

***Summary Report of Identification  
and Analysis of HCV and  
SEIA***

***PT. Pusaka Agro Lestari  
Regency of Mimika  
Papua Province  
Indonesia***

**Prepared by**

HCV Team, Faculty of Forestry, Bogor Agriculture University

September, 2011



## **RSPO NEW PLANTING PROCEDURES**

### **Summary Report of SEIA and HCV assessments**

**PT. Pusaka Agro Lestari – Kiyura Village, West Mimika District,  
Papua Province, Indonesia.**

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#### **1. EXECUTIVE SUMMARY**

PT Pusaka Agro Lestari, a subsidiary of Noble Plantations Pte Ltd., is developing approximately 35,759 ha of oil palm plantation located at Kiyura Village, West Mimika District, Papua Province, Indonesia. The development includes 60mt/hour palm oil mill. The parent company is a member of RSPO since December 2011. Currently, the management of oil palm plantation of PT. Pusaka Agro Lestari was preparing to start new development and this summary report is prepared by the SEIA and HCV assessors as a part of the RSPO New Planting Procedure (NPP).

##### Description of Project Area and Location

The project area comprised of land totaling approximately 35,759 ha which located in West Mimika District, Mimika Regency, Papua Province, Indonesia. The company has land use rights over the proposed new development area by having land use right [Sertifikat Hak Guna Usaha (HGU)] dated April 25, 2011 issued under the company name for a total area of 35,759 ha. From the total area allocated for the new development, 3,941.82ha is set aside for conservation, 1000 ha for infrastructure, 6,163ha for plasma smallholder development and 24,654 ha for the own plantation development. A comprehensive and participatory independent Social and Environmental Impact Assessment (SEIA) and High Conservation Value (HCV) Assessment which included internal and external stakeholders were completed by RSPO approved assessors from Bogor Agriculture University. The results incorporated into operational management planning to develop the new planting. The independent assessments by the RSPO approved assessors recognized the following:

There is no primary forest in the proposed location.

All area required to maintain or enhance one or more HCV and conservation area identified.

There is peat soil identified and proposed for conservation.

All local peoples' land recognized.

This HCV assessment finding in the area which was conducted from 16-23 August 2011 by RSPO approved assessors from Bogor Agriculture University. Based on the HCV assessment result, HCV1, 2, 3, 4 and 6 has been identified in the area of PT. Pusaka Agro Lestari. These are:

1. HCV1. Areas with Important Levels of Biodiversity. This covers riparian, peatland forest, threatened / endangered species, protected species, which include 1 protected plant. The amount of protected wildlife species is 23 species containing 3 species of mammals, 18 species of birds and 2 species of reptiles. While species included the red list of IUCN is 1 species of reptile (CR/*Critically Endangered*), 8 species of VU/Vulnerable (2 mammals, 2 birds and 4 reptiles). While based on the CITES Category, 6 species are found included in the Appendix II (birds) and 3 species included in the Appendix I (2 mammals and 1 birds).
2. HCV2. Natural Landscape & Dynamics. This covers riparian, deep peatland, sago palm, Lake Buffer, and sacred area.

3. HCV3. Rare or Endangered Ecosystem. This covers deep peat land.
4. HCV4. Environmental Services. This covers riparian, lake buffer, and deep peat land.
5. HCV6. Areas Critical for Maintaining the Cultural Identity of Local Communities. This covers sacred area, sacred sago palm.

Environment Impact Assessment (AMDAL) was done by CV. Dita Consulting Jayapura. The EIA assessment was approved by the government. The assessment identified positive and negative impacts of the operations. Recommendation for management and monitoring were given to the company to include in the management plan of the proposed new planting to carry out throughout its operations.

Social Impact Assessment was conducted by RSPO approved assessors from Faculty of Forestry, Bogor Agriculture University. The assessment identified positive and negative impacts of the operations. Issues raised by stakeholders will be addressed by the company throughout its operations and included in the management plan.

## 2. Scope of SEIA (AMDAL and SIA) and HCV Assessment

PT. Pusaka Agro Lestari is committed to implement sustainable new plantation development according with RSPO principles and criteria (RSPO P&C) and comply with RSPO New Planting Procedure. In compliance to local regulation and RPSO P&C. PT. Pusaka Agro Lestari carried out SEIA (Social Impact Assesment/SIA and Environmetnal Impact Assessment/AMDAL), HCV (Hight Conservation Value) assessment by engaging RSPO approved assessors from Bogor Agriculture University. Base on the finding from the independent RSPO approved assessors; PT PAL prepared the management and monitoring plans.

### Organizational and project information

Company Name	: PT. Pusaka Agro Lestari
Date of Establishment	: Notary Darby, SH No.16 date on July 9, 2004
Capital Status	: Foreign Investment (Penanaman Modal Asing - PMA)
Taxpayer Notification Number	: 02.368.791.6.077-000
Company Address	: Jl. Sultan Iskandar Muda Kav. V-TA Wisma Pondok Indah 2 # 17-02 Jakarta Selatan 12310 Indonesia.
Type of Business	: Oil Palm Plantation
Contact person	: Mr. Wijoyo Yasa ( <a href="mailto:WijoyoYasa@indopalmoils.com">WijoyoYasa@indopalmoils.com</a> ) Telephone: +622129245600
Geographical Location	: 136° 36' 20.60" – 136° 38' 24.00" East 04° 22' 25.30" – 04° 29' 11.33" South
Surrounding Entities	: North : Protected Forest South : Kamora River, PT. Merdeka Timber, PT Merdeka Plantation. West : Mimika River and PT. Alas Tirta East : West Mimika and Far East Mimika District.
Area of New Planting	: ± 35,759 ha
Time-plan for New Planting	: 2012

### List of Legal Documents and regulatory permits related to new development

PT. Pusaka Agro Lestari obtained area licenses issued in 2007 and other details of legal documents as follows:

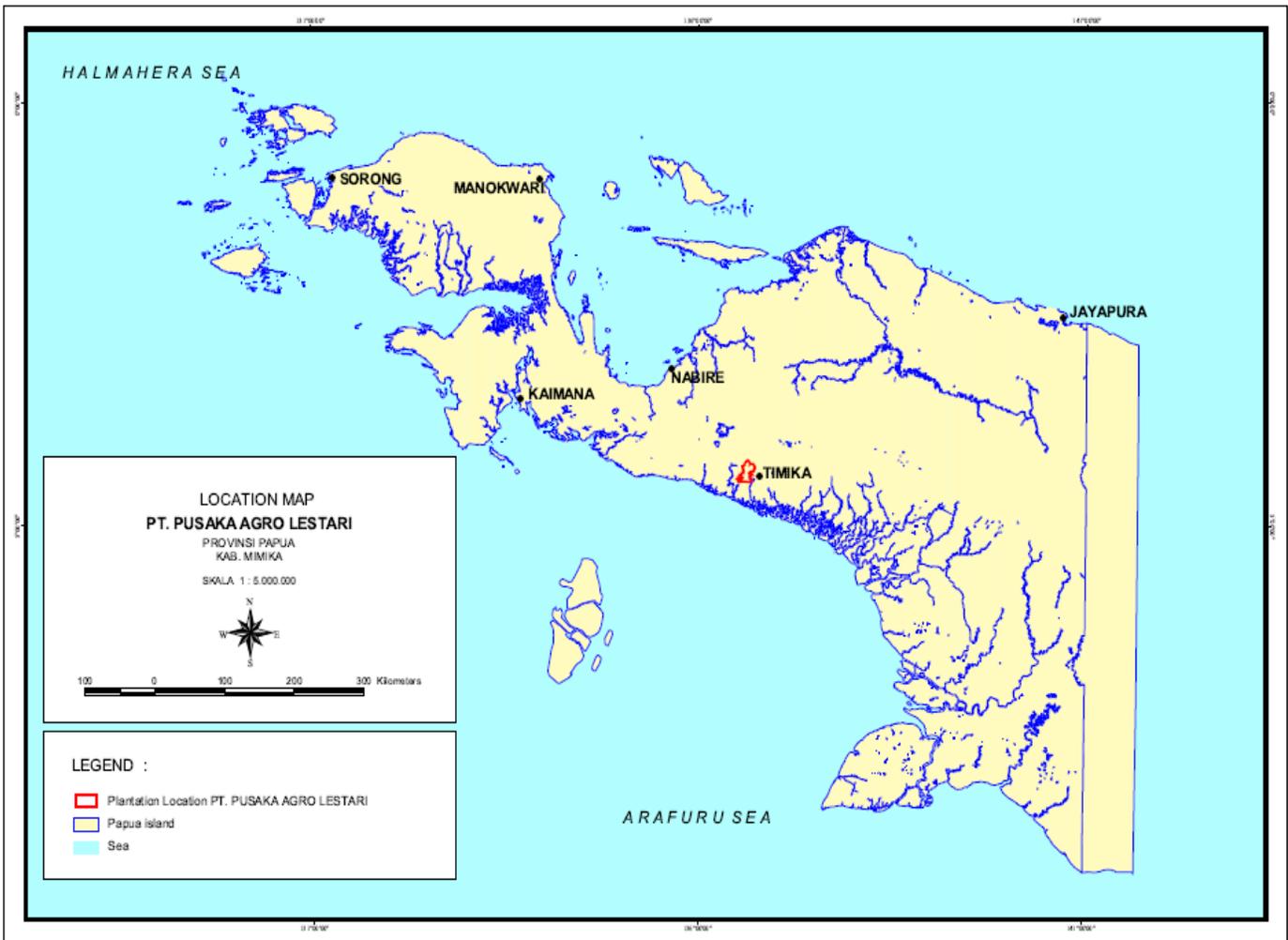
1. Decree of The Mimika Regent No 36 of 2007 dated June 21<sup>st</sup> 2007 concerning the licensing areas for Oil Palm Plantation Development Purposes on behalf of the PT. Pusaka Agro Lestari;
2. Decree of The Mimika Regent No 105 of 2007 dated December 7<sup>th</sup> 2007 concerning the Environmental Feasibility on Plantation Activities and Palm Oil Processing Plant of PT. Pusaka Agro Lestari (EIA);

3. Decree of The Papua Province Governor No 143 of 2008 dated December 30<sup>th</sup>, 2008 concerning plantation business permit;
4. The Decree of Ministry of Forestry No : SK.611/MENHUT-II/2009 dated October 5<sup>th</sup> 2009 on the release of Convertible Production Forest covering an area of 38,159.60 hectares located in Mimika Regency, Papua Province for the cultivation of oil palm plantations purposes on behalf of PT. Pusaka Agro Lestari;
5. Decree of The Chief of National Land Agency No 11/HGU/BPN RI/2011 concerning approval of HGU on behalf of PT Pusaka Agro Lestari on the land in Mimika Regency, Papua Province;
6. Certificate of Land use right: HGU No 26.11.00.00.4.00007, 26.11.00.00.4.00008, and 26.11.00.00.4.00009 covering an area of 35,759 Ha

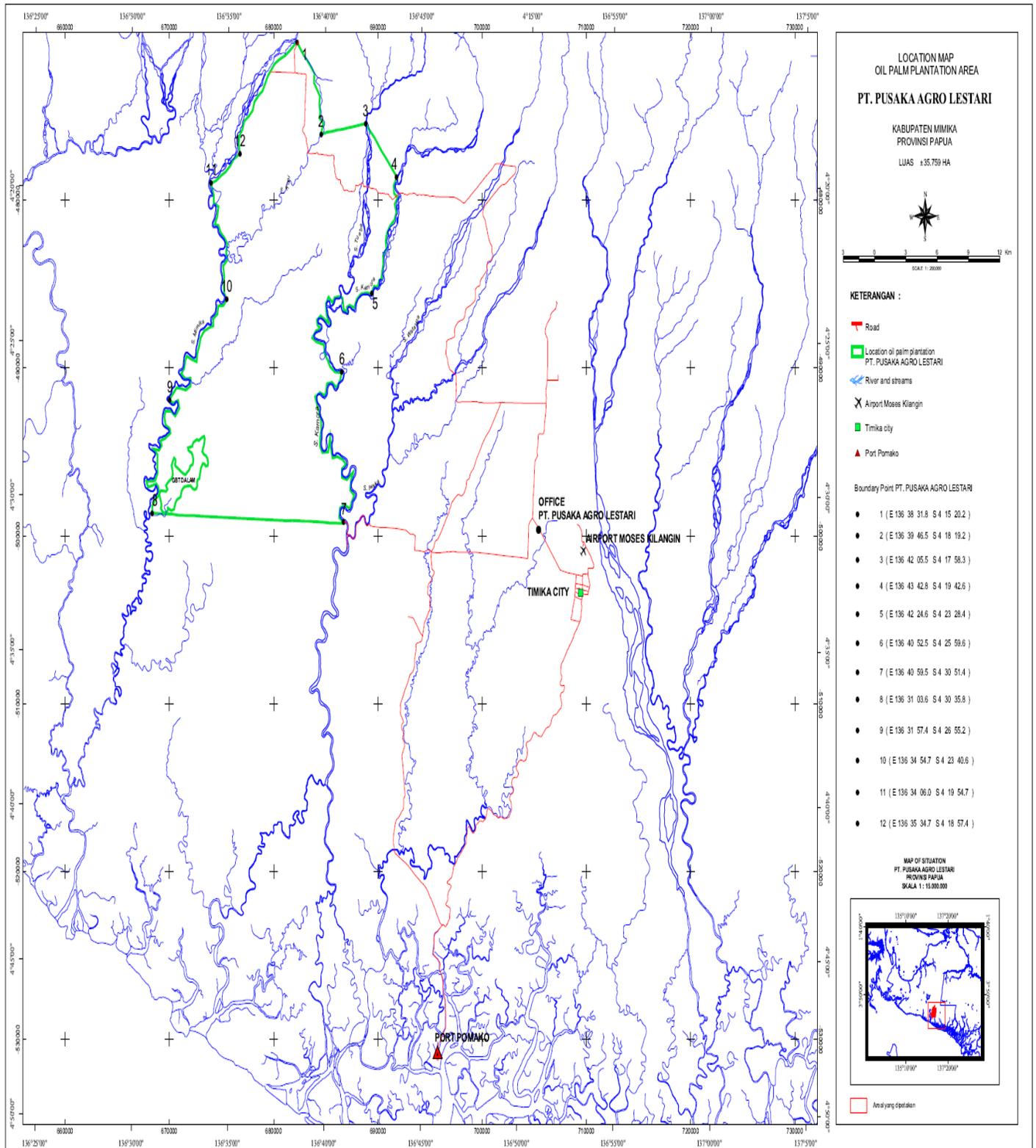
The initial measurement indicates the total acreage allocated was 37,213 ha. During the issuance of the land title, following area is reduced from the original land allocated:

- a) River buffer zone for Sungai kopi/Mimika Nata River which has 25 meters width with an area covering 128 ha.
- b) River buffer zone for Sungai Tuaba River which has 100 meters width with an area covering 581 ha.
- c) Enclave for Kaya Lake (Telaga Air) covers an area of 745 ha.

Due to this reduction, the total HGU area of PT. Pusaka Agro Lestari available for the new development reduced to 35,759 Ha. The HGU area is further reduced by the management prior to new development. The management allocated 880.36 ha for river buffer within HGU, 1,509.35 ha as a peat conservation area (there will be no planting on this area), 1,541.73 ha as Sago conservation area and 10.37 ha for Sacred place HCV area. The proposed project area is shown in Figure 1 and Figure 2 below.



**Figure 1:** Location map of PT. Pusaka Agro Lestari project area in Papua Province, Indonesia.

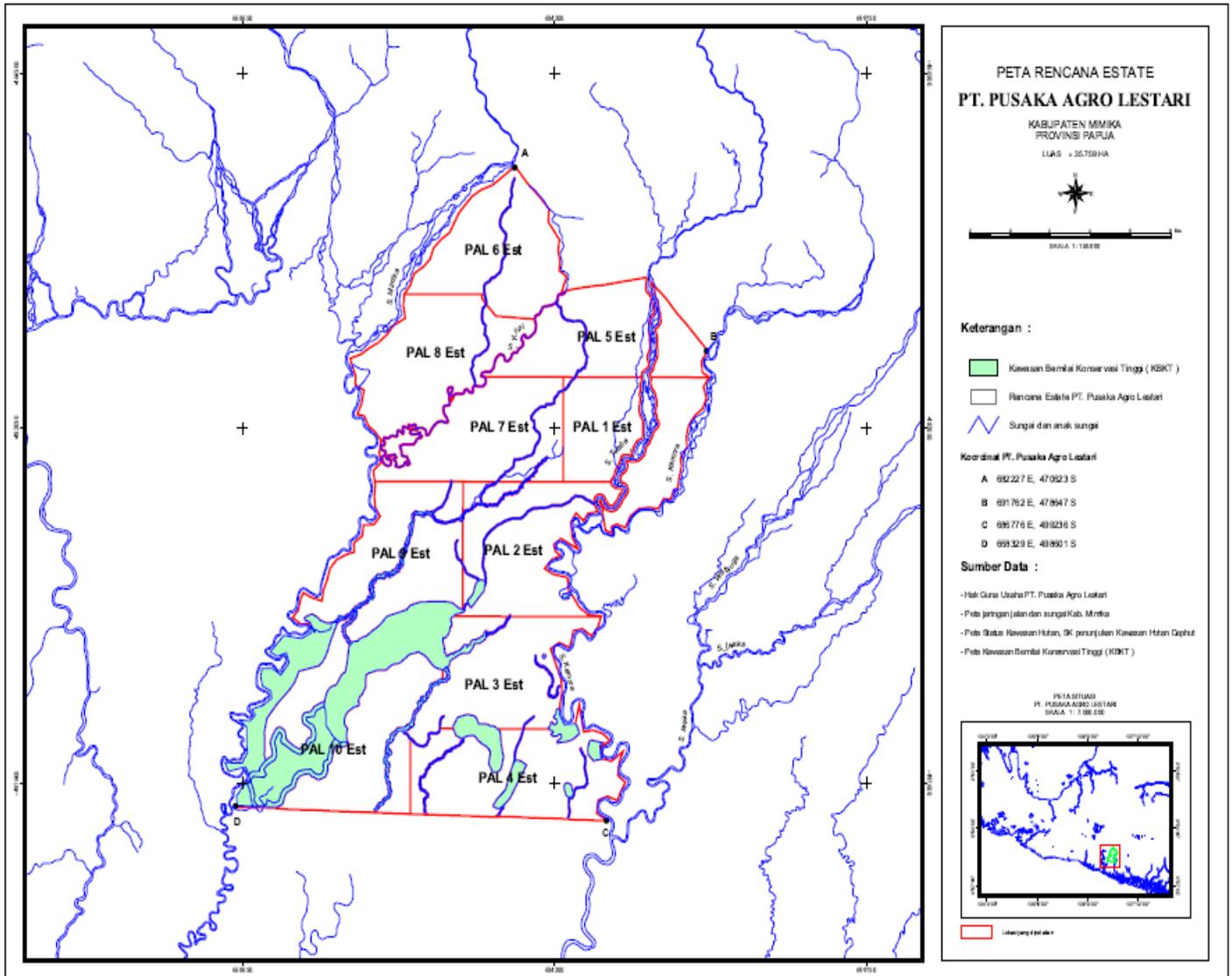


**Figure 2:** PT PAL boundary with GPS reference.

### Area of new planting and time-plan for new plantings

PT Pusaka Agro Lestari is planning to develop the proposed new planting in accordance to the process of RSPO New Planting Procedure (NPP). The new planting documents were developed based on the RSPO requirement for new planting and in compliance to the Indonesia regulation for new development. The planting process will commence after the RSPO NPP process is completed and will continue through 2017. The development will be carried out in stages for better management. The proposed area is within the land use right (Hak Guna Usaha). The company has activated the land compensation process through Free Prior Informed Consent process to obtain agreement from the owners of the land within the permitted area. Documents and mapping related to the land compensation process is available and documented. Based on the RSPO approved HCV and SIA assessors, the proposed area do not contain primary forest. Conservation area identified during the assessment will be set aside for protection and conservation.

The proposed new planting area (excluding the conservation area) will be developed over a period of 6 years from 2012 onwards. Initial development will began at PAL 1 Estate and gradually move to other estates as per the planting plan. This development will comply with the HCV and SEIA recommendations by the RSPO approved assessors from Bogor Agriculture University, Indonesia. The HCV and SEIA parameters recommended are overlaid on to the PT PAL master plan map, which will be used as guidance to the ground operations to achieve the implementation of the recommendation, management and monitoring plans in compliance to RSPO NPP and P&C requirements. The proposed planting plan map is shown in figure 3 below.



**Figure 3:** Map shows PT PAL initial planting plan beginning from PAL 1 estate

### 3. Assessment Process and Procedures

#### a. Process and Procedure of Environmental Impact Assessment (SEIA) - (AMDAL)

The EIA was conducted to fulfill the government requirement for the proposed new development. The assessment team was lead by accredited assessor. The detail of the assessment team is shown in Table 1 below. The EIA assessment was approved by the government on December 7<sup>th</sup> 2007.

**Table 1:** EIA Assessor and their credentials

No.	Team	Major	Position	Certificate of Accreditation
1.	Ferdinand Saras Dhiksawan Harsoyo	Master in Environment Science (M.Si. Environment Science)	Team Leader	Certificate No. B-2817 date Oct 31, 2001
2.	Puguh Sujarta	Master in Science (majoring Biology)	Sub-team Lead of Biology	-
3.	Selly	Degree in Mathematics and natural science.	Sub-team lead of Chemical Physic	-
4.	Agus Eko Raharjo Pepekai	Sociology (Degree in regional development plan)	Sub-team of Socio-economic and culture)	-
5.	Jacob Marthen Baransano	Master in Geographic	Team Member	-
6.	Muhammad Ridwan	GIS (Degree in Cartography and remote sensing)	Team Member	-
7.	Yudha	Technician	Team Member	-

#### Assessment methods (data sources, data collection, dates, program, places visited)

EIA assessment was conducted by CV. Dita Consulting Jayapura on the proposed area of the new development and surrounding area including two major villages located in the surrounding area of the proposed operations. The villages are Iwaka village and Kiyura village.

Methodology for Environmental Impact Assessment:

##### 1. Formal Method

Formal method used to identify issues to anticipate the impact of measured or estimated parameter using mathematical and statistical model.

##### 2. Informal Method

Informal method is based on intuition, analogy and experience and anticipating environment parameter, which are difficult to be predicted using mathematic approach. Common approaches for informal methodology are:

###### a. Analogy

This method is to identify the environmental impact which possibly will emerge in proposed location as a result of various activities. The identified impact will be used as a base and consideration to predict the impacts which could arise in surrounding location with the same ecosystem.

###### b. Environmental standard

Environmental impact open activity can be predicted b using the environmental standard and criteria stipulated by the national, sectors and regional regulations or the use of other criteria and standard which has been accepted worldwide.

###### c. Professional judgment

This method will be used if there is a limited data and information in the field and lack of understanding of the impact.

Data collection was conducted to primary and secondary data. Field survey include structured in-depth interview to gather primary data information. The assessors were using questionnaire for in-depth interview guidelines. Data from government agency, sampling with purposive proportional sampling, demography, health, social and culture aspect are gathered as secondary data.

## Stakeholders Consultation

Stakeholder's consultation related to EIA (AMDAL) conducted in April 11, 2007 at Kokonao/Kiyura village, and the general session started from Nov 15, 2007 at the secretary office of Mimika Regency. Below is the attendance of the stakeholders:

**Table 2:** List of stakeholders

Participants	Institution
Government	<ul style="list-style-type: none"><li>• District Government</li><li>• Village Government</li></ul>
Community leader	<ul style="list-style-type: none"><li>• Village Leader</li><li>• Local Village Consultative Agency (Badan Permusyawaratan Kampung/BPK)</li></ul>
Community	<ul style="list-style-type: none"><li>• Local Communities</li><li>• Kamoro Local Communities Agency</li></ul>
Prominent Figures	<ul style="list-style-type: none"><li>• Kamoro Local Communities Agency</li><li>• Religious Agency</li></ul>
Plantation Management	<ul style="list-style-type: none"><li>• Management of Plantation/Estate</li><li>• Management of Plasma</li></ul>

### b. Process and Procedure of SIA (Social Impact Assessment)

Although the company already obtain AMDAL document which covered environmental and social aspects of the proposed new development, PT PAL conducted additional Social Impact Assessment through RSPO approved assessors from Boor Agriculture University. The detail of the assessment team as follows:

#### Assessors and their credentials:

i) Team Leader – **Ir. Nyoto Santoso, MS.** ([nyotosantoso1962@yahoo.com](mailto:nyotosantoso1962@yahoo.com)):

The Social Impact Assessment was conducted by Ir. Nyoto Santoso. He was the Team Leader for the SIA and HCV assessment. He is one of the RSPO approved assessors. His discipline expertise are in biodiversity (plants, mammals and avifauna), hydrology/soil (watershed management, hydrology conservation projects and soil conservation projects) and social (participatory rural assessment, socio-economic or cultural studies, participatory mapping and conflict resolution). His expertise includes managing and conserving biodiversity. He received a Master's Degree in management of natural resources and environment from Bogor Agriculture University, Indonesia in 1992. He has been serving as environmentalist since 1987, and is now a lecturer in Forest Resource Conservation and Eco-Tourism Department at Bogor Agriculture University. He lectures a number of subjects i.e. ecology and wildlife management; forestry and environmental regulations; conservation and primate ecology under the Forest and Primate Management Study Program for Master Programme at Bogor Agriculture University.

ii) **Ahmad Faisal Siregar, S. Hut.** ([marucok@yahoo.com](mailto:marucok@yahoo.com)):

He was born in Tapanuli Selatan, Indonesia on April 9<sup>th</sup>, 1975, and is a member of SIA and HCV Team in Forestry Faculty of Bogor Agriculture University. He is involved in the HCV and Social Impact Assessment. His field of expertise is social and cultural aspects. He received a Bachelor's Degree in Forestry (*Sarjana Kehutanan*) from Bogor Agriculture University, Indonesia in 1998. In 2008 he was registered to a postgraduate programme in Tropical Biodiversity Conservation at Bogor Agriculture University. He has served in social studies since 1997 and been active in Mangrove NGO movement. He is one of the RSPO approved assessor with discipline specialities in social (participatory rural assessment, socio-economics cultural studies, participatory mapping and conflict resolution).

vii) **Rae Birumbo, S. Pi.** ([raebirumbo@yahoo.com](mailto:raebirumbo@yahoo.com)):

He obtained Bachelor Degree in Fisheries from Faculty of Agriculture, Gadjah Mada University, Indonesia. He is now with Faculty of Forestry, Bogor Agriculture University, Indonesia as a freelance Social Worker Specialist involving in Social Impact Assessment projects. He involved in a number of HCV and Social Impact Assessments with the Bogor Agriculture University's assessment team. Prior to this, he was involved in consultancy with Indonesian Institute of Mangrove Research and Development.

### Assessment Methodology (Data Source, Data Collection, Time, Program and Location)

SIA (Social Impact Assessment) was conducted by a team of assessors from Faculty of Forestry, Bogor Agriculture University. The location of the study was at Iwaka and Kiyura village, West Mimika District, Mimika Regency where the proposed project is located.

### Social Impact Assessment Method

Framework approach of Social Impact Assessment was based on the existing condition in the area, general condition of social economic impact, people's opinion, identifying the negative and positive impact. The process flow is shown in Figure 4 below.

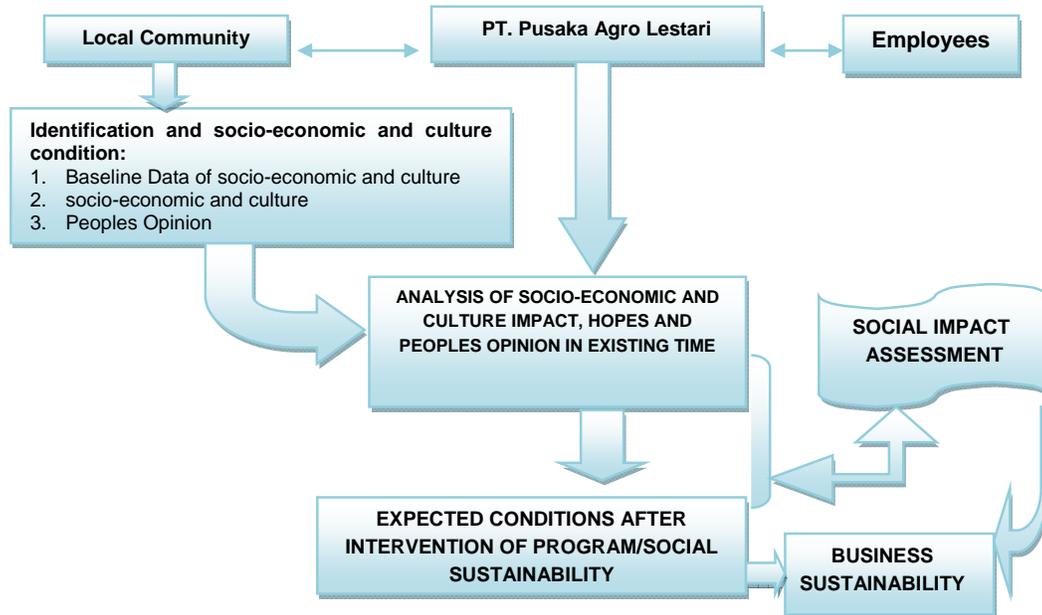


Figure 4: Framework Approach of Social Impact Assessment

SIA assessment conducted by collecting secondary data (report, research, District and Regency monografi) and primary data collection (interview and focus group discussion with the community). Primary data collection technique was by purposive sampling and simple random sampling.

### c. Assessment Process and Procedures for HCV assessment

#### The assessment was conducted by:

Faculty of Forestry, Bogor Agriculture University  
Address : Kampus IPB Darmaga – Bogor, Indonesia 16001  
Tel: 62-251- 8621677/8621947, Fax: 62-251-621947  
Website: <http://www.fahutan.ipb.ac.id/hcv/index.html>  
Email: [fahutan@ipb.ac.id](mailto:fahutan@ipb.ac.id)

#### Assessors and their credentials

The HCV assessment team members are:

##### a. Team Leader – Ir. Nyoto Santoso, MS. ([nyotosantoso1962@yahoo.com](mailto:nyotosantoso1962@yahoo.com)):

The HCV Assessment was conducted by Ir. Nyoto Santoso. He was the Team Leader for the SIA and HCV assessment. He is one of the RSPO approved assessors. His discipline expertises are in biodiversity (plants, mammals and avifauna), hydrology/soil (watershed management, hydrology conservation projects and soil conservation projects) and social (participatory rural assessment, socio-economic or cultural studies, participatory mapping and conflict resolution). His expertise includes managing and conserving biodiversity. He received a Master's Degree in management of natural resources and environment from Bogor Agriculture University, Indonesia in 1992. He has been serving as environmentalist since 1987, and is now a lecturer in Forest Resource Conservation and Eco-Tourism Department at Bogor Agriculture University. He lectures a number of subjects i.e. ecology and wildlife management; forestry and environmental regulations; conservation and primate ecology under the Forest and Primate Management Study Program for Master Programme at Bogor Agriculture University.

**b. Ahmad Faisal Siregar, S. Hut. ([marucok@yahoo.com](mailto:marucok@yahoo.com)):**

He was born in Tapanuli Selatan, Indonesia on April 9<sup>th</sup>, 1975, and is a member of SIA and HCV Team in Forestry Faculty of Bogor Agriculture University. He is involved in the HCV and Social Impact Assessment. His field of expertise is social and cultural aspects. He received a Bachelor's Degree in Forestry (*Sarjana Kehutanan*) from Bogor Agriculture University, Indonesia in 1998. In 2008 he was registered to a postgraduate programme in Tropical Biodiversity Conservation at Bogor Agriculture University. He has served in social studies since 1997 and been active in Mangrove NGO movement. He is one of the RSPO approved HCV assessor with discipline specialities in social (participatory rural assessment, socio-economics.cultural studies, participatory mapping and conflict resolution).

**c. Eko Adhiyanto, S. Hut. ([adhiyanto@yahoo.com](mailto:adhiyanto@yahoo.com)):**

He was born in Batang, Indonesia on June 3<sup>rd</sup>, 1978. He serves HCV Team at Forestry Faculty, Bogor Agriculture University, Indonesia in assisting assessments of flora aspects. He received his bachelor degree in Forestry (*Sarjana Kehutanan*) in 2001. His first appearance in flora studies was in 2000. He is one of the RSPO approved HCV assessor with discipline speciality in biodiversity (plants).

**d. Sutopo, S. Hut. ([blitz2005@yahoo.com](mailto:blitz2005@yahoo.com)):**

He was born in Purbalingga, Indonesia on 18<sup>th</sup> July 1983. He serves as member for HCV Team in Forestry Faculty of Bogor Agriculture University with field of expertise in wildlife aspects. His bachelor degree in Forestry (*Sarjana Kehutanan*) was received from Bogor Agriculture University, Indonesia in 2008. His first HCV study was conducted in 2007 in KPH Madiun, Indonesia while he was working on his thesis " Biodiversity of Bird Species in Several Habitat Types within the KPH Madiun-Perum Perhutani Unit II-East Java". He is one of the RSPO approved HCV assessors with discipline speciality in biodiversity (plants and avifauna).

**e. Ir. Heru Bagus Pulunggono, M.Sc. ([heruipb@yahoo.co.id](mailto:heruipb@yahoo.co.id)):**

He has expertise in hydrology and soil conservation. He obtained master degree majoring in Agricultural Tropical Geography from the University of Kyoto, Japan. His experience in the field of Soil Conservation and Hydrology began in 1999. He is lecturing in the Department of Soil Science and Land Resources, Faculty of Agriculture, Bogor Agriculture University, Indonesia. He is one of the RSPO approved HCV assessor with discipline specialities in hydrology/soil (watershed management, hydrology conservation projects, soil conservation projects) and social (participatory rural assessment).

**f. Sulfian Ardiansyah, S. Hut.:**

He was born in Jember, Indonesia on 27<sup>th</sup> August 1986. He serves HCV Team in Forestry Faculty of Bogor Agriculture University, Indonesia as an assistant to flora ecology assessment. He gained his bachelor degree in Forestry (*Sarjana Kehutanan*) from Bogor Agriculture University in 2008. His first HCV study was conducted in KPH Banyuwangi Utara, Indonesia in 2008.

**Assessment methods (data sources, data collection, dates, program, places visited)**

**Location and Time**

The Identification and Analysis of HCVs in the land title area (HGU) of PT Pusaka Agro Lestari was conducted on August 16-23, 2011 in Mimika Regency, Papua Province using the Indonesian HCV toolkit 2008. (e.g. gathering information, collecting data/information, field survey and verification, analyzing data and the presence of HCVs area, mapping, etc).

**Approach of Study Implementation**

The HCV assessment covered the location area of PT Pusaka Agro Lestari and the surrounding area such as villages and area which might have potential high conservation values. Full details of the location covered are available in the PT Pusaka Agro Lestari HCV assessment report. Information collected during the field survey and through interview with the local surrounding communities. Focus Group Discussion and stakeholder consultation was held prior to the final reporting. The details of the Focus group Discussion and stakeholder consultation are available in the final report.

The framework approach in the identification and analysis of the presence of HCVs in the PT. Pusaka Agro Lestari and preparation of management and monitoring plans of HCV identified is shown in Figure 5 below.

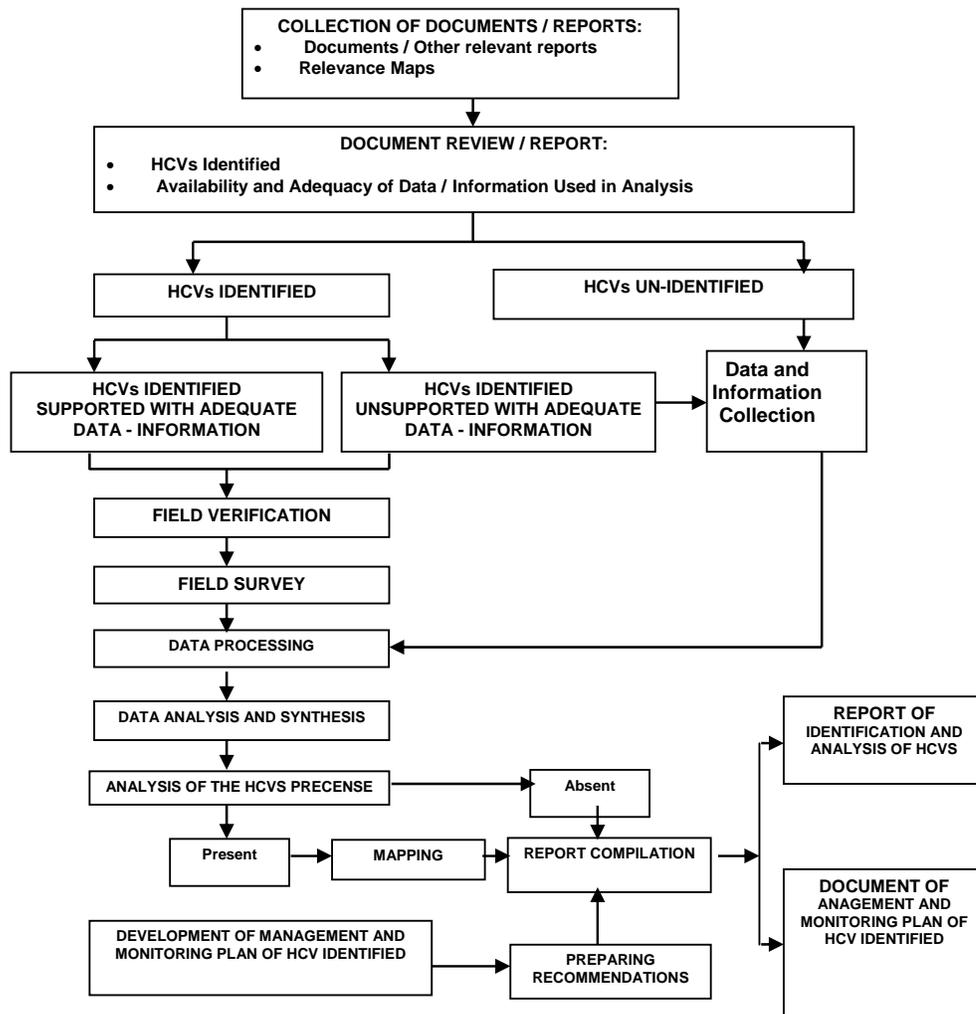


Figure 5: HCV Assessment Framework Approach

### Methodology for data collection:

The assessment was conducted based on Identification Guide High Conservation Value Areas in Indonesia version 2 (June 2008). Materials used in this assessment were: Map of PT. Pusaka Agro Lestari's Operation Area, Satellite Imagery, Land Slope Map, Topography Map, Forest Land Use Consensus Plan and Land system Map, River map. Material used in the field survey (Alcohol 70%, paper) was label of herbarium, Field Guide Book (Field Guide for Aves in Papua-Bird Life, Mammals and Reptile in Papua-Latin), questionnaire, and tally sheet/field book. Equipments used are GPS reader, compass), plastic rope 50 meter, circumference /diameter gauge, camera, binocular, computer, and stationery (arc, rulers, pencils and pens).

Data collection was conducted in accordance to the relevant guidelines, documents, report and maps. There were primary data collection and secondary data collection. Secondary data collection includes information gathering of the location, boundaries and surrounding area, topography, social-economic and cultural conditions. Besides using the Indonesia HCV Toolkit, the assessment team made reference to relevant laws of Indonesia, IUCN, CITES and other relevant guidelines to ensure the assessment is carried out in compliance to RSPO requirement.

During the site visit to collect the data in the field, the assessor team was divided in two teams; each consist of mapping and landscape assessor (including physical and environmental aspect), flora and fauna assessor, social and cultural assessor. The primary data gathered in the field covered physical, ecological, biodiversity, environmental, social economy and cultural aspect. The followings are methodology for data collection in each aspect:

- a. Landscape and mapping team was gathering data to verify secondary information such as watercourse, infrastructure, buffer zone, type of soil and topography. The team also assisted the other team to map all the findings and new information to the existing map and analyzed it.
- b. Wildlife evaluation and data gathering was conducted by rapid assessment method to obtain existing information degrading the current fauna condition within and surrounding area. Direct observation and visit as well as in depth interview and discussion with local community and PT. PAL staff. The result of this observation is developed into List of Fauna Species in every observation location.
- c. Flora evaluation and data gathering was conducted by interview and direct observation. The collected data used to identify the species status (protect by Indonesia government or endangered in IUCN List). In addition, data and information are used to assist the verification of preliminary mapping of ecosystem distribution within the area of proposed operation.
- d. Social, economy and cultural aspect evaluation was done by using in-depth interview and direct observation in the selected locations surrounding the proposed area. The information includes cultural and social aspects, interaction between community and forest as well as the stakeholder and company relationship. The data used to analyses the level of interdependency of community to the forest or other areas which relates to their daily livelihood.

Identification of HCVs was conducted based on the analysis and mapping of the area as follows:

#### **1. HCV1**

- Mapping of the forest cover and ecosystem in the landscape scale
- Mapping the existence of primary or conservation forest inside proposed PT. Pusaka Agro Lestari concession and surrounding landscape, including conservation area identified by the local communities.
- Determining whether the concession has the potential to provide support to biodiversity of primary or conservation forest within or surround the concession area.
- Mapping the interdependencies of the landscape which can provide support to the biodiversity within it.
- Determining the existence, population and distribution of the endangered species within the concession.
- Determining the condition of the habitat by using qualitative and quantitative analysis of the ability of a population survival rate.
- Analyzing data on the breeding site, migration, movement, food and shelter availability of a species in the habitat.

#### **2. HCV2**

- Mapping the vegetation cover in the concession area on the landscape level.
- Mapping the mature forest cover in the concession area on the landscape level.
- Determining the potential of core and supporting zone in the concession area on the landscape level.
- Considering the potential scenarios for changes which might occur within the core and border zone based on the land use title.
- Conducting revision of the natural ecosystem map in the landscape level.
- Determining transitional zone of different ecosystems and determining its natural condition.
- Identifying ecosystem which might be direct or indirectly affected by the operations.
- Identifying and evaluating the threat to the existing natural ecosystem.
- Identifying list of species which exist and/or most likely exist within the ecosystem.
- Considering conservation value of the non-natural landscape elements such as agriculture field, degraded forest.

### 3. HCV3

- Identifying rare or endangered ecosystem within the concession e.g. mangrove, deep peat, karst ecosystem, etc.
- Identifying the area and the uniqueness of the rare or endangered ecosystem.

### 4. HCV4, 5 and 6

- Overlaying the concession border on top of the TGHK, RTRWK and RTRWP map.
- Mapping the watercourses (e.g. rivers) within and the surrounding concession area.
- Identifying the dependency of the community of the water source.
- Identifying and delineation of the riparian areas on the map.
- Mapping the ecosystem as previously identified in the HCV3. If the map is not available, RePPProT (Regional Physical Planning Project for Transmigration) map can be used as an indicative map.
- Mapping the hotspot zones.
- Producing land-cover / use map based on the field verification and data obtained from the satellite map.

### Stakeholders Consultation

Stakeholder consultation related to HCV findings was conducted on 12<sup>th</sup> December 2011. Below is the list of stakeholders attended the consultation:

**Table 3:** List of stakeholders attended consultation.

Participants	Institution
Government	<ul style="list-style-type: none"> <li>• District Government.</li> <li>• Village Government.</li> <li>• Head of the Forestry Department, Mimika District.</li> <li>• Statistic Department Officer, Mimika District.</li> <li>• Environment Department officer, Mimika District.</li> </ul>
Community leader	<ul style="list-style-type: none"> <li>• Village Leader from Iwaka and Kyura.</li> <li>• Local Village Consultative Agency (Badan Permusyawaratan Kampung/BPK).</li> </ul>
Community	<ul style="list-style-type: none"> <li>• Local Communities.</li> <li>• Religious representatives.</li> </ul>
NGO	<ul style="list-style-type: none"> <li>• Representative from NGO Lemasko - Kamoro Indigenous People Society (Lembaga Masyarakat Adat Kamoro).</li> </ul>
University	<ul style="list-style-type: none"> <li>• Representative from Bogor Agriculture University.</li> </ul>
Plantation Management	<ul style="list-style-type: none"> <li>• Management of Plantation/Estate</li> <li>• Management of Plasma</li> </ul>
Assessors	<ul style="list-style-type: none"> <li>• Assessment Team</li> </ul>

### List of Legal, Regulatory and other guidance referenced for the assessment.

No.	Reference	Details
1	Status of vulnerability according to the world Conservation Union (IUCN) Red list	Vulnerability of plants and wildlife
2	Status in terms of trade of world's wild fauna and flora (CITES)	Rule on trade (usage) of plants and wildlife
3	HCV Toolkit	Guidance on High Conservation Value Area Identification in Indonesia version 2 (2008)
4	UU No. 32 thn 2009	Protection and Management of the Environment (Perlindungan dan Pengelolaan Lingkungan Hidup)
5	UU No. 41 tahun 1999	Forestry
6	UU No. 5 Tahun 1990	Nature Resource and Their Ecosystem Conservation
7	PP No. 7 Tahun 1999	Protected of plants and wildlife list.
8	PP No. 35 Tahun 1991	River
9	PP No. 68 year 1998	Nature reserve management
10	Presidential Decree No. 32 th 1990	Management of Protected Area
11	Presidential Instruction No. 10 Year 2011	Moratorium of primary forest and peat land utilization

## 4a. Summary of assessment findings (for SEI assessment)

### Communal Land Ownership

The licensed area of PT. Pusaka Agro Lestari is located in the territory of Kamoro tribe that in charge of 3 (three) sub-tribe, namely: Iwaka, Kiyura and Kiyura Gunung. From observations in the field, it was found that all the communal land owners support the development plan of oil palm plantations by PT Pusaka Agro Lestari in their territory. In addition to improving the community's economy through profit sharing as plasma farmers, also to unite the scattered descendants of their ancestors. All the communal land ownership (Sub tribes of Iwaka, Kiyura and Kiyura Gunung) in the development plan of the plantation area of PT Pusaka Agro Lestari have been compensated. Thus, currently there is no problem or any issues with the communal ownership.

The customary land owners in the licensed area of PT PAL are Taparu Ope ( Kiyura Village), Taparu Tani ( Kiyura Village), Kiyura Gunung, Temare Village / Timare (Iwaka Village). They have made an agreement and a released a formal statement of their customary rights ownership to PT . Pusaka Agro Lestari set by the Chief of West Mimika District (AD Matulesy) in December 2009, No. 58/DMB/2009. The agreement includes:

1. The agreement on the release of communal land tenure / customary rights of Taparu Ope tribe (Kiyura Village).
2. Minutes of the release of land holding customary / communal land rights of tribal Taparu Ope (Kiyura Village).
3. Letter of statement concerning the release of communal land holding / customary tribal rights of Taparu Ope (Kiyura Village).
4. Recognition Letter of communal land holding from Taparu Ope tribe (Kiyura Village).
5. A statement letter to confirm that does not have any pending customary rights issues which issued by the people of Kokonao, Migiwa, and Mimika.

The release of customary rights was used as the basis in the development of oil palm plantation of PT. Pusaka Agro Lestari using "Inti - Plasma" partnership scheme. Through the plasma scheme the community is given the opportunity to take part in the new development.

### Socio-Economic Issues

Villagers' livelihoods of Iwaka and Kiyura village are based on their daily needs. Most of the activities are fishing, hunting, sago collection, farming and wood carving. Average land area occupied by the local community is approximately 1 ha and the cultivated crops developed such as bananas, yams, cassava, vegetables, pepper and eggplant. In addition to meet the needs of subsistence, agricultural activities have led to the cultivation pattern with banana plants as the main commodity.

In Iwaka village, carbohydrate is mainly through the purchase of rice from "Raskin" and sago that are largely obtained from the forest for their own consumption and partly for sale. While community in Kiyura village still rely more on sago for the fulfillment of basic needs. With the composition of livelihood, the people's incomes would be more vulnerable to the changes in the function of the current region. Thus it will be necessary, efforts to develop more intensive farming and other business alternatives to meet their basic needs since their oil palm plantations is in immature stage.

Subsistence fishing is performed by using fishing pole and regular nets. In addition to lack of skills, limited capital is also an obstacle in the development of the current fisheries activities. It should be considered that the commodities that are developed related to the economic scale, capital, marketing, infrastructure and human resource readiness to encounter the future socio-economy.

### Accessibility

Accessibility from Timika toward Iwaka village quite well connected with paved roads and can be reached by using the two-wheeled or four-wheel vehicles and will take about 40-50 minutes. There are several locations of roads and bridges that are still under repair. Economic and other activity carried out more directly towards the city of Timika and public transport is available.

While Kiyura village can be reached by using the sea route from Timika and it will take about 2 hours by speedboat. Limited access to Kiyura village causes price of commodities produced by farmers is low, whereas the imported commodities are too expensive.

### **Public Health**

Health facilities available in Iwaka and Kiyura villages are government clinic (Puskesmas Pembantu). As for severe disease, they have access to hospital in Timika. Common diseases found are malaria, cholera and respiratory complication. Housing facilities in Iwaka village are well with relief from the government. Clean water facilities and toilets are available and supported by government as well.

### **Environment**

There is a potential negative impact on environmental related issues during the new development. Environmental friendly development and best practice approach with mitigation and monitoring by the management will minimize the impact to the environment. Main focus of the mitigation plan will be protection of water course and lake with best practices in managing the river buffer area and other biodiversity area adjacent to the water ways. The environmental issues are also related to flooding, erosion, river water pollution, river sedimentation, impact to secondary forest vegetation and Sago area. The assessment reveals that the community surrounding the proposed new development area aware and confident that the company will do all the necessary mitigation with good management and monitoring plan.

The assessment also revealed that the environmental protection awareness among the community is very low and it is noted that waste management around the community settlement is very poorly managed.

### **Conclusions**

- i. The villages around the PT. Pusaka Agro Lestari have a limited educational facilities and unequal education levels and low skills. The health facilities and infrastructure are spread evenly with a common disease found such as malaria. The religion adhered is Catholic. Dominant tribe in this area comes from the tribe Kamoro with Sub Tribe Kiyura, Kiyura Gunung and Iwaka. The work force dominated the informal sector (farmers, fishermen, general workers and others).
- ii. Various social programs have been carried out by the government and the private sector through various cooperation. Generally the aid comes in the form of housing, clean water, roads / bridges and other facilities.
- iii. The community has positive perceptions on the PT. Pusaka Agro Lestari to improve the economy, employment and business opportunities and particularly to unite the scattered descendants of ancestors in the past.
- iv. Socialization of CSR is still not done because of PT. Pusaka Agro Lestari is still in the initial phase. It is characterized by the activities of the management company that focuses on legal aspects of business, socialization of company's existence, and nursery construction plan. The CSR programme will be developed in consultation with the communities once the development began.
- v. During the process of collecting information in the field, the following issues related to the social was identified: a) Opportunities for the encroachment of land by other tribes in communal areas of Sub Tribe Kiyura, Kiyura Gunung and Iwaka; b) low levels of education, c) low mastery of the agricultural cultivation techniques; d) environmental issues, e) lack of business opportunities, f) lack of capital, g) limited water supply, h) lack of jobs and employment opportunities, i) lack of institutional infrastructure and economy.
- vi. The new development of PT Pusaka Agro Lestari will have prominent positive impact to the local communities such as unite the scattered descendants of ancestors in the past because of the war, create job opportunities, increase income through the plasma development, providing employment and business opportunities, better accessibility through land, regional development and other social reliefs and infrastructures.

- vii. Currently the negative impact has not take place but it is predicted that there will be pottential of river water pollution, reduced sago locations, restriction to hunting by community, restriction to timber and other forest products extraction. This activity is also predicted to deliver other socio-economic impact.

## Recommendations

Increase community participation as they are the stakeholder in the management of the PT. Pusaka Agro Lestari new development area and to encourage sustainable management of plantations. Increase the sense of ownership of the people around the plantation through constant socialisation and plasma development.

PT. Pusaka Agro Lestari should provide assistance to communities that aimed to empower in the long run through partnership. In the development of Community Development Program (CD) / CSR it should involve community and village officials so that the sense of the ownership to the plantation of PT. Pusaka Agro Lestari is maintained and stakeholders are consulted in the CD/CSR programme development and decision making process.

Company should begin to manage as a community strategy "pagar kebun", to increase community responsibility in securing the investment of the PT. Pusaka Agro Lestari. Relocation of some housing estates to the north region is an alternative solution that could minimize the possibility of land encroachment by other tribes.

Improving administrative systems related to legality, licensing, and other important documents in the process of ensuring legal compliance is achieved throughout the plantation development.

Necessary to develop clear and transparent plasma concept or plasma systems, rules, organization and realization of the plasma, so that there are no conflict arise in the future.

## Issues raised by stakeholders and assessors comment

No	Category	Issues raised	Assessor Comment
1.	Existence of the operations	When the new operation will start?	All Legal requirements are done. Since the company has become RSPO member, it is now going through the RSPO NPP process.
2.	Land use change	Land compensation must be done based on the agreement of both parties.	Land compensation has been carried out.  Preparing and filing all process of releasing area, plantation business license, HGU, granting compensation voluntarily through free prior informed consent and various other documents relating to the legality has been established.
3.	Operations	New operations may have negative impact to communities.	There's a possibilities it may happen. However the risk is low. Thus, during AMDAL community feedbacks taken into consideration for the AMDAL so that the assessment result can represent community needs as well.
4.	Community development	First priority should be given to the local community in providing job opportunity during the new development.	Local communities will be given first priority in providing job opportunities.
		Provide opportunities to partnership under plasma scheme through cooperative.	Plasma has been included in PT. PAL new development through partnership with local community (Iwaka and Kiyura Village).  PT. PAL will socialize through intensive communication about plasma scheme and its implementation.
		Lack of knowledge and skills in the community entrepreneurship.	Plasma development through partnership will give the community knowledge on good agriculture practises.
		Lack of the community	Determine the extension material that most

		awareness and knowledge on health. Limited medical personnel available	needed by the community. Conducting activities in cooperation with the local health service.
		Educational facilities available, but the number of teachers are limited.	Cooperate and establish communication with the Education Service. Provide Scholarship by the company (PT. PAL) to the students with good result.
		Lack of the public knowledge about the 3R (Reuse, Reduce and Recycle). Behavior is quite hard to be changed	Raising awareness and skill of workers and communities to meet the principles of business sustainability.
5.	Communities aspirations	If the community would like to give their aspirations, they are able to communicate it through NGOs, government and university for assistance and support.	PT. PAL already develop communication mechanism with stakeholders such as local community leaders, government representatives, religious representatives and NGO (pastor/pendeta, Lemasko, etc.).

## Summary of HCV Assessment

Success in maintaining and improving the HCVs in the PT. Pusaka Agro Lestari is determined by 2 (two) factors:

- 1) The availability of the HCV identification and analysis document, which will be used as a reference in preparing management and monitoring plans.
- 2) HCVA (HCV Area) management and monitoring plan will be used as a guidance reference in the implementation of the management and monitoring activities throughout the new development stages and after the completion.

### Physical Condition

Based on the rainfall data for 3 years (2005-2007) collected by the Meteorology and Geophysics Agency's Station at Timika and referring to the classification of Schmidt-Ferguson (1951), the PT. Pusaka Agro Lestari new development area is included in the Climate Type A (very wet) with 12 months of wet months per year and has no humid and dry months. The Q value of the ratio between the dry months (months with rainfall <60 mm) and wet months (months with rainfall > 100 mm) is equal to 0.

Based on the rainfall data for 3 years collected by the Meteorology and Geophysics Agency Station at Timika, the average annual rainfall in the area of PT. Pusaka Agro Lestari is approximately 5,396 mm with the number of annual rainy days about 320 rainy days. The highest rainfall occurred in June (645 mm) and lowest in February (278 mm), whereas the highest number of rainy days occurred in July (30 days) and the least rainy days occurred in February (21 days). Generally this condition suits the new development of the palm oil plantation.

### Biological Condition

#### Flora

The amount of plant species found in the area of PT. Pusaka Agro Lestari is 273 species, of which as many as 113 species have its scientific name and the rest, 160 species are unidentified. The 113 plant species that have been identified with scientific name can be grouped into 43 families. The grouping is based on its location. Composition of the highest vegetation was found in the river riparian of Kamora River, as many as 197 species.

Based on vegetation classes, plant species found in the PT. Pusaka Agro Lestari can be grouped into Pteridophyta (5 species), Gymnosperms (two species) and Angiosperms (106 species) containing 47 species Monocotyledonae and 59 species Dicotyledonae.

Based on habitus, the composition of the vegetation in the area of PT. Pusaka Agro Lestari can be divided into 7 (seven) types, namely bamboo, epiphytes, herbs, lianas, palms, shrubs, and trees. Based on its spread, then the tree habitus has the highest species richness, as many as 189 species or at 69.23%. The details of the plants and its status shown in Table 4 below.

**Table 4:** List of Plant Species found in the proposed area of PT. Pusaka Agro Lestari and its status

No.	Scientific Names	Local Names	Location	Plant Status		
				Gov't Reg No. 7 /1999	CITES	IUCN
1	<i>Spathoglottis plicata</i> Bl.	Kuwa, Kowae	1,2,3,4,5,6,7,8,9,10,12,14,15,16,17	TD	App. II	TT
2	<i>Intsia bijuga</i> O.K.	Potah	1,2,3,4,5,6,7,8,9,10,11,12,13,14,15,16,17,19	TD	TT	VU A1cd
3	<i>Octomeles sumatrana</i> Miq.	Yarok	18,19	TD	TT	LR/lc
4	<i>Alstonia scholaris</i> R.Br.	Baka	6,12,13,14,15,16,17	TD	TT	LR/lc
5	<i>Gnetum gnemon</i> L.	Imiti, Gnemo	1,2,3,4,5,6,7,8,9,10,11,12,13,14,15,16,17,19	TD	TT	LC

**Remark of Location**

1 = RA Awokawia	6 = RA Kamora	11 = RA Pekarao	16 = RA Wameremapoa
2 = RA Dataura	7 = RA Kamora Kecil	12 = RA Temara	17 = RA Waumako
3 = RA Iripare	8 = RA Karpau	13 = RA Temare	18 = Areal Gambut Dalam
4 = RA Jimiki	9 = RA Kaya	14 = RA Tuapa	19 = Areal Calon Nursery
5 = RA Jimiki Epe	10 = RA Mikima Nata (Kopi)	15 = RA Utumakia	RA= Riparian Area

**Remarks of Status**

TD = Not Protected	App = Appendix
D = Protected	LC = Least Concern
TT = Unlisted	LR/lc = Low Risk/Least Concern
VU = Vulnerable	

**Fauna**

The number of wildlife species found in the area of PT. Pusaka Agro Lestari is 58 species that consists of 5 species of mammals, 44 species of aves and 9 species of reptiles. The highest number of species found in the riparian area of Temare River (36 species) consisting 3 species of mammals, 29 species of aves and 4 species of reptiles. There were a total of 58 species of wildlife found. This can be grouped into 32 family that consists of 4 species of mammals, 21 species of aves and 7 species of reptiles. In the class of aves, families with the highest members of the group contained Psittacidae family/parrot birds (11 species), whereas in class of reptiles, the highest number of families are in the Agaminae family and Trionichydae with each family consisting of 2 species.

The amount of protected wildlife species under Regulation of Indonesian Government (Government Reg.) No. 7 of 1999 are 23 species containing 3 species of mammals, 18 species of aves and 2 species of reptiles. While species included in the red list of IUCN is 1 species of reptile (CR/*Critically Endangered*), 8 species of VU/Vulnerable consist of 2 species of mammals, 2 species of aves and 4 species of reptiles; 2 species of NT/Near Threatned that consist of 1 species of mammals and 1 species of reptile; and the rest are the species of LC/Least Concern. While based on the CITES Category, 6 species are found included in the Appendix II (all are from aves) and 3 species included in the Appendix I containing 1 species of mammals and 1 species of aves. The details of the status is shown in Table 5 below.

**Table 5:** Wildlife Species Found in The Area of PT. Pusaka Agro Lestari and its species status

No	National Name	Scientific Names	Location	IUCN	Government Reg. (PP)	CITES
<b>A. Mammals</b>						
1	Kangguru tanah	<i>Thylagale brunii</i>	4,6,19	VU ver 2010 IUCN 3.1	D	
2	Kus kus lemur	<i>Pseudomys lemuroides</i>	4,5,6,13,16,17,19	NT ver 2010 IUCN 3.1		I
3	Kubung	<i>Cynocephalus variegatus</i>	4,5,6,10,11,12,17,18,19	LC ver 2010 IUCN 3.1	D	I
4	Kanguru pohon	<i>Dendrolagus ursinus</i>	4,12,13,16,17,19	VU ver 2010 IUCN 3.1	D	
<b>B. Aves</b>						
1	Kakatua koki	<i>Cacatua galerita</i>	1,2,3,4,5,6,7,8,9,10,11,12,13,14,15,16,17,18,19,20,21	LC ver3.1 IUCN 2010	D	II
2	Julang papua	<i>Rhyticeros plicatus</i>	1,2,3,4,5,6,7,8,9,10,11,12,13,14,15,16,17,18,19,20,21	LC ver3.1 IUCN 2010	D	II
3	Kipasan kebun	<i>Rhipidura leucophrys</i>	4,13,16,17,19,21	LC ver3.1 IUCN 2010	D	II
4	Kakatua Raja	<i>Probosciger aterrimus</i>	4,13,16,17,19	LC ver3.1 IUCN 2010	D	I
5	Kukabura perut-merah	<i>Dacelo gaudichaud</i>	1,2,3,5,6,7,8,9,10,11,12,13,14,15,18,19,20,21	LC ver3.1 IUCN 2010	D	
6	Raja-udang biru-langit	<i>Alcedo azuera</i>	4,13,16,17	LC ver3.1 IUCN 2010	D	
7	Cekakak suci	<i>Halcyon sancta</i>	4,13,21	LC ver3.1 IUCN 2010	D	
8	Elang ekor-panjang	<i>Henicopernis longicauda</i>	4,13,16,17,19	LC ver3.1 IUCN 2010	D	

No	National Name	Scientific Names	Location	IUCN	Government Reg. (PP)	CITES
9	Kasturi kepala-hitam	<i>Lorius lory</i>	4,5,7,9,18,19,20,21	LC ver3.1 IUCN 2010	D	II
10	Mambruk victoria	<i>Goura victoria</i>	4,13,16,17,19,21	VU ver3.1 IUCN 2010	D	II
11	Nuri bayan	<i>Eclectus roratus</i>	6,14,21	LC ver3.1 IUCN 2010	D	II
12	Elang bondol	<i>Haliastur indus</i>	1,2,3,4,13,14,16,17,19	LC ver3.1 IUCN 2010	D	
13	Kasuari gelambir-tunggal	<i>Casuarius unappendiculatus</i>	4	VU ver3.1 IUCN 2010	D	
14	kuntul kecil	<i>Egretta garzetta</i>	4,13,16,17,19	LC ver3.1 IUCN 2010	D	
15	Raja-udang kecil	<i>Alcedo pusilla</i>	1,4,13,16,19	LC ver3.1 IUCN 2010	D	
16	Kokokan laut	<i>Ardeola striata</i>	19	LC ver3.1 IUCN 2010	D	
17	Elang-alap cina	<i>Accipiter soloensis</i>	13	LC ver3.1 IUCN 2010	D	
18	Cendrawasih mati-kawat	<i>Seleucidis melanoleuca</i>	16,19	LC ver3.1 IUCN 2010	D	
<b>C. Reptile</b>						
1	Buaya papua	<i>Crocodylus novaeguineae</i>	4	LC ver 2010 IUCN 3.1	D	
2	labi-labi kulit lembut papua	<i>Pelochelys bibroni</i>	13,16,17,19,21	VU ver 2010 IUCN 2.3		
3	Labi-labi kepala belang	<i>Chitra chitra</i>	4,5,13,16,17,19,20,21	CR ver2.3 IUCN 2010	D	
4	Labi-labi moncong babi	<i>Carettochelys insculpta</i>	1,4,5,16,17,21	VU ver3.1 IUCN 2010		
5	Kura-kura ambon	<i>Cuora ambainensis</i>	4,14,15,16,17	VU ver2.3 IUCN 2010		
6	Kura-kura kotak	<i>Trachemys scripta</i>	4,13,14,15,16,17,18,19,20,21	NT ver2.3 IUCN 2010		

Remark of Status:

CR = Critically Endangered; Vu = Vulnerable; NT= Near Threatned; LC = Least Concern; D = Protected

Remarks of Location

1	Deep Peat	12	RA of Temara River
2	Sacred Temare	13	RA of Temare River
3	Sacred Sagu	14	RA of Utumakia River
4	Buffer of Kaya Lake	15	RA of Jimiki River
5	RA of Sub River Mimika Nata	16	RA of Jimiki River
6	RA of Awokawia River	17	RA of Mimika Nata River (Kopi R)
7	RA of Dataura River	18	RA of Kamora Kecil River
8	RA of Jimiki Epe River	19	RA of Kaya River
9	RA of Kamora Kecil River	20	RA of Waumako River
10	RA of Karpau River	21	RA of Iripare River
11	RA of Pekarao River	RA =	Riparian Area

## Environmental Aspects

### Area or ecosystem that has important function to provider water and flood control

Based on the assessment, region or ecosystem found in the area of PT. Pusaka Agro Lestari is a riparian ecosystem and freshwater peat swamp. Both of these ecosystems are secondary forest. Riparian ecosystems exist in the form of the river riparian bordering Kaya Lake. The total area of riparian ecosystems is 880.36 Ha. While the peat swamp ecosystem is 1,509.35 Ha. Both area has been identified and given recommendation for conservation during the new development.

**Table 6:** Location of the riparian ecosystems in the proposed area of PT. Pusaka Agro Lestari.

No	Location Name	Length (Km)	Width of Riparian (m)	Area of Riparian (Ha)
1	Riparian Anak S.Mimika Nata	10.73	25	53.65
	Riparian S.Awokawia	5.39	25	26.96
2	Riparian S. Dataura	2.36	25	11.82
3	Riparian S.Jimiki Epe	5.49	25	27.47
4	Riparian S. Kamora Kecil	8.61	25	43.06
		9.38	50	110.73
5	Riparian S.Kerpau	1.77	25	8.87
6	Riparian S.Pekarao	2.84	25	14.20
7	Riparian S.Temara	13.67	25	68.37
8	Riparian S.Temare	3.42	25	17.09
9	Riparian S.Utumakia	3.29	25	16.46
10	Riparian S.Jimiki	3.49	25	17.44
		10.65	50	106.52
11	Riparian S. Kaya	2.05	50	20.48
12	Riparian S.Waumako	2.03	25	10.14
13	Riparian S.Iripare	3.82	25	19.08
	Total river riparian			572.34

No	Location Name	Length (Km)	Width of Riparian (m)	Area of Riparian (Ha)
14	Kaya Lake Riparian	15.99	200	308.02
	Total Area			880.36

Source: Results of measurements on the map and field.

### **Important Ecosystem and Its Relationship to Various Classes of Land Based on Regional Physical Planning Project for Transmigration (RePPPOT)**

Ecosystems found in the PT. Pusaka Agro Lestari consists of lowland and mountain forests. Land classes found in the area consists of 6 (six) types, namely GBT (Gambut), AMS (Aimas), IWK (Iwaka), MKR (Makarime), STW (Sepauwar), TMK (Timika). Based on RePPPOT, it is found the class of land, including the fragile (rare or endangered), ie GBT (Gambut). Soil Survey and land evaluation report (2010) shows that the depth of peat on the land system GBT varies from shallow to deep peat and it was proposed that 1,509.35 ha of the peat area is set aside as conservation area during the new development.

### **Prediction of Potential Erosion Hazard Level (“Tingkat Bahaya Erosi” - TBE)**

Ecosystems found in the area of PT. Pusaka Agro Lestari is a lowland secondary forest ecosystem in the form of various types of ecosystem as riparian and swamp peat. The land classes found in the region is comprise of 6 (six) types, namely AMS (Aimas), GBT (peat), IWK (Iwaka), MKR (Makarime), SPW (Sepauwar) and TMK (Timika). Based on the RePPPOT, peat land class on peat swamp ecosystems (peat swamp) is identified as rare and endangered type and it is set aside for conservation by the company during the new development. Based on the soil survey and HCV assessment, it is found that the erosion impact is very low. The riparian set aside by the company will further ensure that the erosion is minimised.

### **Socio-Economic and Cultural Aspects**

#### **Population and Community Composition by Sex**

Total population in the Mimika Regency is 189,413 peoples spreading in 12 districts. The area of PT. Pusaka Agro Lestari has a coverage area of 2 districts, namely West Mimika district that has a density of population of 4,250 people with an average sex ratio of 108.77, divided into 2214 males and 2036 females. In the district of Kuala Kencana, the population density is 25,533 people with an average sex ratio of 141.99. Divided into 14,982 males and 10,551 female.

#### **Community Composition Based on Age Group**

Mimika age structure of the population is still at the structure looks young because its composition is relatively higher than other groups. Details of the age group of children (<15 years) reached 58,952 people, and the younger age group (20-39 years) reached 104,905 people, and elderly (> 40 years) reached 25 556 people.

#### **Population of Productive Economics**

Based on the data collected the number of non productive-age population (age <15 years plus age > 65 years) reached 59,985 people. The productive age (15-64 years) reached 129,428 people. Comparison between productive and non productive age produces dependency rate of 46.3%. This condition implies that among every 100 productive aged people in Mimika on average, there are about 46 people aged unproductive.

Therefore, the required labour (productive age) for the PT Pusaka Agro Lestari new development has been identified, assuming that most people currently working in the village as a farmer. Workforce needed for the new development can be met by recruiting from the district around the PT. Pusaka Agro Lestari under the condition that the local educational qualifications and skills meet the standards required by the company.

#### **Community Livelihoods**

Livelihoods of villagers around PT. Pusaka Agro Lestari is dominated by farming, fishing in rivers and hunting. While other livelihood are traders, employees, civil servants, and other. Catching fish is performed using boat with gill nets and fishing line. There are some people who have part time jobs as collectors of forest products like timber, honey, sap of jelutung, the roots of rattan and other forest products. In recent years the amount of people involve in these activities are getting less and it is depend on the seasonal demand for the forest products.

Identification and analysis of the HCV found in the proposed area

Summary of the HCV and conservation area identified is presented in the table below. Total HCV area is 3,941.82 ha. The details are shown in Table 7 and Figure 6 below.

**Table 7:** HCV analysis and identification of conservation area.

No	HCV Areas	Distance (km)	Buffer Zone / Riparian Area width (m)	Total Area (Ha)	HCVs
<b>A</b>	<b>Riparian</b>				
1	Riparian Anak S.Mimika Nata	10.73	25	53.65	HCV1.1HCV4.1
2	Riparian Danau Kaya	15.99	200	308.02	HCV1.2;HCV1.3;HCV2.3
3	Riparian S. Dataura	2.36	25	11.82	HCV4.1
		8.61	25	43.06	HCV4.1
4	Riparian S. Kamora Kecil	9.38	50	110.73	HCV1.2; HCV1.3; HCV2.3; HCV4.1
5	Riparian S. Kaya	2.05	50	20.48	HCV1.2HCV1.3HCV2.3HCV4.1
6	Riparian S.Awokawia	5.39	25	26.96	HCV4.1
7	Riparian S.Iripare	3.82	25	19.08	HCV4.1
		3.49	25	17.44	HCV1.1; HCV1.2; HCV1.3;
8	Riparian S.Jimiki	10.65	50	106.52	HCV2.3; HCV4.1
9	Riparian S.Jimiki Epe	5.49	25	27.47	HCV4.1
10	Riparian S.Kerapau	1.77	25	8.87	HCV4.1
11	Riparian S.Pekarao	2.84	25	14.20	HCV4.1
12	Riparian S.Tamara	13.67	25	68.37	HCV1.1; HCV4.1
13	Riparian S.Temare	3.42	25	17.09	HCV4.1
14	Riparian S.Utumakia	3.29	25	16.46	HCV4.1
15	Riparian S.Waumako	2.03	25	10.14	HCV4.1
<b>Total A</b>				<b>880.36</b>	
<b>B</b>	<b>Deep Peat (&gt; 3 m)</b>			<b>1,509.35</b>	HCV3; HCV4.1
<b>C</b>	<b>Sago Sacred</b>				
1	Sago			891.62	HCV6
2	Sago			102.03	HCV6
3	Sago			47.39	HCV6
4	Sago			21.18	HCV6
5	Sago			109.92	HCV6
6	Sago			266.99	HCV6
7	Sago			46.42	HCV6
8	Sago			56.19	HCV6
<b>Total C (HCV 6)</b>				<b>1,541.74</b>	
<b>D</b>	<b>Cemetery/Sacred</b>				
1	Temare			1,74	HCV6
2	Temu			8,63	HCV6
<b>Total D (HCV 6)</b>				<b>10,37</b>	
<b>Total (A+B+C+D)</b>				<b>3,941.82</b>	

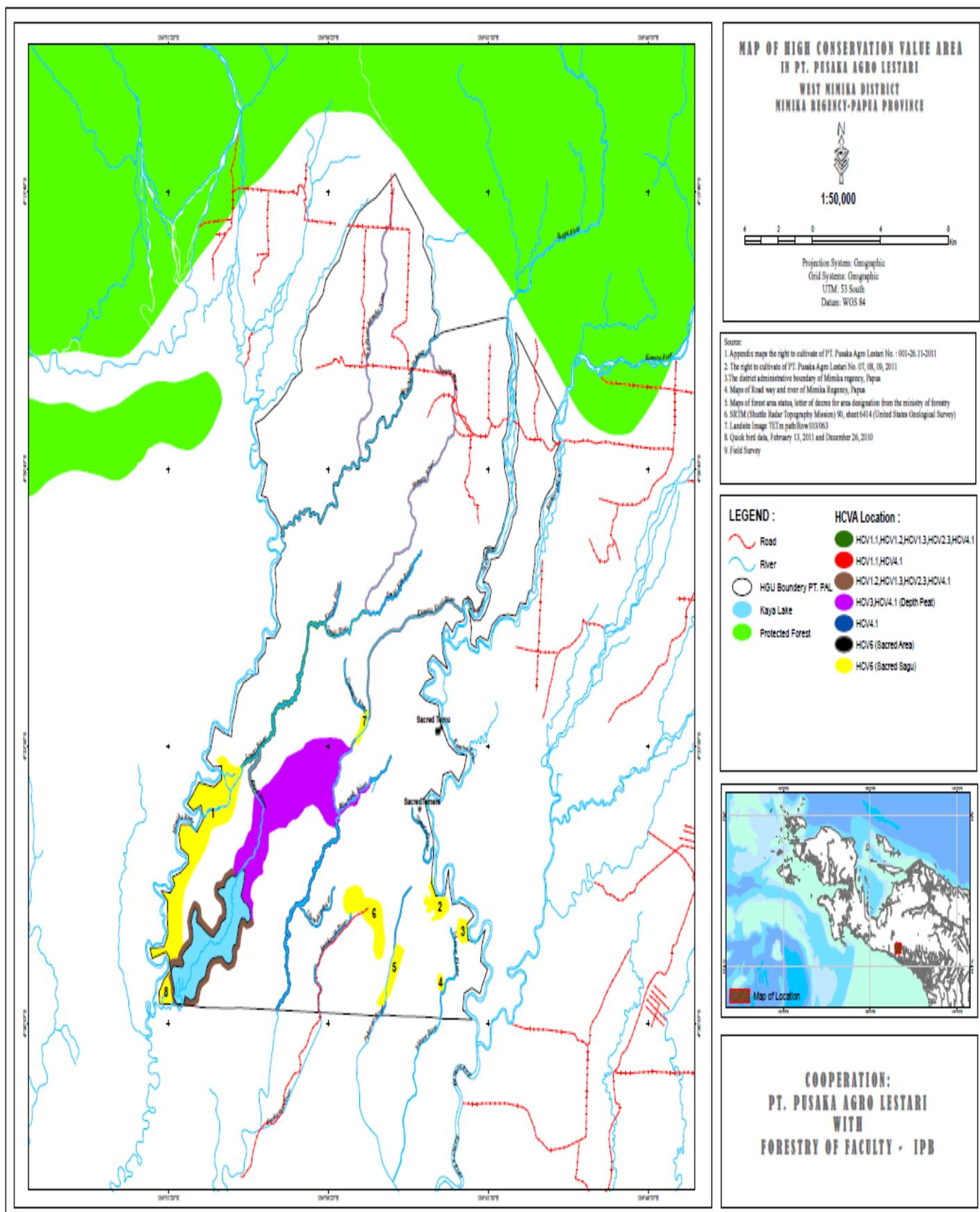


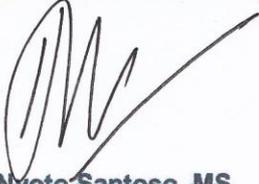
Figure 6: Map of the PT PAL project area showing the biodiversity and HCV area.

**INTERNAL RESPONSIBILITY**

**Formal Signing Off by Assessors and Company**

This document is the summary of SEIA (Social Impact Assessment/SIA and Environmental Impact Assessment/AMDAL) and HCV (High Conservation Value) Assessment in PT. Pusaka Agro Lestari and has been approved by the Management of PT. Pusaka Agro Lestari

**Bogor Agriculture University,**



**Ir. Nyoto Santoso, MS**  
Team Leader HCV and SIA Assessment

**Management of PT. Pusaka Agro Lestari**

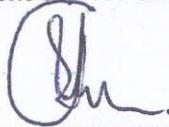
**President Director**

Date: 9<sup>th</sup> January 2012

**Statement of acceptance of responsibility for assessments**

Assessment result document on Social Impact Assessment (SIA) and High Conservation Value (HCV) Assessment of PT. Pusaka Agro Lestari by Bogor Institute of Agriculture (IPB) and University of North Sumatra, will be applied as one of the guidelines in managing palm oil plantation in PT. Pusaka Agro Lestari

**Management of PT. Pusaka Agro Lestari**



**President Director**

Date: 9<sup>th</sup> January 2012