New Planting Procedure

PT Bandar Sumatra Indonesia

Bandar Pinang Estate

Serdang Bedagai - North Sumatra – Indonesia

Cover page

1.	Date of Notification	19 July 2021
2.	Name of Grower	SIPEF
3.	Name of Subsidiary (if any)	Bandar Sumatra Indonesia
4.	RSPO Membership No.	1-0021-05-000-00
5. Location of proposed new planting *(i)* *Grower Address* *(ii)* *Business Permit* *(iii)* *Type of Business* *(iv)* *Size (ha)* *(v)* *Contact persons* *(vi)* *E-mail address* *(vii)* *Geographical location* *(viii)* *Spatial Reference (GPS Coordinates)(* *(ix)* *Boundary map* *(x)* *Areas and time plan for new* plantings		(i) Jalan Raya Dolok Masihul, Kecamatan Bintang Bayu, Kabupaten Serdang Bedagai, 20984 (ii) - Concession Permit from Menteri Negara Agraria/Kepala Badan Pertanahan Nasional Tanggal 5-8-1997 No. 89/HGU/BPN/1997 with area 1412.17 Ha - Plantation Permit from Menteri Pertanian dan Kehutanan/Direktur Jenderal Perkebunan no.178/Mentanhut/VII/2000 tanggal 3 November 2000, Jenis Tanaman Kelapa Sawit, Karet dengan luas areal 1412.17 Ha[1] (iii) Oil Palm Grower (iv) 1206.85ha (v) Sander Van Den Ende (vi) svdende@sipef.com (vii) Kabupaten Serdang Bedagai (District) of North Sumatra (Province), Indonesia (viii)3.317°N, 98.925°E (ix) Figure 2 (x) 1197.47 ha in 2023
6. Statement of Acceptance of Responsibility for NPP *Notes: The oil palm grower signs to confirm that the necessary assessments have been done and completed in accordance to the NPP.*		
7. Name of Grower: Name of Person Responsible: Position: Signed:		PT Bandar Sumatra Indonesia Sander Van Den Ende Regional Director Environment & Conservation Department

[1] Note that legal action took place where the community successfully claimed a portion of the estate. This reduced the estate to 1206.85 ha. The HGU was never updated to reflect this decision.

Date:	
	16.06.2021

8. Verification Statement by Certification Body (CB)

This section is not applicable as it is conversion from Rubber to Oil Palm Plantation

Notes: On completion of the information above, the oil palm grower will submit the details to the appointed CB who shall then verify the findings through documentation and field checks of proposed new plantings. The CB then provides a signed verification statement and sends it to the RSPO Secretariat.

In the NPP submission, the verification statement by the CB will confirm that the appropriate carbon stock assessments have been made in compliance to C7.8 and that these assessments have been submitted to the ERWG (applicable through 31st December 2016).

9.
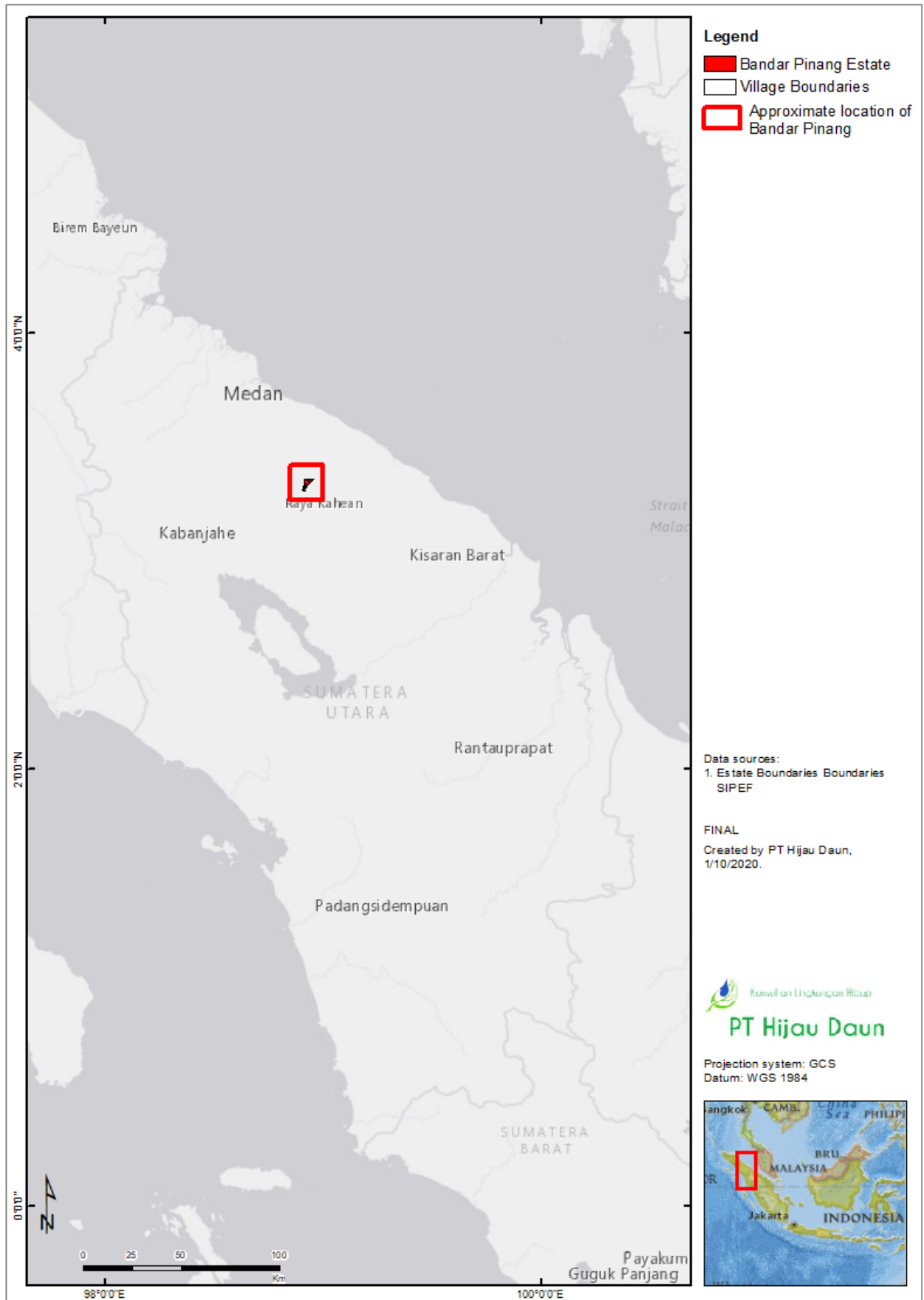Name of CB:

Name of Lead Auditor:

Position:

Signed:

Date:

Figure 1. Spatial location of study areas (red) in North Sumatra. Coordinates of the central point is 3.317ᵒN, 98.925ᵒE.
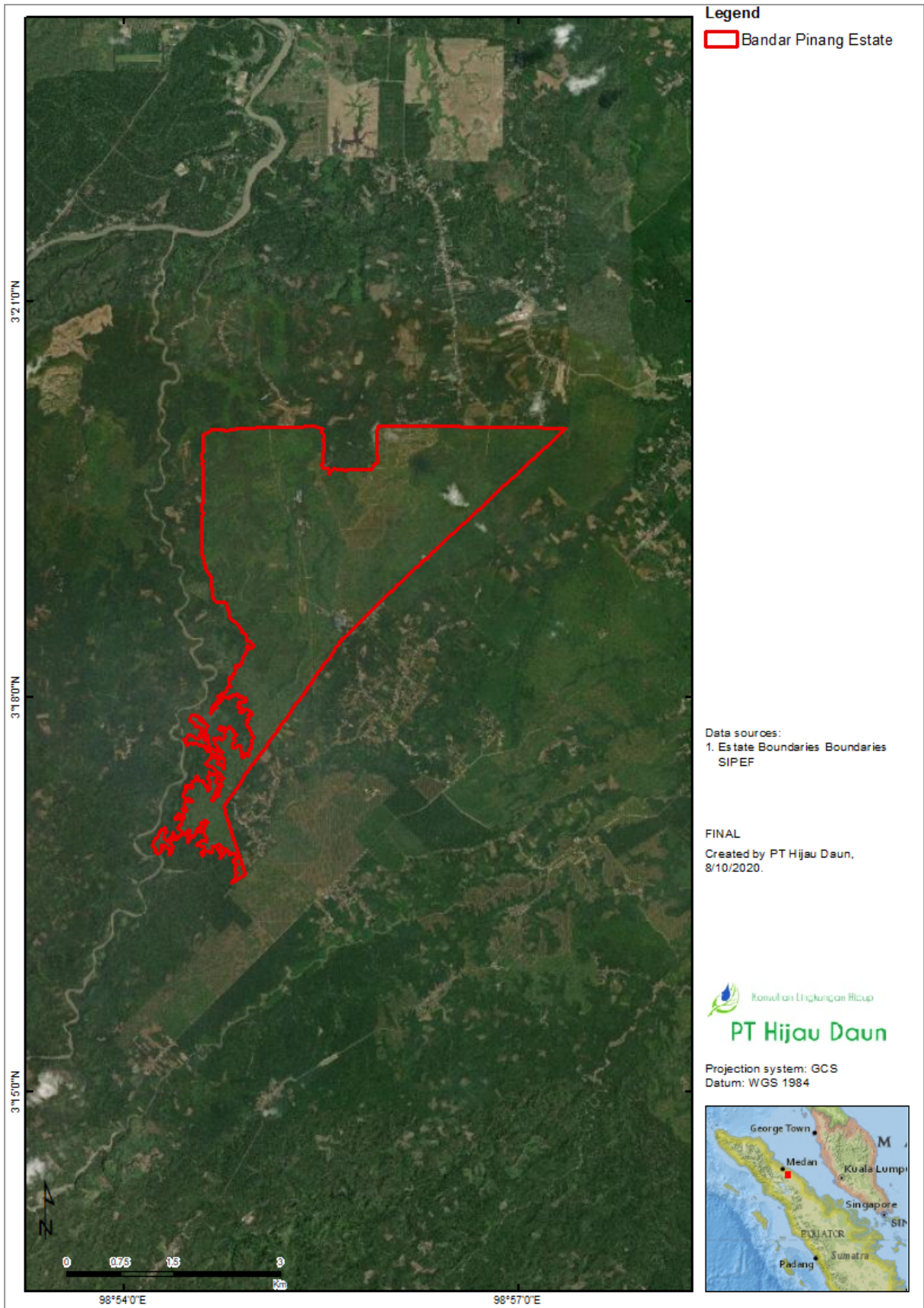
Figure 2. Boundary Map. The total area is 1206.85ha which is held under a HGU. It is currently a rubber plantation that will be converted to oil palm.

Contents

Tables

Figures

1. Overview and Background

Bandar Pinang Estate (BPE) is located in Kapupaten (District) Serdang Bedagai, North Sumatra Province Indonesia. It is located in an industrial agricultural area which is made up of a matrix of industrial oil palm and rubber plantations. Between these plantations there are smallholder rubber and oil palm plantations. There is little natural vegetation remaining in the landscape (Figure 3).

Bandar Pinang Estate is a rubber estate owned by the company - PT. BSI (Bandar Sumatra Indonesia). Due to the outbreak of a fungal pest in rubber and the continued low prices of rubber over the last decade the company wishes to convert the plantation to oil palm. Even though this is converting from one plantation crop to another, this is considered "new planting" by the RSPO and requires a New Planting Procedure (NPP). The NPP must be done over the whole Management Unit independent of how much area is converted. The total area of the management unit is 1206.85 ha.

The purpose of this NPP is to enable PT BSI to comply with RSPO requirements, which necessitates all new oil palm developments to undertake a suite of assessments prior to development. These assessments are done to ensure that :

- Development is done in harmony with the environment and in harmony with the communities that live within and around the assessment area.

- Any HCV area or HCS forest in the assessment area are identified and mapped prior to development, and management and monitoring recommendations are provided to ensure the HCV/HCS present are maintained or enhanced if the project proceeds.

- Development is planned to minimise carbon emissions and maximise carbon sequestration.
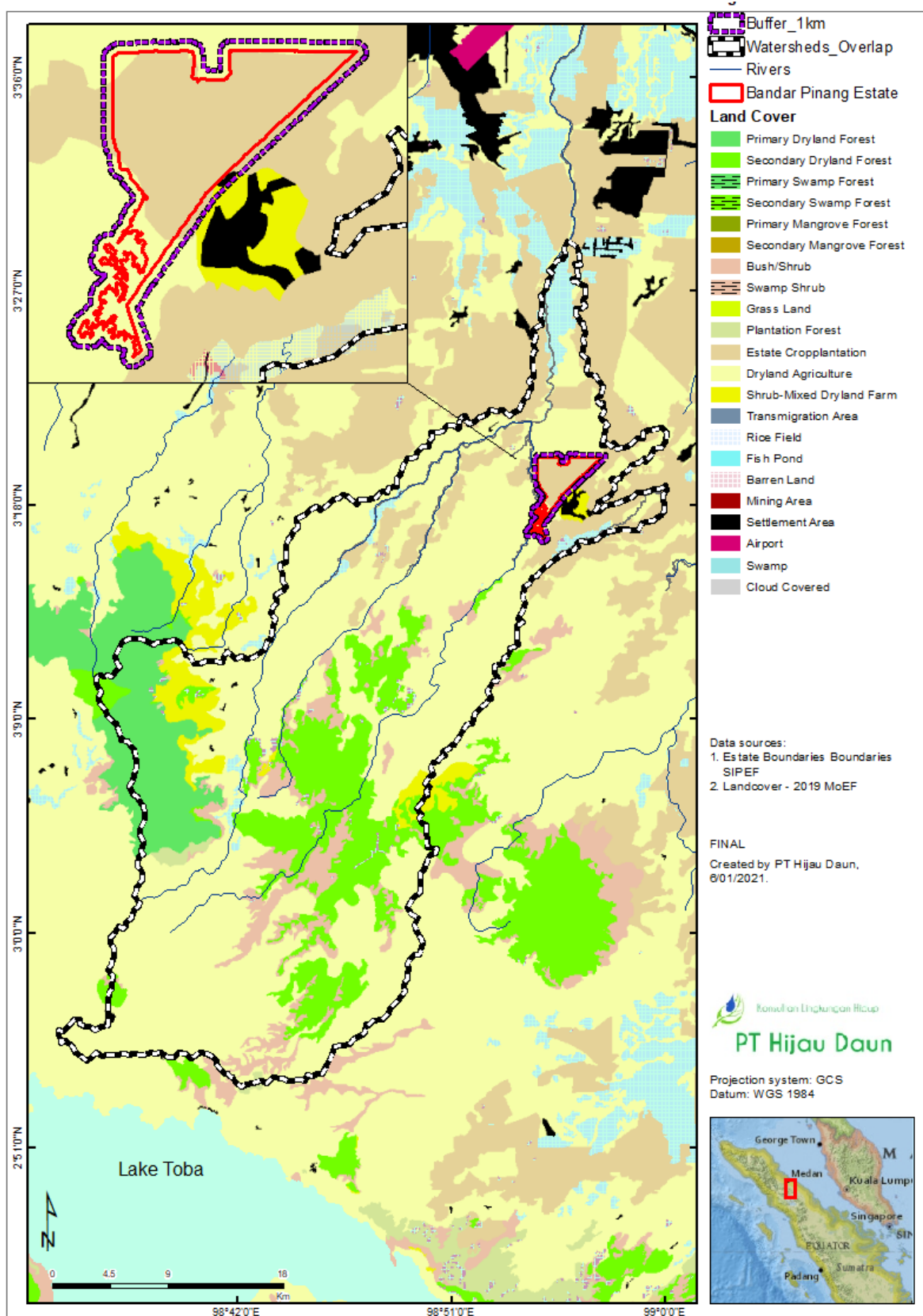
Figure 3 Landscape level map of the study area with an inset map with a zoom-in displayed. This includes (1) the Biodiversity AOI (black and white dashes) – 1 km buffer of the assessment area. (2) The watershed boundary (black and white dashes) which is the sub-watershed that PT BSI is within. The MoEF (2019) land cover is also displayed. (3) The social boundary of the AOI (purple boundary) has been added.

Geologically Sumatra was caused by the movement of the Indian plate under the Asian plate, which caused the formation of the Barisan Range. Whilst the rocks are sedimentary, one of the most significant factors was the eruptions which occurred 75,000 years ago in the Lake Toba region. This lead to volcanic tuff being spread over all of Sumatra. Which has made Sumatran soil more fertile than Kalimantan soils.

Sumatra supports a wide range of vegetation types and forests are comparable in richness with Borneo. It has 17 endemic genera of plants. One of the most well-known is *Rafflesia arnoldia*, the largest flower in the world. Whilst there is a broad range of vegetation types in Sumatra, the most distinctive is the tall lowland forest which is dominated by Dipterocarps. Sumatra is one of the richest islands in Indonesia for animals. It has most mammals (201 species) and its bird list (580 species) is second only to New Guinea. There are 23 endemic mammals and 21 endemic birds. This great wealth is due to its large size and diversity of habitats. Almost all the dryland lowland forests (which would have covered the area of BSI) are now gone. Socially, it is felt that the people of Sumatra have benefited from the loss of the forests very little. (Whitten & Damanik, 2012)

North Sumatra has approximately 434,000 ha cultivated as oil palm, producing approximately 1.7 M tonnes of FFB annually.(*Badan Pusat Statistik Provinsi Sumatera Utara*, 2018)

Palm Oil contributes about 2.5% to Indonesia's GDP, however in impoverished rural areas, the oil palm industry is a significant source of income and wealth. There are approximately 8 million people working in oil palm plantations in Indonesia. Riau and North Sumatra are the main palm oil producing provinces in Indonesia. (Schleicher and Freiburg, 2019)

Topography

The study area is in the "Eastern Plains and Hills" biogeographic region. Land Resources Department, (1988) mentions few limitations regarding suitability for crops. Table 1 describes the landforms that are present in the assessment area.

Table 1. Landforms present in the assessment AOI, (Land Resources Department, 1988)

Landform name	Description
Batuapung	Rises almost imperceptibly from the coastal plain, gradually becoming steeper and more incised and dissected inland. The stream pattern is closer to parallel and the streams have dissected the land more deeply of 25-50m, with very steep side slopes. The slopes of the interfluves are undulating to rolling.
Pakasi	Rises almost imperceptibly from the coastal plain, gradually becoming steeper and more incised and dissected inland. The streams retain a basically dendritic pattern and are incised to 5 – 10 m, with very steep side slopes.
Kahayan	Riverine and esturine plains.
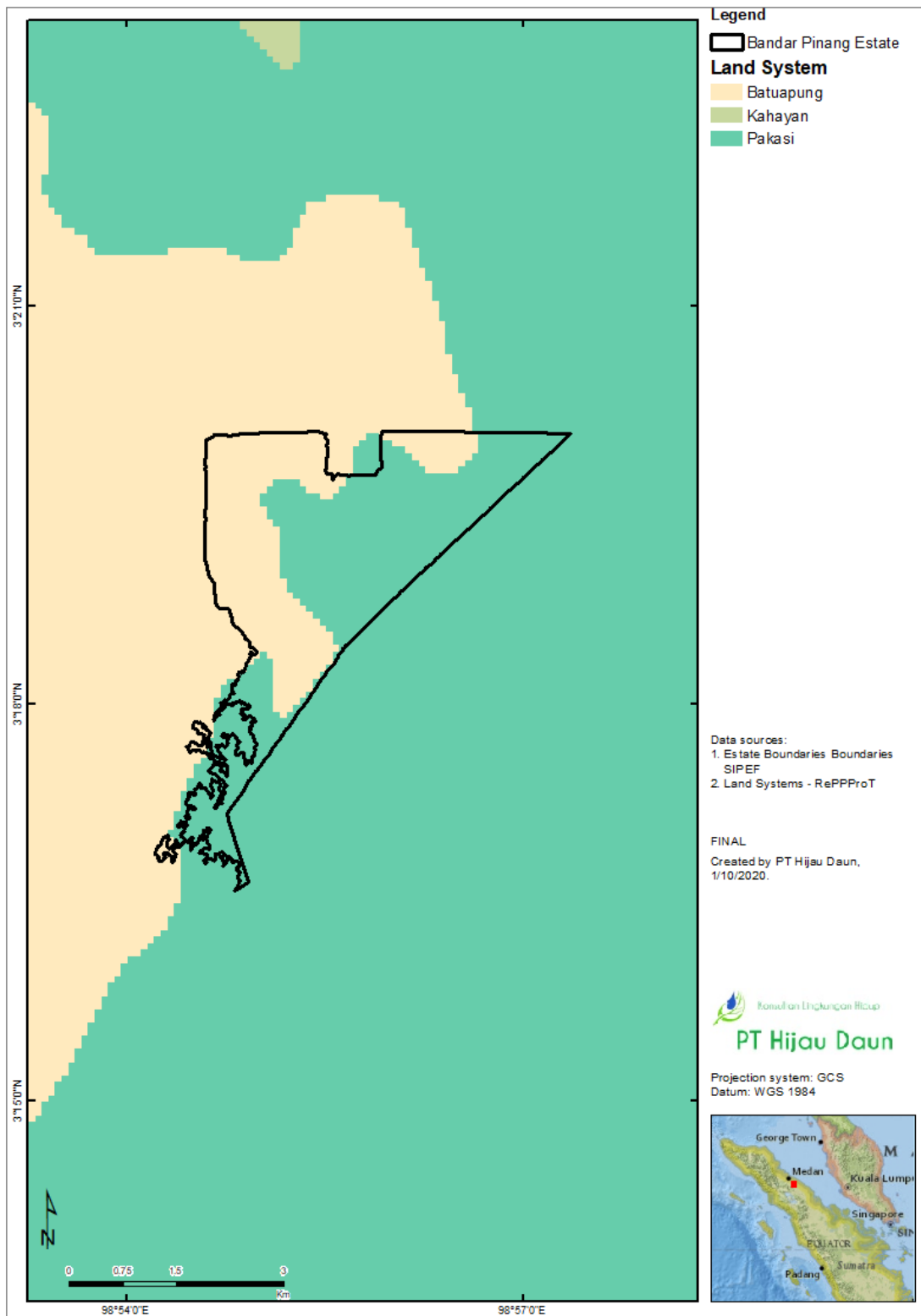
Figure 4. The assessment area overlaps with Batuapung and Pakasi land system types. (HCV Toolkit, 2008).

The topography of the area can be best described as "undulating" with steep drop-offs to the Anak Sungai Ular which is outside the concession but on the western border. Figure 5 shows that the concession is located in lowland areas and Figure 6 shows that slopes are very gentle on the whole.
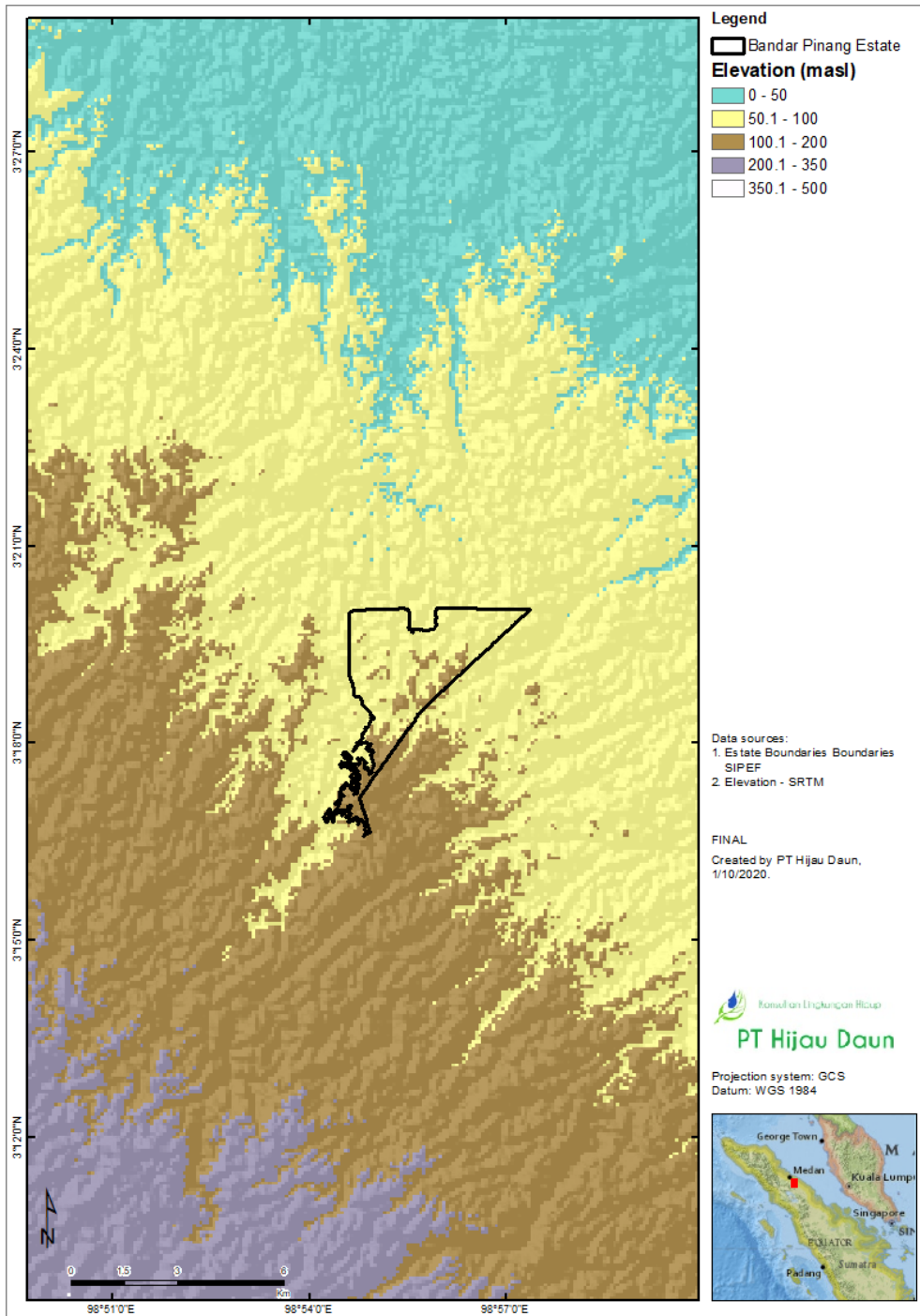
Figure 5. All the assessment area is below 150 masl, therefore can be classified as lowland areas

Legend

☐ Bandar Pinang Estate

Slope (degrees)

🟩 0 - 10

🟨 10.1 - 22

🟥 >22

Data sources:
1. Estate Boundaries Boundaries
   SIPEF
2. Slope - SRTM

FINAL

Created by PT Hijau Daun,
1/10/2020.

Konsultan Lingkungan Hidup

PT Hijau Daun

Projection system: GCS
Datum: WGS 1984
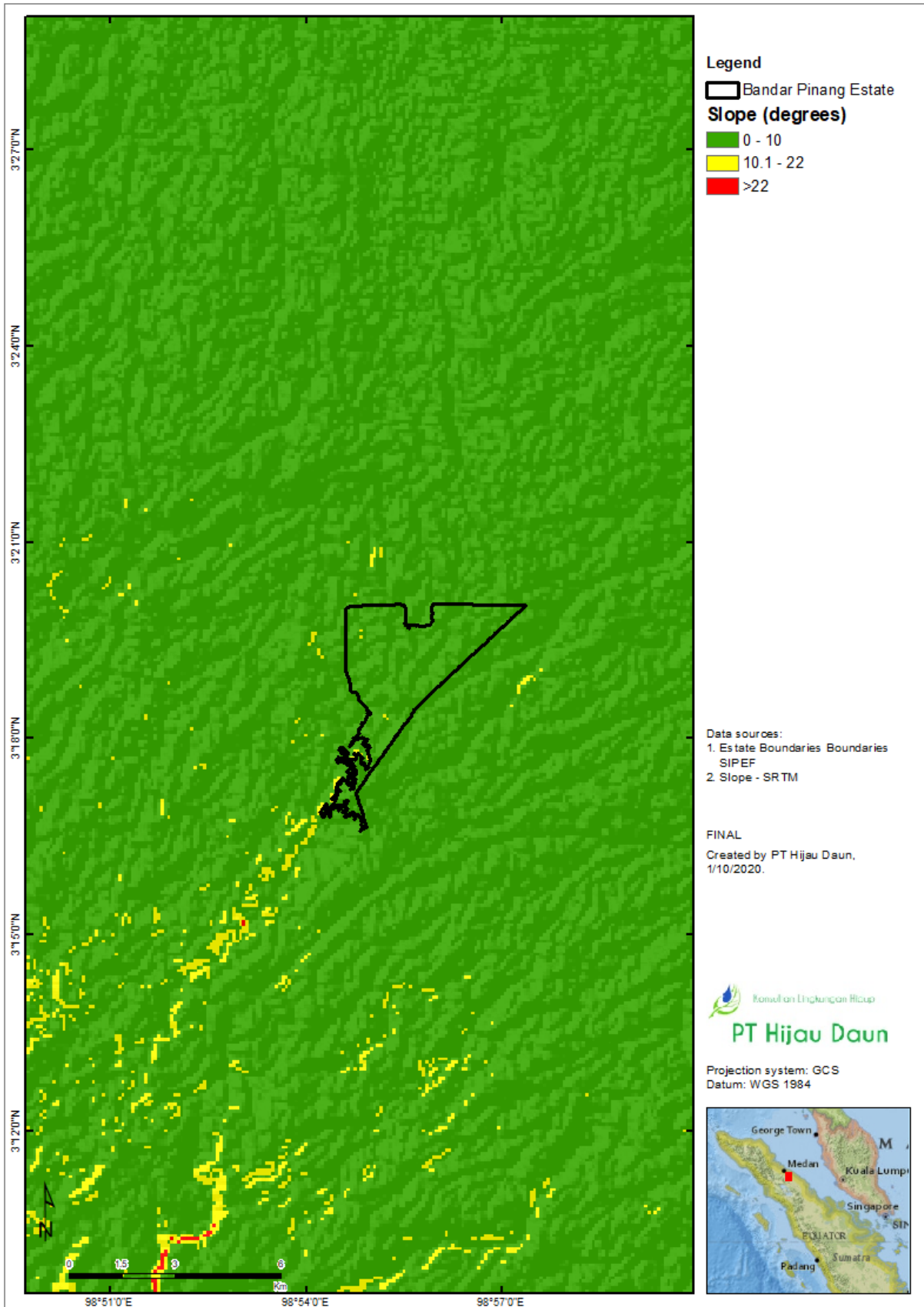
Figure 6. In the whole of the PT BSI the area can be described as rolling terrain, but none of the area is too steep to be developed. The only steep areas are outside the estate on the south-western border, where there are drop-offs to Sg Ular. The resolution of the pixels used for calculating slope is 30 m – this is ALOS PALSAR data.

Hydrology

There are no rivers in the estate mentioned in the UKL or UPL[2] and none were observed during the assessment. The sandy soil means that the rainfall quickly percolates through the soil profile.

The Anak Sg Ular (sometimes called Sg Kare) flows to the west of PT BSI and is a major river. At some points it comes within 100 m of the estate boundaries.

Figure 7. A pontoon crossing Anak Sg Ular which allows people and motorbikes to cross this river. Anak Sg Ular flows to the west of PT BSI.

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[2] Note that because the concession is less than 5000 ha no AMDAL is required.
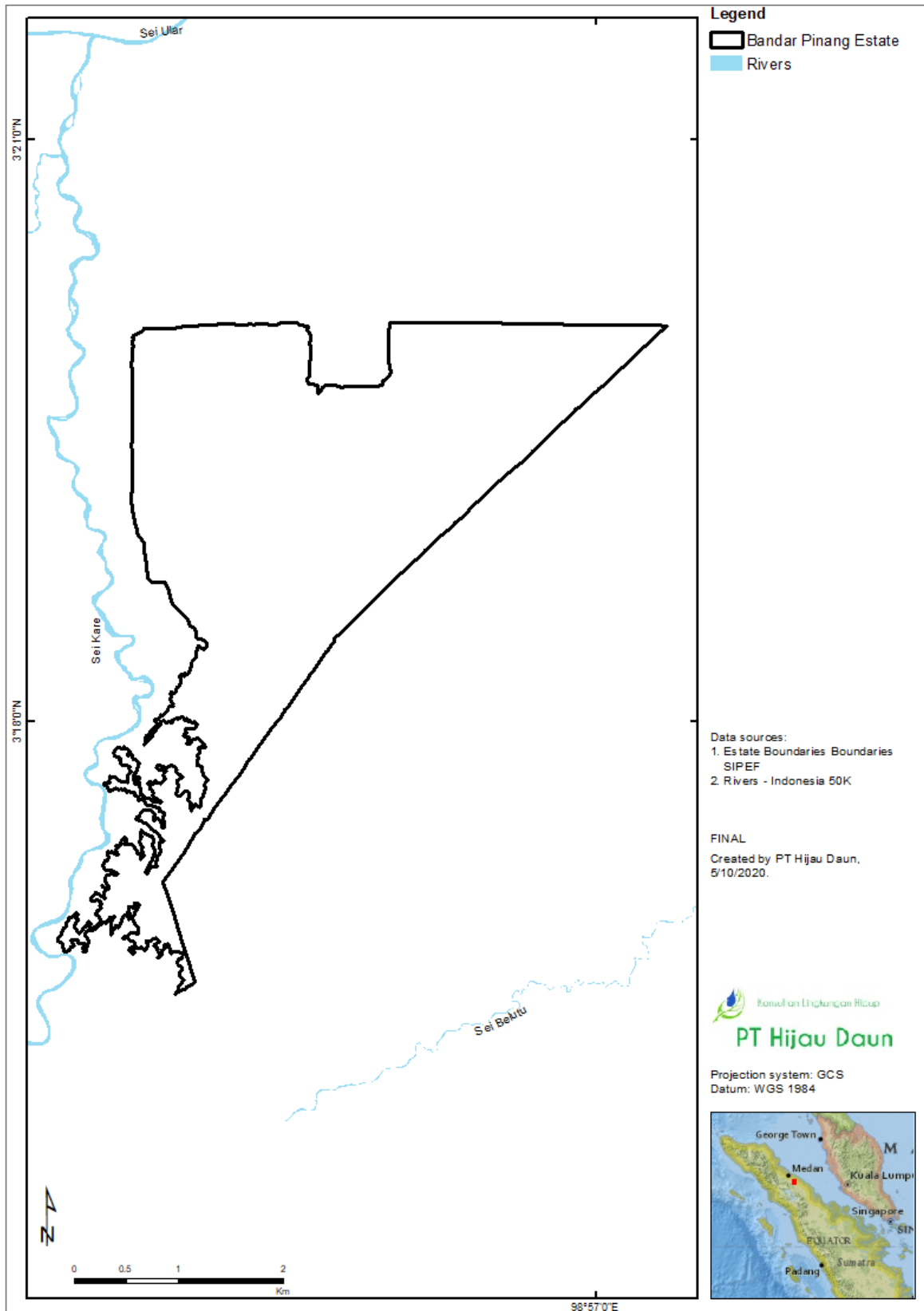
Figure 8. Rivers – the main river which flows through the AOI is Sei Kare (or Anak Sungai Ular). This is a relatively large fast flowing river which is heavily laden with sediment. At some points it comes within 100 m of the estate boundaries

Formally protected areas

Protected areas in Sumatra now cover > 110,000 km^2 (23% of the total land area), in the form of conservation forest (nature reserves, wildlife sanctuaries, national parks) and protection forest. "Protected areas effectively prevented government-sanctioned deforestation; forest conversion to large-scale agricultural plantations (i.e., oil palm, rubber, or wood fibre) was marginal within protected area boundaries. Yet, protected areas were no more effective at preventing deforestation than forests managed for timber production. Our findings corroborate evidence from throughout the tropics that suggests deforestation persists within protected areas when strong socioeconomic drivers of deforestation are coupled with insufficient management resources."(Gaveau et al., 2012)

The only Protected Area near the study area is 26 km to the east.

Intact Forest Landscapes

There are Intact Forest Landscapes to the west of the study areas (85 km from the western boundary – which is the closest area to an IFL). These areas can be seen below on Figure 9.

Key Biodiversity Areas (KBA)

The nearest areas of **Hutan Lindung** (Protected Forest), as identified by SK579 and the Provincial RTRWP are 24 km to the south west of the assessment area. There is an area of **Cagar Alam** 19 km to the south-west of the assessment area.

Endemic Bird Areas (EBA) and Important Bird Areas (IBA)

The nearest **Important Bird Area** (IBA), is 34 km to the east and overlaps with the KBA. **Key Biodiversity Areas** is 34 km to the east ("World Database of Key Biodiversity Areas," n.d.). The nearest **Endemic Bird Area** (EBA), "Sumatra and Peninsula Malaysia" is 26 km to the south.

HCV / HCS Values found

Table 2. HCV and HCS values found and justification.

	Presence	Area (ha)	Justification
HCV 1	Present	9.25	There is a large river outside the assessment area and its buffers overlap with the assessment area. There is a small lake within the assessment areas. The buffers to these are protected by Indonesian law. HCV 1 is mapped over these areas.
			There are 8 RTE, protected or endemic birds sighted. Most of these birds are wide ranging raptors that do well in disturbed landscapes. Though, it is thought that many of the birds (e.g. kingfishers rely on the lake area as habitat also).
			There are 8 mammal species that were sighted or mentioned as being present by locals. These species were either endemic, CITES listed, RTE (VU or above) or protected by the Government of Indonesia.
			In the absence of aquatic survey information the precautionary approach is applied because there "could" be temporal concentrations of aquatic species present. Therefore all the rivers and their associated buffers are HCV1.
			Therefore, HCV 1 was deemed present in the assessment area. Note that the whole AOI is considered HCVMA1 as a bird or animal could fly or roam over anywhere in the landscape.
HCV 2	Not Present	0	There are no large forested areas that intersect with the AOI. IFLs are a significant distance away. There are no top predators even potentially present

			reported in this landscape. The landscape is dominated by oil palm and rubber – both exotic species. For this reason, HCV 2 is deemed not Present
HCV 3	Not Present	0	Although Batuapuang is considered an endangered landsystem ("Mixed or hill dipterocarp forest on volcanic rock" ecosystem), the only natural vegetation that overlaps with this land system is degraded scrub. Given that this is not likely to recover to natural dipterocarp forest given a history of decades of agricultural land use and tens of kilometres from seed sources - HCV3 is therefore deemed Not Present.
HCV 4	Present	5.32	It seems highly unlikely that conversion of rubber plantation to oil palm plantation, as proposed by this assessment, will pose a critical threat to the pollination relationships present across the AOI. The assessment team therefore considers that this particular value is absent. There is a lake in the assessment area. This will require a buffer that is considered HCV 4. Although Anak Sg Ular is outside BSI, the GIS mapped buffers extend within the boundary – therefore this element of HCV4 is also considered present.
HCV 5	Not Present	0	All basic necessities are either sourced from outside the AOI or to a small extent grown in local gardens.
HCV 6	Present	0.09	There are graveyards in the villages, none of these are connected to the assessment area. There are however, three small graveyards within the area (Kuburan Bahrami, Kuburan Sumito and Kuburan Lorut) which are mapped as HCV 6. The community agreed that 10 m buffers would be adequate.
HCS Forest	Not Present	0	There are no natural forested patches within the concession.

The total conservation area is 9.38 ha.
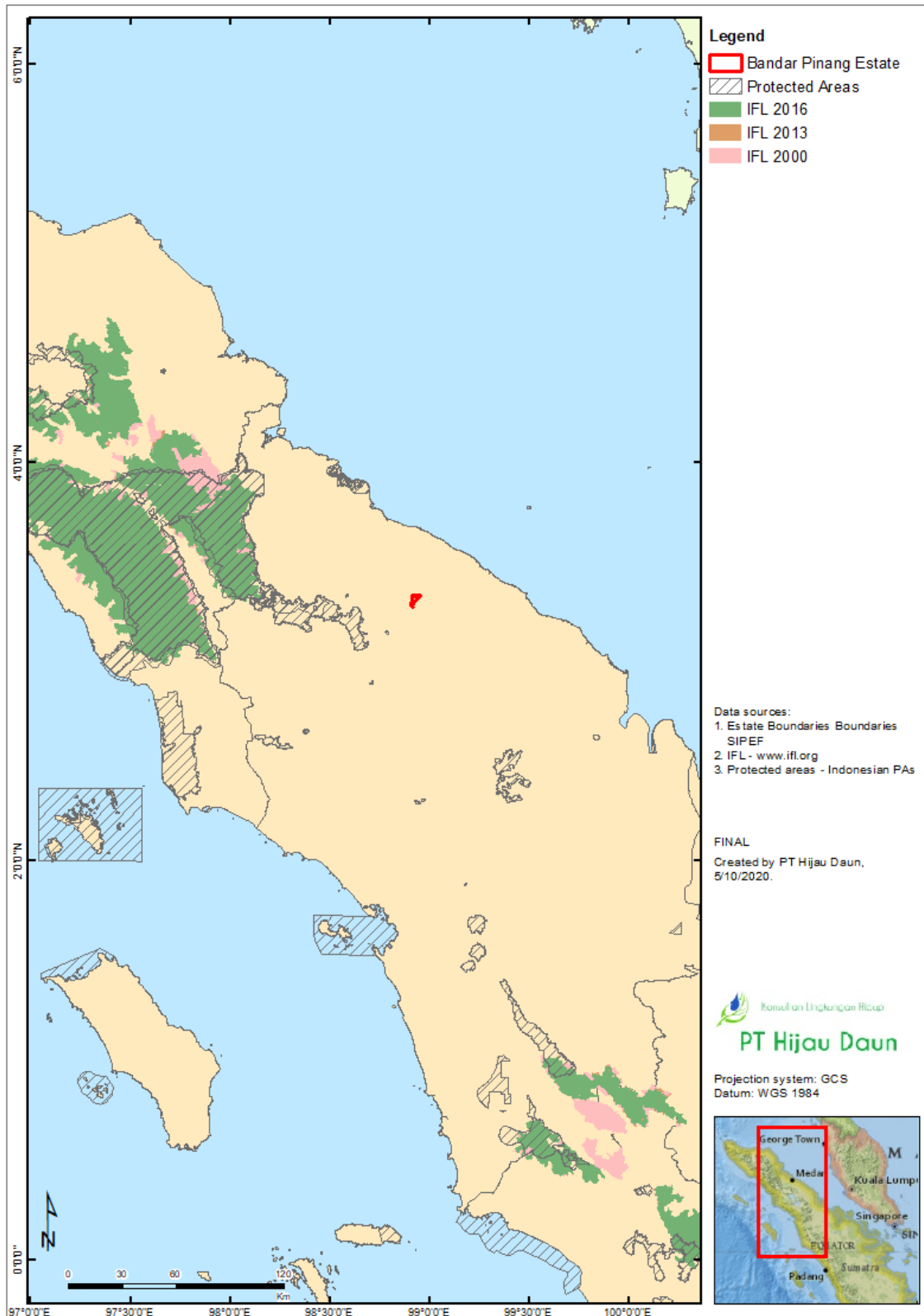
Figure 9. Shows the formally Protected Areas (grey hatching), and IFLs in the area. The closest IFL is 85 km from PT BSI.
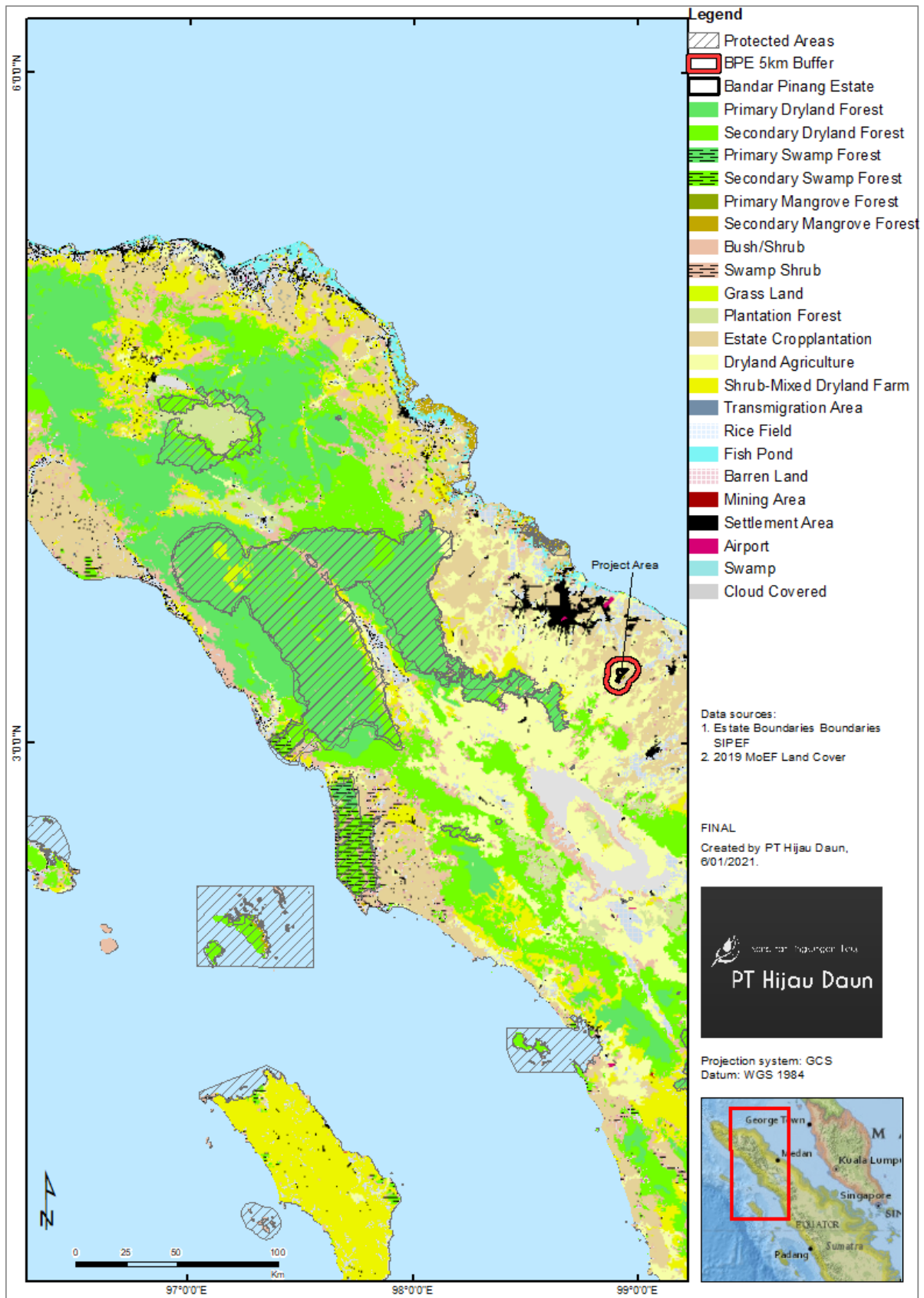
Figure 10. Based on the MoEF land cover mapping the Protected Areas are predominantly primary and secondary forest. They are very large indeed and part of the Gunung Leuser Nation Park.

1.1 Social, cultural and economic characteristics

Ownership of Land

The land of Bandar Pinang Kebun Village, which basically covers the land of PT BSI is covered by a Hak Guna Usaha (HGU), which gives the company the rights to use that land for agricultural business purposes. The HGU is recognized in Indonesia and by the current RSPO Standard and its National Interpretation endorsed by the RSPO as the highest form of legal authorization for land use in Indonesia. The area has been under a plantation, though with different owners, for over a hundred years. The owners have managed the area effectively for production and in doing so have stopped community encroachment. For this reason, there are no disputed areas or land claims within the estate. The borders of the plantation are demarcated with a ditch and / or concrete posts at regular spacings. The plantation boundaries are mapped in each village office and these boundaries are accepted and understood.

There was one case of the conservation area of PT BSI being encroached by the people from Gudang Garam Village. This occurred in the early 2000s. This resulted in a court case, which due to the political climate at the time, the community actually won the case and the area of the HGU was reduced from 1412 to 1206 ha (though the HGU has not been updated yet to reflect the reduced area).. Much of the river buffer area that was once conservation area is now community oil palm.

For the villages within the AOI but outside PT BSI; these would have been forested 50 + years ago. Ownership of land in these villages began with individuals (as subsistence farmers) clearing forests and planting agricultural crops initially. Over time these agricultural crops have been converted to rubber or oil palm plantations which are clearly more lucrative. The land in the area is completely owned, there is no land that is considered vacant and not owned by anyone. Ownership or control of land by each person is based on the recognition of the village and district. Currently the types of proof of majority land ownership are a letter from the Camat's Office and a village certificate. House sites do have a Certificate of Ownership.

Inheritance

The system for distributing inheritances from each family is different. Some follow Islamic law, where the male share is twice the female's share. Nowadays more people share an even distribution system, so there is no jealousy and mutual blame

Land sales : Land sales usually entail a face-to-face negotiation between parties that wish to buy and sell land. This is subsequently overseen by the village government who verifies that the seller does, in fact, own the land that is being sold. Land sale usually requires a sale and purchase deed. Landowners can obtain a land certificate from the village office, and if they wish, they can ask for approval from the sub-district. If a land owner wants to get a land certificate, the buyer can apply to the Agrarian Office or BPN.

Everyone can buy land, even if it is located in a different village. Therefore, in villages where there is a lot of land such as Bandar Pinang Rambe, Damak Tolong Boho and Pegajahan Hulu; many of these village lands are owned by other villagers. There are also cases where the villagers of Kelapa Bajohom have sold large areas of land to city people.

Land is sold using an area unit of a *rantai* (chain) which is 20 m x 20 m. Values range from Rp 300 million – 750 million / ha

1.1.1 Demographic and socio-economic context

The original people that came to this area were workers for the estate who came from Java in the early 19th Century and were paid and were provided with supplies such as sugar, salt and *ikan asin* (salty fish). Workers were only contracted for three years, after that new workers were brought in. Whilst a lot of the workers returned to Java, there were a lot also that settled in the villages around the plantation because they felt that life there was better than in Java. However, there were a lot that didn't return home because they couldn't

afford the trip (Ir.H.Soekirman, 2014). The majority of the residents of these villages are Javanese (Table 4), some of the older people would even reply to questions in Javanese.

Table 3. Village Profile. Total population and religion. Bandar Pinang Kebun (underlined) is the PT BSI estate village. Generally, Batak people are Christian (though not all) and the other groups are Muslim.

Village	Damak Tolong Buho	Gudang Garam	Pegajahan Hulu	Pegajahan Kahan	Bintang Bayu	Huta Durian	Bandar Pinang Kebun	Bandar Pinang Rambe	Kelapa Bajohom	Kuala Bali	Karang Tengah
Islam	1%	100%	99%	95%	78%	98%	99%	94%	No Data	No Data	No Data
Protestant	85%	0%	1%	5%	21%	2%	1%	6%			
Catholic	14%	0%	0%	0%	0%	0%	0%	0%			
Total Population	683	750	260	640	917	724	535	111	1 180	1 389	1 560

Table 4. Village Profile. Origin of the inhabitants – most people are Javanese and the Javanese language is commonly spoken in these villages. Bandar Pinang Kebun (underlined) is the PT BSI estate village.

Village	Damak Tolong Buho	Gudang Garam	Pegajahan Hulu	Pegajahan Kahan	Bintang Bayu	Huta Durian	Bandar Pinang Kebun	Bandar Pinang Rambe	Kelapa Bajohom	Kuala Bali	Karang Tengah
Java	1%	94%	97%	48%	69%	84%	89%	19%	No Data	No Data	No Data
Melayu	0%	0%	0%	0%	0%	0%	1%	0%			
Batak	99%	1%	3%	52%	29%	15%	9%	65%			
Minang	0%	0%	0%	0%	1%	0%	0%	0%			
Aceh	0%	0%	0%	0%	0%	0%	0%	0%			
Other	0%	4%	0%	0%	1%	1%	1%	16%			

Economic

The North Sumatran economy relies heavily on agriculture but manufacturing is also important. Rubber has typically been the main agricultural crop, due to the low capital inputs and the fact that a good road network is not required. However, as capital has flowed into North Sumatra and roading networks have improved oil palm has become by far the dominant agricultural crop.

The GDP per capita for North Sumatra is IDR IDR 51,420,000 /capita/year in 2018. This is roughly the same as the Indonesian average GDP/capita/year (IDR 48,600,000).

In North Sumatra 8.84% of the population lives below the poverty line[3], this statistic as terrible as it is, compares relatively well with the rest of Indonesia where 10.6% of the population lives below the poverty line. Importantly the number of people living below the poverty line is declining.(Badan Pusat Statistik Indonesia, 2017)

This villages in the area of PT BSI have an agricultural economy. Farming activities are focussed on oil palm and rubber. Collectors or middlemen are well established in these villages purchasing produce from farmers and trucking product (e.g. FFB) to mills. In each village there is also a market that is held on certain days.

Indonesia has two spatial planning systems. The first the RTRWP, which is administered at provincial level. The second is administered by the MoEF at the national level, with a separate spatial plan for each province. These spatial plans are continually updated. Oil Palm can only be planted on areas that are designated for agriculture, these are *Areal Pengunnaan Lain* (APL). As shown in Figure 11 and Figure 12 all of the assessment areas are zoned as APL.

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[3] This is defined as living on less than USD1.9 per day.
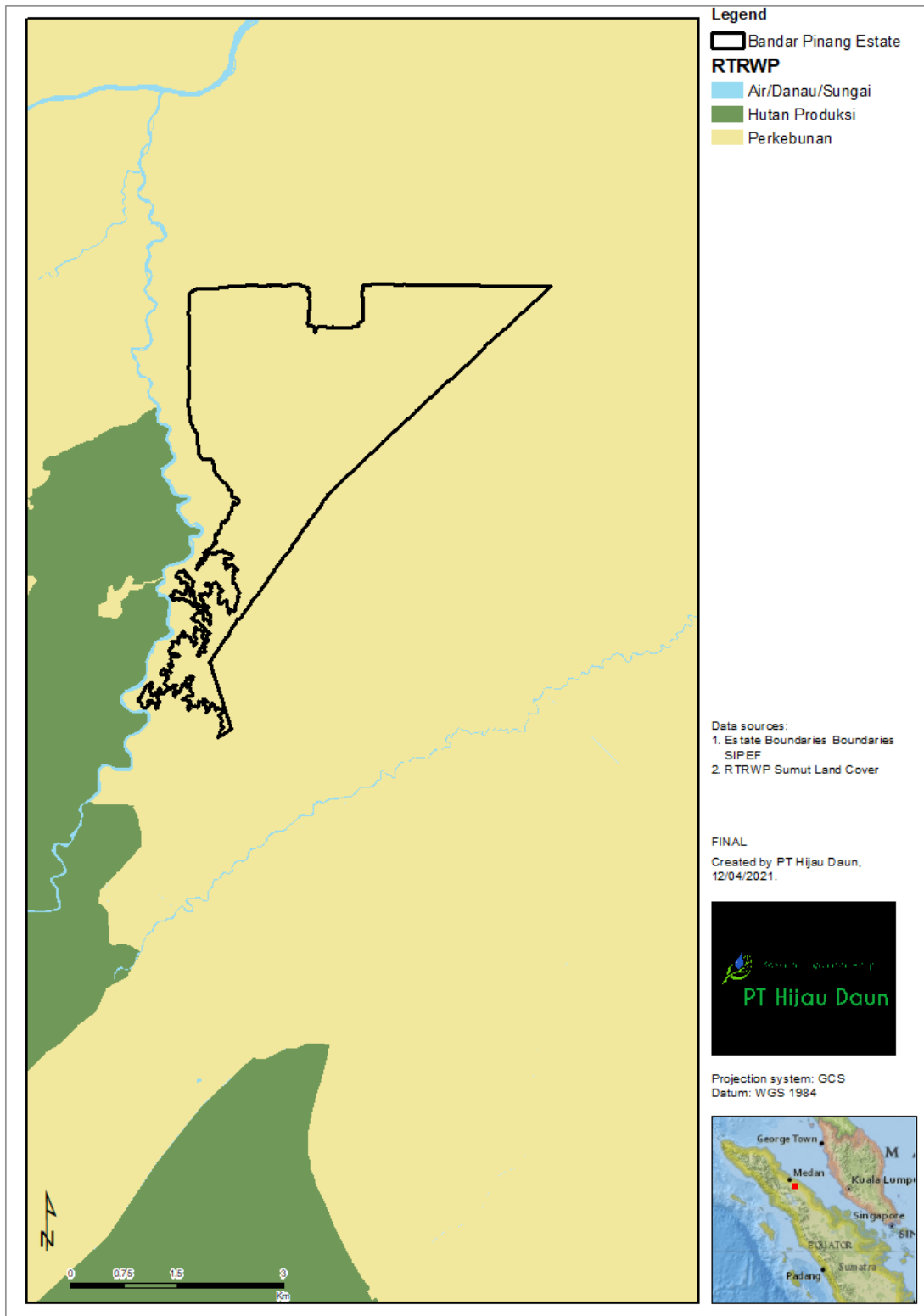
Figure 11. All of the assessment area is within "Perkebunan" which is area zoned for agricultural land use based on the provincial land use plan (RTRWP)
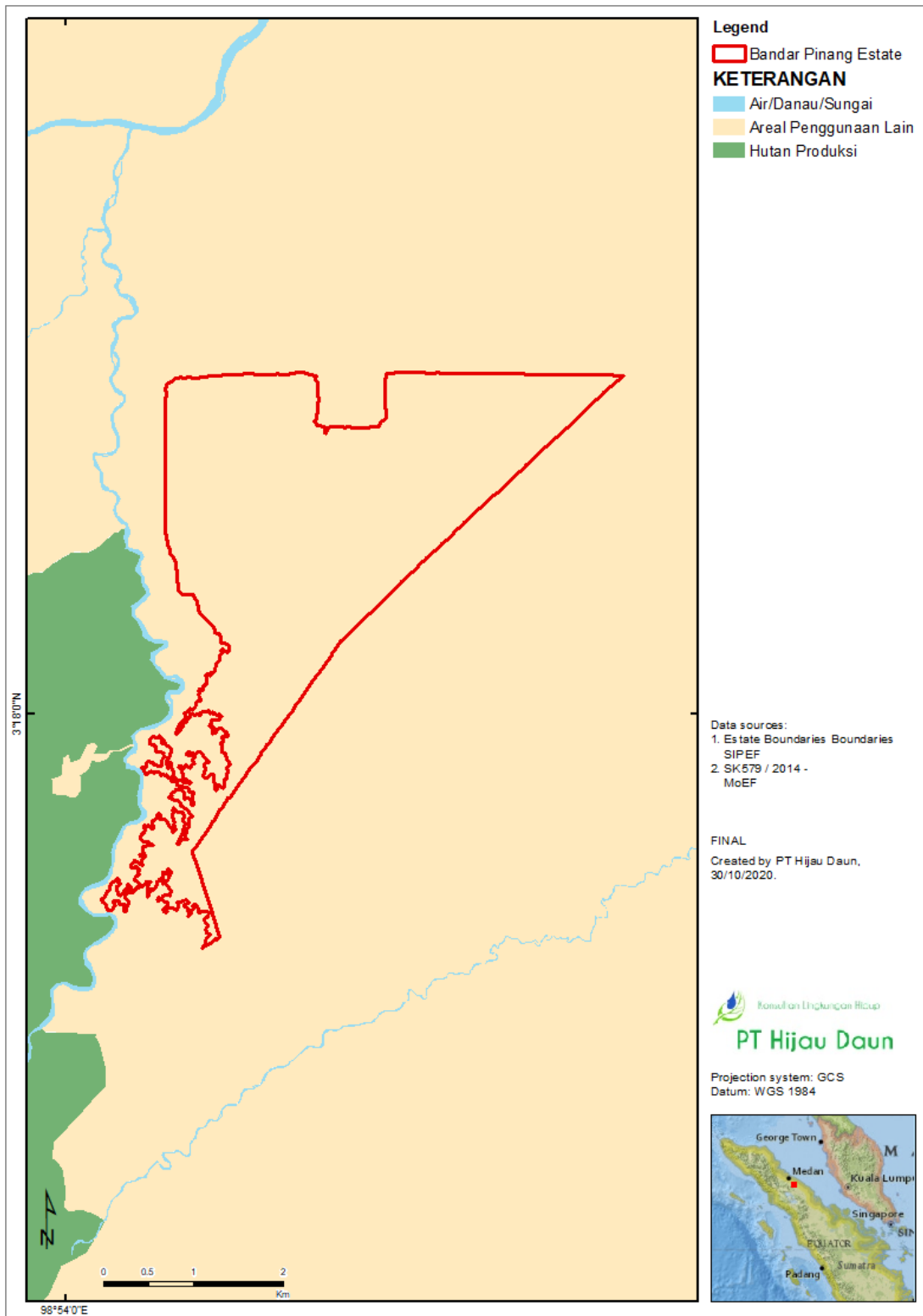
Figure 12. The MoEF SK579 for North Sumatra shows that the assessment areas as 100% "Areal Penggunaan Lain" (APL). As such, it can be legally developed for oil palm

Table 5. Legality surrounding existing plantation

No	Area (ha)	Land Use Title

1	1412.71	02.04.10.13.2.00002 (HGU)
2	Not mentioned on IUP document	178/Mentanhut/VII/2000 Tanggal 3 November 2000 (IUP)

Note that the HGU has not yet been updated to reflect the loss of area as a result of the community winning a court case against the company which caused the area to be reduced to 1206 ha.

Land use history

The first records of a plantation in the area of BSI was in 1913. Coffee was planted in the area and the plantation was owned by the Dutch. The plantation was later converted to a rubber plantation around 1917 and it was at this date that the Dutch built the rubber factory (the date ANNO 1917 is written on the roof of the rubber factory). At that time all the latex was transported by oxen.

New Planting Development Planning

The area available for new development is 1197.47 ha which was identified in the integrated report as developable area. Conversion is planned to take place in 2024 – 2026 (Figure 13).

Table 6. Planting plan by year.

Conversion Year	Area (ha)
Remain unplanted (road reserves)	1.00
2024	416.13
2025	387.89
2026	392.45
Sub Total	1,197.47
Conservation	9.38
Grand Total	1,206.85
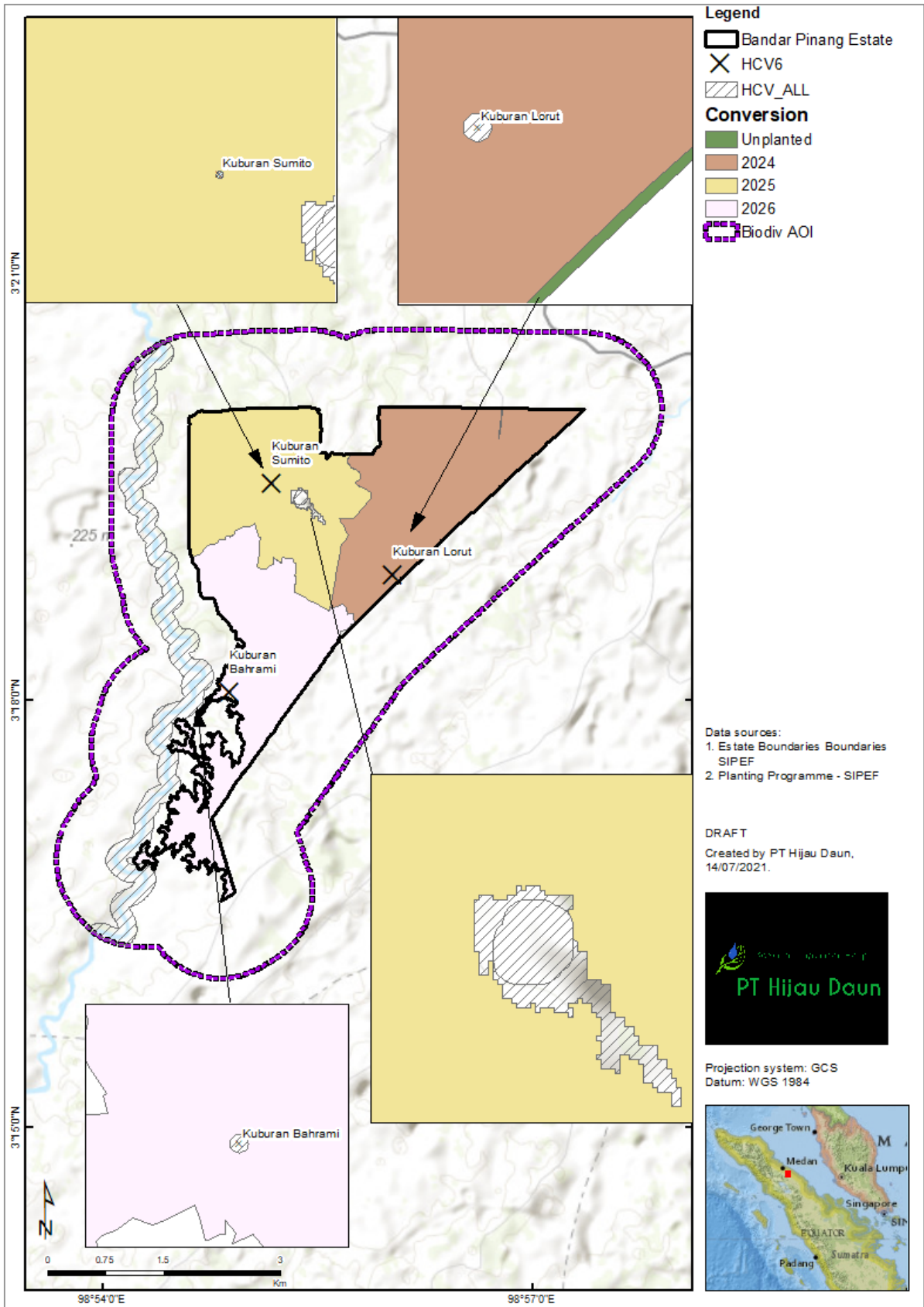
Figure 13. Planting plan
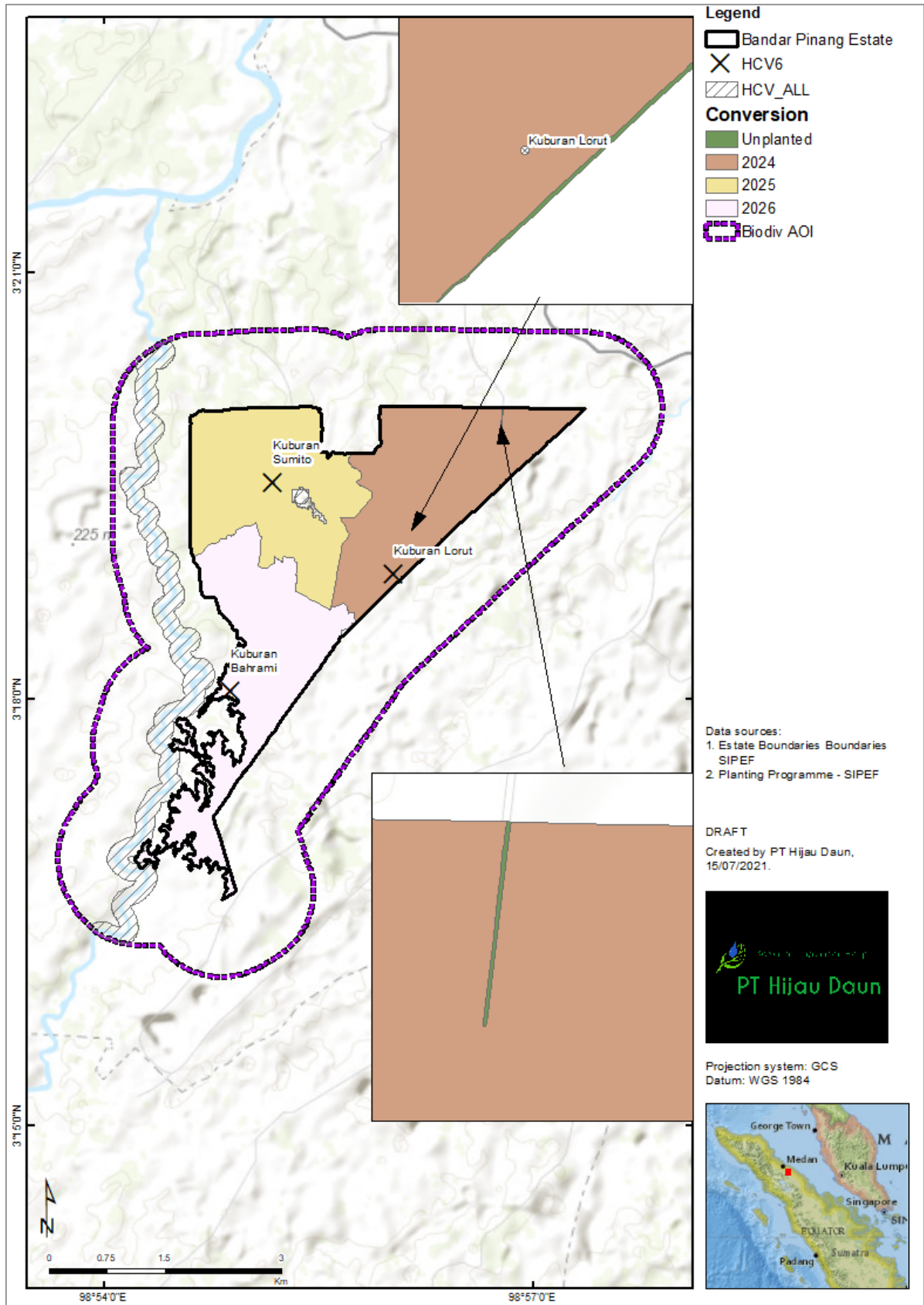
*Figure 14. Planting progress **- insets showing road reserves which will not be planted.***

2. Assessment process and methods

2.1   SEIA

The assessment took place between 1st and 28th November 2020.

2.1.1 Assessors and Credentials

Table 7. Hijau Daun assessment team (SIA)

Name	Organization	Role in assessment	Credentials
Jules Crawshaw	PT Hijau Daun	Coordination, report writing	Bachelor of Forestry Science Master of Business Systems ALS licensed assessor. HCSA Registered practitioner 7 years undertaking biodiversity and social assessments in Indonesia, Malaysia and PNG.
Daryatun Ridwan	Independent Consultant	Village meetings and reporting	Diploma Civil Engineering 25 years undertaking social assessments in Indonesia.

The EIA was undertaken by CV Jaya Abadi, which is a private company that specialises in AMDALs for regulatory puposes.

2.1.2 Methods used for conducting assessments

The EIA was undertaken in 2009 as part of making a UKL and UPL (management and monitoring plan). This is an Indonesian regulatory requirement. This document identified that the major source of environmental risk was the rubber factory. This will be decommissioned as part of the oil palm development.

The SIA assessment was divided into two stages, firstly a scoping study and secondly a full assessment.

2.1.2.1   Scoping Study

The scoping study took place in between 9th -13th November 2020. This involved the following activities:

- Travelling around the assessment area in order to understand current land cover and land use.
- Review of the secondary data that PT BPE had available.
- Interviewing PT BPE staff and community leaders about the social issues (especially land conflict) that are present (or have been resolved) in the area.
- Confirming the communities' permission to enter the area and undertake studies.
- Confirm that the company's plan to convert the estate from rubber has been socialised with the employees and surrounding community.
- Reviewing the FPIC activities that have already taken place;
- Understanding the results of mapping of land ownership and land use and how this data has been used to negotiate areas for development and conservation with the community.
- Reviewing procedures for communication and consultation with the communities. Reviewing how these procedures were developed. Reviewing documentation of communications that had already taken place.
- Interviewing workers about general working conditions.
- Interviewing relevant parties from the villages and Kecamatan that overlap with the assessment area in order to :
    - Gather demographic information

- o Understand the communities' awareness of plans to convert the estate
- o Gauge the communities' perception of the impact of current oil palm development.
- o Understand economic development and stability
- o Understand the communities' access to government services (e.g. education, health, infrastructure)
- o Gather information on the general background to the area including policies, programs, history / chronology of events, land claims, aspirations and solutions to problems that may have existed.
- o Understand the dependence of community members on natural ecosystems to fulfil basic needs and identify any important cultural sites.
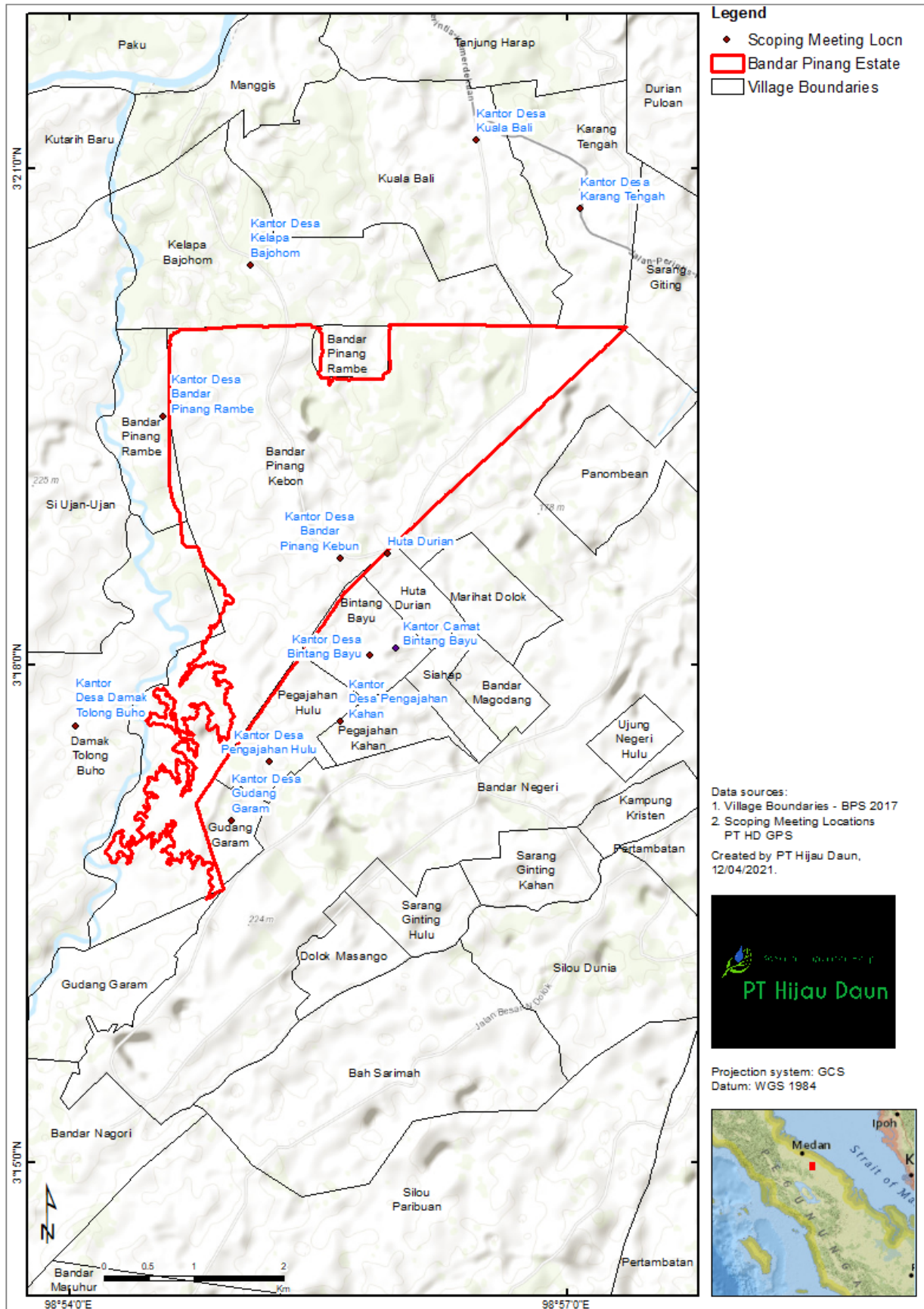
Figure 15. The location of where the social meetings took place for scoping. The village boundaries are also mapped.

2.1.2.2 Full Assessment

The Full Assessment can be divided into reviewing of secondary data and undertaking interviews and participatory mapping with the affected communities.

<u>Secondary Data</u>

Reviewing reports that had been prepared for the existing plantation. This included:

- 2019 Badan Pusat Statistik data at the Kecamatan and Provincial level;

- UKL and UPL (Environmental Management and Monitoring Plan)[4]

These were particularly important as these gave an insight to how the company would develop new plantations based on its existing track record.

Standard Procedures

- FPIC and Land Acquisition *(Pelaksanaan Ganti Rugi Lahan)*
- CSR and Community Development.
- Internal and External Complaints
- Staff Recruitment
- FPIC documentation (e.g. agreements, meeting notes and attendance registers)

<u>Primary Data</u>

Interviews with affected communities – this involved interviewing 121 participants in 8 affected communities. The questions revolved around usage of natural resources. The methods involved collecting data for a "level of dependency" table, which shows for each resource, the degree that it is relied upon by the local communities. This was augmented by Participatory Mapping, where the community were asked to map out locations of land use and locations where natural resources were obtained.

Other consultations were undertaken with government agencies, these were :

- Camat (Bintang Bayu)

- Camat (Serba Jadi)

- Dinas Ketenakerjaan (Manpower Agency)

- Dinas Perkebunan (Plantation Department) - Kabupaten Serdang Bedagai

- Dinas Lingkungan Hidup (Office of the Environment)

These interviews focussed on ascertaining the operatives' knowledge of the project and:

- Discussing the company's track record.

- Asking for comments or recommendations about the project.

- Discussing any current social or environmental issues that might arise as a result of the project.

Other consultations were undertaken with company staff. This involved rank and file staff members, to determine their knowledge of the project and to discuss any concerns that they may have.

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[4] There is no AMDAL because the area is less than 5000 ha.

2.2 HCV / S assessment

The field work for the assessment took place between 1st and 26th November 2020.Between contracting and eventual sign off by HCVRN was 1 June 2020 to 14 April 2021.

2.2.1 Assessors and Credentials

Table 8. Hijau Daun assessment team

Name	ALS License	Institution	Role	Relevant country experience	Language Proficiency
Julian Crawshaw	Full License **License No: ALS14006JC**	PT Hijau Daun	Lead Reporter / HCV-HCS Integrated Team Leader (HCS registered practitioner)	Acting as a lead assessor on >20 HCV and approximately 10 HCS assessments	English Bahasa Indonesia
Indrawan Suryadi		Indonesian Freelance Consultant	GIS (HCS registered practitioner)	GIS expert for > 30 HCV assessments	English Bahasa Indonesia
Kursani Sumantri		Indonesian Freelance Consultant	Vegetation Expert	Vegetation expert for > 30 HCV assessments	Bahasa Indonesia/ Bahasa Dayak
Daryatun Ridwan		Indonesian Freelance Consultant	Social Expert	Social expert for > 30 HCV assessments	English Bahasa Indonesia
Ega Oktavianus Putra		Indonesian Freelance Consultant	Bird and Mammal Expert	Bird and mammal expert that has taken part in many research projects	Bahasa Indonesia

2.2.2 Methods used for conducting assessments

The method was divided into four steps, these were :

1. Due Diligence
2. Scoping
3. Full Assessment
4. Final Consultation

2.2.2.1 Due Diligence

Table 9. Summary of pre-assessment due diligence, including evidence that the Organisation had met the necessary preconditions (as outlined in the integrated HCV-HCSA assessment manual) for this assessment to proceed.

No	Precondition	Evidence
1	Commitment to environmental and social safeguards	The environmental and social safeguards undertaken by PT BSI have been outlined. These are embodied in the company's own commitments. See the Responsible Plantations Policy on Sipef's website.
2	Moratorium on any land clearing or land preparation until the ICLUP is completed	SIPEF has provided a letter stating its moratorium on land clearing and land preparation.
3	Demonstrated legal right over or permission to explore the AOI	No documents were reviewed at DD.[5] The company stated during due diligence that they would be able to produce (1) license documents for the estate at scoping and (2) signed documents from the community allowing access to all areas. These were later produced during scoping.
4	FPIC gate FPIC process has been initiated with full disclosure of the proposed project with all potentially affected communities and stakeholders, and the process for negotiation and consent going forward has been agreed with representatives appointed through fair process	There were no outstanding issues from the above preconditions (except seeing the hard copies of the HGU). The company defined the affected communities as the villages which overlap with the assessment area as well as seven of the villages which share borders with BSI. Total of eight affected communities. This was based on the BPS mapping which each community confirmed was accurate. The company advised that their procedure for communicating with the community was through the office the respective Kepala Desas. The Kepala Desa is a paid government officer and part of the Indonesian government bureaucracy. Similarly, these communities have the BPD (Badan Permusyawaratan Desa) which is part of the government bureaucracy. It is part of the job of the BPD and Kepala Desa to act as advisors to the community on matters such as interactions with the company. Similarly, matters of importance have to be socialised to their constituents.

[5] Interpretation on preconditions: In general, preconditions apply to the company commissioning the assessment. If, however, the assessor was unable to collect sufficient information on the preconditions before beginning the assessment, then the assessment report can still be submitted as long as the assessor provides information on the four preconditions in the final report. If it is found during an evaluation, that the report is missing information on one or more of the four preconditions, the assessor can provide the additional information during a resubmission. The report will not fail because the order (pre-assessment and then assessment) was not necessarily followed. However, upon publication of this Advice Note the ALS will inform assessors of the cut-off date for when this retrospective provision of information will no longer be acceptable. During the scoping study, the assessor must verify that all the four preconditions are met using triangulation approach (additional document review, sampled interviews, and direct observation). If it is found during the scoping study that any of the four preconditions has not been met, then the assessment must not proceed. The assessment could either be cancelled or paused until the company provides evidence of having met the four preconditions.

| | | Examples of socialisations to the potentially affected communities ("affected communities" are listed in) are presented in Appendix Table 23

Additionally, FPIC related SOPs are in place. The FPIC SOP is the specification of the mechanism for subsequent interactions between communities and the company. |

FPIC has been initiated

The HCS approach prescribes various requirements must be met before the assessment proceeds. Table 10 outlines how these requirements have been met.

Table 10. Requirements to enable this project to proceed, and how these requirements were met.

Requirement	How this requirement was met
The process and activities involved in an HCV-HCSA assessment are understood.	SIPEF, as an organisation, has undertaken many HCV and HCS assessments. Through this process the organisation has a good understanding of what is involved.
The purpose, requirements and tools of the ALS, including costs of quality control of assessment reports, time required, potential outcomes and use of the ALS web platform to monitor status of reports.	The Sustainability Manager (and the larger organisation) are aware of all these factors. The Sustainability Manager has training in HCV and has overseen multiple HCV assessments in the past.
Recommendations for management and monitoring will be made based on the assessment and these will need to be further developed, refined, and implemented by the Organisation outside the scope of the HCV-HCSA assessment.	The Sustainability Manager was aware of all these factors. PT BSI has made a number of sustainability commitments which require constant improvement, audits and refinements to procedures. There is a lot of overlap with HCV and HCS and the organisation has internal procedures in place to enable implementation and refinement of management and monitoring.

2.2.2.2 Scoping Study

The objectives of the scoping study were to identify the project's area of influence, available information and initial stakeholder concerns; enabling the assessor to identify high priority issues and to inform the methodology for the field assessment and the team required. Additionally a number of the Due Diligence activities were either undertaken or information confirmed.

PT Hijau Daun maintains a database of relevant spatial and attribute data. Therefore, the initial desktop analysis involved examination against secondary data that was already available; e.g. Hansen deforestation data, Protected Areas, IBA, EBA, KBA, RePPProT and digital elevation models (DEM). Based on examination of the satellite image and the resulting land cover map , the assessor determined that there would be little to no HCS forest present.

How the scoping study addressed the relevant stakeholders

The relevant stakeholders were identified based Box 2 pg 19 from Rosoman *et al.*, 2017. The following stakeholders were identified. Each of them had face to face meetings – except WWF, who on four separate occasions said they were too busy.

Table 11. Identification of the relevant stakeholders

Category	Parties that were identified that would have to be interviewed
Affected communities (consider subgroups e.g. men, women, youth, elders, minorities)	All the communities that overlapped or had boundaries near the assessment area.
National and local government	All relevant local government This included : - Kepala Desa office of all affected communities - Manpower Office - Camat Bintang Bayu - Camat Serba Jadi - Environmental Service - Plantations Office
NGOs and civil society	All known local NGOs and others with projects in North Sumatra.
Development project leaders	Salaried Employees of SIPEF and PT BSI Wage workers of PT BSI
Other private sector actors with interests in the area	All industrial companies were operating outside of the AOI. These consist of two PTPN which own oil palm estates which border on PT BSI.

Table 12. Timelines associated with this integrated assessment

	Step description	Location	Dates undertaken/scheduled
1.	Contract Signing and project initiation	Office	1 June 2020
1	Participatory Mapping – done as part of the SIA.	Bandar Pinang Area	Nov 2020
2	Compilation of secondary and available primary data, including preliminary stakeholder consultation during a short, initial visit to the license areas (Scoping Study)	Office	Sept – Oct 2020
5	Team formation and briefing on project scope	Office	Oct 2020
6	Planning for fieldwork and agreement on field methods for primary data collection	Office	Oct 2020
7	Fieldwork and primary data collection, including direct stakeholder consultation	Bandar Pinang Area	9th – 13th November 2020
8	Development of an SIA (which included a Social Baseline Study and Land Tenure Study)	Bandar Pinang Area	9th – 13th November 2020
9	Full Assessment, data analysis and interpretation	Bandar Pinang Area	9th – 13th November 2020

10	Preparation of a Draft Report, including HCVA maps and management and monitoring recommendations (phase 1)	Bandar Pinang Area	14th – 20th November 2020
11	Final consultation to report interim HCV findings	Bandar Pinang Area	21st – 26th November 2020
13	Amend the draft report based on the Final Consultation.	Office	December 2020
14	Submission of the HCV Report to HCVRN	Office	14th January 2021
15	Public Summary Report written based on the final HCV report.	Office	17th April 2021

A five day in-field scoping study was undertaken in 9th – 13th November 2020. The other fieldwork phases took place 14 -26th November 2020. This involved the following activities:

The main activities of this scoping study were to :

- develop a land cover map and verify this map. The land cover map was mapped using satellite imagery prior to going to the field. This involved going to 31 plots located throughout the assessment area and noting the land cover. This had the additional benefit of enabling the assessor to have a comprehensive look at the assessment area and determine its suitability for oil palm development.
- Verify the FPIC that had taken place already. This involved visiting each of the villages that constituted the "affected area".
- Undertake an overview of the community to understand land ownership, the reliance on natural resources to meet daily needs and pressure on land for development (7 of the 9 affected communities were met).
- Meet with government officers to determine their opinion about the project.

The main results were that most of the land is suitable for oil palm development. There were almost no natural areas remaining. These areas would not be developable, given the company's "no-deforestation" commitments. The assessor was able to verify that the communities had been informed of the proposed project by PT BSI and that they had understood the location, scale and objectives of the proposed development and conservation and had given their consent to the HCV-HCSA assessment.

The locations of the scoping study meetings are displayed in Figure 15 and the location of the ground truthing points for the biodiversity element of scoping are displayed in Figure 24.

Table 13. Timeline of the field component of the scoping study

	Discussion with management regarding the assessment and associated logistics	
Monday, November 9, 2020	Separate scoping meetings with community leaders : - Ds Huta Durian - Ds Bandar Pinang Kebon - Ds Bintang Bayu - Camat Bintang Bayu	Ground Truthing Field Observation

Tuesday, November 10, 2020	Separate scoping meetings with community leaders : - Ds Damak Tolong Buho	Ground Truthing Field Observation
Wednesday, November 11, 2020	Separate scoping meetings with community leaders : - Ds Pengajahan Hulu - Ds Pengajahan Kahan - Ds Gudang Garam	Ground Truthing Field Observation
Thursday, November 12, 2020	Separate scoping meetings with community leaders : - Ds Karang Tengah - Ds Kuala Bali	Ground Truthing Field Observation
Friday, November 13, 2020	Separate scoping meetings with community leaders : - Ds Bandar Pinang Rambe - Ds Kelapa Bajohom	Ground Truthing Field Observation
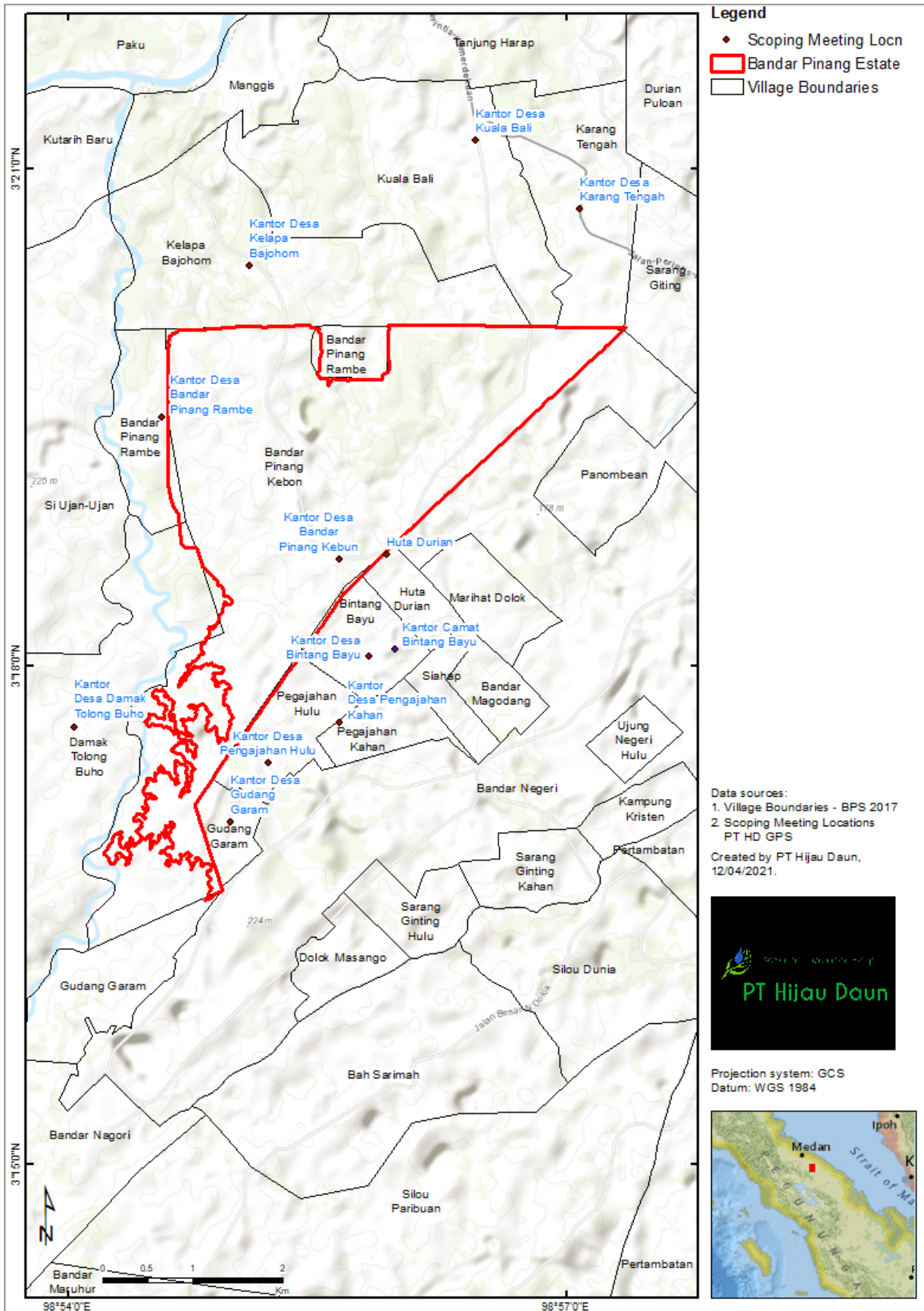
Figure 16. The location of where the social meetings took place for scoping. The location of the points that were walked to for the biodiversity part of the scoping are displayed in Figure 17.
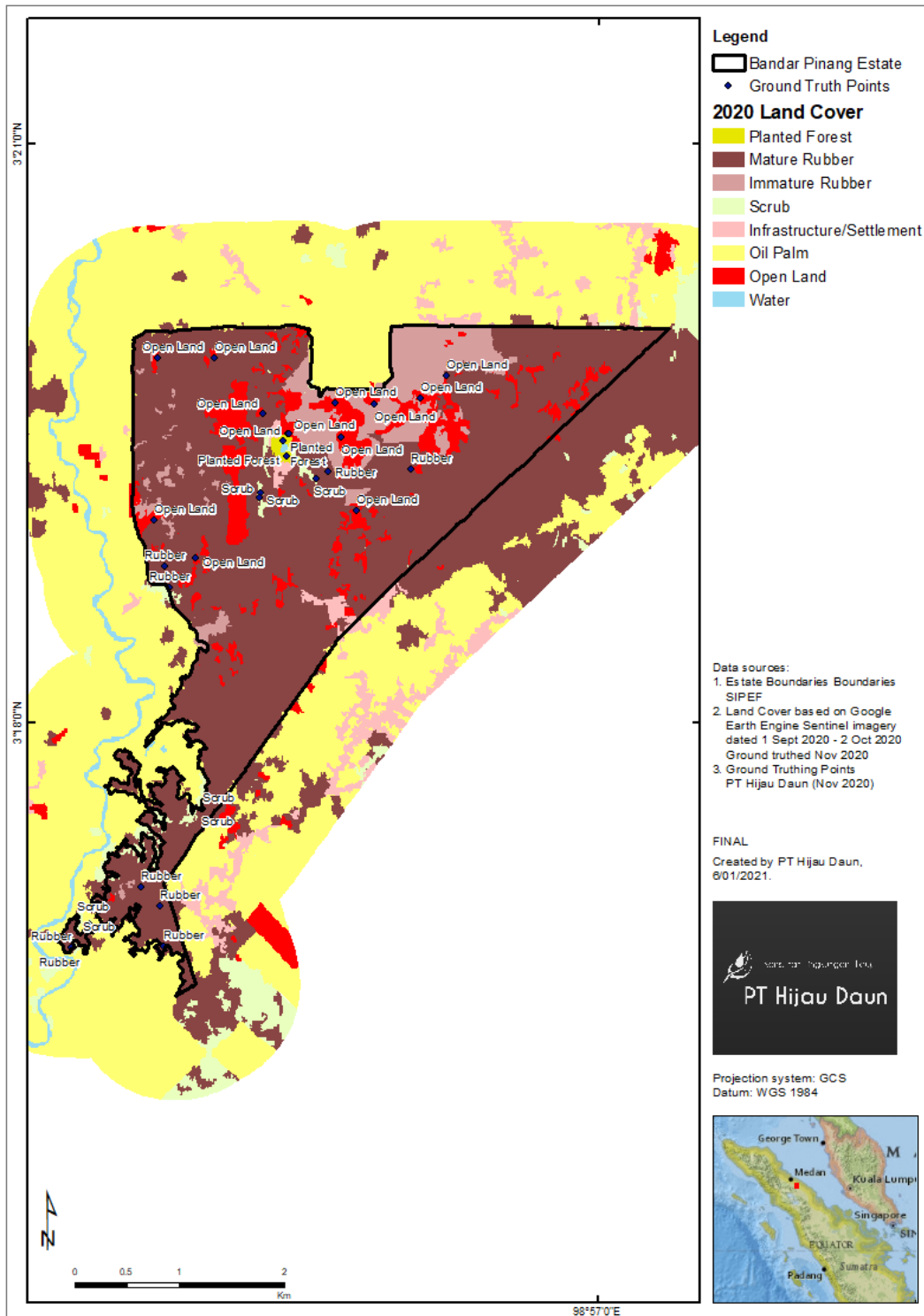
Figure 17. The final land cover map with ground truthing points which were walked to.

Table 14. Description of teams' scoping activities

Activity	Discussion
Initial ground-truthing of land cover map	An initial ground truthing of the landcover map took place. The results were that the land cover map

	would require updating based on the ground-truthing, some of the areas that were mapped as scrub were in fact open land.
Seek Consent for the Assessment	A letter was shown to the assessors where the purpose of the assessment is explained to the community and their consent is provided. Additionally a presentation was made to the communities regarding the company's development plan as well as explaining HCV / HCSA concepts. At the social interviews and when the community joined the biodiversity assessment the assessors cross-checked the evidence provided by asking, - "Has the company socialised this assessment to the community and Has the community agreed? - Has the community agreed to doing scoping and the full assessment going ahead. - At the community meetings has the HCV / HCS concept been socialised." Also checking that the letters in were not forged. In all cases the assessors were confident in the veracity of the information provided by the company regarding FPIC that had been undertaken.

Table 15. How the preconditions were confirmed (using triangulation) once on site.

Precondition	Evidence
Commitment to environmental and social safeguards	The fact that PT BSI was commissioning this study was considered evidence that it was fulfilling this precondition. The site manager was also interviewed on this matter and reinforced a commitment to follow the group policies.
Moratorium on any land clearing or land preparation until the ICLUP is completed	The Director of Sustainability wrote a letter stating that all land clearing had stopped. It would not continue until the ICLUP was finalised. It is important to note that HCSA does not define land clearing[6]. There was no clearing of forest occurring in PT BSI .
Demonstrated legal right over or permission to explore the AOI	The relevant documents were shown to the assessor at scoping- (1) license documents and (2) signed documents from the community allowing access to all areas.

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[6] Email from HCSA dated 9 Oct 2020 "Conservation is so far from land clearing, it's not clear why a proper definition is needed."

	PT BSI had presented a PowerPoint to each community. This explained:
FPIC gate **FPIC process has been initiated with full disclosure of the proposed project with all potentially affected communities and stakeholders, and the process for negotiation and consent going forward has been agreed with representatives appointed through fair process**	- The company's development plans (conversion from rubber to oil palm). - About the HCV and HCS assessments. Why they are being done what they will involve. Particularly how the community will be involved. - Asked for permission to enter the village and interview the community. Also to stop at various places within the village and have a look at various aspects (land use, biodiversity). The Company showed the assessors signed letters from each community, which gave consent for the HCV-HCSA assessment to take place. Also for the assessors to come in and interview the community members.

Boundaries of the AOI

Given the relatively confined geographical spread of the assessment areas (approx. 4 km east to west and 6 km north to south). A one kilometre buffer was decided upon for the **biodiversity AOI** for the following reasons :

● A one km buffer is required by the HCS toolkit and having a different buffer between HCV and HCS would lead to a confusing outcome.

● It was considered that mapping the HCVs over an even larger area would not provide any extra utility to the assessment.

Additionally a **"Social AOI"** is considered, this is the result of the Land Tenure and Land Use Study. One of the outputs of this study is a list of Affected Communities[7]. Initially, "potentially" affected communities were considered. These were villages that shared a boundary or overlapped with PT BSI. These villages are also considered to be the "affected communities."

Table 16. Thirteen villages that are considered the social AOI or "affected communities"[8]

No	Village	Explanation	Reason	Affected Community
1	Damak Tolong Buho	Borders directly on the estate	The community doesn't undertake any activities in BSI and there are no rivers or anything that affects the community as a result of activities in BSI. There is a large river between the village and PT BSI.	

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[7] Affected communities are defined in the HCSA Implementation Guide as *"all communities and inhabitants of the area of interest (AOI) of the operation with legal or customary tenure or usage rights must be taken into account."* In the ICLUP guidance Affected Communities are defined as *"communities having or using lands/territories that overlap, or are affected by operations in, the concession."*

[8] Affected communities and Social AOI appear to be used synonymously in HCVRN and HCS guidance. The assessor does the same in this report.

2	Gudang Garam	Borders directly on the estate	Community undertakes activities in the estate.	✔
3	Pegajahan Hulu	Borders directly on the estate	The community undertakes very limited activities in BSI and there are no rivers or anything that affects the community as a result of activities in BSI.	✔
4	Pegajahan Kahan	Not directly bordering on PT BSI	The community undertakes very limited activities in BSI and there are no rivers or anything that affects the community as a result of activities in BSI.	✔
5	Bintang Bayu	Borders directly on the estate	Community undertakes activities in the estate.	✔
6	Bandar Negeri	Not directly bordering on PT BSI but the government owned company borders with PT BSI.	All the area for a significant distance from the border(>1 km) is a government company and the community is not allowed access through the estate.	
7	Huta Durian	Borders directly on the estate	Community undertakes activities in the estate.	✔
8	Bandar Pinang Kebun	Overlaps with the estate	Overlaps with the estate	✔
9	Bandar Pinang Rambe	Borders directly on the estate	The community undertakes activities in BSI.	✔
10	Sarang Ginting	Not directly bordering on PT BSI but the government owned company borders with PT BSI.	All the area for a significant distance from the border(>1 km) is a government company and the community is not allowed access through the estate.	
11	Kelapa Bajohom	Borders directly on the estate		✔
12	Kuala Bali	Borders directly on the estate	The community doesn't undertake any activities in BSI and there are no rivers or anything that affects the community as a result of activities in BSI.	
13	Karang Tengah	Borders directly on the estate	The community doesn't undertake any activities in BSI and there are no rivers or anything that affects the community as a result of activities in BSI.	

List of consultations

There were three main aims of these scoping study consultations:

1. To confirm that relevant community members and Government representatives of PT BSI's intention to undertake the full integrated HCV/HCSA assessment;

2. To allow the lead assessor to understand of the extent of FPIC already undertaken by PT BSI's and to determine whether further tasks were required to be undertaken by PT BSI prior to commencement of the full assessment.

3. To confirm the mapping of affected communities which was undertaken in the preparation stage of the assessment.

A summary of stakeholders consulted during the scoping study, including key outcomes of those discussions, are summarised in Table 17.

Table 17. List of initial stakeholder consultations undertaken during the scoping study

Monday, November 9, 2020	Community leaders : - Ds Huta Durian (6) - Ds Bandar Pinang Kebon (13) - Ds Bintang Bayu (11) - Camat Bintang Bayu (4)	Confirmation that the letters of permission to undertake the assessment were genuine and not forged (this is an HCVRN requirement). Confirmation of FPIC that the company had already undertaken (ie. verify that the communities have been informed of the proposed project by the Organisation and that they have understood the location, scale and objectives of the proposed development and conservation and have given their consent to the HCV-HCSA assessment.)
Tuesday, November 10, 2020	Community leaders : - Ds Damak Tolong Buho (10)	
Wednesday, November 11, 2020	Community leaders : - Ds Pengajahan Hulu (6) - Ds Pengajahan Kahan (6) - Ds Gudang Garam (6)	
Thursday, November 12, 2020	Community leaders : - Ds Karang Tengah (4) - Ds Kuala Bali (5)	Explain the HCV-HCSA assessment objectives and activities. Undertake participatory mapping – note that this assessment was contracted prior to Advice Note 1.
Friday, November 13, 2020	Community leaders : - Ds Bandar Pinang Rambe (10) - Ds Kelapa Bajohom (36)	Verifying Due Diligence

Table 18. Breakdown of the community attendees by religion for scoping to show that this reflects a cross-section of the community.

Village	Islam	Catholic	Christian	Grand Total
Bandar Pinang Rambe	9		1	10
Bintang Bayu	17		1	18
Damak Tolong Buho		1	9	10
Ds. Bandar Pinang Kebun	13			13
Ds. Huta Durian	6			6
Ds. Karang Tengah	4			4
Gudang Garam	17			17

Village				
Huta Durian	9			9
Kelapa Bajohom Dsn. 3	20			20
Kelapa Bajohom Dsn. 4	6		6	12
Kuala Bali	5			5
Pengajahan Hulu	24			24
Pengajahan Kahan	15			15
Grand Total	145	1	17	163

Table 19. Breakdown of the community attendees by age for scoping to show that this reflects a cross-section of the community.

Village	20-30	31-40	41-50	51-60	61+	Grand Total
Bandar Pinang Rambe		8	1		1	10
Bintang Bayu	3	3	7	3	2	18
Damak Talang Buho		3	5	1	1	10
Ds. Bandar Pinang Kebun	1	4	5	1	2	13
Ds. Huta Durian		3	1	2		6
Ds. Karang Tengah	2	2				4
Gudang Garam		3	7	3	4	17
Huta Durian		4	1	4		9
Kelapa Bajohom Dsn. 3	3	8	3	4	2	20
Kelapa Bajohom Dsn. 4	1	1	2	7	1	12
Kuala Bali	4	1				5
Pengajahan Hulu	3	9	4	4	4	24
Pengajahan Kahan	3	2	4	6		15
Grand Total	20	51	40	35	17	163

Table 20 Breakdown of the community attendees by sex for scoping to show that this reflects a cross-section of the community.

Village	Male	Female	Grand Total
Bandar Pinang Rambe	5	5	10
Bintang Bayu	10	8	18
Damak Talang Buho	9	1	10
Ds. Bandar Pinang Kebun	6	7	13
Ds. Huta Durian	4	2	6
Ds. Karang Tengah		4	4
Gudang Garam	14	3	17
Huta Durian	7	2	9
Kelapa Bajohom Dsn. 3		20	20
Kelapa Bajohom Dsn. 4	11	1	12
Kuala Bali	2	3	5
Pengajahan Hulu	8	16	24

Pengajahan Kahan	7	8	15
Grand Total	83	80	163

FPIC gate

At the end of the scoping study the assessor felt that it was appropriate to proceed to the full assessment based on the following conditions being met.

Table 21. FPIC gate conditions.

Requirements	Discussion
• **How communities will represent themselves in the project development, including the assessment process.**	- The community will undertake the decision-making regarding plantation development and must be involved in discussions. - The community has been involved in the socialization, there has been an agreement and the minutes made together with PT BSI. - In this development plan the community has been involved in participatory mapping and program socialization.
• **Allowing field teams to carry out participatory mapping and field studies (e.g. HCV studies and HCS forest measurement plots).**	The communities have each written a letter giving their consent to undertake the field studies. The participatory mapping for village boundaries has already been undertaken. Additionally, representatives from the desa joined the field team during the HCS field study.
• **How communities will be involved in these processes.**	The communities were involved in the process on the participatory mapping that was required for the Land Tenure and Land Use study. Community members joined the ground truthing teams for the estate areas.
• **Who they want to involve as advisors or legal counsel.**	All the communities stated that they had never had problems that needed to be elevated beyond desa level. They had faith in their current processes which involves village leaders, cultural leaders and religious leaders to resolve issues.
• **How project information (including from HCV and HCSA studies) will be shared.**	The communities have already been consulted extensively regarding this project. There are a number of letters between members of the BPD and Kepala Desa and PT BSI. It is these villages officials' job to communicate project information throughout the village. This is discussed in the SIA
• **The procedure whereby overall consent for the proposed development and conservation plan will be sought. It may be that some communities consent to participating in the HCV-HCSA assessment, but others may withhold their consent.**	All communities stated that overall consent will be given by a group of village leaders, cultural leaders and religious leaders.

The assessor confirmed the company's understanding of the affected communities matched with the HCSA's definition of affected communities.

The social assessor interviewed the community who described multiple discussions with the company. These related to dealing with a multitude of land related issues. Additionally, a large proportion of the workforce came from local villages. In this respect the assessor was satisfied that communities had been well informed of the company's development plans.

The communities had nominated their own representatives. This was based on the Indonesian Government bureaucracy which has elected positions to deal with administrative issues such as this. The communities stated to the assessor that they want to maintain the existing structure – this was agreed by members of the cooperatives as well as non-members.

There is specific reference to the customary owners being made aware that they can say no to the development or to conservation plans. This is in the company's SOP. This was verified by the assessor that people had been told that they have the right to refuse at any point.

Mechanism for communication with the whole community are based on the existing desa structures. This was stated by the community leaders.

The information provided by the community was cross-checked against the letter. The assessor was confident that this letter had not been forged or doctored by the company.

Additionally, the Manager of BSI was asked whether there had been any issues arising from communities other than those listed in Table 3. To which the manager stated that it was only these communities that they had had any interaction with.

The FPIC that has been undertaken has been based upon PT BSI internal SOPs. FPIC will continue based on these SOPs.

While with the stakeholders the assessor did not discuss the preliminary the results of studies and mapping at the scoping stage. The assessor went back to the office and reviewed all the information before discussing results with anyone. The output was a scoping report, which was produced after the scoping had finished.

2.2.2.3   Full Assessment Methods

Literature review and use of secondary data

Secondary data for the assessment of HCV 5 and 6 were available from documents (e.g. SOPs) relating to Corporate Social Responsibility (CSR), FPIC and land acquisition programmes. Given that PT. BSI is a developed plantation, this was necessary to understand how the company had interacted with the surrounding community. By the time the Full Assessment was undertaken, PT Hijau Daun had completed the SIA. This included a Social Baseline Study as well as a Land Tenure and Land Use study. The process of writing the SIA was very valuable background for the social assessment. As well as that PT Hijau Daun has undertaken a number of other assessments in Indonesia which provide important background. All the references are provided in the reference section of this report. This was all the secondary data that was available based on information provided by the company as well as the assessors' experience. This data was **chosen** because this was all that was available. No **sampling** of the secondary data was undertaken.

There were no follow-ups required of the preconditions from previous phases and the assessor did not observe anything that might cause concern.

Table 22. Social secondary data sources. These are linked to FPIC (e.g. the assessor verified documentation relating to land acquisition)

Document Name	Explanation
SOP for undertaking FPIC in the plantation	Steps for undertaking FPIC for the development of an oil palm estate

SOP for Community Participatory Social Survey	Annual procedure for engagement with the community within and surrounding the plantation.
SOP CSR	Steps for Corporate Social Responsibility Planning
SOP Grievances	Steps for dealing with and finalising complaints from external parties

Social Fieldwork

The primary technique for collecting social data was through face to face interviews. During the scoping study interviews were undertaken with the following stakeholders:

- Village leaders

- People that worked in particular occupations that used natural resources (farmers)

- Government officials at the sub-district level *(Kecamatan)*

- Company staff especially those from the *Humas Department* (Public Relations)

Combined with this, observations were made about the villages, rivers and other natural habitats. This was focused on areas where natural resources were being used (e.g. fishing or cutting timber).

For the full assessment; using the CG as a reference, questions were prepared for meetings at the village level to evaluate the dependency of community members on natural ecosystems to fulfil basic needs (HCV 5) and identify any important cultural sites (HCV 6).

In all cases, meetings were attended by the Kepala Desa (Head of the Village) and several other relevant parties. **A total of eight villages were interviewed for this full assessment, of which all were deemed to be affected communities in the preparation stage of the assessment.** These villages are listed in Table 23.

Table 23. Eight villages that were interviewed as part of the full assessment. These are ALL the affected communities.

Interview	No. Attending	Date
Desa Huta Durian	9	14.11.2020
Desa Bintang Bayu	9	16.11.2020
Desa Bandar Pinang Kebun	10	16.11.2020
Desa Bandar Pinang Rambe	10	16.11.2020
Desa Gudang Garam	16	18.11.2020

Desa Pengajahan Hulu	20	18.11.2020
Desa Kelapa Bajohom Dusun 4 and Dusun 3	14 + 20	18.11.2020
Desa Pengajahan Kahan	13	20.11.20

No communities refused (or declined) to participate in the assessment. Regarding the number of people attending; a member of the PT BSI staff contacted each village beforehand and organised the community meeting. As a result of covid, PT Hijau Daun asked that the meetings be kept small but the Kepala Desa was asked to organise a cross-section of the community to attend. No percentage attendance was aimed for (health reasons precluded large meetings). However, there was a mix of people that turned up e.g. village leaders, women, nurses, younger people, farmers. In this context PT Hijau Daun was satisfied that the attendees represented a cross-section of the community.

Whilst no communities declined to be interviewed; two adjoining villages, Bandar Negeri and Sarang Giting, solely consist of PTPN estates (state owned corporations). The assessor contacted both estates in order to meet with them. Bandar Negeri was in the middle of a problem with a management corruption incident and stated clearly that no one was available to meet with the assessors. Sarang Giting kept cancelling interviews or putting up barriers to prevent an interview. After the assessors had tried 5 times to meet with Sarang Ginting it was assumed that they didn't want to meet with the assessors. Furthermore, PT BSI said that they had zero contact with either estate and that there was no dispute or conflict with them.

In each interview a general introduction to the purpose and context of HCV / S was made. This was followed by a Focus Group Discussion (FGD) in order to collect data on social and cultural aspects. It was the impression of the social expert that people spoke freely and openly with no ramifications of speaking freely. It was explained that there would be no ramifications from the company regarding what they said.

The interviews all took place in Bahasa Indonesia and were undertaken by the social expert, a native speaker. The notes were written on paper where everyone could see them and then used for this report. The interactions with all the groups (e.g. elders, middle age, youths) had the same interaction using the same means because everyone spoke openly and it was not considered culturally appropriate to single out groups (e.g to separate people of different religions).

The social data was used to delineate HCV4 – 6 areas. The assessor collected qualitative data about communities' reliance on natural resources as well as quantitative data. The qualitative data was presented in the form of a level of dependency table. This was combined with secondary data and information from participatory mapping. For example, where communities relied on water and took the water from the river, the river and the protecting buffer areas was considered to be HCV 4 and 5. Similarly, if a community stated that they took timber from the forest for housing, then local forest areas were considered HCV 5. The assessor mapped this as being LDF or better because the timber from YRF or scrub is not suitable for housing – it is too small and pioneer species rot quickly – this is based on the assessor's personal knowledge and observation.

The HCVRN have also asked how the assessor determined how this data was used to verify community lands. This can be obtained from secondary data, technically anything that is classified as Areal Pengunaan Lain (other land uses) in Figure 12 is owned by the community. There are exceptions to this such as Bandar Pinang Kebun, which has a HGU over it. In the other affected communities all the land was community land.

Food security was verified by :

- Questions in the interviews relating to whether the community bought or grew their food.

- PM was used to verify by discussing and mapping the areas that were used for growing crops.

GPS points were taken where appropriate (e.g. graveyards). For HCV6 sites, knowledgeable locals were able to describe to a BSI employee where the grave was located. GPS points, notes and photos were taken.

The social data was analyzed and verified by undertaking interviews and participatory mapping with all the affected communities. Also the SIA (which included the social baseline and land tenure study) was undertaken by the assessor , so there was no need to re-verify the information for this as it had just been collected and was considered to be primary data. Note that in the SIA all affected communities were covered, there were no missed communities between the SIA and integrated report.

The following is evidence of meeting preconditions was verified at the main assessment stage. As already mentioned in Table 15 the commitment to environmental and social safeguards was verified by the fact that PT BSI was commissioning this study was considered evidence that it was fulfilling this precondition. The site manager was also interviewed on this matter and reinforced a commitment to follow the group policies. Moratorium on any land clearing or land preparation until the ICLUP is completed was verified by the Director Sustainability and the Manager PT BSI both stated that all land clearing had stopped. It would not continue until the ICLUP was finalised. No land clearing had started based on the assessor's observations. The assessor was satisfied that PT BSI was taking its commitments seriously. Demonstrated legal right over or permission to explore the AOI was verified by the Director Sustainability and the Manager of PT BSI both stated that the company had a license over the area which was shown to the assessor. The FPIC Gate was verified by the social assessor who interviewed the community who described multiple discussions with the company. These related to dealing with a multitude issues. Additionally, a large proportion of the workforce came from local villages. In this respect the assessor was satisfied that communities had been well informed of the company's development plans.

The communities had nominated their own representatives. This was based on the Indonesian Government bureaucracy which has elected positions to deal with administrative issues such as this. The communities stated to the assessor that they want to maintain the existing structure. The community said they would get legal representation if they felt it was required which was not at this stage.

The land of BSI is not under customary ownership however BSI is consulting the affected communities regarding the development or conservation plans. The affected communities were made aware that they could reject the development of the estate. However, in no cases did this happen.

The mechanism for communication with the whole community is based on the existing desa structures. This was stated by the community leaders.

The information provided by the community was cross-checked against the letter. The assessor was confident that this letter had not been forged or doctored by the company.

Additionally, the Manager of BSI was asked whether there had been any issues arising from communities other than those listed in Table 3. To which the manager stated that it was only these communities that they had had any interaction with. As such the assessor defined these as the "affected" communities.

The FPIC that has been undertaken has been based upon PT BSI's internal SOPs. FPIC will continue based on these SOPs.

The precautionary approach was used in the methods/approaches chosen, considering all the data available. Insofar as when there are reasonable indications that an HCV is present, the assessor assumed that it is present.

Note that there were cultural sites mentioned by the community. The community helped GPS all the locations. A limitation of the assessment is that the community may have misunderstood the location of the sites. However, the assessor has undertaken best endeavours to identify these sites.

Table 24. Justification of choice of social method

Method	Justification for Choice
Face to face interviews	This is a more efficient form of communication than other options e.g. talking over a hand phone.

Using CG as a reference	This is the preferred reference by the HCVRN
Meetings at village level	From Hijau Daun's experience village level discussions are more effective than one on one or small groups. Generally, the village people appear to speak openly and having a reasonable number of people facilitates discussion
Focus Group Discussions	The FGD approach is an effective way to collect information on social and cultural dimensions of village life in an informal setting that permits discussion and exchange of ideas between group members. However, there was also a general discussion about the important natural resources in the area and changes to resource availability over the last twenty years.
Language	Bahasa Indonesia. This is understood by everyone.
Participatory Mapping	PM was done at every village by the social expert. Regarding resource use, garden area, sacred areas. Village boundaries were clarified as part of the LT&LU study prior to the assessment. These were not verified as there were no overlapping areas identified and no mention of conflict by the communities.

Table 25 Justification of choice of sampling method

Method	Justification
Sampling all eight villages that were deemed to be affected communities in the preparation stage.	It was thought that all eight villages had to be sampled, if villages were missed out, potentially crucial information would not be captured.

Participatory mapping

At each village interview the communities were asked to mark up the pattern of their land use in the area. This was done at all eight affected communities (no sampling was done).

As part of the preparation stage of the assessment, to-scale, geo-referenced maps were prepared. These maps had recent satellite images on them which allowed geographic features such as rivers, settlements and various crops / fallow land to be identified. On top of the satellite images, Hijau Daun added the estate boundaries and village boundaries. The map was produced at 1:20,000 scale, suitable for detailed mapping with individual communities. Additional detail was added to these geo-referenced maps during the assessment itself, through a participatory process involving further community workshops, ground truthing and ongoing community consultation and discussions.

Elements of the Participatory Mapping method

- The workshop participants were be chosen freely by the community. Every effort should be made to ensure equity, particularly in relation to gender and religion, and to ensure that all subgroups within the community were represented. Bearing in mind that only small groups could be selected because of covid threats.

- All neighbouring communities were consulted on boundaries, and on any rights and responsibilities they have in the area being mapped.

- Each workshop began with a brief explanation of the aims (i.e what the data would be used for) and a summary of what has been agreed in terms of procedure.

- The mapping began with the identification and naming of the most prominent features on the base map (e.g Sg Ular, village boundaries).

- Community members were then asked to mark in areas where resources were extracted or land was used (e.g. for cutting grass or grazing cattle).

- The participatory maps were used subsequently as an aid for communication of the results of the assessment. Even at this later stage additional information was added to the maps.

- At the end of all the mapping session, the community agreed verbally to the map. Photos were taken of the map and sent to the Kepala Desa via WhatsApp.

Figure 18. A feature from the A0 maps that were used for participatory mapping. Satellite images were used because open land stands out very clearly from oil palm and rubber. Furthermore, satellite images are geo-referenced. Annotations were made on the map to show what and from where resources were extracted. The information that was drawn on these maps was later digitised by the assessor.

Figure 19. Participatory mapping underway – marking in areas of land use

Table 26. Justification of choice of PM method

Method	Justification for Choice
Face to face interviews	This is a more efficient form of communication than other options e.g. talking over a hand phone
Providing satellite images to draw on	The HCS Social requirements state *"Developers and their technical advisors shall work in a participatory way with indigenous peoples, local communities and other users, including through a geo-referenced participatory mapping process."* Satellite images provide geo-referencing.
Meetings at village level	From Hijau Daun's experience village level discussions are more effective than one on one or small groups. Generally the village people appear to speak openly.
FGD	The FGD approach is an effective way to collect information on social and cultural dimensions of village life in an informal setting that permits discussion and exchange of ideas between group members. However, there was also a general discussion about the important natural resources in the area and changes to resource availability over the last twenty years.
Language	Bahasa Indonesia. Though Javanese is the commonly spoken local language, Bahasa Indonesia is still understood by everyone.
Patterns of land use	The HCS Social requirements state *"Mapping shall: … identify both the boundaries of customary land and land uses"* – all the area is customary land (except the estate itself) and hence people were asked to discuss and identify patterns of land use

Table 27 Justification of choice of sampling method for PM

Method	Justification
All eight villages (which were considered the affected communities) that either overlapped with the assessment area or were nearby.	It was thought that all eight villages had to be interviewed, if villages were missed out, potentially crucial information would not be captured.

None of the PM mapping results were changed and the net result was socialized with the community at the final consultation.

Limitations and consequences

Only a proportion of the community members joined (because of the limitations of covid a census was not possible) and there is a possibility that information was missed. The company should be mindful of the consequence of this. Subsequent comments or input from people should be taken into account by the company. However, there was a lot of consultation undertaken and the assessor is confident that the main themes have been captured and taken into account.

Stakeholder Consultations

The purpose of the meetings was to explain to the stakeholders PT BSI's proposed conversion of the estate from rubber to oil palm. Additionally, it was to seek each stakeholder's input on the impacts (social or biodiversity) of conversion to oil palm and how these impacts can be prevented or managed. To help explain this, maps were shown of the current rubber areas and the proposed oil palm planting areas.

Government covered in section 3.2.2

NGOs

No meetings were undertaken with NGOs. PT BSI was unaware of any NGOs that were active in the area of the estate. The assessors also checked with government departments, who all replied that there were no NGOs.

The assessor did not think it was relevant to contact general biodiversity NGOs such as WWF as the estate had been a plantation since 1913 and was situated in an agricultural landscape. In this landscape, based on field observation and analysis of satellite images, every piece of land had been converted to agricultural plantations. In which case biodiversity NGOs would not have projects here.

There were no social NGOs active in the area either.

Experts

Given that lack of biodiversity in the estate and surrounding area, no biodiversity experts were contacted.

BSI has been a plantation since 1913, the is no conflict in the area. There didn't appear to be much to discuss with social experts.

2.2.2.4   Environmental methods

Literature review and use of secondary data

The UKL and UPL (Management and Monitoring Plan) dated 18 April 2006 was reviewed. This is a document required by government to allow the company to operate.

Vegetation survey

Much of this phase of the assessment sought to understand if any species likely to be found within the study areas are listed under various international agreements or are protected under any national legislation.

Species Lists from Previous Scientific Surveys : Unfortunately, no relevant species lists from previous surveys could be sourced.

Bird Survey

The bird surveyor has undertaken many bird surveys so has a good understanding of the birds that are likely to be present. Additionally, Aviabase was checked to determine if there was a relevant base checklist which could

be downloaded. It turned out that all checklists were based on National Parks for North Sumatra – which didn't seem relevant, as this is an agricultural landscape.

Mammal Survey

Secondary data sources for mammals mainly involved using a mammals checklist that had been derived from a literature search as well as experience with other surveys in Sumatra.

Mammal species were mainly identified by speaking with the PT BSI employees and the local villagers. Both groups were invaluable in providing information of extant mammals in the areas of interest; mainly based on their past experience.

Slope Analysis

Excessive slope (i.e. that greater than 22°) is an operational constraint (prescribed by RSPO) needing to be factored into decision making, although the paucity of topographic data available for this study made this process difficult within the GIS environment. Slope analysis was performed using the Synthetic Aperture Radar (SAR) derived ALOS PALSAR as an input, then using the 'slope' (spatial analyst) tool within ArcGIS to convert elevation values to slope values (the data has 30 m pixels). While the ALOS PALSAR dataset is useful to understand relative elevation differences, its use in higher resolution, operational planning is limited.

All the references for secondary data sources are provided in the reference section of this report.

Aquatic Area Analysis

All aquatic areas and their associated buffers were designated as HCVA , this was based on the precautionary approach.

Environmental field work

HCSA forest assessment and HCV vegetation survey

The in-field vegetation survey was combined with the HCS plot data collection. All vegetation types were surveyed for HCV. Even while walking between HCS plots and ground truthing points the vegetation expert remained vigilant for plants of interest. The scrub and rubber areas had been systematically sprayed with herbicides and grazed by cattle since approximately 1913 so it was not surprising nothing was found in these areas.

HCS plot measurement involved assessing fixed area plots (described in more detail below) and searching for Rare, Threatened or Endangered (RTE) vegetation in the vicinity of and whilst walking between plots.

The field inventory performed for this project was primarily used to;

- Collect HCSA plot data

- Additional ground truthing of the output of the initial image classification and to quantify the above-ground woody biomass (i.e. that within trees) found within each of the strata, across the study areas

- Actively search for RTE species listed under national or international acts or conventions within the study areas and adjacent landscape.

- Verify the ecosystems that were described as present based on the secondary data review. Where possible, refine the boundaries and better describe these ecosystems.

- Develop a vegetation species list.

- Develop a description of the forest associations in the area, along with information on levels and type of disturbance and threats.
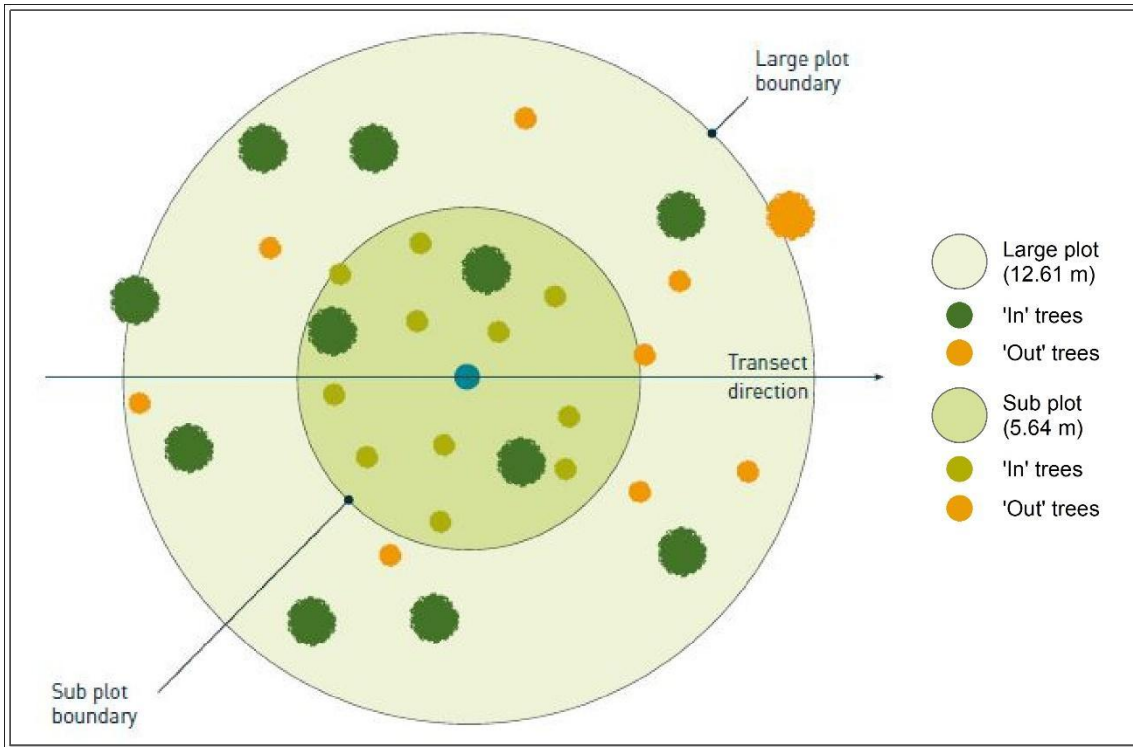
Figure 20. Stylised representation of HCSA plot used during this assessment.

HCSA plot sampling design

Plot sample design was conducted in accordance with the HCSA Toolkit Version 2, Module 4, and sought to develop statistically separate mean biomass values that are ascribed to the HCSA strata defined during image classification, to a 90% confidence interval.

Mean biomass and standard deviation values from previous field assessments in other parts of Indonesia were used as inputs into this process, with both the equation from pp 27 (see below) in HCSA Toolkit Version 2, Module 4 and the 'winrock sample plot calculator spreadsheet tool'[9] were tested to compare the sample sized needed for this assessment (Table 28).

$$N = t^2 s^2 / E^2$$

Where:

t = t-value from Student's t-test table for 90% confidence interval

s = standard deviation based on existing datasets from similar forest types

E = probable error, expressed as a percentage of the estimated mean value (from existing datasets)

Table 28. HCSA plot sample size derived from various methods.

Strata	Area (ha)	Estimated Mean biomass (t/ha)	Estimated Standard deviation (t/ha)	N (HCSA equation)	N (winrock sample plot calculator)
Young regenerating forest	10.5	40	3.6	5	1
Scrub	8.5	10	1.7	5	8
Total				10	9

The two different approaches yielded different numbers of plots. The HCSA equation doesn't consider the area of each land cover. The winrock sample plot calculator suggests one plot for YRF, which is too few to do statistics. The assessor decided to sample about 19 plots, which is more than either of the two approaches. Note that the estimated standard deviation was based on data from previous surveys.

The area that was initially classified as scrub turned out to be open land. The area that was classified as YRF turned out to be planted forest. No plots were done in rubber as this was all monoculture rubber as opposed jungle rubber (which would have required plots). Plots were laid out given the "Get Random Point" function in ArcGIS.

Table 29. Number of plots planned based on the interim landcover map

Landcover	Number of Plots (based on the interim landcover map)	Number of plots (based on the actual assessed landcover in the field)
Young Regenerating Forest	4	0
Scrub	15	4

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[9] https://www.winrock.org/document/winrock-sample-plot-calculator-spreadsheet-tool/

Open Land	0	11
Planted Forest	0	2
Total	**19**	**19**
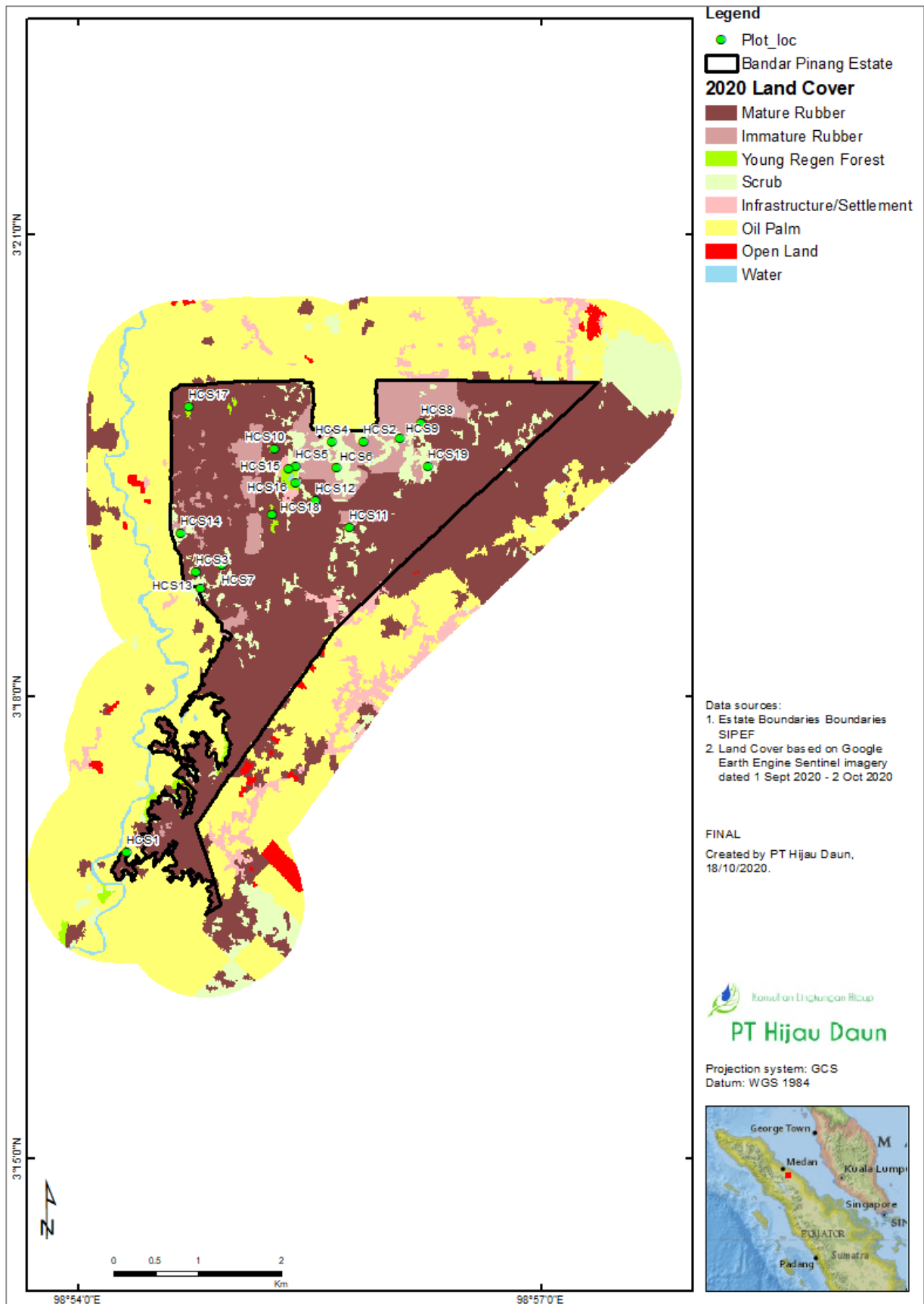
Figure 21 Plot locations for the study area. This uses the initial land cover map.

Inventory method

All field inventory was performed over a 3 day period in November 2020, and was done as per the methodology set out in Module 4, HCSA (2017). This inventory method consists of two nested circular plots with plot radii of 5.64m and 12.61m, equating to 100m^2 and 500m^2 respectively. Trees between 5 -14.9 cm are measured within the 5.64m plot and all trees >15.0 cm are measured within the 12.61m plot. Further detail can be found in HCSA (2017).

While HCSA plot data generally has a focus relating to determining above ground woody biomass, a range of other data is collected at each plot, such as species information, vegetation type, vegetation condition, stand structure and disturbance history, all of which proved to be a useful aid in determining the vegetation likely to be encountered during this assessment.

Carbon calculation and data analysis

All plot data was analysed with statistical software in excel. Main outputs were summary statistics. A Scheffe post-hoc ANOVA was not required as there were no HCSA land covers in the AOI..

All biomass calculations were performed according to the method outlined in Chave *et al.*, (2014). This method is a two-step approach and utilises two models, Equation 4 and Equation 6a. Both models are pan-tropical allometrics, with equation 4 being a biomass allometric and equation 6a being a diameter / height allometric.

Critical to Equation 6a is a climatic variable or 'E-value'. This value is a co-efficient that is derived from the combination of both temperature seasonality (TS) and climatic water deficit (CWD). The E-value increases with both increasing TS and increasing CWD, with equation 6a predicting that tree height for a given diameter will decline with increasing water and temperature stress (Chave et al., 2014). The E-value dataset is supplied in raster format at resolution of 2.5 arc seconds (approximately 4.5km x 4.5km at latitude of the AOI), and the spatial locations of each of the HCSA plots were used to extract the appropriate E-value for each.

Bird survey

The locations for the survey were based on primarily on proximity to natural areas (which was rather limited in PT BSI) and secondarily on surveying for birds across the whole site and over a range of vegetation types, In surveying birds, the line transect sampling method was employed where the observer walks along a designated path (in this case it was mostly existing tracks or roads through the study areas) and pauses for five to ten minutes at regular intervals. At each interval, bird species are either recognised by their calls or if they are sighted. Bird species identified by either vocalization or sightings are recorded as well as a tally drawn for the number of individuals of each unique species seen or heard

Observations commenced around 7:00 AM. During the day, opportunistic sightings and other interesting observations made of birds were also recorded. A pair of binoculars was used to visually identify birds while a point-and-shoot camera was used to photograph birds, whenever possible, including the habitats in which birds were observed.

A comprehensive guide of the birds of Sumatra (MacKinnon & Phillipps, 1993) was used during informal interviews with members of the communities visited to verify the presence or absence of birds as well as collect local names of birds. During the survey, attempts were made to survey as many different habitat types as possible so as to affirm the extant species in these habitats as well as to find species that were included in the expected list of birds.

Bird sounds, photographs and their habitat were documented using a DSLR camera (Cannon 1100D Sigma Lens 70-300mm). The coordinates are stored in the Garmin GPS map 64CSX.

and noise. The bird survey was planned in the morning, the average survey started at 0530 (which is the peak time for activity and noise). The length of the survey time depended on the condition of the area being surveyed. All birds were identified directly using (MacKinnon & Phillipps, 1993). Taxonomy and scientific names using (Sukmantoro et al., 2007) and (MacKinnon & Phillipps, 1993)
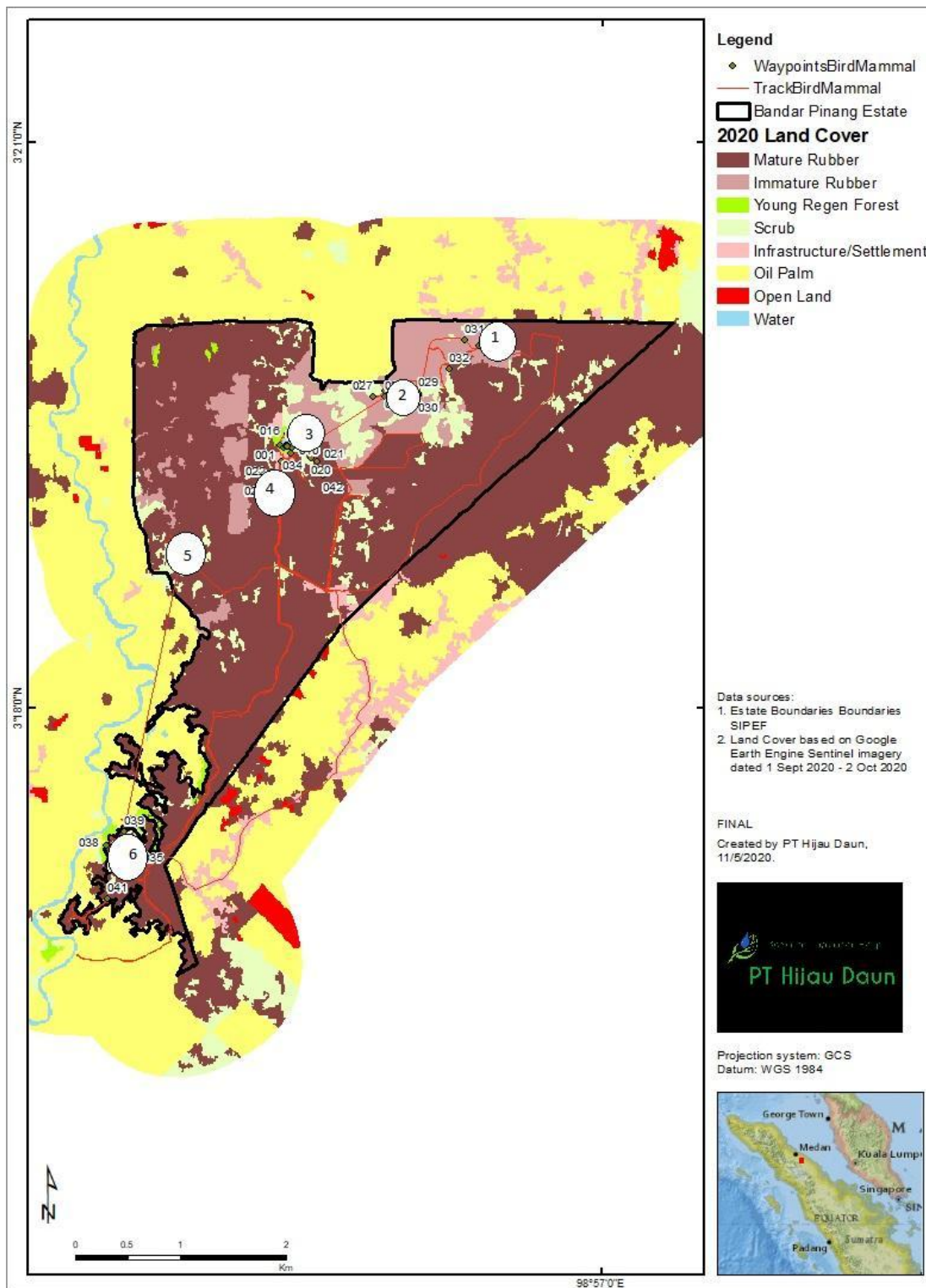
Figure 22. Bird Survey - The locations of the main sites (numbers with white borders) where the main bird surveys took place. The survey focussed on forest edges, where birds can be seen. But there were other areas (point 4), which was the mill pond, where birds are frequently seen.

Mammal survey

Mammal surveys were carried out at four general locations in the PT BSI concession area (Figure 23). Observations are made using the concentration count technique and the line transect method. The concentration count method is used to detect grouped wildlife species, according to Alikodra (1990), the

concentration count method is an effective method used to determine wildlife populations that have a group lifestyle while the line transect method is used to detect species that are more conspicuous and solitary. Concentration count and line transect methods can provide estimates of relative abundance of vertebrate species and can also provide density estimates when combined (Sutherland, 2006).Mammal survey schedule is shown in Table 1. In the concentration count method, mammals are recorded at points located along the line of observation. In the transect method, mammals are recorded walking slowly along pathways in forest areas.

Additional information was collected through interviews with local communities and PT BSI field staff. Initial questions are addressed to everyone, and follow-up questions will only be made to those who have good knowledge of the mammal species in the area. Questions about the presence of animals are carried out by showing pictures of mammals in the Sumatran mammal species manual that has been prepared. The information collected mainly is whether the mammal is still present, rare or ever present but has completely disappeared.
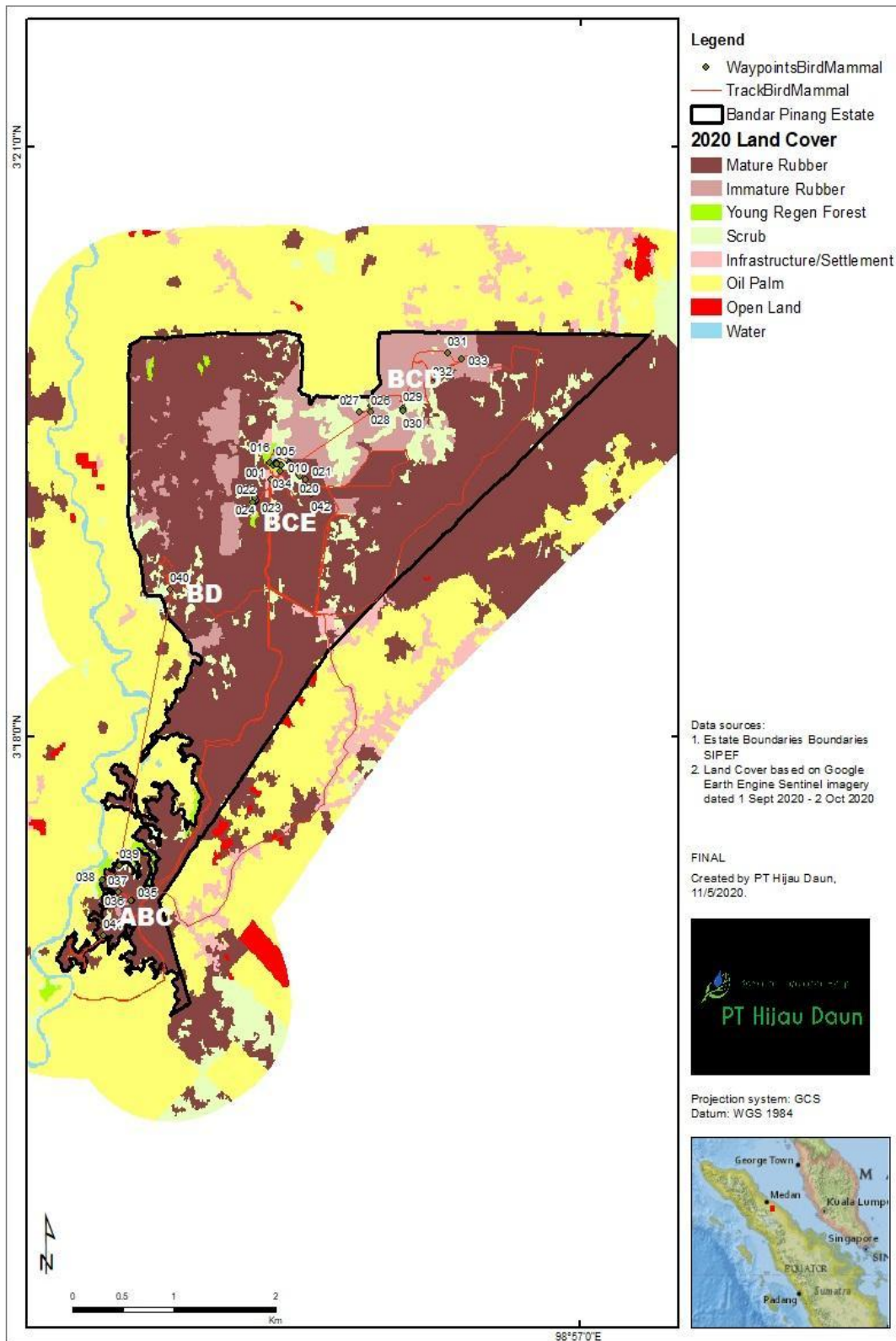
Figure 23. Locations of Mammal surveys

River Course Mapping

There were no secondary river datasets that were sufficiently accurate to be used for river datasets. During the assessment GPS points were taken at each of the rivers. This was followed up by a combination of river tracking and digitisation from satellite images. The result was Figure 8.

2.2.2.5 Final Consultation Method

The purpose of the final consultation was to seek consensus on the values identified and on the locations of the conservation areas.

Generally, the Final Consultations are organised in one place, so that everyone can share their views. However, covid prevented this and the team had to go around each village. Ds Pengajahan Hulu rejected a meeting (for a reason that had nothing to do with the assessment). A powerpoint was made up, detailing the main points and this was sent to Ds Pengajahan Hulu along with a letter, which explained that they could provide input to the assessment. No input was received from Ds Pengajahan Hulu.

Ninety four people from the community attended the final consultations (which were done on a village by village basis to keep groups small because of the covid risk). Representatives attended from all of the eight affected communities plus results were socialised to three other communities (Damak Tolong Buho, Kuala Bali and Karang Tengah). These 3 communities, though they are not affected expressed an interest in the assessment so PT Hijau Daun went and visited them again as a gesture of good faith.

The nature of the presentation to stakeholders was as:

Overview of proposed development project

Key steps of assessment process

Main findings description and justification of HCVs and explain why no HCS forest was identified.

Maps of areas identified as community lands – where they were inside the estate

Maps of conservation areas (e.g. HCV, HCS forest)

Identified threats to social and environmental values

Management and monitoring recommendations

Concerns or issues (with assessment process, findings, operations, etc.)

The Final Consultation took place 21st – 26th November 2020. All the parties were invited that had taken part in the SIA or the integrated assessment (i.e. community from each of the nine villages). The consultation took place in the village office.

The Final Consultation involved explaining HCV and HCS – as well as a discussion of the theory, they key steps were mentioned. At each step a map of the identified value was shown and it was explained why this was deemed to be an HCV area. From there, the particular threats to the HCV or HCS area and the associated management and monitoring recommendations. Most of the time was spent discussing results of the assessment.

2.3 Soil and topography

The field component of this assessment took place between 1st and 28th November 2020. The analysis and the report writing was undertaken in January 2021.

2.3.1 Assessors and Credentials

Table 30. Hijau Daun assessment team

Name	Organization	Role in assessment	Credentials
Jules Crawshaw	PT Hijau Daun	Coordination, report writing	Bachelor of Forestry Science Master of Business Systems

		ALS licensed assessor.
		HCSA Registered practitioner
		7 years undertaking biodiversity and social assessments in Indonesia, Malaysia and PNG.

2.3.2 Methods used for conducting assessments

Secondary Data

Secondary data was either downloaded from the internet or sourced from PT Hijau Daun's library of spatial data.

Data Type	Source
Digital Elevation Model (which was used to derive slope)	ALOS PALSAR (30 m pixels)
Soil Type	BAPPEDA[10]
Landforms and general soil information	RePPProT

This involved using the DEM (Figure 5) to derive slope (Figure 6).

Primary Data

The secondary data was verified by travelling around the study area to certain points and observing the situation in that area. For example, verifying, at that point, if the area was mapped as being less than 10 degrees slope, was this in fact correct. Similarly looking at the soil and the landforms in the area to determine whether it matched the description.

Additionally, village level interviews were undertaken within and around the assessment area. One of the questions was relating to the soils in the area. In every interview the community was asked about soil fertility and whether there were any soils in the area that were avoided as a result of low yields. The company soil scientist, Ahmadi Martadinata, was also interviewed regarding the soil types at BPE and the presence of vulnerable soils.

2.4 Carbon stock assessment and GHG emissions

The field component of this assessment took place between 1st and 28th November 2020. The analysis and the report writing was undertaken in January 2021.

2.4.1 Assessors and Credentials

Table 31. Hijau Daun assessment team

Name	Organization	Role in assessment	Credentials
Jules Crawshaw	PT Hijau Daun	Coordination, report writing	Bachelor of Forestry Science Master of Business Systems ALS licensed assessor. HCSA Registered practitioner 7 years undertaking biodiversity and social assessments in Indonesia, Malaysia and PNG.

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[10] Badan Perencanaan Pembangunan Daerah

2.4.2 Methods used for conducting assessments

The primary dataset for this assessment is the landcover map. The steps for this involved :

1. Deriving a cloud free Sentinel 2 image using Google Earth Engine. The dates of acquisition were 1 September – 2 October 2020.

2. Undertaking an initial classification of the land cover over the concession and 2 km buffer. This classification used the HCS land cover classes.

3. Undertaking a Kappa analysis of the classification to check the classification is sufficiently accurate in comparison with the actual (using a high-resolution image).

4. Ground Truthing - Points were randomly located within the concession and the assessor walked to those points and noted the actual landcover. These points and the actual landcover noted are mapped in Figure 24.

5. Based on the ground truthing the land cover is adjusted and the Kappa analysis is repeated.

During the process of ground truthing it was also ascertained that there were **no peat soils within the concession**.

The HCS classes (that were used for the land cover map) were subsequently translated to the RSPO GHG calculator land cover classes. The translation table is provided below (Table 32).

Table 32. Translation table between assessment land cover classes and RSPO Classes

Land Cover Class	RSPO land cover	Area (ha)
Immature Rubber	Tree Crop	131.11
Infrastructure/Settlement	Not to be developed	11.21
Mature Rubber	Tree Crop	907.09
Oil Palm	Oil Palm	14.65
Open Land (within rubber estate)	Other	127.18
Planted Forest	Tree Crop	3.70
Scrub (within rubber estate)	Shrubland	11.49
Water	Other	0.43
Grand Total		**1,206.85**
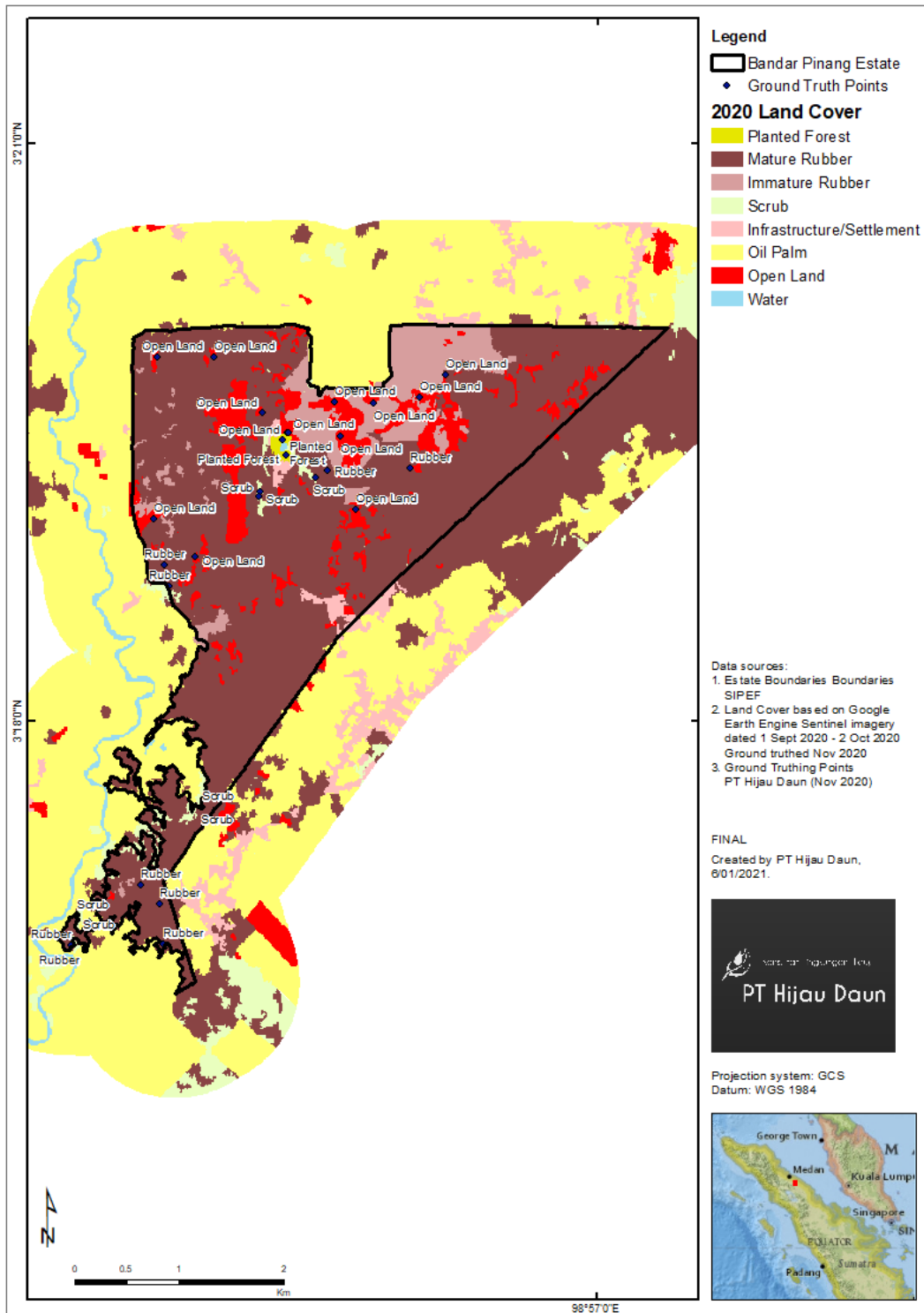
Figure 24. The final land cover map with ground truthing points which were walked to.

The RSPO GHG calculator spreadsheet was subsequently used for calculating carbon emissions. All the default carbon stocks for the landcover classes were used.

3. Summary of findings

3.1 SEIA

3.1.1 Positive and negative environmental effects

Compared with the status quo, which is a rubber plantation, no major changes to the environmental impact of the two regimes are anticipated. The major potential impact was application of agricultural chemicals, which under both regimes was managed by maintaining riparian buffers.

The community raised concerns about the oil palm using up all the water in underground aquifers. However the roots of oil palm are only 1 -2 m deep at a maximum and the community tap aquifers that are 40 + m deep. Furthermore, the Badan Lingkungan Hipdup (Environmental Department) had never heard of oil palm affecting water tables.

The UKL / UPL identified that the rubber factory was a source of environmental risk. This will be decommissioned as part of the oil palm development.

3.1.2 Socio-economic impacts to country, region and local communities

Positive impacts :

1. The company can continue to operate and employ local community and provide income to the government. Running a rubber business was not sustainable.

2. Opportunities for obtaining technical advice and training from the company for improving smallholder oil palm in the area.

3. Oil Palm will require a lot more truck movements than rubber, consequently the roads will have to be better maintained.

4. Opportunities for the company offering plasma schemes. Potentially marginal rubber plantations could be converted to oil palm.

5. Provide a long-term business model. The community accepted that the rubber plantation was losing money. Loss making businesses cannot continue indefinitely so conversion to oil palm is seen as a long-term solution to this problem.

6. Hope for CSR assistance for the community

Negative impacts :

1. Conversion of the plantation will cause a reduction in workforce and as such there will be fewer people employed in the area.

2. Potential for conflict increases. It was pointed out by the Dinas Lingkungan Hidup that there is a lot more conflict with the community in oil palm plantations compared with oil palm because a there are fewer people employed.

3. There were many people that believe that oil palm would cause all the aquifers to slowly dry up, whereas rubber plantations didn't have this effect. No one had any scientific evidence for this perception, but it was mentioned at several interviews.

4. There community were concerned about the loss of grass and area where they could graze cattle. There were people in the community that relied upon the grass under the oil palm. Under oil palm there is no grass, so this will have a major impact on these people.

5. There were areas in the plantation where people collected edible ferns. These would be lost when the area is converted to oil palm.

6. With the loss of tree cover, any rain events cause flash flooding in Kelapa Bajohom.

7. People use wood for cooking, this source of firewood will be lost.

3.1.3 Socio-economic impacts in respect of emergent communities (workers, suppliers etc.) Issues raised by stakeholders and assessor's comments

There will not be any emergent communities in this concession as a result of the development. This development pertains to the conversion of a rubber estate to an oil palm estate. Any of the current workers will be retained.

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

1. HGU 02.04.10.13.2.00002 issued 3/10/1997 (1412.7 ha)

3.2 HCV / HCS assessment

An integrated assessment has been undertaken on this concession. It has been reviewed by the ALS and received a satisfactory opinion dated April 22, 2021.[11] The total area for conservation is 9.38 ha. The small proportion of conservation area reflects the fact that it has been developed for a long time (more than 100 years) and it is on flat to rolling terrain with rivers external to the estate.

	Presence	Area (ha)	Justification
HCV 1	Present	9.25	There is a large river outside the assessment area and its buffers overlap with the assessment area. There is a small lake within the assessment areas. The buffers to these are protected by Indonesian law. HCV 1 is mapped over these areas.
			There are 8 RTE, protected or endemic birds sighted. Most of these birds are wide ranging raptors that do well in disturbed landscapes. Though, it is thought that many of the birds (e.g. kingfishers rely on the lake area as habitat also).
			There are 8 mammal species that were sighted or mentioned as being present by locals. These species were either endemic, CITES listed, RTE (VU or above) or protected by the Government of Indonesia.
			In the absence of aquatic survey information the precautionary approach is applied because there "could" be temporal concentrations of aquatic species present. Therefore all the rivers and their associated buffers are HCV1.
			Therefore, HCV 1 was deemed present in the assessment area. Note that the whole AOI is considered HCVMA1 as a bird or animal could fly or roam over anywhere in the landscape.
HCV 2	Not Present	0	There are no large forested areas that intersect with the AOI. IFLs are a significant distance away. There are no top predators even potentially present reported in this landscape. The landscape is dominated by oil palm and rubber – both exotic species. For this reason, HCV 2 is deemed not Present
HCV 3	Not Present	0	Although Batuapuang is considered an endangered landsystem ("Mixed or hill dipterocarp forest on volcanic rock" ecosystem), the only natural vegetation

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[11] PT Bandar Sumatra Indonesia - HCV (hcvnetwork.org)

			that overlaps with this land system is degraded scrub. Given that this is not likely to recover to natural dipterocarp forest given a history of decades of agricultural land use and tens of kilometres from seed sources - HCV3 is therefore deemed Not Present.
HCV 4	Present	5.32	It seems highly unlikely that conversion of rubber plantation to oil palm plantation, as proposed by this assessment, will pose a critical threat to the pollination relationships present across the AOI. The assessment team therefore considers that this particular value is absent. There is a lake in the assessment area. This will require a buffer that is considered HCV 4. Although Anak Sg Ular is outside BSI, the GIS mapped buffers extend within the boundary – therefore this element of HCV4 is also considered present.
HCV 5	Not Present	0	All basic necessities are either sourced from outside the AOI or to a small extent grown in local gardens.
HCV 6	Present	0.09	There are graveyards in the villages, none of these are connected to the assessment area. There are however, three small graveyards within the area (Kuburan Bahrami, Kuburan Sumito and Kuburan Lorut) which are mapped as HCV 6. The community agreed that 10 m buffers would be adequate.
HCS Forest	Not Present	0	There are no natural forested patches within the concession.

Table 33. Area Statement (ha) – areas within PT BSI. There is no HCS Forest, HCV 2, HCV 3 nor HCV 5 area present. The locations of the HCV areas are mapped in Figure 26.

Area Type	Area (ha)
HCV1	9.25
HCV4	5.32
HCV6	0.09
Total Conservation Area	9.38
Total Developable Area	1197.47
Total Assessment Area	1206.85

1. HCV 1: Concentrations of biodiversity

Protected areas

Key Question	Finding
Does the assessment area or surrounding landscape contain either of the following categories of Protected Areas (PA)? • **Legal Protected Areas,** • **Global conservation priority sites**	**PRESENT**

Riparian zones along rivers and buffers around surface springs are designated as Local Protection Areas (Kawasan Perlindungan Setempat) under Indonesian law (Keputusan Presiden No 32/1990 and PP No 38/2011). This law requires the maintenance of buffer zones of at least 100m on both sides of 'large' rivers, and 50m on

'small' rivers, as well as a buffer of 200m radius around surface springs and 50 m buffers around lakes. No minimum size of a river or spring requiring a buffer is stipulated in the law[12].

The main goal of these buffers is to protect water quality and related environmental services, but it is evident that well protected intact riparian buffers also support important levels of biodiversity.

Only the Sungai Ular, in this context would be considered a large river. This comes within 100 m of the concession at some points.

. Findings in the assessment area

There are Protected Areas in the assessment area. These include riparian areas around rivers, lakes and swamps as protected under PP 2011/38. Therefore, this element of HCV 1 is deemed to be **Present**.

Concentrations of biological diversity

Key concept	Finding
Concentrations of biological diversity including endemic species and rare, threatened or endangered species that are significant at global, regional or national levels.	**PRESENT**

Flora

None of the tree species that were sighted in the estate were RTE, protected or endemic.

Birds

There were eight species of birds sighted that are either RTE, Protected[13], CITES or endemic. Four of these species are raptors which appear to do well in oil palm landscapes where they hunt frogs, rats and mice (assessor's personal observation). Others such as Sunbirds and Fantails have a wide habitat range (forest through to gardens) and Kingfishers require ponds and streams usually with overhanging trees (Arlott, 2018).

Mammals

There were eight species of mammals that were recorded during interviews that are either RTE, Protected[14], CITES or endemic.

All the mammals were sighted either in the lake or around the lake near the office. The otters need water bodies as a habitat. The leopard cat is a very wide ranging animal and can range as far as 25 km through oil palm plantations in search of small mammals such as rats (Phillipps, 2016). The slow loris was sighted in the trees surrounding the lake. The porcupine is a habitat generalist with habitats ranging from forests through to gardens. Similarly the Common palm civet is a habitat generalist, while the banded civet was identified by two interviewees, given its habitat this seems unlikely that it was correctly identified in this location.

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[12] A large river is defined as having a watershed of greater than 500 km^2 and a small river has a watershed of less than 500 km^2.(PP No 38/2011)

[13] Protected by NOMOR P.20/MENLHK/SETJEN/KUM.1/6/2018 *Tentang Jenis Tumbuhan dan Satwa yang Dilindungi*

[14] Protected by NOMOR P.20/MENLHK/SETJEN/KUM.1/6/2018 *Tentang Jenis Tumbuhan dan Satwa yang Dilindungi*

Note that in this instance HCV1 is mapped over the lake and the forested area around the lake (even though it is mostly planted exotic trees).

3.2.1.1 Spatial and temporal concentrations of species

Key Question	Outcome
Is the assessment area or the adjoining landscape known or likely to contain critical temporal concentrations of species?	**Present**

This survey was carried out in November. The peak of migration is usually in December-January. The condition of the assessment area, does not seem to have the potential to be a **major** migration pathway for birds of prey in the East Asian region (because it is quite fragmented).

Findings in the assessment area

There is a large river outside the assessment area and its buffers overlap with the assessment area. There is a small lake within the assessment areas. The buffers to these are protected by Indonesian law. HCV 1 is mapped over these areas.

There are 8 RTE, protected or endemic birds sighted. Most of these birds are wide ranging raptors that do well in disturbed landscapes. Though, it is thought that many of the birds (e.g. kingfishers rely on the lake area as habitat also).

There are 8 mammal species that were sighted or mentioned as being present by locals. These species were either endemic, CITES listed, RTE (VU or above) or protected by the Government of Indonesia.

In the absence of aquatic survey information the precautionary approach is applied because there "could" be temporal concentrations of aquatic species present. Therefore all the rivers and their associated buffers are HCV1.

Therefore, **HCV 1 was deemed present in the assessment area. Note that the whole AOI is considered HCVMA1 as a bird or animal could fly or roam over anywhere in the landscape.**

Figure 25. HCV1 is mapped over a 100 m buffer off Anak Sg Ular. Mammals were all sighted in an around the lake (see inset map) – HCV1 is mapped over the lake, its 50 m buffer and the swampy scrub that extends to the south east of the lake. It is thought that many of the birds (e.g. kingfishers rely on this area as habitat also).

2. HCV 2: Large landscapes

HCV 2	Finding
Large landscape-level ecosystems, ecosystem mosaics and Intact Forest Landscapes that are significant at global, regional or national levels.	**NOT PRESENT**

There are three elements to HCV 2 in the CG, these are :

- Large, landscape level ecosystems and ecosystem mosaics
- Viable populations of the great majority of species
- Natural patterns of distribution and abundance

Large, landscape level ecosystems and ecosystem mosaics

In this instance Hijau Daun uses the methodology described in the Indonesian NI for determining the presence of this element of HCV2.

This methodology requires 3km internal buffer being drawn around the large forested areas, with the remaining core tested to determine if a 20,000 ha or larger core was present (which is more conservative than the CG- which uses a 50,000 ha threshold). There are no large-forested areas in the AOI. Based on this test HCV 2 is neither present in either inside the assessment area nor the AOI.

The closest Intact Forest Landscape is 85 km from PT BSI. These do not contribute to the mapping of HCV2 over the concession in this instance.

Viable populations of the great majority of species

The CG suggests that *"large areas that are more natural and intact than most other such areas and which provide habitats of top predators or species with large range requirements"* qualify as HCV 2. There are no top predators or species with large range requirements confirmed or even potentially present within the AOI.

Natural patterns of distribution and abundance

The assessment area and the AOI are dominated by oil palm and monoculture rubber. Both of these are exotic species. There are no native animals or birds that roost in oil palm or monoculture rubber.

Findings in the assessment area

There are no large forested areas that intersect with the AOI. IFLs are a significant distance away. There are no top predators even potentially present reported in this landscape.   The landscape is dominated by oil palm and rubber – both exotic species. **For this reason, HCV 2 is deemed not Present.**

3. HCV 3: Rare ecosystems

HCV 3	Finding
Rare, threatened, or endangered ecosystems, habitats or refugia.	**NOT PRESENT**

Findings in the assessment area

No endangered ecosystems overlap with the assessment area. Therefore, **HCV3 is therefore deemed Not Present.**
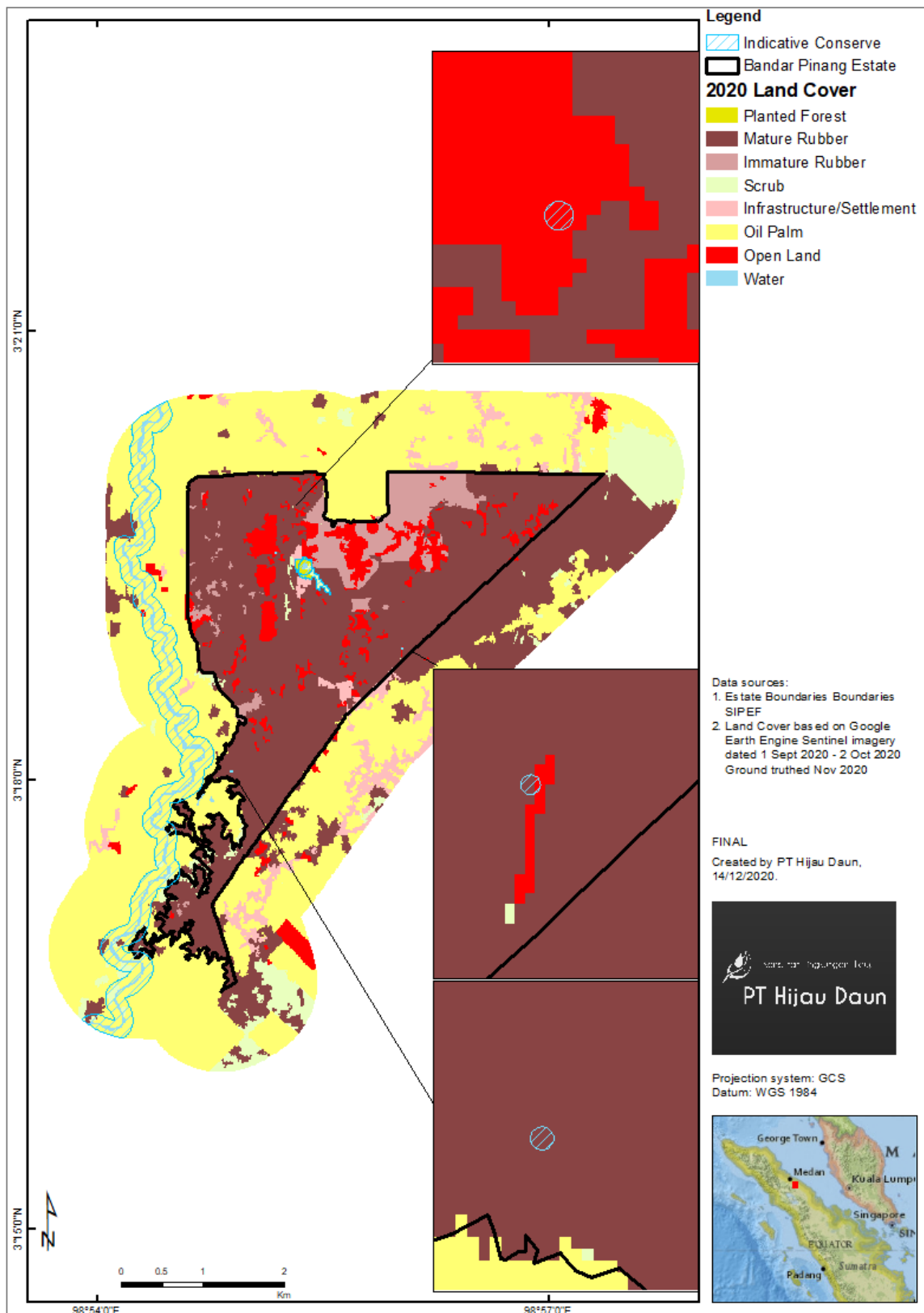
Figure 26. Combines all the HCV and HCS areas. This becomes the total area for conservation (blue hatched).

4.   HCV 4 – Ecosystem services in critical situations

HCV 4	Finding

Basic ecosystem services in critical situations, including protection of water catchments and control of erosion of vulnerable soils and slopes.	**PRESENT**

Interpretation

An ecosystem service is critical where a disruption of that service poses a threat of severe, catastrophic or cumulative negative impacts on the welfare, health or survival of local communities, on the functioning of important infrastructure or on other HCVs.

Ecosystem services, in critical situations, which are mentioned in the CG (which is used for this assessment) and directly related to the AOI are:

- Managing extreme flow events, including vegetated riparian buffer zones or intact floodplains
- Maintaining downstream flow regimes
- Maintaining water quality characteristics
- Protection of vulnerable soils, aquifers and fisheries
- Critical protection against destructive fire
- Provision of clean water,
- Protection against winds, and the regulation of humidity, rainfall and other climatic elements,
- Pollination services

3.2.1.2   Protection of water catchments

Key Question	Outcome
Does the assessment area or surrounding landscape contain areas that are critical to the protection of water catchments?	**Present**

Interpretation

Riparian zones along rivers and buffers around surface springs are designated as Local Protection Areas (Kawasan Perlindungan Setempat) under Indonesian law (Keputusan Presiden No 32/1990 and PP No 38/2011). This law requires the maintenance of buffer zones of at least 100m on both sides of 'large' rivers, and 50m on 'small' rivers, as well as a buffer of 200m radius around surface springs. No minimum size of a river or spring requiring a buffer is stipulated in the law[15].

Anak Sungai Ular would be considered a large river and as such require a 100 m buffer.

There is a lake near the rubber factory. Even though the lake is man-made, it still requires a 50 m buffer from the lake edge.

3.2.1.3   Control of erosion of vulnerable soils and slopes

Key Question	Outcome
Does the assessment area or surrounding landscape contain areas that are critical for preventing soil erosion?	**Not Present**

HCV 4 occurs in areas where natural vegetation types (e.g. forest or native grasslands) in good condition are required to help prevent erosion, landslip and gullying, especially where such events would have a critical impact on people or the environment.

Justification

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[15] A large river is defined as having a watershed of greater than 500 km^2 and a small river has a watershed of less than 500 km^2.

PT BSI is generally a flat area. Based on the DEM there are no areas that are 40% slopes or above. Although this is radar data, which is not terribly accurate. There are management and monitoring recommendations made to ensure BSI adequately manages steep areas if locally steep areas are found.

There was no mention of erosion in the area during the participatory mapping / FGD. **Therefore this element is considered not present.**

3.2.1.4 Other HCV 4 services

Key Question	Outcome
Does the assessment area or surrounding landscape contain areas that are critical for Regulation of humidity, rainfall, clean water and other climatic elements or pollination services?	**Present**

Provision of Clean Water

The CG states regarding this value that "the area which provides the critical services (water provision and erosion control) may overlap partially or completely." Hijau Daun, in this instance concurs with the CG that provision of clean water will be very largely contingent on intact river buffers and avoiding disturbance on steep slopes. So the location of this value follows the location of the previous two elements of HCV4.

There was mention about the provision of clean water during the FGD. PT Hijau Daun mentioned that significant buffers would be put around the dam and the river. This element is considered present.

Maintaining Water Quality Characteristics

The community takes water from deep aquifers (40 m +). There were concerns as to whether conversion to oil palm might affect water quality. However, PT Hijau Daun felt it very unlikely that any fertiliser would leach as far as 40+ m. This question was put to the Environment Department, who said that they had done water quality testing of aquifers elsewhere underneath oil palm and there was no impact on water quality. Therefore this element is considered not present.

Regulation of humidity, rainfall and other climatic elements

North Sumatra is an extremely humid and high rainfall area. Minor changes to the land cover are not expected to affect any of these factors. There are no extensive forests nearby. The assessor was unable to find evidence that this will change the climate in the affected communities.

There was no mention during the FGD / participatory mapping of humidity, rainfall and other climatic elements that might be affected by the development. Therefore this element is considered not present.

Pollination Services

This discussion is referencing points on pp 39 in the HCV CG, in regards to pollination services in critical situations. The CG definition of critical is important in this context, where the 'disruption of that service poses a threat of severe, catastrophic or cumulative negative impacts on the welfare, health or survival of local communities, on the functioning of important infrastructure (roads, dams, reservoirs, hydroelectric schemes, irrigation systems, buildings, etc.), or on other HCVs' (Brown et al., 2013)

From a HCV 4 point of view, this section is asking the question does a critical and exclusive relationship exist between subsistence food gardens and the vectors (either, mammal, avian or insect) by which this food is pollinated, and if industrial development was to occur would the disruption of this service threaten either communities or other HCV's?

Food Gardens

From the data collected during this assessment, it is evident that the produce grown in food gardens is incidental to the welfare, health and survival of the local communities potentially affected by the proposed development.

A brief review of literature relating to pollination in key carbohydrate crops that are commonly grown across the AOI; rice (Oryza sativa), peanuts (Arachis hypogaea), cassava (Manihot esculenta), banana (Musa spp.) and key palm resources, corn Corn (Zea mays) and Coconut (Cocos nucifera), indicates that insects such as beetles (Coleoptera), wasps and bees (Hymenoptera), flies (Diptera) and moths (Lepidoptera) are the predominant pollinators in food gardens across the AOI (Essig, 1973; Ivancic, Lebot, Roupsard, Garcia, & Okpul, 2004; Jong, 2002; Kennedy, 2008; Lebot, 2010; R. Ashburner, G. Faure, A. James, K. Thompson, & M. Halloran, 2000). This is not to say that other vectors, such as wind and/or vertebrate fauna, do not contribute to successful pollination

in food gardens but the literature reviewed indicates that they play a lesser role when compared to that of insects.

A qualitative and definitive discussion regarding insect pollinators in the context of North Sumatra would be an extensive and detailed entomological study, and is far beyond the scope of a rapid assessment such as this. However, this review did not identify the presence of any specific or exclusive pollination relationships that exist within food gardens that would be put at risk as a result of the proposed development.

Industrial oil palm has been a presence across the assessment AOI since the 1980s, with community gardens currently and successfully being grown within and adjacent to plantation areas. Long running and extensive research relating to smallholder oil palm and the community livelihoods that it supports done in other oil palm growing areas, such as Koczberski et al., (2001); Koczberski and Curry, (2003); Koczberski et al., (2006) and Nelson et al., (2014) do not identify pollination (or the failure thereof) as a threatening process across the AOI at this point in time.

There was no mention during the FGD / participatory mapping of any insects, birds or mammals that live in the assessment area that are crucial to crop pollination.

Fire Protection and Fire Prevention

Intact natural forest will stop wildfires. It is naturally an extremely moist environment and as such will not burn. There is no intact natural forest present in the assessment area. The only forest cover is rubber, which is extremely flammable due to all the resins in its wood. Therefore this element is considered not present.

There was no mention of the landscape becoming more prone to wildfires after conversion in any of the FGD or participatory mapping.

Findings in the assessment area

Given the discussion above, it seems highly unlikely that conversion of rubber plantation to oil palm plantation, as proposed by this assessment, will pose a critical threat to the pollination relationships present across the AOI. The assessment team therefore considers that this particular value is absent. There is a lake in the assessment area. This will require a buffer that is considered HCV 4. Although Anak Sg Ular is outside BSI, the GIS mapped buffers extend within the boundary – therefore this element of HCV4 is also considered potentially present. Note that all buffer zone requirements are verified and demarcated by field measurements.
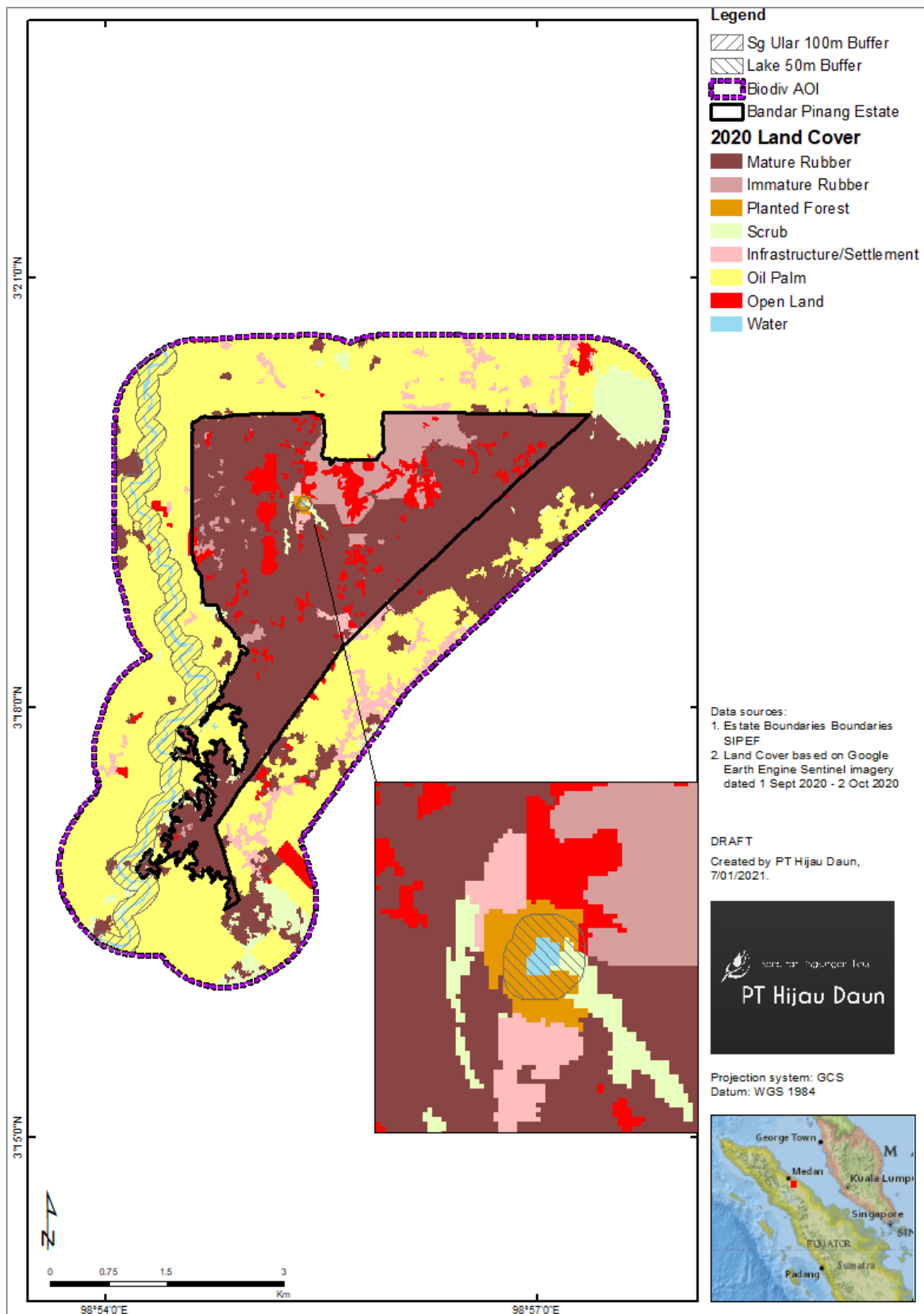
Figure 27. HCV 4 consists of (1) 100 m buffers to the left and right of Anak Sg Ular that flows to the west of the assessment area. This HCV4 is extended to within 1 km of the assessment area boundaries. (2) A 50 m buffer around the lake which is located near the rubber factory in the estate. (see inset). Note that this map remains draft as measurements will be made infield (from Sg Ular to the concession boundaries) to check the exact extent of any HCV4 areas inside the estate

5. HCV 5 – Local people's basic needs

Key Question – HCV 5	Outcome
Does the assessment area or surrounding landscape contain sites and resources fundamental to the basic needs of local communities or indigenous peoples?	**NOT PRESENT**

Table 34. Discussion of HCV 5 indicators

Indicator	Discussion
Access to health centres or hospitals is difficult	Village communities are modern societies that prioritize medical treatment over traditional medicine. Each village has a health worker or midwife. If they need further treatment, they can go to the Puskesmas which at the most is 3-4 km away. The Puskesmas is located in Pegajahan Kahan .
Most houses are built from, and household tools made from, locally available traditional/ natural materials	All the recently constructed houses are concrete houses. There are some older houses that still have been made from bamboo and palm leaves (thatch) but the numbers are insignificant. Currently, to obtain bamboo, people either cut it from their own gardens or buy it, while wood for building materials is generally bought because there is no forest anymore
There is little or no water and electricity infrastructure	Generally, people access bore water. The aquifers range from 30-120 meters from the surface. Previously. before there were bores, water was a problem. Currently, there is enough water for the community. Almost all houses have electricity. There is an electricity network that passes through the area. All the main infrastructure is provided. Some of the roads are quite bad, especially in the rainy season
People have a low capacity to accumulate wealth (living "day to day")	The economic life of the people in these communities is relatively even - people are neither particularly rich nor poor. Several local companies have provided employment opportunities for community members (e.g. PT BSI and two PTPN). There are other businesses, namely privately owned oil palm, rubber, cocoa and cassava plantations. These industries have enabled other jobs such as being a collector of FFB and trucking to the CPO mill. There are other jobs such as working in small shops, being a builder, civil servant, etc. There are no communities that depend on forest resources or gather forest products. Community capacity is sufficient to meet their daily needs. There are banking services available.
Farming and livestock raising are done on a small or subsistence scale	Most of the community owned plantations in the area are rubber or oil palm. The products are sold for industrial use and the owners obtain cash for these products. There are side activities, namely gardening for vegetables and fruit. These tend to be for local consumption. There are some people with livestock, this is probably at medium scale, with some animals sold locally and others sold elsewhere. Note the data from a level of dependency table which shows at a maximum 10 % (Desa Gudang Garam) of the

	meat is locally sourced. Bearing in mind this statistic includes chickens and goats. So the meat from locally sourced cattle would be less than 10%. There are many grazing areas locally (e.g other PTPN estates and cutting grass at the roadside and feeding to cattle in pens). So the reliance on grazing PT BSI would be very low.
	Most agriculture and livestock are for commercial purposes not subsistence.
Hunting and/or fishing is an important source of protein and income	Hunting and fishing are not things people do. Fishing in rivers is rarely done and is just a hobby.
	There are no forests to hunt animals in the area.
	The river is far away, except for the village of Damak Tolong Boho. However, the people in this village also do not rely on fish in the river, because they are difficult to catch. The place where people usually fish is in the ditch surrounding the company land
A wild food resource constitutes a significant part of the diet, either throughout the year or only during critical seasons	There is no food that comes from the wild, everything is cultivated, even mushrooms or ferns, bamboo shoots that usually grow in the wild, generally come from gardens.

Findings in the assessment area

All basic necessities are either sourced from outside the AOI or to a small extent grown in local gardens. **Therefore HCV 5 is deemed not Present**.

6. HCV 6 – Cultural values

Key Question	Outcome
Does the assessment area or surrounding landscape contain areas that are tied to cultural values critical to the traditional cultural identity of local communities, including areas of cultural, ecological, economic, religious or archaeological significance?	**PRESENT**

HCV 6 represents areas of cultural significance that have traditional importance to local or indigenous people. These may be religious or sacred sites, burial grounds or sites at which traditional ceremonies take place. National laws may require their identification and protection. The CG has identified the following values for consideration as HCV 6:

- Sites recognised as having high cultural value within national policy and legislation.
- Sites with official designation by national government and/or an international agency like UNESCO.
- Sites with recognized and important historical or cultural values, even if they remain unprotected by legislation.
- Religious or sacred sites, burial grounds or sites at which traditional ceremonies take place that have importance to local or indigenous people.
- Plant or animal resources with totemic values or used in traditional ceremonies.

Findings in the assessment area

There are graveyards in the villages, none of these are connected to the assessment area. There are however, three small graveyards within the area (Kuburan Bahrami, Kuburan Sumito and Kuburan Lorut) which are mapped as HCV 6. The community agreed that 10 m buffers would be adequate. **Therefore HCV 6 is deemed to be Present.**
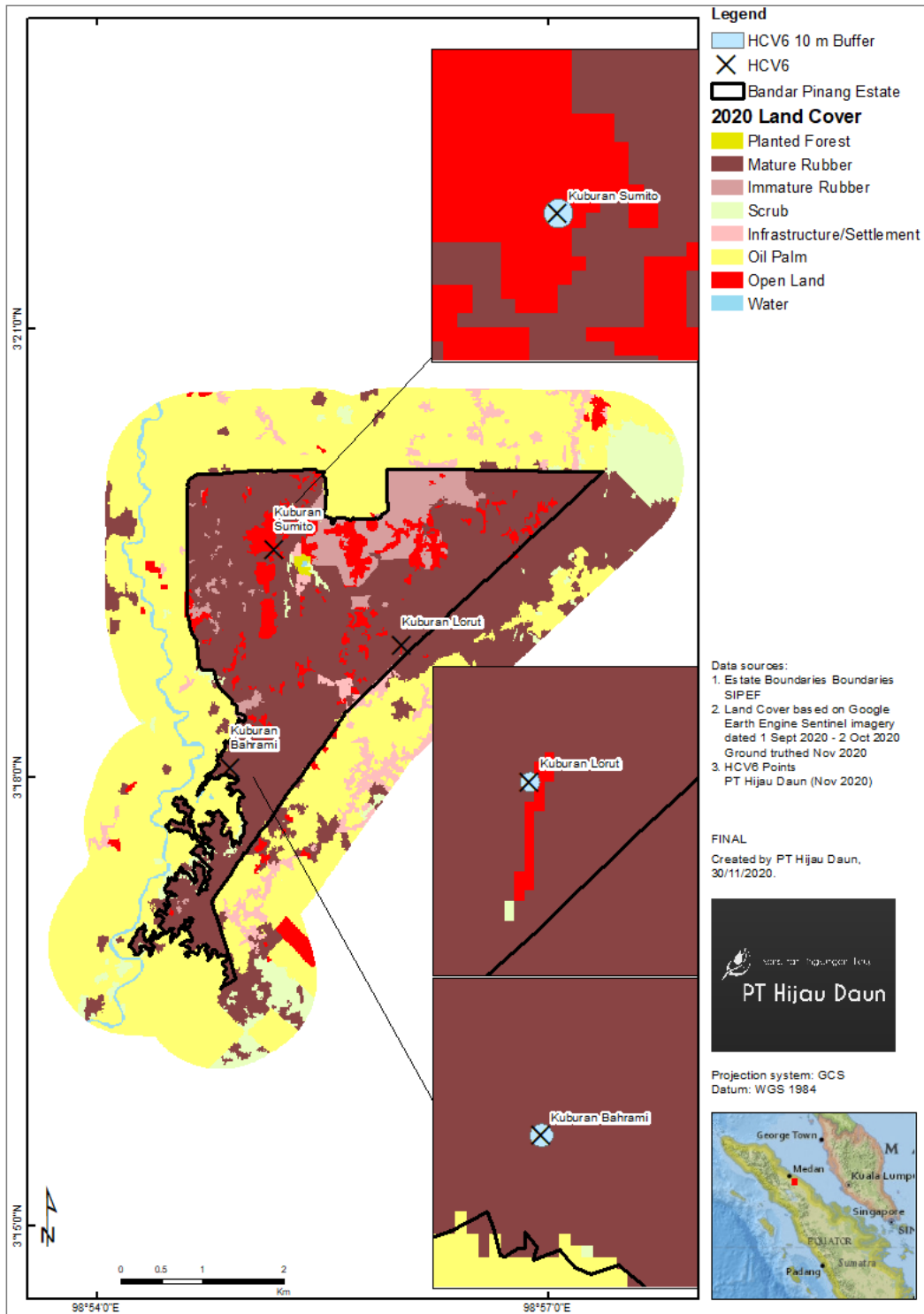
Figure 28 The location of the HCV6 areas

3.2.2 Stakeholder Consultations

Government

Interview with Camat (Bintang Bayu) (9 – 11 - 2020)

PT Hijau Daun explained the purpose of the HCV / HCSA assessment and the outcomes to date. Maps were used as a communication aid.

Question	Dinas Response	PT Hijau Daun Response
PT Hijau Daun asked about the Kecamatan office's relationship with PT BSI	The relationship with the company is quite good.	Noted
Asked for other comments or questions	● Bu Camat Bintang Bayu, asked the company to act as a mediator for the problems arising from the company's new policy regarding the prohibition of grazing which is troubling the community. ● What are the benefits of oil palm, because there has been no socialization of the 20% partnership. ● Road maintenance must be better, because there will be fruit trucks that can damage the road. ● And don't block road access for the community.	● Relating to the 20% partnership scheme for plasma. PT BSI would likely reach out to the community once it had established its own plantation ● The issue with road maintenance is well known and with more truck movements under oil palm maintenance will have to be better. ● Road access for the community is really outside the scope of HCV / HCS assessments.

Interview with Camat (Serba Jadi) (19 – 11 - 2020)

PT Hijau Daun explained the purpose of the HCV / HCSA assessment and the outcomes to date. Maps were used as a communication aid.

Question	Dinas Response	PT Hijau Daun Response
PT Hijau Daun asked about the Kecamatan office's relationship with PT BSI	The relationship with the company is quite good, but the Head of the Multi-Purpose Sub-district said that communication with companies is rarely done, because this sub-district is only bypassed.	Noted
Asked for other comments or questions	● With the low price of rubber, it is understandable that if the converts its estate to oil palm. ● He wished the company to try not to reduce the number	● PT BSI would fulfil all the legal requirements to workers that are laid off. ● PT Hijau Daun is not aware of a reduction in the aquifers as a result of changing

	of employees. However, if the workforce reduction must still be carried out, the company must fulfil its obligations for workers' rights in accordance with the law. ● So far, there have been no complaints from the public against the company. ● Pak Camat was worried that the water flow will decrease due to the loss of water catchment areas. Also concerned about the damage to main roads, due to oil palm trucking that exceeds road tonnage. According to Pak Camat, the company must adjust the transport to the road tonnage capability.	crops from rubber to oil palm. It had mentioned this issue to the Environment Department who concurred that this was not an issue they were aware of either. ● Regarding trucking, this is not an HCV / HCSA issue, however PT Hijau Daun would pass this on to PT BSI management.

Interview with Dinas Ketenakerjaan (Manpower Agency) (20.11.20)

PT Hijau Daun explained the purpose of the HCV / HCSA assessment and the outcomes to date. Maps were used as a communication aid.

The relationship between the company and the Manpower Office is very good and helps each other. The company is very pro-active in carrying out its obligations to employees, in accordance with Indonesian laws and regulations no 13 of 2003. Administratively, company reporting is very good. If there is a change in the commodity into oil palm, efforts will be made to avoid layoffs, but if it must happen, it is expected to provide employees with rights according to the law. Until now, there have been no reports of employee reductions and no employee complaints. The company has a bi-partit Collective Labor Agreement with employees through the labor union, so that employees can express their opinions through the union. PT SIPEF is a foreign investment company (PMA) that complies with the rules

Question	Dinas Response	PT Hijau Daun Response
PT Hijau Daun asked about Department's relationship with PT BSI	The relationship between the company and the Manpower Office is very good. The company is very pro-active in carrying out its obligations to employees, in accordance with Indonesian laws and regulations e.g no 13/2003. Administratively, the company reporting is very good.	Noted
Asked for other comments or questions	If there is a change in the commodity into oil palm, efforts will be made to avoid layoffs. If layoffs occur the company is expected to provide employees with rights according to the law. Until now, there have been no reports of employee reductions and no employee complaints. The company has a Bipartite Collective Labor Agreement with employees through the labour union, so that employees can	Noted

	express their opinions through the union. PT SIPEF is a foreign investment company (PMA) that complies with the rules.	

Plantation Department -Kabupaten Serdang Bedagai (Dinas Perkebunan) (20.11.20)

PT Hijau Daun explained the purpose of the HCV / HCSA assessment and the outcomes to date. Maps were used as a communication aid.

Question	Dinas Response	PT Hijau Daun Response
PT Hijau Daun asked about Department's relationship with PT BSI	According to the Plantation Department relations with PT BSI are very uncommunicative. The company does not report business developments to the District Plantation Office, but to the Provincial Office, so the District does not know about how PT BSI is managed.	Noted
Asked for other comments or questions	The District Plantation Service Office has also submitted a plantation business assessment or ISPO, but this was rejected by the company on the grounds that it was not a palm oil plantation. The SIPEF file is empty because there is no reporting and there is no oversight from the government. It is hoped that the company will report the changes to plantation types that will be made to the Serdang Bedagai Regency Plantation Office. If there is a High Conservation Value assessment, then it is hoped the Plantation Department will receive a copy of the report. There is already a Plantation Forum in the District, but it is less active.	Noted

Office of the Environment (Dinas Lingkungan Hidup) (23.11.20)

PT Hijau Daun explained the purpose of the HCV / HCSA assessment and the outcomes to date. Maps were used as a communication aid.

Question	Dinas Response	PT Hijau Daun Response

PT Hijau Daun asked about Department's relationship with PT BSI	According to DLH (Mr. Mulia Hadi Head of Environmental Law Enforcement and Mrs. Siti Aisah LH Arrangement and Obedience), PT BSI is always active in sending reports about the environment every trimester and semester.	Noted
PT Hijau Daun asked about complaints relating to PT BSI	So far, the Agency has not received or heard complaints from the community regarding environmental problems at PT BSI / SIPEF, nor have they heard about land conflicts. Land conflicts are very common in other companies.	Noted
PT Hijau Daun asked about PT BSI's compliance with regulations	It should be noted that there is no burning in the process. The use of herbicides and pesticides must be done very carefully and according to the rules.	PT Hijau Daun informed the Dinas that SIPEF is a member of the RSPO and has a no burn policy and chemical use also follows stringent guidelines
PT Hijau Daun asked about the incidence of water shortages caused by oil palm.	The Dinas said they had never heard of this occurring.	Noted.
Pt Hijau Daun asked for other comments.	The Dinas warned that oil palm plantations had higher incidence of conflict than rubber plantations because far fewer workers worker in oil palm.	Noted

NGOs

No meetings were undertaken with NGOs. PT BSI was unaware of any NGOs that were active in the area of the estate. The assessors also checked with government departments, who all replied that there were no NGOs.

The assessor did not think it was relevant to contact general biodiversity NGOs such as WWF as the estate had been a plantation since 1913 and was situated in an agricultural landscape. In this landscape, based on field observation and analysis of satellite images, every piece of land had been converted to agricultural plantations. In which case biodiversity NGOs would not have projects here.

There were no social NGOs active in the area either.

Experts

Given that lack of biodiversity in the estate and surrounding area, no biodiversity experts were contacted.

BSI has been a plantation since 1913, the is no conflict in the area. There didn't appear to be much to discuss with social experts.

3.2.3 Final Consultation

The purpose of the final consultation was to seek consensus on the values identified and on the locations of the conservation areas.

Generally PT Hijau Daun organises a Final Consultation in one place, so that everyone can share their views. However, covid prevented this and the team had to go around each village. Ds Pengajahan Hulu rejected a meeting (for a reason that had nothing to do with the assessment). A powerpoint was made up, detailing the main points and this was sent to the village along with a letter, which explained that they could provide input to the assessment. No input was received from Ds Pengajahan Hulu.

Ninety four people from the community attended the final consultations (which were done on a village by village basis to keep groups small because of the covid risk). . Representatives attended from all of the eight affected communities plus results were socialised to three other affected communities (Damak Tolong Buho, Kuala Bali and Karang Tengah). These 3 communities, though they are not affected expressed an interest in the assessment so PT Hijau Daun went and visited them again as a gesture of good faith. A breakdown of the attendance is in Table 36 - Table 39.

The nature of the presentation to stakeholders was as:

Overview of proposed development project

Key steps of assessment process

Main findings description and justification of HCVs and explain why no HCS forest was identified.

Maps of areas identified as community lands – where they were inside the estate

Maps of conservation areas (e.g. HCV, HCS forest)

Identified threats to social and environmental values

Management and monitoring recommendations

Concerns or issues (with assessment process, findings, operations, etc.)

The Final Consultation took place 21st – 26th November 2020. All the parties were invited that had taken part in the SIA or the integrated assessment (i.e. community from each of the nine villages). They were informed by letter. The consultation took place in the village office.

The Final Consultation involved explaining HCV and HCS – as well as a discussion of the theory, they key steps were mentioned. At each step a map of the identified value was shown and it was explained why this was deemed to be an HCV area. From there the particular threats to the HCV or HCS area and the associated management and monitoring recommendations. Most of the time was spent discussing results of the assessment.

Figure 29. Top Row : The Final Consultation underway(Left: Ds Pengajahan Hulu, Right: Ds Huta Durian and Bandar Pinang Kebun). Bottom row A0 maps were used. The red maps on the left were satellite images (in NIR to enable oil palm and rubber to be differentiated) – these were used for confirming the results of the participatory mapping. The conservation areas mapped also. The develop / conserve areas were discussed one-by-one.

Table 35. Feedback from the Final Consultation

No	Village	Name	Position/Organisation / Social Group	Main Concerns / Recommendations	Response
1	Ds Pengajahan Kahan	General statement on behalf of the community		Comments regarding the condition of the roads and grass for grazing animals within BSI	The assessor will provide feedback to PT BSI about these concerns but they are not really relating to HCV or HCS.
2 & 3	Ds Huta Durian and Bandar Pinang Kebun	M. Surya B. Sipayung	Kades Huta Durian	The community didn't agree with the plan to convert the plantation from rubber to oil palm. The community relied upon the company's CSR and hoped this would continue especially help for poor people. The community expected that any recruitment would be provided to local people. The company had acted in good faith towards the community in the past, it was the community's intention to act in good faith in the future and hoped that the good relationship would be maintained.	The assessor will provide feedback to PT BSI about these concerns but they are not really relating to HCV or HCS
		Sudartono	BPD BP. Kebun	Asked that the sports field and the area for housing cows be maintained after the plantation was converted.	

		Supanto	Community Member	Asked that the area below the power cables be made available for grazing cattle and gardens.	
4	Ds Gudang Garam	General statement on behalf of the community		The only impact that was mentioned was that some people don't like to use gas, but they will have to get used to it because there won't be as much firewood available.	Noted
5	Ds Bintang Bayu	General statement on behalf of the community	Kepala Dusun	Products were difficult to get out of the area with the roads in poor condition also asked that other roads be opened up to enable people to travel more efficiently

There is a ditch which floods the road – asked that it be maintained so floods didn't occur.

They pointed out that they hasd a meeting with the Manager BSI in 2014 and nothing has happened as a result. | Manager BSI replied that they already had problems with theft and with better access theft became more of a problem.

They would review the ditch that requires maintenance. |
| 6 | Ds Damak Tolong Buho (not affected community) | Ebeki Eger | Sekdes | Want additional area in the estate for a graveyard | The assessor will provide feedback to PT BSI about these concerns but they are not really relating to HCV or HCS. |
| 7 | Ds Bandar Pinang Rambe | Surya | Community Member | Threat of erosion was higher with oil palm.

Asked about the area for collecting ferns.

Would like heavy equipment to main the road better. | Discussed that the company planted Mucuna as a land cover crop immediately. On slopes greater than |

					22 degrees these would be set aside from development and intermediate slopes would be terraced. The company can't set aside an area for ferns bu under OP it is assumed ferns will still grow and people can still collect them.
		Roberto		Ask about the process for receiving CSR	Make a proposal first
8	Ds Kelapa Bajohom	Representative from Dusun 2		The company's ditch was overflowing and causing erosion.	Other community members pointed out this had already been discussed.
		Representative from Dusun 4		Agreed with the company's conservation plan	
		Bukhari	Community Member	Problems with not enough animal feed if the plantation is converted to oil pal	The assessor will provide feedback to PT BSI about these concerns but they are not really relating to HCV or HCS.
		Kurbar	Community Member	The company cannot have entrances to the plantation all over the place but asked that if they identified some key access points that these roads would be kept open	
		Eka Sitapung		Asked about plasma opportunities	
9	Ds Kuala Bali (not affected community)	Khairul Anwar	BPD	Question about the water table dropping Agreed to the conservation areas	Pointed out that there is OP everywhere and

					there has been noticeable changes to aquifers
10	Ds Karang Tengah (not affected community)	Darus	Kades	Agreed that all the impacts were covered with the conservation plan.	Noted

There are 8 affected communities, 7 were consulted in the final consultation (1 declined), another 3 communities asked to be involved even though they weren't affected communities. 10 communities were consulted all up in the final consultation.

At all the final consultation meetings all the attendees agreed to the HCV / HCS areas as proposed. There were no real points of discussion from the meeting itself that caused changes to the outcome. The attendees provided extra information or sought further clarification on various points.

Table 36. Breakdown of the attendance by Age Group for the Final Consultation

Villages	20-30	31-40	41-50	51-60	61+	Grand Total
Bintang Bayu	2	1	4	2	1	10
Damak Tolong Buho		2	4			6
Gudang Garam	2	1	3	3	2	11
Huta Durian		3	1	2		6
Karang Tengah	3	3	2			8
Kuala Bali	4	3	1	2		10
Pengajahan Kahan	1	2	3	5		11
Bandar Pinang Kebun	1	4	1	1		7
Kelapa Bajohom	2	4	4	6	1	17
Bandar Pinang Rambe		6	1			7
Grand Total	15	29	24	21	4	93

Table 37. Breakdown of the attendance by Religion for the Final Consultation

Village	Islam	Christian	Grand Total
Bintang Bayu	8	2	10
Damak Tolong Buho		6	6
Gudang Garam	11		11
Huta Durian	6		6
Karang Tengah	8		8
Kuala Bali	8	2	10
Pengajahan Kahan	11		11
Bandar Pinang Kebun	7		7
Kelapa Bajohom	5	12	17
Bandar Pinang Rambe	6	1	7
Grand Total	70	23	93

Table 38. Breakdown of the attendance by Sex for the Final Consultation

Village	Male	Female	Grand Total
Bintang Bayu	6	4	10
Damak Tolong Buho	5	1	6
Gudang Garam	5	6	11
Huta Durian	6		6
Karang Tengah	3	5	8
Kuala Bali	6	4	10
Pengajahan Kahan	4	7	11

Bandar Pinang Kebun	3	4	7
Kelapa Bajohom	12	5	17
Bandar Pinang Rambe	5	2	7
Grand Total	55	38	93

Table 39. Breakdown of the number of people attending the final consultation. No one attended from the villages of Pengajahan Hulu. A presentation was sent to these Pengajahan Hulu with the letter attached which asked for comments. The letter was acknowledged but no comments were received.

Village	Number of Attendees	Date
Ds Pengajahan Kahan	11	21.11.20
Ds Huta Durian and Bandar Pinang Kebun	13	23.11.20
Ds Gudang Garam	11	24.11.20
Ds Bintang Bayu	10	24.11.20
Ds Damak Tolong Buho	6	25.11.20
Ds Bandar Pinang Rambe	7	25.11.20
Ds Kelapa Bajohom	17	25.11.20
Ds Kuala Bali	10	26.11.20
Ds Karang Tengah	7	26.11.20
Total	93	

Table 40. Full List of all Final Consultation Participants

Name	Position	Age	Religion	Sex	Village
WAGIMIN	COMMUNITY MEMBER	56	ISLAM	M	PENGAJAHAN KAHAN
KUSNADI	COMMUNITY MEMBER	45	ISLAM	M	PENGAJAHAN KAHAN
ASMIRAN	SEKDES	45	ISLAM	M	PENGAJAHAN KAHAN
ABDUL MANAF	COMMUNITY MEMBER	59	ISLAM	M	PENGAJAHAN KAHAN
SUKMAWATI	COMMUNITY MEMBER	50	ISLAM	F	PENGAJAHAN KAHAN
SRI SURYANI	COMMUNITY MEMBER	33	ISLAM	F	PENGAJAHAN KAHAN
SRI WAHYUNI	COMMUNITY MEMBER	21	ISLAM	F	PENGAJAHAN KAHAN
ASNAWATI	COMMUNITY MEMBER	52	ISLAM	F	PENGAJAHAN KAHAN
ROSDIANA	COMMUNITY MEMBER	52	ISLAM	F	PENGAJAHAN KAHAN
MISNI	COMMUNITY MEMBER	52	ISLAM	F	PENGAJAHAN KAHAN

FARIDA HANUM	COMMUNITY MEMBER	40	ISLAM	F	PENGAJAHAN KAHAN
HARIANTO	PEMUDA/PEMUDI	34	ISLAM	M	HUTA DURIAN
SUDARIONO	KET. BPD	39	ISLAM	M	BANDAR PINANG KEBUN
MUSA ABIDIN	KADUS II	34	ISLAM	M	HUTA DURIAN
MEGA SURIYA	SEKDES	40	ISLAM	M	HUTA DURIAN
DARPIN	TOKOH MASYARAKAT	54	ISLAM	M	HUTA DURIAN
A.M. LUBIS	KASI	45	ISLAM	M	BANDAR PINANG KEBUN
YUSMAWATI	KASIPEM	35	ISLAM	F	BANDAR PINANG KEBUN
MEI SUKARNI	PERWAKILAN F	38	ISLAM	F	BANDAR PINANG KEBUN
SUDIBYO	TOKOH MASYARAKAT	54	ISLAM	M	HUTA DURIAN
MAGDALENA Br. POHAN	SEKDES	34	ISLAM	F	BANDAR PINANG KEBUN
FETTY EKA A.S	K. KEUANGAN	25	ISLAM	F	BANDAR PINANG KEBUN
M. ZUL IKBAL	KADUS	53	ISLAM	M	BANDAR PINANG KEBUN
M. SURYA BUDI SIPAYUNG	KADES	45	ISLAM	M	HUTA DURIAN
SATRIANI	COMMUNITY MEMBER	36	ISLAM	F	GUDANG GARAM
SITI MURNI	COMMUNITY MEMBER	42	ISLAM	F	GUDANG GARAM
ERNILAWATI	COMMUNITY MEMBER	50	ISLAM	F	GUDANG GARAM
INKA NUR SAFITRI	COMMUNITY MEMBER	22	ISLAM	F	GUDANG GARAM
SRI WULANDARI	COMMUNITY MEMBER	28	ISLAM	F	GUDANG GARAM
NUR INTAN	COMMUNITY MEMBER	53	ISLAM	F	GUDANG GARAM
BAYUDDIN SINAGA	COMMUNITY MEMBER	56	ISLAM	LAKI-LAKI	GUDANG GARAM
SYAMSUL	COMMUNITY MEMBER	66	ISLAM	M	GUDANG GARAM
SUGIANTO	COMMUNITY MEMBER	47	ISLAM	LAKI-LAKI	GUDANG GARAM
PURWONO	KADES	52	ISLAM	M	GUDANG GARAM
ABDUL MANAP	COMMUNITY MEMBER	62	ISLAM	M	GUDANG GARAM
SAPRUDIN. SM	KADES	46	ISLAM	M	BINTANG BAYU
ERNAWATI	K. PKK	43	ISLAM	F	BINTANG BAYU
SAULINA DMK	KADUS	44	KRISTEN	F	BINTANG BAYU

Name	Position	Age	Religion	Gender	Village
TRISNA SARI	KASI PEM	36	ISLAM	F	BINTANG BAYU
RATNA SARI NABILLAH	KASI KESRA	22	ISLAM	F	BINTANG BAYU
KASIMAN	TOKOH MASYARAKAT	62	ISLAM	M	BINTANG BAYU
BAGUS SUSANTO	KADUS III	25	ISLAM	M	BINTANG BAYU
SUHARSO	KADUS 1	42	ISLAM	M	BINTANG BAYU
WARIS	BPD	57	ISLAM	M	BINTANG BAYU
BONAR SARAGIH	KAUR	59	KRISTEN	M	BINTANG BAYU
T. SUHEMI	KADUS	60	ISLAM	M	KELAPA BAJOHOM
MUHAMMAD JAPRI	KAUR	32	ISLAM	M	KELAPA BAJOHOM
BUK BARUS	KADUS	58	ISLAM	F	KELAPA BAJOHOM
SALMAN	COMMUNITY MEMBER	60	ISLAM	M	KELAPA BAJOHOM
YUSMAN DMK	COMMUNITY MEMBER	59	KRISTEN	LAKI-LAKI	KELAPA BAJOHOM
MISRAN PURBA	COMMUNITY MEMBER	50	KRISTEN	M	KELAPA BAJOHOM
BAPAK NUKAP	COMMUNITY MEMBER	60	KRISTEN	M	KELAPA BAJOHOM
SARIAMAN	COMMUNITY MEMBER	50	KRISTEN	LAKI-LAKI	KELAPA BAJOHOM
ALEXANDER G	COMMUNITY MEMBER	52	KRISTEN	M	KELAPA BAJOHOM
RAMLAN P	COMMUNITY MEMBER	47	KRISTEN	M	KELAPA BAJOHOM
PASDIAMAN S	COMMUNITY MEMBER	40	KRISTEN	M	KELAPA BAJOHOM
EBOS SARAGIH	COMMUNITY MEMBER	42	KRISTEN	M	KELAPA BAJOHOM
BOTTRIA SIMANJUNTAK	COMMUNITY MEMBER	40	KRISTEN	F	KELAPA BAJOHOM
ROSNAULI PRB	KAUR	37	KRISTEN	F	KELAPA BAJOHOM
KASIAN SEBAYAK	COMMUNITY MEMBER	67	KRISTEN	M	KELAPA BAJOHOM
IRA	OPERATOR	25	ISLAM	F	KELAPA BAJOHOM
WATI DAMANIK	COMMUNITY MEMBER	27	KRISTEN	F	KELAPA BAJOHOM
SURYA AIRAWAN	SEKDES	41	ISLAM	M	BANDAR PINANG RAMBE
WAJIONO S	KADES	31	ISLAM	M	BANDAR PINANG RAMBE
SRI M. SINAGA	KASI PEM	39	ISLAM	F	BANDAR PINANG RAMBE
M. RUSLIM DMK	PKD	34	ISLAM	M	BANDAR PINANG RAMBE
SRI RAHAYU	KASIKES	39	ISLAM	F	BANDAR PINANG RAMBE

HARIAMAN	K.K	39	ISLAM	M	BANDAR PINANG RAMBE
ROBERTO SINAGA	KADUS II	32	KRISTEN	M	BANDAR PINANG RAMBE
MORA LBN GAOL	K. PEMB	37	KRISTEN	M	DESA TOLONG BUHO
SAOR SIREGAR	KADUS II	46	KRISTEN	M	DESA TOLONG BUHO
PARMAN SIHOTANG	KADUS II	50	KRISTEN	M	DESA TOLONG BUHO
IRPEIDA MANULLANG	MASYARAKAT	45	KRISTEN	M	DESA TOLONG BUHO
SOLIMAN MANDA	K. PEMB	36	KRISTEN	F	DESA TOLONG BUHO
EBEN EGER N	SEKDES	43	KRISTEN	M	DESA TOLONG BUHO
EVI FERIANI SINAGA	KAUR KEUANGAN	26	KRISTEN	F	KUALA BALI
FIRDA H. RANGKUTI	KAUR UMUM	22	ISLAM	M	KUALA BALI
DEVANA HARAHAP	KASI PEM	21	ISLAM	F	KUALA BALI
RIZAL SARAGIH	KADUS III	24	ISLAM	M	KUALA BALI
SRI MURNI	KADUS II	35	ISLAM	F	KUALA BALI
SAIMAN ALFARISI SRG	KADUS III	30	ISLAM	M	KUALA BALI
IMELDA ISABELLA S	KASPEL	33	KRISTEN	F	KUALA BALI
M. BUKHARI	FHA	48	ISLAM	M	KUALA BALI
ARBANI	SEKDES	56	ISLAM	M	KUALA BALI
KHAIRUL	BPD	53	ISLAM	M	KUALA BALI
MAY ASTUTI	SEKDES	40	ISLAM	F	KARANG TENGAH
RATNA N. DEWI	KAUR	39	ISLAM	F	KARANG TENGAH
JULI AFIKA	KASI PEMDESA	26	ISLAM	F	KARANG TENGAH
ANWAR SIREGAR	KASI PEMDESA	28	ISLAM	M	KARANG TENGAH
RISANTI WAHYUNI	KADUS III	40	ISLAM	F	KARANG TENGAH
ALFINA KHAIRA	OPD	19	ISLAM	F	KARANG TENGAH
DARUS TARIGAN	KADES	43	ISLAM	M	KARANG TENGAH
M. BUKHARI	FHA	48	ISLAM	M	KARANG TENGAH

Further Consultations with Government

The Consultations with the various government agencies were undertaken at the end of the assessment and were considered final consultations also because the assessor stepped each of the representatives through the provisional results, discussing each HCV and HCS

Limitations and consequences

Only a proportion of the community members joined the final consultation and there is a possibility that information was missed. Though the people that did join were the Kepala Desa and BPD who have an obligation to aggregate the opinions and views of their constituency and subsequently report back to their constituency. The company should be mindful of the consequence of this. Subsequent comments and suggestions from people should be taken into account by the company when formalising the ICLUP.

3.3 Soil and topography

Table 41. Criteria and Observations

Criteria	Description	Observation
Fragile Soils	A soil that is susceptible to degradation (reduction in fertility) when disturbed. A soil is particularly fragile if the degradation rapidly leads to an unacceptably low level of fertility or if it is irreversible using economically feasible management inputs.	Based on historical records this area has been intensively cropped since the early 1900s and still is described as extremely fertile by both the company staff and surrounding community. In none of the interviews with the community was any mention made of abandoning any areas as a result of unacceptably low yields.
Marginal Soils	A soil that is unlikely to produce acceptable economic returns for the proposed crop at reasonable projections of crop value and costs of amelioration. Degraded soils are not marginal soils if their amelioration and resulting productivity is cost effective.	In all the community interviews, it was mentioned that the area could be comprehensively cropped and there was no mention of areas or soil types that were routinely avoided because of low yields.
Peat	A soil with cumulative organic layer(s) comprising more than half of the upper 80 cm or 100 cm of the soil surface containing 35% or more of organic matter (35% or more Loss on Ignition) or 18% or more organic carbon.	There was no peat observed in the area nor was it mapped in any of the soil data sets.
Steep soils	Soils over 22 degrees	No areas over 22 degrees were noted.

3.4 Summary of carbon stock assessment and GHG emissions

Table 42 presents the carbon stock estimates for the above and below ground carbon. Default values used by the RSPO (RSPO, 2016) were used for the estimates of carbon stocks. The exception is the shrubland where measured values were used of 14.2 tC/ha – then applying a expansion factor of 1.15[16] (BGB= 14.2 x1.15) which makes total shrubland carbon 30.53 tC/ha.

The area that is not to be developed consists of a small lake, the workers' village and the office / workshop.

Table 42. Summary of carbon stocks (above and below ground) per vegetation class

Land cover class	Area (ha)	Mean Carbon stock (tC/ha)	Total Carbon stocks (tC)
Tree Crop	1041.9	75	78,142.50
Shrubland	11.49	30.53	350.79
Oil Palm[17]	14.65	59.29	868.60

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[16] https://repository.ipb.ac.id/handle/123456789/64066

[17] This is overplanting of community oil palm which will not be affected. The oil palm is community oil palm that has been planted on a boundary overlap and has been planted along various boundaries – maybe 1 -2 palms wide.

Grassland[18]	127.61	5	638.05
Not to be developed[19]	11.21	0	-
Grand Total	1206.86		79,999.94

In order to assess the emissions potential of the proposed conversion the net areas to be managed are tested through 3 different scenarios. Each conversion scenario makes a different assumption regarding the type of conservation type which will be retained or converted into oil palm. All of the scenarios assume that there will be methane capture during the first rotation of the oil palm plantation. The scenarios that were tested are described in Table 43.

Table 43. Land conversion scenarios.

Scenario	Description
Scenario 1	All developable areas are developed. Methane capture.
Scenario 2	Areas indicated as Conserve are conserved. Methane capture.
Scenario 3	Areas indicated as Conserve are conserved. Areas in the buffers are planted with amenity trees (e.g. Durians, Mahogany and Gmelina). Methane capture.

The resulting amounts of hectares potentially converted or retained are summarised in the following tables.

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[18] Note that grassland consists of failed areas that are covered with Macuna. It also includes recently cleared land which would have no AGB but still would have the roots of the rubber trees in the BGB.

[19] Small lake, the workers' village and the office / workshop

Table 44. Summary of conversion scenarios (ha). Preferred scenario is Scenario 3.

Classification	Scenario 1			Scenario 2			Scenario 3		
	Current LC	Conserve	Develop	Current LC	Conserve	Develop	Current LC	Conserve	Develop
Tree Crop	1041.9	0	1041.9	1041.9	5.45	1,036.45	1041.9	5.45	1,036.45
Shrubland	11.49	0	11.49	11.49	2.55	8.94	11.49	2.55	8.94
Oil Palm[20]	14.65	0	14.65	14.65	14.65		14.65	14.65	
Grassland	127.61	0	127.61	127.61	0.08	127.53	127.61	0.08	127.53
Grand Total[21]	1195.65	**0**	1195.65	1195.65	8.08	1,187.57	1195.65	8.08	1,187.57

The reason that scenario 3 is selected because it allows PT BSI to meet the RSPO requirements and also represents the best scenario for the environment.

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[20] Note that the oil palm is community oil palm that has been planted on a boundary overlap and has been planted along various boundaries – maybe 1 -2 palms wide.

[21] Note this excludes the 11.21 ha of not to be developed areas which is small lake, the workers' village and the office / workshop

Table 45. Conversion scenario 1

Classification	Conserve		Develop		Total Area (ha)
	Area (ha)	Carbon stock (tC)	Area (ha)	Carbon emission (tC)	
Tree Crops	0	0	1041.9	78142.5	1041.9
Shrubland	0	0	11.49	528.54	11.49
Grassland	0	0	127.61	638.05	127.61
Grand Total	**0**	**0**	**1181**	**79309.09**	**1,181.00**

Table 46. Conversion scenario 2.

Classification	Conserve		Develop		Total Area (ha)
	Area (ha)	Carbon stock (tC)	Area (ha)	Carbon emission (tC)	
Tree Crops	5.45	408.75	1036.45	77733.75	1041.9
Shrubland	2.55	117.3	8.94	411.24	11.49
Grassland	0.08	0.4	127.53	637.65	127.61
Grand Total	**8.08**	**526.45**	**1172.92**	**78782.64**	**1181**

Table 47. Conversion scenario 3 (preferred development scenario)

Classification	Conserve		Develop		Total Area (ha)
	Area (ha)	Carbon stock (tC)	Area (ha)	Carbon emission (tC)	
Tree Crops	5.45	408.75	1036.45	77733.75	1041.9
Shrubland	2.55	117.3	8.94	411.24	11.49
Grassland	0.08	0.4	127.53	637.65	127.61
Grand Total	**8.08**	**526.45**	**1172.92**	**78782.64**	**1181**

Figure 30. RSPO land cover categories.

Figure 31. Carbon Stock map – based on the existing land cover. Note that the highest carbon stocks in the area are the "tree crops" which includes the rubber plantations. There is no natural forest or peat areas that might have a high carbon stock.

110

3.4.1 Identification of all likely significant sources of GHG emissions and sequestration related to the proposed development

The significant sources of emission will be the felling of the rubber plantation. This will be offset be sequestration in the oil palm crop. The effect of this can be seen in Table 48.

Table 48. Results of the greenhouse gas emissions scenario modelling, orange box indicating preferred Development Scenario. Field emissions and sinks assume vigorous growth for oil palm, used by large scale operations. Data derived from RSPO GHG Calculator (RSPO-PRO-T04-003 V2.0 ENG).

	Scenario 1			Scenario 2			Scenario 3		
Field emissions & sinks	tCO2e	t CO2e/ha	tCO2e/tFFB	t CO2e	t CO2e/ha	t CO2e/t FFB	t CO2e	t CO2e/ha	t CO2e/t FFB
Land clearing	3,165.25	2.83	0.11	3,145.77	2.83	0.11	3,145.77	2.83	0.11
Crop sequestration	-10,479.82	-9.36	-0.37	-10,408.12	-9.36	-0.37	-10,408.12	-9.36	-0.37
Fertilisers	825.48	0.74	0.03	819.83	0.74	0.03	819.83	0.74	0.03
N2O	1,570.67	1.40	0.06	1,559.92	1.40	0.06	1,559.92	1.40	0.06
Field fuel	108.90	0.10	0.00	108.16	0.10	0.00	108.16	0.10	0.00
Peat	0.00	-	-	-	-	-	-	-	-
Conservation credit	0.00	-	-	-	-	-	-257.75	-0.23	-0.01
Total	-4,809.52	-0.72	-0.03	-4,774.44	-4.29	-0.17	-4291.08	-4.52	-0.18
Mill emissions & credit	**tCO2e**	**t CO2e/ha**	**tCO2e/tFFB**	**tCO2e**	**t CO2e/ha**	**tCO2e/tFFB**	**tCO2e**	**t CO2e/ha**	**tCO2e/tFFB**
POME	1,034.82	0.92	0.04	1,027.74	0.92	0.04	1,027.74	0.92	0.04
Mill fuel	20.08	0.02	0.00	19.95	0.02	0.00	19.95	0.02	0.00
Purchased electricity	159.80	0.14	0.01	159.80	0.14	0.01	159.80	0.14	0.01
Credit (excess electricity exported)	-	-	-	-	-	-	-	-	-
Credit (sale of biomass for power)	-	-	-	-	-	-	-	-	-
Total	1,214.70	1.09	0.04	1,207.48	1.09	0.04	1,207.48	1.09	0.04
Total emissions, tCO2e (field and mill)	**-3,595**			**-3,567**			-3,825		
t CO2e/t CPO	**-0.44**			**-0.47**			-0.47		
t CO2e/t PK	**-0.44**			**-0.47**			-0.47		

PT Hijau Daun

113

3.5 LUC analysis

3.5.1 Maps showing land use cover change since Nov 2005

Figure 32 - Figure 36 shows the snapshots of land cover from 2005 – 2020 at the required dates.

Table 49. Required dates for the LUCA

Assessment Period	RSPO's monitoring period
1	Between November 2005 and November 2007
2	Between November 2007 and December 31, 2009
3	Between January 1, 2010 and May 9, 2014
4	After May 9, 2014 (date of HCV assessment)

Figure 37 and the next 4 maps show the imagery that is the basis for the land cover classifications

Table 50. Imagery dates

Assessment Period	RSPO's monitoring period	Google Earth Engine Period	Imagery Type
1	Between November 2005 and November 2007	1/1/2005 – 31/10/2005	Landsat 5
2	Between November 2007 and December 31, 2009	1/1/2007 – 31/10/2007	Landsat 5
3	Between January 1, 2010 and May 9, 2014	1/1/2009 – 31/12/2009	Landsat 5
4	After May 9, 2014 (date of HCV assessment)	1/5/2013 – 9/5/2014	Landsat 8
		1/9/20-2/10/2020	Sentinel 2

Google Earth Engine was used because it provides cloud free images. Landsat 5 provides the best imagery to 2009, after that for 2014, Landsat 8 is the best and recently Sentinel 2 is the best.

Table 51. Contingency Matrix 2005-7 (ha)

Corporate

	Land cover class	November 2007							Grand Total
		Immature Rubber	Infrastructure/Settlement	Mature Rubber	Oil Palm	Open Land	Scrub	Water	
November 2005	Immature Rubber	57.64		5.17					62.81
	Infrastructure/Settlement		11.21						11.21
	Mature Rubber			988.45		18.64	3.81		1,010.91
	Oil Palm				14.64				14.64
	Open Land	60.66		0.51		19.52			80.69
	Scrub						26.18		26.18
	Water							0.43	0.43
	Grand Total	118.30	11.21	994.12	14.64	38.16	29.99	0.43	1,206.85

Table 52. Contingency Matrix 2007-9 (ha)

Corporate

	Land cover class	November 2009								Grand Total
		Immature Rubber	Infrastructure/Settlement	Mature Rubber	Oil Palm	Open Land	Planted Forest	Scrub	Water	
November 2007	Immature Rubber	60.71		57.60						118.30
	Infrastructure/Settlement		11.21							11.21
	Mature Rubber	61.45		932.08		0.59				994.12
	Oil Palm				14.64					14.64
	Open Land	26.07		2.27		9.82				38.16
	Scrub						3.70	26.29		29.99
	Water								0.43	0.43
	Total Nov 09 (sum of rows)	148.23	11.21	991.94	14.64	10.42	3.70	26.29	0.43	1,206.85

Table 53. Contingency Matrix 2010-2014 (ha)

Corporate										
	Land cover class	May 2014								
		Immature Rubber	Infrastructure/Settlement	Mature Rubber	Oil Palm	Open Land	Planted Forest	Scrub	Water	Grand Total
January 2010	Immature Rubber	8.63		139.59						148.23
	Infrastructure/Settlement		11.21							11.21
	Mature Rubber			982.17		9.77				991.94
	Oil Palm				14.64					14.64
	Open Land					10.42				10.42
	Planted Forest						3.70			3.70
	Scrub					11.29		15.01		26.29
	Water								0.43	0.43
	Total	8.63	11.21	1121.76	14.64	31.48	3.7	15.01	0.43	1206.85

Table 54. Contingency Matrix 2014-2020 (ha)

| Corporate										
	Land cover class	Date of HCV assessment								
		Immature Rubber	Infrastructure/Settlement	Mature Rubber	Oil Palm	Open Land	Planted Forest	Scrub	Water	Grand Total
May 2014	Immature Rubber	8.63		0.00						8.63
	Infrastructure/Settlement		11.21							11.21
	Mature Rubber	117.74		900.23		103.49		0.31		1,121.76
	Oil Palm				14.64					14.64
	Open Land	4.74		6.95		19.80				31.48
	Planted Forest						3.70			3.70
	Scrub							15.01		15.01
	Water								0.43	0.43
	Total	131.11	11.21	907.18	14.64	123.29	3.7	15.32	0.43	1206.86
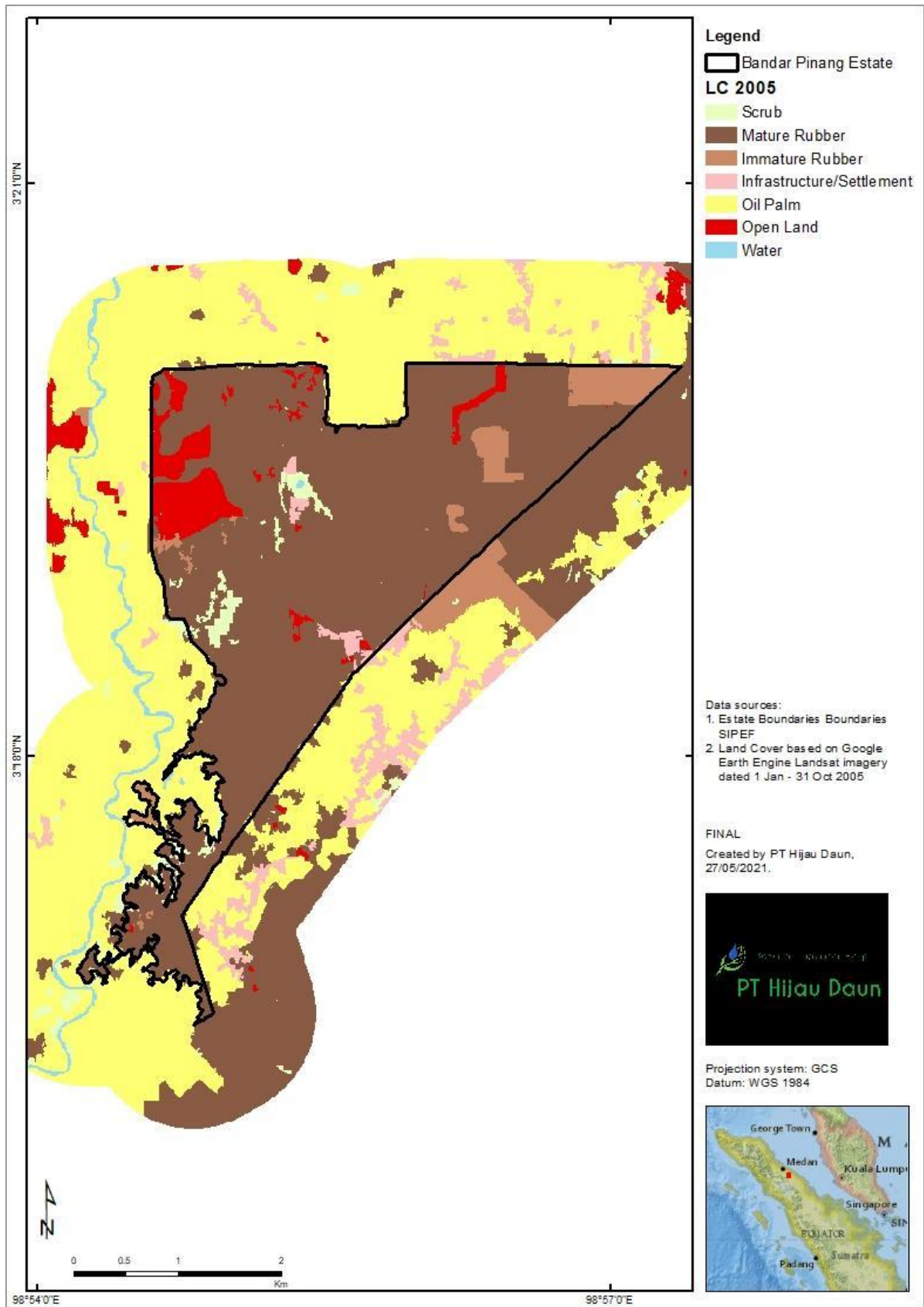
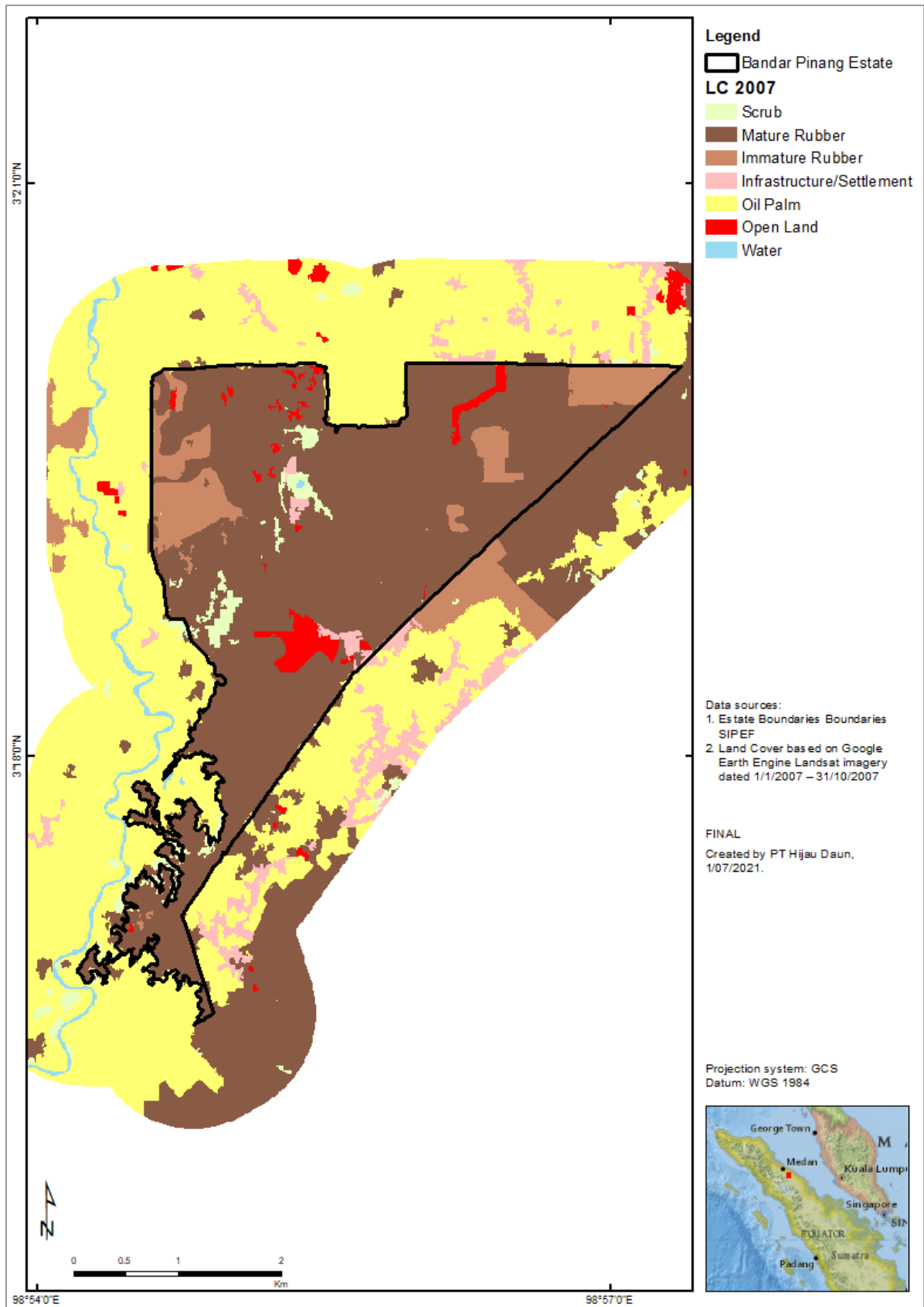Figure 32. Bandar Pinang Estate land cover 2005

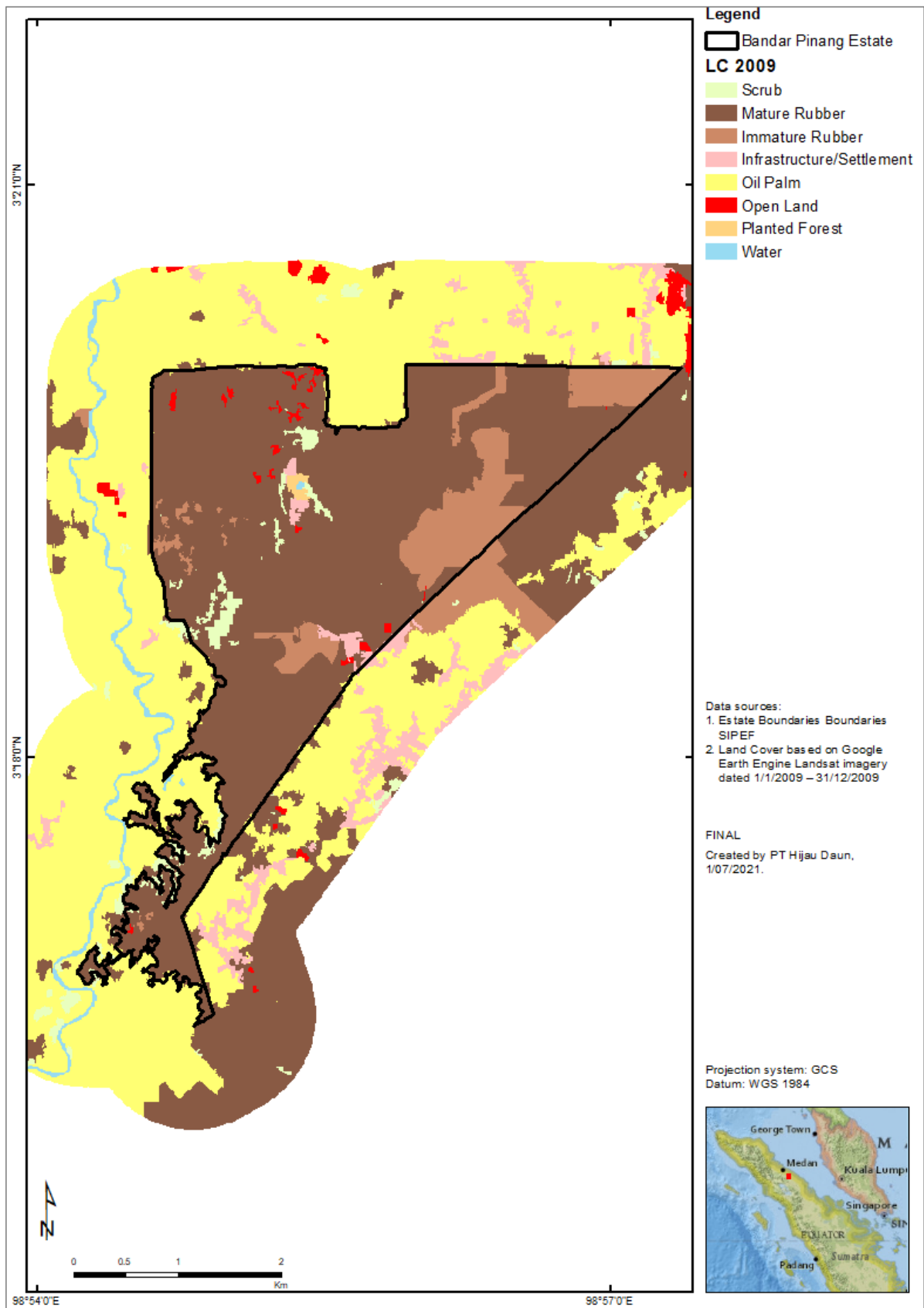*Figure 33. Bandar Pinang Estate land cover 2007*
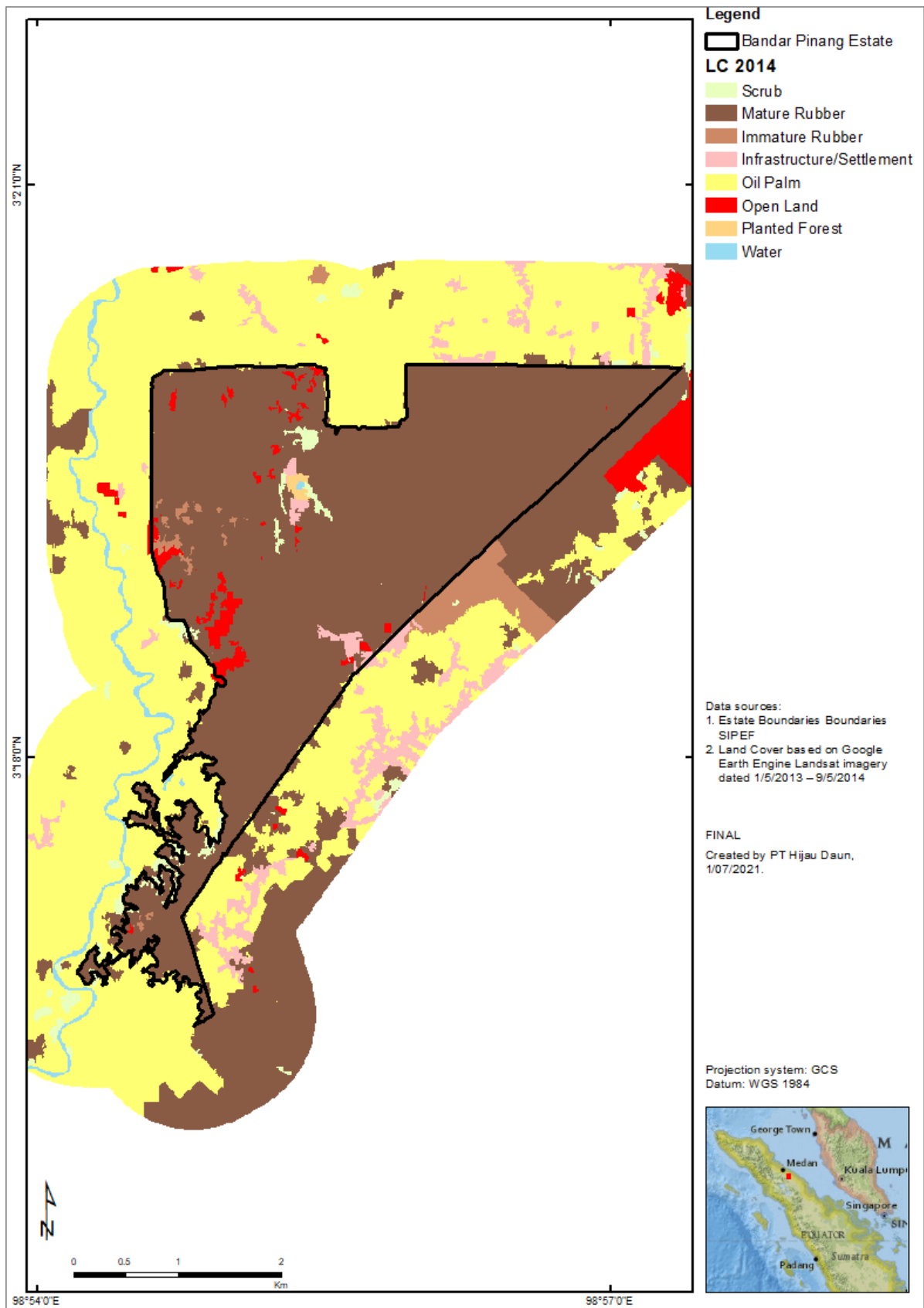
Figure 34. Bandar Pinang Estate land cover 2009
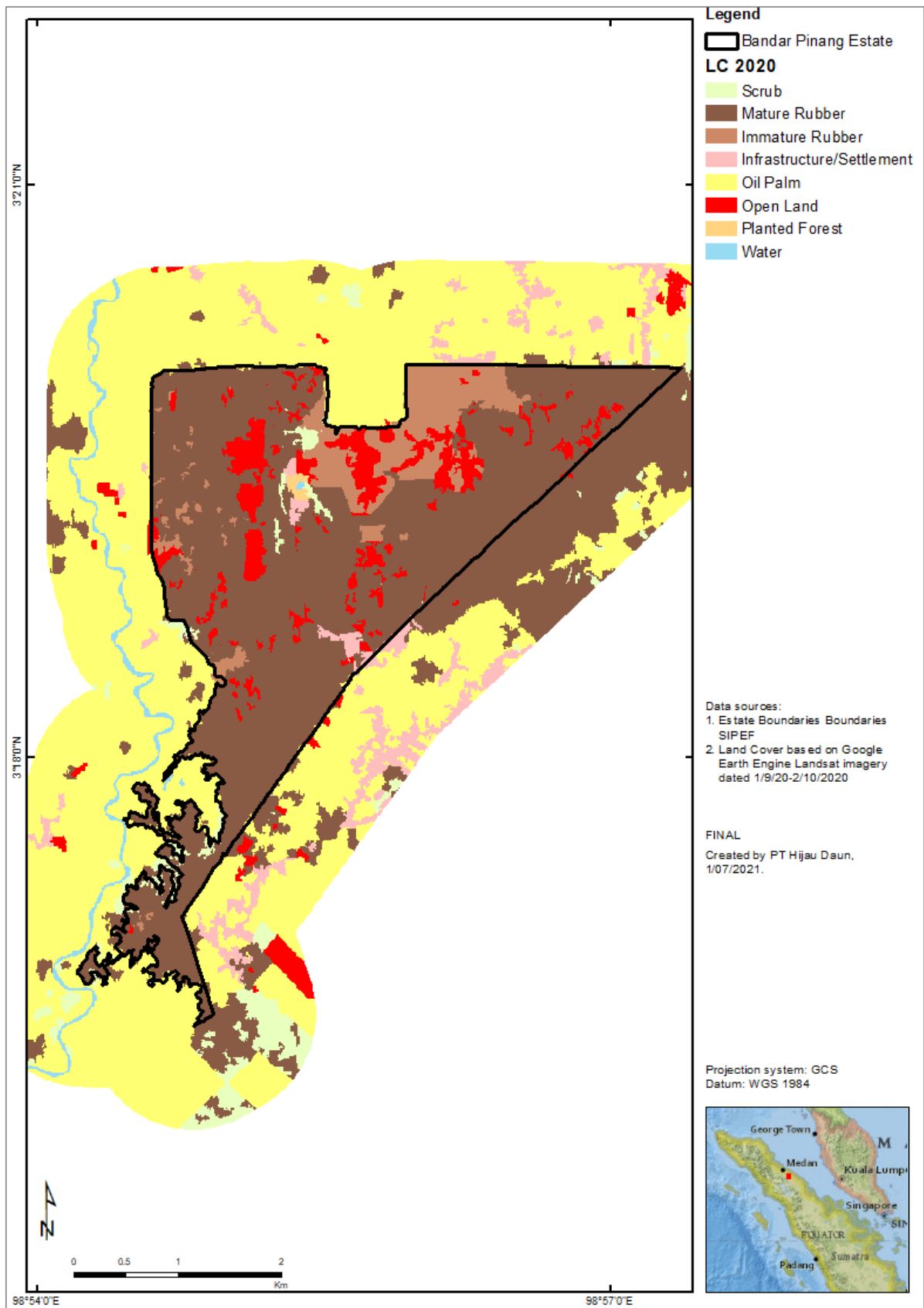
Figure 35. Bandar Pinang Estate land cover 2014
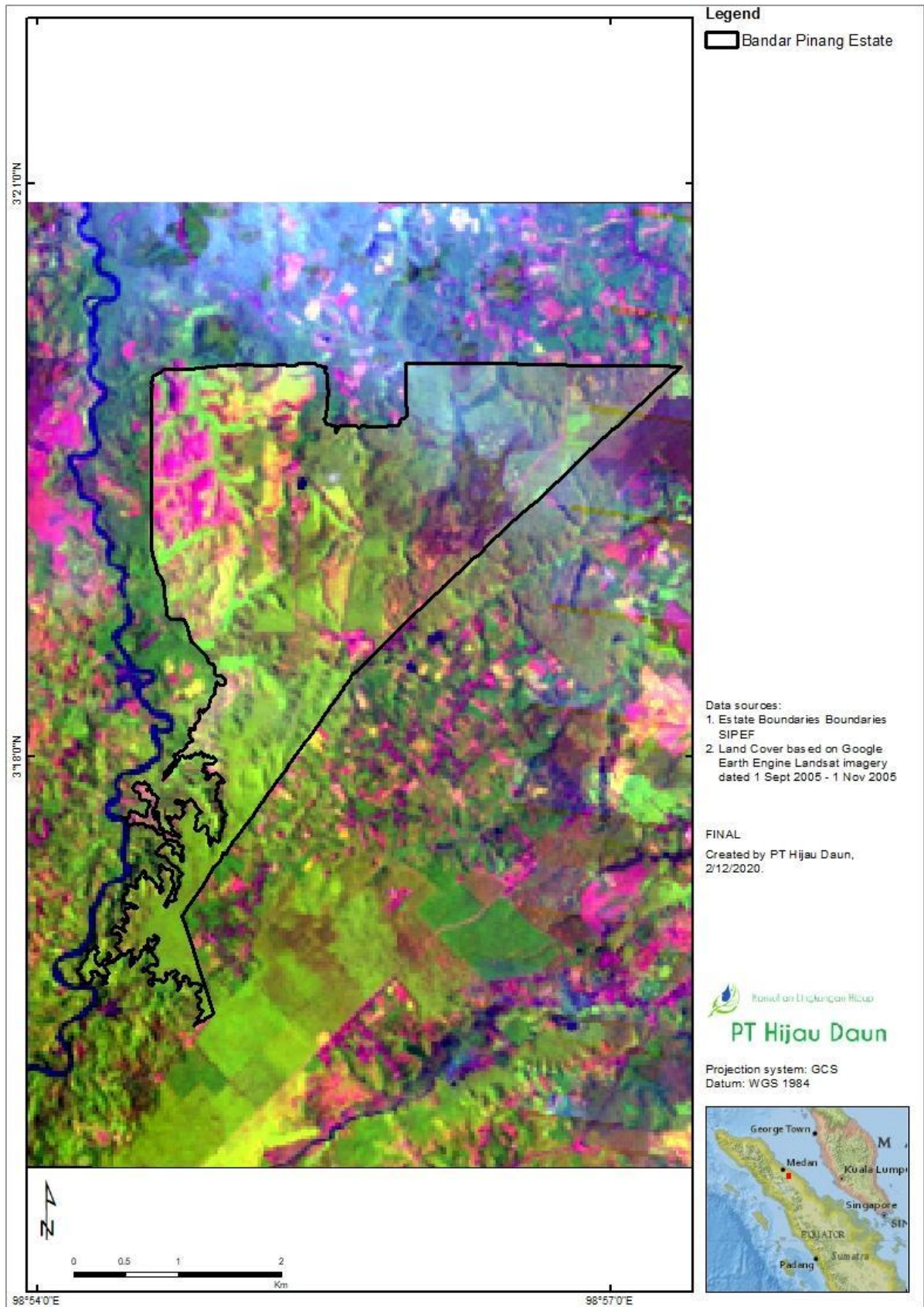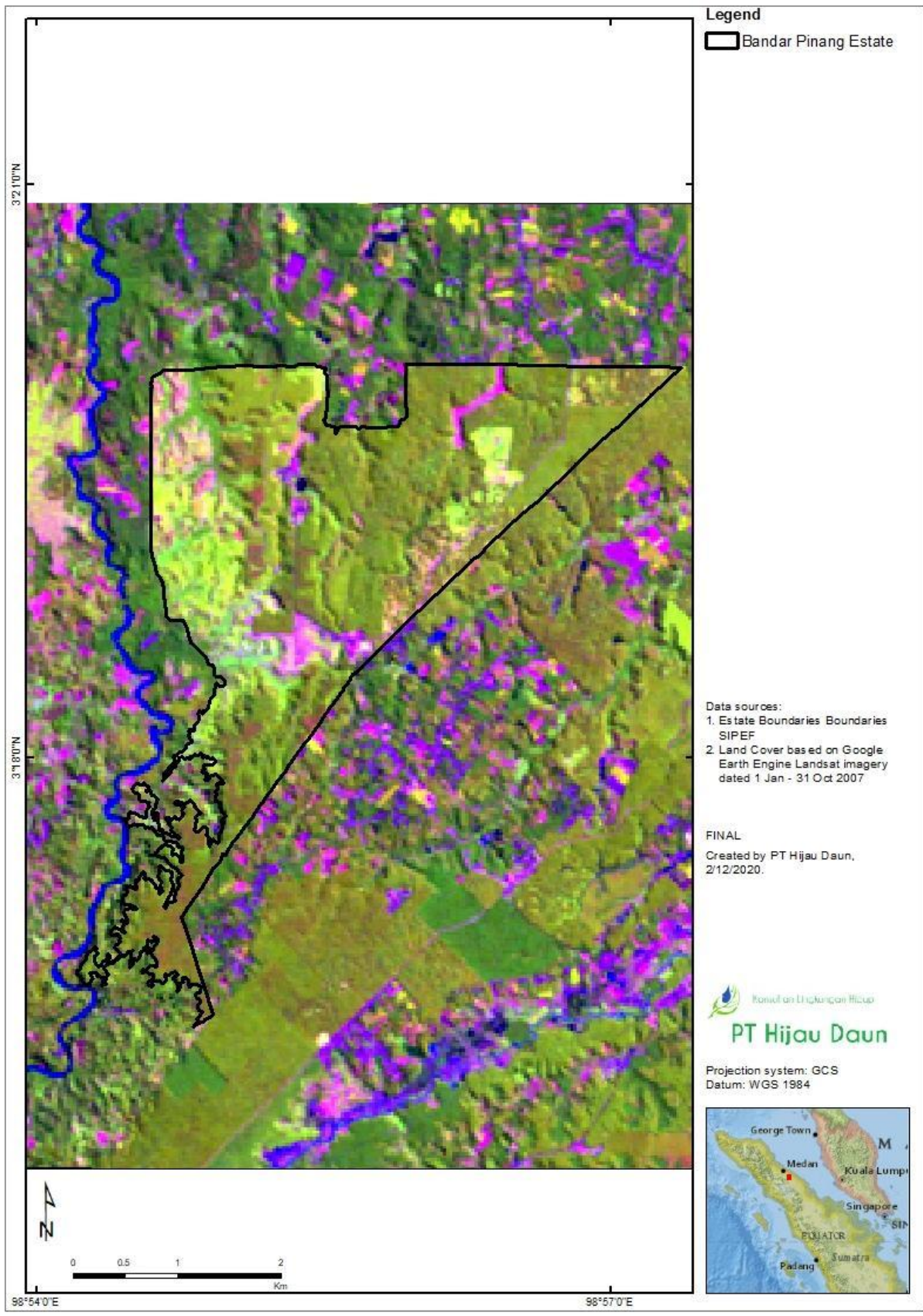
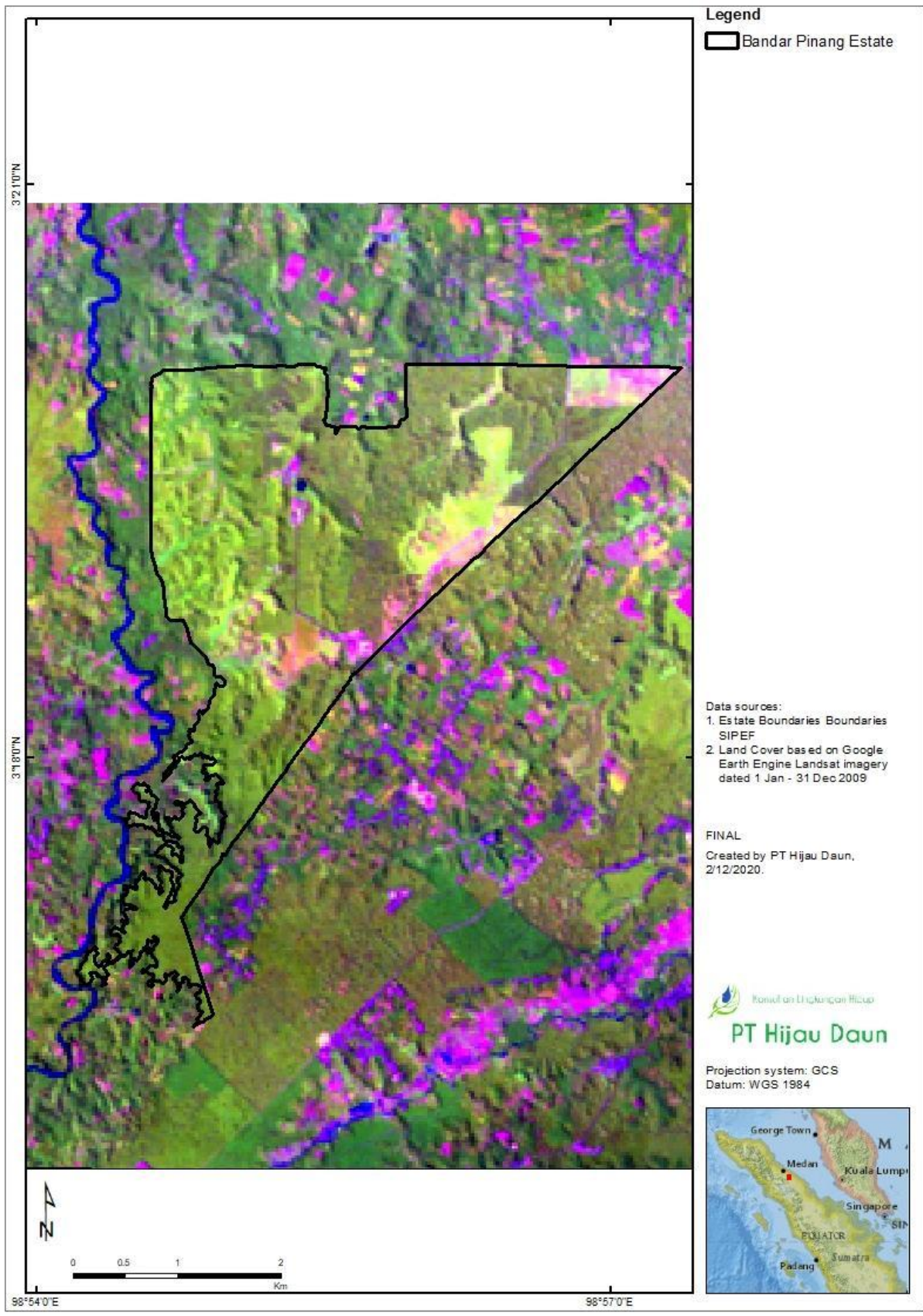*Figure 36. Bandar Pinang Estate land cover 2020*

Figure 37. Imagery 2005

Legend

☐ Bandar Pinang Estate

Data sources:
1. Estate Boundaries Boundaries SIPEF
2. Land Cover based on Google Earth Engine Landsat imagery dated 1 Jan - 31 Oct 2007

FINAL
Created by PT Hijau Daun, 2/12/2020.

PT Hijau Daun

Projection system: GCS
Datum: WGS 1984

Legend

Bandar Pinang Estate

Data sources:
1. Estate Boundaries Boundaries SIPEF
2. Land Cover based on Google Earth Engine Landsat imagery dated 1 May 2013 - 31 May 2014

FINAL

Created by PT Hijau Daun, 2/12/2020.

Konsultan Lingkungan Hidup

PT Hijau Daun

Projection system: GCS
Datum: WGS 1984
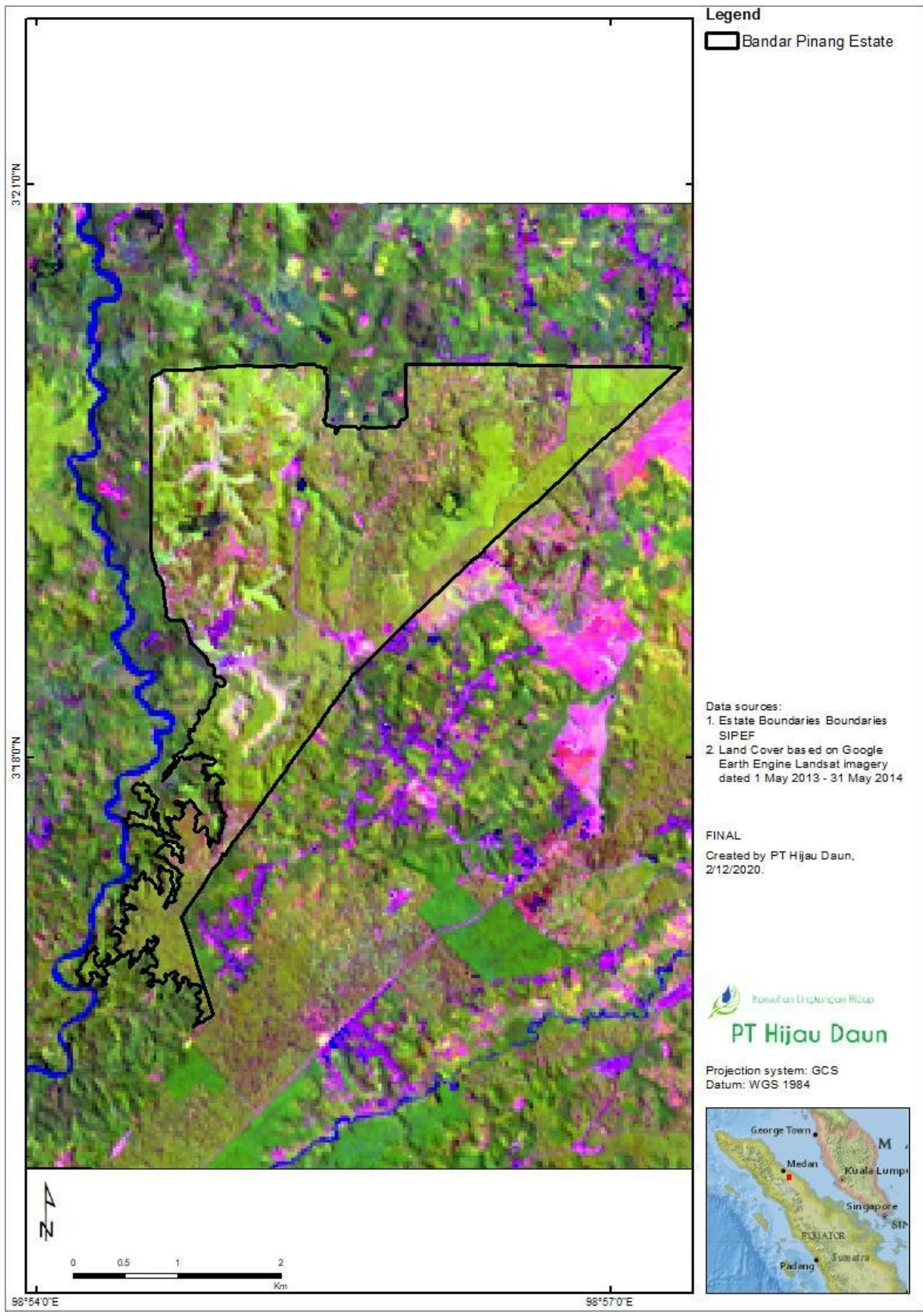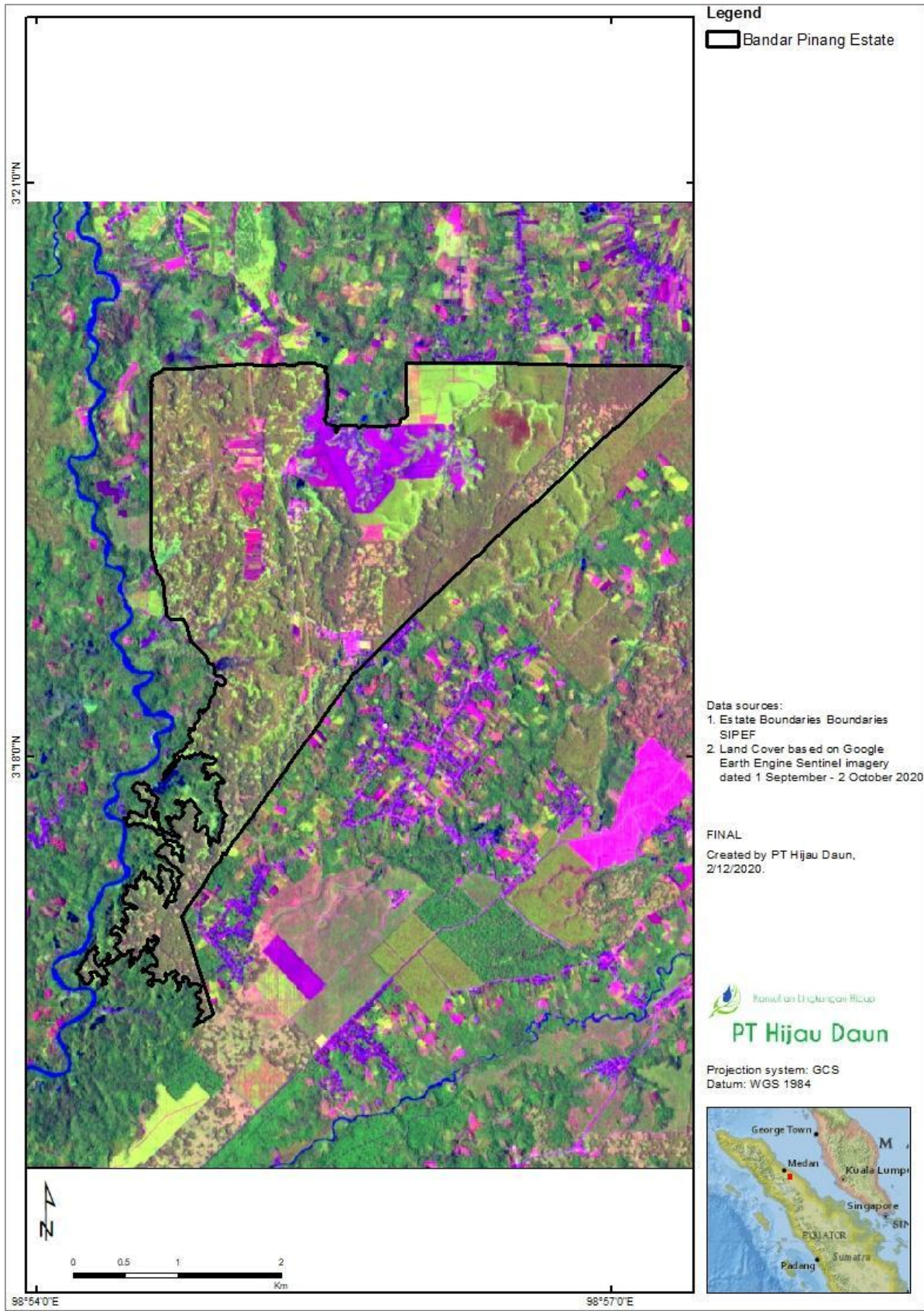
Table 55. Areas (ha) by landcover

Land cover	Early Nov 05	End Nov 07/Early Dec 08	End Dec 09/Early Jan 10	2014	2020
Immature Rubber	62.81	62.81	62.81	62.81	62.81
Infrastructure/Settlement	11.21	11.21	11.21	11.21	11.21
Mature Rubber	1,010.91	1,010.91	1,010.91	1,010.91	1,010.91
Oil Palm	14.64	14.64	14.64	14.64	14.64
Open Land	80.69	80.69	80.69	80.69	80.69
Scrub	26.18	26.18	26.18	26.18	26.18
Water	0.43	0.43	0.43	0.43	0.43
Grand Total	1,206.85	1,206.85	1,206.85	1,206.85	1,206.85

3.5.2 Assessment methodology

The methodology involved downloading satellite images at the required dates (Table 49) and undertaking classifications into land cover classes. These landcover classes were assigned vegetation coefficients (Table 56).

Table 56. Vegetation coefficients x land cover class

No	Land cover class	Vegetation Coefficient
1	Mature / Immature Rubber	0
2	Scrub	0
3	Infrastructure / settlement	0
4	Open Land	0
5	Planted Forest	0
6	Water	0
7	Oil Palm	0

From this, calculations of raw liability and final compensation liability were undertaken.

3.5.3 Findings and conclusion of the land use cover change analysis

Ultimately both raw liability and as such final liability were both zero. This is because there has been no conversion of any land within the estate to oil palm. The only oil palm is a small area of community oil palm that was present prior to 2005. This is just boundary over plants.

Furthermore, there has been no conversion of primary forest. Historical records dating back to the early 1900s mention this area being used as a plantation by the Dutch.

Similarly there is no remediation area as there has been no conversion to oil palm.

3.6 FPIC process

The area is part of a concession – the HGU was released in 1997. The land has been owned by a succession of plantation companies since the early 1900s.

The only people that live in the area are employees of the rubber plantation who live in company houses. There is no one that lives within the HGU that is not a company employee. Consequently, there are no legal or customary user rights over the area. This was confirmed by a series of Focus Group Discussions and interviews with local government, workers within the estate and communities that surround the estate.

The HCV / HCS and the SIA have identified eight affected communities (Table 57). FPIC was undertaken with each of these communities where the project was discussed. Participatory mapping was also undertaken to map out land use and identify how conversion to oil palm might affect these communities. This has resulted in various points being added to the management plans for the estate.

Table 57. Affected communities

No	Village	Affected Community
1	Gudang Garam	✔
2	Pegajahan Hulu	✔
3	Pegajahan Kahan	✔
4	Bintang Bayu	✔
5	Huta Durian	✔
6	Bandar Pinang Kebun	✔
7	Bandar Pinang Rambe	✔
8	Kelapa Bajohom	✔

3.6.1 Minimum building blocks for an adequate FPIC process (Colchester, Chao, Anderson, & Jonas, 2015)

There is evidence that the UoC has been informed by the communities of the composition of their self-selected designated representatives and/or representative institutions where land acquisition is planned;

No land acquisition is planned as part of this development. However, all the affected communities have their own self-selected bureaucracies for addressing issues such as those that involve the company. This is the Kepala Desa and the associated structure.

There is evidence that communities have meaningfully participated in the elaboration of the SEIA and the integrated HCV-HCSA assessment;

Within the SIA and the HCV / HCS assessment there were at least three meetings held with each of the affected communities. A total of 163 people attended the scoping, 121 people attended the full assessment and 93 people attended the Final Consultation. These meetings involved Focus Group Discussions relating to the affect the development would have on the community, participatory mapping and level of dependency study on natural resources.

The HCV assessment has clearly recommended which areas need to be managed to maintain and enhance the full range of HCVs including HCVs 4, 5 and 6;

This is included in the HCV / S report and has been approved by the affected communities.

There are plans, mutually agreed upon by the UoC and the communities, as represented by their chosen representatives, or directly in broad community meetings, on how land tenure assessments, participatory community mapping and negotiations over land will be carried out.

No negotiations over land are necessary as the land has been owned by PT BSI or previous owners since the early 1900s. The SIA and HCV / S process has involved land tenure assessment and participatory mapping.

3.6.2 Local people's lands and future livelihood security

Community land utilisation in the AOI is focussed on oil palm, rubber and food crops, with oil palm being by far the dominant activity. Land utilization as a form of livelihood is interpreted as being legitimate when the land use legally authorized and there is no dispute over the activity. Food crops are typically grown using tumpang sari – where crops such as cassava, chillies and fruits are grown in between the primary crop. There are only small areas of rice grown in the AOI (Desa Damak Tolong Buho) and even this is only enough for six months consumption by the families that grow rice. Within PT BSI the land is 100% monoculture rubber and this is tapped by wage workers.
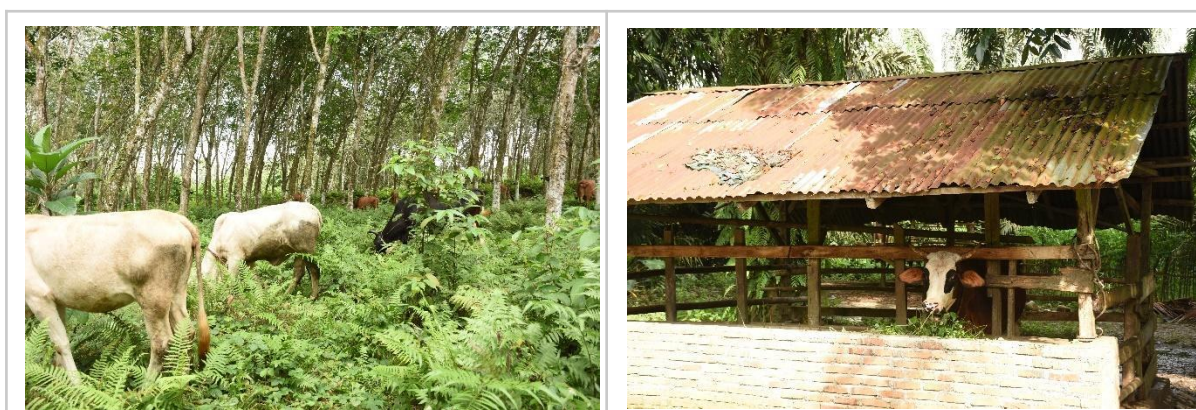

Figure 42. Within PT BSI cattle are either grazed directly or the cattle are kept in enclosures and grass which is cut from beneath the rubber trees is brought to the cattle.

Based on information in the North Sumatra census the provincial population is growing at 1.2% a year (Statistik, 2019). People in the surrounding villages stated that all the land was being utilised and maybe expansion in the population may cause intensification of agriculture. Currently most of the staple food is imported into the villages (e.g. almost all rice is purchased).

Table 58 calculates the minimum amount of land to be allocated for food security based on the requirement that 0.5 ha of farmland per person shall normally be allocated for food production. This shows that there is a land shortage in almost every village. Bandar Pinang Kebun appears to have sufficient land, almost all of the land (except for a small amount around the settlement) is allocated for rubber. Currently in all villages the land is allocated everywhere other than in the settlement areas.

Table 58. Population and land requirements. The red figures show where the land required for agriculture is greater than the village area.

Village	Population	Area required at 0.5 ha / person	Total Land Area (ha)
Damak Tolong Buho	683	341.5	1402
Gudang Garam	750	375	235
Pegajahan Hulu	260	130	125

Pegajahan Kahan	640	320	78
Bintang Bayu	917	458.5	111
Huta Durian	724	362	60
Bandar Pinang Kebun	535	267.5	1396
Bandar Pinang Rambe	111	55.5	187
Kelapa Bajohom	1180	590	546
Kuala Bali	1389	694.5	572
Karang Tengah	1560	780	295
Total	8749	4374.5	5007
Population in 2030 assuming 1.2% growth rate	9857	4929	5007

There are no regulations that specify a certain allocation of agricultural land to local communities. Farming in these communities "augments" the food supply for these communities, they no longer grow the bulk of their own food and are more reliant on outside food supplies. As can be seen from Table 58 the minimum allocations are not achievable because of population densities. Current and future food security is ensured by working with a modern cash economy in which a salary is utilized to purchase efficiently produced goods and services. Growing and selling oil palm and to a lesser extent rubber create jobs for the local population to work within and as such provide for their livelihood security. The communities are all net importers of food. Other livelihoods such as fishing, hunting and the collection of non-timber forest products do not exist in these communities. The only river in the area is the Anak Sungai Ular which is a fast-flowing river and very turbid. Supposedly it is very hard to catch fish in this river. There is no forest in the assessment area nor in any of the surrounding villages. The economic impacts of the proposed development in the short term will be negative as oil palm requires approximately 1/3 the workforce that rubber requires on an area : area basis. However, the company was losing money with rubber and continued losses were deemed economically unsustainable. In contrast oil palm has proven to be profitable and will provide long term employment for the surrounding populations. So while there is a short term reduction in employment opportunity in the medium to long term the effects of having a more profitable business in the area should be positive. There should be no difference to water quality and availability under oil palm compared with rubber. All the communities in the areas source their water from aquifers that are on average about 30 m deep. It is unlikely the project will have any effect on the local food economy because it is substituting rubber (a non-food crop) for oil palm (which cannot be eaten directly). Given that there is a lower labour requirement under oil palm, there could be a slight outward migration from the area as a result. In summary, there is unlikely to be an impact on food production or food security in the community so there are no relevant recommendations.

4. Summary of Management Plans

4.1 Team responsible for developing management plans

The team responsible for developing the management plans is listed in Table 59

Table 59. Hijau Daun and BPE assessment team

Name	Organization	Role in assessment	Credentials

Jules Crawshaw	PT Hijau Daun	Coordination, report writing	Bachelor of Forestry Science Master of Business Systems ALS licensed assessor. HCSA Registered practitioner 7 years undertaking biodiversity and social assessments in Indonesia, Malaysia and PNG.
Daryatun Ridwan	Independent Consultant	Village meetings and reporting	Diploma Civil Engineering 25 years undertaking social assessments in Indonesia.
Muhammed Bukhari	Askep Bandar Pinang Estate	Coordination and logistics	30 years working in agricultural industries

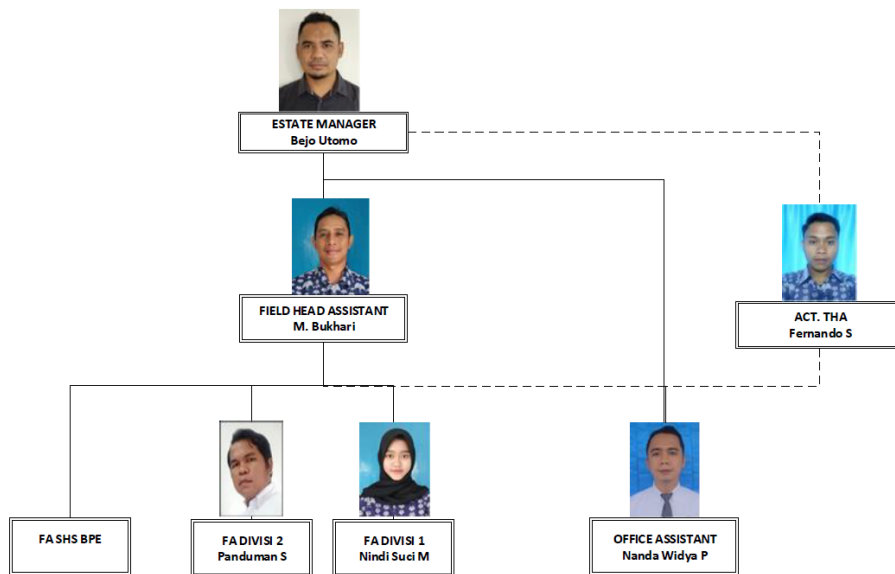| Ref No : 08 /HRD/2019 Page : 1 0F 1	SIPEF	**PT TOLAN TIGA INDONESIA ORGANIZATION STRUCTURE BANDAR PINANG ESTATE**	Original Date : 01/02/ 2019 Revision : 01/07/2021

Figure 43. Structure chart of BPE – these people will be implementing M&M in the field.
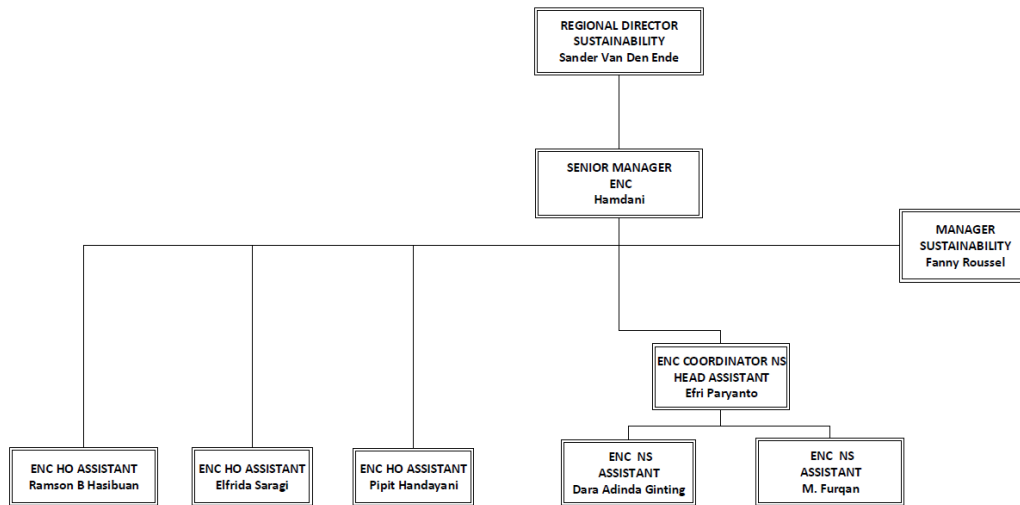
Figure 44. Environmental and Conservation Department – who will have responsibility for implementation of the management and monitoring plan.

Contact details of the company

Tel : 061 4554491

Fax : 061 4554491

Email estate_bandarpinang@sipef.com

4.2 Elements to be included in management plans

Elements to be included for SEIA:

Table 60. Main impacts and rating

Impact	Discussion	Location	Measurement	Frequency	Responsibility	Time Frame
Employment	Currently PT BPE has 310 employees. By 2027 this will have been reduced to 190 employees. This is a reduction of 120 employees. The total population of the 11 villages around BPE is 4620 people. Over a 7 year period 2.5% (1120/4620) of the local population will lose their jobs. Every employed person will have a number of dependants. So the impact will be significant. Some people will be able to find other work locally, whilst others will have to move out of the area	Applicable to the whole plantation.	Number of employees made redundant	Annually	GM	Until the whole plantation is converted
Grass	There were a small number of	Applicable to the	Askep	On-going	All staff	On-going

	people that were completely reliant on grass from BPE. Supposedly some people had 40 cows in their herds. The impact on these people will be high. In reality they never had permission to graze cows in BPE, in fact it was actually forbidden. People should be able to cut grass in the plantation but not graze animals within the plantation	whole plantation.				
Roads	Oil Palm requires a lot more truck movements than rubber and FFB has to be transported to the mill within 2-3 days of harvest. For this reason the roads will have to be better maintained. Therefore this is a positive impact.	Applicable to the main roads that the community needs to traverse the plantation.	Condition of the roads, particularly in the wet season.	On-going	Roading Manager	On-going
Drains	Currently a lot of the drains	Applicable to the	Complaints from the community.	On-going	Operations Manager	On-going

	around the plantations have fallen into disrepair. The manager cited this as a cost saving measure. The oil palm plantation should be a lot more profitable and as such enable the drains to be better maintained.	whole plantation.			
Wood	People rely on wood for fuel. There is a substitute, gas, but it does cost money. Though everyone already uses gas, wood is an alternative.	Applicable to the whole plantation.	Conversion to other fuel sources	On-going	Kepala Desa	On-going

Elements to be included for HCV / S Assessment:

An integrated assessment has been undertaken on this concession. It has been reviewed by the ALS and received a satisfactory opinion dated April 22, 2021.[22]

Table 61. Area Statement (ha) – areas within PT BSI. There is no HCS Forest, HCV 2, HCV 3 nor HCV 5 area present.

Area Type	Area (ha)
HCV1	9.25
HCV4	5.32
HCV6	0.09
Total Conservation Area	9.38
Total Developable Area	1197.47
Total Assessment Area	1206.85

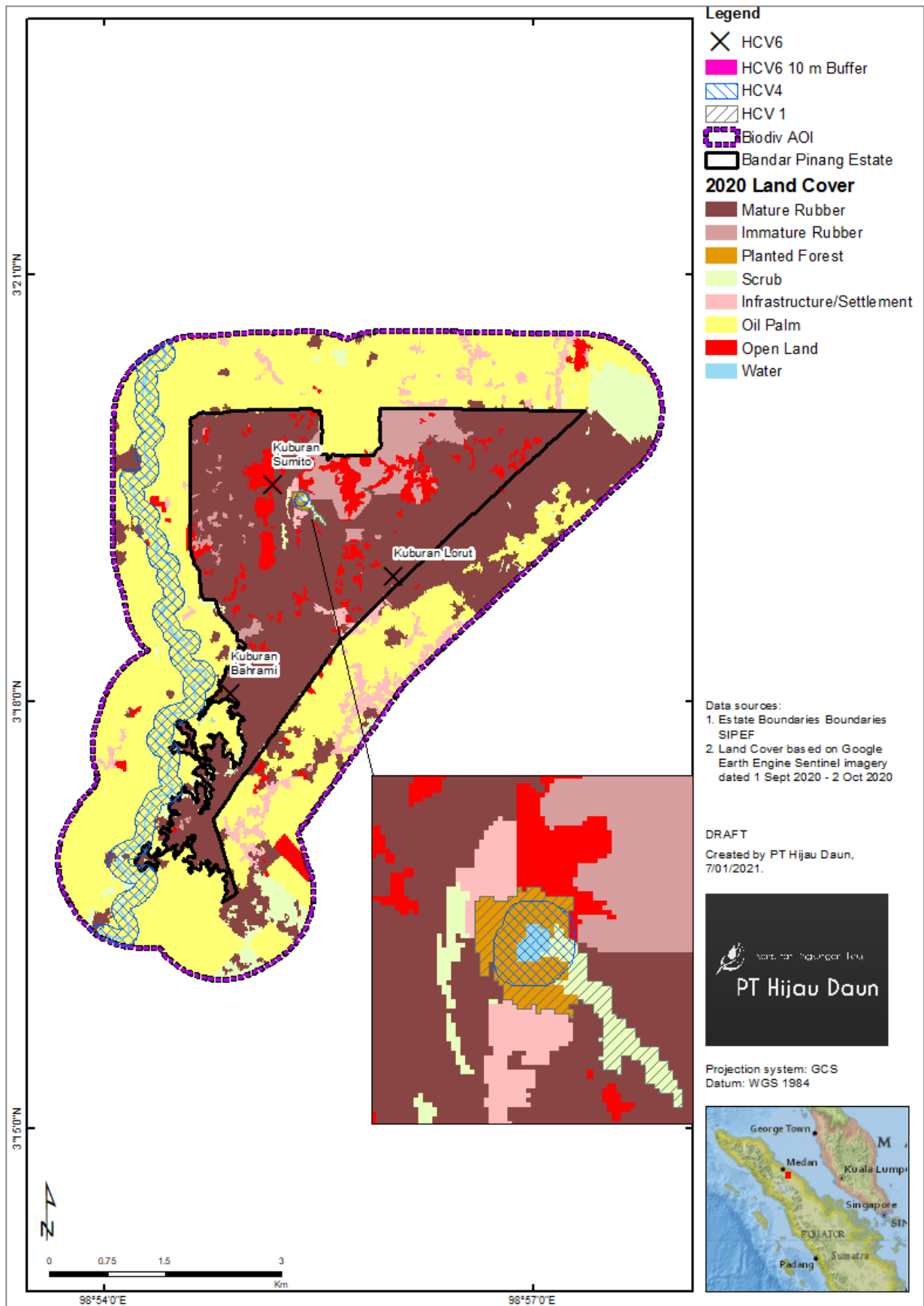[22] **PT Bandar Sumatra Indonesia - HCV (hcvnetwork.org)**

Figure 45. All the HCV areas. This remains draft until the HCV4 areas are measured in-field. There are no HCS areas.

Threats to biodiversity values

This AOI is an agricultural landscape and has been under plantation agriculture for more than 100 years and there are very few natural areas remaining. The birds and mammals that were sighted or mentioned during interviews are generalists; some can thrive in such landscapes and others survive.

The only river is outside the concession and the community have cleared and planted oil palm right to the water's edge. The company should recommend along with government support the establishment of riparian buffers and minimising use of agricultural chemicals in the riparian areas.

There is a lake in PT BSI, around which the company has planted amenity trees. This appears to be an area where a population of birds and mammals have established themselves. This area should be maintained, in some areas some additional native trees could be planted.

Threats to social values

Socially this is a long established and stable area. Village boundaries are mapped and accepted throughout the area. Individual land tenure is mapped and most people have some proof of ownership. Disputes involving land within the community are rare and there is no record of disputes involving land between the company and the community. Currently the company maintains good relations with the community through good communication and working together, this should be maintained.

Table 62. Threats to biodiversity and social values.

Value identified	Threat	Source of Threat	Likelihood	Impact
HCV 1	● Hunting ● Fire ● Agricultural clearance	● Hunters ● Prolonged dry periods caused by El Nino (which occurs every 5 – 10 years). ● Community encroachment.	● Hunting is reportedly not done at all in the area because there are so few animals left. However, some staff may hunt the animals or birds for recreation ● Fire occurs after a prolonged dry periods which has been attributed to the El Nino effect. The last El Nino was in 2015. Analysis of hotspots shows a spread typical of scattered fires, not uncontrolled wildfires that occurred elsewhere in Sumatra that year. These could spread out of village areas such as Damak Tolong Buho to the HCV areas.	● An efficient hunter can greatly reduce the number of species in the landscape. ● There were no areas in the study area nor the surrounding area that has been ravaged by fires. With climate change and extreme weather events there is always the likelihood of bad fires.
HCV 2	● HCV 2 is not present			
HCV 3	● HCV 3 is not present			

HCV 4	● Government requirement to buffer any large rivers by 100 m. ● Erosion on areas of steep slopes ● Encroachment by local people. ● Lack of awareness by company employees and contractors about HCV 4, particularly small river riparian buffers and mismanagement of high risk activities within buffer areas (e.g building roads through riparian areas, developing steep slopes).	● Local people are always trying to increase their planted area. Land in this area is extremely expensive and any land that is not actively used is seen as abandoned and therefore likely to be encroached. ● Increased population with people looking at empty land as a place to garden.	● The riparian areas along the Anak Sungai Ular are at risk of agricultural encroachment. The community in this area have already encroached the riparian area along the river. So these areas are particularly at risk ● Training and awareness of SOPs is quite thorough at PT BSI so clearing of buffers is unlikely.	● Any clearing will destroy the buffer and these areas will have to be re-established. ● The riparian area along Anak Sungai Ular has been comprehensively converted to agriculture. It is unlikely that conversion of a small area approximately 90 m from the river will have a large additional effect.
5	● HCV 5 is not present			
6	● Inadvertent clearing of the graves.	● Oil Palm development	● Low, Provided SOPs are followed	● The graves will be destroyed.
Peat	● Not present in the assessment area.			
HCS Forest	● HCS Forest is not present			

Table 63. Threats , Management and Monitoring recommendations for biodiversity and social values.

Value identified	Threat	Management (Includes Stakeholder Engagement)	Monitoring	Frequency	PIC
HCV 1	● Hunting ● Fire ● Agricultural clearance	● Agreements with the community about no hunting of birds / mammals in the HCV areas nor logging. ● Patrols recording the sighting of birds and mammals. ● Awareness raising in villages to discourage random fire lighting. The	● Undertake bird / mammals surveys to measure changes in bird mammal abundance / presence. Regarding OU presence or absence this would be an opportunity to try DNA testing. ● Map out areas of burns.	● 6 monthly	● Office Head Assistant Environment and Conservation Dept

		company has had success elsewhere with its "fire free village" program. This involves training to help fire fighting as well as offering CSR programmes if communities can get through fire season without fires. ● Very little can be done about invasive species. ● Agreements with the community about no clearance / logging within the HCV areas. Special protection has to be provided to high value species such as Ulin sosialisation and education to community on this, added warning sign about high value species).	● Recording the presence of invasive species. ● Monitoring using a combination of monitoring from satellite images as well as on the ground patrols and being informed by staff working in the village about encroachment or logging. ● Checking that high value trees such as ulin are not damaged.		
HCV 2	●	HCV 2 is not present			
HCV 3	●	HCV 3 is not present			
HCV 4	● Erosion on areas of steep slopes ● Encroachment by local people into set aside areas. ● Lack of awareness by company employees and contractors about HCV 4, particularly small river riparian buffers and mismanagement of high risk activities within buffer areas (e.g building roads through riparian areas, developing steep slopes).	● Check the distance between the Anak Sg Ular and the concession boundaries in-field to map out if any areas within the concession are within 100m of the river boundary. If they are within 100 m, demarcate these areas in-field. ● A slope survey and demarcating areas greater than 22 degrees to be	● Monitoring using a combination of monitoring from satellite images as well as on the ground patrols and being informed by staff working in the village about encroachment. ● Monitoring of land clearing to ensure buffers and steep areas (if there are local steep areas that were not picked	● 6 monthly	● Office Head Assistant Environment and Conservation Dept

		reserved from development. ● Ensure that the communities realise that the riparian buffers are not empty land available for agriculture. This should be specifically stated in agreements and socialized to the community. These areas should be marked with signs. ● SOPs to ensure land clearing contractors don't inadvertently clear HCV 4 areas.	up in the DEM) are not cleared. ● Note that given the distance between the concession and Anak Sg Ular, stream water monitoring is considered unnecessary.		
5	●	● HCV 5 is not present			
6	● Inadvertent clearing of the graves.	● Prior to land clearing ensure the area is well demarcated so the possibility of errors is minimized.	● Ensuring the grave areas remain undisturbed.	● Annually	● Office Head Assistant Environment and Conservation Dept
Peat	●	● Not present in the assessment areas			
HCS forest	●	● Not present in the assessment areas			

Stakeholder Engagement

The main stakeholders in the process are the communities in and around the concession. Stakeholders will be engaged in patrols to stop encroachment. As well as that village leaders will be asked to engage their communities about not hunting endangered wildlife.

All the communities have mutual benefits from stopping fire breaking out and fire control if a fire were to break out. Communities are engaged in not using fire for land clearing and assisting with fire fighting / fire reporting if a fire were to break out.

4.3 Elements to be included for soil analysis:

There are no fragile soils in the estate and slopes tend to be moderate.

The only recommendation is that cover crops such as Mucuna should be planted immediately after land clearing. This area is prone to heavy rainfall events and the sand soil is moderately prone to erosion.

4.4 Elements to be included for carbon stocks and GHG emissions

Table 64 is the GHG Management plan. This is based on the three scenarios that are described in section 3.4 of this report. The best scenario is selected, which involves the HCV areas being set aside from development and where there is only bare land amenity trees are planted. The HCV map is available in Figure 45.

There is no peat in the estate that has to be avoided.

All the FFB will be taken to a mill that has methane capture, so the company is clearly doing its utmost to limit GHG emissions.

Table 64 GHG Management Plan

Parameter to be monitored	Proposed Enhancement / Mitigation Measures	Location	Measurement	Frequency	Responsibility	Estimated Time-frame for completion of task
Mitigate net GHG emissions associated with oil palm cultivation	Implementation of the HCV and HCSA prior to development. No conversion of HCV areas	*Bandar Pinang License area*	GIS Map	*Once*	*Sustainability Manager* *Field Manager*	*Completed*
Enhancement of Carbon Stocks	All HCV/HCS areas within the license area to be managed as conservation areas to allow for carbon sequestration. Planting of amenity species such as Gmelina on any vacant areas.	*Bandar Pinang License area*	GIS Map Field inspection	*Quarterly*	*Sustainability Manager* *Field Manager*	*April 2021 onwards*
	Awareness to be carried out on the importance of maintaining HCV/HCS areas identified. This is to ensure no encroachment.	*Bandar Pinang License area*	GIS Map Field inspection	*Annual*	*Sustainability Manager* *Field Manager*	*April 2021 onwards*
	Monthly monitoring of all conservation areas. Enforcement of incursions (ie/gardening) through consultation with communities, removal of crops. *Bandar Pinang License area*	Field Inspections *Annual*	*Sustainability Manager*		*Field Manager*	*April 2021 onwards*
	Use of organic fertilisers (e.g. spreading EFB throughout the plantation)	*Bandar Pinang License area*	Operational Managers	On-going	Operational Managers	*Once FFB production starts*

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6. Internal responsibility

We, the undersigned, accept the responsibility for the assessment and endorse this summary report as a true reflection of the full suite of NPP reports. Additionally, we, the management of PT Bandar Sumatra Indonesia have accepted/approved the NPP reports and will implement the management and monitoring recommendations contained in these reports.

1. Signed on behalf of the lead assessor

Jules Crawshaw, Lead Assessor (ALS14006JC)

2. Signed on behalf of the management of PT Bandar Sumatra Indonesia (grower)

Sander Van Den Ende

16.06.21