# New Planting Procedure - Summary of Integrated Management Plan

<table>
<thead>
<tr>
<th>NPP Reference Number</th>
<th>RSPO New Planting Procedure (NPP) 2021</th>
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</thead>
<tbody>
<tr>
<td>Country of the NPP submission:</td>
<td>Indonesia</td>
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<tr>
<td>RSPO Membership Number</td>
<td>1-0043-07-000-00</td>
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</tbody>
</table>
| Reference to the management unit management plan | - Integrated HCV-HCS Assessment of PT Karya Makmur Langgeng by Aksenta, satisfactory by February 2023  
- Social and Environmental Impact Assessment Document (AMDAL) of PT Karya Makmur Langgeng, approved by the relevant government agency  
- The latest update of Social Impact Assessment of PT Karya Makmur Langgeng by Ecotrop |
| Name(s) of estate(s) covered under this management plan: | PT Karya Makmur Langgeng |
### Table 1. Management & Monitoring Plan of EIA

<table>
<thead>
<tr>
<th>No.</th>
<th>Impact</th>
<th>Benchmark Impact</th>
<th>Location</th>
<th>Environmental Management</th>
<th>Environmental Monitoring</th>
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<tbody>
<tr>
<td>I</td>
<td><strong>PRE CONSTRUCTION PHASE</strong></td>
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<td></td>
<td>Attitude and Community Perceptions</td>
<td>- The emergence of negative or positive attitude and perceptions</td>
<td>Village of Semandang Kanan and Kampar Sebomban, Sub-district of Simpang</td>
<td>Socialization and transparency to community regarding company plan to build Palm Oil Mill and Oil Palm Plantation</td>
<td>Interviews and questionnaires regarding community attitudes and perception, social restlessness, and the mindset of community, either positive or negative</td>
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<td></td>
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<td>from community to plan activities</td>
<td>Dua</td>
<td>- Receiving advice, aspirations, and expectations from community</td>
<td>Yearly at pre-construction phase</td>
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<td></td>
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<td>- The existence of complaints, protests, or lawsuits and negotiation</td>
<td>Portfolio of Paoh Concong, Sub-district of Simpang Hulu</td>
<td>- Strengthen relationships and communication with community</td>
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<td></td>
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<td>delays because of the involvement of third party, consumptive use</td>
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<td>- Engaging relevant agencies in socialization, boundary demarcation and land acquisition</td>
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<td></td>
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<td>of money and the existence of vulnerability to crime</td>
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<td>- Forming a counseling team consisting of community leaders / traditional leaders / religious leaders</td>
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<td>- The existence of price deals for the local community land</td>
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<td>acquisition</td>
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<td>II</td>
<td><strong>CONSTRUCTION PHASE</strong></td>
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<tr>
<td></td>
<td>2.1. Improvement of employment opportunities and</td>
<td>- Increasing the labor force and business opportunities for</td>
<td>Village of Semandang Kanan and Kampar Sebomban, Sub-district of Simpang</td>
<td>Providing opportunities for local communities who are directly affected by oil palm plantation activities, to</td>
<td>Interviews and questionnaires regarding opportunities of employment and business that can be utilized by the local community</td>
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<tr>
<td></td>
<td>business, attitude, and community perceptions</td>
<td>community especially to local community that directly affected, which</td>
<td>Dua</td>
<td>work as an employee in accordance with qualification</td>
<td>Once every 6 months</td>
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<td></td>
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<td>can be known from periodically research regarding per capita income,</td>
<td>Village of Paoh Concong, Sub-district of Simpang Hulu</td>
<td>- Providing training, business guidance and business capital to community who are directly affected, regarding</td>
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<td>living cost, and local revenue</td>
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<td>new business opportunity outside the agricultural sector</td>
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<td>At preconstruction phase and during the project (if necessary)</td>
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</table>

RSPO NPP 2021 Summary of Integrated Management Plan 2
- The emergence of economic infrastructure and productive activities
- Group or the proportion of local communities who work in the company
- The occurrence of change in mindset and behavior in community, there are recruitment of manpower
- Participating in providing and complementing economic infrastructure
- Involving local communities in plasma programs
- Giving information regarding employment opportunities in a transparent way
- Participating directly in youth activities, arts, and sports, by increasing the facilities and infrastructure that support the activities
- Providing media / means to complaints which come from the local communities
- Providing social assistance, in the form of public facilities, religious facilities, and improving rural infrastructure
- Creating a forum for discussion with the local communities and holding useful counseling for society

2.2 Decreasing air quality and increasing noise
- Government Regulation no. 41 of 1999 regarding Controlling Air Pollution and Emission
- Decree of the Minister of Environment Number: KEP-48/MENLH /11/1996, regarding Noise Level Threshold
- Village of Semandang Kanan and Kampar Sebomban, Sub-district of Simpang Dua
- Village of Paoh Concong, Sub-district of Simpang Hulu
- Selecting systems, methods and technologies of mobilization, land clearing, and construction of facilities and infrastructure which are expected to be able to reduce dust levels
- Adjusting the vehicle speed at the location of the project area
- Doing water spraying before the physical working to prevent the spreading of dust particles
- Immediately or maximum two (2) months after mobilization activities
- Measurements and laboratory analysis of air quality and compared to PP. 41 of year 1999
- Measurements of Noise Level and compared to Decree of the Minister of Environment Number: KEP-48/MENLH/11/1996
- Periodically every 6 months during construction activities, especially on the roads used to mobilization near the local community’s settlement, land clearing and construction of facilities.

2.3. Decreasing level of public health
- Clean and healthy lifestyle in community, number of patients, the number of
- Village of Semandang Kanan and Kampar Sebomban, Sub-
- Helping increase the frequency of health care for local communities that are affected by water borne diseases and air borne diseases
- Education/Counseling regarding health and environmental
- Analyse data of number and type of disease suffered by community due to construction activities
- Every 6 months during construction activities
| 2.4. Decreasing quality of surface water | - There is no decreasing quality of river water based on Government Regulation No. 82 of 2001, regarding Management of Water Quality and Water Pollution Control  
  - There is no complaint from local communities who use the river water  
  - There is no disease caused by the decreasing quality of river water (waterborne diseases) | - Developing/improving health facilities and increasing the number of medic/paramedi  
  - Providing free health care for local communities who are underprivileged  
  - Providing counseling regarding clean and healthy lifestyle  
  - Coordinate with the clinic / local health center | - Secondary data related with health problems |  
  - Developing/improving health facilities and increasing the number of medic/paramedi  
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  - Providing counseling regarding clean and healthy lifestyle  
  - Coordinate with the clinic / local health center | - Secondary data related with health problems |

| 2.5. Forest and land fires | Increasing of open land and the occurrence of forest and land fires, especially on dry season | - Semandang River  
  - Semandang Rivulet  
  - Communities in the study area or communities who are directly affected by the activities of oil palm plantations | - Secondary data related with health problems |  
  - Maintaining green belt area (greenbelt) along the riparian and perform soil and water conservation  
  - Planting land cover crop that can quickly grow on the banks of steep slope  
  - Make sedimentation hole along the road | - Secondary data related with health problems |  
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  - Planting land cover crop that can quickly grow on the banks of steep slope  
  - Make sedimentation hole along the road | - Secondary data related with health problems |

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  - There is no complaint from local communities who use the river water  
  - There is no disease caused by the decreasing quality of river water (waterborne diseases) | - Conducting information dissemination about forest and land fires  
  - Procuring of facilities and infrastructure for forest and land fires prevention and control in quantities that can be adjusted to the area’s hectarage  
  - Making sign boards of fire hazard and make a ban of burning.  
  - Building guard posts and doing patrol activities | - The number of land fires due to company activities and recording of fire management  
  - Inventory of firefighting facilities and infrastructure  
  - Analysis of the number of training that has been done |  
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  - Building guard posts and doing patrol activities | - The number of land fires due to company activities and recording of fire management  
  - Inventory of firefighting facilities and infrastructure  
  - Analysis of the number of training that has been done |
### 2.6. Attitude and community perceptions

Mindset and behavior changes in community around the study area due to the land clearing

- Village of Semandang Kanan and Kampar Sebomban, Sub-district of Simpang Dua
- Village of Pah Concong, Sub-district of Simpang Hulu

- Establishing firefighting team of forest and land at corporate and community levels
- Providing training and counseling to handle forest and land fires to employee and community by cooperating with relevant agencies

- Providing media / means to facilitate and accommodate the restlessness and complaints which coming from the local community
- Creating a discussion forum with the community and holding useful counseling for society
- Making procedures for communication between communities and companies and socializing to the community

- One time in the first year of oil palm operational
- Review and update once every 2 years

- Interviews and questionnaires regarding communication procedures between communities and companies.

- Once during construction activities
- Review and update once every 2 years

### 2.7. Decline of water biodiversity

Decreased levels of species diversity and number of aquatic biota

- River(s) at and around operational area

- Making sign boards that contain ban to take / find fish by exploitation of a destructive nature / dangerous for ecosystem balance
- Creating wildlife posters
- Providing training to employees regarding wildlife awareness

- At the same period as land clearing

<table>
<thead>
<tr>
<th>Attitudes and community perceptions</th>
<th>Decline of water biodiversity</th>
<th>III OPERATIONAL PHASE</th>
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<tbody>
<tr>
<td>Establishment of firefighting team</td>
<td>Decreased levels of species</td>
<td>Decreasing air quality</td>
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<td>and community levels</td>
<td>diversity and number of</td>
<td>and increasing noise</td>
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<td>aquatic biota</td>
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<td>Village of Semandang Kanan</td>
<td>Government Regulation</td>
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<td>and Kampar Sebomban, Sub-</td>
<td>no. 41 of 1999 regarding</td>
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<td>district of Simpang Dua</td>
<td>Controlling Air Pollution</td>
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<td>Village of Pah Concong,</td>
<td>and Emission</td>
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<td>- Establishing firefighting</td>
<td>- Selecting the systems,</td>
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<td>team of forest and land</td>
<td>methods and technologies</td>
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<td>at corporate and community</td>
<td>of FFB, CPO, and kernel</td>
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<td>levels</td>
<td>transportsations and</td>
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<td>One time in the first year</td>
<td>POM, which are</td>
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<td>of oil palm operational</td>
<td>expected to be able</td>
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<td>Once during construction</td>
<td>to reduce dust</td>
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<td>dates</td>
<td>levels below the</td>
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<td>activities</td>
<td>threshold</td>
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<td>One time during</td>
<td>- Providing free</td>
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<td>construction</td>
<td>medical treatment</td>
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<td>One time during</td>
<td>to people who</td>
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<td>construction</td>
<td>suffer from diseases</td>
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<td>One time during</td>
<td>caused by climate</td>
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<td>construction</td>
<td>changes as ARI (ISPA),</td>
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<td>One time during</td>
<td>diarrhea and others</td>
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<td>The factory construction</td>
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<td>One time during</td>
<td>- Measurements and</td>
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<td>Waste water treatment</td>
<td>laboratory analysis</td>
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<td>Emissions: at emission</td>
<td>of air quality and</td>
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<td>Air quality: at settlements</td>
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<td>activities, once every</td>
<td>compared to PP. 41</td>
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<td></td>
<td>every 3 months</td>
<td>of 1999</td>
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### 3.1. Decreasing air quality and increasing noise

- Selecting the systems, methods and technologies of FFB, CPO, and kernel transportsations and POM, which are expected to be able to reduce dust levels below the threshold
- Providing free medical treatment to people who suffer from diseases caused by climate changes as ARI (ISPA), diarrhea and others

Immediately or a maximum of two (2) months after the factory construction and waste water treatment plan (WWTP)

- Measurements and laboratory analysis of air quality and compared to PP. 41 of 1999
- Measurements of Noise Level and compared to Decree of the Minister of Environment Number: KEP-48/MENLH/11/1996

- Emissions: at emission sources (POM, Genset), once every 6 months
- Air quality: at settlements which are passed by operational activities, once every 6 months
- Noise level: at noise sources and settlements, once every 3 months
### 3.2 Increasing employment opportunities and business opportunities, which will also increase people’s income

- Increasing capital income, living cost, and local revenue
- Implementation of systems of remuneration issued by the government (Regional Minimum Wages), and other allowance in accordance with company financial capability
- Group or proportion of community that is receiving extra income
- Village of Semandang Kanan and Kampar Sebomban, Sub-district of Simpang Dua
- Village of Paoh Concong, Sub-district of Simpang Hulu
- Providing opportunities for local community who are directly affected by oil palm plantation activities, to work as an employee in accordance with qualification and labor requirements
- Providing training, business guidance and business capital to community who are directly affected, regarding new business opportunity outside the agricultural sector
- Using local labor maximally and using local businessman
- Providing counseling and training regarding entrepreneurship management to community
- Participating in providing and complementing economy infrastructure
- Giving information to community leaders (formal and informal) regarding required employment opportunities

### Once at the operational phase or continuously adjusted to the project activity

- Interviews and questionnaires regarding income, new economic activities, company benefit to the community, proportion of community who get benefit from the company

### 3.3 The reduced level of public health

- Clean and healthy lifestyle in community, number of patients, and the level of health servicing
- Emplacement of oil palm plantation and mill
- Community settlements around the plantation
- Helping increase the frequency of health care to communities that are affected by water borne diseases and air borne diseases
- Developing/improving health facilities and increasing the number of medic/paramedics
- Providing free health care to local communities who are underprivileged
- Allocating funding for free health care
- Providing counseling regarding clean and healthy lifestyle
- Coordinating with clinic/local health center

### Once every 6 months

- Providing counseling regarding health and environmental sanitation periodically, twice every year
- Medical checks periodically, twice every year or if there is complaint from employee and community regarding health problems
- Secondary data: report of management activities
- Survey and interview regarding health issues

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**RSPO NPP 2021 Summary of Integrated Management Plan**  
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<table>
<thead>
<tr>
<th>3.4</th>
<th>Community’s attitude and perceptions regarding social restlessness</th>
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<tbody>
<tr>
<td></td>
<td>- There is no restlessness or polemics that develop in community on waste management activities</td>
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<td>- The existence of complaints, protests, or lawsuits and negotiation delays because of the involvement of third party, consumptive use of money and the existence of vulnerability to crime</td>
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<td>- Village of Semandang Kanan and Kampar Sebomban, Sub-district of Simpang Dua</td>
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<td>- Village of Paoh Concong, Sub-district of Simpang Hulu</td>
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<td>- Doing transfer of knowledge and technology to community especially regarding the community empowerment programmes</td>
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<td>- Doing socialization (focus group discussion) to group of communities regarding community empowerment programmes which will be implemented by the company</td>
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<td>- Performing approach using participatory methods (Participatory Rural Appraisal)</td>
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<td>- Performing proactive approach to community leaders and people through transparent socialization about the company planning</td>
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<td>- Facilitating and accommodating the wishes and expectations of communities that are affected by company activities</td>
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<td>- Involving society organizations located in study areal</td>
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<td>- Participating directly in youth activities, arts and sport, by increasing the facilities and infrastructure that support the activities</td>
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<td>Periodically, once every 6 months</td>
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<td>- Interviews and questionnaires regarding community’s attitudes and perception to company</td>
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<th>IV. POST OPERATIONAL PHASE</th>
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<tr>
<th>4.1</th>
<th>Decreasing community income</th>
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<tr>
<td></td>
<td>- Decreasing per capita income, level of community consumerism, living cost, and local revenue</td>
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<td></td>
<td>- Village of Semandang Kanan and Kampar Sebomban, Sub-district of Simpang Dua</td>
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<td>- Providing training, business guidance and business capital to community who are directly affected, regarding new business opportunity outside the agricultural sector</td>
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<td>- Giving information clearly regarding labor dismissals accordance to employment contract</td>
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<td>- Providing counseling and training regarding entrepreneurship management to community</td>
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<td></td>
<td>Once at the post-operational phase or continuously adjusted to the project activity</td>
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<td></td>
<td>- Interviews, questionnaires, and analysis related to income and the number of trainings that are given during the post operational phase</td>
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<td>Once at the post-operational phase or continuously adjusted to the project activity</td>
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4.2. Community’s attitude and perceptions

- The occurrence of mindset and behaviour changes in community around areal study due to labor dismissals
- The existence of complaints, protests, or lawsuits and negotiation delays because the involvement of third party, consumptive use of money and the existence of vulnerability to crime
- Village of Semandang Kanan and Kampar Sebomban, Sub-district of Simpang Dua
- Village of Paoh Concong, Sub-district of Simpang Hulu
- Providing debriefing of entrepreneurship training
- Performing approach using participatory methods (Participatory Rural Appraisal)
- Giving information clearly regarding labor dismissals according to employment contract
- Providing severance pay and reward money for the labor’s services to the company, in reasonably and according to laws

Conducted at the end of the post-operational phase activities and at the expiration of the operational activities

- Interviews, questionnaires, and analysis related of income and the number of trainings that are given during the post operational

Conducted at the end of the post-operational phase activities and at the expiration of the operational activities

<table>
<thead>
<tr>
<th>Social Impact</th>
<th>Management Plan</th>
<th>Monitoring Plan</th>
<th>Activities</th>
<th>Timeframe</th>
<th>Stakeholder engagement</th>
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</table>
| Increasing job opportunity to the community around PT KML | Carrying out employee recruitment transparently and prioritizing hiring from the local community | Monitoring the quantity of local employee hiring | Providing information related to job vacancies and recruitment process especially to villages around the company | During the company’s operation, adjust to the operational and worker needs of the company | - Local government at village level
- Plasma cooperative (partnership)
- Traditional Institutions
- Local government at sub-district level |
| Continuing the recruitment of local people as the company’s labor according to the expertise they have | Monitoring employee Key Performance Indicator (KPI) achievements | Coordinating with HC and BCU Dept to monitor the capacity building of employees | | |
| Increasing productivity and land economic value | Continuing the development of sustainable plantations followed by an agreed partnership scheme (plasma) | Monitoring the potential of community land that can be developed into oil palm plantations, considering the FPIC principle on the process | Collaborating with relevant departments and village governments in organizing training on economic land use | In line with the company’s development plan, prioritizing the fulfillment of partnership programs in accordance with applicable regulations | - Local government at village level - Plasma cooperative (partnership) - Traditional institutions |
| High rate of FFB theft | - Providing clear area boundaries that are easy to identify - Setting limited access (open-close portal/entrance) - Putting the advisory/information board related to threat and punishment against theft. Forming an integrated team involving the village government for security and patrolling | - Doing patrol regularly - Monitoring theft cases regularly | - Engaging the community and local government at village level - Determining and socializing the sanctions for theft - Creating patrol schedule | 2022 and continuous during the operational | - Local government at village level - Plasma cooperative (partnership) - Traditional Institutions |
| Increasing business opportunity and types of livelihood | Working with the community to identify the main potential in local business development | Monitoring the community impact of alternative livelihood programs | Working with related parties to provide entrepreneurship counseling and training | 2022 - 2024 | Local government at village and sub-district level |
| | Providing training, business guidance and business capital to community who are directly affected, regarding new business opportunity outside the agricultural sector | Participating in providing and complementing economy infrastructure | Reviving community businesses by prioritizing the use of local contractors who meet the required specifications | 2022 and continuous during the operational of company |
| Road damage | Performing road maintenance, especially for the roads frequently used by the company | Regularly monitoring the condition of roads frequently used by the company | Looking for alternative new roads that do not pass through community villages | 2022 - 2024 | - Local government at sub-district level  
- Local government at village level |
|---|---|---|---|---|
| Water Pollution | Not applying chemicals at river border areas that have already been planted with oil palm. Prioritizing organic materials, fertilization is done by injection, the circle(s) are treated manually, not by spraying chemicals | Monitoring river water quality, upstream and downstream of the river (within the company locations) | Determine river border demarcations, in accordance with regulations/guidelines and the results of HCV identification | Immediately | - Environmental services at Ketapang  
- Local government at village level  
- Local community |
|  | Carrying out land enrichment/rehabilitation of the riparian area with oil palm plantations prior to replanting, with emphasis on natural succession | Carry out analysis of water quality |  | Once every 6 months |
|  | Towards river border areas with natural vegetation, coordinating with the community and local government to protect these areas from degradation and deliberate destruction | Carry out patrols within the Conservation Area |  | Once every month |
|  | Holding socialization about good and safe use of rivers and protection of river border areas to the community and employees | To monitor public perceptions regarding river pollution from company activities | Socialization of management and monitoring by involving multi-stakeholders | Once every 6 months |
| Air Pollution | - Selection of systems, methods and technology of mobilization, land clearing, and construction of facilities and infrastructure which expected can reduce dust levels.  
- Adjusting the vehicle speed at the location of the project area. | To monitor air quality periodically, based on regulation | Doing water spraying before the physical working to prevent spread of dust particles | 2022 and continuous during the operational, especially on dry season | - Environmental services at Ketapang  
- Local government at village level  
- Local community |
|  |  |  | Carry out the sampling test and analysis of air quality | Once every 6 months |
| Facilities for the employee(s); emplacement, office equipment and supplies | Provide livable housing with adequate facilities, considering the company’s capabilities and priority for development | Monitoring the suitability/repair of employee homes | Work with Civil engineering and estate management to fulfillment of employee housing needs and other standard facilities | 2024 - 2025 | - CE Area 8B  
- Tim social handling  
- Estate Manager SMJE |
<table>
<thead>
<tr>
<th></th>
<th></th>
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<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Inadequate childcare facility</td>
<td>Provide adequate childcare according to the priorities and needs of employees within 2 years</td>
<td>To monitor the condition of childcare, its safeties, cleanliness, and number of caregivers with sufficient norms</td>
<td>Work with Civil engineering and estate management to fulfillment of childcare needs and other standard facilities</td>
<td>2022 - 2024</td>
<td>Estate Management</td>
</tr>
<tr>
<td>Workers considered inadequate clean water source that comes from the river</td>
<td>Build boreholes or construct water treatment plants</td>
<td>To monitor water quality periodically</td>
<td>Carry out analysis of water quality</td>
<td>2022 - 2023</td>
<td>Estate Management</td>
</tr>
<tr>
<td>The road infrastructure that connects the divisions is often damaged</td>
<td>Carry out regular maintenance for all roads that connect between divisions</td>
<td>Coordinate with related unit to regularly monitor road conditions</td>
<td>Carry out regular maintenance for all roads that connect between divisions</td>
<td>Immediately and continuous during the operational, based on priority</td>
<td>Traction Dept., Estate Management</td>
</tr>
<tr>
<td>Employee shuttle transportation is not always available</td>
<td>Providing safe and adequate means of transportation for employee pick-up and drop-off</td>
<td>Coordinate with related department (unit operational) to monitor condition of employee pick-up transportation periodically.</td>
<td>Ensure safe vehicle conditions, with licensed drivers.</td>
<td>Immediately and continuous during the operational</td>
<td>Traction Dept., Estate Management</td>
</tr>
</tbody>
</table>
| Less discipline and awareness related to Safety and Health | Create and implement strict rules and sanctions for all employees within the company | To monitor employee discipline levels in routine use of PPE | Provide proper PPE according to the national standard | Immediately and continuous during the operational of company | - Sustainability Dept.  
- Estate Manager |
| Provide proper PPE in sufficient quantity | To monitor the index perception of workers related to company regulations and safety implementation | Periodically inspection related to PPE usage | 2022 and continuous. Inspection will be held periodically once a month | - Sustainability Dept.  
- Estate Manager |
| Continuous and periodically socialization related to Safety & Health to the workers. Also, to use PPE during work. | To monitor the index perception of workers related to company regulations and safety implementation | Monitoring the suitability of PPE regularly | 2022 and continuous | - Sustainability Dept.  
- Estate Manager |
3. HCV Areas and HCS Forests

Management and Monitoring Recommendation

Threat assessment

Threat in this Assessment is assessed by applying the IUCN Threat Classification Scheme (Salafsky et al., 2008) which identifies threats and their sources, and assesses the level of potential impacts or risks in each HCV-HCS area. Weighting is also applied to assess which threats are considered priorities, to which development of Management and Monitoring Plan will be referring. In general, there are five groups of threats to conservation areas, i.e., threats against biodiversity, rivers (including their riparian areas), forests, cultural reserves, and peatlands.

The output indicates that, in general, the intensity of threat impacts on conservation areas is considered medium-high, although most of them are currently potential threats. Threats with high intensity impacts include land conversion of naturally vegetated areas (including in riparian areas), logging, and poaching. Based on the assessment, it is understood that management and monitoring plan is developed to suppress threats that may potentially be eliminated and mitigate impacts from others that may not.

Table 3. The presence of important values and major threats

<table>
<thead>
<tr>
<th>Conservation value</th>
<th>Summary of important values in the Assessment area</th>
<th>Major Threats</th>
<th>Threat Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>HCV 1</td>
<td>Population of endemic fauna and flora species or RTE species</td>
<td>Declining size and quality of wildlife habitat due to logging activities and lack of connectivity to potential habitats outside the area</td>
<td>Actual</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Poaching</td>
<td>Actual</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Landuse conversion and deterioration of riparian forest habitat, lowland mixed dipterocarp forest, and peat forest</td>
<td>Potential</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Forest and land fires</td>
<td>Potential</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Agrochemical residue and household waste bring the risks of deteriorating aquatic habitat</td>
<td>Potential</td>
</tr>
<tr>
<td>HCV 2</td>
<td>Smaller areas that provide key functions to the landscape such as connectivity and buffer</td>
<td>Logging activity</td>
<td>Actual</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Landuse conversion</td>
<td>Potential</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Forest and land fires</td>
<td>Potential</td>
</tr>
<tr>
<td>HCV 3</td>
<td>Mixed dipterocarp forest, peat swamp forest, freshwater swamp forest, riparian forest, and heath forest</td>
<td></td>
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<tr>
<td>-------</td>
<td>-----------------------------------------------------------------------------------------------------</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Landuse conversion on naturally vegetated riparian areas for plantation and farming</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>- Forest encroachment and logging activity</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>- Forest and land fires</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>- Land subsidence on peat area</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>- Edaphic factor in heath forest</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Potential

| Actual |

The major causes or sources of threat that contribute to the pressures are mostly from external factor (community). This is because HCV areas are in areas where community freely use forest resources and these activities have long been carried out (before land acquisition by the Company). These include logging, poaching, and fishing in the rivers. As for internal threats, they come from the application of chemicals around riparian zones.

<table>
<thead>
<tr>
<th>HCV 4</th>
<th>The presence of river and riparian area with natural vegetation/riparian forest serving as natural drainage for flood control, erosion and morpho-erosion control, and natural firebreak. Forested Seriung and Tujubelas Hills function as water catchment, flood and erosion control, and habitats to pollinating agents. Peat swamp forest to the south functions as flood control and natural firebreak</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Logging activity</td>
</tr>
<tr>
<td></td>
<td>- Land clearing for farming or palm oil plantations around major rivers increases sedimentation in the river body, thus increasing flood risks</td>
</tr>
<tr>
<td></td>
<td>- Land clearing for farming or palm oil plantations around tributaries increases sedimentation in the river body, thus increasing flood risks</td>
</tr>
<tr>
<td></td>
<td>- Surface runoff carries agrochemical residues</td>
</tr>
<tr>
<td></td>
<td>- Forest and land fires</td>
</tr>
</tbody>
</table>

Actual

| Potential |

<table>
<thead>
<tr>
<th>HCV 5</th>
<th>River and spring as sources of clean water</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Agrochemical pollution</td>
</tr>
<tr>
<td></td>
<td>Land clearing near sources of water</td>
</tr>
</tbody>
</table>

Potential

| Actual |

<table>
<thead>
<tr>
<th>HCV 6</th>
<th>Cultural reserve sites (tembawang, ponti, and burial grounds)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Land clearing around sacred sites and burial grounds which may threaten the sites’ presence</td>
</tr>
</tbody>
</table>

Potential

<table>
<thead>
<tr>
<th>HCS</th>
<th>Presence of natural vegetation fragments in the riparian area of Penyawan River, Seriung Hill, Tujubelas Hill, and Division 1-2 Secondary Forest</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Logging activity</td>
</tr>
<tr>
<td></td>
<td>Landuse conversion</td>
</tr>
<tr>
<td></td>
<td>Forest and land fires</td>
</tr>
</tbody>
</table>

Actual

| Potential |

<table>
<thead>
<tr>
<th>Peat</th>
<th>Presence of peatland to the southwest of MU</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Logging activity</td>
</tr>
<tr>
<td></td>
<td>Landuse conversion</td>
</tr>
<tr>
<td></td>
<td>Forest and land fires</td>
</tr>
<tr>
<td></td>
<td>Land subsidence</td>
</tr>
</tbody>
</table>

Potential

The major causes or sources of threat that contribute to the pressures are mostly from external factor (community). This is because HCV areas are in areas where community freely use forest resources and these activities have long been carried out (before land acquisition by the Company). These include logging, poaching, and fishing in the rivers. As for internal threats, they come from the application of chemicals around riparian zones.
Recommendation by HCV

The main concerns in managing conservation areas include:

1) Stakeholder identification, including landowners of the conservation areas;
2) Collaborative verification with BKSDA and YIARI to ensure the presence of orangutan in the Assessment area;
3) Development of conservation area management and monitoring plan in a collaborative manner;
4) Prevention measures against activities potentially causing the destruction or loss of conservation values, e.g., disseminating information to community and installing information boards; and
5) Redesign of profit-sharing mechanism in plasma plantation development.

There are 52 HCV/HCVMA locations in the MU, most of which overlap with HCS areas. HCVMAs are areas identified as HCVA as well as the surroundings that support HCV. An HCVMA is designed to mitigate both actual and potential threats, maintaining the HCVA key functions.

For riparian areas, HCVMA design includes 50 m wide buffer zones on each side of the riverbank for both areas that remain with natural vegetation and others that are already in the form of cultivation areas. Riparian areas also serve as wildlife corridors (Barclay et al., 2017, and Lucey et al., 2018), thus they are designed to connect forest patches serving as wildlife habitats, particularly between forests in the southeastern and western parts of the MU. Furthermore, small forest fragments in the MU are also designed as stepping stones to several wildlife species, such as birds from the Bucerotidae family (hornbill).

Table 4. HCVMA management and monitoring plan

<table>
<thead>
<tr>
<th>No</th>
<th>Conservation Value</th>
<th>Map ID</th>
<th>Threat</th>
<th>Management Plan</th>
<th>Monitoring Plan</th>
<th>Frequency</th>
<th>Timeline</th>
<th>PIC</th>
</tr>
</thead>
</table>
| HCV 1 | All species | All IDs | Loss, destruction, and fragmentation of habitats and loss of important species as an implication of the loss of land cover due to landuse conversion and land fires | - Delineate and demarcate conservation areas (HCV and HCS).  
- Survey biodiversity to verify the presence of wildlife species that, although may potentially be found in the Assessment area, remain unidentified during the HCV assessment.  
- Form a collaborative team to monitor conservation areas, mitigate human-wildlife conflict and forest fires, and improve the quality of the conservation areas.  
- Install signboards on the presence of conservation areas. | - Collaborate with West Kalimantan BKSDA and YIARI to ensure the presence of orangutan in the Assessment area.  
- Install camera traps and check them monthly.  
- Create Permanent Sampling Plots (PSP) to monitor plants and wildlife species in the conservation area.  
- To monitor conservation areas in the PSPs by documenting the presence of RTE, endemic, and protected species. | - Vegetation Growth & key species presence will be monitored once every six months.  
- Periodic socialization and refreshment will be conducted twice per year.  
- Forest/conservation area patrols are | - Start 2023 and continuous | - Sustainability Dept.  
- Responsible Land Use & Conservation Dept.  
- Management Unit |
| Loss of wildlife species as an implication of poaching | - Disseminate information to staff, employees, and community on the prohibition to poach wildlife species and keep them as pets.  
- Collaborate with relevant authorities to regulate the use of air rifles by the community and workers.  
- Install signboards on hunting prohibition.  
- Regulate hunting system for community related to the wildlife species, set the hunting season based on the species population density, and limit the use of hunted animals for household consumption (subsistence) and not for sale. | Patrol to prevent poaching. | Once per month | Start 2023 and continuous | - Sustainability Dept.  
- Responsible Land Use & Conservation Dept.  
- Management Unit |
|---|---|---|---|---|---|
| Loss of plant species as an implication of illegal logging activity | - Disseminate information to staff, employees, and communities on logging prohibition.  
- Install signboards on logging prohibition.  
- Regulate community logging system by applying good silviculture practices, considering the population of species to log, ensuring that the logged timbers are for local community’s personal or communal uses.  
- Plant local plant species in areas previously used as illegal logging sites. | - Patrol to prevent illegal timber logging activity.  
- Monitor the growth of planted vegetation species. | - Illegal logging activity patrol will be conducted once per month  
- Vegetation Growth & key species presence will be monitored once every six months | Start 2023 and continuous | - Sustainability Dept.  
- Responsible Land Use & Conservation Dept.  
- Management Unit |
| Human-wildlife conflict | - Collaborate with relevant authorities and experienced stakeholders to mitigate human-wildlife conflict.  
- Deliver training to mitigate conflict and handle emergency situations in case of wildlife attack. | - To monitor locations of potential human-wildlife conflict.  
- Conduct intensive supervision on plantation operations near conservation areas. | - Once per 3 months | Start 2023 and continuous | - Sustainability Dept.  
- Responsible Land Use & Conservation Dept.  
- Management Unit |
| 2 | Pangolin | All IDs | Habitat loss | - Develop integrated reporting procedures for cases of conflict between wildlife and workers/community. | - Disseminate information to staff, employees, and communities on logging prohibition. - Install signboards on logging prohibition. - Regulate community logging system by applying good silviculture practices, considering the population of species to log, ensuring that the logged timbers are for local community’s personal or communal uses. - Plant local plant species in areas previously used as illegal logging sites. - Assess population and habitat suitability. | - Patro to prevent illegal timber logging activity. - Monitor the growth of planted vegetation species. - Conduct integrated monitoring to increase the probability to encounter pangolin. | - Once per month - Vegetation Growth & key species presence will be monitored once every six months. | - Start 2023 and continuous | Conservation Dept. - Management Unit |
| 3 | Müller’s gibbon | All IDs | Habitat loss | - Conduct population and habitat suitability assessment. - Enrich habitats by planting gibbon’s food plant species. | - Disseminate information to staff, employees, and communities on logging prohibition. - Install signboards on logging prohibition. | - Patro to prevent illegal timber logging activity. - Monitor the growth of planted vegetation species. | - Once per month - Vegetation Growth & key species presence will be monitored once every six months. | Start 2023 and continuous | Sustainability Dept. - Responsible Land Use & Conservation Dept. - Management Unit |
| | | | Loss of forest canopy | - Disseminate information to staff, employees, and communities on logging prohibition. - Install signboards on logging prohibition. | | | | | | |

Poaching

- Coordinate with BKSDA and the relevant NGOs to disseminate information on pangolin poaching prohibition.
- Patrol to prevent poaching.
- Once per month
- Start 2023 and continuous
- Sustainability Dept.
- Responsible Land Use & Conservation Dept.
- Management Unit

Disconnected corridors

- Map pangolin encounter locations.
- Map locations where pangolins often pass through and classify the vulnerability level of each location.
- Where necessary, move pangolin from high-vulnerability locations to larger HCVAs.
- Install signboards on pangolin passing locations with high vulnerability.
- Conduct integrated monitoring to increase pangolin encounter frequency and probability.
- Update pangolin distribution data.
- Conduct intensive monitoring on pangolin passing locations with high vulnerability.
- Quarterly basis
- Start 2023 and continuous
- Sustainability Dept.
- Responsible Land Use & Conservation Dept.
- Management Unit

Loss of forest canopy

- Disseminate information to staff, employees, and communities on logging prohibition.
- Install signboards on logging prohibition.
- Patro to prevent illegal timber logging activity.
- Monitor the growth of planted vegetation species.
- Once per month
- Vegetation Growth & key species presence will be monitored once every six months.
- Start 2023 and continuous
- Sustainability Dept.
| 4  | Proboscis monkey | All IDs | Loss of habitat | - Regulate community logging system by applying good silviculture practices, considering the population of species to log, ensuring that the logged timbers are for local community’s personal or communal uses.  
- Plant local plant species in areas previously used as illegal logging sites. |  | will be monitored once every six months. | - Responsible Land Use & Conservation Dept.  
- Management Unit |
|  |  |  |  | - Conduct population and habitat suitability assessment.  
- Enrich habitat by planting food species. |  | Quarterly basis | - Sustainability Dept.  
- Responsible Land Use & Conservation Dept. |
|  |  |  |  | - Conduct regular monitoring.  
- Update annual data on population and habitat.  
- Monitor plant species. |  | - Once per month  
- Vegetation Growth & key species presence will be monitored once every six months. | - Start 2023 and continuous  
- Management Unit |
|  | Disconnected corridors |  |  | - Disseminate information to staff, employees, and communities on logging prohibition.  
- Install signboards on logging prohibition.  
- Regulate community logging system by applying good silviculture practices, considering the population of species to log, ensuring that the logged timbers are for local community’s personal or communal uses.  
- Plant local plant species in areas previously used as illegal logging sites. |  | - 2023 and continuous during the operational activity | - Sustainability Dept.  
- Responsible Land Use & Conservation Dept. |
|  |  |  |  | - Patrol to prevent illegal timber logging activity.  
- Monitor the growth of planted vegetation species. |  | - Once per month  
- Vegetation Growth & key species presence will be monitored once every six months. | - Start 2023 and continuous  
- Management Unit |
|  | Human-wildlife conflict |  |  | - Collaborate with relevant authorities and experienced stakeholders to mitigate human-wildlife conflict.  
- Deliver training to mitigate conflict and handle emergency situations in case of wildlife attack.  
- Develop integrated reporting procedures for cases of conflict between wildlife and workers/community. |  | Once per 3 months | - Sustainability Dept.  
- Responsible Land Use & Conservation Dept.  
- Management Unit |
|  |  |  |  | - Monitor locations of potential human-wildlife conflict.  
- Conduct intensive supervision on plantation operations near conservation areas. |  | - Start 2023 and continuous | - Sustainability Dept.  
- Responsible Land Use & Conservation Dept.  
- Management Unit |
|  | Sun bear, muntjac, mouse-deer | All IDs | Loss of habitat | - Disseminate information to staff, employees, and communities on logging prohibition.  
- Install signboards on logging prohibition.  
- Regulate community logging system by applying good silviculture practices, considering the population of species to log, ensuring that the logged timbers are for local community’s personal or communal uses.  
- Plant local plant species in areas previously used as illegal logging sites. |  | - Once per month  
- Vegetation Growth & key species presence will be monitored once every six months. | - Start 2023 and continuous  
- Management Unit |
|  |  |  |  | - Patrol to prevent illegal timber logging activity.  
- Monitor the growth of planted vegetation species.  
- Conduct integrated monitoring to increase the probability to encounter sun bear, muntjac, and mouse deer. |  | - Once per month  
- Vegetation Growth & key species presence will be monitored once every six months. | - Responsible Land Use & Conservation Dept.  
- Management Unit |
<p>| Hunting | Coordinate with BKSDA and the relevant NGOs to disseminate information on sun bear, muntjac, and mouse deer poaching prohibition. | Patrol to prevent poaching. | Once per month | Start 2023 and continuous | Sustainability Dept. - Responsible Land Use &amp; Conservation Dept. - Management Unit |
| Human-sun bear conflict | - Collaborate with relevant authorities and experienced stakeholders to mitigate human-wildlife conflict. - Deliver training to mitigate conflict and handle emergency situations in case of wildlife attack. - Develop integrated reporting procedures for cases of conflict between wildlife and workers/community. | - To monitor locations of potential human-wildlife conflict. - Conduct intensive supervision on plantation operations near conservation areas. | Once per 3 months | Start 2023 and continuous | Sustainability Dept. - Responsible Land Use &amp; Conservation Dept. - Management Unit |
| 6 Felidae group (marbled cat and leopard cat) | All IDs | Poaching for pet | Disseminate information to staff, employees, and community on the importance of Felidae species for pest control in plantation areas. | Patrol to prevent poaching | Once per month | Start 2023 and continuous | Sustainability Dept. - Responsible Land Use &amp; Conservation Dept. - Management Unit |
| 7 Cercopithecidae group, such as pig-tailed macaque and long-tailed macaque | All IDs | Human conflict because these species are considered agricultural pests | Build capacity and deliver training on techniques to drive away pig-tailed macaque and long-tailed macaque from community farms. | Map community lands and their disturbance intensity. | - Monthly basis | - Start 2023 and continuous | Sustainability Dept. - Responsible Land Use &amp; Conservation Dept. |
| 8 Bucerotidae group (wrinkled hornbill, rhinoceros hornbill, and black hornbill) | All IDs | Loss of habitat and corridor | - Map nesting and stepping stone trees, both in conservation and plantation areas. - Preserve large trees as stepping stones during land clearing. - Enrich conservation area by planting fig trees (Ficus sp.) as food plants | - Conduct regular monitoring of these birds on locations they fly through. | | | |
| Poaching | Disseminate information to staff, employees, and community on the importance of these species for as indicator of good quality forest. | Patrol to prevent poaching | Once per month | Start 2023 and continuous | Sustainability Dept. - Responsible Land Use &amp; Conservation Dept. - Management Unit |</p>
<table>
<thead>
<tr>
<th>No.</th>
<th>Species Description</th>
<th>All IDs</th>
<th>Threats</th>
<th>Conservation Dept. - Responsible Land Use &amp; Conservation Dept. - Management Unit</th>
</tr>
</thead>
</table>
| 9   | Raptor bird group (black-winged kite, brahminy kite, bat hawk, crested goshawk, and black-thighed falconet) | All IDs | Loss of habitat and corridor | - See ‘all species’ section on loss of habitat.  
- Map nesting and stepping stone trees, both in conservation and plantation areas.  
- Preserve large trees as stepping stones during land clearing.  
Patrol to prevent poaching  
Once per month  
Start 2023 and continuous |
| 10  | Dusky munia | All IDs | No serious threats are identified | See ‘all species’ section.  
Patrol to prevent poaching  
Once per month  
Start 2023 and continuous |
| 11  | Barn swallow | All IDs | No serious threats are identified | See ‘all species’ section.  
Patrol to prevent poaching  
Once per month  
Start 2023 and continuous |
| 12  | Aquatic species (estuarine crocodile, false gharial, Malayan soft- | 5, 7, 23, 24, 28 | Loss of habitat | - Conduct assessment on the presence of amphibian and aquatic biota to indicate disturbed environments.  
- Monitor amphibian species presence, particularly in water streams used as sources of drinking water.  
Patrol to prevent poaching  
Once per month  
Start 2023 and continuous |

Logging
- Regulate community logging system by applying good silviculture practices, considering the population of species to log, ensuring that the logged timbers are for local community’s personal or communal uses.  
- Plant local plant species in areas previously used as illegal logging sites.
- Patrol to prevent illegal timber logging activity.  
- Monitor the growth of planted vegetation species.  
- Vegetation Growth & key species presence will be monitored once every six months.  
Start 2023 and continuous

Conservation Dept. - Management Unit

Sustainability Dept.  
- Responsible Land Use & Conservation Dept.  
- Management Unit

Poaching for food
- Disseminate information to staff, employees, and community on the importance of these species as indicator of good ecosystem.  
- Patrol to prevent poaching  
Once per month  
Start 2023 and continuous

Conservation Dept. - Responsible Land Use & Conservation Dept.  
- Management Unit
<table>
<thead>
<tr>
<th>ID</th>
<th>Other reptile species group (king cobra, Sumatran cobra, reticulated python)</th>
<th>Human-venomous snake conflict</th>
<th>Human-crocodile conflict</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>13</td>
<td>Entire MU</td>
<td></td>
<td></td>
<td>Once per 3 months</td>
<td>Start 2023 and continuous</td>
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<tr>
<td>14</td>
<td>All IDs, particularly 4, 23, and 24</td>
<td>Logging that causes loss</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>of biodiversity and loss of</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>important wildlife habitat</td>
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</tbody>
</table>

- Collaborate with relevant authorities and experienced stakeholders to mitigate human-wildlife conflict.
- Deliver training to mitigate conflict and handle emergency situations in case of wildlife attack.
- Develop integrated reporting procedures for cases of conflict between wildlife and workers/community.
- To put the signboard according to the presence of crocodiles in the river.
- To monitor locations of potential human-wildlife conflict.
- Conduct intensive supervision on plantation operations near conservation areas.

- Collaborate with relevant authorities and experienced stakeholders to mitigate human-wildlife conflict.
- Deliver training to mitigate conflict and handle emergency situations in case of wildlife attack.
- Develop integrated reporting procedures for cases of conflict between wildlife and workers/community.
- Disseminate information to employees on use of Personal Protective Equipment (PPE) to avoid venomous snake bite and cobra venom spat.
- Provide anti-snake venom serum in the Company clinics.
- To monitor locations of potential human-wildlife conflict.
- Conduct intensive supervision on plantation operations near conservation areas.

- Label trees with RTE, endemic, and protected status.
- Replant logged areas using local tree species of ecological value to serve as food plants for wildlife.
- Implement Chain of Custody (CoC) to identify the origin of timbers circulating in the Assessment area.
- Monitor disturbances and tree sapling growth rates in logged areas.
- Prepare PSPs (Monitoring and Evaluation Plan) to monitor the development of trend of biomass carbon stock value.
- Tree sapling and disturbances will be monitored once every six months.
- PSP document per 3 years, and its monitoring will be on annual basis (yearly).

- Responsible Land Use & Conservation Dept.
- Management Unit

- Responsible Land Use & Conservation Dept.
- Climate Risk Mitigation Dept.

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### Other Important Plant Species

- Dederia (Horsfieldia borneensis), Kelat Api (Syzigium tenuicaudatum), Lamantan (Mangivera similis), Baccaraea edulis, Popowia cf. odoardi, and Macaranga pearsonii.

### Logging that Causes Loss of Biodiversity and Important Wildlife Habitats

- Label trees with RTE, endemic, and protected status.
- Replant logged areas using local tree species of ecological value to serve as food plants for wildlife.
- Implement Chain of Custody (CoC) to identify the origin of timbers circulating in the Assessment area.
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- Tree sapling and disturbances will be monitored once every six months.
- PSP document per 3 years, and its monitoring will be on annual basis (yearly).

### Part of Wider Landscape

- Logging and land use conversion
- Forest and land fires
- Maintain HCVA intactness through gazettement and demarcation.
- Conduct reforestation and enrich vegetation in cleared or degraded HCVMAs.
- Facilitate village governments to develop village spatial plans concerning designation of cultivation and protected areas.
- Maintain potential manmade firebreaks, such as plantation road or main drain, including (i) reducing fuel availability (e.g., piled frond and twig) around the areas; and (ii) construct slightly convex roads to allow the formation of channels on both sides of the road.
- Maintain plantation roads to support accessibility of emergency response team or fire patrol team.
- Map the locations of sources of water for land fire management.
- To monitor HCVA boundaries.
- Monitor vegetation growth (growth percentage)
- Document every meeting with stakeholders.
- Document number of fire events, supplemented with documentation and official report.
- Coordinate with neighbouring companies and local governments to mitigate forest and land fires.
- On a regular basis, patrol during dry seasons (July-September).
- Monitor firebreaks, particularly in July-September.
- Monitor water discharge in sources of water for fire management.
- Quarterly basis
- Vegetation Growth & key species presence will be monitored once every six months.
- Once per week for patrols in dry seasons
- To monitor HCVA boundaries.
- Monitor vegetation growth (growth percentage)
- Document every meeting with stakeholders.
- Document number of fire events, supplemented with documentation and official report.
- Coordinate with neighbouring companies and local governments to mitigate forest and land fires.
- On a regular basis, patrol during dry seasons (July-September).
- Monitor firebreaks, particularly in July-September.
- Monitor water discharge in sources of water for fire management.
- Quarterly basis
- Vegetation Growth & key species presence will be monitored once every six months.
- Once per week for patrols in dry seasons

### Ecosystems of Riparian Forest, Peat Swamp Forest, Lowland

- Logging and land conversion
- To monitor HCVA boundaries.
- To monitor vegetation growth (growth percentage).
- To monitor HCVA boundaries.
- To monitor vegetation growth (growth percentage).
| dipterocarp forest, and heath forest | 22, 23, 24, 27, and 28 | - Conduct reforestation and enrich vegetation in cleared or degraded HCVMAs.  
- Facilitate village governments to develop village spatial plans concerning designation of cultivation and protected areas. | - Document every meeting with stakeholders.  
- Document SOP information dissemination events and reporting documentation.  
- Document number of fire events, supplemented with documentation and official report.  
- Coordinate with neighbouring companies and local governments to mitigate forest and land fires.  
- On a regular basis, patrol during dry seasons (July-September).  
- Monitor firebreaks, particularly in July-September.  
- Monitor water discharge in sources of water for fire management.  
- Monitor peatland water table.  
- Document FDRS-related reports. | - Once per week for patrols in dry seasons  
- Peatland water table: once per week using automatic digital monitoring tools.  
- Once per week for patrols in dry seasons  
- Peatland water table: once per week using automatic digital monitoring tools.  
- Once per week for patrols in dry seasons  
- Peatland water table: once per week using automatic digital monitoring tools.  
- Once per week for patrols in dry seasons  
- Peatland water table: once per week using automatic digital monitoring tools. | - Sustainability Dept.  
- Unit Operational Climate Risk Mitigation Dept.  
- Unit operational Climate Risk Mitigation Dept.  
- Unit operational Climate Risk Mitigation Dept.  
- Unit operational Climate Risk Mitigation Dept. |
| 18 | Hydrological functions of the major rivers: Semandang (Batang Prodam) River, including its riparian areas | 4, 22-24 | - Logging  
- Landuse conversion on riparian areas | - Disseminate information on the presence and important functions of rivers and their riparian areas.  
- Collaborate with stakeholders to develop conservation programmes for rivers and their riparian areas.  
- Install signboards to prohibit logging and land clearing for farm/plantation in riparian areas.  
- Identify community members who carry out logging activities and implement community empowerment programmes.  
- Delineate buffer zones by installing boundary signs/markers relevant to the riparian width. | - Document meetings with stakeholders.  
- Conduct regular monitoring in riparian boundaries identified as HCVA.  
- Prepare official reports on signboard installation.  
- Assist land clearing contractors and prepare land clearing official report. | Once every 6 months | 2023 and continuous during the operational activity | - Responsible Land Use & Conservation Dept.  
- Sustainability Dept.  
- Unit Operational |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 19 | Hydrological functions of tributaries and springs, including their riparian areas | 1, 18, 23, 28 | Agrochemical residue carried by runoff | - Install signboards and disseminate prohibition of agrochemical use in riparian areas.  
- Conduct manual weeding in riparian areas planted with oil palms.  
- Delineate buffer zones by installing boundary signs/markers relevant to the riparian width. | - Document information dissemination events to stakeholders.  
- Prepare official reports on signboard installation.  
- Check water quality at monitoring points, i.e., river inlets and outlets in the Assessment area (visually checked or tested at laboratory). | Water quality analysis test once per 6 months | 2023 and continuous during the operational activity | - Sustainability Dept.  
- Unit Operational |
| | Conversion of riparian area into plantation and farm | | | - Collaborate with communities, local governments, other companies, and NGOs to develop river conservation and protection programmes.  
- Disseminate information to land clearing contractors regarding riparian area boundaries to prevent over-clearing.  
- Prevent replanting in riparian areas relevant to the riparian width.  
- Strengthen streambanks prone to landslide using civil engineering techniques or vegetation enrichment (it is recommended to use native tree species and/or species with deep and strong rooting).  
- Construct sediment traps/gully plugs along rivers or tributaries in the Assessment area, particularly in areas with rolling slope. | - Document meetings with stakeholders.  
- Conduct regular monitoring on riparian area boundaries identified as HCVA.  
- Assist land clearing contractors and prepare land clearing official reports.  
- Monitor and document civil structures and/or vegetation growth (growth percentage). | Once every 6 months | 2023 and continuous during the operational activity | - Responsible Land Use & Conservation Dept.  
- Sustainability Dept.  
- Unit Operational |
| 20 | Environmental service functions of hilly areas | 4, 22, 27, and 28 | - Logging  
- Land clearing | - Maintain HCVA intactness through gazettement and demarcation.  
- Conduct reforestation and enrich vegetation in cleared or degraded HCMAs. | See HCV 2 and HCV 3 sections. |
| HCV 5 | 22 | Rivers for fishing and springs as source of water | 4, 23, 24 | - Landuse conversion on riparian areas
- Agrochemical residue | - Collaborate with stakeholders to develop conservation programmes for rivers and their riparian areas.
- Install signboards to prohibit logging and land clearing for farm/plantation in riparian areas.
- Delineate buffer zones by installing boundary signs/markers relevant to the riparian width.
- Conduct manual weeding in riparian areas planted with oil palms.
- Prohibit fishing using electricity and toxic chemicals.
- Conduct regular monitoring in riparian boundaries identified as HCA.
- Check water quality at monitoring points, i.e., river inlets and outlets in the Assessment area (visually checked or tested at laboratory). | Once every 6 months | Start on 2023 and continuous during the operational | - Responsible Land Use & Conservation Dept.
- Sustainability Dept.
- Unit Operational |

| HCV 6 | 23 | Sites with cultural and historical values | 22 | Potential loss of HCV 6 area | - Conduct further study to confirm cultural and historical values of sites in the MU.
- Document stakeholders related to HCV 6 elements.
- Develop communication with stakeholders and encourage the participatory development of management plan. | - Organise annual meetings to document HCV element management progress.
- Document every meeting with stakeholders. | Once every 6 months | Start on 2023 and continuous during the operational | - Responsible Land Use & Conservation Dept.
- CSR Dept.
- Unit Operational |

| HCS Forest | 24 | Natural vegetation fragments on | 37, 17, 7, 38 | - Logging
- Forest and land fires | - Provide support and assistance to extinguish fire, including facilitating emergency response team establishment and training and tool provision.
- Document number of fire occurrences, supplemented with documentation and official report. | Once every 6 months | Start on 2023 and continuous during the operational | - Responsible Land Use & Conservation Dept.
- CSR Dept.
- Unit Operational |
| Riparian areas of Penyawan River, Seriung Hill, Tujuhbelas Hill, and Division 1-2 secondary forests | - Land conversion  
- Disseminate information and install signboards on fire events.  
- Prohibit encroachment of undisturbed areas. | - Coordinate with local governments to mitigate forest and land fires.  
- Patrol regularly during dry seasons.  
- Analyse land cover based on UAV images and survey output. |  
| Peat area to the southwest of the MU  
- Logging  
- Forest and land fires  
- Land conversion  
- Land subsidence | - Disseminate information and install signboards containing information of forest fire and land clearance prohibition.  
- Prepare SOP on peatland management, including SOP on water management.  
- Map locations of alternative sources of water for fire response team.  
- Collaborate with stakeholders to prepare peatland management plan.  
- Develop water management grand design that prevents against drainage construction on peatlands.  
- Instal subsidence markers on locations that are already cultivated areas. | - Maintain plantation roads to support accessibility of fire emergency response team or fire patrol team.  
- Coordinate with the Government (at the local or national levels) for mitigation of forest and land fires  
- Monitor land cover change annually. |  
| 25  
| 4 | Conservation Dept.  
- Climate Risk Mitigation Dept.  
- Unit Operational |  
| Cross-Value Recommendations  
General management applied to each conservation area, includes:  
(1) conservation area designation;  
(2) information dissemination and stakeholder engagement; and  
(3) capacity building for conservation area management. |  
In carrying out such activities, estate management should collaborate with community, village governments, relevant organisations and agencies, and neighbouring companies around the Assessment area. |  
|  
|  
| RSPO NPP 2021 Summary of Integrated Management Plan  25 |
### Table 5. Management that generally applies to each conservation area

<table>
<thead>
<tr>
<th>Designation of Conservation Area</th>
<th>Information Dissemination and Engagement in Conservation Area Management</th>
<th>Capacity Building</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Conduct field delineation, verification, and establish conservation area definitive map. • Establish boundary markers for conservation areas (delineation). • Install signboards in conservation areas.</td>
<td>• Neighbouring companies • Local communities (village government, traditional organisation, and general public) • Government agencies • NGOs</td>
<td>• Deliver trainings on conservation area monitoring (basic identification, water quality measurement, and other aspects relevant to sustainability). • Implement Standard Operational Procedures (SOP) on consistent policies on monitoring of conservation areas.</td>
</tr>
</tbody>
</table>

### 4. Stakeholder and local people engagement (FPIC process)

### Table 6. Management & Monitoring Plan of FPIC Issue

<table>
<thead>
<tr>
<th>Social Impact</th>
<th>Management Plan</th>
<th>Monitoring Plan</th>
<th>Activities</th>
<th>Timeframe</th>
<th>Stakeholder Engagement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Land ownership status</td>
<td>- Conduct a participatory mapping by involving community representative(s), local government, and traditional institutions to ensure community land within the company concession. - Negotiate with the people who are willing to release their land, considering the FPIC principal. - Respect their rights to the lands which have not been compensated.</td>
<td>Monitor land use by the community, prevention of land use by burning.</td>
<td>- Engagement with the community - Landowner identification and mapping</td>
<td>Once every year and/or when needed</td>
<td>- Local government at sub-district level - Local government at village level - Plasma cooperative (partnership) - Traditional Institutions</td>
</tr>
</tbody>
</table>
5. Soil and Topography

The following is a summary of the limiting factors for the 7 land suitability areas and their management recommendations:

1. Dry Months/ Dry Season

The seven Soil Map Units all had one dry month in the last 5 years. A dry month is a condition where the amount of accumulated rainfall in one month is <60 mm. The following are recommendations for land management for oil palm during the dry months:

- Fertilization should be stopped during the dry months.
- Planting Cover Crops such as beans during immature plants and Nephrolepis during mature plants can maintain soil moisture for longer.
- During the dry season, forage slashing activities can be prioritized because apart from adding organic material, it also reduces the rate of evaporation (transpiration).
- Construction of water blocks in Main Road/ Collection Road ditches, especially in the Quartzpsamment, Palaeudult and Plinthudult areas to maintain water availability.
- Construction of reservoirs, especially in sandy areas, to inject water into the land.
- Irrigation with considering the socio-environment.

- Carry out an inventory of community & village potential.
- Create business opportunities that are integrated with plantation operations so that there is market guarantee.
- Provide community development/empowerment training to community groups with the hope of the community being positively impacted increasing.

2022 - 2024

- Local government at village level
- Traditional Institutions
- Local community
2. Elevation and Slope

Wavy to hilly slope conditions are found on Soil Map Unit Typic Paleudults, Typic Dystrudepts and Plinthudult at PT KML. In order to conserve soil and water to support oil palm plants in areas with wavy to hilly slopes, management planning is carried out as follows:

<table>
<thead>
<tr>
<th>Area Classification</th>
<th>Soil &amp; Water Conservation Facilities</th>
</tr>
</thead>
<tbody>
<tr>
<td>Flat-Undulating</td>
<td>- Plant of Land Cover Crops</td>
</tr>
<tr>
<td></td>
<td>- Application of empty bunches</td>
</tr>
<tr>
<td></td>
<td>- Arrangement of palm fronds</td>
</tr>
<tr>
<td></td>
<td>- Conservation ditch(es)/rorak</td>
</tr>
<tr>
<td>Rolling</td>
<td>- Plant of Land Cover Crops</td>
</tr>
<tr>
<td></td>
<td>- Plant of vetiver</td>
</tr>
<tr>
<td></td>
<td>- Application of empty bunches</td>
</tr>
<tr>
<td></td>
<td>- Arrangement of palm fronds</td>
</tr>
<tr>
<td></td>
<td>- Conservation ditch(es)/rorak with terrace fortifications</td>
</tr>
<tr>
<td>Hilly</td>
<td>- Plant of Land Cover Crops</td>
</tr>
<tr>
<td></td>
<td>- Plant of vetiver</td>
</tr>
<tr>
<td></td>
<td>- Application of empty bunches</td>
</tr>
<tr>
<td></td>
<td>- Arrangement of palm fronds</td>
</tr>
<tr>
<td></td>
<td>- Conservation ditch(es)/rorak with terrace fortifications</td>
</tr>
<tr>
<td></td>
<td>- Individual terrace/platform</td>
</tr>
<tr>
<td></td>
<td>- Contour terrace with stop bund</td>
</tr>
<tr>
<td>Low-lying land in each land slope</td>
<td>- Plant of Land Cover Crops</td>
</tr>
<tr>
<td>classification</td>
<td>- Arrangement of palm fronds</td>
</tr>
<tr>
<td></td>
<td>- Drainage ditches</td>
</tr>
<tr>
<td></td>
<td>- Oil palm landfill sites</td>
</tr>
</tbody>
</table>

Also, in sloping areas that are prone to leaching nutrients, it is necessary to apply Kieserite fertilizer at a dose of 1 – 1.5 kg/tree.

3. Management of Low-land Area

The obstructed drainage classes are in Soil Map Unit: Typic Endoaquepts, Dystrudept and Typic Udifluvents. Management planning is carried out as follows:
- Construction of drainage channels in the form of outlet ditches, main drains, and collection drains
- Creation of landfill sites in the basin area
- Making in-field trenches 8:1, 4:1, or 2:1 (depending on area conditions)
- Construction of elevated ditches on kaolin soil (Dystrudept) which experiences flooding after rain
- Application of fertilizer by pocketing in areas prone to temporary flooding
- Arrange fertilizer application when rainfall is low and the distance between rotations is shortened

4. Management at the area of Qurtzpsamment, Plinthudult and Paleudult areas
   - Application of composted organic material or empty bunches
   - Plant of land cover crops
   - Forage slashing once every 4 months
   - Arrange the fronds in a zigzag form
   - Application of special micro fertilizer in sand areas, namely micro compound with dose of 100 - 150 gr/tree
   - Creation of focal feeders in the Quartzpsamment and Plinthudult areas to improve the physical, chemical, and biological properties of the soil
   - Construction of road side pits in areas with sloping topography for rain harvesting into blocks

5. Management at the area of Haplosaprist
   - Construction of drainage channels to manage water surface levels
   - Maintain a water level of 40 cm above the ground surface to prevent subsidence by creating water barriers
   - Make subsidence poles, piezometers and water levels to monitor water levels and take action to prevent subsidence
   - Fertilize with special micro compound fertilizer at a dose of 100 – 150 gr/tree

6. Soil pH
   The soil pH below 4 is found in Soil Map Units Typic Haplosaprists, Typic Endoaquept, Typic Dystrudepts and Typic Udifluvents. Management recommendations include:
   - Regular application of Dolomite (1-1.5 kg/tree/year)
   - Addition of composted organic material or empty bunches (100 – 200 kg/tree/year)
- Application of boiler ash (if there is close to palm oil mill) with dose of 10 kg/tree

The Operational Units (Assistant, Estate Manager to Area Controller) will be responsible for managing the plantation based on the identified land type and suitability, by obtaining assistance from the Research Department.

Since there are areas with high slopes (> 45) in potential development areas for community within the PT KML concession, the company does not prohibit the community from using this area as an oil palm plantation, especially if the community clearance and manages the area independently. In the future, if the community willing to become a partner with PT KML, then the management of those area will follow the PT KML’s policies and procedures.

6. GHG

6.1. Steps to Manage and Increase the Carbon Stock

6.1.1. Land Use Change / New Planting

Land conversion appeared as the largest emission factor contributing to 64,107.96 tCO₂e.

<table>
<thead>
<tr>
<th>Target</th>
<th>Reduction of emissions from land clearing activities</th>
</tr>
</thead>
<tbody>
<tr>
<td>Action Plan</td>
<td>1. No land clearing of conservation and forest area</td>
</tr>
<tr>
<td></td>
<td>2. Management plan of conservation areas</td>
</tr>
<tr>
<td></td>
<td>3. Development of fire mitigation and completion of firefighting equipment</td>
</tr>
</tbody>
</table>

6.1.2. Carbon Crop Sequestration

Carbon crop sequestration contributes to emissions reductions of -74,920.42 tCO₂e.

<table>
<thead>
<tr>
<th>Target</th>
<th>Increase of carbon crop sequestration</th>
</tr>
</thead>
<tbody>
<tr>
<td>Action Plan</td>
<td>1. Use of seeds with high production potential</td>
</tr>
</tbody>
</table>
### 2. Use of land cover crops

<table>
<thead>
<tr>
<th><strong>6.1.3. Fertilizer</strong></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Emission source: manufacturing of the fertilizer and its application on the field.</td>
<td></td>
</tr>
<tr>
<td><strong>Target</strong></td>
<td>Emission reduction from fertilizing</td>
</tr>
</tbody>
</table>
| **Action Plan** | 1. Leaf & soil analysis to obtain the data of optimal amounts of fertilizer applied  
2. Empty bunch used for mulching (composting)  
3. Fertilizers application technique based on topography  
4. Proper fertilization dose, right time, and place, and in accordance with the Good Agricultural Practice |  |

<table>
<thead>
<tr>
<th><strong>6.1.4. Diesel Consumption in Operation</strong></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Fuel Consumption in the field contributed to 3,091.55 tCO₂e.</td>
<td></td>
</tr>
<tr>
<td><strong>Target</strong></td>
<td>Reduction of emission from Diesel Consumption in Operation</td>
</tr>
</tbody>
</table>
| **Action Plan** | 1. Good maintenance of vehicles and other equipment, periodically  
2. Safety of driving related training |  |

<table>
<thead>
<tr>
<th><strong>6.1.5. HCV Crop Sequestration</strong></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Crop sequestration from the conservation area contributes to emission reduction of -6,245.52 tCO₂e.</td>
<td></td>
</tr>
<tr>
<td><strong>Target</strong></td>
<td>Increase of carbon sequestration</td>
</tr>
<tr>
<td><strong>Action Plan</strong></td>
<td>1. Rehabilitation on the Conservation Areas which has open land and/or bushes as a land cover</td>
</tr>
</tbody>
</table>
2. Monitor the Conservation Area from any other activities
3. Work with the local community to protect the Conservation Area

In order to reduce carbon emissions when the plantation has finished the land clearances, and it continuous to operation and producing the FFB, the company will send its FFB to mills under one company group. Where in this mill there will be an installation for POME management, at least a belt press system or methane capture/ flare system.

6.2. Monitoring of the Action Plan implementation

6.2.1. Land Use Change/ New Planting

Monitoring of land clearing

<table>
<thead>
<tr>
<th>Action Plan</th>
<th>Timeline</th>
</tr>
</thead>
<tbody>
<tr>
<td>To monitor the plans for land clearing and its realisation</td>
<td>January 2024 – December 2026 (During land clearing phase)</td>
</tr>
</tbody>
</table>

6.2.2. Carbon Crop Sequestration

Monitoring carbon crop sequestration

<table>
<thead>
<tr>
<th>Action Plan</th>
<th>Timeline</th>
</tr>
</thead>
<tbody>
<tr>
<td>To make sure that seed is good quality and with a government license</td>
<td>January 2024 – December 2026 by QC Dept.</td>
</tr>
<tr>
<td>To monitor the realisation of oil palm planting &amp; legume cover crops</td>
<td>January 2024 – December 2026 by QC Dept.</td>
</tr>
<tr>
<td>To minimise the FFB losses</td>
<td>On mature plant</td>
</tr>
<tr>
<td></td>
<td>by Quality Agronomy Control Dept.</td>
</tr>
</tbody>
</table>
### 6.2.3. Fertilizer

#### Monitoring fertilizer emissions

<table>
<thead>
<tr>
<th>Action Plan</th>
<th>Timeline</th>
</tr>
</thead>
<tbody>
<tr>
<td>To monitor leaf and soil analysis activity</td>
<td>Once every 1 year, on April – May by Research Dept.</td>
</tr>
<tr>
<td>To monitor empty bunch application for mulching</td>
<td>When its applied by Quality Control Dept.</td>
</tr>
<tr>
<td>To monitor plan and realization of fertilizer application</td>
<td>Every fertilizer application by Estate Assistant and QC Dept.</td>
</tr>
</tbody>
</table>

### 6.2.4. Diesel Consumption for Transport

#### Monitoring fuel consumption in the operational activity

<table>
<thead>
<tr>
<th>Action Plan</th>
<th>Timeline</th>
</tr>
</thead>
<tbody>
<tr>
<td>To monitor the fuel consumption of each device and vehicle</td>
<td>Every month by Traction Dept.</td>
</tr>
<tr>
<td>To analyse work of equipment compared to its fuel consumption</td>
<td>Every month by Traction Dept.</td>
</tr>
<tr>
<td>To monitor planning &amp; realization of training related with driving safety</td>
<td>Once every 6 months by Training Center</td>
</tr>
</tbody>
</table>

### 6.2.5. HCV Crop Sequestration
### Monitoring carbon sequestration of the HCV – HCS Areas

<table>
<thead>
<tr>
<th>Action Plan</th>
<th>Timeline</th>
</tr>
</thead>
<tbody>
<tr>
<td>To monitor the planning and realisation of HCV areas rehabilitation, where the land cover is grassland or open land</td>
<td>Once every 6 months by Responsible Landuse and Conservation Dept.</td>
</tr>
</tbody>
</table>

#### Acceptance of Management Plans

<table>
<thead>
<tr>
<th></th>
<th>Name of Person Responsible</th>
<th>Designation</th>
<th>Signature</th>
</tr>
</thead>
<tbody>
<tr>
<td>6</td>
<td>Martin Mach</td>
<td>Deputy Head of Environmental Protection &amp; Governance</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Wedy Sulisty</td>
<td>Director</td>
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