 Aims to identify habitat in or near a MU whose protection is required for maintaining viable populations of endangered, restricted range or protected species. Populations of species that must be considered in HCV 1.3 include all species identified under;

- Endangered or vulnerable in red list of IUCN
- restricted range species
- protected by the Indonesian government through law number 5 1999 and other laws and regulations below
- CITES Appendix 1 and 2 .

HCV 1.4 The purpose of HCV 1.4 is to identify keystone habitats in a landscape used temporarily by groups of individuals or species.

HCV 2 Natural landscape and Dynamics

HCV 2.1 This HCV aims to identify and protect areas of a natural landscape where natural ecosystem processes occur and have the potential to persist for the long-term. The key to achieving this is the identification and protection of core area(s) within a landscape, which are essential for guaranteeing the continuation of ecological processes unperturbed by edge effects and fragmentation.

HCV 2.2 Areas supporting a diversity of ecosystems support great numbers of species and have high capacity to sustain them for the long term.

HCV 2.3 The persistence of a species in the long-term requires maintaining habitat of sufficient quality and extent for population viability. Although the area of habitat required to maintain a viable population varies greatly among species, it is a fact that large, unfragmented areas with a diversity of ecosystem types have higher potential to sustain a variety of species in the long term than areas that are small, fragmented and with few ecosystem types.

HCV 3 Rare and Endangered Ecosystem

HCV 3 The objective of HCV 3 is to identify and delineate ecosystems within a landscape.

HCV 4 Areas or important ecosystem

HCV. 4.1. The purpose of HCV 4.1 is to identify areas important for the protection of hydrological function and maintenance of a watershed. It is intended to protect both the quantity and quality of water

HCV 4.2 The purpose of HCV 4.2 is to identify areas important for the protection of hydrological function and maintenance of a watershed. It is intended to protect areas important to prevent erosion. The area of HCV 4.2 exists where forests or other vegetation are in good condition grown on areas with potentially serious Danger Erosion Level. Areas with potentially heavy TBE are defined as areas expected to experience erosion rates of 180 t / ha / yr. or more if vegetation cover is cut down.

NKT 4.3 The purpose of HCV 4.3 is to identify areas that act as natural barriers to prevent the spread of forest and land fires.

NKT 5 HCV 5 aims to determine areas that have an important function as a source of livelihood for local communities, either to meet the needs directly (subsistence / self-consumption) or indirectly (commercially), that is by selling products (forest products or other natural resources) to get cash for fulfilling basic needs include; a. Food, b. Water, c. Clothing, d. Materials for home and appliances, e. Firewood, f. traditional-herbal medicine, g. Feed the livestock.

NKT 6. Areas that have an important function for the traditional cultural identity of the local community, where the area is needed to meet their cultural needs. The interconnectedness of the community to the region is manifested by the ideas, ideas, norms, values, activities and patterns of action, and the environment / natural resources / things, underlying the collective behavior of community members and communities with the region.

Part 4. Findings

a. Regional – National Context

PT RSM landscape falls into WWF's Borneo Lowland Rain Forests ecoregion (Olson, et al. 2001). WWF considers this ecoregion is a global conservation priority due its exceptional wealth of biodiversity, carbon sequestration, and high levels of threat linked to logging, habitat conversion, forest fire, and hunting. Deforestation is an ongoing threat to regional biodiversity, Borneo suffering extensive forest loss in recent decades. There has been a marked significant reduction of forest extends in Borneo over the past 30 years. In PT RSM landscape forest fragmentation start in 1985 and the significant forest loss start in 1990. The map of Borneo wide landscape Orangutan population distribution by IUCN habitat indicated overlaps with landscape study, as well as map from Borneo-wide Population Habitat Viability Analysis – PHVA (FORINA, et al 2017). There is no overlap indication with GRASP (Singeton et al, 2004). Landscape land cover analysis and orangutan habitat distribution found the closest Orangutan on 15 km to the west on area of peat forest block of Pematang Gadung.

There is no overlaps indication on the landscape assessment with Important bird habitat (IBA dan EBA) (Birdlife Internasional, 2004), there are two Important Bird Areas (IBA) in West Kalimantan - IBA Gunung Palung National Park and Muara Kendawangan Nature Reserve and both located more than 60 km from location site. Both IBAs are part of Key Biodiversity Areas (KBA) which nationally identified as global significance sites. Ramsar Sites in the West Kalimantan located at Danau Sentarum and Tanjung Puting National Park, which are far from the assessment site.

Landscape overlay analysis found the potential present indication of several Borneo endangered species in the landscape study such as *Pongo pygmaeus, Manis javanica, Presbitis chrysomelas* dan *Rhinoplax vigil* and other species like *Nasalis lavartus, Helartos malayanus*. The number of plant species in Borneo including timber and non-timber are estimated 10.000-12.000 plant species (T.C whitmore, 1973). Specifically for timber trees spesies, the number reaches 2,676 species where 267 species are species from family of Dipterocarpaceae where 155 (60%) species of them are endemic species, so the Borneo island is home for Dipterocarpaceae family species in the world. The high rate of deforestation impacted to conservation status of several dipterocarps family species in Borneo such as *Shorea pachyphylla, Parashorea lucida, Shorea seminis* and *Shorea balangeran*

In Ketapang district landscape there are several important areas in which represent biodiversity of Borneo island including key biodiversity areas; 1). Sub-montane and montane forest as catchment area of most river in Ketapang landscape, 2). Peat and peat forest as part of coastal swamp areas, 3) Gunung Palung National Park (*KBA, IBA & EBA*), 4) Muara Kendawangan nature reserve (IBA). 5) Heath forest ecosystem, 5) Mangrove forest ecosystem. The intact forest landscapes (IFL) in Borneo is in the mountainous part of the central island of Borneo. The Ketapang district landscape is still part of this intact forest landscape (IFL) in the north-east. While the landscape study indicated no overlap with the intact forest landscape (IFL).

Ecosystem mapping analysis on landscape found that the landscape study falls into Borneo *bio-physiographic southern plain and mountain*. Those bio-physiographic structured of 16 ecosystem types from 3 elevation zones. 11 ecosystem types found on the lowland forest zone (below 500 meters), 3 ecosystem types in sub-montane forest zone (below 1000) and 2 ecosystem types in the montane forest zone (more than 1000 meters). The landscape study (PT RSM landscape) are related to 3 types of lowland forest ecosystems which are, Lowland dipterocarp forest on basalt, Lowland

dipterocarp forest on Granite and Heath forest ecosystems. The next following are all the 16 ecosystem types found in *the Borneo bio-physiographic southern plain and mountain*.

1. Low land forest ecosystem;
   Fresh water swamp, Peat swamp, Heath forest, Riverine forest, Mangrove and tidal swamp, Lowland dipterocarp forest on sandstone, Lowland dipterocarp forest on basalt, Lowland dipterocarp forest on Granit, Lowland dipterocarp forest on metamorphic rock, Lowland dipterocarp forest on volcanic rock, Lowland dipterocarp forest on marine sediment
2. Sub-montane forest ecosystem;
   Sub-montane forest on indigenous Granit, Sub-montane forest on metamorphic rock, Sub-montane forest on heath forest
3. Montane forest ecosystem;
   Montane forest on indigenous Granit, Montane forest on metamorphic rock.

PT. RSM landscape is located in the middle of Pesaguan watershed and Pesaguan river dividing the PT RSM concession block into north and south block. Upstream part of Pesaguan watershed is a hilly area with 800 meters ASL as the highest point, and on the upstream part remain some portion of primary forest. The middle part is a combination of undulating and hilly terrain (as part of southern plain and mountain) with very low forest cover remaining. The downstream part is coastal peat swampland (coastal swampland). Intact forest blocks on the Pesaguan catchment are located on the upstream part with direct distance 50 km from landscape sites. Downstream of the watershed is a peat forest ecosystem with direct distance of 20 km. Upstream zone of watershed occupies 22% of the total watershed area, while the middle 28% and the downstream section is 60%. The land cover analysis of Pesaguan watershed found the natural land cover on the upstream catchment area remain 51%, middle part as the most critical remain 0.01% of natural land cover and the downstream area are still considered fair with 27% of natural forest cover within peat forest ecosystem.

b. Wider landscape context

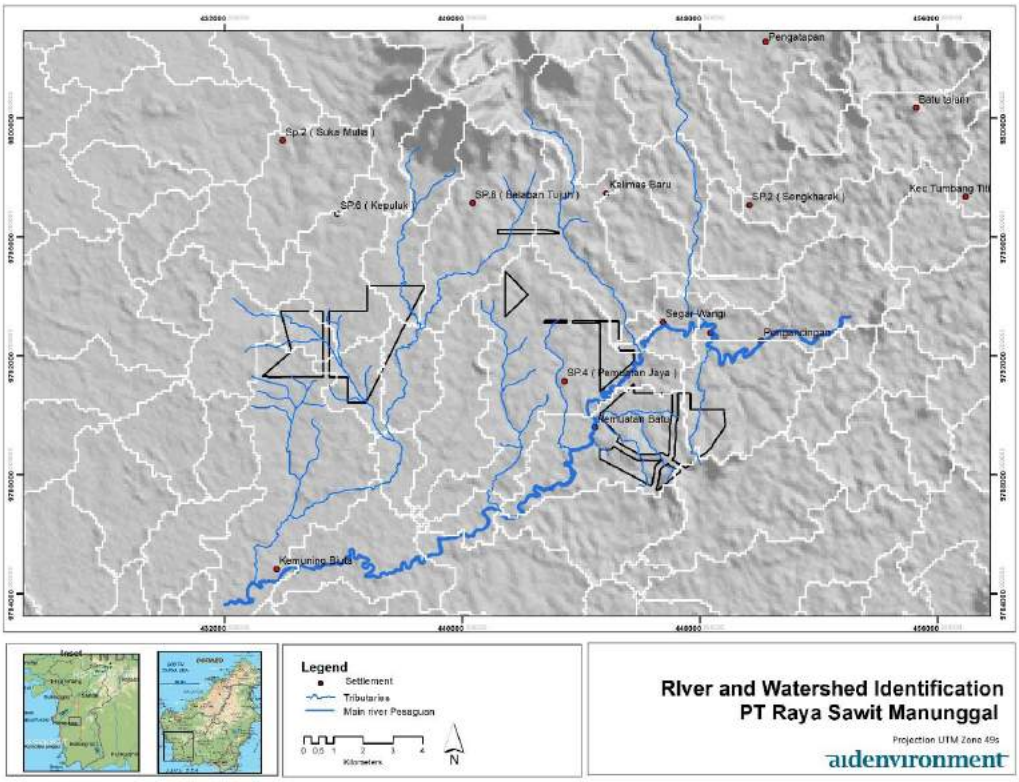
Landscape is defined as a geographic mosaic composed of interacting ecosystems as the effect of geological, topographic, soil, climatic, biotic and human interactions on a particular region (IUCN)[2]. The published 'landscape' definition can be implemented in varying extents from less than one hectar to over 200,000 hectares. Borneo Island itself can be referred to as a landscape on study on a regional scale. For smaller areas of study may use ecological boundaries that cover the entire concession area and the its outer association areas.

The landscape study (wider landscape) is a wider area than area concession itself where there is a form of ecological and or social association occur in between areas concession and it wider landscape area, it also can be interpreted as potential impacted areas from from the project planning development regard with environmental and social aspect. This study makes use of watershed approach on defining wider landscape, where several sub watersheds identifies in which areas concession of PT RSM as part of it. The sub watershed identified is part of the Pesaguan watershed as the main watershed in the landscape. The sub watershed identifies through the identification of the rivers network on high resolution satellite image and find out the coverage of sub watershed in which connected to the area concession. Further the digital elevation data (SRTM) optimized to build the digital model of river network and its sub watershed. Final step on visual verification conducted on high-resolution satellite imagery (resolution 1.5 meters) to refine the results from both visual and the

[2] https://portals.iucn.org/library/efiles/documents/fr-021.pdf

digital model. The next following describes the process of identifying river network and sub watershed through digital model (SRTM) and how the areas of sub watershed connected to the area concession.

Map 5. River network and sub watershed identification process



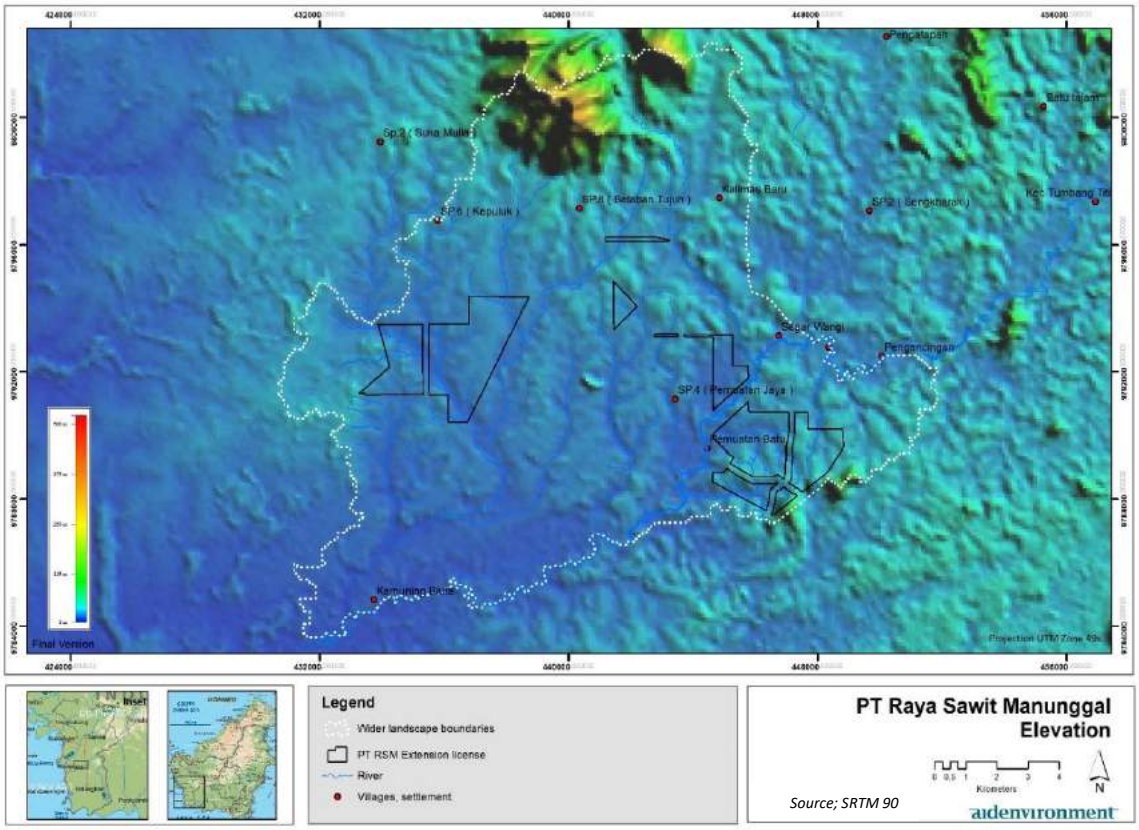
Climate type on the landscape fall to type A follow climate system classification of Schmidt and Ferguson in 1951, with value of Q = 0.4, the rainfall ranges from 2,761 mm/year. Wet months with rain of (> 100mm/ month) which is the rainy season almost all year long, while dry months are not with rain below 60 mm /month. The average air temperature of the year ranges from 26 - 28 ° C, the average air humidity 85% - 95%[3]. According to SRTM the elevation of the area concession is about 18-94 m above the sea level, the highest area is in the southern of the concession. Most of the concession is at a slope below 8%. There is a slope rate above 25% in the highest hill area of the southern.

The landform and the soil characteristic on PT RSM landscape is *undulating rolling plains (*in Rangankau Unit), *hillocky plains* (in Honja unit) and *Non-oriented - sedimentary hills* (Pakalunai unit). (Repprott 1987). In general landform and soil types in PT RSM landscape are :

1. Tropudult, Paleudult and Tropaqueps, are part of Ragankau (RGK) land unit (Repprot landsystem unit). The area description is a rolling with wide valleys, lithology is come from *Andesite, Basalt, Granit Scheist and Recent alluvium* (on the river border). This area is classified as suitable (S) for palm oil.
2. Tropudult and haplorthox, as a part of Pakalunai – PLN land unit (Repprott landsystem unit). The area description as *Non-oriented - sedimentary hills*, lithologi is come from *Granite, schist, andesite, basalt and granodiorite.* This area is defined as unsuitable (N) for palm oil.

[3] Hasil pengamatan stasiun pengamatan cuaca PT. Suka Jaya Makmur, Stasiun berada pada arah barat daya jarak lurus 60 km.

3. Tropudult, Paleudult, tropohulmuts, as a part of Honja – HJA land unit (Repprott landsystem unit). The area description is *hillocky* plain or hilly terrain, lithologi is come from *Andesite, basalt, granodiorite; schist; granite*. This area is defined suitable (S) for palm oil.

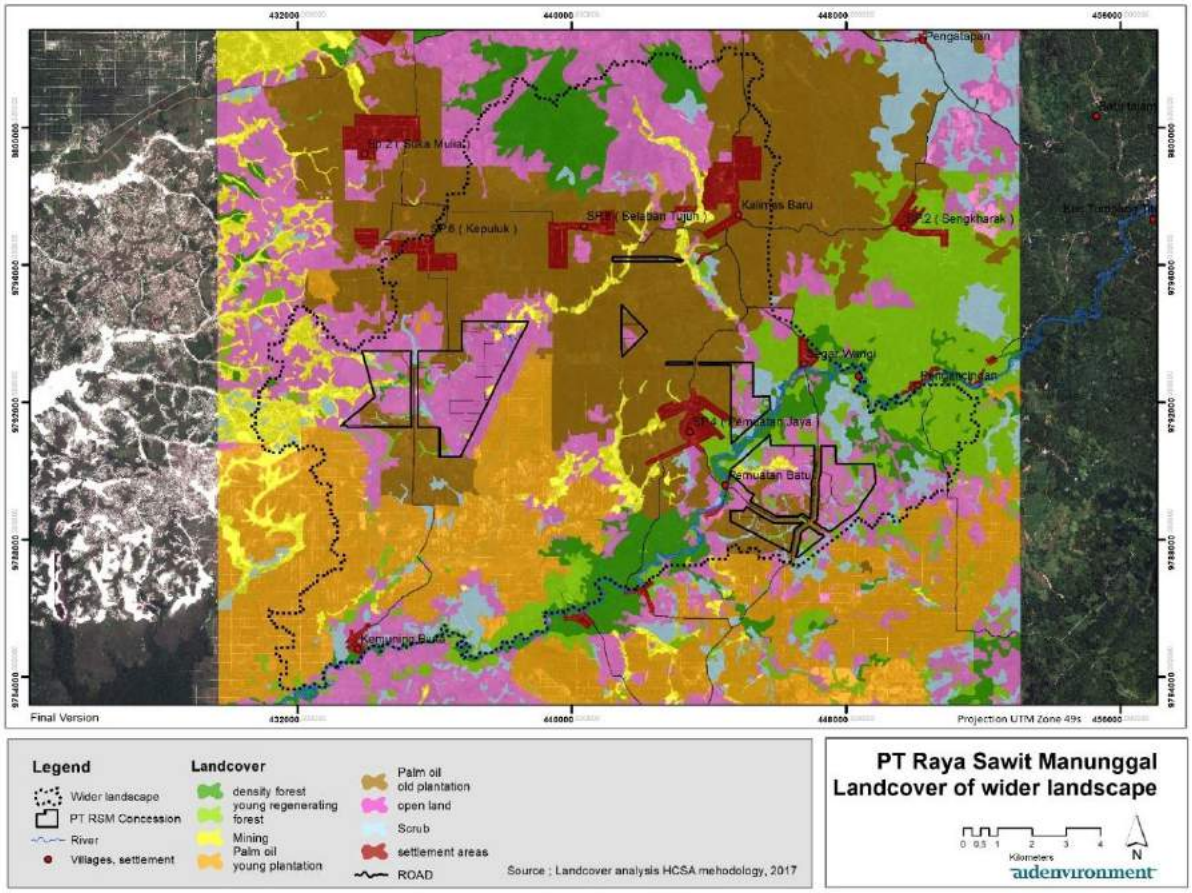


Map 6. Elevation on the landscape study

Landscape landcover dominated by old and young palm oil plantation, old plantation came from previous PIR trans project and new young plantation mosty areas plantation of PT. Artu Borneo. Scrub and open land are also significant in the landsape, while natural vegetation still remaining on Bukit Belaban tujuh-Bukit Keseduk on the north and also remain along Pesaguan river buffer. There is ex-gold mining which connected to the wider ex-gold mining areas outside the landscape to the west. The landcover in area concession has been heavily degraded and fragmented. Landcover proportion in the concession area consist of open land and scrubland (63%) and palm oil (20%). There is a small part of the community garden in the form of a rubber plantation (2.7%), fragmented natural vegetation found in rivers buffers (6.6%), ex-mining areas are also significant in the area (5%).

The area blocks concession is divided into 6 blocks to the north and 4 blocks on the south of Pesaguan river. The main land formation of the wider landscape is Plain and there is a small portion of the area that falls into the Hill category. The land use status is non-forest area (APL) which dominated on the landscape include area concession, there are also the important area for the biodiversity which is located on the protected forest area (HL) of Bukit Belaban Tujuh with highest elevation, and slope levels in the landscape and still have natural land cover. Other area which has support function for biodiversity in the landscape is on river buffer of Pesaguan river with the high-density forest remaining as community agroforestry where the vegetation in the area is still in combination with the trees of natural species. Bukit Belaban Tujuh is a catchment area of two rivers which is flowing down to the south through the area concession and end to the Pesaguan river.

Map 7. Landcover condition on wider landscape and area concession



Landscape analysis found that the endangered and critically endangered mammal species which listed on the IUCN red list are still potentially to be found in the landscape, the analysis found the landscape are part of the distribution population of endangered mammal species such as *Pongo pigmaeus*, Beruang madu *Helarctos malayanus*, Trenggiling *Manis javanica*, Bekantan *Nasalis lavartus* dan species burung Enggan Gading *Rhinoplax vigil*.

In the demographic and socioeconomic aspects of the wider landscape there are several settlements. The settlement is a combination of native villages and transmigration villages from the PIR trans project which started in 1992. The native villages are Sungai Melayu, Kemuning Biutak and Segar Wangi Village. While the transmigration villages are SP.6 Kepuluk, SP.8 Belaban Tujuh, Kalimas Baru Village, and SP4-Pemuatan jaya village.

Table 6. Demographic of the native villages in the landscape, BPS 2016

Villages	Sub district	Extend Km^2	Population	Sex		Families	Density/ KM
				L	P		
Kemuning Biutak	Matan Hilir selatan	212	3319	1695	1624	1022	7
Segar Wangi	Tumbang Titi	60	1760	914	846	681	29
Sungai Melayu	Sungai Melayu Rayak	35	2341	1390	951	464	67

Table 7. Location and number of PIR Trans farners in the landscape

No.	Desa	Kecamatan	PT Sebelumnya	PT saat ini	Grand Total	
					Jumlah KK	Luas (Ha)
1	Sungai Melayu Jaya (SP7)	Sei Melayu Rayak	DSN	SPA	400	1.000
2	Jairan Jaya (SP5)	Sei Melayu Rayak	DSN	SPA	405	1.063
3	Sungai Melayu Baru (SP1)	Sei Melayu Rayak	DSN	SPA	500	1.295
4	Suka Mulya (SP2)	Sei Melayu Rayak	DSN	SPA	340	950
5	Kepuluk (SP6)	Sei Melayu Rayak	DSN	SPA	413	1.033
6	Belaban 7 (SP8)	Tumbang Titi	DSN	SPA	400	1.000
7	Pemuatan Jaya (SP4)	Tumbang Titi	BMI	RSM	500	1.280
8	Kalimas Baru (SP3)	Tumbang Titi	BMI	RSM	500	1.260
9	Sengkaharak (SP2)	Tumbang Titi	BMI	RSM	440	1.100
10	Lalang Panjang (SP1)	Pemahan	BMI	RSM	500	1.250
11	Semayok Baru (SP2)	Pemahan	SLA	WHI	500	1.250
12	Siantau Raya	Nanga Tayap	SLA	WHI	642	1.484
13	Karya Mukti (SP5)	Sei Melayu Rayak	SLA	WHI	361	903
14	Piansak (SP1)	Sei Melayu Rayak	SLA	WHI	500	1.250
15	Beringin Jaya (SP3)	Sei Melayu Rayak	DSN	SPA	372	930
16	Mekar Jaya (SP4)	Sei Melayu Rayak	DSN	SPA	342	855
Total					7.115	17.902

The ethnicity composition of native villages within the landscape has increased in line with the presence of transmigrants from the Trans PIR project since the 1990s and along with gold mining activities that began in the 2000s which also brought in workers from outside of the landscape. The ethnic of transmigrant are the Javanese and Sunda and the miners are from the other areas in West Kalimantan.

Table 8. The ethnicity and religion of the native villages on the landscape

Villages	Ethnicity	Religion	%*
Kemuning Biutak	Dayak	Protestant dan Catholic	90%
Segar Wangi	Melayu	Islam	70%
	Dayak	Kristen Protestant dan Catholic	30%
Sungai Melayu	Dayak	Kristen Protestant dan Catholic	50%
	Melayu	Islam	35%
	Jawa	Islam	15%

* 2014 data

The poverty rate of the villagers in the study villages based on the Central Bureau of Statistics data is measured by the level of the family welfare (Pra-KS and KS-1) and the abandoned population (eldery dan children) and benefeciaries of rice subsidy, as follows;

Table 9. The poverty figures of native villages in the landscape

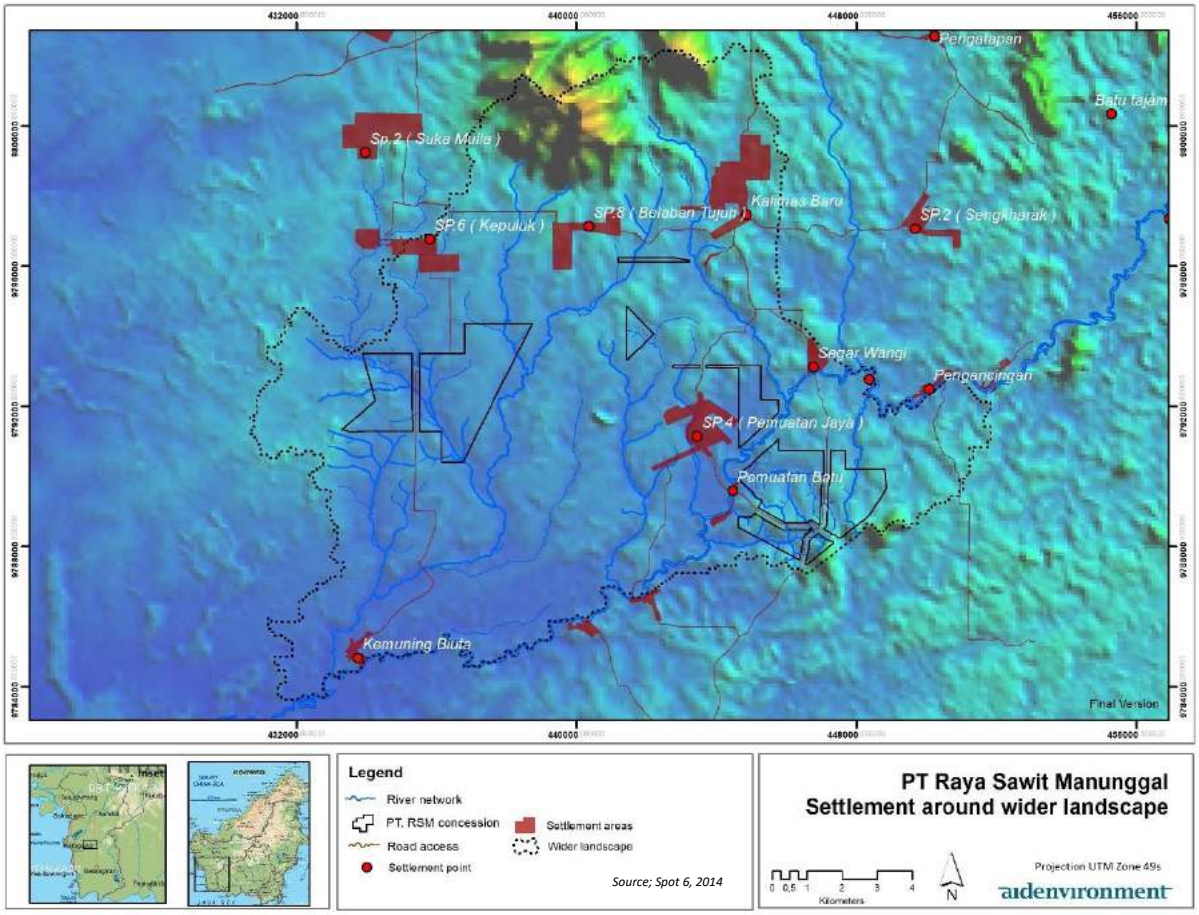
Villages	Pra-KS	KS-I	Total	Percentage from total family
Kemuning Biutak	-	220	220	21,52 %
Segar Wangi	20	22	44	6,46 %
Sungai Melayu	-	110	110	23,70 %

Table 10. The abandon-homeless figure from native villages in the landscape

Villages	Elderly	Children	Total	Percentage from total population	Ras-Kin* beneficiaries
Kemuning Biutak	108	514	622	36,69 %	160
Segar Wangi	105	390	495	28,12%	106
Sungai Melayu	125	617	742	31,69%	83

*Government rice subsidy for poor people.

Map 8. Villages and settlement distribution in the landscape



The economics history in the landscape starts with timber companies around 1970s to 1990s. Some timber companies operated among them PT. Wood Pesaguan, PT. Mohairson, PT. Suka Jaya Makmur and PT. Inhutani II. The development of oil palm plantations in the landscape under the PIR Trans scheme starting on early of 1990's. Together with the java transmigrant, local communities were also prioritized to participate in the project. The project implementer is PT. Benua Indah Group (PT BIG). At the beginning of the PIR Trans project the economy of local community and transmigrants improved, unfortunately starting in 2005 there was serious miss management of PT. Benua Indah Group (PT BIG) and the communities cannot sell FFB since there was no other palm oil mill surrounding the landscape on that time. Further operational activities of PT. BIG totally closed by September 2009.

From the accessibility aspect all the villages in the landscape study has road access started since PIR trans project in 1990s which open the access for most of the landscape area. Sungai Melayu village is in Kota Kecamatan Sungai Melayu Rayak with most good accessibility on the main axis road of Pontianak - Nanga Tayap - Ketapang. The other two villages are in the southern part of the concession area with access through old plantation roads and transmigration settlement sites. On dry conditions to access Kemuning Biutak Village is around in 1.5 hours and Segar Wangi village within 1 hour from the main axis road which is on Sungai Melayu. From the accessibility aspect and location, Sungai Melayu has higher ethnicity composition compared to the other 2 native villages.

Basic economics of the local community both Malay and Dayak people are on the traditional agricultural, especially shifting cultivation to get rice as the main crops which mix with corn and vegetables. Rubber is a cash commodity in which is part of the culture from previous generation. Rubber plantation mostly in a form of jungle rubber which mix with the native trees. Several

community members now start to plant clonal rubber varieties in replacing their shifting agriculture area. Since 1999 illegal gold mining activities start to begin and bloom in the surrounding areas of the Sungai Melayu village, located on east part of the landscape on area of Pematang Gadung peat forest block. This activity has caused serious impact on river sedimentary and water turbidity. The illegal gold mining grew from 100 ha in 2000 to 15,000 hectares in 2010. In 2008 in the south of PT. RSM PT. Artu Borneo Plantation (PT ABP) started to operate with the POM (palm oil mill) start on 2016. The operation of PT. Artu Borneo Plantation give chance to local communities and transmigrant to work as a daily worker (BHL-*buruh harian lepas*) at PT. ABP and selling FFB to PT ABP POM as the new alternative since PT BIG's POM closed.

c. HCV Findings

The HCVs assessment in PT RSM found at least five types of HCV including HCV 1, HCV 2, HCV 3 and HCV 4 and HCV 5, with a total area of 189 hectares, where the HCV 6 are still under status of potential presence. The area indication of HCV 6 is on the east block of the concession in which related with Segar Wangi village.

Table 11. Summary finding of HCV identification on PT RSM

HCV	Definition	Present	Potentially Present	Absent
1	1.1. Areas that contain or provide biodiversity support function to protection or conservation areas.			
	1.2. Critically Endangered Species			
	1.3. Areas that contain habitat for viable population of Endangered, restricted range or protection species.			
	1.4. Areas that contain habitat of temporary use by species or congregation of species.			
2	2.1. Large Natural Landscapes with Capacity to Maintain Natural Ecological Processes and Dynamics			
	2.2. Areas that Contain Two or More Contiguous Ecosystems			
	2.3. Areas that Contain Representative Populations of Most Naturally Occurring Species			
3	Rare or Endangered Ecosystems			
	4.1. Areas or Ecosystems Important for the Provision of Water and Prevention of Floods for Downstream communities			
	4.2. Areas Important for the Prevention of Erosion and Sedimentation			
	4.3. Areas that Function as Natural Barriers to the Spread of Forest or Ground Fire			
5	Natural Areas Critical for Meeting the Basic Needs of Local People			
6	Areas Critical for Maintaining the Cultural Identity of Local Communities			

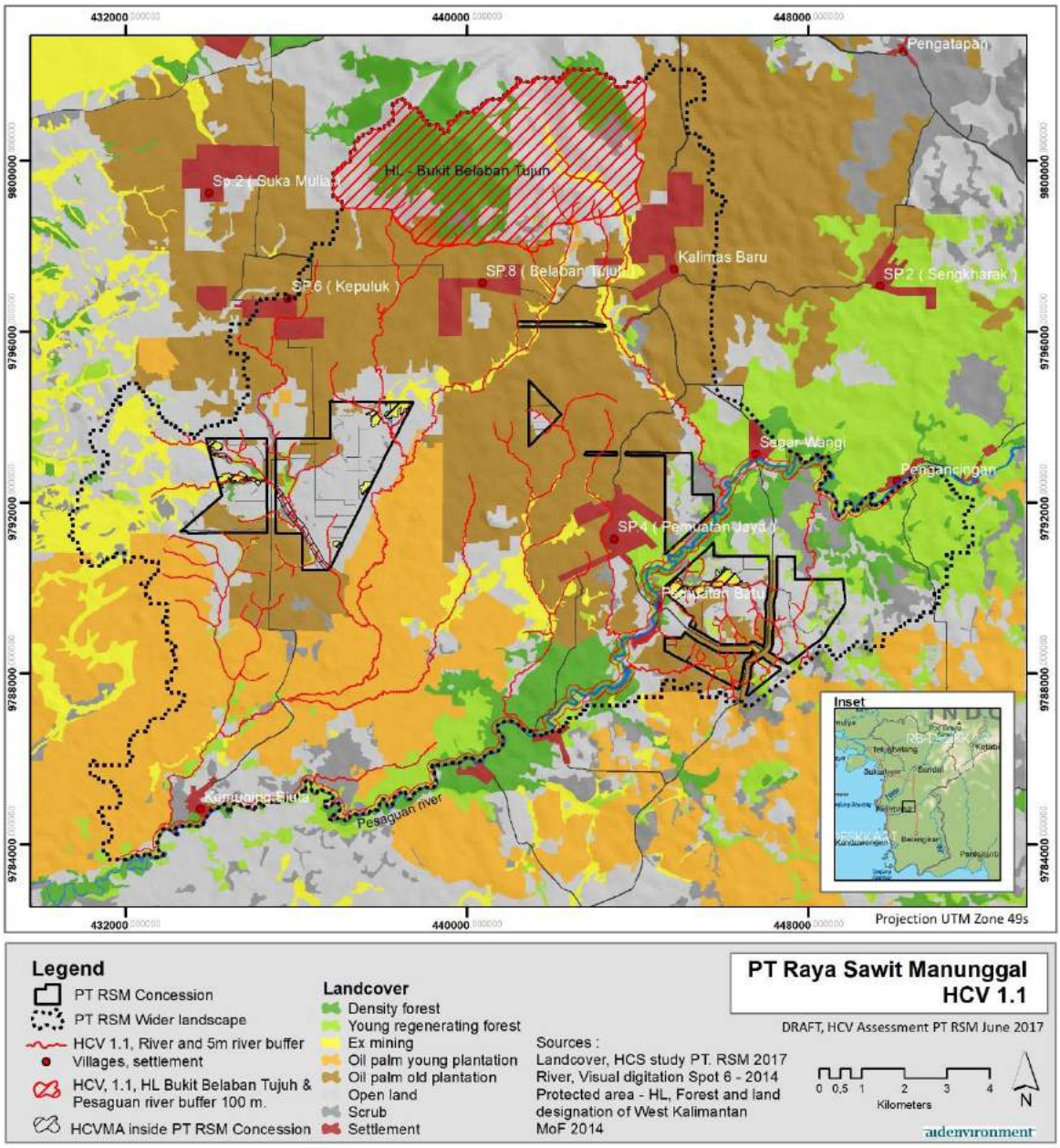
HCV 1. Areas with important level of biodiversity

HCV. 1.1. Areas that contain or provide biodiversity support function to protection or conservation areas.

Finding status; Present

The areas which has support function for the biodiversity on the concession areas found along the river buffer. Hutan lindung Bukit belaban tujuh as the only protected areas found in the wider landscape, located 4 km to the north of area concession. This area has serve for important hydrological function as catchment areas on the landscape, several rivers flows down to concession area and end on Pesaguan river. Others important area in the landscape is buffer of Pesaguan river which identified as areas important on biodiversity support where the areas remain with density forest.

Map 9. HCV 1.1 on the landscape and concession of PT RSM



The rivers width found on the assessment site in between 2-5 meters. Further analysis on determine the river buffer following Indonesian regulation PP 38 2011 which is applied for determine the width

of Pesaguan river buffer. For the river network in the landscape and concession area where the river width between 2-5 meter, the determination of the buffer width follows RSPO guidance of river buffer management which for the river in between 2-5 meter should be protecting buffer at least 5 meters on each side. The HCVMA area of HCV 1.1 includes the degraded rivers buffer in the forms of open area, scrub and or ex-gold mining area.

Rare, Threatened and Endangered species finding

Table 12. Shorlist finding list of plant species under category of HCV 1.2 and 1.3

No	Species	Family	Local name - Idn	IUCN	GoI	CITES	END	Loca-tion found
1	*Cobretocarpus rotundatus*	*Combretaceae*	perepat	VU				BM 3, BM 6, BM 7
2	*Durio kutejensis*	*Malvaceae*	Pekawai	VU			END	RSM12T
3	*Gonystylus bancanus*	*Thymeleaceae*	Ramin	VU		APP II		HK1.6
4	*Nepenthes gracilis*	*Nephentaceae*	Kantung Semar	LC	PP7	APP II		RSM 1T
5	*Shorea leprosula*	*Dipterocarpaceae*	Meranti Merah	EN				RSM_15
6	*Shorea ovalis*	*Dipterocarpaceae*	Meranti				END	RSM_12
7	*Shorea platycarpa*	*Dipterocarpaceae*	Meranti	CR				RSM_15
8	*Eusideroxylon zwageri*	*Lauraceae*	Ulin	VU				RSM 15
9	*Shorea uliginosa*	*Dipterocarpaceae*	Meranti	VU				RSM_12
10	*Vatica umbonata*	*Dipterocarpaceae*	Resak	LC			END	RSM 5T
11	*Shorea seminis*	*Dipterocarpaceae*	Terindak	CR	PP7			HK 1.2 T

Note: END = Endemic to Borneo; CR-Critically Endangered, EN-Endangered, VU-Vulnerable ; LC-Least concern, NT-Near threatened (LC,NT,VU,EN,CR under IUCN redlist) , App.II = CITES Appendix II; PP7; Indonesian species protection under PP No. 7 tahun 1999. Full list of finding plant species can be found on annexes.

Table 13. Short list wildlife species under category of HCV 1.3

No	Nama Indonesia	Nama Inggris	Nama Ilmiah	Family	CITES	IUCN	GoI	Lokasi
1	Elang Tikus	Black-Shouldered Kite	*Elanus caeruleus*	Accipitridae	APP II	LC	PP no 7	RSM 11T
2	Pekaka emas	Stork-billed kingfisher	*Pelargopsis capensis*			LC	PP no 7	RSM 6T
3	Cucak rawa	straw-headed bulbul	*Pycnonotus zeylanicus*	Pycnonotidae		EN		RSM 5T
4	Kipasan belang	Pied-fantail	*Rhipidura javanica*	Rhipiduridae		LC	PP no 7	RSM 5T
5	Elang brontok	Changeable hawk-eagle	*Nisaetus cirrhatus/ Spizaetus cirrhatus*.	Accipitridae	APP II		PP no 7	RSM 12

Note: END = Endemic to Borneo; CR-Critically Endangered, EN-Endangered, VU-Vulnerable ; LC-Least concern, NT-Near threatened (LC,NT,VU,EN,CR under IUCN redlist) , App.II = CITES Appendix II; PP7; Indonesian species protection under PP No. 7 tahun 1999. Full list of wildlife species can be found on annexes.

HCV 1.2. Critically endangered species

Finding status; Present

The concession contains habitat or ecosystem that support critically endangered (CR) species. From plant species list of found species *Shorea platycarpa* and *Shorea seminis* under protection status of critically endangered (CR – IUCN). The other potential CR species such as *Pongo pygmaeus, Manis javanica, Presbitis chrysomelas* and bird species *Rhinoplax vigil* which indicated potential present during desktop landscape assessment not present in during field observation.

Pongo pygmaeus still potential to be found, the most potential habitat suspect in the landscape are in the Bukit Belaban tujuh and buffer of Pesaguan river where those area consider as the most natural habitat in the landscape.

Pangolin species still under potential to be found in the landscape. Community interview reveal that this species still exists in small number of population, very rare and hard to find. Pangolin species population in this landscape suffer from excessive hunting several years back for meat and scales fulfill export market. From that case pangolin status conservation increase to CR since 2014.

Rhinoplax vigil still potential to be found, the most potential suspect habitat in the landscape are in the Bukit Belaban tujuh as this area is hilly areas with high density forest remaining and potential to have big trees from first strata for nesting place of this species

Further outside Bukit Belaban and Pesaguan river buffer all habitat in the landscape area has been suffered with high habitat loss, conversion and fragmentation, while the CR species which not present during field assessment to be survive need natural habitat with certain ecological attribute.

HCV 1.3. Areas that contain habitat for viable population of Endangered, restricted range or protection species.

Finding status; Present

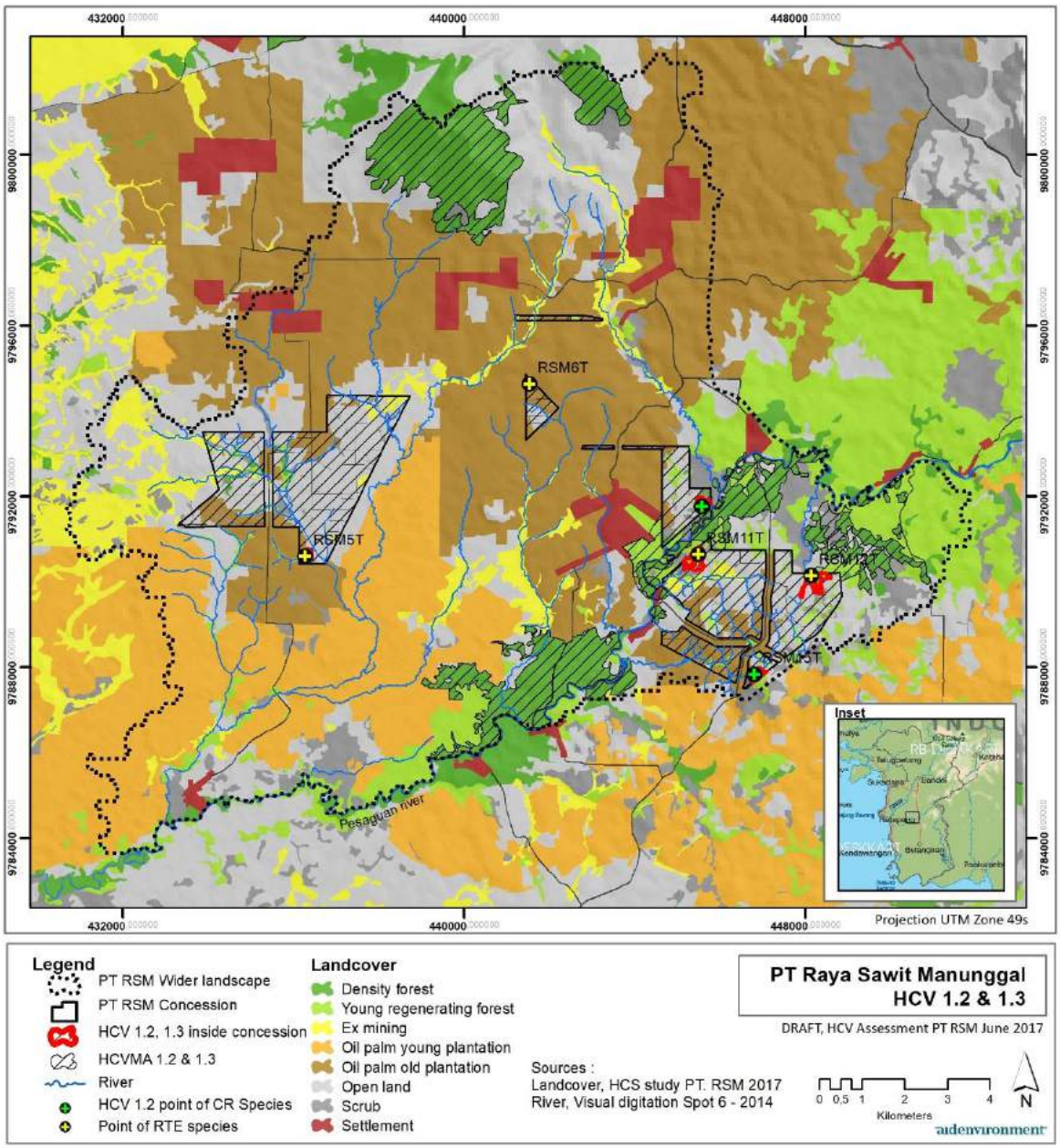
The concession and it wider landscape contain habitat or ecosystem that support endangered and restriction range or protection species. Analysis found;

1. Species found under critically endangered category (CR – IUCN) is *Shorea platycarpa* an *Shorea seminis*.
2. One plant and one bird species in under endangered category (EN-IUCN) are *Shorea leprosula* and *Pycnonotus zeylanicus*.
3. Three species are found under status of endemic plants, *Durio kutejensis*, *Shorea ovalis* and *Vatica umbronata*.
4. Four species of plants found under vulnerable categories (VU-IUCN) are *Durio kutejensis*, *Gonistilus bancanus, Eusyderoxilon zwageri* and *Shorea ugilinosa*.
5. Two plant species and one bird species are found in the CITES Appendix II *Gonistilus bancanus, Nephenthes gracilis* and *Elanus caerulus*
6. Four species of birds found under Indonesia species protection regulation *Elanus caerulus*, *Pelargopsis capensis, Rhipidura javanica* and *Niseatus cirhatus.*

Field observation found 135 plant species and 25 wildlife species, this finding considers low compared with the original number species in lowland forest of Borneo. No RTE primate and mammals species found in the finding list such as the Orangutan, Hylobates, Presbitis *chrysomelas* Helartos malayanus or the most common adapted species such as Macaca fascicularis. This absent related to the high level of habitat loss, fragmentation and degradation inside concession and its surrounding landscape. The landscape habitat has changed widely from forest vegetation to palm oil plantation since three decades ago, for areas outside of oil palm also has been suffered of gold mining activities and

traditional farming from communities. Regard with habitat assessment of species populations within minimum viable population (MVP) status, is not possible to assess in this HCV assessment. HCV assessment is a rapid assessment and in order to assess the habitat of viable species populations, a comprehensive assessment of both habitat and related species should be assessed.

Map 10. HCV 1.2 and 1.3 of the PT. RSM landscape



Two predator bird which under Indonesia protection which are *Elanus caerolus* and *Niseatus cirhatus* status found in the area concession. Findings of this to predator bird related with wide extend of open land dan shrub found in the landscape, where the areas served as hunting ground for both of those bird predator species. Further these two bird predator species avoid intact forest while hunting. Small bird, lizard and mouse are prey of this two predator bird. Nesting areas of this two bird predator suspect on the forested areas outside the concession. On the landscape there are Bukit Belaban Tujuh and Pesaguan river buffer which suspect as nesting place of this two bird predator, where those both suspected nesting area consider has support function from the density forest remaining. The distance

in between areas concession into Bukit Belaban tujuh on the north and Pesaguan river buffer on the south around 2-3 km from concession area which still in the range of two predator bird found in the concession. Based on observation this two predator bird from family Accipitridae have good adaptation capability within palm oil plantation landscape as long as these species is not hunted.

Mapping of the HCV Areas, all areas related to the findings of RTE species with habitat condition from natural vegetation such young regenerating forest or density forest defined as HCV areas. While the HCVMA defined on the areas with highly potential HCV species found such as Bukit Belaban tujuh and area with potential serve as connectivity and corridor which on the river buffer which potentially connect one population with another population.

Threats, threats to RTE plant and wildlife species can be threats to species and habitats. The threat may come from both internal and external parties. Internal habitat threats include the threat of land clearing during plantation land preparation, while external habitat threats include shifting cultivation, hunting, gold mining, drought and fires. Threats to plant species mainly from the felling of commercial species such as the types of Shorea spp, Gonistilus bancanus and Eusyderoxylon zwageri. Threats to the endemic species of Durio kutenjensis can be expressed as minimum, this related to this species whose fruits which are utilized by the community and the timber value of this species is not classified as a commercial wood species. Tengkawang as fruit-producing species are still concerned about the type of timber from tengkawang species including in commercial timber species. Threat of bird species especially to bird species Cucak Rawa (Pycnonotus Zeylanicus). This should be anticipated with threat patrol activities to be able to dispel the hunters of this species. The other bird species have no significant threat currently.

HCV 1.4. Areas that contain habitat of temporary use by species or congregation of species

Finding status; not present

The assessment landscape falls to lowland forest ecosystems with rolling plain and hills landform but there are no sites that support migratory species such as wetland (swamp, lake) or cave. Other, the overall habitat condition of the study areas has suffered with high level degradation and fragmentation. Assessment landscape also far from important bird area (IBA-EBA), key biodiversity area (KBA) or even Ramsar Site, Gunung Palung and Muara Kendawangan nature reserve are the closest with direct distance more than 60 km, Tanjung puting and Danau Sentarum as the Ramsar site even more farthers.

HCV 2. Natural landscape and Dynamics

HCV 2.1 Large natural landscapes with capacity to maintain natural ecological process and dynamics.

Finding status; not present

Mapping analysis conclude that no part of the landscape and concession areas as the part of large natural landscape, where the large natural landscape ecosystem define as natural landscape patch with core more than 20,000 ha. Further analysis on potential impact of assessment landscape into Intact forest landscape (IFL) the finding conclude that assessment landscape and RSM concession areas not have impact into IFL condition, where no overlaps and no potential connectivity exist from landscape assessment into IFL area. Spatial planning analysis on future trend of landscape fragmentation found the assessment areas falls to APL land and not related with protected of conservation areas.

HCV 2.2. Area that contain two or more contiguous ecosystem.

Finding status; Not Present

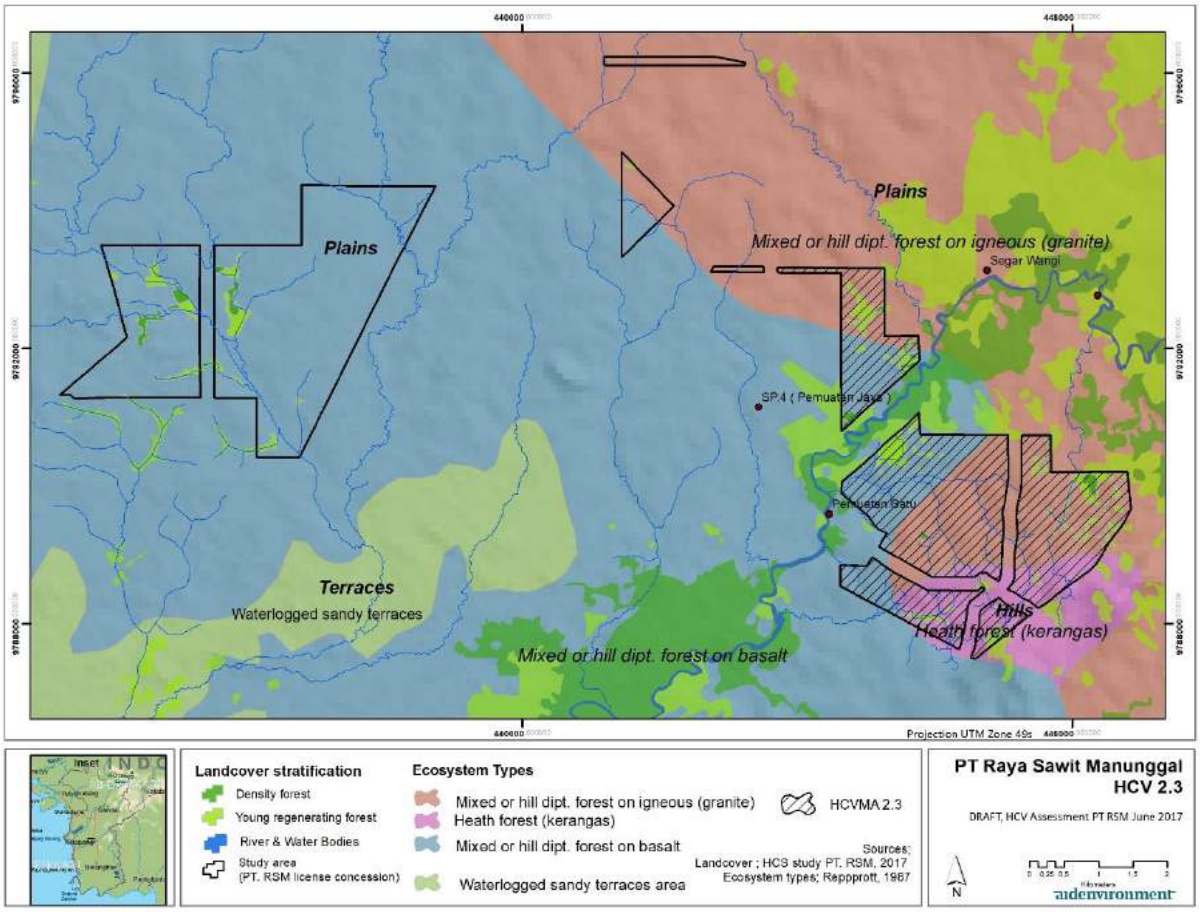
The general landform description of the landscape study area consists of plains and hills. In the plains areas as part of dipterocarp forest ecosystem above granite and dipterocarp forests above basalt, while in the hills areas falls to Kerangas forest ecosystems. Regard with ecosystem transition areas (ecotone) especially on contiguous transitional ecosystem areas, the verification process examines the transitional of the landform with land cover data in which the finding found there are no contiguous natural vegetation along the transitional area in between plains area into hilly area ecosystem.

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

Finding status; Present

The concession areas contain representative population of most natural occurring species. On the species list found two species of birds predator which *Elanus caerulus* and *Niseatus cirhatus.* Both species defined as representative population of natural species found in landscape study. Both species concede as proxy of representative population of most natural occurring species (HCV 2.3). Protection of this species can be a proxy for protection from other species with smaller niches. Both of predator bird species found in the east block of concession. The analysis found east block concession in which as combination of plain and hilly areas and relatively close to the density forest areas on the Pesaguan river buffer which suspect has support function for nesting areas and the continuity of population both predator birds species. These east block concessions conclude as HCVMA of HCV 2.3. In the general landcover of the assessment landscape areas found large extend of open land and shrubs and palm oil plantation as ideal hunting grounds for both bird predator species.

Map 11. HCV 2.3 of the PT RSM landscape



HCV 3. Rare and endangered ecosystem

Finding status; present

The result on ecosystem status analysis of the wider landscape bio-physiographic southern plain and mountain found all types of lowland forest ecosystems are falls to threatened (Tr) ecosystem status. Further analysis found one type ecosystem has extinct which is *Mixed or hill dipterocarp forest on old marine sediments* ecosystem. The status of the sub-montane and montane forest ecosystems is still at a safe level although not the entire ecosystem areas are under protected areas status according to the West Kalimantan and Ketapang district spatial planning map.

The landscape study of PT RSM is in the lowland forest ecosystem zone which include ecosystem of dipterocarp forests above granite, basalt rocks and Kerangas ecosystem. Fresh water swamp and peat swamp ecosystems were not found in PT RSM landscape. Ohers, the study area is not part of intact landscape ecosystem of HCV 2.1. Mapping analysis of HCV 3 at PT RSM concession conducted by examine the presence of remaining natural vegetation as representative of threatened ecosystem vegetation. Analysis found several areas as remaining patch of natural vegetation within the PT RSM. The overall condition of the ecosystem condition in the concession has been heavily degraded and fragmented, the all remaining natural vegetation under young regenerating and density forest inside the concession to classified as HCV 3 with total 137.92 ha. The HCVMA of HCV 3 are the areas with potential for restoration such as ex-mining areas and degraded riverine buffers which are connected to area of HCV 3 identified.

HCV 4. Environmental service

HCV 4.1. Areas or ecosystem important for provision of water and prevention or flood for downstream communities.

Finding status; Present

Areas which serve function as provision of water or flood prevention for downstream communities found on the landscape. Landsystem of concession area falls to low land forest ecosystem zone with landsystem unit of RGK (Ragankau), HJA (Honja) and PLN (Pakalunai). These landsystem unit not related with areas important for prevention of flood such as swam, peat or karst. There are 4 sub-watersheds with the catchment areas identified in the landscape with the all rivers flows down and end into Pesaguan river as the main river of Pesaguan watershed. All the communities in the landscape sourced water from the river while alternative of clean water also sourced from the wells and collecting rain water. Water catchment in the landscape found on Bukit Belaban tujuh which serve function as the catchment of two river which flows down to Kemuning Biutak and Segar Wangi village. Other catchment area is in the center and east part of the landscape. On east part watershed the catchment area overlaps within block concession on the south hills where the river flow down to Segar Wangi village and Pemuatan Batu village (sub village of Segar Wangi). Analysis conclude that all river and river buffer as and catchment area as defined as HCV areas, while the degraded area on that HCV area defined as HCV MA. In defining the width of river buffers following Indonesian regulation PP No. 38. 2011 and RSPO guidance of river buffer management as discuss on HCV 1.1 section.

HCV 4.2. Areas important for prevention of erosion and sedimentation.

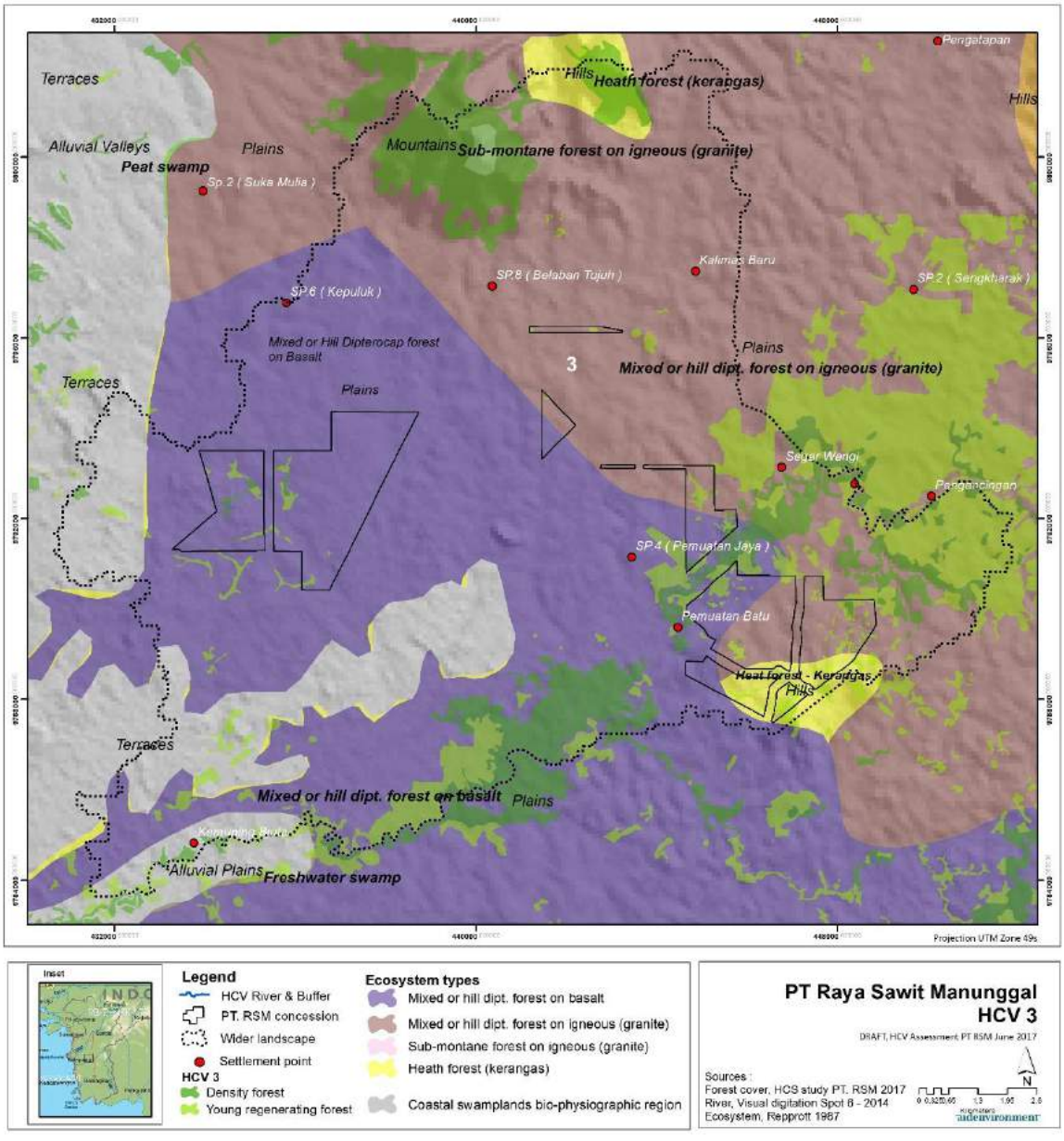
Finding status; Present

On the concession found areas which serve function as important for prevention of erosion and sedimentation. Concession area on the south block are consider as area with high slope more than 25%. This area serve function as prevent soil erosion and sedimentation (HCV A 4.2). Result of HCV 4.1

regard some part of area concession serve function as water catchment taking as outcome for determine HCV MA of HCV 4.2. To maintain value of HCV 4.2 the water catchment area in which falls inside concession consider as HCVMA of 4.2.

Image 3. Sandy soil on PT RSM

Map 12. HCV 3 of PT RSM landscape



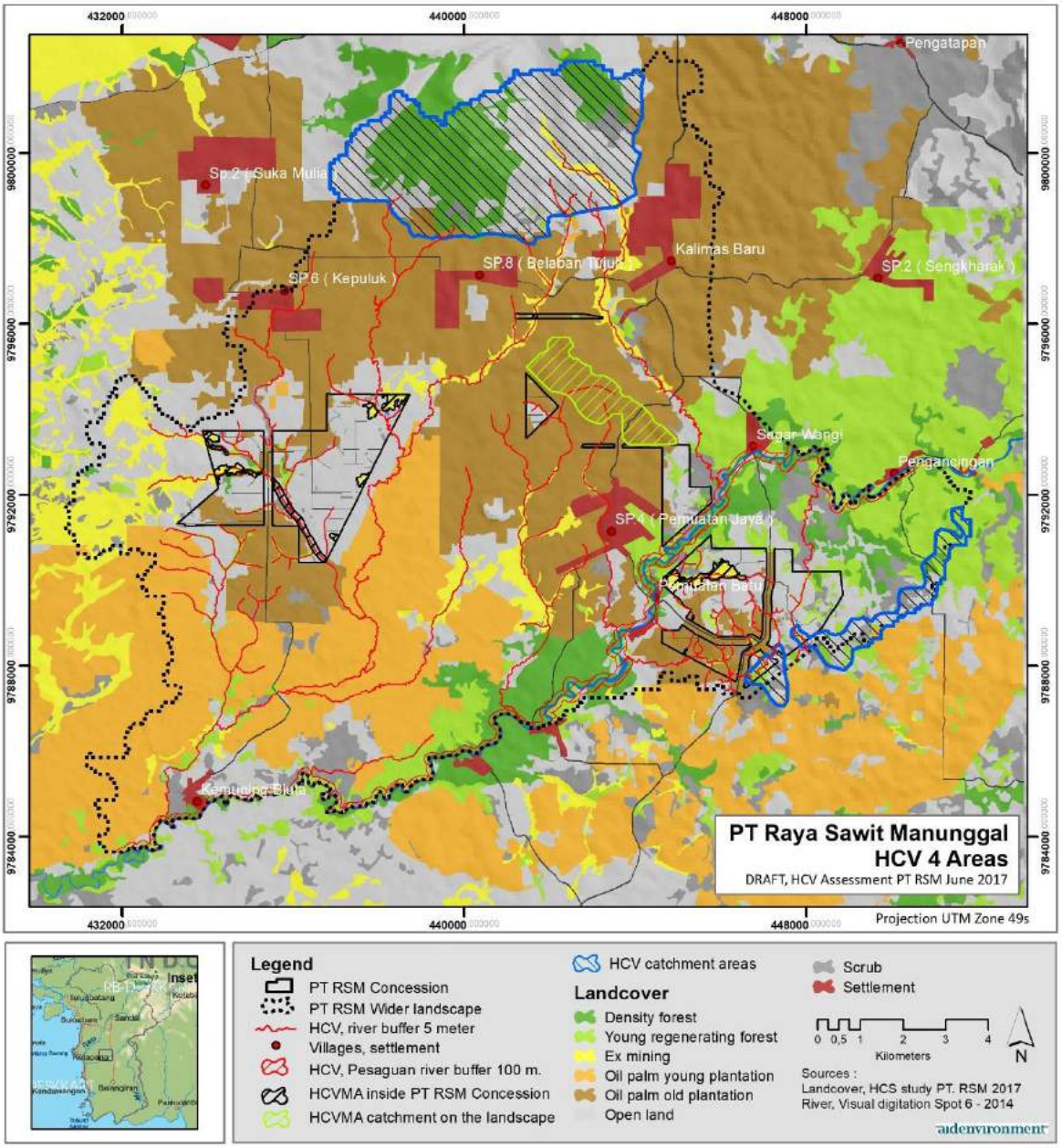
HCV 4.3. Areas that function as natural barriers to the spread of forest and ground fires.

Finding status; Present

On the concession found areas which serve function as barriers to the spread of forest and ground fires on remaining vegetation along the riparian buffers.

The landscape study falls to low land forest ecosystem zone which consist of heat forest of ecosystem, dipterocarp forest above Granite rock and dipterocarp forest above Basalt rocks. These three types of ecosystems are not good on retain the surface water and vulnerable to drought and fires. The condition of the three ecosystems on the landscape has been degraded, the fuel form of biomass deposits in the ground are quickly dry out. HCVA consider on the wet areas along the rivers buffer. HCVMA considered on area of ex mining and degraded riverine buffer for 103,84 ha. Those areas need to restore with natural vegetation and in the future will serve function as HCV 4.3.

Map 13. HCV 4 of PT RSM landscape



HCV 5. Natural areas critical for meeting the basic needs of local people

Finding status; Present

In the demographic and socioeconomic aspects of the wider landscape there are several settlements. The settlement is a combination of native villages and transmigration villages from the PIR trans project which started in 1992. The native villages are Sungai Melayu, Kemuning Biutak and Segar Wangi Village. While the transmigration villages are SP.6 Kepuluk, SP.8 Belaban Tujuh, Kalimas Baru Village, and SP4-Pemuatan jaya village.

The analysis of subsistence fulfillment is more pronounced in 3 native villages this is related to the wider resources of basic needs fulfillment than transmigration communities, although native villagers are also participants of previous Tran PIRs which limited for the elder. The source of fulfillment of the basic needs of transmigration communities is primarily met from the agricultural land area of the previous PIR Trans project allocation. A clean water supply analyst is conducted for transmigration village villages and native villages.

From the accessibility analysis of the landscape states that all the settlement on the landscape study is not an isolated settlement. The area has been covered with road access since the Trans PIR project. With the open access the local economy starts to generate start with FFB selling to the mills and the level of community dependence on land and forests start to be declined. Currently the source of fulfillment needs of the local communities has been diverse, mainly working as a day laborer of a palm oil company around.

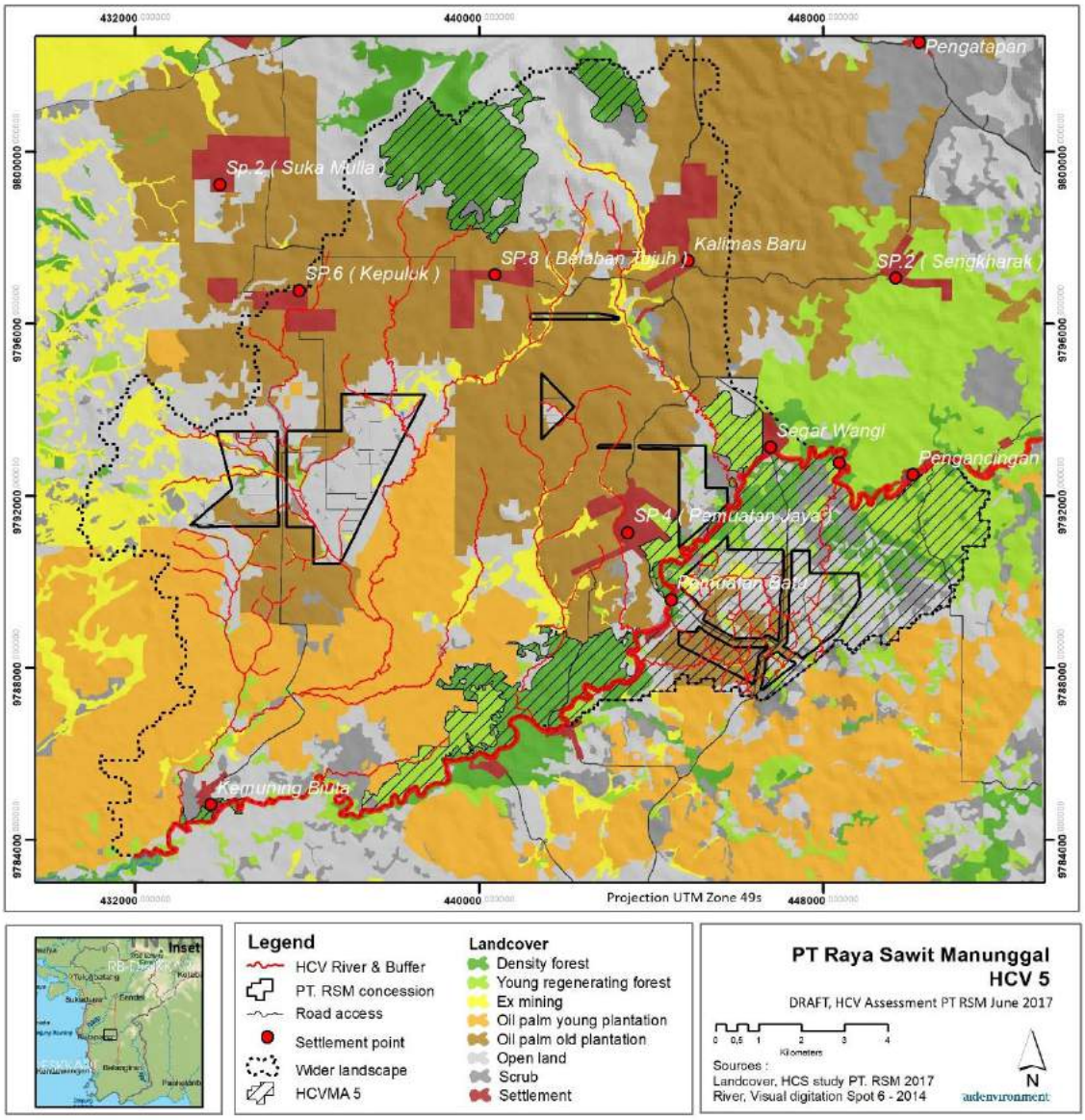
From the socio-economic analysis of dependence on the fulfillment of basic needs (subsistence) of the community such as the fulfillment of food needs (carbohydrates, proteins and vegetables), clothing in the form of fiber for clothing, housing, equipment, energy, clean water, medicine and cash with landscape studies, it is concluded that the study landscape still provides support for the fulfillment of these basic needs. This is limited to landscape support on the fulfillment of clean water needs. The areas that are important as a source of clean water are Bukit Belaban Tujuh-Bukit Keseduk (score 3) and the fulfillment needs of household water (bath-wash) from the rivers that flow around the settlements. This applies both to indigenous villages and transmigration villages. Another important point river as a source of livelihood for some villagers of Kemuning Biutak (river score 4), where several community members work as fisherman. It is concluded that the Pesaguan River and the network of tributaries along with its border in the landscape study and its catchment areas defined as HCV 5 areas. This conclusion also relates to the results of HCV 1 and HCV 4 mapping.

Traditional shifting cultivation is still done by some villagers of Segar Wangi (score 4). Although the yield not satisfactory. The analysis on the yield decreasing relate with decline ecosystem function support to bring back the fertile soil on the cycle of traditional shifting cultivation. This caused from the slow of vegetation succession to reach secondary forest that expect to bring back soil fertility on the site of shifting cultivation site. Other factor is the frequent occurrence of forest fires (mostly annual) causing loss to make the natural forests farther from shifting cultivation areas, where natural forest as an important vegetation seed dispersal source. From this condition field survey observed that shifting cultivation is very important for several Segar Wangi villager, location mapping for this area cannot be done due to time limited of social survey.

All villagers from native villages work on rubber garden as a hereditary in the form of natural rubber (jungle rubber) as one source of cash money income. Although currently some people say less important (score 1) and important (skor2) this is due to falling prices of rubber commodities. Recognized by the entire community they still look after their rubber garden as a reserve of livelihood

in the future. The form of natural rubber cannot be distinguished from secondary forests during the interpretation process of land cover through satellite imagery, jungle rubber will fall to density forest class and regeneration forest. This jungle rubber field mixes with the native trees species mainly fruits produce trees such as Durian and other native local fruits that are used and consumed by the community. Therefore, the remaining density and young regenerating forest areas identified in the study landscape are identified as HCV MA areas.

Map 14. HCV 5 of PT RSM landscape



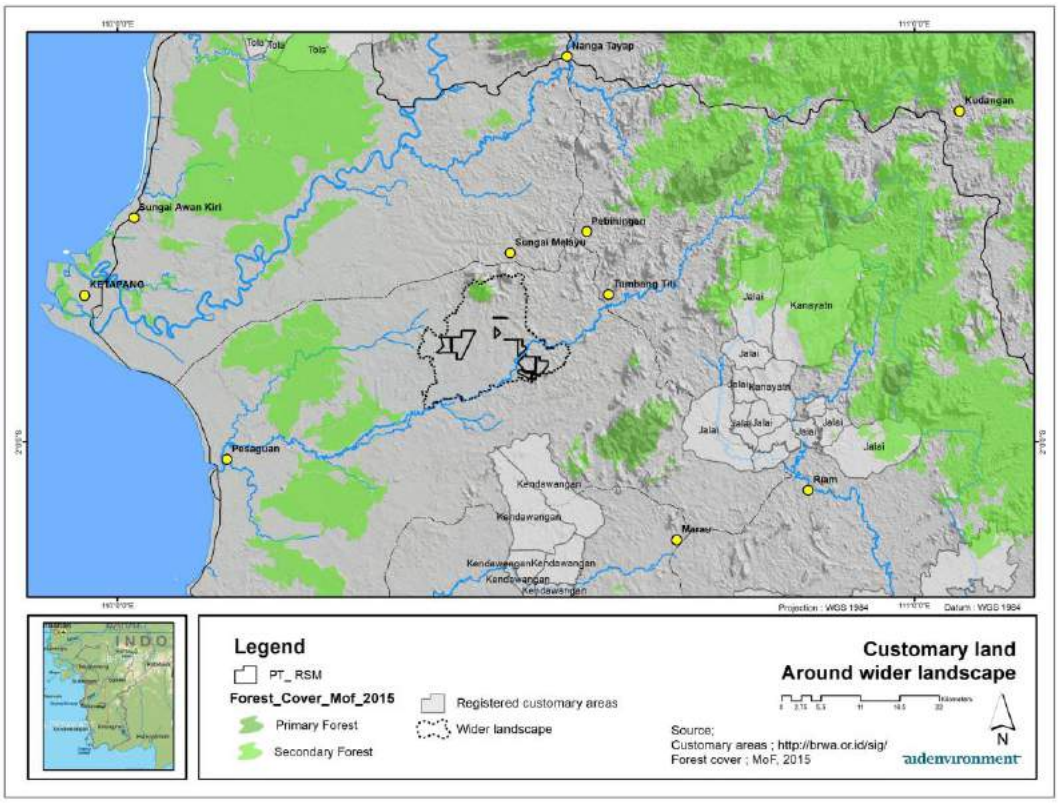
HCV 6. Areas and species critical to local communities' traditional culture identity

Finding status; Potentially Present

HCV 6 aim to identify areas that have an important function for the traditional cultural identity of local communities and the area is needed to meet their cultural needs. The interconnectedness of the community to the landscape is manifested by the ideas, norms, values, activities and behavioral patterns. Natural resources, environmental conditions and objects around will underlie the collective behavior of community and its govern the relationship between the community and the landscape.

Traditional community groups around the assessment area are verified with data on customary territories. The data used in this study is the BRWA[4] data, the overlay result indicates that the community groups on the landscape study are not included in the customary territories which are registered on BRWA data. According to BRWA data there are indigenous communities of Kendawangan in the 10 km to the south of the landscape study. The other indigenous community's territories are in 3o km to the eastern part of the landscape study of area Jelai and Kanayant communities. The next following is an overlay of the landscape study area with customary land territories area, based on BRWA data.

Map 15. Customary land verification base on BRWA registered areas



In the landscape study communities from 3 native villages confirm there is no archaeological in the landscape. The cultural orientation of community has shifted from a culture customary based to a religion-based culture both Islamic and Christian. It is also stated that there are no more material which are attributes of customary rituals. The material are no longer found in the landscape of study, such as the feathers of the hornbills as attributes of Dayak customary clothing.

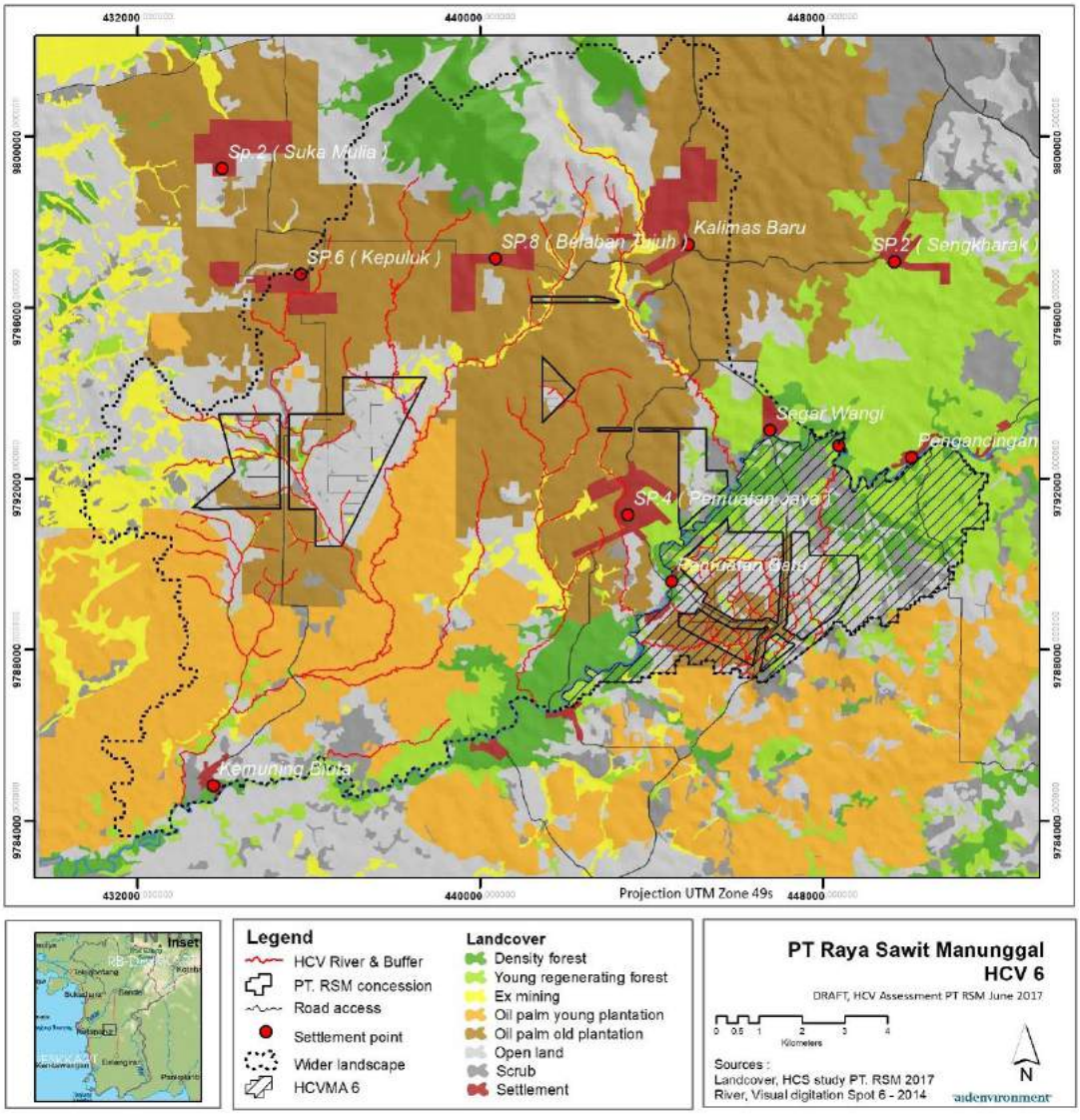
In the village of Segar Wangi there are still forms of Tembawang enclave which have been retained since the previous PIR Trans project . The tembawang enclave is a hereditary land of heredity or identity of community members which comes from one family. Confirm by 3 native villages there is no more land in customary land status or communally land tenure forms. The system of land ownership in the three villages is in the form of individual land ownership while there is also land in the family ownership status as the legacy of the predecessor.

[4] Badan Registrasi Wilayah Adat (BRWA) is a central registration for costomary land. BRWA formed in 2010 by social NGO group Aliansi Masyarakat Adat Nusantara (AMAN), Jaringan Kerja Pemetaan Partisipatif (JKPP), Forest Watch Indonesia (FWI), Konsorsium Pendukung Sistem Hutan Kerakyatan (KpSHK), and Sawit Watch (SW). http://brwa.or.id

In Segar Wangi village confirm by the community there are several sacred sites which in Segar Wangi. HCV Social Team has found difficulties to access these sacred areas due to concerns (in the form of rejection) of some community members who have granted gold mining concession permits to outsiders. The granting of mining concessions is informal, initially the village government supports the HCV team to have field verification, but on the day scheduled there are some community members who prevent the HCV team from being able to documented the sacred area in the field. No cultural sites were found in the Sungai Melayu village and Kemuning Biutak. In the Segar Wangi village there are several sacred sites associated with the history of religion missionary (Islam) and the history of heroism that lies outside the concession area, such as;

1. Syech Abdullah burial, located in the middle of settlement of dusun II, which also known as Tambak Burial.
2. Datuk Kyai Uban burial
3. Sacred areas Sungai Kedang
4. Pahlawan Uti Tunggal burial
5. Kedang/pahlawan burial (commander of Tumbang Titi) on Pengancing hamlet
6. Sungai Satar sacred burial site.

Map 16. Potential present of HCV 6 on PT RSM the landscape



d. Initial Stakeholder Consultation findings

On May 4, 2016 an initial public consultation as part of field scooping study was held at the Kecamatan (sub-district) of Sungai Melayu Rayak, it was attended by 34 participants from various stakeholders include representative of stakeholder in the landscape include the government communities and NGO. The government representative came from native villages, transmigration village, sub district Sungai Melayu, Tumbang Titi, Pemahan and representative of Ketapang district government,

During the initial public consultation, the potential presence of HCV 1-6 was present to the audience. The next follow subject was presented and discuss during initial public consultation.

- Presentation of HCV and its category include the importance of HCV assessment in PT RSM,
- History of land use and current utilization and related maps
- Environmental service aspects, and indications of protection areas
- Potential present of RTE species
- The threats discussion of concession area from drought, fires mining and wildlife hunting also species trading
- HCV 5 subject was consulted covers the current livelihoods of the community and the utilization of natural resources as fulfillment of their basic need. HCV 6 was on the consultation and confirmation of indigenous customs and its cultures and important area related to cultural identity of the local community. The next following are the key point the outcomes of the public consultation process;

Table 14. Resume of initial public consultation on Sungai Melayu Sub District

Name/Title/ Organization/Role	Concern/Response/recommendation
Tumbang Titi Sub district head	Tumbang titi district head, in general, area of PT. RSM located on SP (transmigration villages/settlement), then how the development of plantation and replanting will be carried out? **PT RSM Response,** That all areas farmers land that falls into the HGU and location permit license will be compensated by the company. The land which fall to izin lokasi extension will compensated under"GRTT" scheme and the community managed land which falls to HGU will compensated under "tali asih" sheme. For the previous partnership garden with PT. BIG will not part of compensation scheme, this area will be entering into new partnership program (replanting partnership program).
	Tumbang Titi Sub district head, I see there is already a technical planning for water control and management, but it is still limited on HGU area, my suggestion on area which falls to location permit area can do the same **HCV team response**; Related to water management, this issue will be an important point which will be related to the vulnerability status of this region on drought and fires, so the recommendation from the sub-district head will be in our concern in the assessment, especially related river and its buffer include water management in the concession area.
Name: Abu Khuraira Title:	Abu, In the PT. RSM there is no more forest remaining, regard with this HCV process, do this process can come up with solutions providing the forest especially in critical areas.

Village head of Kalimas Baru	**HCV team response**; Yes, we agree and will notes that the management recommendations of this HCV should respond critical areas that are still worth for conserving HCVs, in which to maintain and enhance the value through restoration activities.
Name: Edi Yayasan Palung Staff	Edi, I know that there is no peatland in areas of PT RSM, but there are many rivers. I suggest that these river buffer should be managed and not converted into oil palm. The landscape area being studied as prone to fires in the dry season, so it is imperative to do water conservation. **HCV team response**; Thank you, it already on our noted, the threat of drought and fires as an important point in the future management of identified HCVs.
Pemahan Sub district head	Sub district head, This is a good effort to manage the surrounding environment but how can we monitor this effort? I think its needs a good communication system in between company and the surrounding community. **HCV team response**; It is important to work with the stakeholders in the management of HCV area. We would recommend it to PT RSM in its management process to engage key stakeholders regarding HCVs management.
BKSDA staff of Ketapang	BKSDA staff, I suggest for PT RSM can to follow up the results of this study and collaboration with BKSDA for the management of protected species and their habitats. **HCV team response**; It is important to work with stakeholders in the management of HCV areas especially with the findings of RTE species, we will have noted in the recommendation and monitoring document.

Image 4. Foto documentation during initial public consultation, may 4, 2016

e. Public consultation findings

The public consultation was conducted in 3 related villages Kemuning Biutak, Sungai Melayu and Segar Wangi village, conducted on 20-21 April 2017, in this process field findings was present to get confirmation from the communities. The next following table are the important point recorded during the process of public consultation.

1. **Sungai Melayu village** attended by 25 participants who are mainly village and dusun (sub village) administrative staff of Sungai Melayu.

Table 15. Resume from public consultation minutes on Sungai Melayu village

Name/Title/ Organization/Role	**Concern/Response/recommendation**
Sukur (DAD) dewan Adat Dayak - (representative of Sungai Melayu Dayak)	Sukur, it seems important for us to be able to monitor the implementation of this HCV study, and it is important to obtain a document of the management plan so that it can also monitor especially on the river buffer as the most violation happen from the land clearing process. **Response of PT RSM,** We will improve communications with land clearing contractors, please also tell us if there are demolished river borders. **Response of team HCV,** Thanks, we will note that these is a form of threat from internal operation to the HCV area.
Suandi Community member Sungai melayu	Suandi, I asked how the practice of integration of plantation development with rural villages development **Response of PT RSM,** We need to explore more information about the needs of the community, recently CSR for Sungai Melayu has not been channeled. Please to Mr. Kades to invite PT. RSM CSR staff during the Musrenbangdes meeting (annual village development planning) so the development in between village program can be synergized with plantation process development. **Response of team HCV**, HCV is not a conservation area such as a National Park or Nature Reserve, but the management should ensure the sustainability of HCVs either environmental or social benefits. We noted Regard the HCV management and how to be integrated with villages development and will elaborate on the management and monitoring document.
Kidung Village head of Sungai melayu	Kidung, another thing is related to Bukit Belaban Protected Forest behind this village, the water debit has recently decreased and is not sufficient for the entire community in the Sungai Melayu village. **Response of PT RSM,** Agree with the conservation efforts of Bukit Belaban, then the conservation program to be discussed later between the village staff and PT. RSM. **Response of team HCV**, Bukit Belaban is a water catchment area for rivers which flows down to the concession area of PT. RSM. Maintaining HCVs river-related within the location permit itself cannot ascertain the improvement of the quantity and quality of the river water. We noted for the management of HCV will be able to reach the area of Belaban Tujuh as the important catchment area.

2. **Kemuning Biutak village,** attended by 21 participants, who were mainly village and dusun (sub village) administrators staff of Kemuning Biutak.

Table 16. Resume from public consultation minutes on Kemuning Biutak village

Name/Title/ Organization/Role	**Concern/Response/recommendation**
Rudi Village head of Kemuning Biutak	Rudi, about all the rare animals presented, almost all of them has been extinct in the surrounding area. Pangolins are still there, but now being hard to find. About the sacred sites of are not present in the locations permit as show on the map **HCV team response**, about pangolin species we need further information related to these animals, especially the location where the commonly found.

3. **Desa Segar wangi,** attended by 15 participants who mainly are village and dusun (sub-village) administrative staff of Segar Wangi.

Table 17. Resume from public consultation minutes on Segar Wangi village

Name/Title/ Organization/Role	**Concern/Response/recommendation**
Thamrin Village head of Segar Wangi.	Thamrin, there are several old enclaves since the time of PT BIG formerly and now in the location permit or HGU PT RSM, we are asking to be maintained only for the benefit of the community and do not be converted into oil palm. **HCV team response;** Thanks, we need further confirmation regarding those enclave location and what community benefit are being met from those old enclave areas.
	Thamrin, my suggestion regard compensation process with our villager to involve villages staff as to mitigate future problem that might be arise from the payment of land compensation.
Yayan Jabatan Village staff	Yayan, confirmation of residents there is no sacred area from the assessment area shown on the map. **HCV team Response;** Our thanks need further confirmation regarding this, especially in the sacred areas as presented by Mr. Thamrin.
Sudirman Village staff	Sudirman, we need mapping assistance for the completion of the village boundary between the villages of Segar Wangi and Batu Tajam. **HCV team Response;** Yes, we do agree, the village boundary is important not only for administrative matters, HCV management and monitoring program should identify relevant stakeholder from villages related with location HCV findings

Attendee list of public consultation forum can be found on the attachment section

4. Transmigrant Sattlement

The Transmigrant sattlement that related in the wider landscape are SP.6 Kepuluk, SP.8 Belaban Tujuh, SP.3 Kalimas Baru, dan SP 4. Pemuatan Jaya. The innitial public consultation and social survey has been

conducted, except the final public consultation. Several important points from the initial public consultation and social survey are :

1. The basic livelihood of the trasnmigrant mostly fullfiled by the land allocation from the previous transmigration project which is 2 ha alocated for main agriculture and 0,5 ha for houses.
2. Regarding to the land use, the transmigrant are respecting to the local land use system. In case to utilized the land outside the transmigration land allocation it only happen by renting or buying to the local people.
3. River and tributiary arround the transmigrant settlement serve as source of basic fullfilment for clean water (not for drinking water)

Part 5 Management and Monitoring

a. Threat assessment

Forms of threat to HCV areas can be viewed from direct-indirect or internal-external. Overview of the form of internal threats can result from company operations and employee activities such as land clearing, hunting, habitat fragmentation, pollution from chemicals such as herbicides, pesticides or fertilizers that can affect the soil, water and wildlife especially insects which have important functions in plant pollination. The threat from the community and other outsiders can be regarded as an indirect threat and external threat. Several external - indirect aspects that can be identified with qualitative approaches during HCV data collecting process and consultation with PT RSM management, among others;

Table 18. General external HCV threat identified during the assessment

No	Threats source	Source specific/ Impact	Source rating	Current status of mitigation	Handling recommendation
1.	Area concession falls to area traditional used of local people. Traditional used of 3 native villages	Traditional tenurial systems apply to all area concession licenses Impact ; uncompleted FPIC remain community control the area HCV areas.	High, especially on Segar Wangi village	most of area concession are still on progress of land compensation	Continue the FPIC process and develop incentive program for areas identified as HCV 1-4.
2.	HCV compensation value is lower than non-HCV areas	HCV land is not released by the community regarding the less value of the compensation. Impact ; the HCV areas will not release by the community and The HCVs cannot be managed	High	HCV compensation value is lower than non-HCV areas	Continue the FPIC process and develop incentive program for areas identified as HCV 1-4.
3	The drought and fires	External (community) Impact ; Loss of HCVs	High	Awareness raising on not using fires during traditional land preparation Collective fires handling between concession and communities	Community training on free fire land preparation. Water management and water level control. River buffer restoration.

4	Development of partnership plantation	HCVs areas owners cannot be able to participate in partnership schemes. Impact HCVs areas not compensated cannot be managed	high	Partnership schemes that require land submission of prospective farmers participants.	Continue the FPIC process and develop incentive program for areas identified as HCV 1-4.
5	Gold mining activities	The area is still control by the community, the community allow the miners to work on their land. Impact Losing HCV areas	High	N. a	Maintain comunication with village goverment and representative local police Police reporting on mining activities inside consession.
6	Traditional farming	The area is still managed by some people still active doing farming esp. From Segar wangi village	high	N.a	Continue the FPIC process and develop incentive program for areas identified as HCV 1-4.

b. Management and Monitoring

The nature of HCVs is a voluntary conservation effort, in this situation the HCV need the support of all stakeholder related especially landowners or land users. FPIC efforts coupled with incentive forms can provide an impetus to reach agreement on HCV conservation areas. The HCV area currently not yet fully protected within Indonesian regulations. HCV areas can only be protected by the regulation if there is a detail spatial planning implemented. There is oppotunity to promote HCV in Indonesia through PKP policy (*pembangunan kawasan perdesaan – integated-intervillages development*) as the implementation of PKP policy required detail spatial planning of the rural site development promoted. Unfortunately PKP policy currently very limited in the implementation. Within this situation the areas that have been covered in AMDAL documents as protection areas such as river buffer do not receive wide attention from the parties, especially local governments where to govern overall district river buffer protection, district government need equipped by district regulation (PERDA) related river and it buffer protection.

One important point related to the presence of river values and its buffer as representatives of HCV 1, HCV 4 and HCV 5, which is the source of the fulfillment of clean water needs for transmigrant sattlement, the results of this study should be continued consult in 4 transmigrant sattlement, in particular with respect to the protection of rivers and its buffer in the landscape of the study. It is important to be able to identify the threats of rivers and its buffer related to land use and ownership patterns in riparian areas. Previously the transmigration community was only involved in the initial consultation and became a respondent in the interviews and FGDs but not yet involved in the final consultation process of this HCV study. Recommendations for consultation processes in these transmigration communities can be integrated with follow-up FPIC processes that are part of HCV management and monitoring. The following matrix describes the management objectives of common threats to HCV conservation areas and their management and monitoring recommendations.

Table 19. HCV Management and monitoring matrix of PT. RSM

HCV	HCV findings description and its management objective	Current and potential Threats	HCV management		HCV monitoring
1.1	Finding River and river buffer of the concession defined as HCV 1.1 Management objective ; The protection of river and river buffer which have function for biodiversity sites habitat and potential connectivity habitat to other habitat outside the concession HCV MA, degraded river buffer on block 2 in form of open area, shrub or ex mining area.	External ; - Mining, trees felling, traditional farming, drought and fires - River buffer conversion by communities for agriculture - The demand of partnership scheme since river buffer as part of community land. Internal ; Land clearing process by the contractor which may lead clearing of river buffer and or erosion impact.	HCV management - Marking river buffer boundaries in which the width following guidance in RSPO river buffer management. - River buffer vegetation management through periodic forest inventory on develop database of vegetation species composition and regeneration level. - Wildlife observation on river buffer area related species under protection status, population and its ecological attribute. - Restoration or species enrichment on degraded river buffer in form of open area, shrub or ex-mining. - Maintain good communication with the land clearing contractor to avoid clearing the area. Tenure status on river buffer HCV - Identifies the land owners - Continue the FPIC process and develop incentive program which targeted into the land owners. - Continue the FPIC process until reach target agreement on co-management of HCV areas. HCVMA inside concession - Vegetation restoration on degraded area along the river buffer block 2. HCV MA on the wider landscape. - Promote co-management with Sungai Melayu village on restoring Bukit Belaban tujuh protected forest and degraded river buffer in between PT RSM concession and Bukit Belaban Tujuh.		- Security patrol on river buffer identified as HCV 1.1 area, on various threats of mining activities, trees felling, traditional farming, - Weather monitoring related drought and fires. - Periodic Inventory to assess the quality of vegetation, species composition and regeneration level. - Periodic wildlife observation to monitor the RTE population related to river buffer. - Periodic monitoring of seedling growth from restoration or enrichment program along the river buffer
1.2 1.3	Finding; Plant species HCV under protection status of CR-IUCN found on block 9. *Shorea platycarpa* *Shorea seminis* Finding Other RTE species habitat	*Threats on IUCN website;* *Shorea platycarpa, Shorea seminis and Gonystylus bancanus* *Logging and wood harvesting on*	Threat finding for species under CR-IUCN status. - Mining, trees felling, traditional farming, drought and fires	Management recommendation (write together as the areas of HCV 1.2 and HCV 1.3 falls to same overlap area); RTE species habitat both plant and animal ; - Marking habitat location - Protection of the species and habitat. - Periodic inventory and observation of the RTE species regard with quality population of the RTE species and regeneration level,	- Security patrol for all RTE species and its habitat, especially for *Pycnonotus zeylanicus.* - Population periodic monitoring of RTE Species, habitat quality,

	Endemic plant species found on bock 8; *Durio kutejensis* *Shorea ovalis* *Vatica umbonata* HCV plant species under other protection status; *Gonystylus bancanus* *Nepenthes gracilis* *Shorea leprosula* *Eusideroxylon zwageri* *Shorea uliginosa* HCV wildlife species under protections status *Elanus caeruleus* *Pelargopsis capensis* *Pycnonotus zeylanicus* *Rhipidura javanica* *Nisaetus cirrhatus* The objective of management of; HCV 1.2, The protection of CR IUCN species, population and habitat HCV 1.3 , the protection of species, population and habitat of viable RTE species, endemic and protection species.	*biological resource area.* *No threats recorded on identified endemic plant species* *No threats recorded on* *Shorea leprosula,* *Nepenthes gracilis* *Shorea uliginosa* *Threats area on Eusideroxylon zwageri - Over exploitation, on shifting agriculture area. Regeneration in logged-over forests is limited.* *Other Threats area ;* *housing and urban area, annual and perennial crops area* *Logging and wood harvesting on site biological resource* *Pycnonotus zeylanicus over exploitation due to high prices of this species.* *No threats record for other bird species identified*	Threats finding for plant endemic species and other protection status; - Potential tree felling for construction wood *Shorea ovalis* *Vatica umbonata* *Gonystylus bancanus* *Eusideroxylon zwageri* *Shorea uliginosa* Threats finding for RTE bird species; Hunting especially for *Pycnonotus zeylanicus* Potential future threat - Land clearing by contractor (internal) - RTE species used excessively by local communities. - The demand of partnership scheme as HCV sites falls to traditional used of community.	- Develop baseline on quality of vegetation and habitat of habitat of RTE species. - Restoration and species enrichment on habitat of CR and RTE species based on vegetation monitoring result Management of RTE bird species HCV 1.3 - Protection from hunting activities. - Periodic monitoring of the population, nesting habitat inside and surrounding the concession. - Marking and protection of the nesting habitat. HCV management outreach, - PT RSM may consult and cooperate with governments conservation service (KSDA) and or NGO related with sites HCV and its management of RTE species and to obtain expert opinions and others support regarding sites HCV sites conservation and its RTE species management. - Reach the agreement through FPIC process with the communities' regard with RTE species in which the species as communities used such as Durio kutejensis and Shorea leprosula. - Awareness raising program to internal staff and communities surrounding on the important RTE bird species and prohibit any wildlife hunting and tree felling inside concession - Identify the land owner of HCV habitat, conduct land compensation, promote partnership scheme for farmers owner land (habitat), address tenure status of areas HCV 1.2 and 1.3 same as HCV 1.1.	regeneration level and its ecology attribute. - Monitoring fruiting season of endemic plant species *Durio Kutejensis dan Shorea ovalis, Shorea Leprosula* and the trend of community used. - Population periodic monitoring of RTE bird species inside and surrounding concession include ecology attribute and nesting habitat - Monitoring progress of land compensation related with all RTE species habitat which falls to of community land.

2.3	Finding Area concessions are supporting the natural population of top predators *Elang Tikus - Elanus caeruleus* and *Elang Brontok Nisaetus cirrhatus.* The objective of management Protection of species, population and habitat of representative wide range species of the wider landscape. HCVMA East blocks of area concession	*No threats identified on IUCN red list Website for both predator bird*	Future threats, The hunting ground inside concession soon will convert to palm oil, further *Elanus caerulus* normally can adapt with palm oil plantation landscape if no hunting threat.	Management of species HCV 2.3 - Species and population management of both predator species are the same as RTE bird species management above. HCVMA HCV 2.3 - The management to ensuring the safety of hunting ground from internal disturbance (company operations) and external disturbances especially hunting. HCV management outreach Raising awareness to workers on protection of *Elanus caeruleus* in which this species has good adaptation capability on palm oil landscape and will be benefit as controlling the rat population inside concession.	- Security patrol for subject bird predator and its habitat. - Population periodic monitoring of the species inside and surrounding concession, include nesting habitat and its ecology attribute.
3	Finding Natural vegetation as representative of remaining threatened ecosystem. Management objective; Protection of natural vegetation as representative of remaining threatened ecosystem inside the concession HCV MA, degraded river buffer in form of open area, shrub and ex mining area.	Current habitat threat: (external) - Forest fires - Tree felling and gold mining - Land conversion by communities for traditional farming or rubber garden. Potential future threat; (internal) - Land clearing by contractor may lead vegetation HCV 3 clearing.		Management of HCV 3 - Location marking of the HCV 3 sites and security protection - Vegetation management to develop data base of vegetation quality, species composition and its regeneration level through periodic forest inventory - Restoration on HCVMA and species composition enrichment on HCV area with species specific from the threatened ecosystem related. This activity based on vegetation monitoring recommendation. Land status management for HCV 3 - Identification of land owners - Conduct land compensation - Scenario development for farmers land owner of site HCV 3 HCVMA management Restoration ex mining with species from remaining threatened ecosystem area.	- Security patrol on mining, trees felling, traditional farming, drought and fire - Periodic monitoring program for measuring the quality of vegetation, species composition and regeneration level of vegetation HCV 3. - Periodic monitoring on measuring seedling growth on HCVMA restoration program and HCV area species enrichment program. - Monitoring of Land compensation of sites HCV which falls to community land

4.1	Finding HCV Areas include all river and rivers buffer, while the HCVMA are the catchment area identified inside the concession Management objective ; Maintain function of area concession on environmental service for provision of water and prevention of flood in the downstream area.	Current threats : (external) - Drought and fires - Tree felling on riverine buffers - Ex-gold mining - Land conversion by communities for traditional farming or rubber garden along riverine buffer. Potential future threat; (internal) - Land clearing process that might impact on the increase of sedimentation and erosion. - Land clearing impact (may clearing vegetation of the river buffer. - Pollutant from Agro-chemical application. - The demand of partnership scheme since the river buffer falls to community land status	HCV management - Marking the river buffer - Vegetation management include security patrol and periodic forest inventory to develop baseline quality vegetation, species composition and regeneration level. HCVMA Management - Marking of water catchment area as HCVMA - Water table management - Marking wider river buffer on the catchment area (10 meters) - Limiting Agro-chemical use in upstream watersheds - Develop hydrological system management inside concession in the form of civil hydrological building (water gate) on the river outlets - Restoration of ex-mining area along the river buffer - Terassering Application - LCC application (land cover crop) Tenure status management of HCV 4.1 same as HCV 1.1	- Security patrol, on Mining, trees felling, traditional farming, drought and fires - Periodic forest Inventory to assess the quality of vegetation, species composition and regeneration level along river buffer and on steep slope area . - Periodic wildlife observation to monitor the RTE population related to river buffer. - Periodic monitoring of seedling growth on restoration and enrichment activities - Monitoring the used of agro-chemical on watershed area - Monitoring on water table level, its quality of sedimentation, and agro chemical and mercury level as some areas identified as ex mining area. - Monitoring erosion level with develop box erosion control on HCV 4.2 areas
4.2	Finding ; Steep slope area on south block of concession Management objective; Maintain function of area concession on environmental service on prevention erosion and sedimentation.	Current threats : (external) - Drought and fires - Tree felling - Land conversion by communities for traditional farming or rubber garden. Potential future threat; (internal) - Land clearing process that might impact on the increase of sedimentation and erosion. - Land clearing impact (may clearing vegetation of the river buffer. - Pollutant from agro-chemical application.	HCV area management - Area marking on site of HCV - The protection of remaining vegetation and shrub area restoration on steep slope - Protection area from tree felling and fires. Land status management for HCV 4.2 - Identification of land owners on high steep area - Conduct land compensation - Scenario development for farmers land owner of site HCV	

	HCV MA, water catchment area, river and river buffer identified inside concession	- The demand of partnership scheme since the river buffer falls to community land status	Tenure status management of HCV 4.2 same as HCV 1.1	- Weather monitoring related with drought and forest fires - Form forest fire anticipation group and the equipment include tower surveillance fire/smoke - Awareness raising to local communities regard controlling fire or free fire application during traditional agriculture land preparation.
4.3	Finding ; Vegetation on river buffer which have function as natural barriers of forest and ground fires. Management objective; Maintain function of area concession on environmental service on natural barriers of forest and ground water	Current threats : (external) - Drought and fires - Tree felling on riverine buffers - Ex-gold mining - Land conversion by communities for traditional farming or rubber garden along riverine buffer. Potential future threat; (internal) - Land clearing impact (may clearing vegetation of the river buffer. - The demand of partnership scheme since the river buffer falls to community land status	Management of HCV 4.3 - River buffer management is similar with management of 1.1 and 4.1 - River buffer vegetation management similar with HCV 1.1 and 4.1 Management of HCV MA - Similar with HCV MA of 1.1 and 4.1 Tenure status management of HCV 4.3 same as HCV 1.1	
5 and 6	Finding of HCV 5; River and river buffer as the area have on provision daily water of two villages – Kemuning Biutak and Segar Wangi. East block concession still under potential present status regard with Segar wangi village communities as areas fulfillment of their basic on old enclave mention by the communities. Management objective of HCV 5 Maintain important areas on water catchment, river and river buffer in which related the water supply importance to Kemuning Biutak and Segar Wangi villages. Ensure the old enclave and others area on east block concession related basic fulfillment of basic need of communities from Segar wangi village. Maintain old enclave or other area from potential clearing of future operation of PT. RSM	Internal Threat - Land clearing by the contractor on the river buffer related areas important for water supply of Kemuning Biutak and Segar Wangi villages - Land clearing by contractor on old enclave or other areas on east block concession as potential areas findings of another HCV 5 subject dan HCV 6 related Segar Wangi village.	HCV 5 & 6 and HCVMA - Marking area which identify as the catchment, river and river buffers related with Kemuning biutak and Segar wangi villages. (similar management activities as HCV 4). - Vegetation management on river buffer with implement periodic forest inventory to measure vegetation quality, species composition and regeneration level. - Other management related environmental service similar with management of HCV 4 and HCVMA 4. - Identifying traditional land owners along the river buffer. - Identify others HCV 5 subject on old enclave and other area related Segar wangi village - Identify aspect of cultural identities (HCV 6) on old enclave and other area related Segar wangi village	- Security patrol, on Mining, trees felling, traditional farming, drought and fires on water catchment, river and river buffers related HCV 5 areas of Kemuning Biutak and Segar Wangi. - Monitoring trend of communities used on other subject of HCV 5 from Segar wangi villages (food and home appliance) - Monitoring trend of old enclave management and its culture related on old enclave or other area

	Findings of HCV 6 East block concession still under potential present status regard old enclave mention by the communities from Segar Wangi village on as areas important for their the traditional cultural identity. Management objective of HCV 6 Ensure the old enclave and others area on east block concession related with Segar wangi village and maintain from potential future threat operation of PT. RSM	External threat - Potential threats on species HCV such as Pangolin or other endemic plant species on old enclave or other area related to Segar Wangi villages.	- Identify RTE HCV species on old enclave and other area related HCV 5 from 6 Segar wangi village	related to HCV 6 of Segar Wangi. - Monitoring species HCV on potential sites of HCV 5 and 6 (old enclave) related Segar wangi village

Map 17. Management and monitoring synthesis HCV and HCVMA of PT RSM

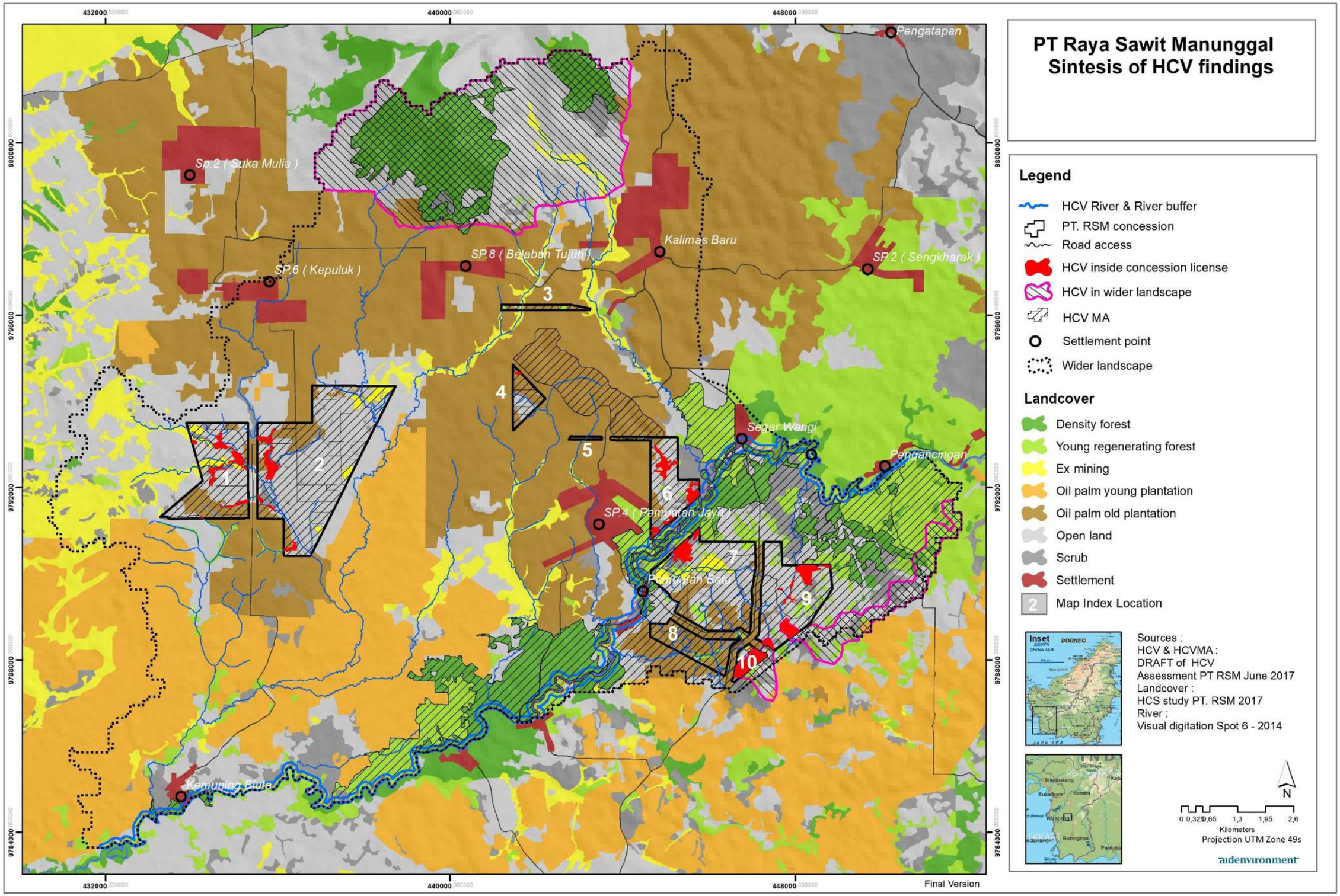


Table 20. Location index, HCV and HCV MA description and its cross-cutting management

Map index	Description of HCV and HCV MA	*The Cross cutting of HCV management*	*The cross cutting of HCVMA management*	Monitoring indicator of HCV and HCVMA
Block 1 **HCV 1,3,4,5**	HCV, area on river buffer (HCV 1, 4 and 5) and remaining of threatened ecosystem vegetation (HCV 3) with total 30.58 Ha. HCV Ma of degraded river buffer Entire block 1 consider as HCV MA regarding with potential present of CR species such as Manis javanica, Pongo pigmaeus and the others RTE finding of HCV 1.3 and 1.3	HCV Management - The management of riverine buffer as follow management of HCV 1.1 . - The management of remaining vegetation from threatened ecosystem following previous matrix on management HCV 3 Land tenure status management of river buffer HCV; - Identifies the land owners - Continue the FPIC process and develop incentive program which targeted into the land owners. - Continue the FPIC process until reach target agreement on co-management of HCV areas. Manage potential present of CR and RTE species anticipated with awareness raising program of RTE species and wildlife hunting ban in the concession.	- Water table management - Limiting Agro-chemical use in upstream watersheds - Develop hydrological system management inside concession in the form of civil hydrology building on the river outlets (water gate). - Restoration of ex-mining area along the river buffer - LCC application (land cover crop) - Marking area that need to restore along the rivers buffer and HVC 3. - River buffer restoration on open land, shrub and ex-mining with species vegetation from HCV 3 areas. - Define point of water management monitoring (on outlet east part of block concession 1). - Threat monitoring patrol and awareness raising program on RTE species who targeted to employee, contractor and communities	The monitoring Indicator of HCV • Site security patrol on HCV subject • The growth of vegetation includes regeneration or succession of vegetation in river buffer and vegetation HCV 3. • The growth of vegetation from restoration or enhancement species on riverine buffers and or vegetation HCV 3 sites. • The progressing of land compensation on HCV areas The monitoring Indicator of HCVMA (1,3,4,5), • The height of water table level maintained. • Water quality from sedimentation and other pollutant (agrochemical and or mercury) • Erosion level monitoring especially during land clearing process. • LCC application monitoring and the use of agrochemical on watershed inside the concession
Block 2 **HCV 1,3 4,5)**	HCV, area on river buffer (HCV 1, 4 and 5) and remaining of threatened ecosystem vegetation (HCV 3) and habitat endemics species *Shorea Umbonata*, area observation finding species of *Pycnonotus*	- HCV management of riverine buffers and vegetation HCV 3 same as above. (block 1) - The HCV management of endemic species *Shorea umbronata* is a form of periodic inventory related the	- Marking area that need to restore along the rivers buffer and HVC 3. - River buffer restoration on open land, shrub and ex-mining with species vegetation from HCV 3 areas.	The monitoring Indicator of HCV • Site security on HCV subject especially for *Pycnonotus zeylanicus and Rhipidura javanica from* poaching • The growth of vegetation includes regeneration or succession of vegetation in river buffer and vegetation HCV 3.

	zeylanicus, Rhipidura javanica (HCV 1.3) of 35,19 HCV Ma on degraded river buffer Entire block 2 consider as HCV MA regarding with potential present of CR species such as Manis javanica, Pongo pygmaeus and the others RTE finding of HCV 1.3 and 1.3	abundance, regeneration rates and ecological attributes of the species. - Enhancement habitat site of *Shorea umbronata* with seedling preparation of endemic species and planted in site habitat of HCV 3 if necessary HCV management of RTE bird species - Security patrol especially for *Pycnonotus zeylanicus, Rhipidura javanica.* - Bird observation to develop database regard population, regeneration, nesting site and ecological habitat attribute for *Pycnonotus zeylanicus, Rhipidura javanica.* HCV land tenure management same as above (block 1) Manage potential present of the other CR and RTE species same as block 1	- Define point of water management monitoring (on the outlet south part of block concession 2). HCV MA on the wider landscape. - Promote co-management with Sungai Melayu village on restoring Bukit Belaban tujuh protected forest and degraded river buffer in between PT RSM concession and Bukit Belaban Tujuh.	• The growth of vegetation from restoration or enhancement species on riverine buffers and or vegetation HCV 3 sites. • The progressing of land compensation on HCV areas • The growth of endemic species Shorea umbronata. • The presence of bird species and its habitat *Pycnonotus zeylanicus, Rhipidura javanica* The monitoring Indicator of HCVMA (1,3,4,5), • The height of water table level maintains • Water quality from sedimentation and other pollutant (agrochemical and or mercury) • Erosion level monitoring especially during land clearing process. • LCC application monitoring and the use of agrochemical on watershed inside the concession
Block 3 HCV 1,4,5	HCV, area on river buffer (HCV 1, 4 and 5) for 0.14 ha HCV Ma of degraded river buffer Entire block 3 consider as HCV MA regarding with potential present of CR species such as Manis javanica, Pongo pygmaeus and the others RTE finding of HCV 1.3 and 1.3	HCV Management - The management to riverine buffer same as block 1. HCV land tenure management same as above (block 1) Manage potential present of the other CR and RTE species same as block 1	HCVMA management of riverine buffer same as block 1	The indicators of monitoring HCV • Indicator monitoring of river buffer following indicator on block 1 above

Block 4 **HCV 1,3,4,5**	HCV 1 & 3, area observation finding of bird *Pelargopsis capensis* and natural vegetation of threatened ecosystem with total areas of 0,83 ha HCV Ma of degraded river buffer Entire block 4 consider as HCV MA regarding with potential present of CR species such as Manis javanica, Pongo pygmaeus and the others RTE finding of HCV 1.3 and 1.3	- The management of HCV bird species under RTE protection status *Pelargopsi carpensis* same management of RTE species as above. - The management of remaining vegetation from threatened ecosystem following previous matrix on management HCV 3 - HCV land tenure management same as above (block 1) - Manage potential present of the other CR and RTE species same as block 1	- Marking the areas that need restoration or species enhancement. - Define point of water management monitoring (on the outlet south part of block concession 3). - Minimizing erosion impact during land clearing process. - Limits the use of agrochemical on entire block 3. - Application of LCC on entire block 3	The indicator monitoring of HCV • Site security on HCV subject • The growth of vegetation from restoration or enhancement species on riverine buffers and or vegetation HCV 3 sites. • The progressing of land compensation on HCV areas • The exist population of Pelargopsis capensis species. Indicator monitoring of HCV MA (1,3,4,5) • Monitoring indicators for water catchment and riverine buffer same Indicator monitoring HCV MA 1 and 4.
Block 5 **HCV 1,4,5**	HCV, River buffer (HCV 1 4 dan 5) of 0.25 ha HCV Ma of degraded river buffer Entire block 5 consider as HCV MA regarding with potential present of CR species such as Manis javanica, Pongo pygmaeus and the others RTE finding of HCV 1.3 and 1.3	- HCV management of river buffer same as above - HCV management of remaining vegetation of representative of threatened ecosystem same as previous matrix on management HCV 3 - HCV land tenure management same as above (block 1) - Manage potential present of the other CR and RTE species same as block 1	- Minimizing erosion impact during land clearing process. - Limits the use of agrochemical on entire block 3. - Application of LCC on entire block 4	Indicator monitoring of HCV • Site security on HCV subject • The growth of vegetation from restoration or enhancement species on riverine buffers and or vegetation HCV 3 sites. • The progressing of land compensation on HCV areas Indicator monitoring of HCV MA 1,4,5 • Same as block 1
Block 6 **HCV 3**	HCV 1 habitat of CR species *Shorea seminis*. HCV 3, remaining vegetation of threatened ecosystem	- HCV, plant species management of CR IUCN Shorea seminis and others RTE plant with periodic inventory to develop database regard with the	• Security patrol for both predator species • Bird predator observation and monitoring to develop database	Indicator monitoring of HCV • Site security on HCV subject

	vegetation (HCV 3) of 29.38 ha HCVMA, the widest extend of hunting ground of *Elanus caerulus* and *Niseatus cirhatus* in which overlaps with potential finding of HCV 5 and 6 related with Segar Wangi village, total 169.1 ha. Entire block 6 consider as HCV MA regarding with potential present of CR species such as Manis javanica, Pongo pygmaeus and the others RTE finding of HCV 1.3 and 1.3	abundance, level of regeneration, ecological attribute. Restore with seedling planting if necessary. - HCV management of remaining vegetation of representative of threatened ecosystem same as previous matrix on management HCV 3. HCV management of HCV 2.2 bird species - Security patrol for both predator species - Bird predator observation to develop database regard population, regeneration, nesting site and ecological habitat attributes of the Elanus caerulus and Niseatus cirhatus. HCV land tenure management same as above (block 1) Manage potential present of the other CR and RTE species same as block 1	regard population, regeneration, nesting site and ecological habitat attributes of the *Elanus caerulus* and *Niseatus cirhatus.* • Identify and marking old enclave or other areas related with HCV 5 and 6 from Segar wangi village.	• The growth of natural vegetation and vegetation restoration or enhancement species on area of HCV 3 sites. • The progressing of land compensation on HCV areas • The exist population of *Elanus caerulus* and *Niseatus cirhatus.* Indicator monitoring for HCVMA of HCV 2,4,5,6 • The existence of Elanus caerulus and Niseatus cirhatus on block 5 include their ecological attribute. • Monitoring the location and subject HCV 5 used by community from Segar Wangi.
Block 7 **1,2,3,4,5,6**	HCV 1,2,3,4,5, Area observed of species *Elanus caeruleus* (NKT 1.3 and 2.3). area protection of river buffer (HCV 1.1) area vegetation representative of threatened ecosystem (HCV 3) of total 26.65 ha HCVMA, the widest extend of HCVMA species predator (HCV 2.3), Water catchment area	- Watershed management similar with block 1 and 2 - HCV management of riverine buffers and vegetation HCV 3 same as above. (block 1) - The management of HCV bird species under RTE protection status Elanus caerulus similar as management of RTE bird species on block 2.	• Periodic bird predator observation and monitoring to develop database regard population, regeneration, nesting site and ecological habitat attributes of the *Elanus caerulus* and *Niseatus cirhatus.* • Restoration and species enhancement along degraded river buffer, ex-mining or degraded HCV 3 areas. • Define point of water management monitoring (on the outlet west part of block concession 7).	Indicator monitoring of HCV • Site security on HCV subject • The growth of vegetation from natural vegetation of riverine buffer and HCV 3 • The progressing of land compensation on HCV areas • The exist population of both two top predator bird species and its habitat. Indicator monitoring for HCVMA of HCV 2,4,5,6 • Monitoring indicators for water catchment are similar with Indicator monitoring HCV MA on block 1 and 2

	(HCV 4), river buffer (HCV 1,4,5) and vegetation from threatened ecosystem (HCV 3) and potential of HCV 6 . Entire block 7 consider as HCV MA regarding with potential present of CR species such as Manis javanica, Pongo pygmaeus and the others RTE finding of HCV 1.3 and 1.3	HCV land tenure management same as above (block 1) Manage potential present of the other CR and RTE species same as block 1	• Identify potential areas of HCV 5 and 6 related Segar wangi village	• The existence of Elanus caerulus and Niseatus cirhatus on block 6 include their ecological attribute. • Monitoring the location and subject HCV 5 used by community from Segar Wangi. • The growth of seedling from restoration or enrichment program. • Monitoring the location and subject HCV 5 and 6 used by community from Segar Wangi.
Block 8 **1,2,3,4,5,6**	HCV, river buffer protection (HCV 1 dan 4, 5) representative of natural vegetation from Kerangas ecosystem (HCV 3) total 10.47 ha HCVMA, the widest extend is habitat from 2 bird predator species, water catchment area, river buffer, the potential findings of HCV 6 from Segar Wangi village. Entire block 8 consider as HCV MA regarding with potential present of CR species such as Manis javanica, Pongo pygmaeus and the others RTE finding of HCV 1.3 and 1.3	- HCV management of riverine buffers and vegetation HCV 3 same as above. (block 1) - The management of HCV bird species under RTE protection status Elanus caerulus similar as management of RTE bird species on block 2. - HCV management of remaining vegetation of representative of threatened ecosystem same as previous matrix on management HCV 3. HCV land tenure management same as above (block 1) Manage potential present of the other CR and RTE species same as block 1	• Periodic bird predator observation and monitoring to develop database regard population, regeneration, nesting site and ecological habitat attributes of the *Elanus caerulus* and *Niseatus cirhatus.* • Define point of water management monitoring (on the outlet south west part of block concession 8). • Identify potential areas of HCV 5 and 6 related Segar wangi village	Indicator monitoring of HCV • Site security on HCV subject • The growth of vegetation from natural vegetation of riverine buffer and HCV 3 • The progressing of land compensation on HCV areas • The exist population of both two top predator bird species and its habitat. Indicator monitoring for HCVMA of HCV • Monitoring indicators for water catchment are similar with Indicator monitoring HCV MA on block 1 and 2 • The existence of Elanus caerulus and Niseatus cirhatus on block 6 include their ecological attribute. • Monitoring the location and subject HCV 5 used by community from Segar Wangi. • The growth of seedling from restoration or enrichment program. • Monitoring the location and subject of HCV 5 and 6 and its trend used by community from Segar Wangi.

Block 9 **HCV 1,2,3,4,5,6**	HCV 1.3 habitat of endemic species *Durio Kutejensis* dan *Shorea Ovalis,* and *Shorea ugilinosa* VU-IUCN, observed point *Nisaetus cirrhatus.* HCV 1,4,5 area protections of river and river buffers HCV 3 Natural vegetation of representative of threatened heat forest ecosystem. HCV 6. Potential cultural identity of Segar wangi communities. Total area HCV 39.12 ha HCVMA, water catchment area (HCV 4) includer river and river buffer. Overlaps predator habitat and potential HCV 6. Entire block 9 consider as HCV MA regarding with potential present of CR species such as Manis javanica, Pongo pygmaeus and the others RTE finding of HCV 1.3 and 1.3	- Management of endemic species follow HCV management of RTE species (HCV 1.2 and 1.3) - Management HCV of river buffer follow management of HCV 1.1 - Management of representative of threatened ecosystem follow management of HCV 3. - Potential areas of HCV 5 and 6 of Segar wangi communities follow the management of HCV 5 and 6. HCV land tenure management same as above (block 1) Manage potential present of the other CR and RTE species same as block 1	Water catchment management River buffer management of block 9 • Area catchment marking. • The height of water table level maintains • Water quality from sedimentation and other pollutant (agrochemical and or mercury) • Erosion level monitoring especially during land clearing process. • Define water monitoring point (on the outlet on north part of block concession 9). • LCC application monitoring and the use of agrochemical on watershed inside the concession • Periodic bird predator monitoring observation to develop database regard population, regeneration, nesting site and ecological habitat attributes of the Elanus caerulus and Niseatus cirhatus. • Identify potential areas of HCV 6	Indicator monitoring of HCV • Site security on HCV subject • The endemic species exist during periodic monitoring. • Predator species Elanus caerulus and Niseatus cirhatus exist during periodic monitoring. • The growth of vegetation from natural vegetation of riverine buffer and HCV 3 • The progressing of land compensation on HCV areas • The exist of population and habitat of both two top predator bird species. Indicator monitoring for HCVMA of HCV • Monitoring indicators for water catchment are similar with Indicator monitoring HCV MA on block 1 and 2 • Monitoring potential location and subject HCV 5 and 6 used by community from Segar Wangi. • The growth of seedling from restoration or enrichment program. • Monitoring the location of HCV 5 and 6 and its trend used by community from Segar Wangi.
Block 10 **HCV 1,2,3,4,5,6**	HCV, Habitat species of *Shorea platycarpa* (HCV 1.2), Eusideroxylon zwageri, *Shorea leprosula, Nepenthes gracilis* (HCV 1.3) Area protection of river and river buffer (HCV 1.4&5) natural vegetation as representative of threatened	- HCV, plant species management of CR IUCN Shorea seminis and others RTE plant with periodic inventory to develop database regard with the abundance, level of regeneration, ecological attribute. Restore with seedling planting if necessary. - Management HCV of river buffer follow management of HCV 1.1	Watershed management River buffer management • Area catchment marking. • The height of water table level maintains • Water quality from sedimentation and other pollutant (agrochemical and or mercury)	Indicator monitoring of HCV • Site security on HCV subject • The species of Shorea platycarpa, Eusyderoxylon zwagery and nephenthes exist during periodic monitoring. • Erosion level maintain during periodic monitoring. • The growth of vegetation from natural vegetation of riverine buffer and HCV 3

	heat forest ecosystem (HCV 3), Area important on prevent soil erosion (HCV 4). Total HCV 15.02 ha. HCVMA, water catchment area (HCV 4) includer river and river buffer. Overlaps with HCVMA of HCVMA 2.2 as part of high predator habitat and HCV 6 on potential cultural identities of Segar wangi communities Entire block 10 consider as HCV MA regarding with potential present of CR species such as Manis javanica, Pongo pygmaeus and the others RTE finding of HCV 1.3 and 1.3	- Management of representative of threatened ecosystem follow management of HCV 3. - The management of areas with high potential erosion follow HCV management of HCV 4.2. - Develop box erosion control on HCV 4.2 areas - Potential areas of HCV 5 and 6 of Segar wangi communities follow the management of HCV 5 and 6. HCV land tenure management same as above (block 1) Manage potential present of the other CR and RTE species same as block 1	• Erosion level monitoring especially during land clearing process. • Define water monitoring point (on the outlet on north part of block concession 10). • LCC application monitoring and the use of agrochemical on watershed inside the concession • Develop box erosion control, data record, analysis and monitoring the level of erosion. • Periodic bird predator monitoring observation to develop database regard population, regeneration, nesting site and ecological habitat attributes of the *Elanus caerulus* and *Niseatus cirhatus.* • Identify potential areas of HCV 6.	• The progressing of land compensation on HCV areas • The population of both two predator bird species exist during periodic monitoring. Indicator monitoring for HCVMA • Monitoring indicators for water catchment areas are similar with Indicator monitoring HCV MA on block 1 and 2 • The existence of Elanus caerulus and Niseatus cirhatus on block 6 include their ecological attribute. • The growth of seedling from restoration or enrichment program. • Monitoring potential the location of HCV 5 and 6 by community from Segar Wangi.
		Total HCV 187.49 hectare	Total HCV MA 2,085 hectare	

c. Go and No-Go Area Recommendation

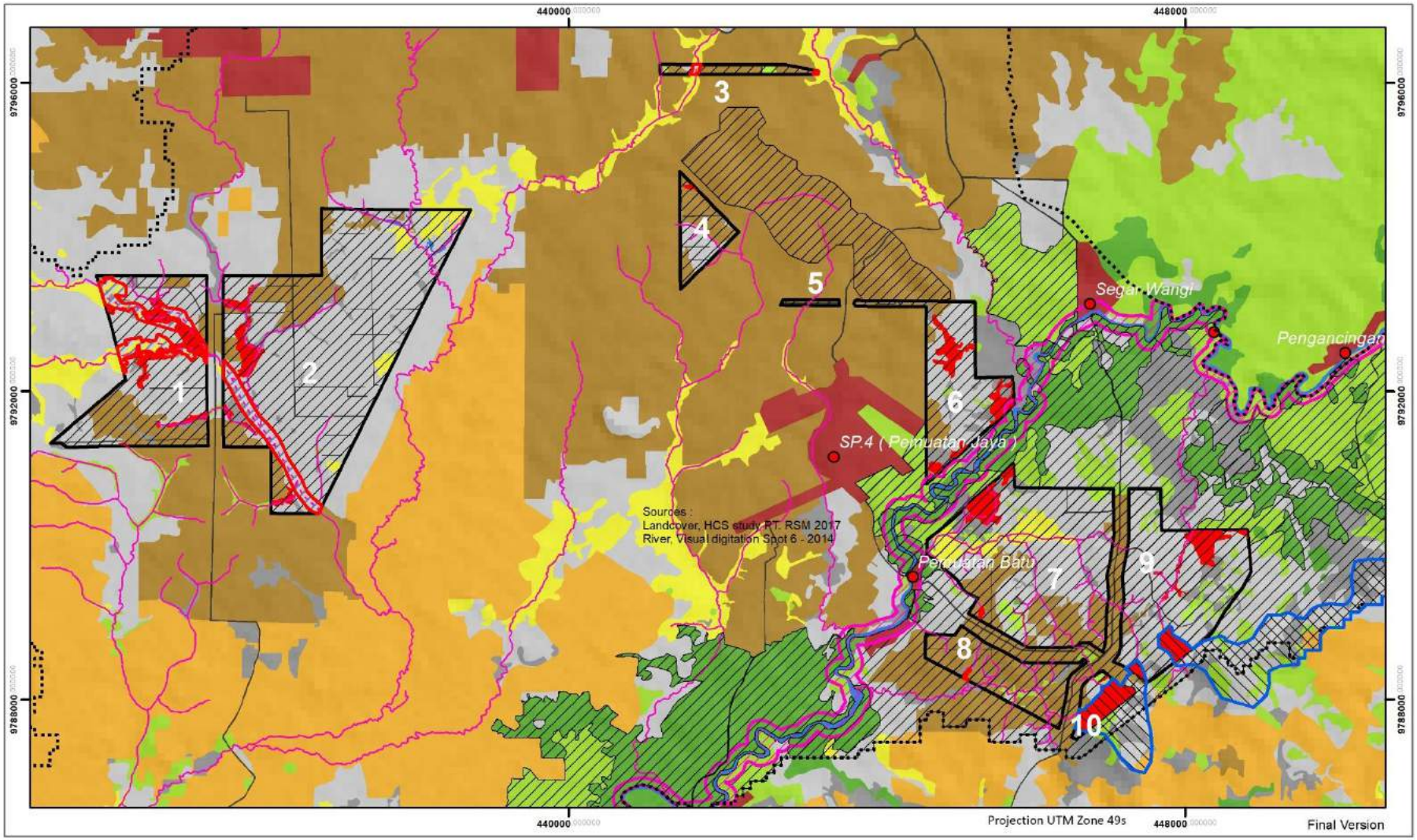
In the HCV guidance document, 2013 states that HCV Management Areas are areas in a site, MU or landscape for which appropriate management decisions must be taken and implemented to maintain or enhance an HCV.

The analysis found some part of the HCV areas identified inside the concession have been degraded in the form of open land and shrubs and ex gold mining operations, where this area ideally serve function on retain erotion sediment to the river. All the HCV areas identified inside concession connected with the river buffer, as this area has potential to connect fragment of HCV.

Regard with condition this study has indicate area of HCVMA should manage in form of remediation, restoration with natural species or combination of remediation with civil engginering and planting with palm oil.

As the cases in block 2 and 7 of the concession where there is ex gold mining along the river buffer, where function as HCV is currently absent and and being threat to the river from high sediment since river buffer fail to function. Better management option is combining the remediation with civil engineering and planting palm oil, where restoration option with native tree species will be very difficult since gold mining was washed out the soil on the area. Civil work in form of dike on avoiding flood and retain sediment erosion on HCVMA areas which adjacent to river body. On the other side there is No Go HCVMA areas as indicates in the next following map.

Map 18. Go No Go recommendation of HCVMA



Legend

- HCV River & River buffer
- HCV on concession license
- HCV in wider landscape
- HCV MA
- No Go HCVMA
- 2 Map Index Location

Landcover

- Density forest
- Young regenerating forest
- Ex mining
- Oil palm young plantation
- Oil palm old plantation
- Open land
- Scrub
- Settlement

PT Raya Sawit Manunggal
Go no Go Areas Recommendation

0 0.25 0.5 1 1.5 2
Kilometers

N

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aidenvironment

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Statement of Responsibility

On behalf of Bumitama Gunajaya Agro we have accepted the HCV assessment result and will undertake the implementation of the guidelines HCV management and monitoring provided in the report.

Date: Jakarta, June 6, 2017

Name : Hidayat Aprilianto
Title : Sustainability System Development and Mitigation Head Department, Bumitama Gunajaya Agro

On behalf of Aidenvironment, I hereby confirmed that Aidenvironment indeed has carried out this HCV assessment in this report of which the Public Summary is included and is responsible for the findings and recommendations.

Date: Jakarta, June 6, 2017

Name : Haryono
Title : Landscape Unit, Aidenvironment asia

Annexes 1. CV of PT RSM HCV assessment team members

Haryono

For more than ten years, Haryono has been working on private sector approaches for sustainable development focusing on palm oil sustainability and RSPO standards, include smallholders. His main expertise includes High Conservation Value, High Carbon Stock, Commodities Value Chain Development and Certification, Sustainable Landscape Approach, Livelihoods analysis, and CSR. Haryono registered on ALS HCV resource network as provisional HCV assessor license, since 2015.

Ivan Valentina Agung

Ivan Valentina Ageung graduated in master's degree in law. He has excellent skills on legal drafting, public administration, and litigation. Over the last 15 years, he has been working on agrarian, social-economics political and human rights issues. His skill also on disaster management, community facilitation, mediation and conflict resolution. His recent focused on social impact assessments.

Musfa Dharma

Muzfa Dharma has 20 years of experience in timber and logging companies especially regard with land acquisition and community development. His other expertise is on natural resource management, agriculture and forestry. Muzfa has agronomic background, he has worked on technical assistance as government extension officer for horticulture, subsistence crops and commodities plantation for farmers and farmer groups. His expertise combined forestry-agronomic technical background with extensive work on the agriculture and social development. He now registered as a mediator with the National Mediator Centre, Indonesia in 2015.

Salman

He has been working on legal and corruption issues on forestry and plantation sector. Spatial data analysis is one of his expertise while he always has passion to do field verification. Salman studied Forest Management at Tanjungpura University Pontianak west Kalimantan. Prior to joining Aidenvironment, he worked previously for local NGOs in Pontianak, West Kalimantan on the Swandiri Institute he works for spatial analysis of the Independent Forestry Monitoring Network (JPIK) project. His current position as GIS and remote sensing specialist within Aidenvironment.

Eka Kurnia Pambudi

His expertise on biodiversity especially on botany. His expertise starts since he active in Sylva Indonesia's forestry student organization 2005. Has been involved and worked as a botanist and ecologist at for several NGO and consultants such as; FFI-IP, MEC (Malaysian environmental consultant), Ecologica and Wetlands Research Institute of Tanjungpura University. Eka Kurnia is currently focus to High Carbon Stock approaches and climate change issues.

Berman Manurung

His expertise on biodiversity especially on ornithology and herpetology. His expertise starts since he active in Sylva Indonesia's birding groups 2005. He has involved in the several bird researches since 2013, Bukit Baka-Raya and Betung Kerihun national park and several FFI project site in Kapuas Hulu West Kalimantan. He is now expanding on the vegetation aspect as ecological attribute of bird species.

Annexes 2. Plant species list in PT RSM concession

No	Species	Family	No	Species	Family
1	*Acacia mangium*	*Fabaceae*	46	*Dillenia excelsa*	*Dilleniaceae*
2	*Aglaia rubiginosa*	*Meliaceae*	47	*Dillenia reticulata*	*Dilleniaceae*
3	*Aglaia sp*	*Meliaceae*	48	*Dillenia suffruticosa*	*Dilleniaceae*
4	*Alocasia longiloba*	Araceae	49	*Diospyros areolata*	*Ebenaceae*
5	*Alstonia angustifolia*	*Apocynaceae*	50	*Diospyros maingayi*	*Ebenaceae*
6	*Alstonia cf scholaris*	*Apocynaceae*	51	*Disoxylum sp*	*Meliaceae*
7	*Alstonia iwahigensis*	*Apocynaceae*	52	*Duabanga mollucana*	*Lythraceae*
8	*Alstonia spatulata*	*Apocynaceae*	53	*Durio sp*	*Malvaceae*
9	*Amorphophallus sp*	*Araceae*	54	*Elaeocarpus petiolatus*	*Elaeocarpaceae*
10	*Anacardiaceae*	*Anacardiaceae*	55	*Elaeocarpus sp*	*Elaeocarpaceae*
11	*Archidendron jiringa*	*Fabaceae*	56	*Eurya nitida*	*Theaceae*
12	*Artocarpus cf glaucus*	*Moraceae*	57	*Eusideroxylon zwageri*	*Lauraceae*
13	*Artocarpus dadah*	*Moraceae*	58	*Fagraea racemosa*	*Gentianaceae*
14	*Artocarpus elasticus*	*Moraceae*	59	*Ficus cf racemosa*	*Moraceae*
15	*Artocarpus glaucus*	*Moraceae*	60	*Ficus hetereopleura*	Moraceae
16	*Artocarpus integer*	*Moraceae*	61	*Ficus hispida*	*Moraceae*
17	*Artocarpus sp*	*Moraceae*	62	*Ficus obscura*	*Moraceae*
18	*Artocarpus teysmanii*	*Moraceae*	63	*Ficus sp*	*Moraceae*
19	*Baccaurea bracteata*	*Euphorbiaceae*	64	*Garcinia parvifolia*	*Clusiaceae*
20	*Baccaurea macrocarpa*	*Euphorbiaceae*	65	*Gironniera nervosa*	*Cannabaceae*
21	*Baccaurea sp*	*Euphorbiaceae*	66	*Gluta aptera*	*Anacardiaceae*
22	*Baccaurea tetrandra*	*Euphorbiaceae*	67	*Gluta renghas*	*Anacardiaceae*
23	*Bellucia pentamera*	*Melastomataceae*	68	*Gluta sp*	*Anacardiaceae*
24	*Bhesa paniculata*	*Centroplacaceae*	69	*Gonystylus bancanus*	*Thymeleaceae*
25	*Blumeodendron tokbrai*	*Euphorbiaceae*	70	*Gymnachrantera sp*	*Myristicaceae*
26	*Bridelia glauca*	*Euphorbiaceae*	71	*Hevea brasiliensis*	*Euphorbiaceae*
27	*Calicarpa tetrandra*	*Lamiaceae*	72	*Horsfieldia crassifolia*	*Myristicaceae*
28	*Calophyllum ferrugineum*	*Calophyllaceae*	73	*Horsfieldia irya*	*Myristicaceae*
29	*Calophyllum sp*	*Calophyllaceae*	74	*Imperata cylindrica*	*Poaceae*
30	*Camnosperma auriculata*	*Anacardiaceae*	75	*Ixonanthes reticulata*	*Ixonanthaceae*
31	*Casearia sp*	*Salicaceae*	76	*Jackiopsis ornata*	*Rubiaceae*
32	*Chionanthus sp*	*Oleaceae*	77	*Klenhovia hosvita*	*Malvaceae*
33	*Chrysobalanaceae*	*Chrysobalanaceae*	78	*Kosong*	*Kosong*
34	*Cleistanthus sp*	*Euphorbiaceae*	79	*Lauraceae*	*Lauraceae*
35	*Cratoxylum arborescens*	*Hypericaceae*	80	*Leea aculeata*	Leeaceae
36	*Cratoxylum formosum*	*Hypericaceae*	81	*Lithocarpus sp*	*Fagaceae*
37	*Cratoxylum glaucum*	*Hypericaceae*	82	*Litsea ferruginea*	*Lauraceae*
38	*Croton argyratus*	*Euphorbiaceae*	83	*Litsea sp*	*Lauraceae*
39	*Curculigo latifolia*	Hypoxidaceae	84	*Lophopetalum beccarianum*	*Celastraceae*
40	*Dicranopteris sp*	*Gleicheniaceae*	85	*Lophopetalum multinervium*	*Celastraceae*
41	*Macaranga costulata*	*Euphorbiaceae*	86	*Syzygium tawahense*	*Myrtaceae*
42	*Macaranga gigantea*	*Euphorbiaceae*	87	*Syzygium zeylanicum*	*Myrtaceae*
43	*Macaranga hypoleuca*	*Euphorbiaceae*	88	*Tetramerista glabra*	*Tetrameristaceae*
44	*Macaranga pruinosa*	*Euphorbiaceae*	89	*Tristaniopsis obovata*	*Myrtaceae*
45	*Macaranga sp*	*Euphorbiaceae*	90	*Tymonius flavescens*	*Rubiaceae*

91	*Macaranga triloba*	*Euphorbiaceae*
92	*Maducha montleyana*	*Sapotaceae*
93	*Maducha sp*	*Sapotaceae*
94	*Mallotus paniculatus*	*Euphorbiaceae*
95	*Mallotus peltatus*	*Euphorbiaceae*
96	*Mallotus sp*	*Euphorbiaceae*
97	*Mallotus sumatranus*	*Euphorbiaceae*
98	*Memecylon cleifolium*	*Melastomataceae*
99	*Myristica lowii*	*Myristicaceae*
100	*Nauclea officinalis*	*Rubiaceae*
101	*Nauclea sp*	*Rubiaceae*
102	*Nephellium lappaceum*	*Sapindaceae*
103	*Nephrolepis biserrata*	*Oleandraceae*
104	*Pandanus atrocarpus*	*Pandanaceae*
105	*Poikilospermum suaveolens*	*Urticaceae*
106	*Polyalthia glauca*	*Anonnaceae*
107	*Pternandra sp*	*Melastomataceae*
108	*Rhodamnia cinerea*	*Myrtaceae*
109	*Rubiaceae*	*Rubiaceae*
110	*Rubus moluccana*	*Rosaceae*
111	*Santiria sp*	*Burseraceae*
112	*Scaphium macropodum*	*Malvaceae*
113	*Schima walichii*	*Theaceae*
114	*Scleria sp*	*Cyperaceae*
115	*Sellaginela sp*	*Selaginellaceae*
116	*Shorea leprosula*	*Dipterocarpaceae*
117	*Shorea ovalis*	*Dipterocarpaceae*
118	*Simplocos fasciculata*	*Symplocaceae*
119	*Stemonurus secundiflorus*	*Stemonuraceae*
120	*Stenochlaena palustris*	*Blechnaceae*
121	*Sterculia gilva*	*Malvaceae*
122	*Syzygium cerrinum*	*Myrtaceae*
123	*Syzygium chlorantum*	*Myrtaceae*
124	*Syzygium napiforme*	*Myrtaceae*
125	*Syzygium sp*	*Myrtaceae*
126	*Unidentified*	*Unidentified*
127	*Vatica umbonata*	*Dipterocarpaceae*
128	*Vernonia arborea*	*Asteraceae*
129	*Vitex pubescens*	*Lamiaceae*
130	*Xantophyllum obscurum*	*Polygalaceae*
131	*Xylopia malayana*	*Anonnaceae*
132	*Xylopia sp*	*Anonnaceae*
133	*Xylopia stenopetala*	*Anonnaceae*
134	*Dipterocarpus cornutus*	*Dipterocarpaceae*
135	*Shorea platycarpa*	*Dipterocarpaceae*

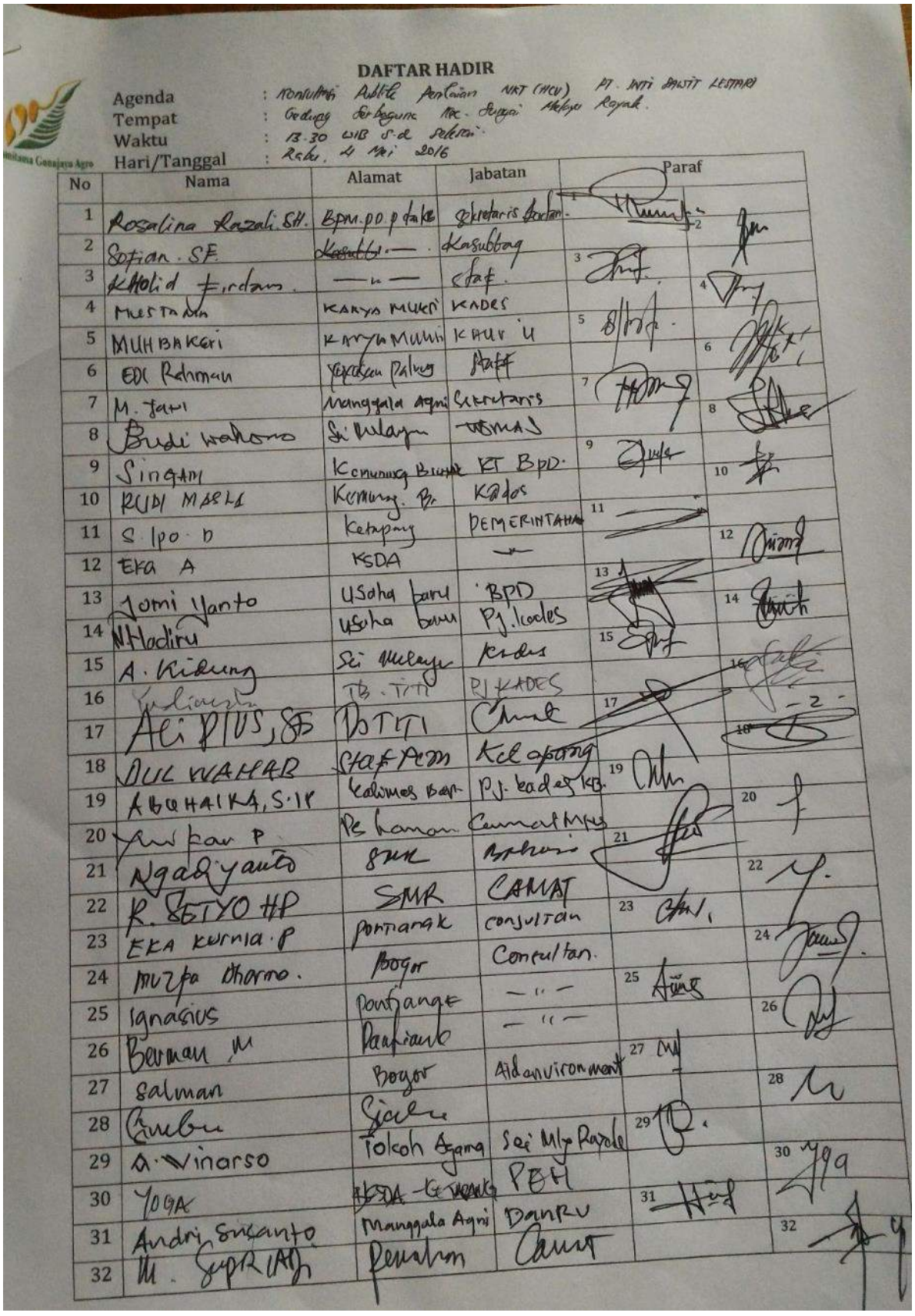
Annexes 3. Wildlife species list of PT RSM

No	Indonesia Name	English Name	Scientific name	Family	CITES	IUCN	GoI/PP	Location
1	Kekep babi	White-Breasted Woodswallow	*Artamus leucorynchus*	Artamidae		LC		RSM 12
2	Bajing Kelapa	Plantain squirrel	*Callosciurus notatus*	Sciuridae		LC		RSM 14
3	Bubut besar	Greater Coucal	*Centropus sinensis*	Cuculidae		LC		RSM 18
4	Gagak hutan	Slender-billed crow	*Corvus enca*			LC		RSM 12
5	Elang Tikus	Black-Shouldered Kite	*Elanus caeruleus*	Accipitridae	APP II	LC	PP no 7	RSM 11T
6	Layang Layang	Pasifik swallow	*Hirundo tahitica*	Hirundinidae		LC		RSM 1
7	Brinji Mata-putih	Buff-vented Bulbul	*Iole olivacea*	Pycnonotidae		NT		RSM 7
8	Bambangan merah	Cinnamon Bitern	*Ixobrychus cinnamomeus*	Ardeidae		LC		RSM 14
9	Bentet Kelabu	Long Tailed Shrike	*Lanius schach*	Laniidae		LC		RSM 11
10	Bondol rawa	Chesnut Munia	*Lonchura atricapilla*	Estrildidae		LC		
11	Bondol kalimantan	Dusky Munia	*Lonchura fuscans*	Estrildidae		LC		RSM 2
12	Bengkarong		*Mabuya multifasciata*					RSM 1
13	Cinenen belukar	Dark Nacked Tailor Bird	*Orthotomus atrogularis*	Sylviidae		LC		RSM 18
14	Cinenen kelabu	Red-headed Tailorbird	*Orthotomus ruficeps*	Sylviidae		LC		RSM 17
15	Pekaka emas	Stork-billed kingfisher	*Pelargopsis capensis*			LC	PP no 7	RSM 6T
16	Cucak kuricang	Black Headed Bulbul	*Pycnonotus atriceps*	Pycnonotidae				RSM 14
17	Merbah mata-merah	Red Eyed Bulbul	*Pycnonotus brunneus*	Pycnonotidae		LC		BT 3T
18	Merbah belukar	Olive-winged Bulbul	*Pycnonotus plumosus*	Pycnonotidae		LC		BM 7 T
19	Merbah corok-corok	Cream-vanted bulbul	*Pycnonotus simplex*	Pycnonotidae		LC		BM 6 T
20	Cucak rawa	straw-headed bulbul	*Pycnonotus zeylanicus*	Pycnonotidae		EN		RSM 5T
21	Kipasan belang	Pied-fantail	*Rhipidura javanica*	Rhipiduridae		LC	PP no 7	RSM 5T
22	Elang brontok	Changeable hawk-eagle	*Nisaetus cirrhatus*	Accipitridae	APP II		PP no 7	RSM 12
23	Tekukur Biasa	Spotted Dove	*Streptopelia chinensis*	Columbidae				RSM 5T
24	Punai Dadu	Pink-Necked Green Pigeon	*Treron vernans*	Columbidae		LC		RSM 1T
25	Ular segitiga merah		*Xenochrophis Trianguligerus*			LC		

Source; HCV assessment field observation PT RSM 2016

Note: E = Endemic to Borneo; IUCN (2014): CR = Critically Endangered, EN = Endangered, VU = Vulnerable; LC=Least concern, NT; Near threatened CITES: App. I = CITES Appendix I, App. II = CITES Appendix II; PP7; Peraturan Pemerintah No. 7 tahun 1999.

Annexes 4. Attendee list of initial pulblic consultation on Sungai Melayu Mei 5, 2016



DAFTAR HADIR

Agenda : Konsultasi Publik Penilaian NKT (HCV) PT. INTI INDUSTRI LESTARI
Tempat : Gedung Serbaguna Kec. Sungai Melayu Rayak.
Waktu : 13.30 WIB S.d Selesai
Hari/Tanggal : Rabu, 4 Mei 2016

No	Nama	Alamat	Jabatan	Paraf
1	Rosalina Razali SH.	Bpm. Pontianak	Sekretaris Kantor	1
2	Sofian. SE	Kasubbag	Kasubbag	2
3	Kholid Firdaus.	— " —	Staf	3
4	Mustadin	Karya Mukti	Kades	4
5	Muh Bakeri	Karya Mukti	Kaur U	5
6	Edi Rahman	Pekebun Pulang	Staff	6
7	M. Jani	Manggala Agni	Sekretaris	7
8	Budi Wahono	Sei Melayu	Wamas	8
9	Singam	Kemuning Baru	KT BPD	9
10	Rudi Marli	Kemuning. Br.	Kades	10
11	S. Ipo. D	Ketapang	Pemerintah	11
12	Eka A	KSDA	—	12
13	Jomi Yanto	Usaha baru	BPD	13
14	M. Hadiru	Usaha baru	Pj. Kades	14
15	A. Kiburg	Sei Melayu	Kades	15
16	Juliansyah	TB. Titi	PJ Kades	16
17	Ali Pius, SS	DTITI	Camat	17
18	Dul Wahab	Staf Pem	Kel Ketapang	18
19	Abdhalka, S.IP	Kelimas Bar	Pj. kades KB.	19
20	Yuhar P	Pk Kamon	Camat Mpts	20
21	Ngadiyanto	SMR	Kades	21
22	R. Setyo HP	SMR	Camat	22
23	Eka Kurnia. P	Pontianak	Konsultan	23
24	Murpa Dharno.	Bogor	Consultan.	24
25	Ignasius	Pontianak	— " —	25
26	Berman M	Pontianak	— " —	26
27	Salman	Bogor	Aidenvironment	27
28	Gunbu	Sicelu		28
29	A. Winarso	Tokoh Agama	Sei Mlyu Rayak	29
30	Yoga	KSDA Ketapang	PEH	30
31	Andri Sucanto	Manggala Agni	Dansru	31
32	M. Supriadi	Pematang	Camat	32

Annexes 5. Attendee list of public consultation on Kemuning Biutak April 20, 2017

NO	NAMA	JABATAN	ALAMAT	TANDA TANGAN
1.	RUDI MASLA	KADES	KEMUNING B.	26.
2.	SUNGKUI. M	TOKOH ADAT	DS Kemuning	27.
3.	Samad.	Kadus 01.	DS Kemuning.	28.
4.	DARGIN			29.
5.	P. Ikad S	Masyarakat	Desa Kemuning	30.
6.	Y. SAPARUDIN	KDUS. 02	— " —	31.
7.	P Kelim	Kadus	D Kemuning	32.
8.	UBIN.	TOKOH Masyarakat	—	33.
9.	AJIS Cilik	KT-DAD	KG-MHS	34.
10.	ALEX	SERDES	DESA KEMUNING.	35.
11.	SINCTAM	KT BPD		36.
12.	IVAN V. A.	Consultant	Aidenvironment	37.
13.	Saupan Sahwasi	Kadus. 03.	"	38.
14.	Gabriel. H P	CSR	PT. RSM	39.
15.	Budi wahono	Kemitraan	PT. ISL	40.
16.	M. ADI PRASETIO	SE	Aidenvironment.	41.
17.	Tatang dk	kemitraan	PT. ISL	42.
18.	Haryono	Aidenvironment	Pontianak	43.
19.	ANTO	RT 02	Kemuning	44.
20.	Slamet A.	PAO.	PT. RSM	45.
21.	RUDI HARTONO	HUMAS	PT RSM	46.
22.				47.
23.				48.
24.				49.
25.				50.

KEENDA : KONSULTASI PUBLIK
PT. RSM.
WAKTU : PUKUL 11.00 - SELESAI
TANGGAL : 20 APRIL 2017

20 APRIL 2017.
KEMUNING BIUTAK 20 MARET 2017
KEPALA DESA KEMUNING BIUTAK

RUDI MASLA

Annexes 6. Attendee list of public consultation on Sungai Melayu April 20, 2017

Daftar Hadir

AGENDA : Konsultasi Publik PT. RSM
TEMPAT : Kantor Desa Sungai Melayu
WAKTU : 15.00 s/d Selesai
HARI TANGGAL : Kamis, 20 April 2017

NO	NAMA	ALAMAT	JABATAN	PARAF	
1	Kanisius Anim	Sungai Melayu	Kadus I	1	
2	Matius Rorato.	Sei melayu.	Anggota Lpm.		2
3	Ridwan	Kantor Pelk Kpg.	Mgr. CA Reg. Kalbar	3	
4	Gabriel .H. P	CSR PT. RSM	CSR		4
5	IVAN V. A.	Aidenvironment-Bogor	Consultant	5	
6	M. ADI PRASETIO	SE	Aidenvironment		6
7	Budi Wahono	PT. ISL	Kemitraan	7	
8	Valentinus Tajol	Sungai Melayu	Kadus Tembelina		8
9	Slamet Ardiansyah.	PSO	Tembelina.	9	
10	YASMIKI	Sungai Melayu.	Bendahara. Desa		10
11	Y. Anji	Sungai Melayu	Tokoh Masyarakat	11	
12	Y.R. SUYANTO	— " —	— " —		12
13	G. Kecadul	— " —	LPM	13	
14	Tatang dk	PT. ISL	kemitraan		14
15	RUDI HAR TONO	PT ISL	Humas	15	
16	K. Anim	Sungai Melayu	Kadus Karang Mas		16
17	JONNER-S.	Simpg Empat S.M.	Kadus Simp Empat.	17	
18	Diomedes Bensen	Simpang Empat SMR	Anggota BPD		18
19	F. Nani	Sungai Melayu	RW. 01	19	
20	MATAN P.	Sungai Melayu	Masyarakat.		20
21	A. Asjad	Sei Melayu	Ka-Ur. Umum	21	
22	Y. SAMAN	Sei Melayu	Anggota. BPD		22

Daftar Hadir

AGENDA : Konsultasi Publik PT. RSM
TEMPAT : Kantor Desa Sungai Melayu.
WAKTU : 15.00 s/d selesai
HARI TANGGAL : Kamis, 20 April 2017

NO	NAMA	ALAMAT	JABATAN	PARAF	
23	N. Sukur	Sei. Melayu	Ket. DAD	23	
24	A. Kidung	Sei Melayu	Kades		24
25	Joseph Bucuk	Sei. Melayu	Ket. BPD.	25	
26					26
27				27	
28					28
29				29	
30					30
31				31	
32					32

Annexes 7. Attendee list of public consultation on Segar Wangi April 21, 2017

DAFTAR HADIR

Agenda : Konsultasi Publik PT. RCM.
Tanggal : 21 April 2017
Tempat : Kadar Segarwangi (Bp. Thamrin)

NO	NAMA	JABATAN	ALAMAT	TANDA TANGAN
1	Slamet. A	PAD	Sungai Melanti.	1
2	SAM SUMIN	KADUS 2	Segar Wangi	2
3	SUDIRO. A.P.	KADUS II	— " —	3
4	YAYAN.	STAF KAUR.	Segar Wangi	4
5	THAMRIN	KADES	Segar Wangi	5
6	H. HAMDAN	TIM 10	— " —	6
7	SUDIMAN	SEKDES	— " —	7
8	SUDIRMAN	KEMITRAAN	Pemuatan Jaya	8
9	Cori. S.	KADUS III BEWE	pengancing	9
10	Gabriel. U.P	CSR	PT. RSM	10
11	IVAN V.A	Aidenvironman	Bojor	11
12	Frans. Bk	Kasi PEM.	SGW	12
13	Rusli	RT II.	MAMBUK	13
14	KAFI	I	Tulok.	14
15	MOHDI	KET. RT 4	Ds 2 MAMBOK	15
16				16
17				17
18				18
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21				21
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