New Planting Procedure - Summary of Integrated Management Plan

| RSPO Roundtable on Sustainable Palm Oil | Z Z | mutu international | | | |
|--|--|------------------------------|--|--|--|
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| Reference to the management unit management plan | PT Prasetia Utama 2022_NPP Summary of Integrated Management Plan | | | | |
| Name(s) of estate(s) covered under this management plan: | PT Prasetia Utama (PT PU) | | | | |

Guidance Notes:

This summary management plan shall indicate at a minimum but not be limited to the following:

- Key findings of the various assessments (e.g., potential minor environment and/or social risk requiring mitigation actions; total conservation areas).
- Key mitigation and monitoring regime, covering both the environmental and social aspects.
- Evidence of FPIC and key agreements with local communities (if any).
- An action plan describing operational actions consequent to the findings of the various assessments, referencing the grower's relevant operational procedures.
- Designation of the management team and responsible person for the implementation.

1 EΙΑ **Environmental impact management and monitoring Plan** Purpose of management and monitoring report compilation is:

- a. Provide information on the implementation of environmental management and monitoring plan by PT PU to government agencies and agencies to assist in monitoring environmental management by the regions.
- b. Provide information on management and monitoring implementation of PT PU to central management to assist policy-making on environmental management.
- c. As control to the company for the implementation of management and monitoring in its operational area.
- d. Formulate the environmental management and monitoring plan (issues, strategies, programs and activities) that the company needs in managing the environmental aspect to create a healthy and safe environment.

Output:

a. Output expected from the implementation of those activities are the formulation of environmental management and monitorin plan of PT PU that contain issues/problem, and efforts to solve them (strategy, program, activity, location and time of implementation).

Benefits:

- a. As a guideline for the company to manage significant environmental aspects resulting from the company's activities to minimize significant environmental impacts.
- b. As material for the company in creating environmental management programs, both short-term, medium-term and long-term programs, based on applicable laws and regulations.
- c. To foster harmonious relationship between the company and the surrounding community

Table 1. PT PU's Environmental Impact Assessment (EIA) management plan

| | MANAGED | | INDICATOR OF | ENVIRONMENTAL MANAGEMENT | | PERIOD OF | MA | NAGING INSTITUTION | ON |
|-----|--|--|---|--------------------------|--|--|-------|---|---|
| NO | ENVIRONMENTAL IMPACT | SIMPACT SOURCES | SUCCESS | FORM | LOCATION | MANAGEMENT | DOER | SUPERVISOR | REPORT RECEIVER |
| 1. | PHYISICAL – CHEMICAL COMPONENTS | | | | | | | | |
| 1.1 | Air Ambient Quality | | | | | | | | |
| | Based on the significant impacts evaluation indicate that the parameters of the impact is air quality degradation in the form of increased dust and emissions which are significant negative impacts and direct. | Oil palm planting activities. Harvesting and transportation of FFB. Mill operations. Workshop and generator operations in | Air quality degradation in the form of dust and gas emissions not exceeding the established environmental quality standard: | , | 1. On oil palm planting, harvesting and transporting activities of FFB's, management need to be performed along the road and | Oil palm planting, harvesting & transportation activities are managed every working day. On mill operations maintenance to mill | PT PU | Plantation and forestry office of Kutai Kartanegara regency. Regional Environment | 1. Plantation and Forestry Office of Kutai Kartanegar a Regency |

| | | | | | | | | |
|-------|-----------------------------|---------------------|-------------------------------------|---|-----------------------|--------------------|-------------|--------------|
| | The intensity of the impact | which series of | 1. The quality | with specific aggregates | the surrounding | machinery need to | Agency of | 2. Environme |
| | that exceeds the | these activities | standard of | especially on seed | area. | be done at least | Kutai | nt agency |
| | environmental quality | impact the air | airborne dust | transportation routes. | 2. On mill operations | once in 2 weeks. | Kartanegara | of Kutai |
| | standard may have further | quality in the form | content is 0.23 mg | c. During dry season, water the | management | 3. On workshop and | Regency | Kartanegar |
| | impacts on public and | of ambient dust | / m³ (ambient air | road every 3 hours especially on | carried out is on | generator | | a Regency |
| | workers' health. | concentration due | quality standard) | transportation route near the | | = | | |
| | | to vehicle wheel | based on | settlement. | mill's machinery/ | operations | | 3. Environme |
| | | friction with the | Government | | boiler unit. | management need | | nt Agency |
| | | road and emissions | Regulation | 2) Harvesting and Transportation of | 3. On workshop and | to be done once a | | of East |
| | | sourced from | number. 41 years | FFB's | generator | month. | | Kalimantan |
| | | transporting truck, | 1999 on air | a. Limit the FFB's transporting | operations, | | | Province. |
| | | generator engine | pollution control. | vehicle at maximum 20km/h, | management | | | |
| | | and boiler at the | Dust at workplace | especially when passing | carried out is on the | | | |
| | | mill. | threshold limit | through the settlement, | | | | |
| | | | value is o3 mg/m ³ | farming and concentration of | operation locations. | | | |
| | | | based on Decree | agriculture society. | | | | |
| | | | Minister of Labour | b. Conducting hardening and | | | | |
| | | | number 51 year | compaction on hauling roads | | | | |
| | | | 1999 on Dust | with specific aggregates | | | | |
| | | | threshold values | especially on plantation road | | | | |
| | | | at the workplace. | network. | | | | |
| | | | 3. Stationary | c. During dry season, water the | | | | |
| | | | Emission Source | road especially on | | | | |
| | | | Standards are | transportation route near the | | | | |
| | | | based on Decree | settlement, farming and | | | | |
| | | | of Environmental | concentration of agriculture | | | | |
| | | | Minister number | society. | | | | |
| | | | 13/MENLH/3/200 | 0) 4511 0 | | | | |
| | | | 5 (NO2 = 1000 mg | 3) Mill Operations: | | | | |
| | | | $/ m^3$, SO2 = | a. Chop as smooth as possible the | | | | |
| | | | 8000mg / m³, | oil palm waste used as boiler | | | | |
| | | | Particulate = 350 | fuel in order to increase high | | | | |
| | | | and Opacity = 35% | efficiency level of combustion | | | | |
| | | | 1) | (perfect). | | | | |
| | | | | b. Installing dust collector device | | | | |
| | | | | on boiler's chimney. c. Construct higher boiler chimney | | | | |
| | | | | as high as 5 x higher than the | | | | |
| | | | | surrounding buildings. | | | | |
| | | | | d. Emissions generated by | | | | |
| | | | | generator and boiler | | | | |
| | | | | operations, these emissions | | | | |
| | | | | generally released to open air. | | | | |
| | | | | Particulate relesses by boiler | | | | |
| , └── | | | | i ai ticulate releseaseu by boller | | <u> </u> | |] |

| | | | | in the form of ashes generally controlled by installing dust collector to catch the dust. Dust collected by the dust collector can be used to harden the lower area. e. Allocate area specific for reforestation around the mill area in order to reduce pollutant concentration due to boiler activity. f. Require the workers primarily who work in mill location to wear personal protective equipment. g. Perform periodic and regular maintenance on machines to keep the condition well maintained and still in accordance with the technical age. 4)Workshop and generator operations: a. Perform regular maintenance on generator at regular intervals to maintain machine performance. b. Generator chimney should be ± 2.5 times higher than the surrounding buildings. c. Generator should be located at least 75 meters from the location of estate employees | | | | | |
|-----|---|--|---|---|--|---|-------|--|--|
| | | | | housing. | | | | | |
| 1.2 | Noise | | | | | | | | |
| | Based on significant impact evaluation results indicate that impact parameters on occurrence of increased noise intensity which is negative and direct impact. The intensity of the impact that exceeds environmental | Due to the operation of mill's machinery and generator engine and heavy equipment repair on workshop and generator area. | The level of noise emitted does not exceed the established environmental standard: 1. Quality standard of noise in housing and | Perform periodic and regular maintenance on machines to keep the condition well maintained and still in accordance with the technical age. | On mill operations management carried out is on mill's machinery/boiler unit. On workshop and generator | On mill operations maintenance to mill machinery need to be done at least once in 2 weeks. On workshop and generator | PT PU | Plantation and forestry office of Kutai Kartanegara regency. | 1. Plantation and Forestry Office of Kutai Kartanegar a Regency. |

| | quality standard may have further impacts on the health of working people. | | residential area is 55 dB (A) based on decree of | b. Require the workers, especially workers working at mill location to use personal protective equipment. | operations, management carried out is on the | operations management need to be done once a | | 2. Regional Environment Agency of | 2. Environme nt agency of Kutai |
|-----|---|--|---|--|--|--|-------|---|--|
| | | | Environment Minister Number 48 year 1996 on Noise Quality Standards. 2. Quality standard of noise for working environment as stated in decree of Minister of Labour and Workforce Number 51 year 1999 is 85 Db (A). | c. Placing the boiler in a separate area with reinforced concrete foundation, indoor and closed to reduce boiler noise level. d. Allocate area specific for reforestation around the mill area in order to reduce pollutant concentration due to boiler activity. e. Delivering information to communities living around the plant site on the equipment/machinery activity and the noise it generates. 2). On workshop and generator operation activities a. Generator units must be placed on area specifically designed for generator to reduce the noise emitted. b. Perform maintenance on generator periodically and regularly so that the condition is well maintained and still in accordance with its technical age. c. Require all workshop workers | operation locations. | month. | | Kutai Kartanegara Regency | Kartanegar a Regency. 3. Environme nt Agency of East Kalimantan Province. |
| | | | | to use ear plugs at the time of work in progress. | | | | | |
| 1.3 | Surface Run off | | · | | | | | | 1 |
| | Based on significant impact evaluation results indicate that impact parameters on occurrence of disruption on surface flow in which the impact is negative and direct due to micro and macro flow cut off on natural surface during cut and fill process. | Road network construction activities with surface runoff | There is no surface flow disruptions. | Carry out land clearing for plantations road network in a planned and efficient manner. Constructing culvert at each intersection equipped with drainage ditch with appropriate size. Creating bridge on areas with river flowing. | At the road points and natural paths | Once during road network construction and evaluated once a year for improvements against damaged sections or material. | PT PU | Plantation and forestry office of Kutai Kartanegara regency. Regional Environment | Plantation and Forestry Office of Kutai Kartanegar a Regency. |

| 4. Conduct routine maintenance on bridges and culverts constructed. | | Agency of Kutai Kartanegara Regency | 2. Environme nt agency of Kutai Kartanegar a Regency. 3. Environme |
|---|-------|--|--|
| | | Kartanegara | of Kutai Kartanegar a Regency. |
| constructed. | | • | Kartanegar a Regency. |
| | | • | Kartanegar a Regency. |
| | | negency | a Regency. |
| | | | |
| | | | 3. Environme |
| | | | 1 |
| | | | nt Agency |
| | | | of East |
| | | | Kalimantan |
| | | | Province |
| 1.4 Erosion Rates | | | |
| Based on significant impact Vegetation Resulted erosion rate Development of Estate On erosion-prone Once during work on | PT PU | 1.Plantation | 1. Plantation |
| evaluation results indicate degradation on areas does not exceed Emplacement. areas especially estate progress and evaluated | | and forestry | and |
| that impact parameters on cleared: critical threshold of 9 a. Implementation of estate emplacement location, once in 6 months. | | office of Kutai | Forestry |
| occurrence of increased a. Development of ton/ ha/ year based emplacement development road network, nursery | | Kartanegara | Office of |
| erosion rates in which the estate on Government should be carried out in a site planting location | | regency. | Kutai |
| impact is negative, significant emplacement Regulation No. 150 planned manner and does not and mill's site. | | | Kartanegar |
| and derivatives. b. Development of year 2000. allow open land to be neglected | | | a Regency. |
| road network for long term. | | | 2. Environme |
| c. Preparation of b. Land clearing carried out to | | | nt agency |
| nursery land construct estate emplacement | | | of Kutai |
| d. Preparation of should be done in a planned | | | Kartanegar |
| planting area manner and according to the | | | a Regency. |
| e. Preparation of mill needs. site. c. Immediately plant land cover | | | 3. Environme |
| c. Infinediately plant land cover crops on areas cleared for | | | nt Agency of East |
| emplacement. | | | Kalimantan |
| d. On sloping area with gradient > | | | Province m |
| 8% should have terraces to | | | FIOVILLE |
| avoid erosion prone areas. | | | |
| a void crosson prone areas. | | | |
| Road network construction | | | |
| a. Land clearing should be done in | | | |
| a planned and efficient manner. | | | |
| b. Construct terraces on runoff | | | |
| areas near river riparian. | | | |
| c. Immediately plant land cover | | | |
| crops on areas cleared. | | | |
| d. Surfacing the road with coral | | | |
| mixture. | | | |
| | | | |
| Preparation of nursery site | | | |

| | | | | a. Establish nursery site on sloping | | | | | |
|-----|-----------------------------|-------------------------|--------------------|---|---------------------|------------------------|-------|---------------|---------------|
| | | | | area. | | | | | |
| | | | | b. Development of nursery land | | | | | |
| | | | | should be conducted in a | | | | 1 | |
| | | | | planned and efficient manner. | | | | 1 | |
| | | | | c. Setting the pre-nursery site that | | | | 1 | |
| | | | | cuts the slope. | | | | | |
| | | | | d. Immediately plant land cover | | | | 1 | |
| | | | | crops on nursery site that have | | | | | |
| | | | | been left. | | | | | |
| | | | | 560 | | | | | |
| | | | | Preparation of planting site | | | | | |
| | | | | a. Land preparation should be | | | | 1 | |
| | | | | conducted in a well and | | | | | |
| | | | | planned manner. | | | | | |
| | | | | b. Land clearing remnants should | | | | | |
| | | | | be stacked lengthwise and cut | | | | | |
| | | | | into the slope. | | | | | |
| | | | | c. Immediately plant oil palm & | | | | | |
| | | | | LCC on areas planned. | | | | | |
| | | | | d. Do not carry out land clearing | | | | | |
| | | | | by burning. | | | | | |
| | | | | ., | | | | | |
| | | | | Preparation of mill site | | | | | |
| | | | | a. Land clearing should be | | | | | |
| | | | | conducted in a planned and | | | | | |
| | | | | gradual manner. | | | | | |
| | | | | b. Land clearing should be carried | | | | | |
| | | | | out during dry season. | | | | | |
| | | | | c. Do not carry out land clearing | | | | | |
| | | | | by burning. | | | | | |
| | | | | d. Immediately commence | | | | | |
| | | | | construction activities after | | | | | |
| | | | | land clearing completed. | | | | | |
| | | | | e. Immediately conduct | | | | | |
| | | | | reforestation on surrounding | | | | | |
| | | | | area of the ste with fast-growth | | | | | |
| | | | | plant type and LCC to minimize | | | | | |
| | | | | erosion. | | | | | |
| 1.5 | Sediment Load | L | l . | | | | | 1 | 1 |
| | Based on significant impact | This is a derivative | Controlled load of | 1) Emplacement Development | Surronding drainage | Once during work in | PT PU | 1. Plantation | 1. Plantation |
| | evaluation results indicate | effect of the increased | sediment in | a. Estate emplacement | ditch that áre | progress and evaluated | | and forestry | and |
| | that impact parameters on | erosion rate caused by | surrounding water | construction should be | connected with | at least once in 3 | | office of | Forestry |
| | occurrence of increased | <u> </u> | bodies. | 500000000000000000000000000000000000000 | | | | | - |
| l L | | | | | | | | Kutai | Office of |
| | | | | | | | | | |

| 1 | | I . | | | | I | Ī |
|-------------------------------|------------------------|-----|----------------------------------|-------------------|---------------------|-------------|---------------|
| sediment load rates in which | the activities | | conducted in a planned | sediment trap and | months during PT PU | Kartanegara | Kutai |
| the impact is negative, | implemented such as: | | manner and gradually. | wáter body. | operations. | regency. | Kartanegar |
| significant and may result in | a. Development of | | b. Construct drainage ditch | | | 2. Regional | a Regency. |
| water quality degradation. | estate | | which equipped with | | | Environment | 2. Environme |
| | emplacement | | sediment trap around the area | | | Agency of | nt agency |
| | b. Development of | | that has been cleared for | | | Kutai | of Kutai |
| | road network | | estate emplacement site | | | Kartanegara | Kartanegar |
| | c. Preparation of | | construction. | | | Regency | a Regency |
| | nursery land | | c. Immediately plant LCC on area | | | | 3. Environme |
| | d. Preparation of | | that has been cleared. | | | | nt Agency |
| | planting área | | | | | | of East |
| | e. Preparation of mill | | 2) Construction of road network | | | | Kalimantan |
| | site. | | a. Road network construction | | | | Province m |
| | | | should be conducted in a | | | | T TOVINCE III |
| | | | planned manner and gradually | | | | |
| | | | according to the needs. | | | | |
| | | | b. Construct drainage ditch on | | | | |
| | | | the right and the left side of | | | | |
| | | | the road | | | | |
| | | | c. Create sediment trap at each | | | | |
| | | | end of the drainage ditch that | | | | |
| | | | leads to water body. | | | | |
| | | | d. Conduct intensive | | | | |
| | | | maintenance to each | | | | |
| | | | sediment trap on each | | | | |
| | | | drainage ditch. | | | | |
| | | | e. Conduct land clearing for oil | | | | |
| | | | palm planting in a planned and | | | | |
| | | | effective manner. | | | | |
| | | | f. Create terraces for land | | | | |
| | | | cleared close to river riparian. | | | | |
| | | | g. Surfacing the road with coral | | | | |
| | | | mixture. | | | | |
| | | | | | | | |
| | | | 3) Preparation of nursery site | | | | |
| | | | a. Development of nursery land | | | | |
| | | | should be conducted in a | | | | |
| | | | planned and efficient manner. | | | | |
| | | | b. Setting the pre-nursery site | | | | |
| | | | that cuts the slope. | | | | |
| | | | mat cuts the slope. | | | | |

| c. At the end of drainage ditch |
|-----------------------------------|
| construct sediment trap |
| measuring 40m x 15m x 2m |
| which divide into 2 |
| components. |
| d. Conduct periodic |
| maintenance on sediment |
| trap. |
| |
| |
| 4) Preparation of planting site |
| a. Land preparation should be |
| conducted in a well and |
| planned manner. |
| b. Land clearing remnants |
| should be stacked lengthwise |
| and cut into the slope. |
| c. Immediately plant oil palm & |
| LCC on areas planned. |
| d. Do not carry out land clearing |
| by burning. |
| |
| 5) Preparation of mill site |
| a. Land clearing should be |
| conducted in a planned and |
| gradual manner. |
| b. Land clearing should be |
| carried out during dry season. |
| c. Do not carry out land clearing |
| by burning. |
| d. Immediately commence |
| construction activities after |
| land clearing completed. |
| e. Immediately conduct |
| reforestation on surrounding |
| area of the ste with fast- |
| growth plant type and LCC to |
| minimize erosion. |
| |
| |

| 1.6 Surface water quality | | | | | | | | |
|--|---|--|--|---|---|-------|---|--|
| Based on significant impact evaluation results indicate that impact parameters on occurrence of surface water quality degradation in which the impact is negative, significant and direct. Impact intensity that exceed environmental quality standard can cause further impacts of decreasing the diversity of aquatic biota. | Derivative impact due to increased sedimentation load (TSS) of fertilizers residue carried away to water bodies includes liquid waste sourced from mill, workshop and generator operations: a. Development of estate emplacement. b. Development of road network. c. Preparation of nursery site. d. Nursery activities. e. Preparation of planting área. f. Preparation of mill site. g. Plantation upkeep h. Mill operation i. Workshop and generator operations j. Fertilizer and pesticide warehouse activities | Declining quality occurred does not exceed the quality standard as set by local government regulation PERDA number 02 year 2011 on water quality management & water pollution control with value TSS = 50mg / L Pg = 6 - 9 in sediment basin and water bodies. | Emplacement development: a. Estate emplacement construction should be conducted in a planned manner and gradually. b. Construct drainage ditch which equipped with sediment trap around the area that has been cleared for estate emplacement site construction. c. Immediately plant LCC on area that has been cleared. Road network construction a. Road network construction should be conducted in a planned manner and gradually according to the needs. b. Construct drainage ditch on the right and the left side of the road. c. Create sediment trap at each end of the drainage ditch that leads to water body. d. Conduct intensive maintenance to each sediment trap on each drainage ditch. e. Construct terraces on area cleared close to riparian river. f. Conduct land clearing for oil palm road network in a planned and effective manner. g. Create terraces for land cleared close to river riparian. h. Surfacing the road with coral mixture. | Surronding drainage ditches that are connected with sediment trap and WWTP. | Once during work in progress and evaluated at least once in 3 months during PT PU operations. | PT PU | 1. Plantation and forestry office of Kutai Kartanegara regency. 2. Regional Environment Agency of Kutai Kartanegara Regency | 1. Plantation and Forestry Office of Kutai Kartanegar a Regency. 2. Environme nt agency of Kutai Kartanegar a Regency 3. Environme nt Agency of East Kalimantan Province |

| a. Provide coagulation treatment |
|-----------------------------------|
| on sediment basin to accelerate |
| the precipitation process of |
| suspended fertilizers & |
| pesticides. |
| b. Application of fertilizers and |
| pesticides are implemented |
| effectively & efficiently. |
| |
| Nursery |
| a. Fertilizers & pesticides are |
| applied in accordance with the |
| doses that have been |
| determined so as not to cause |
| environmental pollution, |
| especially resulting in |
| hazardous and toxic waste |
| around the nursery area. |
| b. Conducting pesticides spraying |
| in hot weather. |
| c. Conducting fertilization after |
| raining and applying only |
| around the seeds. |
| d. Create a drainage network that |
| leads to the retention basin in |
| each division so that the water |
| flow does not flow to water |
| bodies. |
| e. Using a biodegradable and |
| environmentally friendly |
| pesticide type. |
| f. Collect plastic waste from |
| pesticide bottles and other |
| plastic waste at temporary |
| storage facility for hazardous |
| and toxic waste. |
| |
| Preparation of planting area. |

| a. Land preparation should be |
|-------------------------------------|
| conducted in a well and |
| planned manner. |
| b. Land clearing remnants should |
| be stacked lengthwise and cut |
| into the slope. |
| c. Immediately plant oil palm & |
| LCC on areas planned. |
| d. Do not carry out land clearing |
| by burning. |
| e. Not clearing area close to river |
| border zones and maintain |
| springs and natural vegetation |
| in river border zones. |
| |
| |
| Preparation of mill site |
| a. Construct WWTP to treat |
| wastewater generated from |
| milling activities. |
| b. Based on the characteristics of |
| waste and pollution loads, |
| wastewater management is |
| effective if WPH is more than 75 |
| days so that COD and TTS levels |
| can be lowered to below quality |
| standards. For this intention PT |
| PU plans to handle wastewater |
| generated by constructing |
| WWTP that uses biological |
| system (anaerobic and aerobic |
| system) with a hydrological |
| retention time (WPH) of |
| approximately 150 days (5 |
| months), the increased WPH is |
| expected to decrease the |
| quality of waste water and |
| pollution loads to below |
| environmental quality |
| |

| | standards and not pollute the |
|------------|------------------------------------|
| | waste recipient. |
| | c. Implementation of Land |
| | Application in which requires |
| | assessment in advance on |
| | pollution aspect that will occur |
| | previously conducted in the |
| | previous assessment of the |
| | aspect of pollution that will |
| | occur, the carrying capacity of |
| | land in the plantation area and |
| | influence on the soil, especially |
| | the microbiology/ biology of the |
| | soil, surface water and its |
| | permit (This assessment is |
| | intended to obtain Land |
| | Application permit from the |
| | Regent/ Mayor in accordance |
| | with decree of Environmental |
| | Minister Number 28 year 2003 |
| | and Number 29 year 2003. |
| | d. For handling of used lubricants |
| | should be collected/ stored in a |
| | specific container (barrel) and |
| | then submitted to the farm or |
| | sold to the third party (local |
| | entrepreneurs who have |
| | received license from the |
| | Ministry of Environment based |
| | on recommendation from Kutai |
| | Kartanegara regency |
| | government. Company should |
| | consult with Environmental |
| | Agency of East Kalimantan |
| | Province in advance when |
| | appointing used lubricants |
| | collector. |
| , <u> </u> | |

| e. Training employees by |
|-------------------------------------|
| incorporating environmental |
| impact control programs. |
| f. In collaboration with relevant |
| agencies such as plantation |
| office and forestry of Kutai |
| Kartanegara regency and |
| universities on wastewater |
| treatment techniques. |
| |
| Plants upkeep: |
| a. Provision of fertilizer in a |
| planned and efficient manner |
| to oil palm plant. |
| b. Application of pesticides to |
| prevent pests and diseases |
| should refer to doses that have |
| been recommended and using |
| permitted materials. |
| c. Herbicide application in weed |
| control should be the last |
| resort, non-chemical weeding is |
| the priority. |
| d. Conduct strict supervision on |
| field workers applying fertilizers |
| and pesticides in order to avoid |
| irregularities during the |
| application by following the |
| work procedures that have |
| been set. |
| e. Apply strict rules that prohibit |
| all estate workers either |
| intentionally or unintentionally |
| not to spill fertilizers or |
| pesticides to water bodies |
| f. Preparing safe storage for |
| fertilizers and pesticides from |
| runoff and protected from rain |
| |

| | at distribution points at |
|--|--|
| | planting area. |
| | g. Create SOP's on storage, |
| | distribution and application of |
| | fertilizers and pesticides in the |
| | field. |
| | h. Cease fertilization activities and |
| | pesticide applications |
| | temporarily during rain. |
| | i. All estate drainage ditches |
| | leading to local water bodies |
| | should have sediment basin |
| | that serves to test fertilizer and |
| | pesticide that carried away by |
| | water. |
| | j. Collect used fertilizer and |
| | |
| | pesticide containers on collection location that has |
| | |
| | been provided. |
| | k. Provide training to all workers |
| | who apply fertilizers and |
| | pesticides by prioritizing |
| | aspects of environmental |
| | security. |
| | I. Construct monitoring wells |
| | within the project location and |
| | local community residential |
| | location. |
| | Mill maintenance: |
| | a. Construct WWTP to treat |
| | wastewater generated from |
| | milling activities. |
| | b. Based on the characteristics of |
| | waste and pollution loads, |
| | wastewater management is |
| | effective if WPH is more than 75 |
| | days so that COD and TTS levels |
| | can be lowered to below quality |
| | standards. For this intention PT |
| | |

| PU plans to handle wastewater generated by constructing WYFP that usus biological system (namerobic and serobic system) with a hydrological retention time (NPPI) of approximately 150 days (5 months), the increased WPP is expected to decrease the quality of waste water and pollution loads to below environmental quality standards and ont pollute the waste recipient. 1. Implementation of Land Application in which requires assessment in advance on pollution suspect that will occur the Carrying capacity of land in the plantation area and influence on the soil, especially the microbiology flobing of the soil, surface water and its permit (this assessment is intended to obtain Land Application permit from the Regent/ Mayor in accordance with decree of Environmental Minister Number 28 year 2003 and Number 29 year 2003 and Sumber 29 year 2003 | | |
|--|------------------------------------|------|
| wwTP that uses biological system (anaerobic and aerobic system) with a hydrological retention time (WPH) of approximately 150 days (5 months), the increased WPH is expected to decrease the quality of waste water and pollution loads to below environmental quality standards and not pollute the waste recipient. c. implementation of Land Application in which requires assessment in advance on pollution aspect that will occur the carrying capacity of land in the pollutation are and influence on the soil, especially the microbiology biology for the soil, surface water and its permit (This assessment is intended to obtain Land Application permit from the Regent/ Mayor in accordance with decree of Environmental Minister Number 28 year 2003 and Number 29 year 2003. d. For handling of used lubricants should be collected stored in a specific container (barrel) and then submitted to the farm or sold to the third party (local | PU plans to handle wastewater | |
| system (anaerobic and serobic system) with a hydrological retendon time (WPH) of approximately 150 days (5 months), the increased WPH is expected to decrease the quality of waste water and pollution loads to below environmental quality standards and not pollute the waste recipient. c. Implementation of Land Application in which requires assessment in advance on pollution aspect that will occur the carrying capacity of fand in the plantation area and influence on the soil, especially the microbiology follogy of the soil, surface water and its permit (This assessment is intended to obtain Land Application permit from the Regent/ Mayor in accordance with decree of Environmental Minister Number 28 year 2003 and Number 29 year 2003. d. For handling of used lubricants should be collected/ stored in a specific container (barrel) and then submitted to the farm on soil to the third party (local | generated by constructing | |
| system) with a hydrological retention time (WPH) of approximately 150 days (5 months), the increased WPH is expected to decrease the quality of waste water and pollution loads to below environmental quality standards and not pollute he waste recipient. c. Implementation of Land Application in which requires assessment in advance on pollution aspect that will occur the carrying capacity of land in the plantation area and influence on the soil, especially the microbiology/ biology of the soil, surface water and its permit (This assessment is intended to obtain Land Application permit (This assessment is intended to obtain Land Application permit from the Regent/ Mayor in accordance with decree of Environmental Minister Number 28 year 2003. d. For handling of used fubricants should be collected / storation as specific container (barrel) and then submitted to the farm or soid to the third party (local) | WWTP that uses biological | |
| retention time (WPH) of approximately 150 days (5 months), the increased WPH is expected to decrease the quality of waste water and pollution loads to below environmental quality standards and not pollution the waste recipient. c. Implementation of Land Application in which requires assessment in advance on pollution aspect that will occur the carrying capacity of land in the plantation area and influence on the soil, especially the microbiology biology of the soil, surface water and its permit (This assessment is intended to obtain Land Application permit from the Regenty Mayor in accordance with decree of Environmental Minister Number 28 year 2003 and Number 29 year 2003. d. For handling of used lutication is specific container (barrel in a specific container (barrel in a specific container (barrel) and then submitted to the farm or soid to the third party (local) | system (anaerobic and aerobic | |
| approximately 150 days (5 months), the increased WPH is expected to decrease the quality of waste water and pollution loads to below environmental quality standards and not pollute the waste recipient. C. implementation of Land Application in which requires assessment in advance on pollution spect that will occur the carrying capacity of land in the plantation aspect and influence on the soil, especially the microbiology/ biology of the soil, surface water and its permit (fihis assessment is intended to obtain Land Application permit from the Regent/ Mayor in accordance with decree of Environmental Minister Number 28 year 2003 and Number 29 year 2003. d. For handling of used lubricants should be collected/ Stored in a specific container (barrel) and then submitted to the farm or soid to the third party (local | system) with a hydrological | |
| months), the increased WPH is expected to decrease the quality of waste water and pollution loads to below environmental quality standards and not pollute the waste recipient. Implementation of Land Application in which requires assessment in advance on pollution aspect that will occur the carrying capacity of land in the plantation area and influence on the soil, especially the microbiology biology of the soil, surface water and its permit (This assessment is intended to obtain Land Application permit from the Regent/ Mayor in accordance with decree of Environmental Minister Number 28 year 2003 and Number 29 year 2003. d. For handling of used lubricants should be collected for the surplined for the surplined for surpl | retention time (WPH) of | |
| expected to decrease the quality of waste water and pollution loads to below environmental quality standards and not pollute the waste recipient. c. Implementation of Land Application in which requires assessment in advance on pollution aspect that will occur the carrying capacity of land in the plantation area and influence on the soil, especially the microbiology/ biology of the soil, surface water and its permit (This assessment is intended to obtain Land Application permit from the Regent/ Mayor in accordance with decree of Environmental Minister Number 28 year 2003 and Number 29 year 2003. d. For handling of used lubricants should be collected/\$\$ stored in a specific container (barrel) and then submitted to the farm or sold to the third party (local) | approximately 150 days (5 | |
| quality of waste water and pollution loads to below environmental quality standards and not pollute the waster recipient. c. Implementation of Land Application in which requires assessment in advance on pollution aspect that will occur the carrying capacity of land in the plantation area and influence on the soil, especially the microbiology blology of the soil, surface water and its permit (This assessment is intended to obtain Land Application permit from the Regent/ Mayor in accordance with decree of Environmental Minister Number 28 year 2003 and Number 29 year 2003. d. For handling of used lubricants should be collected's tored in a specific container (barrel) and then submitted to the farm or sold to the third party (local | months), the increased WPH is | |
| pollution loads to below environmental quality standards and not pollute the waste recipient. c. Implementation of Land Application in which requires assessment in advance on pollution aspect with will occur the carrying capacity of land in the plantation area and influence on the soil, especially the microbiology/ biology of the soil, surface water and its permit (This assessment is intended to obtain Land Application permit from the Regent/ Mayor in accordance with decree of Environmental Minister Number Sy evar 2003 and Number 29 year 2003. d. For handling of used lubricants should be collected is stored in a specific container (barrel) and then submitted to the farm or sold to the third party (local | expected to decrease the | |
| environmental quality standards and not pollute the waste recipient. c. Implementation of Land Application in which requires assessment in advance on pollution aspect that will occur the carrying capacity of land in the plantation area and influence on the soil, especially the microbiology/ biology of the soil, surface water and its permit (This assessment is intended to obtain Land Application permit from the Regent/ Mayor in accordance with decree of Environmental Minister Number 28 year 2003 and Number 29 year 2003. d. For handling of used lubricants should be collected/ stored in a specific container (barrel) and then submitted to the farm or sold to the third party (local | quality of waste water and | |
| standards and not pollute the waste recipient. c. Implementation of Land Application in which requires assessment in advance on pollution assessment that will occur the carrying capacity of land in the plantation area and influence on the soil, especially the microbiology/ biology of the soil, surface water and its permit (This assessment is intended to obtain Land Application permit (This assessment is intended to obtain Land Application permit from the Regent/ Mayor in accordance with decree of Environmental Minister Number 28 year 2003 and Number 29 year 2003. d. For handling of used lubricants should be collected/ stored in a specific container (barrel) and then submitted to the farm or sold to the third party (local) | pollution loads to below | |
| waste recipient. c. Implementation of Land Application in which requires assessment in advance on pollution aspect that will occur the carryic gapacity of land in the plantation area and influence on the soil, especially the microbiology/ biology of the soil, surface water and its permit (This assessment is intended to obtain Land Application permit from the Regent/ Mayor in accordance with decree of Environmental Minister Number 28 year 2003 and Number 29 year 2003. d. For handling of used lubricants should be collected/ stored in a specific container (barrel) and then submitted to the farm or sold to the third party (local) | environmental quality | |
| c. Implementation of Land Application in which requires assessment in advance on pollution aspect that will occur the carrying capacity of land in the plantation area and influence on the soil, especially the microbiology/ biology of the soil, surface water and its permit (Fins assessment is intended to obtain Land Application permit from the Regent/ Mayor in accordance with decree of Environmental Minister Number 28 year 2003 and Number 29 year 2003. d. For handling of used lubricants should be collected/ stored in a specific container (barrel) and then submitted to the farm or sold to the third party (local | standards and not pollute the | |
| Application in which requires assessment in advance on pollution aspect that will occur the carrying capacity of land in the plantation area and influence on the soil, especially the microbiology/ biology of the soil, surface water and its permit (This assessment is intended to obtain Land Application permit from the Regent/ Mayor in accordance with decree of Environmental Minister Number 28 year 2003 and Number 29 year 2003. d. For handling of used lubricants should be collected/ stored in a specific container (barrel) and then submitted to the farm or sold to the third party (local | waste recipient. | |
| assessment in advance on pollution aspect that will occur the carrying capacity of land in the plantation area and influence on the soil, especially the microbiology/ biology of the soil, surface water and its permit (This assessment is intended to obtain Land Application permit from the Regent/ Mayor in accordance with decree of Environmental Minister Number 28 year 2003 and Number 29 year 2003. d. For handling of used lubricants should be collected/ stored in a specific container (barrel) and then submitted to the farm or sold to the third party (local | c. Implementation of Land | |
| pollution aspect that will occur the carrying capacity of land in the plantation area and influence on the soil, especially the microbiology/ biology of the soil, surface water and its permit (This assessment is intended to obtain Land Application permit from the Regent/ Mayor in accordance with decree of Environmental Minister Number 28 year 2003 and Number 29 year 2003. d. For handling of used lubricants should be collected/ stored in a specific container (barrel) and then submitted to the farm or sold to the third party (local | Application in which requires | |
| the carrying capacity of land in the plantation area and influence on the soil, especially the microbiology/ biology of the soil, surface water and its permit (This assessment is intended to obtain Land Application permit from the Regent/ Mayor in accordance with decree of Environmental Minister Number 28 year 2003 and Number 29 year 2003. d. For handling of used lubricants should be collected/ stored in a specific container (barrel) and then submitted to the farm or sold to the third party (local | assessment in advance on | |
| the plantation area and influence on the soil, especially the microbiology/ biology of the soil, surface water and its permit (This assessment is intended to obtain Land Application permit from the Regent/ Mayor in accordance with decree of Environmental Minister Number 28 year 2003 and Number 29 year 2003. d. For handling of used lubricants should be collected/ stored in a specific container (barrel) and then submitted to the farm or sold to the third party (local | pollution aspect that will occur | |
| influence on the soil, especially the microbiology/ biology of the soil, surface water and its permit (This assessment is intended to obtain Land Application permit from the Regent/ Mayor in accordance with decree of Environmental Minister Number 28 year 2003 and Number 29 year 2003. d. For handling of used lubricants should be collected/ stored in a specific container (barrel) and then submitted to the farm or sold to the third party (local | the carrying capacity of land in | |
| the microbiology/ biology of the soil, surface water and its permit (This assessment is intended to obtain Land Application permit from the Regent/ Mayor in accordance with decree of Environmental Minister Number 28 year 2003 and Number 29 year 2003. d. For handling of used lubricants should be collected/ stored in a specific container (barrel) and then submitted to the farm or sold to the third party (local | the plantation area and | |
| soil, surface water and its permit (This assessment is intended to obtain Land Application permit from the Regent/ Mayor in accordance with decree of Environmental Minister Number 28 year 2003 and Number 29 year 2003. d. For handling of used lubricants should be collected/ stored in a specific container (barrel) and then submitted to the farm or sold to the third party (local | influence on the soil, especially | |
| permit (This assessment is intended to obtain Land Application permit from the Regent/ Mayor in accordance with decree of Environmental Minister Number 28 year 2003 and Number 29 year 2003. d. For handling of used lubricants should be collected/ stored in a specific container (barrel) and then submitted to the farm or sold to the third party (local | the microbiology/ biology of the | |
| intended to obtain Land Application permit from the Regent/ Mayor in accordance with decree of Environmental Minister Number 28 year 2003 and Number 29 year 2003. d. For handling of used lubricants should be collected/ stored in a specific container (barrel) and then submitted to the farm or sold to the third party (local | soil, surface water and its | |
| Application permit from the Regent/ Mayor in accordance with decree of Environmental Minister Number 28 year 2003 and Number 29 year 2003. d. For handling of used lubricants should be collected/ stored in a specific container (barrel) and then submitted to the farm or sold to the third party (local | permit (This assessment is | |
| Regent/ Mayor in accordance with decree of Environmental Minister Number 28 year 2003 and Number 29 year 2003. d. For handling of used lubricants should be collected/ stored in a specific container (barrel) and then submitted to the farm or sold to the third party (local | intended to obtain Land | |
| with decree of Environmental Minister Number 28 year 2003 and Number 29 year 2003. d. For handling of used lubricants should be collected/ stored in a specific container (barrel) and then submitted to the farm or sold to the third party (local | Application permit from the | |
| Minister Number 28 year 2003 and Number 29 year 2003. d. For handling of used lubricants should be collected/ stored in a specific container (barrel) and then submitted to the farm or sold to the third party (local | Regent/ Mayor in accordance | |
| and Number 29 year 2003. d. For handling of used lubricants should be collected/ stored in a specific container (barrel) and then submitted to the farm or sold to the third party (local | with decree of Environmental | |
| d. For handling of used lubricants should be collected/ stored in a specific container (barrel) and then submitted to the farm or sold to the third party (local | Minister Number 28 year 2003 | |
| should be collected/ stored in a specific container (barrel) and then submitted to the farm or sold to the third party (local | and Number 29 year 2003. | |
| specific container (barrel) and then submitted to the farm or sold to the third party (local | d. For handling of used lubricants | |
| then submitted to the farm or sold to the third party (local | should be collected/ stored in a | |
| sold to the third party (local | specific container (barrel) and | |
| | then submitted to the farm or | |
| ontropropurs who have | sold to the third party (local | |
| entrepreneurs who have | entrepreneurs who have | |
| received license from the | received license from the | |
| Ministry of Environment based | | |
| on recommendation from Kutai | on recommendation from Kutai | |

| Kartanegara regency |
|--------------------------------------|
| government. Company should |
| consult with Environmental |
| Agency of East Kalimantan |
| Province in advance when |
| appointing used lubricants |
| collector. |
| e. Training employees by |
| incorporating environmental |
| impact control programs. |
| f. In collaboration with relevant |
| agencies such as plantation |
| office and forestry of Kutai |
| Kartanegara regency and |
| universities on wastewater |
| treatment techniques. |
| tredutient testiniques. |
| Workshop activities: |
| a. Create a drainage channel to |
| contain waste water from the |
| workshop with dimensions of |
| 60 cm top width, 40 cm base |
| width and 50 cm depth and |
| connect it to oil trap unit. |
| b. Construct oil trap with a size of |
| 0.75 x 0.75 x 1 m x 4 in one |
| series. |
| c. Temporary storage of |
| hazardous and toxic waste |
| should be equipped with permit |
| specific for hazardous and toxic |
| waste temporary storage. |
| d. Temporary storage of |
| hazardous and toxic waste is |
| equipped with symbols in |
| accordance with applicable |
| regulations |
| e. Containers used to |
| accommodate hazardous waste |
| |

| should be equipped with |
|---|
| symbols and identification |
| labels in accordance with |
| applicable regulations. |
| f. In workshop area and generator |
| house should be equipped with |
| SOP on Fuel Management. |
| g. Use workshop for estate |
| equipment maintenance. |
| h. Avoid oil/ used lubricants spills |
| during estate equipment |
| maintenance in the field. |
| i. Accommodate used lubricants |
| resulted from equipment |
| maintenance in specific leak- |
| proof container further collect |
| them at specific storage. |
| j. Maintenance/ repair of |
| workshop equipment. |
| - Accommodate all used |
| lubricant on a leak-proof |
| container and collect them |
| in specific storage. |
| - Temporary storage for used |
| lubricants should be free |
| from flood. |
| - Used oil temporary storage |
| must be free from flooding. |
| k. Fuel loading and distribution |
| unit: |
| - Apply strict control and |
| supervision to prevent the |
| possibility of leakage on fuel tank installation. |
| - Immediately empty the fuel |
| tank if there is a leak and |
| immediately fix the leak. |
| - Construct bund wall made |
| of concrete that surrounds |
| the fuel tank. The bund wall |

| | | | | should have the capacity to | | | | | |
|-----|--------------------------------|---------------------|----------------------|---|------------------------|------------------------|-------|---------------|---------------|
| | | | | contain fuel tank maximum | | | | | |
| | | | | capacity. | | | | | |
| | | | | - Create and place warning | | | | | |
| | | | | board around the workshop | | | | | |
| | | | | location to avoid the | | | | | |
| | | | | occurrence of pollution to | | | | | |
| | | | | local water bodies due to | | | | | |
| | | | | used oil and fuel spilled. | | | | | |
| | | | | - Remove all used lubricants | | | | | |
| | | | | that have been collected at | | | | | |
| | | | | the project site and | | | | | |
| | | | | submitting them to a | | | | | |
| | | | | business entity that has the | | | | | |
| | | | | official license from the | | | | | |
| | | | | Ministry of Environment to | | | | 1 | |
| | | | | manage hazardous and | | | | 1 | |
| | | | | toxic waste. | | | | | |
| | | | | Provide periodic guidance | | | | | |
| | | | | to all personnel at workshop | | | | | |
| | | | | operations related to oil | | | | | |
| | | | | pollution control to water | | | | | |
| | | | | bodies around the project | | | | | |
| | | | | site. | | | | | |
| 1.7 | Surface wáter debit | | | | | | | | |
| | Based on significant impact | Increased surface | Runoff occured still | a. Implementation of planting site | On áreas designated as | Once during land | PT PU | 1. Plantation | 1. Plantation |
| | evaluation results indicate | wáter flow to wáter | can be well | preparation activities gradually & | planting áreas. | preparation activities | | and forestry | and |
| | that impact parameters on | bodies around the | overcome. | planned as needed. | | | | office of | Forestry |
| | occurrence of increased | planting áreas. | | b. Conducting land clearing | | | | Kutai | Office of |
| | surface water flow in which | | | activities during the dry season. | | | | Kartanegara | Kutai |
| | the impact is negative, | | | c. Not clearing land in river border | | | | · · | Kartanegar |
| | significant and direct. Impact | | | | | | | regency. | _ |
| | intensity that exceed | | | zones and maintaining the | | | | 2. Regional | a Regency. |
| | environmental quality | | | existence of natural vegetation | | | | Environment | 2. Environme |
| | standard can cause further | | | as conservation zones. | | | | Agency of | nt agency |
| | impacts in the form of | | | d. Adjust the slope and steep | | | | Kutai | of Kutai |
| | increased erosion rate. | | | terraces on the steep terrain. | | | | Kartanegara | Kartanegar |
| | | | | e. Create trenches equipped with | | | | Regency. | a Regency |
| | | | | sediment trap around the field. | | | | 3, | 3. Environme |
| | | | | f. Maintenance of erosion | | | | 1 | |
| | | | | | | | | 1 | nt Agency |
| | | | | inhibitors is done regularly every | | | | | of East |
| | | | | week, especially in rainy season. | | | | | Kalimanta |
| | | | | | | | | | n Province. |
| | | | | | | | | | |

| | | | | g. Immediately plant the planting | | | | | |
|-----|---|-----------------------------------|---------------------------------------|-----------------------------------|-----------------------------------|----------------------------------|-------|-----------------|---------------|
| | | | | area after land clearing is | | | | | |
| | | | | completed. | | | | | |
| | | | | | | | | | |
| 2 | | | | | | | | | |
| 2.1 | | | l | | . | | | I | 1 |
| | Based on significant impact evaluation results indicate | Degradation on áreas cleared for: | Percentage of areas and type of cover | Environmental management | Restoration is conducted on áreas | Once a year, conducted gradually | PT PU | 1. Plantation | 1. Plantation |
| | that impact parameters on | a. Development of | vegetation with total | activities for estate | that have been | adjucted tol and | | and forestry | and Forestry |
| | occurrence of land cover | estate | area cleared. | emplacement development, | cleared so that | cleared on each | | office of Kutai | Office of |
| | decreased in which the | emplacement. | | road network construction, | impact the | división and evaluated | | Kartanegara | Kutai |
| | impact is negative, significant | b. Development of | | Preparation of nursery site, | vegetations that are | twice, first evaluation | | regency. | Kartanegara |
| | and direct. Impact intensity | road network. | | preparation of planting area and | degraded. | at the age of 6 months | | | Regency. |
| | that exceed environmental | | | preparation of mill site. | | and second at the age | | | 2. Environmen |
| | quality standard can cause | nursery site. | | a. Planting area preparation | | of 1 year to obtain | | | t agency of |
| | further impacts in the form of increased erosion rate and | d. Preparation of | | should be done gradually and | | sucess rate. | | | Kutai |
| | wildlife migration. | planting área. | | planned according to the | | • | | | Kartanegara |
| | | e. Preparation of mill | | needs. | | | | | Regency. |
| | | site. | | b. Land clearing is conducted | | | | | 3. Environmen |
| | | site. | | only on areas designated for | | | | | t Agency of |
| | | | | estate emplacement | | | | | East |
| | | | | development (± 18,06 Ha), | | | | | Kalimantan |
| | | | | road network construction (± | | | | | Province. |
| | | | | 9,06 Ha), preparation of | | | | | |
| | | | | nursery area (± 30 Ha), | | | | | |
| | | | | Preparation of planting area (± | | | | | |
| | | | | 8,819, 755 Ha), preparation of | | | | | |
| | | | | mill site (± 20 Ha). | | | | | |
| | | | | c. Enriching and maintaining | | | | | |
| | | | | conservation areas. | | | | | |
| | | | | d. Warning board installation to | | | | | |
| | | | | prohibit hunting on protected | | | | | |
| | | | | wildlife and land clearing on | | | | | |
| | | | | protected areas. | | | | | |
| | | | | e. Immediately plant the areas | | | | | |
| | | | | cleared with LCC. | | | | | |
| | | | | f. Employee training by | | | | | |
| | | | | incorporating environmental | | | | | |
| | | | | impact control programs. | | | | | |

| g. Slope maintained at 8% on |
|--|
| road network construction. |
| h. Road signs installation |
| according to the needs. |
| i. Maintain road surfacing to |
| prevent slippery road. |
| j. Protect trees that can be |
| protected as home for |
| wildlife. |
| |
| 2) Land rehabilitation ad |
| restoration. |
| a. Land reclamation activities are |
| carried out after the location |
| permit has expired. |
| b. Immediately undertake |
| reclamation by conducting |
| reforestation on the location. |
| c. Land that has been restored is |
| surfaced with top soil then |
| planted with LCC. |
| d. Conducting land regeneration |
| with plant spacing of 3x3m on |
| areas that have been restored |
| with fast growing plant |
| species. |
| e. On regeneration areas need to |
| be planted with local fruit |
| rambutan, cempedak, durian |
| etc. |
| f. Plants maintenance and |
| fertilizing include: |
| - Planting hole measuring |
| 30x30 cm – |
| - Dose of SP 36 fertilizer is 150 gr/tree |
| - Dose of NPK fertilizer is |
| 100 gr/tree |
| - Dose of calcium provided |
| is 1 ton/Ha |

| | | | | Plant insertion is done <1 month on dead plants 1 year old plant maintenance is done every 3 months by weeding on the circle. 2 year old plant maintenance is done | | | | | |
|-----|---|---|--|---|--|---|-------|--|--|
| | | | | every 6 months by weeding on the circle. - Fertilization for local fruit crops is done until the age of 3 years. g. Perform insertion on growing vegetation plants with growing percentage of 90% h. Installing signing board on revegetation areas measuring of 200x80 cm i. Intensify patrol activities to prevent destruction on areas | | | | | |
| 2.2 | Wildlife habitat | | | restored and rehabilitated. | | | | | |
| 2.2 | Based on significant impact evaluation results indicate that impact parameters on occurrence of wildlife migration in which the impact is significant negative and positive and derivative due to vegetation degradation. | Activities that have impact on wildlife migration are: a. Development of estate emplacement. b. Development of road network. c. Preparation of nursery site. d. Preparation of planting área. | Percentage of number and types of wildlife living in the conservation area around the plantation location. | a. Installation of hunting prohibition board measuring 120x80 cm. b. Intensify patrol activity to prevent wildlife hunting and file a lawsuit to those who against it. c. Conservation areas and natural vegetation are wild animals' habitat, prevent disruption as much as possible and requires enrichment to maintain the existence of these locations. d. Conducting socialization to the community and workers to always protect the endangered species and if there is any | Forested areas around the project site as well as the location of the river border around the location that are designated as conservation area. | One time during plantation work in progress by PT PU and evaluated once in every 6 months to obtain conservation área capacity compared with number of percentage of wildlife living in the área. | PT PU | 1. Plantation and forestry office of Kutai Kartanegara regency. 2. Regional Environment Agency of Kutai Kartanegara Regency. | 1. Plantation and Forestry Office of Kutai Kartanegara Regency. 2. Environmen t agency of Kutai Kartanegara Regency. 3. Environmen t Agency of East Kalimantan Province. |

| | | | | a. Conduct strict control to | | | | | |
|-----|---|-------------------------------------|------------------------|--|--------------------------------------|-----------------------------|-------|---------------|---------------|
| | | | | prevent mineral oil pollution | | | | | |
| | | | | against local water bodies. | | | | | |
| | | | | b. Implement oil handling | | | | | |
| | | | | mechanism in accordance with | | | | | |
| | | | | regulations from Ministry of | | | | | |
| | | | | Energy and Mining. | | | | | |
| | | | | <i>.</i> | | | | | |
| | | | | Fertilizer & pesticide warehouse. | | | | | |
| | | | | a. Avoid leakage during storage | | | | | |
| | | | | and distribution of pesticide | | | | | |
| | | | | and fertilizer. | | | | | |
| | | | | b. Apply storage provision for | | | | | |
| | | | | fertilizer and pesticides in | | | | | |
| | | | | accordance with regulations | | | | | |
| | | | | apply. | | | | | |
| 3 | SOCIAL, ECONOMIC AND CUL | TURAL COMPONENTS | | | | | 1 | | |
| 3.1 | Communitry attitude and per | spective | | | | | | | |
| | Significant impact in the form | Changes in | Positive attitudes and | 1) Sosialization of activity plan | 1. Socialization | 1. Socialization activities | PT PU | 1. Village | 1. Plantation |
| | of positive perception on PT | community's negative | perceptions of the | a. Conducting socialization/ | activities are | are conducted once at | | officials of | and |
| | PU's plan is significant | attitudes who reject | community towards | public consultation relating to | conducted at. | the following villages: | | Muara Ritan | forestry |
| | positive impact and direct | the planned activities | PT PU | activity plan by PT PU which | Muara Ritan Village, | Muara Ritan Village, | | Village, | office of |
| | impact. Number of human affected and happy or agree | change their attitude into positive | | involves related agencies and | Muara Ritan Baru | Muara Ritan Baru | | Muara Ritan | Kutai |
| | with PT PU's activity plan. | perception and | | society around, Muara Ritan Village, Muara Ritan Baru | Village, Buluq Sen | Village, Buluq Sen | | Baru Village, | Kartanegar |
| | ment is a substitute plant | support the | | Village, Buluq Sen Village, | Village, Muara | Village, Muara | | Buluq Sen | a regency. |
| | | development plan of | | Muara Pedohon Village & | Pedohon Village & | Pedohon Village & | | Village, | 2. Regional |
| | | PT PU, among others: | | Umaq Dian Village. | Umag Dian Village. | Umaq Dian Village | | Muara | Environme |
| | | Sosialisasi rencana | | b. Providing explanations to the | 2. Workforce | 2. Penerimaan | | Pedohon | nt Agency |
| | | kegiatan | | public on the positive and | recruitment is | Workforce | | Village & | of Kutai |
| | | a. Socialization of | | negative effects from PT PU's | conducted at PT | recruitment is | | Umag Dian | Kartanegar |
| | | activity plan | | plantation & milling activities. | PU's location. | conducted once in | | Village | a Regency |
| | | b. Recruitment | | c. Collaborate with village | 3. CSR Programs are | the begining and | | 2. Plantation | 3. Regional |
| | | c. CSR program | | officials and related | performed for | evaluated once a | | and forestry | Environme |
| | | d. Land rehabilitation | | institutions by conducting | Muara Ritan Village, | vear at PT PU's | | office of | nt Agency |
| | | and restoration. | | socialization | Muara Ritan Baru | location. | | Kutai | of East |
| | | | | d. Acmmodate the suggestions | Village, Buluq Sen | 3. CSR Programs are | | Kartanegara | Kalimantan |
| | | | | and aspirations of the | Village, Buluq Sen Village, Muara | performed for | | regency. | Province. |
| | | | | community | Pedohon Village & | Muara Ritan Village, | | 3. Regional | FIGVIIICE. |
| | | | | , | ğ | 9 / | | Environment | |
| | | | | | Umaq Dian Village. | Muara Ritan Baru | | Agency of | |

| <u> </u> | | |
|----------|---|--|
| | 2) Labour recruitment 4. Lands that have Village, Buluq Sen Kutai | |
| | a. Prioritizing local employment been restored are Village, Muara Kartanegara | |
| | b. In the implementation of returned to the Pedohon Village & Regency. | |
| | manpower, the initiator Kutai Kartanegara Umaq Dian Village. | |
| | coordinates with village Regency Office. 4. Rehabilitasi & | |
| | government and Manpower pengembalian lahan | |
| | Department of Kutai dilakukan pada | |
| | Kartanegara Regency. tahun ke 1 seluruh | |
| | c. Post an announcement at the areal efektif tanam. | |
| | village office relating to the Land rehabilitation | |
| | recruitment of workers for PT and restoration are | |
| | PU's activities. conducted at the | |
| | d. Announce the employee first year at the end | |
| | recruitment results at the of PT PU's operation | |
| | village office to all planted áreas. | |
| | e. Provide training to local | |
| | workforce to improve skills | |
| | and expertise in accordance | |
| | with the level of education | |
| | f. Provide salaries to workers in | |
| | accordance with the | |
| | classification, level of | |
| | education and position and | |
| | refers to the rules applicable. | |
| | | |
| | 3) CSR | |
| | a. Designing a CSR program that | |
| | suits the needs and wants of | |
| | the community around the | |
| | plantation and explains the government 7 CSR program | |
| | that can really be positive for | |
| | the surrounding community. | |
| | b. Immediately performs a | |
| | deliberation with local | |
| | community leaders in the | |
| | project area relating to the | |
| | CSR programs preparation | |
| | whereby it also involves local | |
| | government represented by | |
| | | |

| | | | | Plantation and forestry office | | | | | |
|-----|--|-------------------------------------|------------------------|-----------------------------------|-----------------------|------------------------|-------|----------------------|---------------|
| | | | | of Kutai Kartanegara regency. | | | | | |
| | | | | c. Implement all agreement | | | | | |
| | | | | resulted from deliberation in | | | | | |
| | | | | earnest. | | | | | |
| | | | | d. Entire activity plans are | | | | | |
| | | | | carried out openly both to the | | | | | |
| | | | | | | | | | |
| | | | | affected village apparatus and | | | | | |
| | | | | the community. | | | | | |
| | | | | e. The PT PU works closely with | | | | | |
| | | | | the affected village | | | | | |
| | | | | government in explaining the | | | | | |
| | | | | entire CSR program | | | | | |
| | | | | 4) Land rehabilitation and | | | | | |
| | | | | restoration | | | | | |
| | | | | a. Perform restoration activities | | | | | |
| | | | | gradually | | | | | |
| | | | | b. In restoration activities | | | | | |
| | | | | involves local business actors. | | | | | |
| | | | | c. Post an announcement at the | | | | | |
| | | | | village office on PT PU's end of | | | | | |
| | | | | operations. | | | | | |
| | | | | d. Lands that have been restored | | | | | |
| | | | | are returned to the Kutai | | | | | |
| | | | | Kartanegara Regency Office. | | | | | |
| 3.2 | Social conflicto | L | | | | | | I. | l l |
| | Significant impact in the form | A direct impact due to | There is no social | 1. Conduct socialization on | Project site location | Once during land | PT PU | 1. Land | 1) Land |
| | of social conflict in which the | land acquisition | conflict occurred | boundaries of areas that will be | especially on | acquisition process at | | Administration | Administrat |
| | impact is negative and direct | activities at Muara | which may disrupt | acquired. | agriculture area, | pre-construction | | Division of | ion Division |
| | to PT PU's activities. Social | Ritan Village, Muara | public peace and | 2. Perform land acquisition | plantation and | stages. | | Kutai | of Kutai |
| | conflict potential occured | Ritan Baru Village, | inhibit the plantation | process gradually according to | comunity field that | | | Kartanegara | Kartanegar |
| | due to dipsute in land acquisition process such as | Buluq Sen Village, Muara Pedohon | activities of PT PU. | the progress of plantation | will be acquired. | | | Regency. | a Regency. |
| | overlapping in land | Village & Umaq Dian | | activity plan. | | | | 2. Village officials | 2) Plantation |
| | ownership and dispute on | Village. | | 3. No land acquisition on areas | | | | of Muara Ritan | and |
| | land compensation value on | | | that have the potential to cause | | | | Village, Muara | forestry |
| | land acquired. | | | land tenure disputes. | | | | Ritan Baru | office of |
| | • | | | 4. Determination of the | | | | Village, Buluq | Kutai |
| | | | | | | | | | Nuldi |
| | | | | boundaries according to land | | | | Sen Village, | |
| | | | | | | | | | |

| . | | | | owner agreement and | | | | Muara | Kartanegar |
|---------|---|-----------------------|---------------------------------|-----------------------------------|---------------------------------------|------------------------|-------|-------------------|---------------|
| , | | | | acknowledged by Tabang Sub | | | | Pedohon | a regency. |
| , | | | | District officials. | | | | Village & | 3) Regional |
| . | | | | 5. Provision of land | | | | Umaq Dian | Environme |
| . | | | | compensation to each | | | | Village | nt Agency |
| . | | | | community according to | | | | 3. Plantation and | of Kutai |
| , | | | | agreement, in terms of type of | | | | forestry office | Kartanegar |
| , | | | | compensation, amount, time of | | | | of Kutai | a Regency |
| , | | | | delivery and parties entitled to | | | | Kartanegara | T) Negional |
| . | | | | receive directly without | | | | regency. | Environme |
| . | | | | intermediaries. | | | | 4. Regional | nt Agency |
| . | | | | 6. Implementation of land | | | | Environment | of East |
| . | | | | · | | | | | Kalimantan |
| . | | | | acquisition involves village and | | | | , | Province. |
| . | | | | sub-district government | | | | Kutai | |
| . | | | | apparatus and coordinate with | | | | Kartanegara | |
| , | | | | related technical institution | | | | Regency. | |
| . [| | | | (Land Administration Division of | | | | | |
| , | | | | Kutai Kartanegara Regency). | | | | | |
| 3.3 | Employment opportunity | | | | | | | | |
| 3.3 | Significant impact in the form | It is the impact from | Number of local | 1) Workforce recruitment. | The management | Once during | PT PU | 1) Village | 1) Manpower |
| , | of employment opportunities | recruitment activity | people who are | a. 30 days' prior the operations, | office of PT PU, | recruitment process on | 1110 | officials of | and |
| , | for the community in which | and post-operations | accepted to work in | required for the company to | Settlement of Muara | progress in PT PU and | | Muara Ritan | Transmigrat |
| , | the impact is direct and | such as work | PT.PU with 60% | register the company to | Ritan Village, Muara | at the time of | | Village, Muara | ion Office of |
| , | significant positive. It can | termination. | percent of local | Workforce and | Ritan Baru Village, | termination of | | Ritan Baru | Kutai |
| , | lead to continued impact in | | workforce and wages | Transmigration Department | Buluq Sen Village, | employment. | | Village, Buluq | Regency |
| , | increased of surrounding | | provision in | | Muara Pedohon | | | | |
| , | community income. In | | accordance with | of Kutai Kartanegara Regency. | Village and Umaq | | | Sen Village, | Kartanegar |
| . | addition, it can also cause continued impact which is | | government regulations (UMSK in | b. Publicly announcing to Muara | Dian Village, Tabang Sub District. | | | Muara | a. |
| , | negative and cumulative in | | Kutai Kartanegara | Ritan Village, Muara Ritan | Sub District. | | | Pedohon | 2) Plantation |
| , | the form of perception and | | Regency). | Baru Village, Buluq Sen | | | | Village & | and |
| , | attitude of the community | | | Village, Muara Pedohon | | | | Umaq Dian | forestry |
| . | against PT.PU activity plan. | | | Village and Umaq Dian Village | | | | Village | office of |
| . | | | | on the job recruitment. | | | | 2) Manpower | Kutai |
| . | | | | c. Prioritize local workforce to | | | | and | Kartanegar |
| . | | | | work in the company tailored | | | | Transmigratio | a regency. |
| . ' | | | | to educational qualifications | | | | n Office of | |
| | | | | required by the company. | | | | Kutai Regency | Environme |
| ' i | | | | | | | | | |
| ' | | | | d. Job recruitment should be | | | | Kartanegara | nt Agency |

| | | | • | | | | | | |
|-----|--|-----------------------------------|---------------------------------------|---|-------------------------------------|---------------------------------------|-------|------------------------------|---------------|
| | | | | 18 years in accordance with | | | | 3) Plantation and | Kartanegar |
| | | | | government regulations on | | | | forestry office | a Regency |
| | | | | employment. | | | | of Kutai | 4) Regional |
| | | | | e. Inform the number, type, skills | | | | Kartanegara | Environme |
| | | | | and requirements of the | | | | regency. | nt Agency |
| | | | | labour needed widely to the | | | | 4) Regional | of East |
| | | | | surrounding community. | | | | Environment | Kalimantan |
| | | | | f. Provide special training for | | | | Agency of | Province. |
| | | | | local workers to improve skills | | | | Kutai | |
| | | | | & expertise. | | | | Kartanegara | |
| | | | | 2) Employment termination | | | | Regency. | |
| | | | | a. Termination of employment | | | | , | |
| | | | | should be done in stages. | | | | | |
| | | | | b. Preparation for termination of | | | | | |
| | | | | employment should be done | | | | | |
| | | | | in advance and detailed. | | | | | |
| | | | | c. Provide severance pay to | | | | | |
| | | | | employees who will be | | | | | |
| | | | | affected by layoffs in which | | | | | |
| | | | | the amount is adjusted to the | | | | | |
| | | | | provisions of legislation. | | | | | |
| | | | | | | | | | |
| 3.4 | Business Field | | 1 | | | | | _ | |
| | Significant impact in the form | Business activities that | Increasing & | 1) Emplacement development | Settlement of Muara | Once during the | PT PU | 1. Village officials | 1. Manpower |
| | of business opportunity | involve local business | developing local | a. Providing opportunities for | Ritan Village, Muara | development of | | of Muara Ritan | and |
| | creation for the community in | actors in the activities | economic activity and | local carpenters in the | Ritan Baru Village, | estate emplacement, | | Village, Muara | Transmigra |
| | which the impact is positive and direct, this impact can | such as: a. Development of | the number of local people who can be | provision of carpentry services | Buluq Sen Village, Muara Pedohon | land preparation, nurseries, planting | | Ritan Baru Village, Buluq | tion Office |
| | lead to continued positive | estate | empowered by PT PU | during development activities. b. Provide wages in accordance | Village and Umaq | area preparation, mill | | Sen Village, | of Kutai |
| | impacts on increased | emplacement. | empowered by 1110 | | Dian Village, Tabang | area preparation. | | Muara | Regency |
| | incomes of surrounding | b. Preparation of | | with the agreement | Sub District. | , ., ., | | Pedohon | Kartanegar |
| | communities. | nursery location. | | 2) Nursery location preparation | | | | Village & | a. |
| | | c. Nurseries. | | a. Provide widespread | | | | Umaq Dian | 2. Plantation |
| | | d. Preparation of | | opportunities to business | | | | Village | and |
| | | planting area. | | actors from surrounding | | | | 2. Manpower | forestry |
| 1 | | e. Planting of oil palm. | | communities for nursery | | | | and | office of |
| | | c. rianting of on pailli. | Í | activities | | | | Transmigratio n Office of | Kutai |
| | | f Construction of | | | | | | | |
| | | f. Construction of | | b. Provide wages in accordance | | | | | Kartanegar |
| | | f. Construction of palm oil mill. | | b. Provide wages in accordance with the agreement | | | | Kutai Regency | a regency. |
| | | | | | | | | | _ |

| | 1 |
|---|---------------------------|
| 3) Nurseries | office of Kutai nt Agency |
| a. Provide announcement to the | Kartanegara of Kutai |
| community around the | regency. Kartanegar |
| location on the needs of | 4. Regional a Regency |
| services for nursery activities | Environment 4. Regional |
| by the company either type, | Agency of Environme |
| classification and expertise | Kutai nt Agency |
| required. | Kartanegara Kalimanta |
| b. Provide opportunities for | Danasas |
| business units/ individuals | n Province. |
| who are in and around the | |
| plantation location to | |
| participate particularly in the | |
| provision of goods and | |
| services to meet the needs of | |
| employees and companies. | |
| | |
| c. Involving the community of | |
| the sub-district government in | |
| the business unit activities. | |
| 4) Preparation of painting area | |
| a. Provide business | |
| opportunities as wide as | |
| possible to the surrounding | |
| community in the provision of | |
| | |
| land. | |
| land. | |
| land. b. Provide wages in accordance | |
| land. b. Provide wages in accordance with the agreement. | |
| land. b. Provide wages in accordance with the agreement. 5) Oil palm planting | |
| land. b. Provide wages in accordance with the agreement. 5) Oil palm planting a. Set the speed of the | |
| land. b. Provide wages in accordance with the agreement. 5) Oil palm planting a. Set the speed of the transporting vehicle at | |
| land. b. Provide wages in accordance with the agreement. 5) Oil palm planting a. Set the speed of the transporting vehicle at maximum of 20 km/h, | |
| land. b. Provide wages in accordance with the agreement. 5) Oil palm planting a. Set the speed of the transporting vehicle at maximum of 20 km/h, especially if passing through | |
| land. b. Provide wages in accordance with the agreement. 5) Oil palm planting a. Set the speed of the transporting vehicle at maximum of 20 km/h, especially if passing through settlement or concentration | |
| land. b. Provide wages in accordance with the agreement. 5) Oil palm planting a. Set the speed of the transporting vehicle at maximum of 20 km/h, especially if passing through settlement or concentration of community agriculture. | |
| land. b. Provide wages in accordance with the agreement. 5) Oil palm planting a. Set the speed of the transporting vehicle at maximum of 20 km/h, especially if passing through settlement or concentration of community agriculture. b. Conducting hardening & | |
| land. b. Provide wages in accordance with the agreement. 5) Oil palm planting a. Set the speed of the transporting vehicle at maximum of 20 km/h, especially if passing through settlement or concentration of community agriculture. b. Conducting hardening & compaction of haul roads with | |
| land. b. Provide wages in accordance with the agreement. 5) Oil palm planting a. Set the speed of the transporting vehicle at maximum of 20 km/h, especially if passing through settlement or concentration of community agriculture. b. Conducting hardening & compaction of haul roads with special aggregate, especially | |
| land. b. Provide wages in accordance with the agreement. 5) Oil palm planting a. Set the speed of the transporting vehicle at maximum of 20 km/h, especially if passing through settlement or concentration of community agriculture. b. Conducting hardening & compaction of haul roads with | |

| | | | | c. During dry season water the | | | | | |
|-----|--|---|----------------------------------|----------------------------------|---------------------------------|--|-------|----------------------|-------------|
| | | | | road every 3 on the | | | | | |
| | | | | transportation path that | | | | | |
| | | | | passes the nursery. | | | | | |
| | | | | | | | | | |
| | | | | 6) Palm oil mil constrution | | | | | |
| | | | | a. Conduct special open bidding | | | | | |
| | | | | for business groups from local | | | | | |
| | | | | communities for plant | | | | | |
| | | | | construction activities. | | | | | |
| | | | | b. Provide wages in accordance | | | | | |
| | | | | with the agreement. | | | | | |
| 3.5 | Community Revenue | Table and the second | I 1 | 143.00 | A1 PT -:: | 0 | DT S | 4 1011 | T 4 . DL |
| | Significant impact against | Is a derivative impact of the recruitment | Increasing or decreasing revenue | 1) Recruitment activity during | At PT PU | Once during | PT PU | 1. Village officials | |
| | community revenue in which a continued impact due to | activities that create | of the surrounding | emplacement development, | management office and community | operation in progress ad evaluated once a | | of Muara Ritan | |
| | land conversion which | jobs for the | community of PT PU. | preparation of nursery, planting | settlement around PT | year during PT PU | | Village, Muara | - |
| | increase the community | surrounding | | area, oil palm plantation, plant | PU. | estate and mill | | Ritan Baru | |
| | revenue | community from the | | construction, harvesting | | operations. | | Village, Buluq | |
| | | following activities: | | transportation. | | | | Sen Village, | Kartanegar |
| | | a. Workforce | | a. Provide wages/ salaries to | | | | Muara | a regency. |
| | | recruitment | | workers adjusted to | | | | Pedohon | 2. Regional |
| | | b. Development of | | classification, expertise and | | | | Village & | Environme |
| | | estate | | level of education and refers | | | | Umaq Dian | nt Agency |
| | | emplacement | | to legislation relating to | | | | Village | of Kutai |
| | | c. Preparation of | | wages. | | | | 2. Manpower | Kartanegar |
| | | nursery area | | b. Provide education and | | | | and | a Regency |
| | | d. Seedling | | training to workers to improve | | | | Transmigratio | 3. Regional |
| | | e. Preparation of | | skills and expertise. | | | | n Office of | Environme |
| | | planting area | | c. Encourage the development | | | | Kutai Regency | nt Agency |
| | | f. Oil palm planting | | of community business | | | | Kartanegara | of East |
| | | g. Construction of a | | around estate operations so | | | | 3. Plantation and | Kalimantan |
| | | palm oil mill | | that can create non-formal job | | | | forestry office | Province. |
| | | h. Harvesting & | | opportunities. | | | | of Kutai | |
| | | transporting of | | | | | | Kartanegara | |
| | | FFB's | | 2) Mill operations | | | | regency. | |
| | | i. Mill operations | | a. Construct wastewater | | | | 4. Regional | |
| | | | | treatment plants to manage | | | | Environment | |
| | | | | liquid waste generated from | | | | Agency of | |
| | | | | plant operations. | | | | Kutai | |
| | | l | | | | | | | |

| | | | | b. Based on the waste | | | | Kartanegara | |
|-----|---------------------------------|--------------------------|--------------------------------------|---------------------------------|------------------------|-----------------------|-------|----------------------|---------------|
| | | | | characteristic & pollution | | | | Regency. | |
| | | | | load, the effluent treatment is | | | | | |
| | | | | effective if WPH is more than | | | | | |
| | | | | 75 days so that the COD & TSS | | | | | |
| | | | | level can be decreased to | | | | | |
| | | | | below the standard. PT PU | | | | | |
| | | | | plans the wastewater | | | | | |
| | | | | treatment with a biologically | | | | | |
| | | | | WWTP system (anaerobe & | | | | | |
| | | | | aerobe system) with | | | | | |
| | | | | hydrological retention time of | | | | | |
| | | | | 150 days so that WPH increase | | | | | |
| | | | | is expected to decrease the | | | | | |
| | | | | quality of waste water & | | | | | |
| | | | | pollution loads to below the | | | | | |
| | | | | quality standard. | | | | | |
| | | | | c. Implementation of land | | | | | |
| | | | | applications in which requires | | | | | |
| | | | | study in advance on pollution | | | | | |
| | | | | aspect that may occur, the | | | | | |
| | | | | carrying capacity of the land, | | | | | |
| | | | | the effect on soil and ground | | | | | |
| | | | | water and surface water. | | | | | |
| | | | | d. Convert the local people's | | | | | |
| | | | | livelihoods sources from | | | | | |
| | | | | farming to estate workers. If | | | | | |
| | | | | the degradation of water | | | | | |
| | | | | quality at the site is | | | | | |
| | | | | considered to exceed the | | | | | |
| | | | | quality standard of water | | | | | |
| | | | | pollution. | | | | | |
| 3.6 | General Traffic (Land) | | | F | | | | 1 | I |
| | Significant impact in the form | Is a direct impact from | 1. No traffic | 1) Employees transportation | At public road used by | During the operations | PT PU | 1. Village officials | 1. Plantation |
| | of traffic disturbance in which | the following activities | congestion and traffic | a. Time arrangement for | the company for | of PT PU estates. | | of Muara Ritan | and |
| | the impact is negative and | a. Employees | accidents during | employee transportation to | transporting. | | | Village, Muara | forestry |
| | direct. The occurrence of | transportation. | transporting | work in the morning is at | | | | Ritan Baru | office of |
| | impact may cause | | employees activities, | 06:00 pm | | | | Village, Buluq | Kutai |
| | inconvenience for road users | | transportation & harvesting of FFB's | · | | | | Sen Village, | |
| | | | narvesting of FLD 3 | | | | | 1 | l. |

| in their if disturbance is not | b. Harvesting and | b. Time arrangement for | Muara | Kartanegar |
|--------------------------------|-------------------|-----------------------------------|------------------------------|----------------|
| managed well. | transportation of | employee transportation to | Pedohon | a regency. |
| | FFB's | return to home in the | Village | & 2. Regional |
| | | afternoon is at 14:00 wita. | Umaq Di | ian Environme |
| | | c. Limit the speed of the | Village | nt Agency |
| | | transporting vehicles at max | 2. Manpower | of Kutai |
| | | 20 km / hour, especially when | and | Kartanegar |
| | | passing through the | Transmigrat | |
| | | settlement. | n Office | 5 |
| | | d. Use appropriate vehicle in | Kutai Regen | c, |
| | | accordance with its function | Kartanegara 3. Plantation | of East |
| | | such bus/car for passenger. | and forest | |
| | | | office of Kut | , italiinantan |
| | | 2) Harvesting & transportation of | Kartanegara | |
| | | FFB's | regency. | |
| | | a. Disseminate to affected | 4. Regional | |
| | | workers on the detailed plan | Environmen | t |
| | | estate road network. | Agency | of |
| | | b. Allowing the local community | Kutai | |
| | | to use the estate road for their | Kartanegara | |
| | | accessibility. | Regency. | |
| | | c. Prioritize maintenance of | | |
| | | estate road which used by the | | |
| | | community as access roads. | | |
| | | d. Implement traffic rules to all | | |
| | | road users. | | |
| | | e. At the section of the road | | |
| | | which used by the community | | |
| | | as access roads are installed | | |
| | | with traffic signs in | | |
| | | accordance with applicable | | |
| | | laws and regulations. | | |
| | | f. Prioritizing public road user | | |
| | | first. | | |
| | | g. Placing officer at the | | |
| | | intersection of public roads | | |
| | | and estate roads. | | |

| ! | | | | h Ta limit the assessite of CDO | - | | | · · · · · · · · · · · · · · · · · · · | 1 |
|------------------------------|--|---|---|--|------------------------------|--|-------|---|--|
| | | | | h. To limit the capacity of CPO | | | | | |
| i | | | | transporting unit at max 8 | | | | | |
| 1 | | | | tons. | | | | | |
| 3.7 V | Water traffic | | | | | | | | |
| c v a ii ii t | Significant impact in the form of water traffic disturbance in which the impact is negative and direct. The occurrence of impact may cause inconvenience for public transportation due to the operations of LCT. | Impacts arising from the following activities such as: Mobilisasi peralatan a. Mobilisation of equipment. b. Demobilization of equipment. | No disruption on water traffic during the mobilization and demobilization of equipment. | 1. Conduct socialization to the surrounding community on estate equipment mobilization and demobilization plan 2. Setting the port location for heavy machine unloading zone. 3. Provide adequate lighting during equipment mobilization & demobilization process. 4. Provide adequate signs for the activities around the area. 5. Conduct estate equipment mobilization and demobilization in stages and periodically for the entire heavy equipment. 6. Coordinate with the relevant Kutai Kartanegara Regency office transportation to provide guard at the time of mobilization and demobilization. | On Belayan river water body. | Once during mobilization and demobilization process in progress. | PT PU | L. Village officials of Muara Ritan Village, Muara Ritan Baru Village, Buluq Sen Village, Muara Pedohon Village & Umaq Dian Village 2. Manpower and Transmigratio n Office of Kutai Regency Kartanegara 3. Plantation and forestry office of Kutai Kartanegara regency. 4. Regional Environment Agency of Kutai Kartanegara Regency. | 1. Plantation and forestry office of Kutai Kartanegar a regency. 2. Regional Environme nt Agency of Kutai Kartanegar a Regency 3. Regional Environme nt Agency of East Kalimanta n Province. |
| | Environmental Hygiene Significant impact against | Impact arises due to | Hygiene and | 1) Mill operations | At the location of | Twice, in the evening | PT PU | 1. Health | 1. Plantation |
| | environmental higiene and | mill operations, office | sanitation are well | a. Accommodate the | activities such as | and in the morning | 0 | Department of | and |
| | sanitation due to estate | and housing activities. | managed at the | remaining liquid waste from | office, employees | during the operations | | Kutai | forestry |
| ι (ε | emplacement activities which | - | Project location. | = : | housing and clinic. | of PT PU. | | | |
| | may lead to degradation of | | - - | mill operation in barrels then | ŭ . | | | Kartanegara | office of |
| | sanitation quality in the | | | submitted to a licensed third | | | | Regency. | Kutai |
| , , , , , | | | | party. | | | | | 1 |

| b. Create surrounding ditches | 2. Plantation and | Kartanegar |
|----------------------------------|-------------------|-------------------------|
| that are connected with | forestry office | a regency. |
| WWTP. | of Kutai | |
| c. Implementation of Land | Kartanegara | Environme |
| Applications which requires | regency. | nt Agency |
| assessment in advance. | 3. Regional | of Kutai |
| | Environment | Kartanegar a Regency |
| 2) Office and housing activities | Agency of | 3. Regional |
| a. Provide solid waste | Kutai | Environme |
| container at each unit that | Kartanegara | nt Agency |
| produces solid waste both | Regency. | of East |
| organic & inorganic. | | Kalimantan |
| b. Prohibit waste disposal to | | Province. |
| water bodies. | | FIOVILLE. |
| c. Create waste disposal | | |
| system for housing unit. | | |
| d. Toilet provision should have | | |
| septic tank. | | |
| e. Use biological | | |
| decomposition for septic | | |
| tank. | | |
| | | |
| 3) Clinic operations | | |
| a. Accommodate all solid | | |
| waste generated from | | |
| clinical operational activities | | |
| by preparing waste | | |
| container at several strategic | | |
| locations. | | |
| b. Installing warning board on | | |
| the obligation to maintain | | |
| the environment | | |
| c. Provide waste container at | | |
| the location that generates | | |
| waste. | | |
| d. Immediately deliver solid | | |
| waste generated by clinical | | |
| operations to a licensed | | |
| third party that have | | |
| uma party that have | | |

| 3.9 Occupational Health a Significant impact | to Impact arised due to | Occupational health | obtained from Ministry of Environment e. Cooperate with Kota Bangun hospital for medical waste destruction generated by clinical operations. 1) Estate emplacement | At the project location | During the operations | PT PU | 1. Health | 1. Health |
|---|---|---------------------------------|---|--|-----------------------|-------|---|---|
| occupational helath safety in which the impotentially harmful for workforce working at location during workforcess. | pact is a. Development of estate emplacement. | and safety disturbance at work. | development a. Determine and implement safety procedures relating to estate emplacement development. b. Provide means of first aid and medical personnel c. Perform periodic medical examinations d. Provide an evacuation unit to evacuate workers who suffered injury due to accident at workplace and require further treatment to hospital or public health centre. e. Provide hearing & respiratory protection. f. Insuring all the labour involved in the project 2) Road network construction a. Socialization of the use of occupational health and safety equipment especially for workers b. Determination & implementation of safety procedures relating to the operations undertaken | of the following activities: a. Development of estate emplacement. b. Road network construction. c. Preparation of nursery location. d. Preparation of planting area. e. Planting of oil palm. f. Plants upkeep g. Harvesting and transportation of FFB's h. Fertilizer and pesticides warehouse activities. | of PT PU. | | Department of Kutai Kartanegara Regency. 2. Manpower and Transmigratio n Office of Kutai Regency Kartanegara. 3. Plantation and forestry office of Kutai Kartanegara regency. 4. Regional Environment Agency of Kutai Kartanegara Regency 5 | Environmen t Agency of Kutai Kartanegara Regency 4. Regional |

| c. Provide first aid facilities |
|--|
| along with medical |
| personnel |
| d. Perform periodic health |
| checks e |
| e. Provide an evacuation unit |
| to evacuate workers who |
| suffered injury due to |
| accident at workplace and |
| require further treatment to |
| hospital or public health |
| centre. |
| f. Provide hearing & |
| respiratory protection. |
| g. Insuring all the labour |
| involved in the project. |
| involved in the project. |
| 3) Nursery location preparation |
| a. Socialization of the use of |
| occupational health and |
| safety equipment especially |
| for workers |
| b. Determination & |
| implementation of safety |
| procedures relating to the operations undertaken. |
| c. Provide first aid facilities |
| along with medical |
| personnel. |
| d. Perform periodic health |
| checks. |
| e. Provide an evacuation unit |
| to evacuate workers who |
| suffered injury due to |
| accident at workplace and require further treatment to |
| hospital or public health |
| centre. |
| f. Insuring all the labour |
| involved in the project |
| 4) Planting area preparation |
| |

| | a. Socialization of the use of | |
|---|--|--|
| | occupational health and | |
| | safety equipment especially | |
| | for workers | |
| | b. Determination & | |
| | implementation of safety | |
| | procedures relating to the | |
| | operations undertaken. | |
| | c. Provide first aid facilities | |
| | along with medical | |
| | personnel. | |
| | d. Perform periodic health | |
| | checks. | |
| | e. Provide an evacuation unit | |
| | | |
| | to evacuate workers who | |
| | suffered injury due to | |
| | accident at workplace and | |
| | require further treatment to | |
| | hospital or public health | |
| | centre. | |
| | f. Insuring all the labour | |
| | involved in the project. | |
| | | |
| | 5) Oil palm planting | |
| | a. Socialization of the use of | |
| | occupational health and | |
| | safety equipment especially | |
| | for workers | |
| | b. Determination & | |
| | implementation of safety | |
| | procedures relating to the | |
| | operations undertaken. | |
| | c. Provide first aid facilities along with medical | |
| | personnel. | |
| | d. Perform periodic health | |
| | checks. | |
| | e. Provide an evacuation unit | |
| | to evacuate workers who | |
| | suffered injury due to | |
| • | | |

| accident at workplace and |
|----------------------------------|
| require further treatment to |
| hospital or public health |
| centre. |
| f. Insuring all the labour |
| involved in the project. |
| C) Plant values |
| 6) Plant upkeep |
| a. Socialization of the use of |
| occupational health and |
| safety equipment especially |
| for workers |
| b. Determination & |
| implementation of safety |
| procedures relating to the |
| operations undertaken. |
| c. Provide first aid facilities |
| along with medical |
| personnel. |
| d. Perform periodic health |
| checks. |
| e. Provide an evacuation unit |
| to evacuate workers who |
| suffered injury due to |
| accident at workplace and |
| |
| require further treatment to |
| hospital or public health |
| centre. |
| f. Insuring all the labour |
| involved in the project. |
| |
| 7) Harvesting and Transportation |
| of FFB's |
| a. Socialization of the use of |
| occupational health and |
| safety equipment especially |
| for workers |
| b. Determination & |
| implementation of safety |
| |

| procedures relating to the | |
|--------------------------------------|--|
| operations undertaken. | |
| c. Provide first aid facilities | |
| along with medical | |
| personnel. | |
| d. Perform periodic health | |
| checks. | |
| e. Provide an evacuation unit | |
| to evacuate workers who | |
| | |
| suffered injury due to | |
| accident at workplace and | |
| require further treatment to | |
| hospital or public health | |
| centre. | |
| f. Insuring all the labour | |
| involved in the project. | |
| | |
| 8) Fertilizer and pesticides | |
| warehouse activities. | |
| a. Socialization of the use of | |
| occupational health and | |
| safety equipment especially | |
| for workers | |
| b. Determination & | |
| implementation of safety | |
| procedures relating to the | |
| operations undertaken | |
| c. Provide first aid facilities | |
| along with medical | |
| personnel d. Perform periodic health | |
| checks e | |
| e. Provide an evacuation unit | |
| to evacuate workers who | |
| suffered injury due to | |
| accident at workplace and | |
| require further treatment to | |
| hospital or public health | |
| centre. | |
| f. Provide hearing & | |
| respiratory protection. | |

| | | | | g. Insuring all the labour | | | | | |
|------|---|--|---|--|--|---------------------------------------|--------|---|--|
| | | | | involved in the project. | | | | | |
| 3.10 | Human Resources | | | | | | | | |
| 4 | Human resources development is a positive significant impact and direct. The impact will develop local community human resorce for both skilled and non-skilled and have immediate impact against increased local community income. | Developed human resources due to CSR activities. | Meningkatnya keterampilan dan produktifitas masyarakat sekitar akibat program CSR | Conducting socialization to the surrounding community on company CSR program. Company provides special field experts to train the workers enrolled in the program Conduct skills tests to program participants Conduct placement activities and course on the community so that people can be more independent to fulfil their economic needs. Together with the government to develop local business by using public facility as facilitator for local economy development. | Muara Ritan Village, Muara Ritan Baru Village, Buluq Sen Village, Mura Pedohon Village and Umaq Dian Village | During the estate operation of PT PU. | PT PU | 1. Village Officials of Muara Ritan Village, Muara Ritan Baru Village, Buluq Sen Village, Muara Pedohon Village and Umaq Dian Village, Tabang Sub- District. 2. Land Administration Division of Kutai Kartanegara Regency. 3. Plantation Office of Kutai Kartanegara Regency. 4. Environment Agency of Kutai Kartanegara Regency. 6. Environment Agency of Kutai Kartanegara Regency. 7. Environment Regency 8. Environment Regency 9. Regency. | 1. Plantation Office of Kutai Kartanegar a Regency 2. Regional Environme nt Agency of Kutai Kartanegar a Regency 3. Environme nt Agency of East Kalimantan Province. |
| 4.1 | Community Health | | | | | | | | |
| | Significant impact is the | Impact arised due to | No increase in public | 1) Nursery | At the project | Once during activities | PT. PU | 1. Health | 1. Health |
| | occurrence of public health | the following activities | health problems in | a. Nursery activities should be | location of the | on progress and | | Department of | Departmen |
| | problems with indicators of | a. Nursery | the vicinity of the | | following activities: | evaluated once a | | · · | - |
| | producting with mateurors of | b. Planting of oil palm | project site. | conducted in a planned | Tonowing detivities. | evaluated office a | | Kutai | t of Kutai |

| increased morbidity rate | c. Plant upkeep | | manner and gradually | | month during the | Kartanegara | Kar |
|--------------------------|---------------------|---|--|-------------------------------------|----------------------|----------------------|--------|
| among local community. | d. Harvesting 8 | k | according to the estate | nursery location. | operations of PT PU. | Regency. | a R |
| | transportation o | f | development. | b. Preparation of | | 2. Plantation | 2. Env |
| | FFB's | | b. Construct drainage network | planting area. | | Office of Kutai | nt |
| | e. Mill operations. | | that lead to retention basin | c. Planting of oil palm. | | Kartanegara | of |
| | | | at each división. | d. Plants upkeep | | Regency. | Kar |
| | | | c. Use environmentally friendly | e. Harvesting and transportation of | | 3. Environment | a R |
| | | | pesticide type. | FFB's | | Agency of | 3. Env |
| | | | d. Collect hazardous and toxic | f. Mill operations. | | Kutai Kartanegara | nt |
| | | | waste at hazardous and toxic | ' | | Regency. | of |
| | | | waste at nazardods and toxic waste storage facility. | | | Regency. | Kali |
| | | | 2) Oil palm planting | | | | Pro |
| | | | a. Avoid air pollution along the | | | | FIO |
| | | | seedling transportation | | | | |
| | | | routes. | | | | |
| | | | b. Inventory number of | | | | |
| | | | resident who affected by | | | | |
| | | | - | | | | |
| | | | nursery activities. | | | | |
| | | | c. Conducting intensive road | | | | |
| | | | watering, especially in the | | | | |
| | | | dry season on the | | | | |
| | | | community residential areas | | | | |
| | | | once in 2 hours | | | | |
| | | | 3) Plant upkeep | | | | |
| | | | a. Planting activities should be | | | | |
| | | | conducted in a planned | | | | |
| | | | manner and gradually | | | | |
| | | | according to the estate | | | | |
| | | | development. | | | | |
| | | | b. Construct drainage network | | | | |
| | | | that lead to retention basin | | | | |
| | | | at each división. | | | | |
| | | | c. Use environmentally friendly | | | | |
| | | | pesticide type. | | | | |
| | | | d. Collect hazardous and toxic | | | | |
| | | | waste at hazardous and toxic | | | | |
| | | | waste storage facility. | | | | |

| 4) Harvesting and transportation |
|--|
| of FFB's |
| a. Minimize the dust caused by |
| transporting activities by |
| limiting the transportation |
| vehicle speed. |
| b. Installing notification board |
| on the need to use mask |
| especially on dusty áreas. |
| c. Provision of dust mask to |
| community affected by the |
| dust on the transporting |
| route. |
| d. Incorporate CSR program as |
| main program. |
| 5) Mill operations |
| a. Construct wastewater |
| treatment plants to manage |
| liquid waste generated from |
| plant operations. |
| b. Based on the waste |
| characteristic & pollution |
| load, the effluent treatment is |
| effective if WPH is more than |
| 75 days so that the COD & TSS |
| level can be decreased to |
| below the standard. PT PU plans the wastewater |
| treatment with a biologically |
| WWTP system (anaerobe & |
| aerobe system) with |
| hydrological retention time of |
| 150 days so that WPH increase |
| is expected to decrease the |
| quality of waste water & |
| pollution loads to below the |
| quality standard. c. Implementation of land |
| applications in which requires |
| study in advance on pollution |
| aspect that may occur, the |
| |

| | I | T | T | - | | | T | T | T |
|-----|-----------------------------|----------------------|-----------------------|--|------------------------|------------------------|-------|-----------------|-------------------------|
| | | | | carrying capacity of the land, | | | | | |
| | | | | the effect on soil and ground water and surface water. | | | | | |
| 4.2 | Public safety | l | l | water and surface water. | | | 1 | 1 | I |
| 1.2 | Impact on public safety | Impact arised from | No traffic accident | 1) Equipment mobilization and | At public road | During the | Pt PU | 1. Health | 1. Health |
| | disturbance in which the | activities such as: | occured during the | demobilization | intersection passed by | operational activities | | Department of | Departmen |
| | impact is significant | a. Mobilization of | following activities: | a. Conduct mobilization to | or areas prone to | of PT PU. | | Kutai | t of Kutai |
| | negativem and direct. The | equipment | 1) Mobilization of | equipment in stage to entire | traffic accident | | | Kartanegara | Kartanegar |
| | impact may occur durig the | b. Transport of | equipment | heavy equipment. | | | | Regency. | a Regency. |
| | estate operations of PT PU. | employees | 2) Transport of | b. Coodinate with Transport | | | | 2. Plantation | 2. Environme |
| | | c. Harvesting & | employees | Department of Kutai | | | | Office of Kutai | nt Agency |
| | | transportation of | 3) Harvesting & | Kartanegara regency on LCT | | | | Kartanegara | of Kutai |
| | | FFB's | transportation of | operations. | | | | Regency. | Kartanegar |
| | | d. Demobilization of | FFB's | c. Install adequate lightings. | | | | 3. Environment | a Regency. 3. Environme |
| | | equipment | 4) Demobilization of | | | | | Agency of | nt Regency |
| | | | equipment | | | | | Kutai | of East |
| | | | | | | | | Kartanegara | Kalimanta |
| | | | | 2) Employee transportation | | | | Regency. | n Province. |
| | | | | a. Time arrangement for | | | | | |
| | | | | employee transportation to | | | | | |
| | | | | work in the morning is at | | | | | |
| | | | | 06:00 pm | | | | | |
| | | | | b. Time arrangement for employee transportation to | | | | | |
| | | | | return to home in the | | | | | |
| | | | | afternoon is at 14:00 wita. c. | | | | | |
| | | | | c. Limit the speed of the | | | | | |
| | | | | transporting vehicles at max | | | | | |
| | | | | 20 km / hour, especially when passing through the | | | | | |
| | | | | settlement. | | | | | |
| | | | | d. Use appropriate vehicle in | | | | | |
| | | | | accordance with its function | | | | | |
| | | | | such bus/car for passenger. | | | | | |
| | | | | | | | | | |
| | | | | 3) FFB's Harvesting and | | | | | |
| | | | | Transportation | | | | | |
| | | | | a. Carry out control measures | | | | | |
| | | | | of road traffic | | | | | |
| | | | | b. Preparing mobilization | | | | | |
| | | | | units, first aid facilities & | | | | | |

| | medical personnel to | | |
|--|-------------------------------|--|--|
| | anticipate traffic accidents. | | |
| | c. Prioritizing public road | | |
| | users first. | | |

2 HCV areas and HCS forests

Understanding the threats to the identified HCVs is an important step in making management decisions to protect and/or enhance HCV values (Stewart et.al., 2008). Threats to HCV can come from the internal scope of the land manager or from external factors (institutional or personal communities). Threat assessment aims to help companies to overcome internal threats with proper management, and improve the ability to reduce the impact of various external threats.

The threat assessment uses a comprehensive approach from the IUCN. This approach only assesses direct threats to species, habitats or ecosystems. The threat category assessment is based on the IUCN Treat Category (ITC) that has been verified in the field. Of the 12 categories, there were 5 categories of threats in the MU area of PT PU, namely agriculture/plantation activity, pollution, biological use, transportation & service corridors, and natural system modification. From each threat, there are 3 factors that are assessed, namely time (period of threat continuity), scope (size/proportion of affected area/object) and severity (rate of quality decline due to threat pressure).

The results of the threat intensity assessment are generally medium impact. However, there is an assessment of threats that are classified as low impact, namely fires originating from a stretch of shrubs around the borders of the Sungai Batu Brang, Jalin, Bayeq, Meqloq, and Sungai Sengen rivers, which were former community fields. This is because the location is in the form of small spots and only takes place if there are triggers such as a dry and long drought and the lighter (such as cigarette butts of people looking for fish). It is different with logging in forested areas around the Jalin River, Batu Brang River and Belayan River which is classified as high impact. The rate of decline in quality due to threat pressure is very fast (land becomes barren and dries quickly). For the threat assessment at each location of the HCV area, **Tables 2 and 3** are presented.

Table 2. HCV and HCMA threat intensity assessment

| HCV | Brief Description of Existence of Values in the Valuation Area | Main Threat |
|-----|---|---|
| 1 | Presence of RTE species, especially populations of kelawait (Hylobates muelleri) and several species of Dipterocarpaceae. Kelawait occupies the remaining secondary forest fragments within the MU and AOI. Similarly, several Dipterocarp species make up the species composition of the secondary forest fragments in the assessment landscape. Important areas of rivers within the assessment landscape that are natural habitats for various RTE aquatic fauna, including thorn turtles and sinyulong crocodiles. | Community hunting of animals, especially RTE species Illegal logging by local communities and migrants in forest fragments containing Dipterocarpaceae species Clearing of forested land/which still has good vegetation for farming/gardening by the community/company |
| 3 | There are ecosystems that are threatened and meet the criteria for HCV 3, namely in the form of lowland forest in sandstone | Company plans to clear land for oil palm plantation Company plans to build roads and blocking lanes, in the early stages of land clearing Illegal logging by local communities and migrants |

| | | Clearing of forested land/which is still well-vegetated for farming/gardening by the community/company |
|---|--|---|
| 4 | There is land with steep slopes, as well as rivers and their riparian zone. The land with steep slopes has good vegetation conditions in the valley area. Within the MU area, there are 8 rivers and riparian zones. | Plantation operations by the company after the palm oil is planted (Agricultural effluent), such as application of fertilizers, pesticides, herbicides Land clearing for farming/gardening by the community on steep slopes and around river borders Illegal logging by local communities and migrants on sloping lands (such as Mount Naga, Mount Mendam, and valley areas with steep slopes east of the Banggeh River) Activities of anglers around the riparian zone of the river in the form of shrubs that dry up during the dry season (prone to fire) |
| 5 | There are situations that meet the requirements for the existence of HCV 5, namely rivers that are used as a place to find fish and a source of clean water for local communities | Community/company land clearing activities for agriculture (fields) or oil palm plantations around the riparian zone |

Table 3. Threat assessment for each HCV and HCVMA

| HCV | ID Map | Source of Threat | Threat Source Status | Risk |
|--|----------------------------|---|---|--|
| HCV 1 ID01, ID03, ID06, ID09, ID12, ID15, ID16, ID18 | ID06, ID09, ID12, ID15, | Community hunting of animals, especially RTE species | Animal hunting is a side activity for local people, it has been going on for a long time and seems to be continuing in the future | Fauna belonging to RTE species is increasingly threatened |
| | 1010, 1016 | Illegal logging by local communities and migrants in forest fragments containing Dipterocarpaceae species | Flora belonging to RTE species is increasingly threatened | |
| | | Clearing of forested land/which still has good vegetation for farming/gardening by the community/company | Until now, the company has not carried out land clearing activities but in the near future it will clear land for oil palm plantations. In the land clearing process there must be a plan for making lanes and blocking lanes (eg real threats to ID04 and ID05 connectivity). | The area and quality of habitat for endangered animals is decreasing (disturbed) Animal habitats are fragmented so that connectivity is lost, for example: riparian zones as ecological corridors that connect better and wider forested (should proceed). |
| | | | Cultivation by the community has taken place, especially on land with slightly steep slopes and around the riparian zone. | better and wider forested/shrub areas. Increased soil erosion so that sediment yields in rivers increase and water becomes very cloudy, as well as residues of plantation chemicals (aquatic fauna |

| I | | | | |
|-------|--|--|---|---|
| | | | | habitat is disturbed and its quality decreases) |
| HCV 3 | ID02, ID03, ID04, ID05, ID06, ID08, ID09, ID11, ID12 | Company plans to clear land for oil palm plantation Company plans to build roads and blocking lanes, in the early stages of land clearing | Until now, the company has not carried out land clearing activities but in the near future it will clear land for oil palm plantations. Plans for making lanes and blocking lanes in line with the company's plan to clear land for oil palm plantations | Fragments of old forest/groves which are part of a rare ecosystem are threatened with damage or even disappearance |
| | | Illegal logging by local communities and migrants | Timber logging has been carried out and will continue to be carried out by the community, especially in the Belayan, Batu Brang and Jalin forest blocks | |
| HCV 4 | ID01, ID03, ID06, ID07, ID09, ID10, ID12, ID13, ID14, ID15, ID16, ID17, ID18 | Land clearing for farming/gardening by the community on land with steep slopes and around river borders | The river flows across the PT PU HGU area. Until now the company has not carried out land clearing activities, in the near future land clearing will be carried out for oil palm plantations (starting with the construction of roads and blocking lanes). Without close supervision the riparian zone area can also be opened. It has become a local community tradition to open fields around riparian zones and land with steep slopes (although the area is not very large), and will continue to do so in the future. | Erosion yields increase, sedimentation yields also increase which causes silting Increased turbidity of river water (dissolved material in river water increases) Increase riverbank morphoerosion because there is no protection on the riverbank Riparian zone as a flood buffer area that still has natural vegetation will disappear |
| | | Plantation operational activities by the company after palm oil is planted (Agricultural effluent), such as application of fertilizers, pesticides, herbicides | Plantation operational activities have not yet taken place, the threat will take place intensively in the first 5 years after planting | Increased agrochemical pollution when plantation operations have started (fertilizers, pesticides, herbicides) |
| | | The activities of anglers around the riparian zone of the river in the form of shrubs that dry up during the dry season | Fishing is a local community side activity that takes place only at certain times. During the dry season the river water recedes, the frequency of fishing is getting more frequent. This will be repeated next time | Land fire |
| HCV 5 | ID06, ID12, ID16 | Community/company land clearing activities for agriculture (fields) or oil palm plantations | The river flows across the PT PU HGU area. Until now the company has not carried out land clearing activities, in the near future land | Reducing river water quality, because: |

| | around riparian zones that are not environmentally friendly | clearing will be carried out for oil palm plantations (starting with the construction of roads and blocking lanes). Without close supervision the riparian zone area can be opened too. It has become a local community tradition to open fields around riparian zones and land with steep slopes (although the area is not very large), and will continue to do so in the future. | Land erosion results increase, sedimentation results also increase which causes river silting Increase riverbank morphoerosion because there is no protection on the riverbank Increased turbidity of river water (dissolved material in river water increases) |
|--|---|---|---|
|--|---|---|---|

The general objective of HCV management is to maintain elements of the HCV; (if needed), the importance of the area can be enhanced. Maintenance of HCV elements is a minimum requirement in HCV management. This HCV maintenance can be done by protecting the HCV area and mitigating its threats so that the important value of the HCV is not degraded. In addition, the company is also expected to be able to recover from the significant decline in the value of HCV caused by the negative impact of the company's operational activities.

The management recommendations for managing HCV areas in general are as follows:

- 1. The company must have a commitment to carry out the land acquisition process for the entire HGU area, including the area to be managed as a conservation area (HCV-HCS, Risk Area). This needs to be done to ensure that there will be no problems in the process of managing and monitoring the conservation area on the grounds that the area is still controlled by the community. The land acquisition process to be carried out must refer to the procedures established by the company and the principles of FPIC.
- 2. Immediately prepare a more detailed HCV Management Plan document, taking into account:
 - Species protection aspect, because not all endangered species have a definite core area or clear path across the garden, also consider the connectivity between habitats.
 - Regarding the connectivity of the HCV area (eg in ID04 and ID05), the thing that must be considered is to maintain the existence of the forest in good condition and not fragmented by closing all access to the HCV area and creating a buffer area around the HCV area that cannot be changed by land use. make the buffer area an HCVMA No Go Area. Meanwhile, the border area of the national road that connects to the HCV ID04 area becomes the HCVMA Go Area.
 - Strengthening communication links with other companies in the vicinity to develop management plans and action plans to protect HCV areas.
 - A landscape approach that involves local communities and related stakeholders, because the interests and benefits of the existence of HCVs are mutual interests and benefits.

- Integrated Management Plan and Monitoring of HCV area with other environmental management activities (Integrated Management Plan) such as AMDAL, HCS, and others
- This management plan must be on target, realistic, simple, practical and effective.
- 3. Build institutions for HCV management:
 - Establish a management unit to ensure HCV management objectives are achieved.
 - Train staff or recruit staff with the necessary qualifications for HCV management.
- 4. Strengthening capacity in identification, management, monitoring and evaluation:
 - Detailed SOP for Management and monitoring of HCV areas.
 - Consistent application of procedures and policies.
- 5. Conduct delineation and demarcation of HCV areas that have been identified and install sign boards as a form of socialization and public awareness regarding information on HCV areas
- 6. Before demarcating and delineating the HCV area, it is necessary to first consider the tenure/ownership of the land where the HCV area is located. This will have implications for further management actions of the HCV area and elements, namely:
 - If the status of land ownership/tenure is still in the community, then all matters relating to the protection and management of the HCV area must be coordinated with the land owner, and carried out by mutual agreement between the company and the land owner.
 - If the land ownership status is with the company, what is needed is the enforcement of protection rules.
- 7. Coordinate with relevant stakeholders (NGOs, government, communities) in the maintenance of HCV areas and support collaborative activities related to the concept of area management
- 8. Regarding the company's plan to build roads and blocking lanes, the management plan is to determine the location of the cross section between the road/blocking lane and river channel, which is minimal (in quantity) but effective in the operational mobility path of the plantation by maintaining the condition of the surrounding vegetation. Then, regarding the company's plan to create a drainage network, the things that must be considered are keeping the river flow in good condition (not normalizing the river) and making it the main drainage channel.

The direction in this HCV area management system is an adaptive management system where the manager always tries to make continuous improvement in the management and monitoring of HCVs. Recommendations for management of HCV areas are presented in **Table 4.**

| Name & | ID |
|-------------------------|----|
| Description | |
| 8 Belayan Rive Riparian | 01 |

| 02 Belayan Rive | | Do not occupy area on the river border as settlement to prevent river water pollution. | | |
|-------------------|---|--|--|---|
| UZ Belayan Rive | | ., | 0 | |
| Forest | scrub, only a small amount of shrubs), in some places there is land clearing by PT Lembang Ganesa and PT Karya Rimba Raya (still active). Important area as habitat for endangered species Ambon tortoise (Coura amboinensis), Orlitia borneensis, Amyda cartilaginea, Cuora amboinensis, Heosemys spinose Type: 1; 3 specie Illegal by comm and m forest fragmo contai Dipter ae spe • Clearing forest land/w has vegeta farming comm compation compation but and lanes, | identification of land cover conditions. Comprehensive inventory on flora/ fauna in the HCV area. Conducting HCV boundary marking adjacent to operational areas as well as community land location & periodic border maintenance. Installation of nameplate in HCV location according to HCV type, installation of board prohibiting wildlife hunting and flora disruption. Conducting patrols in HCV areas. Undertake rehabilitation and enrichment activities (restoration) on areas identified as degraded based on land cover inventory results. Provision of forest and land fire prevention equipment in accordance with prevailing laws and regulations. Conducting HCV boundary | Organize internal and external socialization explaining the importance of conserving HCV areas and biodiversity. Activities are also carried out targeting school-aged children (elementary, junior high school, high school) at schools located within village areas, subdistricts affected by PT. PU operations. Conduct HCV area management training to HCV officers and/ or staff & employees. Conduct forest and land fire prevention and handling training to employees and gradually developing the fire-fighting community (MPA) program. Develop an accountable and relevant community development program in collaboration with government agencies, village agencies and community leaders in an effort to prevent and minimize encroachment impact on HCV areas. | Determination of environmental and preservation of natural biodiversity policies by Top Management. Preparation of HCV Area Management and Monitoring Procedures/ SOP's. Establish and appoint HCV officers along with job descriptions and incorporate into the organizational structure of the company. Coordinate & cooperate with relevant agencies, such as BKSDA, Forestry and Plantations Agency, DLHK, Police, local government apparatus and surrounding communities in HCV area management program. Determination of environmental and preservation of natural biodiversity policies by Top Management. Preparation of HCV Area Management and |

| | | | | | | relevant agencies, such as BKSDA, Forestry and Plantations Agency, DLHK, Police, local government apparatus and surrounding communities in HCV area management program. |
|---|--|---|---|---|--|--|
| a | Batu Brang River and the Riparian Zone | The river water is cloudy during the rainy season from the upstream (community agricultural land development area) Most of the vegetation on the riverbank is still good (shrubsecondary forest) Lowland scrub and secondary forest ecosystem that supports the habitat of the endangered species Ambon tortoise (Coura amboinensis), Orlitia borneensis, Amyda cartilaginea, Cuora amboinensis, Heosemys spinosa, Tomistoma schlegelii | Community hunting of animals, especially RTE species Illegal logging by local communities and migrants in forest fragments containing Dipterocarpace ae species Clearing of forested land/which still has good vegetation for farming/garden ing by the community/ company Company plans to clear land for oil palm plantation | Conduct inventory and identification of land cover conditions. Comprehensive inventory on flora/ fauna in the HCV area. Conducting HCV boundary marking adjacent to operational areas as well as community land location & periodic border maintenance. Installation of nameplate in HCV location according to HCV type, installation of board prohibiting wildlife hunting and flora disruption. Conducting patrols in HCV areas. Undertake rehabilitation and enrichment activities (restoration) on areas identified as degraded based on land cover inventory results. Provision of forest and land fire prevention equipment | Organize internal and external socialization explaining the importance of conserving HCV areas and biodiversity. Activities are also carried out targeting school-aged children (elementary, junior high school, high school) at schools located within village areas, subdistricts affected by PT. PU operations. Conduct HCV area management training to HCV officers and/ or staff & employees. Conduct forest and land fire prevention and handling training to employees and gradually developing the fire-fighting community (MPA) program. Develop an accountable and relevant community development program in collaboration with government agencies, | Determination of environmental and preservation of natural biodiversity policies by Top Management. Preparation of HCV Area Management and Monitoring Procedures/ SOP's. Establish and appoint HCV officers along with job descriptions and incorporate into the organizational structure of the company. Coordinate & cooperate with relevant agencies, such as BKSDA, Forestry and Plantations Agency, DLHK, Police, local government apparatus and surrounding communities in HCV area management program. |
| | | Type: 1; 3; 4 | • | in accordance with | village agencies and | |

| | Company plans | prevailing laws and | community leaders in an | • Determination of |
|--|------------------------------|--|--|---|
| | to build roads | regulations. | effort to prevent and | environmental and |
| | and blocking | Conducting HCV boundary | minimize encroachment | preservation of natural |
| | lanes, in the | marking adjacent to | impact on HCV areas. | biodiversity policies by |
| | early stages of | operational areas as well as | | Top Management. |
| | land clearing | community land location & | Organize internal and | • Preparation of HCV |
| | Illegal logging | periodic border | external socialization | Area Management and |
| | by local | maintenance. | explaining the importance | Monitoring |
| | communities | Installation of HCV name | of conserving HCV areas | Procedures/ SOP's. |
| | and migrants | board location according to | and biodiversity. | • Establish and appoint |
| | • Clearing of | HCV type, installation of | Activities are also carried | HCV officers along with |
| | forested | board prohibiting wildlife | out targeting school-aged | job descriptions and |
| | land/which is | hunting and flora | children (elementary, | incorporate into the |
| | still well- | disruption. | junior high school, high | organizational |
| | vegetated for | Conducting patrols in HCV | school) at schools located | structure of the |
| | farming/gardeni | areas. | within village areas, sub- | company. |
| | ng by the | Undertake rehabilitation | districts affected by PT. PU | • Coordinate & |
| | community/co | and enrichment activities | operations. | cooperate with |
| | mpany | (restoration) on areas | • Conduct HCV area | relevant agencies, such |
| | | identified as degraded | management training to | as BKSDA, Forestry and |
| | Plantation | based on land cover | HCV officers and/ or staff & | Plantations Agency, |
| | operations by | inventory results. | employees. | DLHK, Police, local |
| | the company | Provision of forest and land | Conduct forest and land fire | government apparatus |
| | after the palm | fire prevention equipment | prevention and handling | and surrounding |
| | oil is planted | in accordance with | training to employees and | communities in HCV |
| | (Agricultural | prevailing laws and | gradually developing the | area management |
| | effluent), such | regulations. | fire-fighting community | program. |
| | as application of | Conduct inventory and | (MPA) program. | |
| | fertilizers, | identification of land cover | Develop an accountable | • Determination of |
| | pesticides, | conditions. | and relevant community | environmental and |
| | herbicides | Comprehensive inventory | development program in | preservation of natural |
| | Land clearing for | on flora/ fauna in the HCV | collaboration with | biodiversity policies by |
| | farming/gardeni | area. | government agencies, | Top Management. |
| | ng by the | Conducting HCV boundary | village agencies and | Preparation of HCV |
| | community on | marking adjacent to | community leaders in an | Area Management and |
| | steep slopes and | operational areas as well as | effort to prevent and | Monitoring |
| | around river | community land location & | minimize encroachment | Procedures/ SOP's. |
| | borders | periodic border | impact on HCV areas. | Establish and appoint |
| | | maintenance. | | HCV officers along with |

| | Illegal logging by | Installation of nameplate in | Organize internal and | job descriptions and |
|--|--------------------|--|--|---|
| | local | HCV location according to | external socialization | incorporate into the |
| | communities | HCV type, installation of | explaining the importance | organizational |
| | and migrants on | board prohibiting wildlife | of conserving HCV areas | structure of the |
| | sloping lands | hunting and flora | and biodiversity. | company. |
| | • Activities of | disruption. | Conduct forest and land fire | • Coordinate & |
| | anglers around | Conducting patrols in HCV | prevention and handling | cooperate with |
| | the riparian | areas. | training to employees and | relevant agencies, such |
| | zone of the river | Undertake rehabilitation | gradually developing the | as BKSDA, Forestry and |
| | in the form of | and enrichment activities | fire-fighting community | Plantations Agency, |
| | shrubs that dry | (restoration) on areas | (KTPA) program. | DLHK, Police, local |
| | up during the | identified as degraded | | government apparatus |
| | dry season | based on land cover | | and surrounding |
| | (prone to fire) | inventory results. | | communities in HCV |
| | | Provision of forest and land | | area management |
| | | fire prevention equipment | | program. |
| | | in accordance with | | |
| | | prevailing laws and | | • Determination of |
| | | regulations. | | environmental and |
| | | Determination flood plain | | preservation of natural |
| | | on river riparian as wide as | | biodiversity policies by |
| | | the highest peak of | | Top Management. |
| | | inundation period. | | Preparation of HCV |
| | | Setting and marking of | | Area Management and |
| | | boundaries of areas | | Monitoring |
| | | identified as HCV 4 (rivers | | Procedures/ SOP's. |
| | | and borders) followed by | | Establish and appoint |
| | | installation of HCV 4 | | HCV officers along with |
| | | information boards (rivers | | job descriptions and |
| | | and borders), mounting | | incorporate into the |
| | | signs containing | | organizational |
| | | restrictions and appeals, | | structure of the |
| | | especially prevention of | | company. |
| | | fires and cultivation and | | • Coordinate & |
| | | logging | | cooperate with |
| | | Identification of land cover | | relevant agencies, such |
| | | in river basins for | | as BKSDA, Forestry and |
| | | rehabilitation/ enrichment | | Plantations Agency, |
| | l l | planting by categorizing | | DLHK, Police, local |

| | | | | open areas, shrubs, low density stands Rehabilitation/ enrichment planting in river border river. If there are already other plants in the border, then enrichment is done by planting the same plant species. Types of plants planted are local native species. Conducting patrols on the HCV river boundary Provision of forest and land fire prevention equipment in accordance with prevailing laws and regulations. Do not occupy area on the river border as settlement to prevent river water pollution. | | government apparatus and surrounding communities in HCV area management program. |
|----|----------------------------------|---|--|---|--|---|
| 04 | Batu Brang River Block Forest | In general the condition of land cover is still good (scrub-secondary forest), there are logging areas of PT Lembang Ganesa and PT Karya Rimba Raya, the slopes of the land are gentle to bumpy Lowland scrub and secondary forest ecosystems that support habitat for endangered species | Community hunting of animals, especially RTE species Illegal logging by local communities and migrants in forest fragments containing Dipterocarpace ae species Clearing of forested | Conduct inventory and identification of land cover conditions. Comprehensive inventory on flora/ fauna in the HCV area. Conducting HCV boundary marking adjacent to operational areas as well as community land location & periodic border maintenance. Installation of nameplate in HCV location according to HCV type, installation of board prohibiting wildlife | Organize internal and external socialization explaining the importance of conserving HCV areas and biodiversity. Activities are also carried out targeting school-aged children (elementary, junior high school, high school) at schools located within village areas, subdistricts affected by PT. PU operations. Conduct HCV area management training to | Determination of environmental and preservation of natural biodiversity policies by Top Management. Preparation of HCV Area Management and Monitoring Procedures/ SOP's. Establish and appoint HCV officers along with job descriptions and incorporate into the organizational structure of the company. |

| (Hylobates muelleri and Buceros rhinoceros); endemic species and limited distribution (Hylobates muelleri), refugium, stepping stone for protected species (Family Bucerotidae) Type: 1; 3 | land/which still has good vegetation for farming/garden ing by the community/ company • Company plans to clear land for oil palm plantation • Company plans to build roads and blocking lanes, in the early stages of land clearing • Illegal logging by local communities and migrants • Clearing of | hunting and flora disruption. Conducting patrols in HCV areas. Undertake rehabilitation and enrichment activities (restoration) on areas identified as degraded based on land cover inventory results. Provision of forest and land fire prevention equipment in accordance with prevailing laws and regulations. Conducting HCV boundary marking adjacent to operational areas as well as community land location & periodic border maintenance. | HCV officers and/ or staff & employees. Conduct forest and land fire prevention and handling training to employees and gradually developing the fire-fighting community (MPA) program. Develop an accountable and relevant community development program in collaboration with government agencies, village agencies and community leaders in an effort to prevent and minimize encroachment impact on HCV areas. Organize internal and external socialization explaining the importance of conserving HCV areas | cooperate with relevant agencies, such as BKSDA, Forestry and Plantations Agency, DLHK, Police, local government apparatus and surrounding communities in HCV area management program. • Determination of environmental and preservation of natural biodiversity policies by Top Management. • Preparation of HCV Area Management and Monitoring Procedures/ SOP's. • Establish and appoint HCV officers along with |
|---|--|---|---|--|
| Bucerotidae) | | · · · · · · · · · · · · · · · · · · · | | Determination of |
| Type: 1; 3 | to build roads and blocking lanes, in the early stages of land clearing Illegal logging by local communities and migrants | prevailing laws and regulations. • Conducting HCV boundary marking adjacent to operational areas as well as community land location & periodic border maintenance. | village agencies and community leaders in an effort to prevent and minimize encroachment impact on HCV areas. • Organize internal and external socialization explaining the importance | environmental and preservation of natural biodiversity policies by Top Management. • Preparation of HCV Area Management and Monitoring Procedures/ SOP's. • Establish and appoint |
| | forested land/which is still well- vegetated for farming/gardeni | board location according to HCV type, installation of board prohibiting wildlife hunting and flora disruption. | and biodiversity. • Activities are also carried out targeting school-aged children (elementary, junior high school, high | job descriptions and incorporate into the organizational structure of the company. |
| | ng by the community/co mpan | Conducting patrols in HCV areas. Undertake rehabilitation and enrichment activities (restoration) on areas | school) at schools located within village areas, subdistricts affected by PT. PU operations. • Conduct HCV area | Coordinate & cooperate with relevant agencies, such as BKSDA, Forestry and Plantations Agency, |
| | | identified as degraded based on land cover inventory results. Provision of forest and land fire prevention equipment | management training to HCV officers and/ or staff & employees. | DLHK, Police, local government apparatus and surrounding communities in HCV area management |
| | | in accordance with | training to employees and | program. |

| | | | | prevailing laws and regulations. | gradually developing the fire-fighting community (MPA) program. Develop an accountable and relevant community development program in collaboration with government agencies, village agencies and community leaders in an effort to prevent and minimize encroachment impact on HCV areas. | Determination of environmental and preservation of natural biodiversity policies by Top Management. Preparation of HCV Area Management and Monitoring Procedures/ SOP's. Establish and appoint HCV officers along with job descriptions and incorporate into the organizational structure of the company. Coordinate & cooperate with relevant agencies, such as BKSDA, Forestry and Plantations Agency, DLHK, Police, local government apparatus and surrounding communities in HCV area management program. |
|--|-----------------------------|---|--|--|---|--|
| | Jalin River Block Forest | • In general the condition of land cover is still good (scrub-secondary forest), in some places there is land clearing by the community for farming, the slopes of the land are | Community hunting of animals, especially RTE species Illegal logging by local communities and migrants in forest | Conduct inventory and identification of land cover conditions. Comprehensive inventory on flora/ fauna in the HCV area. Conducting HCV boundary marking adjacent to operational areas as well as community land location & | Organize internal and external socialization explaining the importance of conserving HCV areas and biodiversity. Activities are also carried out targeting school-aged children (elementary, junior high school, high school) at schools located | Determination of environmental and preservation of natural biodiversity policies by Top Management. Preparation of HCV Area Management and Monitoring Procedures/ SOP's. |

| 06 | Jalin River and the | • The river water is | • Community | | identified as degraded based on land cover inventory results. Provision of forest and land fire prevention equipment in accordance with prevailing laws and regulations. | HCV officers and/ or staff & employees. Conduct forest and land fire prevention and handling training to employees and gradually developing the fire-fighting community (MPA) program. Develop an accountable and relevant community development program in collaboration with government agencies, village agencies and community leaders in an effort to prevent and minimize encroachment impact on HCV areas. | Plantations Agency, DLHK, Police, local government apparatus and surrounding communities in HCV area management program. • Determination of environmental and preservation of natural biodiversity policies by Top Management. • Preparation of HCV Area Management and Monitoring Procedures/ SOP's. • Establish and appoint HCV officers along with job descriptions and incorporate into the organizational structure of the company. • Coordinate & cooperate with relevant agencies, such as BKSDA, Forestry and Plantations Agency, DLHK, Police, local government apparatus and surrounding communities in HCV area management program. • Determination of |
|----|---------------------|-------------------------------------|-------------|----|---|---|--|
| 00 | Riparian Zone | cloudy during the rainy season from | • | of | identification of land cover conditions. | external socialization explaining the importance | environmental and preservation of natural |

| | the upstream (community agricultural land development area) In the dry season it is used by the community as a source of water for bathing and washing The Jalin River during the flood is used by people who are logging in the upstream to extract wood Lowland shrub and secondary forest ecosystem that supports the habitat of the endangered species Ambon tortoise (Coura amboinensis), Orlitia borneensis, Amyda cartilaginea, Cuora amboinensis, Heosemys spinose Tomistoma schlegelii | especially RTE species Illegal logging by local communities and migrants in forest fragments containing Dipterocarpace ae species Clearing of forested land/which still has good vegetation for farming/garden ing by the community/ company Company plans to clear land for oil palm plantation Company plans to build roads and blocking lanes, in the early stages of land clearing | Comprehensive inventory on flora/ fauna in the HCV area. Conducting HCV boundary marking adjacent to operational areas as well as community land location & periodic border maintenance. Installation of nameplate in HCV location according to HCV type, installation of board prohibiting wildlife hunting and flora disruption. Conducting patrols in HCV areas. Undertake rehabilitation and enrichment activities (restoration) on areas identified as degraded based on land cover inventory results. Provision of forest and land fire prevention equipment in accordance with prevailing laws and regulations. Conducting HCV boundary marking adjacent to operational areas as well as | of conserving HCV areas and biodiversity. Activities are also carried out targeting school-aged children (elementary, junior high school, high school) at schools located within village areas, subdistricts affected by PT. PU operations. Conduct HCV area management training to HCV officers and/or staff & employees. Conduct forest and land fire prevention and handling training to employees and gradually developing the fire-fighting community (MPA) program. Develop an accountable and relevant community development program in collaboration with government agencies, village agencies and community leaders in an effort to prevent and minimize encroachment impact on HCV areas. | biodiversity policies by Top Management. Preparation of HCV Area Management and Monitoring Procedures/ SOP's. Establish and appoint HCV officers along with job descriptions and incorporate into the organizational structure of the company. Coordinate & cooperate with relevant agencies, such as BKSDA, Forestry and Plantations Agency, DLHK, Police, local government apparatus and surrounding communities in HCV area management program. Determination of environmental and preservation of natural biodiversity policies by Top Management. Preparation of HCV |
|--|---|--|---|--|--|
| | | | | • , , | |
| | ecosystem that supports the | community/ | and enrichment activities (restoration) on areas | fire-fighting community (MPA) program. | DLHK, Police, local government apparatus |
| | endangered species | Company plans | _ | and relevant community | |
| | (Coura | oil palm | Provision of forest and land | collaboration with | · · |
| | Amyda cartilaginea, Cuora amboinensis, | Company plans to build roads and blocking | in accordance with prevailing laws and regulations. | village agencies and community leaders in an effort to prevent and | environmental and preservation of natural |
| | Tomistoma | early stages of land clearing | marking adjacent to | impact on HCV areas. | Top Management. • Preparation of HCV |
| | Type: 1; 3; 4; 5 | Illegal logging by local communities | community land location & periodic border maintenance. | Organize internal and external socialization explaining the importance | Area Management and Monitoring Procedures/ SOP's. |
| | | and migrantsClearing of forested | Installation of HCV name board location according to HCV type, installation of | of conserving HCV areas and biodiversity.Activities are also carried | Establish and appoint HCV officers along with job descriptions and |
| | | land/which is still well- | board prohibiting wildlife | out targeting school-aged children (elementary, | incorporate into the organizational |

| vegetated for | | | |
|-------------------------------------|--|--|---|
| vegetated for | hunting and flora | junior high school, high | structure of the |
| farming/garden | disruption. | school) at schools located | company. |
| ing by the | Conducting patrols in HCV | within village areas, sub- | • Coordinate & |
| community/ | areas. | districts affected by PT. PU | cooperate with |
| company | Undertake rehabilitation | operations. | relevant agencies, such |
| | and enrichment activities | • Conduct HCV area | as BKSDA, Forestry and |
| Plantation | (restoration) on areas | management training to | Plantations Agency, |
| operations by | identified as degraded | HCV officers and/ or staff & | DLHK, Police, local |
| the company | based on land cover | employees. | government apparatus |
| after the palm | inventory results. | Conduct forest and land fire | and surrounding |
| oil is planted | Provision of forest and land | prevention and handling | communities in HCV |
| (Agricultural | fire prevention equipment | training to employees and | area management |
| effluent), such | in accordance with | gradually developing the | program. |
| as application | prevailing laws and | fire-fighting community | |
| of fertilizers, | regulations. | (MPA) program. | • Determination of |
| pesticides, | | Develop an accountable | environmental and |
| herbicides | Conduct inventory and | and relevant community | preservation of natural |
| Land clearing | identification of land cover | development program in | biodiversity policies by |
| for | conditions. | collaboration with | Top Management. |
| farming/garden | Comprehensive inventory | government agencies, | Preparation of HCV |
| ing by the | on flora/ fauna in the HCV | village agencies and | Area Management and |
| community on | area. | community leaders in an | Monitoring |
| steep slopes | Conducting HCV boundary | effort to prevent and | Procedures/ SOP's. |
| and around | marking adjacent to | minimize encroachment | Establish and appoint |
| river borders | operational areas as well as | impact on HCV areas. | HCV officers along with |
| Illegal logging | community land location & | | job descriptions and |
| by local | periodic border | Organize internal and | incorporate into the |
| communities | maintenance. | external socialization | organizational |
| and migrants on | Installation of nameplate in | explaining the importance | structure of the |
| sloping lands | HCV location according to | of conserving HCV areas | company. |
| Activities of | HCV type, installation of | and biodiversity. | • Coordinate & |
| anglers around | board prohibiting wildlife | Conduct forest and land fire | cooperate with |
| the riparian | hunting and flora | prevention and handling | relevant agencies, such |
| zone of the river | disruption. | training to employees and | as BKSDA, Forestry and |
| in the form of | Conducting patrols in HCV | gradually developing the | Plantations Agency, |
| shrubs that dry | areas. | fire-fighting community | DLHK, Police, local |
| up during the | Undertake rehabilitation | (KTPA) program. | government apparatus |
| dry season | and enrichment activities | | and surrounding |
| (prone to fire) | (restoration) on areas | | communities in HCV |

| | Community/co | identified as degraded based on land cover | area management program. |
|--|-----------------|--|---|
| | mpany land | inventory results. | program. |
| | clearing | Provision of forest and land | Determination of |
| | activities for | fire prevention equipment | environmental and |
| | agriculture | in accordance with | preservation of natural |
| | (fields) or oil | prevailing laws and | biodiversity policies by |
| | palm | regulations. | Top Management. |
| | plantations | regulations. | Preparation of HCV |
| | around the | Determination flood plain | Area Management and |
| | riparian zone | on river riparian as wide as | Monitoring |
| | Tipatian zone | the highest peak of | Procedures/ SOP's. |
| | | inundation period. | Establish and appoint |
| | | Setting and marking of | HCV officers along with |
| | | boundaries of areas | job descriptions and |
| | | identified as HCV 4 (rivers | incorporate into the |
| | | and borders) followed by | organizational |
| | | installation of HCV 4 | structure of the |
| | | information boards (rivers | company. |
| | | and borders), mounting | • Coordinate & |
| | | signs containing | cooperate with |
| | | restrictions and appeals, | relevant agencies, such |
| | | especially prevention of | as BKSDA, Forestry and |
| | | fires and cultivation and | Plantations Agency, |
| | | logging | DLHK, Police, local |
| | | Identification of land cover | government apparatus |
| | | in river basins for | and surrounding |
| | | rehabilitation/ enrichment | communities in HCV |
| | | planting by categorizing | area management |
| | | open areas, shrubs, low | program. |
| | | density stands, high density | |
| | | stands | |
| | | Rehabilitation/ enrichment | |
| | | planting in river border | |
| | | river. If there are already | |
| | | other plants in the border, | |
| | | then enrichment is done by | |
| | | planting the same plant | |
| | | species. Types of plants | |

| | | | planted are local native species. Conducting patrols on the HCV river boundary Provision of forest and land fire prevention equipment in accordance with prevailing laws and regulations. Do not occupy area on the river border as settlement to prevent river water pollution. | | |
|---------------------------------------|---|--|---|---|---|
| 07 Jalin Tukun and the Rig Zone | • | Plantation operations by the company after the palm oil is planted (Agricultural effluent), such as application of fertilizers, pesticides, herbicides Land clearing for farming/garden ing by the community on steep slopes and around river borders Illegal logging by local communities and migrants on sloping lands | Comprehensive inventory on flora/ fauna in the HCV area. Conducting HCV boundary marking adjacent to operational areas as well as community land location & periodic border maintenance. Installation of nameplate in HCV location according to HCV type, installation of board prohibiting wildlife hunting and flora disruption. Conducting patrols in HCV areas. Installation of HCV name board location according to HCV type, installation of board prohibiting wildlife hunting and flora disruption. Conducting patrols in HCV areas. | Organize internal and external socialization explaining the importance of conserving HCV areas and biodiversity. Activities are also carried out targeting school-aged children (elementary, junior high school, high school) at schools located within village areas, subdistricts affected by PT. PU operations. Conduct HCV area management training to HCV officers and/ or staff & employees. Conduct forest and land fire prevention and handling training to employees and gradually developing the fire-fighting community (MPA) program. Develop an accountable and relevant community | Determination of environmental and preservation of natural biodiversity policies by Top Management. Preparation of HCV Area Management and Monitoring Procedures/ SOP's. Establish and appoint HCV officers along with job descriptions and incorporate into the organizational structure of the company. Coordinate & cooperate with relevant agencies, such as BKSDA, Forestry and Plantations Agency, DLHK, Police, local government apparatus and surrounding communities in HCV |

| | Activities of anglers around the riparian zone of the river in the form of shrubs that dry up during the dry season (prone to fire) Community/company land clearing activities for agriculture (fields) or oil palm plantations around the riparian zone | Undertake rehabilitation and enrichment activities (restoration) on areas identified as degraded based on land cover inventory results. Provision of forest and land fire prevention equipment in accordance with prevailing laws and regulations. Conducting HCV boundary marking adjacent to operational areas as well as community land location & periodic border maintenance. Installation of nameplate in HCV location according to HCV type, installation of board prohibiting wildlife hunting and flora disruption. Conducting patrols in HCV areas. Undertake rehabilitation and enrichment activities (restoration) on areas | development program in collaboration with government agencies, village agencies and community leaders in an effort to prevent and minimize encroachment impact on HCV areas. Organize internal and external socialization explaining the importance of conserving HCV areas and biodiversity. Activities are also carried out targeting school-aged children (elementary, junior high school, high school) at schools located within village areas, subdistricts affected by PT. PU operations. Conduct HCV area management training to HCV officers and/ or staff & employees. Conduct forest and land fire prevention and handling | area management program. • Determination of environmental and preservation of natural biodiversity policies by Top Management. • Preparation of HCV Area Management and Monitoring Procedures/ SOP's. • Establish and appoint HCV officers along with job descriptions and incorporate into the organizational structure of the company. • Coordinate & cooperate with relevant agencies, such as BKSDA, Forestry and Plantations Agency, DLHK, Police, local government apparatus and surrounding communities in HCV |
|--|---|--|---|---|
| | | HCV type, installation of board prohibiting wildlife hunting and flora disruption. Conducting patrols in HCV areas. Undertake rehabilitation | within village areas, sub- districts affected by PT. PU operations. • Conduct HCV area management training to HCV officers and/ or staff & employees. | Coordinate & cooperate with relevant agencies, such as BKSDA, Forestry and Plantations Agency, DLHK, Police, local government apparatus |
| | | and enrichment activities (restoration) on areas identified as degraded based on land cover inventory results. Provision of forest and land fire prevention equipment in accordance with | Conduct forest and land fire prevention and handling training to employees and gradually developing the fire-fighting community (MPA) program. Develop an accountable and relevant community | and surrounding communities in HCV area management program. • Determination of environmental and preservation of natural |
| | | prevailing laws and regulations. Determination flood plain on river riparian as wide as | development program in collaboration with government agencies, village agencies and community leaders in an | biodiversity policies by Top Management. • Preparation of HCV Area Management and |

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| | | | the highest peak of | effort to prevent and | Monitoring |
| | | | inundation period. | minimize encroachment | Procedures/ SOP's. |
| | | | Setting and marking of | impact on HCV areas. | Establish and appoint |
| | | | boundaries of areas | • | HCV officers along with |
| | | | identified as HCV 4 (rivers | Organize internal and | job descriptions and |
| | | | and borders) followed by | external socialization | incorporate into the |
| | | | installation of HCV 4 | explaining the importance | organizational |
| | | | information boards (rivers | of conserving HCV areas | structure of the |
| | | | and borders), mounting | and biodiversity. | company. |
| | | | signs containing | Conduct forest and land fire | • Coordinate & |
| | | | restrictions and appeals, | prevention and handling | cooperate with |
| | | | especially prevention of | training to employees and | relevant agencies, such |
| | | | fires and cultivation and | gradually developing the | as BKSDA, Forestry and |
| | | | logging | fire-fighting community | Plantations Agency, |
| | | | Identification of land cover | (KTPA) program. | DLHK, Police, local |
| | | | in river basins for | | government apparatus |
| | | | rehabilitation/ enrichment | | and surrounding |
| | | | planting by categorizing | | communities in HCV |
| | | | open areas, shrubs, low | | area management |
| | | | density stands, high density | | program. |
| | | | stands | | |
| | | | Rehabilitation/ enrichment | | • Determination of |
| | | | planting in river border | | environmental and |
| | | | river. If there are already | | preservation of natural |
| | | | other plants in the border, | | biodiversity policies by |
| | | | then enrichment is done by | | Top Management. |
| | | | planting the same plant | | Preparation of HCV |
| | | | species. Types of plants | | Area Management and |
| | | | planted are local native | | Monitoring |
| | | | species. | | Procedures/ SOP's. |
| | | | Conducting patrols on the | | Establish and appoint |
| | | | HCV river boundary | | HCV officers along with |
| | | | • Provision of forest and land | | job descriptions and |
| | | | fire prevention equipment | | incorporate into the |
| | | | in accordance with | | organizational |
| | | | prevailing laws and | | structure of the |
| | | | regulations. | | company. |
| | | | • Do not occupy area on the | | • Coordinate & |
| | | | river border as settlement | | cooperate with |
| | | | | | |

| | | | | to prevent river water pollution. | | relevant agencies, such as BKSDA, Forestry and Plantations Agency, DLHK, Police, local government apparatus and surrounding communities in HCV area management program. |
|----|--------------------------|--|---|--|--|---|
| 08 | Bayeq River Block Forest | Shrub and lowland secondary forest ecosystems that support the habitat of endangered species (Hylobates muelleri and Buceros rhinoceros); endemic species and limited distribution (Hylobates muelleri), refugium, stepping stone for protected species (Family Bucerotidae) Type: 1; 3 | Community hunting of animals, especially RTE species Illegal logging by local communities and migrants in forest fragments containing Dipterocarpace ae species Clearing of forested land/which still has good vegetation for farming/garden ing by the community/ company Company plans to clear land for oil palm plantation | Conduct inventory and identification of land cover conditions. Comprehensive inventory on flora/ fauna in the HCV area. Conducting HCV boundary marking adjacent to operational areas as well as community land location & periodic border maintenance. Installation of nameplate in HCV location according to HCV type, installation of board prohibiting wildlife hunting and flora disruption. Conducting patrols in HCV areas. Undertake rehabilitation and enrichment activities (restoration) on areas identified as degraded based on land cover inventory results. Provision of forest and land fire prevention equipment in accordance with | Organize internal and external socialization explaining the importance of conserving HCV areas and biodiversity. Activities are also carried out targeting school-aged children (elementary, junior high school, high school) at schools located within village areas, subdistricts affected by PT. PU operations. Conduct HCV area management training to HCV officers and/or staff & employees. Conduct forest and land fire prevention and handling training to employees and gradually developing the fire-fighting community (MPA) program. Develop an accountable and relevant community development program in collaboration with government agencies, village agencies and | Determination of environmental and preservation of natural biodiversity policies by Top Management. Preparation of HCV Area Management and Monitoring Procedures/ SOP's. Establish and appoint HCV officers along with job descriptions and incorporate into the organizational structure of the company. Coordinate & cooperate with relevant agencies, such as BKSDA, Forestry and Plantations Agency, DLHK, Police, local government apparatus and surrounding communities in HCV area management program. |

| | | | | | | incorporate into the organizational structure of the company. • Coordinate & cooperate with relevant agencies, such as BKSDA, Forestry and Plantations Agency, DLHK, Police, local government apparatus and surrounding communities in HCV area management program. |
|----|--------------------------------------|--|--|---|---|--|
| 09 | Bayeq River and the Riparian Zone | The upper reaches of the Bayeq River is located on Mount Naga, the water conditions are relatively clear (not too cloudy), flowing throughout the year Lowland scrub and secondary forest ecosystems that support habitat for endangered species (Hylobates muelleri and Buceros rhinoceros); endemic species and limited distribution (Hylobates muelleri), refugium, stepping stone for | Community hunting of animals, especially RTE species Illegal logging by local communities and migrants in forest fragments containing Dipterocarpace ae species Clearing of forested land/which still has good vegetation for farming/garden ing by the community/ company | Conduct inventory and identification of land cover conditions. Comprehensive inventory on flora/ fauna in the HCV area. Conducting HCV boundary marking adjacent to operational areas as well as community land location & periodic border maintenance. Installation of nameplate in HCV location according to HCV type, installation of board prohibiting wildlife hunting and flora disruption. Conducting patrols in HCV areas. Undertake rehabilitation and enrichment activities (restoration) on areas | Organize internal and external socialization explaining the importance of conserving HCV areas and biodiversity. Activities are also carried out targeting school-aged children (elementary, junior high school, high school) at schools located within village areas, subdistricts affected by PT. PU operations. Conduct HCV area management training to HCV officers and/or staff & employees. Conduct forest and land fire prevention and handling training to employees and gradually developing the fire-fighting community (MPA) program. | Determination of environmental and preservation of natural biodiversity policies by Top Management. Preparation of HCV Area Management and Monitoring Procedures/ SOP's. Establish and appoint HCV officers along with job descriptions and incorporate into the organizational structure of the company. Coordinate & cooperate with relevant agencies, such as BKSDA, Forestry and Plantations Agency, DLHK, Police, local government apparatus |

| protected species | Company plans | identified as degraded | Develop an accountable | and surrounding |
|-----------------------------------|-------------------------------------|--|---|---|
| (Family | to clear land for | based on land cover | and relevant community | communities in HCV |
| Bucerotidae) | oil palm | inventory results. | development program in | area management |
| As a corridor | plantation | Provision of forest and land | collaboration with | program. |
| connecting Mount | Company plans | fire prevention equipment | government agencies, | • Determination of |
| Naga and forest | to build roads | in accordance with | village agencies and | environmental and |
| blocks in the lower | and blocking | prevailing laws and | community leaders in an | preservation of natural |
| reaches of the | lanes, in the | regulations. | effort to prevent and | biodiversity policies by |
| Bayeq River (around | early stages of | Conducting HCV boundary | minimize encroachment | Top Management. |
| the Belayan River) | land clearing | marking adjacent to | impact on HCV areas. | Preparation of HCV |
| | Illegal logging | operational areas as well as | | Area Management and |
| Type; 1; 3; 4 | by local | community land location & | Organize internal and | Monitoring |
| | communities | periodic border | external socialization | Procedures/ SOP's. |
| | and migrants | maintenance. | explaining the importance | Establish and appoint |
| | Clearing of | Installation of HCV name | of conserving HCV areas | HCV officers along with |
| | forested | board location according to | and biodiversity. | job descriptions and |
| | land/which is | HCV type, installation of | Activities are also carried | incorporate into the |
| | still well- | board prohibiting wildlife | out targeting school-aged | organizational |
| | vegetated for | hunting and flora | children (elementary, | structure of the |
| | farming/gardeni | disruption. | junior high school, high | company. |
| | ng by the | Conducting patrols in HCV | school) at schools located | • Coordinate & |
| | community/co | areas. | within village areas, sub- | cooperate with |
| | mpany | Undertake rehabilitation | districts affected by PT. PU | relevant agencies, such |
| | _, , , , | and enrichment activities | operations. | as BKSDA, Forestry and |
| | Plantation | (restoration) on areas | Conduct HCV area | Plantations Agency, |
| | operations by | identified as degraded | management training to | DLHK, Police, local |
| | the company | based on land cover | HCV officers and/ or staff & | government apparatus |
| | after the palm | inventory results. | employees.Conduct forest and land fire | and surrounding communities in HCV |
| | oil is planted (Agricultural | Provision of forest and land | prevention and handling | area management |
| | effluent), such | fire prevention equipment in accordance with | training to employees and | program. |
| | as application of | | gradually developing the | . • |
| | fertilizers, | prevailing laws and regulations. | fire-fighting community | environmental and |
| | pesticides, | Conduct inventory and | (MPA) program. | preservation of natural |
| | herbicides | identification of land cover | Develop an accountable | biodiversity policies by |
| | Land clearing for | conditions. | and relevant community | Top Management. |
| | farming/gardeni | Comprehensive inventory | development program in | |
| | ng by the | on flora/ fauna in the HCV | collaboration with | Area Management and |
| | community on | area. | government agencies, | , a ca ivianagement and |
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|---|----------|---|--------------------|--|--|---|
| | | | steep slopes and | Conducting HCV boundary | village agencies and | Monitoring |
| | | | around river | marking adjacent to | community leaders in an | Procedures/ SOP's. |
| | | | borders | operational areas as well as | effort to prevent and | • Establish and appoint |
| | | • | Illegal logging by | community land location & | minimize encroachment | HCV officers along with |
| | | | local | periodic border | impact on HCV areas. | job descriptions and |
| | | | communities | maintenance. | · | incorporate into the |
| | | | and migrants on | Installation of nameplate in | • Organize internal and | organizational |
| | | | sloping lands | HCV location according to | external socialization | structure of the |
| | | | Activities of | HCV type, installation of | explaining the importance | company. |
| | | | anglers around | board prohibiting wildlife | of conserving HCV areas | • Coordinate & |
| | | | the riparian | hunting and flora | and biodiversity. | cooperate with |
| | | | zone of the river | disruption. | Conduct forest and land fire | relevant agencies, such |
| | | | in the form of | Conducting patrols in HCV | prevention and handling | as BKSDA, Forestry and |
| | | | shrubs that dry | areas. | training to employees and | Plantations Agency, |
| | | | up during the | Undertake rehabilitation | gradually developing the | DLHK, Police, local |
| | | | dry season | and enrichment activities | fire-fighting community | government apparatus |
| | | | (prone to fire) | (restoration) on areas | (KTPA) program. | and surrounding |
| | | | | identified as degraded | | communities in HCV |
| | | | | based on land cover | | area management |
| | | | | inventory results. | | program. |
| | | | | Provision of forest and land | | • Determination of |
| | | | | fire prevention equipment | | environmental and |
| | | | | in accordance with | | preservation of natural |
| | | | | prevailing laws and | | biodiversity policies by |
| | | | | regulations. | | Top Management. |
| | | | | Determination flood plain | | Preparation of HCV |
| | | | | on river riparian as wide as | | Area Management and |
| | | | | the highest peak of | | Monitoring |
| | | | | inundation period. | | Procedures/ SOP's. |
| | | | | Setting and marking of | | Establish and appoint |
| | | | | boundaries of areas | | HCV officers along with |
| | | | | identified as HCV 4 (rivers | | job descriptions and |
| | | | | and borders) followed by | | incorporate into the |
| | | | | installation of HCV 4 | | organizational |
| | | | | information boards (rivers | | structure of the |
| | | | | and borders), mounting | | company. |
| | | | | signs containing | | • Coordinate & |
| | | | | restrictions and appeals, | | cooperate with |
| | | | | especially prevention of | | relevant agencies, such |
| | <u> </u> | • | • | | | |

| | | | | fires and cultivation and logging Identification of land cover in river basins for rehabilitation/ enrichment planting by categorizing open areas, shrubs, low density stands Rehabilitation/ enrichment planting in river border river. If there are already other plants in the border, then enrichment is done by planting the same plant species. Types of plants planted are local native species. Conducting patrols on the HCV river boundary Provision of forest and land fire prevention equipment in accordance with prevailing laws and regulations. Do not occupy area on the river border as settlement to prevent river water pollution. | | as BKSDA, Forestry and Plantations Agency, DLHK, Police, local government apparatus and surrounding communities in HCV area management program. |
|----|------------|---|---|---|---|---|
| 10 | Mount Naga | Located east of Mount Mendam, extending to the banks of the Belayan River. Has a micro slope of up to40%? Covered with thickets and shrubs. as a catchment area for the Baya River. | Plantation operations by the company after the palm oil is planted (Agricultural effluent), such as application of fertilizers, | Determination flood plain on river riparian as wide as the highest peak of inundation period. Setting and marking of boundaries of areas identified as HCV 4 (rivers and borders) followed by installation of HCV 4 information boards (rivers | Organize internal and external socialization explaining the importance of conserving HCV areas and biodiversity. Conduct forest and land fire prevention and handling training to employees and gradually developing the | Determination of environmental and preservation of natural biodiversity policies by Top Management. Preparation of HCV Area Management and Monitoring Procedures/ SOP's. |

| | | Type: 4 | pesticides, herbicides Land clearing for farming/gardeni ng by the community on steep slopes and around river borders Illegal logging by local communities and migrants on sloping lands Activities of anglers around the riparian zone of the river in the form of shrubs that dry up during the dry season (prone to fire) | and borders), mounting signs containing restrictions and appeals, especially prevention of fires and cultivation and logging Identification of land cover in river basins for rehabilitation/ enrichment planting by categorizing open areas, shrubs, low density stands Rehabilitation/ enrichment planting in river border river. If there are already other plants in the border, then enrichment is done by planting the same plant species. Types of plants planted are local native species. Conducting patrols on the HCV river boundary Provision of forest and land fire prevention equipment in accordance with prevailing laws and regulations. Do not occupy area on the river border as settlement to prevent river water pollution. | fire-fighting community (KTPA) program. | Establish and appoint HCV officers along with job descriptions and incorporate into the organizational structure of the company. Coordinate & cooperate with relevant agencies, such as BKSDA, Forestry and Plantations Agency, DLHK, Police, local government apparatus and surrounding communities in HCV area management program. |
|----|---------------------|--|--|--|--|--|
| 11 | Belayan River Scrub | Area penting sebagai habitat spesies terancam punah (Hylobates muelleri dan Buceros rhinoceros); spesies | Community hunting of animals, especially RTE species | Conduct inventory and identification of land cover conditions. Comprehensive inventory on flora/ fauna in the HCV area. | Organize internal and external socialization explaining the importance of conserving HCV areas and biodiversity. | Determination of environmental and preservation of natural biodiversity policies by Top Management. |

| endemik dan sebaran terbatas (Hylobates muelleri), refugium, stepping stone bagi spesies yang dilindungi (Family Bucerotidae) Type: 1; 3 | Illegal logging by local communities and migrants in forest fragments containing Dipterocarpace ae species Clearing of forested land/which still has good vegetation for farming/garden ing by the community/ company Company plans to clear land for oil palm plantation Company plans to build roads and blocking lanes, in the early stages of land clearing Illegal logging by local | Conducting HCV boundary marking adjacent to operational areas as well as community land location & periodic border maintenance. Installation of nameplate in HCV location according to HCV type, installation of board prohibiting wildlife hunting and flora disruption. Conducting patrols in HCV areas. Undertake rehabilitation and enrichment activities (restoration) on areas identified as degraded based on land cover inventory results. Provision of forest and land fire prevention equipment in accordance with prevailing laws and regulations. Conducting HCV boundary marking adjacent to operational areas as well as community land location & periodic | out targeting school-aged children (elementary, junior high school, high school) at schools located within village areas, subdistricts affected by PT. PU operations. • Conduct HCV area management training to HCV officers and/ or staff & employees. • Conduct forest and land fire prevention and handling training to employees and gradually developing the fire-fighting community (MPA) program. • Develop an accountable and relevant community development program in collaboration with government agencies, village agencies and community leaders in an effort to prevent and minimize encroachment impact on HCV areas. • Organize internal and external socialization | Area Management and Monitoring Procedures/ SOP's. |
|---|--|--|--|--|
| | Company plans to build roads and blocking lanes, in the early stages of land clearing | prevailing laws and regulations. • Conducting HCV boundary marking adjacent to operational areas as well as | village agencies and community leaders in an effort to prevent and minimize encroachment impact on HCV areas. • Organize internal and | environmental and preservation of natural biodiversity policies by Top Management. • Preparation of HCV Area Management and |
| | | • | explaining the importance of conserving HCV areas and biodiversity. • Activities are also carried out targeting school-aged children (elementary, junior high school, high school) at schools located within village areas, sub- | , |

| | Clearing of forested land/which is still well-vegetated for farming/garden ing by the community/company Plantation operations by the company after the palm oil is planted (Agricultural effluent), such as application of fertilizers, pesticides, herbicides Land clearing for farming/garden ing by the community on | HCV type, installation of board prohibiting wildlife hunting and flora disruption. Conducting patrols in HCV areas. Undertake rehabilitation and enrichment activities (restoration) on areas identified as degraded based on land cover inventory results. Provision of forest and land fire prevention equipment in accordance with prevailing laws and regulations. Conduct inventory and identification of land cover conditions. Comprehensive inventory on flora/ fauna in the HCV area. Conducting HCV boundary marking adjacent to | Activities are also carried out targeting school-aged children (elementary, junior high school, high school) at schools located within village areas, subdistricts affected by PT. PU operations. Conduct HCV area management training to HCV officers and/or staff & employees. Conduct forest and land fire prevention and handling training to employees and gradually developing the fire-fighting community (MPA) program. Develop an accountable and relevant community development program in collaboration with government agencies, village agencies and community leaders in an effort to prevent and | incorporate into the organizational structure of the company. • Coordinate & cooperate with relevant agencies, such as BKSDA, Forestry and Plantations Agency, DLHK, Police, local government apparatus and surrounding communities in HCV area management program. • Determination of environmental and preservation of natural biodiversity policies by Top Management. • Preparation of HCV Area Management and Monitoring Procedures/ SOP's. • Establish and appoint HCV officers along with |
|--|---|--|--|--|
| | of fertilizers, pesticides, herbicides | identification of land cover conditions. | Develop an accountable and relevant community development program in | biodiversity policies by Top Management. • Preparation of HCV |
| | for farming/garden ing by the community on | on flora/ fauna in the HCV area. • Conducting HCV boundary | government agencies, village agencies and community leaders in an effort to prevent and | Monitoring Procedures/ SOP's. • Establish and appoint HCV officers along with |
| | steep slopes and around river borders • Illegal logging by local | operational areas as well as community land location & periodic border maintenance. Installation of nameplate in | minimize encroachment impact on HCV areas. • Organize internal and external socialization explaining the importance | job descriptions and incorporate into the organizational structure of the company. |
| | communities and migrants on sloping lands • Activities of | HCV location according to HCV type, installation of board prohibiting wildlife hunting and flora | of conserving HCV areas and biodiversity. • Conduct forest and land fire prevention and handling | Coordinate & cooperate with relevant agencies, such as BKSDA, Forestry and |
| | anglers around the riparian zone of the river in the form of | disruption. Conducting patrols in HCV areas. | training to employees and gradually developing the fire-fighting community (KTPA) program. | Plantations Agency, DLHK, Police, local government apparatus and surrounding |

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| | shrubs that dry up during the dry season (prone to fire) • Undertake rehabilitation and enrichment activities (restoration) on areas identified as degraded based on land cover | communities in HCV area management program. • Determination of environmental and |
| | Community/company land clearing activities for agriculture (fields) or oil palm inventory results. Provision of forest and land fire prevention equipment in accordance with prevailing laws and regulations. | preservation of natural biodiversity policies by Top Management. • Preparation of HCV Area Management and Monitoring |
| | plantations around the riparian zone • Determination flood plain on river riparian as wide as the highest peak of inundation period. • Setting and marking of boundaries of areas | Procedures/ SOP's. • Establish and appoint HCV officers along with job descriptions and incorporate into the organizational structure of the |
| | identified as HCV 4 (rivers and borders) followed by installation of HCV 4 information boards (rivers and borders), mounting signs containing | company. • Coordinate & cooperate with relevant agencies, such as BKSDA, Forestry and Plantations Agency, |
| | restrictions and appeals, especially prevention of fires and cultivation and logging • Identification of land cover in river basins for | DLHK, Police, local government apparatus and surrounding communities in HCV area management program. |
| | rehabilitation/ enrichment planting by categorizing open areas, shrubs, low density stands, high density stands • Rehabilitation/ enrichment | |
| | planting in river border river. If there are already other plants in the border, | |

| 1 | | | | | | |
|----|--------------|--|--|---|--|--|
| | | | | then enrichment is done by planting the same plant species. Types of plants | | |
| | | | | planted are local native species.Conducting patrols on the | | |
| | | | | HCV river boundary | | |
| | | | | Provision of forest and land fire prevention equipment | | |
| | | | | in accordance with | | |
| | | | | prevailing laws and regulations. | | |
| | | | | Do not occupy area on the | | |
| | | | | river border as settlement to prevent river water | | |
| 12 | | | | pollution. | | |
| 13 | Mount Mendam | Located in the middle of the MU area. | Plantation operations by | Determination flood plain on river riparian as wide as | Organize internal and external socialization | • Determination of environmental and |
| | | Covered with old scrub forest, has a | the company after the palm | the highest peak of inundation period. | explaining the importance of conserving HCV areas | preservation of natural biodiversity policies by |
| | | micro slope of up to 40%. This mountain is | oil is planted (Agricultural | Setting and marking of boundaries of areas | and biodiversity.Conduct forest and land fire | Top Management. • Preparation of HCV |
| | | a water catchment | effluent), such | identified as HCV 4 (rivers | prevention and handling | Area Management and |
| | | area for the Bangge River, Tumau River, | as application of fertilizers, | and borders) followed by installation of HCV 4 | training to employees and gradually developing the | Monitoring Procedures/ SOP's. |
| | | Meqloq River, Baya | pesticides, | information boards (rivers | fire-fighting community | • Establish and appoint |
| | | River, and Jalin Tutung River. | herbicidesLand clearing for | and borders), mounting signs containing | (KTPA) program. | HCV officers along with job descriptions and |
| | | | farming/gardeni | restrictions and appeals, | | incorporate into the |
| | | | ng by the community on | especially prevention of fires and cultivation and | | organizational structure of the |
| | | | steep slopes and | logging | | company. |
| | | | around river borders | Identification of land cover in river basins for | | • Coordinate & cooperate with |
| | | | Illegal logging by | rehabilitation/ enrichment | | relevant agencies, such |
| | | | local communities | planting by categorizing open areas, shrubs, low | | as BKSDA, Forestry and Plantations Agency, |
| | | | and migrants on | density stands, high density | | DLHK, Police, local |
| | | | sloping lands | stands | | government apparatus |

| | | | Activities of anglers around the riparian zone of the river in the form of shrubs that dry up during the dry season (prone to fire) | Rehabilitation/ enrichment planting in river border river. If there are already other plants in the border, then enrichment is done by planting the same plant species. Types of plants planted are local native species. Conducting patrols on the HCV river boundary Provision of forest and land fire prevention equipment in accordance with prevailing laws and regulations. Do not occupy area on the river border as settlement to prevent river water | | and surrounding communities in HCV area management program. |
|----|-------------------|--|---|--|---|--|
| 14 | the Riparian Zone | The upstream part is in Mount Mendam, most of the vegetation conditions around the riparian zone are still good (no disturbance) in the form of shrubs, there are few community oil palm plantations, downstream there is the Ung Tumau waterfall Type; 4 | Plantation operations by the company after the palm oil is planted (Agricultural effluent), such as application of fertilizers, pesticides, herbicides Land clearing for farming/gardening by the community on steep slopes and around river borders | Determination flood plain on river riparian as wide as the highest peak of inundation period. Setting and marking of boundaries of areas identified as HCV 4 (rivers and borders) followed by installation of HCV 4 information boards (rivers and borders), mounting signs containing restrictions and appeals, especially prevention of fires and cultivation and logging Identification of land cover in river basins for rehabilitation/ enrichment | Organize internal and external socialization explaining the importance of conserving HCV areas and biodiversity. Conduct forest and land fire prevention and handling training to employees and gradually developing the fire-fighting community (KTPA) program. | Determination of environmental and preservation of natural biodiversity policies by Top Management. Preparation of HCV Area Management and Monitoring Procedures/ SOP's. Establish and appoint HCV officers along with job descriptions and incorporate into the organizational structure of the company. Coordinate & cooperate with relevant agencies, such |

| | | | Illegal logging by local communities and migrants on sloping lands Activities of anglers around the riparian zone of the river in the form of shrubs that dry up during the dry season (prone to fire) | planting by categorizing open areas, shrubs, low density stands. Rehabilitation/ enrichment planting in river border river. If there are already other plants in the border, then enrichment is done by planting the same plant species. Types of plants planted are local native species. Conducting patrols on the HCV river boundary Provision of forest and land fire prevention equipment in accordance with prevailing laws and regulations. Do not occupy area on the river border as settlement to prevent river water pollution. | | as BKSDA, Forestry and Plantations Agency, DLHK, Police, local government apparatus and surrounding communities in HCV area management program. |
|----|---|--|--|---|--|---|
| 15 | Valley area with steep slopes east of the Banggeh River | Vegetation condition in the form of undisturbed old scrub has a slope of more than 40%. This vegetation cover serves to control sheet erosion and stabilize steep slopes Important areas as habitat for endangered species (Hylobates muelleri | Community hunting of animals, especially RTE species Illegal logging by local communities and migrants in forest fragments containing Dipterocarpacea e species Clearing of forested | Conduct inventory and identification of land cover conditions. Comprehensive inventory on flora/ fauna in the HCV area. Conducting HCV boundary marking adjacent to operational areas as well as community land location & periodic border maintenance. Installation of nameplate in HCV location according to HCV type, installation of | Organize internal and external socialization explaining the importance of conserving HCV areas and biodiversity. Activities are also carried out targeting school-aged children (elementary, junior high school, high school) at schools located within village areas, subdistricts affected by PT. PU operations. Conduct HCV area management training to | Determination of environmental and preservation of natural biodiversity policies by Top Management. Preparation of HCV Area Management and Monitoring Procedures/ SOP's. Establish and appoint HCV officers along with job descriptions and incorporate into the organizational |

| | and Buceros rhinoceros), endemic species and limited distribution (Hylobates muelleri), refugium, stepping stone for protected species (Family Bucerotidae) and unique and rare ecosystems in the form of lowland forest ecosystems Type: 1; 4 | land/which still has good vegetation for farming/gardening by the community/company • Plantation operations by the company after the palm oil is planted (Agricultural effluent), such as application of fertilizers, pesticides, herbicides • Land clearing for farming/gardening by the community on steep slopes and around river borders • Illegal logging by local communities and migrants on sloping lands | board prohibiting wildlife hunting and flora disruption. Conducting patrols in HCV areas. Undertake rehabilitation and enrichment activities (restoration) on areas identified as degraded based on land cover inventory results. Provision of forest and land fire prevention equipment in accordance with prevailing laws and regulations. Determination flood plain on river riparian as wide as the highest peak of inundation period. Setting and marking of boundaries of areas identified as HCV 4 (rivers and borders) followed by installation of HCV 4 information boards (rivers and borders), mounting signs containing restrictions and appeals, especially prevention of fires and | HCV officers and/ or staff & employees. Conduct forest and land fire prevention and handling training to employees and gradually developing the fire-fighting community (MPA) program. Develop an accountable and relevant community development program in collaboration with government agencies, village agencies and community leaders in an effort to prevent and minimize encroachment impact on HCV areas. Organize internal and external socialization explaining the importance of conserving HCV areas and biodiversity. Conduct forest and land fire prevention and handling training to employees and gradually developing the fire-fighting community (KTPA) program. | structure of the company. Coordinate & cooperate with relevant agencies, such as BKSDA, Forestry and Plantations Agency, DLHK, Police, local government apparatus and surrounding communities in HCV area management program. Determination of environmental and preservation of natural biodiversity policies by Top Management. Preparation of HCV Area Management and Monitoring Procedures/ SOP's. Establish and appoint HCV officers along with job descriptions and incorporate into the organizational structure of the company. Coordinate & |
|--|---|--|---|--|---|
| | | steep slopes and around river borders Illegal logging by local communities | identified as HCV 4 (rivers and borders) followed by installation of HCV 4 information boards (rivers and borders), mounting signs containing restrictions | and biodiversity. Conduct forest and land fire prevention and handling training to employees and gradually developing the fire-fighting community | Establish and appoint HCV officers along with job descriptions and incorporate into the organizational structure of the |
| | | sloping lands Activities of anglers around the riparian zone of the river in the form of shrubs that dry | prevention of fires and cultivation and logging Identification of land cover in river basins for rehabilitation/ enrichment planting by categorizing open areas, shrubs, low | (KIPA) program. | Coordinate & cooperate with relevant agencies, such as BKSDA, Forestry and Plantations Agency, DLHK, Police, local government apparatus |
| | | up during the | density stands, high density stands | | and surrounding communities in HCV |

| 16 | Sengen River and the Riparian Zone | • The upstream part of the Sengen River | dry season (prone to fire) • Community hunting of | Rehabilitation/ enrichment planting in river border river. If there are already other plants in the border, then enrichment is done by planting the same plant species. Types of plants planted are local native species. Conducting patrols on the HCV river boundary Provision of forest and land fire prevention equipment in accordance with prevailing laws and regulations. Do not occupy area on the river border as settlement to prevent river water pollution. Conduct inventory and identification of land cover | Organize internal and external socialization | area management program. • Determination of environmental and |
|----|---------------------------------------|--|---|---|---|---|
| | | is a forested area outside the MU area, very fluctuating flow conditions (floods in the rainy season and relatively shallow in the dry season), vegetation conditions around the riparian zone in the form of community farming land and shrubs. Important area as habitat for endangered species | animals, especially RTE species Illegal logging by local communities and migrants in forest fragments containing Dipterocarpace ae species Clearing of forested land/which still has good | conditions. Comprehensive inventory on flora/ fauna in the HCV area. Conducting HCV boundary marking adjacent to operational areas as well as community land location & periodic border maintenance. Installation of nameplate in HCV location according to HCV type, installation of board prohibiting wildlife hunting and flora disruption. | explaining the importance of conserving HCV areas and biodiversity. • Activities are also carried out targeting school-aged children (elementary, junior high school, high school) at schools located within village areas, subdistricts affected by PT. PU operations. • Conduct HCV area management training to HCV officers and/ or staff & employees. | preservation of natural biodiversity policies by Top Management. Preparation of HCV Area Management and Monitoring Procedures/ SOP's. Establish and appoint HCV officers along with job descriptions and incorporate into the organizational structure of the company. Coordinate & cooperate with |

| | | | | | |
|------|---------------------|--|--|--|---|
| | Ambon tortoise | vegetation for | Conducting patrols in HCV | Conduct forest and land fire | relevant agencies, such |
| | (Coura | farming/garden | areas. | prevention and handling | as BKSDA, Forestry and |
| | amboinensis), | ing by the | Undertake rehabilitation | training to employees and | Plantations Agency, |
| | Orlitia borneensis, | community/ | and enrichment activities | gradually developing the | DLHK, Police, local |
| | Amyda cartilaginea, | company | (restoration) on areas | fire-fighting community | government apparatus |
| | Cuora amboinensis, | | identified as degraded | (KTPA) program. | and surrounding |
| | Heosemys spinose | Plantation | based on land cover | • Develop an accountable | communities in HCV |
| | Tomistoma | operations by | inventory results. | and relevant community | area management |
| | schlegelii | the company | Provision of forest and land | development program in | program. |
| | | after the palm | fire prevention equipment | collaboration with | |
| | Type: 1; 4; 5 | oil is planted | in accordance with | government agencies, | Determination of |
| | | (Agricultural | prevailing laws and | village agencies and | environmental and |
| | | effluent), such | regulations. | community leaders in an | preservation of natural |
| | | as application | Conducting HCV boundary | effort to prevent and | biodiversity policies by |
| | | of fertilizers, | marking adjacent to | minimize encroachment | Top Management. |
| | | pesticides, | operational areas as well as | impact on HCV areas. | Preparation of HCV |
| | | herbicides | community land location & | | Area Management and |
| | | • Land clearing | periodic border | Organize internal and | Monitoring |
| | | for | maintenance. | external socialization | Procedures/ SOP's. |
| | | farming/garden | Installation of HCV name | explaining the importance | Establish and appoint |
| | | ing by the | board location according to | of conserving HCV areas | HCV officers along with |
| | | community on | HCV type, installation of | and biodiversity. | job descriptions and |
| | | steep slopes | board prohibiting wildlife | Activities are also carried | incorporate into the |
| | | and around | hunting and flora | out targeting school-aged | organizational |
| | | river borders | disruption. | children (elementary, | structure of the |
| | | Illegal logging | Conducting patrols in HCV | junior high school, high | company. |
| | | by local | areas. | school) at schools located | • Coordinate & |
| | | communities | Undertake rehabilitation | within village areas, sub- | cooperate with |
| | | and migrants on | and enrichment activities | districts affected by PT. PU | relevant agencies, such |
| | | sloping lands • Activities of | (restoration) on areas | operations. | as BKSDA, Forestry and |
| | | | identified as degraded | Conduct HCV area | Plantations Agency, |
| | | anglers around the riparian | based on land cover | management training to | DLHK, Police, local |
| | | the riparian zone of the river | inventory results. | HCV officers and/ or staff & | government apparatus and surrounding |
| | | in the form of | Provision of forest and land | employees. | communities in HCV |
| | | shrubs that dry | fire prevention equipment | Conduct forest and land fire | area management |
| | | | in accordance with | prevention and handling | = |
| | | | | | program. |
| | | , | regulations. | gradually developing the | |
| | | up during the dry season (prone to fire) | prevailing laws and regulations. | training to employees and gradually developing the | program. |

| | | | | and borders) followed by installation of HCV 4 information boards (rivers and borders), mounting signs containing restrictions and appeals, especially prevention of fires and cultivation and logging • Identification of land cover in river basins for rehabilitation/ enrichment planting by categorizing open areas, shrubs, low density stands, high density stands • Rehabilitation/ enrichment planting in river border river. If there are already other plants in the border, then enrichment is done by planting the same plant species. Types of plants planted are local native species. • Conducting patrols on the HCV river boundary • Provision of forest and land fire prevention equipment in accordance with prevailing laws and regulations. | | incorporate into the organizational structure of the company. • Coordinate & cooperate with relevant agencies, such as BKSDA, Forestry and Plantations Agency, DLHK, Police, local government apparatus and surrounding communities in HCV area management program. |
|----|-------------------------------------|---|---------------|---|---|--|
| | | | | | | |
| 47 | Danasah Disara | The method of the state of the | | to prevent river water pollution. | | |
| 17 | Banggeh River and the Riparian Zone | The upstream part is in Mount Mendam and its surroundings. | operations by | Determination flood plain on river riparian as wide as | Organize internal and external socialization avalating the importance avalating the importance organize internal and external socialization avalating the importance organize internal and external socialization | Determination of environmental and preservation of natural |
| | | and its surroundings. | the company | | explaining the importance | preservation of natural |

| vegetation around the riparian zone is still good in the form of shrubs. Type: 4 T | | | | | |
|--|------------|--|--|--|--|
| setting and marking of shrubs. Setting and marking of shrubs. Setting and marking of shrubs. Setting and marking of shoundaries of areas identified as HCV 4 (rivers bonders). Type: 4 Setting and marking of shoundaries of areas identified as HCV 4 (rivers and borders) followed by installation of HCV 4 information boards (rivers and borders), mounting signs containing restrictions and appeals, especially prevention of fires and cultivation and logging selection of legal logging by local communities and migrants on sloping lands Activities of anglers around the riparian zono of the riparian zono firm the form of shrubs that dry up during the dry season (prone to fire) Setting and marking of soundaries of areas identified as HCV 4 (rivers bonders) the fetting to employees and gradually developing the information boards (rivers and borders), mounting to entire the full offers and cultivation and logging especially prevention of fires and cultivation and logging electification of land cover in river basins for rehabilitation/ enrichment planting by categorizing open areas, shrubs, low density stands high density stands Activities of anglers around the riparian zono of the firm the form of shrubs that dry up during the dry season (prone to fire) Setting and marking of a prevention and handing prevention and handing trailing to employees and gradually developing the finformation boards (rivers and borders), floundarially developing the finformation boards (rivers and borders), mounting restrictions and appeals, especially prevention of fires and cultivation and logging early continued the communities and migrants on sloping lands Activities of an areas and broders), further and cultivation of land cover in river basins for rehabilitation/ enrichment planting in river border view. If there are already other plants in the border, then enrichment is done by planting the same plant species. Types of plants planted are local native species. Conducting and broders), further and broders, further and broders, further a | The con | ndition of the after the palm | the highest peak of | of conserving HCV areas | biodiversity policies by |
| spod in the form of shrubs. Type: 4 T | vegetation | on around the oil is planted | inundation period. | and biodiversity. | Top Management. |
| shrubs. as application of fertilizers, pesticides, pesticides, herbicides • Land clearing for farming/gardeni ng by the community on steep slopes and around river borders • Illegal logging by local communities and migrants on sloping lands Activities of anglers around the riparian zone of the river in the form of shrubs that dry up during the dry season (prone to fire) • Shrubs. as application of fertilizers, and borders, homounting installation of HCV 4 information boards (rivers and borders), mounting signs containing restrictions and appeals, especially prevention of fires and cultivation and around river borders • Illegal logging by local rehabilitation/ enrichment planting by categorizing on anglers around the riparian zone of the river in the form of shrubs that dry up during the diplanting and the fire fighting community (KTPA) program. HOV Officers all (GYPA) program. HOV Officers all (KTPA) program. HCV Officers all (KTPA) program. Coordinate or opaging by structure or company. • Coordinate cooperate relevant agenc as shroup, low density stands, high density stands, high density stands with the riparian in river border river in the form of shrubs that dry up during the same plant species. Types of plants planted are local native species. • Conducting patrols on the HCV of the river in from a rate already of the river in river border river in the form of shrubs that dry up during the same plant species. Types of plants planted are local native species. • Conducting patrols on the HCV of the river in free firms and cultivation of fires and cultivation of fires and cultivation of fires and cultivation o | riparian | | Setting and marking of | Conduct forest and land fire | Preparation of HCV |
| fertilizers, pesticides, pesticides, herbicides • Land clearing for farming/gardeni ng by the community on steep slopes and around river borders • Illegal logging by local communities and migrants on sloping lands Activities of anglers around the riparian zone of the river in the form of shrubs that dry up during the dry season (prone to fire) • Type: 4 • Frocedures/SC, herbicides, herbicides, herbicides, herbicides installation of HCV 4 (KTPA) program. • Stabilish and HCV Officers all job descriptic incrorparate in organizational structure or organizational structure or company. • Coordinate cooperate relevant agence as BKSDA, Fore Plantations DLHK, Police government a density stands, high density stands. High density stands • Rehabilitation/ enrichment planting in river border river. If there are already of the plants in the border, then enrichment its done by planting the same plant species. Types of plants in the border, then enrichment its done by planting the same plant species. Types of plants in the border, then enrichment its done by planting the same plant species. Types of plants in the border, then enrichment its done by planting the same plant species. Types of plants in the border, then enrichment its done by planting the same plant species. Types of plants in the border, then enrichment is done by planting the same plant species. Types of plants in the border, the nerichment is done by planting the same plant species. Types of plants in the border, the nerichment clocal native species. Ocnducting patrols on the HCV river boundary | good in | the form of effluent), such | boundaries of areas | prevention and handling | Area Management and |
| Type: 4 pesticides, herbicides Land clearing for farming/gardening by the community on steep slopes and around river borders Illegal logging by local communities and migrants on sloping lands Activities of anglers around the riparian zone of the river in the form of shrubs that dry up during the dry season (prone to fire) Pestidides, herbicides Land clearing for farming/gardening by the community on steep slopes and around river borders Illegal logging by local Rehabilitation of HCV 4 information boards (ivers and borders), mounting signs containing restrictions and appeals, especially prevention of fires and cultivation and logging especially prevention of fires and cultivation and logging especially prevention of shrubs that dry up during the dry season (prone to fire) Particular (KTPA) program. Installation of HCV 4 information boards (ivers and borders), mounting signs containing restrictions and appeals, especially prevention of fires and cultivation and logging on appeals, especially prevention of fires and cultivation and logging or logging by logging by especially prevention of fires and cultivation and logging or vertically prevention of fires and cultivation and logging or logging by logging by especially prevention of fires and cultivation and logging or vertically prevention of fires and cultivation and logging or restrictions and appeals, especially prevention of fires and cultivation and logging or vertically prevention of fires and cultivation and logging or vertically prevention of fires and cultivation and logging or containing restrictions and appeals, especially prevention of fires and cultivation and logging or containing restrictions and appeals, especially prevention of fires and cultivation and logging or containing restrictions and appeals, especially prevention of fires and cultivation and logging or containing restrictions and appeals, especially prevention of fires and cultivation and logging or containing restrictions and appeals, especially prevention of fires and cultivati | shrubs. | as application of | identified as HCV 4 (rivers | training to employees and | Monitoring |
| herbicides Land clearing for farming/gardeni ng by the community on steep slopes and around river borders Illegal logging by local communities and migrants on sloping lands Activities of anglers around the riparian zone of the river in the form of shribs that dry up during the dry season (prone to fire) Methicides Land loearing for farming/gardeni ng by the community signs containing ronation boards (rivers and borders), mounting signs containing ronation boards (rivers and borders), mounting signs containing ronations and papeals, especially prevention of fires and cultivation and logging to company. Coordinate cooperate relevant agence as BKSDA, Fore Plantations open areas, shrubs, low density stands high density stands Activities of anglers around the riparian zone of the river in the form of shrubs that dry up during the dry season (prone to fire) Conducting patrols on the HCV viver boundary HCV officers all and borders, mounting signs containing rocationing restrictions and appeals, especialing rocationing rise and border and papeals, especialing restrictions and appeals, especialing restrictions and appeals, especialing restrictions and appeals, especialing restrictions and appeals, especialing signs containing rocationing restrictions and appeals, especialing signs containing restrictions and appeals, especialing signs containing restrictions and appeals, especialing of restrictions and appeals, especialing restriction of land cover in river basins for rehabilitation of lan | | fertilizers, | and borders) followed by | gradually developing the | Procedures/ SOP's. |
| herbicides Land clearing for farming/gardeni ng by the community on steep slopes and around river borders Illegal logging by local communities and migrants on sloping lands Activities of anglers around the riparian zone of the river in the form of shribs that dry up during the dry season (prone to fire) Methicides Land loearing for farming/gardeni ng by the community signs containing ronation boards (rivers and borders), mounting signs containing ronation boards (rivers and borders), mounting signs containing ronations and papeals, especially prevention of fires and cultivation and logging to company. Coordinate cooperate relevant agence as BKSDA, Fore Plantations open areas, shrubs, low density stands high density stands Activities of anglers around the riparian zone of the river in the form of shrubs that dry up during the dry season (prone to fire) Conducting patrols on the HCV viver boundary HCV officers all and borders, mounting signs containing rocationing restrictions and appeals, especialing rocationing rise and border and papeals, especialing restrictions and appeals, especialing restrictions and appeals, especialing restrictions and appeals, especialing restrictions and appeals, especialing signs containing rocationing restrictions and appeals, especialing signs containing restrictions and appeals, especialing signs containing restrictions and appeals, especialing of restrictions and appeals, especialing restriction of land cover in river basins for rehabilitation of lan | Type: 4 | pesticides, | installation of HCV 4 | fire-fighting community | • Establish and appoint |
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| steep slopes and around river borders Illegal logging by local communities and migrants on sloping lands Activities of anglers around the riparian zone of the river in the form of shrubs that dry up during the dry season (prone to fire) Steep slopes and around river borders Illegal logging by local communities and migrants on sloping lands Activities of anglers around the riparian zone of the river in the form of shrubs that dry up during the dry season (prone to fire) In fires and cultivation and logging by lodging by lating fires and cultivation and logging by lating the same of land cover in river basins for rehabilitation/ enrichment planting by categorizing open areas, shrubs, low density stands, high density stands and surrommunities area maniprogram. Rehabilitation enrichment planting in river border river. If there are already other plants in the border, then enrichment is done by planting the same plant species. Types of plants planted are local native species. Conducting patrols on the HCV river boundary | | ng by the | restrictions and appeals, | | organizational |
| around river borders Illegal logging by local communities and migrants on sloping lands Activities of anglers around the riparian zone of the river in the form of shrubs that dry up during the dry season (prone to fire) Illegal logging by local legal logging by local size of legal logging by local communities and migrants on sloping lands Activities of anglers around the riparian zone of the river in the form of shrubs that dry up during the dry season (prone to fire) Indentification of land cover in river basins for rehabilitation/ enrichment planting by categorizing open areas, shrubs, low density stands, high density stands, high density stands high density stands high density stands when the planting in river border in river basins for rehabilitation/ enrichment planting by categorizing open areas, shrubs, low density stands high density stands high density stands when the planting in river border in river basins for rehabilitation/ enrichment planting by categorizing open areas, shrubs, low density stands high density stan | | community on | especially prevention of | | structure of the |
| borders • Illegal logging by local communities and migrants on sloping lands Activities of anglers around the riparian zone of the river in the form of shrubs that dry up during the dry season (prone to fire) borders • Illegal logging by local communities in river basins for rehabilitation/ enrichment planting by categorizing open areas, shrubs, low density stands, high density stands, high density stands, high density stands, high density stands and surrecommunities area manipanting in river border river. If there are already other plants in the border, then enrichment is done by planting the same plant species. Types of plants planted are local native species. • Conducting patrols on the HCV river boundary | | steep slopes and | fires and cultivation and | | company. |
| • Illegal logging by local communities and migrants on sloping lands Activities of anglers around the riparian zone of the river in the form of shrubs that dry up during the dry season (prone to fire) • Illegal logging by local communities and migrants on sloping lands Activities of anglers around the riparian zone of the river in the form of shrubs that dry up during the dry season (prone to fire) • Illegal logging by locategorizing open areas, shrubs, low density stands, high density stands, high density stands, high density stands and surromment planting in river border rehabilitation/ enrichment planting in river basins for relevant agence as BKSDA, Fore Plantations DLHK, Police government all and surromment planting in river border rehabilitation/ enrichment planting in river basins for relevant agence as BKSDA, Fore Plantations DLHK, Police government all and surromment planting in river border rehabilitation/ enrichment planting in river border area area mans program. • Rehabilitation/ enrichment planting in river border the three planting in river border plants in the border, then enrichment is done by planting the same plant species. Types of plants planted are local native species. • Conducting patrols on the HCV river boundary | | around river | logging | | • Coordinate & |
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| communities and migrants on sloping lands Activities of anglers around the riparian zone of the river in the form of shrubs that dry up during the dry season (prone to fire) Danting by categorizing open areas, shrubs, low density stands, high density stands Rehabilitation/ enrichment planting in river border river. If there are already other plants in the border, then enrichment is done by planting the same plant species. | | Illegal logging by | in river basins for | | relevant agencies, such |
| and migrants on sloping lands Activities of anglers around the riparian zone of the river in the form of shrubs that dry up during the dry season (prone to fire) and migrants on sloping lands Activities of anglers around the riparian zone of the river in the form of shrubs that dry up during the dry season (prone to fire) and migrants on sloping lands Activities of anglers around the riparian zone of the river in the form of shrubs that dry up during the dry season (prone to fire) and migrants on open areas, shrubs, low density stands Rehabilitation/ enrichment planting in river border river. If there are already other plants in the border, then enrichment is done by planting the same plant species. Types of plants planted are local native species. Conducting patrols on the HCV river boundary | | local | rehabilitation/ enrichment | | as BKSDA, Forestry and |
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| Activities of anglers around the riparian zone of the river in the form of shrubs that dry up during the dry season (prone to fire) Activities of anglers around the riparian zone of the river in the form of shrubs that dry up during the dry season (prone to fire) Activities of anglers around the riparian zone of the river in the form of shrubs that dry up during the dry season (prone to fire) Stands Rehabilitation/ enrichment planting in river border river. If there are already other plants in the border, then enrichment is done by planting the same plant species. Types of plants planted are local native species. Conducting patrols on the HCV river boundary | | and migrants on | open areas, shrubs, low | | DLHK, Police, local |
| anglers around the riparian zone of the river in the form of shrubs that dry up during the dry season (prone to fire) • Rehabilitation/ enrichment planting in river border river. If there are already other plants in the border, then enrichment is done by planting the same plant species. Types of plants planted are local native species. • Conducting patrols on the HCV river boundary | | sloping lands | density stands, high density | | government apparatus |
| the riparian zone of the river in the form of shrubs that dry up during the dry season (prone to fire) the riparian zone of the river in the form of shrubs that dry up during the dry season (prone to fire) planting in river border river. If there are already other plants in the border, then enrichment is done by planting the same plant species. Types of plants planted are local native species. Conducting patrols on the HCV river boundary | | Activities of | stands | | and surrounding |
| zone of the river in the form of shrubs that dry up during the dry season (prone to fire) zone of the river in the form of shrubs that dry up during the dry season (prone to fire) zone of the river river. If there are already other plants in the border, then enrichment is done by planting the same plant species. Types of plants planted are local native species. • Conducting patrols on the HCV river boundary | | anglers around | Rehabilitation/ enrichment | | communities in HCV |
| in the form of shrubs that dry up during the dry season (prone to fire) in the form of shrubs that dry up during the dry season (prone to fire) other plants in the border, then enrichment is done by planting the same plant species. Types of plants planted are local native species. • Conducting patrols on the HCV river boundary | | the riparian | planting in river border | | area management |
| shrubs that dry up during the dry season (prone to fire) shrubs that dry up during the dry season (prone to fire) then enrichment is done by planting the same plant species. Types of plants planted are local native species. • Conducting patrols on the HCV river boundary | | zone of the river | river. If there are already | | program. |
| up during the dry season (prone to fire) up during the same plant species. Types of plants planted are local native species. • Conducting patrols on the HCV river boundary | | | other plants in the border, | | • |
| dry season (prone to fire) species. Types of plants planted are local native species. • Conducting patrols on the HCV river boundary | | shrubs that dry | then enrichment is done by | | |
| (prone to fire) planted are local native species. • Conducting patrols on the HCV river boundary | | up during the | planting the same plant | | |
| species. Conducting patrols on the HCV river boundary | | dry season | species. Types of plants | | |
| • Conducting patrols on the HCV river boundary | | (prone to fire) | planted are local native | | |
| HCV river boundary | | | species. | | |
| | | | Conducting patrols on the | | |
| | | | HCV river boundary | | |
| Provision of forest and land | | | Provision of forest and land | | |
| fire prevention equipment | | | fire prevention equipment | | |
| in accordance with | | | in accordance with | | |
| prevailing laws and | | | prevailing laws and | | |
| regulations. | | | regulations. | | |
| • Do not occupy area on the | | | Do not occupy area on the | | |
| river border as settlement | | | river border as settlement | | |

| | | | | to prevent river water | | |
|----|----------------------|--|---|---|--|---|
| | | | | · | | |
| 18 | Ritan River Riparian | Located in the lower reaches of the Ritan River, Important area as habitat for endangered species Ambon tortoise (Coura amboinensis), Orlitia borneensis, Amyda cartilaginea, Cuora amboinensis, Heosemys spinose Tomistoma schlegelii Type: 1; 4 | Community hunting of animals, especially RTE species Illegal logging by local communities and migrants in forest fragments containing Dipterocarpacea e species Clearing of forested land/which still has good vegetation for farming/gardening by the community/ company Plantation operations by the company after the palm oil is planted (Agricultural | Conduct inventory and identification of land cover conditions. Comprehensive inventory on flora/ fauna in the HCV area. Conducting HCV boundary marking adjacent to operational areas as well as community land location & periodic border maintenance. Installation of nameplate in HCV location according to HCV type, installation of board prohibiting wildlife hunting and flora disruption. Conducting patrols in HCV areas. Undertake rehabilitation and enrichment activities (restoration) on areas identified as degraded based on land cover inventory results. Provision of forest and land fire prevention equipment in accordance | Organize internal and external socialization explaining the importance of conserving HCV areas and biodiversity. Activities are also carried out targeting school-aged children (elementary, junior high school, high school) at schools located within village areas, subdistricts affected by PT. PU operations. Conduct HCV area management training to HCV officers and/ or staff & employees. Conduct forest and land fire prevention and handling training to employees and gradually developing the fire-fighting community (KTPA) program. Develop an accountable and relevant community development program in collaboration with government agencies, village agencies and | Determination of environmental and preservation of natural biodiversity policies by Top Management. Preparation of HCV Area Management and Monitoring Procedures/ SOP's. Establish and appoint HCV officers along with job descriptions and incorporate into the organizational structure of the company. Coordinate & cooperate with relevant agencies, such as BKSDA, Forestry and Plantations Agency, DLHK, Police, local government apparatus and surrounding communities in HCV area management program. Determination of |
| | | | effluent), such as application of fertilizers, | with prevailing laws and regulations. | community leaders in an effort to prevent and minimize encroachment | environmental and preservation of natural biodiversity policies by |
| | | | pesticides, herbicides | Determination flood plain on river riparian as wide as | impact on HCV areas. | Top Management. • Preparation of HCV |
| | | | Land clearing for farming/gardening by the | the highest peak of inundation period. | Organize internal and external socialization Organize the importance | Area Management and Monitoring |
| | | | ng by the | | explaining the importance | Procedures/ SOP's. |

| Areas Cover varied, consisting of low-medium density forest, young regenerated forest, and shrubs. are scattered within the MU area, referring to the ICLUP HCSA study | | | | | | |
|--|----|---|---|--|---|--|
| HCS* HCS Conservation Areas The type of land cover waried, consisting of low-medium density forest, young regenerated forest, and shrubs. are scattered within the MU area, referring to the ICLUP HCSA study The type of land cover waried, consisting of low-medium density forest, young regenerated forest, and shrubs. are scattered within the MU area, referring to the ICLUP HCSA study The type of land cover waried, consisting of low-medium density forest, young regenerated forest, and shrubs. are scattered within the MU area, referring to the ICLUP HCSA study Top Manager on operational areas as well as community land location & periodic border maintenance. Installation of nameplate in HCV operations. The type of land cover waried, consisting of low-medium density forest, young regenerated forest, and shrubs. are scattered within the MU area, referring to the ICLUP HCSA study Top Manager out targeting school-aged children (elementary, joint school) is school) at schools located within village areas, subdistricts affected by PT. PU operations. Community land location & periodic border maintenance. Installation of hoard to mexternal and external socialization external socialization explaination of conserving HCV areas and biodiversity. Company plans to clearing of conducting HCV boundary marking adjacent to operational areas as well as community land location & periodic border maintenance. Installation of nameplate in HCV operations. Conducting HCV boundary marking adjacent to operational areas as well as corried out targeting school, high school) high school broader maintenance installation of a management training to the PCV operations. Conducting HCV boundary marking adjacent to operational areas as well as community land location & periodic border maintenance. Installation of hoard the problems of the HCV officers and or strive the preservation for farming/particle in HCV operations. Conducting HCV boundary marking adjacent to operate maintenance installation of board the problems of the HCV officers an | | | | to prevent river water | | |
| Areas Cover varied, consisting of low-medium density forest, young regenerated forest, and shrubs. are scattered within the MIU area, referring to the ICLUP HCSA study Clearing of forested land/which still has good vegetation ing by the community/ company Omany plans to clear land for oil palm plantation Damping plantation Damping plantation Company plans to consuming plantation Company plans to consuming powers Company plans to consuming plantation Company plans to consument powers omanument conditions. dientification of land cover conditions. Ometation of land cover conditions. Ownermunities and migrants in forest mand in migrants in forest. Occurrent conditions. Occurrent conditions. | | | | pollution. | | |
| and blocking lanes, in the early stages of land clearing • Illegal logging by local communities and migrants • Clearing of forested land/which is inventory results. • Provision of forest and land fire prevention equipment in accordance with prevailing laws and reglevant community development program in collaboration with government agencies, village agencies and community leaders in an effort to prevent and minimize encroachment impact on HCV areas. • Organize internal and external socialization on of Hilling laws and relevant community development program in collaboration with government agencies, village agencies and community leaders in an effort to prevent and minimize encroachment impact on HCV areas. • Organize internal and external socialization on of Hilling laws and relevant community development program in collaboration with government agencies, village agencies and community leaders in an effort to prevent and minimize encroachment impact on HCV areas. | HC | cover varied, consisting of low-medium density forest, young regenerated forest, and shrubs. are scattered within the MU area, referring to | by local communities and migrants in forest fragments containing Dipterocarpace ae species • Clearing of forested land/which still has good vegetation for farming/garden ing by the community/ company • Company plans to clear land for oil palm plantation • Company plans to build roads and blocking lanes, in the early stages of land clearing • Illegal logging by local communities and migrants • Clearing of forested land/which is | pollution. Conduct inventory and identification of land cover conditions. Comprehensive inventory on flora/ fauna in the HCV area. Conducting HCV boundary marking adjacent to operational areas as well as community land location & periodic border maintenance. Installation of nameplate in HCV location according to HCV type, installation of board prohibiting wildlife hunting and flora disruption. Conducting patrols in HCV areas. Undertake rehabilitation and enrichment activities (restoration) on areas identified as degraded based on land cover inventory results. Provision of forest and land fire prevention equipment in accordance with prevailing laws and regulations. Conducting HCV boundary marking adjacent to operational areas as well as community land location & periodic border | external socialization explaining the importance of conserving HCV areas and biodiversity. • Activities are also carried out targeting school-aged children (elementary, junior high school, high school) at schools located within village areas, subdistricts affected by PT. PU operations. • Conduct HCV area management training to HCV officers and/ or staff & employees. • Conduct forest and land fire prevention and handling training to employees and gradually developing the fire-fighting community (KTPA) program. • Develop an accountable and relevant community development program in collaboration with government agencies, village agencies and community leaders in an effort to prevent and minimize encroachment impact on HCV areas. • Organize internal and external socialization | environmental and preservation of natural biodiversity policies by Top Management. • Preparation of HCV Area Management and Monitoring Procedures/ SOP's. • Establish and appoint HCV officers along with job descriptions and incorporate into the organizational structure of the company. • Coordinate & cooperate with relevant agencies, such as BKSDA, Forestry and Plantations Agency, DLHK, Police, local government apparatus and surrounding communities in HCV area management program. • Determination of environmental and preservation of natural biodiversity policies by |

| | Undertake rehabilitation and enrichment activities | gradually developing the as BKSDA, Forestry an fire-fighting community Plantations Agency |
|--|--|---|
| | (restoration) on areas | (KTPA) program. DLHK, Police, loca |
| | identified as degraded | government apparatu |
| | based on land cover | and surroundin |
| | inventory results. | communities in HC |
| | Provision of forest and land | area managemer |
| | fire prevention equipment | program. |
| | in accordance with | Determination |
| | prevailing laws and | environmental an |
| | regulations. | preservation of natura |
| | Determination flood plain | biodiversity policies b |
| | on river riparian as wide as | Top Management. |
| | the highest peak of | Preparation of HC |
| | inundation period. | Area Management an |
| | Setting and marking of | Monitoring |
| | boundaries of areas | Procedures/ SOP's. |
| | identified as HCV 4 (rivers | Establish and appoir |
| | and borders) followed by | HCV officers along wit |
| | installation of HCV 4 | job descriptions an |
| | information boards (rivers | incorporate into th |
| | and borders), mounting | organizational |
| | signs containing | structure of th |
| | restrictions and appeals, | company. |
| | especially prevention of | Coordinate |
| | fires and cultivation and | cooperate wit |
| | logging | relevant agencies, suc |
| | Identification of land cover | as BKSDA, Forestry an |
| | in river basins for | Plantations Agency |
| | rehabilitation/ enrichment | DLHK, Police, loca |
| | planting by categorizing | government apparatu |
| | open areas, shrubs, low | and surroundin |
| | density stands, high density | communities in HC |
| | stands | area managemer |
| | Rehabilitation/ enrichment | program. |
| | planting in river border | |
| | river. If there are already | |
| | other plants in the border, | |
| | then enrichment is done by | |

| | | planting the same plant species. Types of plants planted are local native species. Conducting patrols on the HCV river boundary Provision of forest and land fire prevention equipment in accordance with prevailing laws and | |
|--|--|--|--|
| | | in accordance with | |

Note: *HCS Only

HCV's area monitoring plan

The general objective of monitoring is to know the development of the condition of the elements and the size of the designated HCV area. Monitoring of HCV elements is related to the value/function inherent in the HCV area, whether it is increasing (getting better) or decreasing (getting worse). Monitoring the size of the HCV area that has been determined is related to the coverage area that still has HCV value/function (HCV1-5). In addition to monitoring the indicators for HCV elements, the management strategy is also monitored. There is a possibility that over time there will be a decrease in the value/function of the HCV. Monitoring of the management strategy includes:

- 1. Implementation of the management strategy in the field, related to whether or not the planned HCV management strategy is carried out in the field (operational monitoring)
- 2. Implementation of management strategy is done poorly. Even if the planned management strategy is good, if it is carried out poorly it will not achieve the expected goals and objectives (strategic monitoring/effectiveness).
- 3. New or changed threats/conditions. Management strategies that were effective over time may not always be effective forever (threat monitoring).

The result of this monitoring serve as a basis for evaluation to ensure whether the implementation of the HCV area management strategy is accordance with its goals and objectivers. Recommendatuons for monitoring of HCV areas are presented in **Table 5**.

| Location and Type of HCV | Indicators Monitored | Monitoring Objectives | Parameters | Monitoring |
|--|---|--|--|--|
| ID 01 - Belayan River Riparian The slope of the land is rather steep; the condition of the land cover is still good in the form of shrubs that have not been disturbed Type: 1; 4 | a. Disturbance intensity to the HCV location includes fire hazards, illegal logging, wildlife hunting and encroachment. b. Number and composition of flora & fauna species. c. Species growth rate (power of life) in rehabilitation/ enrichment activities d. The development of land cover conditions. e. Monitoring and safeguarding the habitat conditions to the area such as boundary conditions, nameplates installed. | a. Obtaining information on the intensity of disturbance to HCV location including fire dangers. b. Obtaining information on the population of species of flora/fauna that are threatened with extinction. c. Obtaining information on enrichment rate. d. Obtaining information on the development of land cover conditions. e. Obtaining information on the realization of monitoring and security activities. | Good: Fauna diversity and flora density (including protected and RTE species) at HCV sites is at fixed states or increased by >15%. Fair: Fauna diversity and flora density (including protected and RTE species) at HCV sites has increased by 5 up to 15%. Poor: Fauna diversity and flora density (including protected and RTE species) at HCV sites has decreased or increased by >5%. | a. Once a mor b. Once in 6 n c. Once in 3 n d. Once in 6 n e. Once a mor |
| ID 02 - Belayan River Block Forest In general the condition of land cover is still good (secondary forest scrub, only a small amount of shrubs), in some places there is land clearing by PT Lembang Ganesa and PT Karya Rimba Raya (still active). Important area as habitat for endangered species Ambon tortoise (Coura amboinensis), Orlitia borneensis, Amyda cartilaginea, Cuora amboinensis, Heosemys spinose Type: 1; 3 | a. Disturbance intensity to the HCV location includes fire hazards, illegal logging, wildlife hunting and encroachment. b. Number and composition of flora & fauna species. c. Species growth rate (power of life) in rehabilitation/ enrichment activities d. The development of land cover conditions. e. Monitoring and safeguarding the habitat conditions to the area such as boundary conditions, nameplates installed. | a. Obtaining information on the intensity of disturbance to HCV location including fire dangers. b. Obtaining information on the population of species of flora/fauna that are threatened with extinction. c. Obtaining information on enrichment rate. d. Obtaining information on the development of land cover conditions. e. Obtaining information on the realization of monitoring and security activities. | Good: Fauna diversity and flora density (including protected and RTE species) at HCV sites is at fixed states or increased by >15%. Fair: Fauna diversity and flora density (including protected and RTE species) at HCV sites has increased by 5 up to 15%. Poor: Fauna diversity and flora density (including protected and RTE species) at HCV sites has decreased or increased by >5%. | a. Once a more b. Once in 6 n c. Once in 3 n d. Once in 6 n e. Once a more |

| | | | 1 | |
|---|---|---|--|----------------------|
| ID 03 - Batu Brang River and the Riparian Zone • The river water is cloudy during the rainy season from the upstream (community agricultural land development area) • Most of the vegetation on the riverbank is still good (shrub-secondary forest) • Lowland scrub and secondary forest ecosystem that supports the habitat of the endangered species Ambon tortoise (Coura amboinensis), Orlitia borneensis, Amyda cartilaginea, Cuora amboinensis, Heosemys spinosa, Tomistoma schlegelii Type: 1; 3; 4 | a. Disturbance intensity to the HCV location includes fire hazards, illegal logging, wildlife hunting and encroachment. b. Number and composition of flora & fauna species. c. Species growth rate (power of life) in rehabilitation/ enrichment activities d. The development of land cover conditions. e. Monitoring and safeguarding the habitat conditions to the area such as boundary conditions, nameplates installed. | a. Obtaining information on the intensity of disturbance to HCV location including fire dangers. b. Obtaining information on the population of species of flora/ fauna that are threatened with extinction. c. Obtaining information on enrichment rate. d. Obtaining information on the development of land cover conditions. e. Obtaining information on the realization of monitoring and security activities. | Good: Fauna diversity and flora density (including protected and RTE species) at HCV sites is at fixed states or increased by >15%. Fair: Fauna diversity and flora density (including protected and RTE species) at HCV sites has increased by 5 up to 15%. Poor: Fauna diversity and flora density (including protected and RTE species) at HCV sites has decreased or increased by >5%. | b. Once in 6 months. |
| ID 04 - Batu Brang River Block Forest In general the condition of land cover is still good (scrubsecondary forest), there are logging areas of PT Lembang Ganesa and PT Karya Rimba Raya, the slopes of the land are gentle to bumpy | a. Disturbance intensity to the HCV location includes fire hazards, illegal logging, wildlife hunting and encroachment. b. Number and composition of flora & fauna species. c. Species growth rate (power of life) in rehabilitation/ enrichment activities d. The development of land cover conditions. | a. Obtaining information on the intensity of disturbance to HCV location including fire dangers. b. Obtaining information on the population of species of flora/fauna that are threatened with extinction. c. Obtaining information on enrichment rate. | Good: Fauna diversity and flora density (including protected and RTE species) at HCV sites is at fixed states or increased by >15%. Fair: Fauna diversity and flora density (including protected and RTE species) at HCV sites has increased by 5 up to 15%. Poor: Fauna diversity and flora density (including protected and | b. Once in 6 months. |

| second ecosys habita specie muelle rhinoc specie distrib muelle steppi protec | dary forest tems that support t for endangered s (Hylobates eri and Buceros eros); endemic s and limited ution (Hylobates eri), refugium, eng stone for ted species by Bucerotidae) | Monitoring and safeguarding the habitat conditions to the area such as boundary conditions, nameplates installed. | | Obtaining information on the development of land cover conditions. Obtaining information on the realization of monitoring and security activities. | RTE species) at HCV sites has decreased or increased by >5%. | |
|--|--|--|----------------|---|--|---|
| Forest In condit still second some processes to clear in comm the share undulated are undulated to the condition of the cond | general the ion of land cover is good (scrubdary forest), in places there is land g by the unity for farming, opes of the land sloping to ating. I wland scrub and dary forest tems that support to for endangered so (Hylobates and Buceros eros); endemic so and limited ution (Hylobates ari), refugium, | Disturbance intensity to the HCV location includes fire hazards, illegal logging, wildlife hunting and encroachment. Number and composition of flora & fauna species. Species growth rate (power of life) in rehabilitation/ enrichment activities The development of land cover conditions. Monitoring and safeguarding the habitat conditions to the area such as boundary conditions, nameplates installed. | b. c. d. | Obtaining information on the intensity of disturbance to HCV location including fire dangers. Obtaining information on the population of species of flora/fauna that are threatened with extinction. Obtaining information on enrichment rate. Obtaining information on the development of land cover conditions. taining information on the realization of monitoring and security activities. | Good: Fauna diversity and flora density (including protected and RTE species) at HCV sites is at fixed states or increased by >15%. Fair: Fauna diversity and flora density (including protected and RTE species) at HCV sites has increased by 5 up to 15%. Poor: Fauna diversity and flora density (including protected and RTE species) at HCV sites has decreased or increased by >5%. | a. Once a month b. Once in 6 months. c. Once in 3 months. d. Once in 6 months. e. Once a month. |

| prote | ected species | | | | | |
|---------|------------------------|--|-----|--|---|--|
| (Fami | ily Bucerotidae) | | | | | |
| Type: | . 1. 3 | | | | | |
| | | | | | | |
| | | a. Disturbance intensity to the HCV | a. | Obtaining information on the | River Riparian Width: | a. Once a month |
| | Riparian Zone | location includes fire hazards, | | intensity of disturbance to HCV | Good: If there is an increase in the | b. Once in 6 months. |
| | he river water is | illegal logging, wildlife hunting | | location including fire dangers. | width of river riparian | c. Once in 3 months. |
| | dy during the rainy | and encroachment. | b. | Obtaining information on the | · | d. Once in 6 months. |
| seaso | | o. Number and composition of flora | | population of species of flora/ | Fair: If there is no increase in the | e. Once a month. |
| I I I I | ream (community | & fauna species. | | fauna that are threatened with extinction. | width of river riparian. | f. Once a month. |
| 1 11 - | | c. Species growth rate (power of life) in rehabilitation/ enrichment | | | Poor: If the width of river riparian | g. Once in 6 months h. Once in six months. |
| devel | lopment area) | activities | С. | Obtaining information on enrichment rate. | has decreased. | i. Once in six month |
| • In t | the dry season it is | d. The development of land cover | Ч | Obtaining information on the | Class II south as weaken much that for | i. Once a month. |
| | by the community | conditions. | u. | development of land cover | Class II surface water quality for indicator such as dissolved residue, | j. Once a month. |
| | source of water for e | e. Monitoring and safeguarding the | | conditions. | pH, BOD, DO | |
| bathii | ing and washing | habitat conditions to the area | e. | Obtaining information on the | pri, 505, 50 | |
| • The | e Jalin River during | such as boundary conditions, | | realization of monitoring and | Good: In accordance with the | |
| | flood is used by | nameplates installed. | | security activities. | quality standard. | |
| peopl | ole who are logging f. | f. Intensity of disturbance to areas | f. | Intensity of disturbance to areas | Poor: Exceed the quality standard | |
| in t | the upstream to | with HCV type, including hazards | | with HCV type | determined. | |
| extrac | act wood | from fire, illegal logging and | g. | Predicting erosion rate resulted | | |
| | owland shrub and | encroachment. | | from erosion rate measurements | | |
| | ndary forest | g. The development of land cover | | in which refers to Government | | |
| | . ' | conditions. | | Regulation Number. 150 years | | |
| | habitat of the | n. Monitoring to river riparian width | | 2000 on Control of Soil Damage | | |
| | ngered species | which is an indicator of | L . | for Biomass Production | | |
| | on tortoise (Coura | enrichment program success. . Monitoring of surface water | n. | Obtaining information on the development of land cover | | |
| | oinensis), Orlitia | quality such as turbidity level | | conditions. | | |
| borne | eensis, Amyda | (soluble residue), pH, and BOD, | | Monitoring and safeguarding | | |
| cartila | laginea, Cuora | DO reflecting the erosion rate of | ١. | habitat conditions especially on | | |
| ambo | oinensis, Heosemys | river riparian. This in accordance | | areas with HCV types | | |
| spino | | with Government Regulation | | | | |
| schleg | egelii | number 82/2001 on Water | | | | |
| Type: | : 1; 3; 4; 5 | Quality Management and Water | | | | |
| | , -, -, - | Pollution Control (Class II Water | | | | |
| | | Criteria). | | | | |

| ID 07 - Jalin Tukung River and the Riparian Zone The upper reaches of the Jalin Tutung River is located at Mount Mendam. The condition of the upstream cover is in the form of old thickets. The downstream part flows in hill valleys which have slopes between 15-25%. Type: 4; 5 | b. The development of land cover conditions.c. Monitoring to river riparian width which is an indicator of | intensity of disturbance to areas with HCV types b. Obtaining information on the development of land cover conditions. c. Predicting erosion rates from river width measurement d. Obtaining information on pollution indicators of surface water surface water quality variable to surface water quality standard. | River Riparian Width: Good: If there is an increase in the width of river riparian Fair: If there is no increase in the width of river riparian. Poor: If the width of river riparian has decreased. Class II surface water quality for indicator such as dissolved residue, pH, BOD, DO Good: In accordance with the quality standard. Poor: Exceed the quality standard determined. | a. Once a month. b. Once in 6 months. c. Once in 6 months d. Once in 6 months e. Once a month. |
|---|--|--|---|--|
| ID 08 - Bayeq River Block Forest Shrub and lowland secondary forest ecosystems that support the habitat of endangered species (Hylobates muelleri and | installed. a. Disturbance intensity to the HCV location includes fire hazards, illegal logging, wildlife hunting and encroachment. b. Number and composition of flora & fauna species. | a. Obtaining information on the intensity of disturbance to HCV location including fire dangers. b. Obtaining information on the population of species of flora/fauna that are threatened with extinction. | Good: Fauna diversity and flora density (including protected and RTE species) at HCV sites is at fixed states or increased by >15%. Fair: Fauna diversity and flora density (including protected and | b. Once in 6 months. |

| | rhinoceros); c. Species growth rate (power o | | , , | |
|---|--|--|--|---|
| 1 | life) in rehabilitation/ enrichmen activities d. The development of land cove conditions. e. Monitoring and safeguarding the habitat conditions to the area such as boundary conditions nameplates installed. | d. Obtaining information on the development of land cover conditions. e. Obtaining information on the realization of monitoring and | increased by 5 up to 15%. Poor: Fauna diversity and flora density (including protected and RTE species) at HCV sites has decreased or increased by >5%. | |
| muelleri an rhinoceros); species an distribution muelleri), | reaches of River is lount Naga, nditions are ar (not too flowing he year scrub and forest hat support endangered (Hylobates d Buceros endemic d limited (Hylobates refugium, stone for species rotidae) corridor Mount Naga locks in the les of the (around the | intensity of disturbance to HCV location including fire dangers. b. Obtaining information on the population of species of flora/ fauna that are threatened with extinction. c. Obtaining information on enrichment rate. d. Obtaining information on the development of land cover conditions. e. Obtaining information on the | Good: Fauna diversity and flora density (including protected and RTE species) at HCV sites is at fixed states or increased by >15%. Fair: Fauna diversity and flora density (including protected and RTE species) at HCV sites has increased by 5 up to 15%. Poor: Fauna diversity and flora density (including protected and RTE species) at HCV sites has decreased or increased by >5%. | a. Once a month. b. Once in 6 months. c. Once in 3 months. d. Once in 6 months e. Once in a month |

| Type; 1; 3; 4 | | | |
|--|---|--|----------------------|
| ID 10 - Mount Naga Located east of Mount Mendam, extending to the banks of the Belayan River. Has a micro slope of up to40%? Covered with thickets and shrubs. as a catchment area for the Baya River. Type: 4 | a. Disturbance intensity to the HCV location includes fire hazards, illegal logging, wildlife hunting and encroachment. b. Number and composition of flora & fauna species. c. Species growth rate (power of life) in rehabilitation/ enrichment activities d. The development of land cover conditions. e. Monitoring and safeguarding the habitat conditions to the area such as boundary conditions, nameplates installed. | a. Obtaining information on the intensity of disturbance to HCV location including fire dangers. b. Obtaining information on the population of species of flora/fauna that are threatened with extinction. c. Obtaining information on enrichment rate. d. Obtaining information on the development of land cover conditions. e. Obtaining information on monitoring and safeguarding activities. Good: Fauna diversity and flora density (including protected and RTE species) at HCV sites is at fixed states or increased by >15%. Fair: Fauna diversity and flora density (including protected and RTE species) at HCV sites has increased by 5 up to 15%. Poor: Fauna diversity and flora density (including protected and RTE species) at HCV sites has increased by 5 up to 15%. | ths. ths. ths. |
| ID 11 - Belayan River Scrub Area penting sebagai habitat spesies terancam punah (Hylobates muelleri dan Buceros rhinoceros); spesies endemik dan sebaran terbatas (Hylobates muelleri), refugium, stepping stone bagi spesies yang dilindungi (Family Bucerotidae) Type: 1; 3 | a. Intensity of disturbance to areas with HCV 4 type, including hazards from fire, illegal logging and encroachment. b. Monitoring of erosion rate by taking plots sample randomly and periodically. c. The development of land cover conditions. d. Monitoring and safeguarding habitat conditions especially on areas with HCV 4 types. Activities undertaken such as monitoring to boundary conditions, nameplates installed. | a. Obtaining information on intensity of disturbance to areas with HCV 4 type b. Predicting erosion rate resulted from erosion rate measurements in which refers to Government Regulation Number. 150 years 2000 on Control of Soil Damage for Biomass Production c. Obtaining information on the development of land cover conditions. d. Monitoring and safeguarding habitat conditions especially on areas with HCV 4 types. Critical threshold value of erosion rate at a soil depth of 150 Cm is <9 Ton/ Ha/ Year. c. Once in a mon d. Onc | th. ths. |
| ID 12 - Meqloq River & its tributaries and riparian zone • The upstream is in Mendam hills and Mount Naga, there are 2 | Intensity of disturbance to areas with HCV 4 type, including hazards from fire, illegal logging and encroachment. | a. Obtaining information on intensity of disturbance to areas with HCV 4 type b. Predicting erosion rate resulted from erosion rate measurements in which refers to Government Critical threshold value of erosion a. Once in a mon b. Once a year. C. Once in 6 mon d. Once a month | ths. |

| waterfall locations with fairly clear water conditions, vegetation conditions around the riparian zone in the form of shrubs and shrubs are still good Lowland scrub ecosystem that supports the habitat of the endangered species Ambon tortoise (Coura amboinensis), Orlitia borneensis, Amyda cartilaginea, Cuora amboinensis, Heosemys spinose Tomistoma schlegelii Type: 1; 3; 4; 5 ID 13 - Mount Mendam | taking plots sample randomly and periodically. The development of land cover conditions. Monitoring and safeguarding habitat conditions especially on areas with HCV 4 types. Activities undertaken such as monitoring to boundary conditions, nameplates installed. 2000 on Control of Soil Damage for Biomass Production C. Obtaining information on the development of land cover conditions. Monitoring and safeguarding habitat conditions especially on areas with HCV 4 types | Good: Fauna diversity and flora a. Once in a month. |
|--|--|---|
| Located in the middle of the MU area. Covered with old scrub forest, has a micro slope of up to 40%. This mountain is a water catchment area for the Bangge River, Tumau River, Meqloq River, Baya River, and Jalin Tutung River. Type: 4 | location includes fire hazards, illegal logging, wildlife hunting and encroachment. Number and composition of flora & fauna species. Species growth rate (power of life) in rehabilitation/ enrichment activities The development of land cover conditions. Monitoring and safeguarding the intensity of disturbance to HCV location including fire dangers. Obtaining information on the extinction. Obtaining information on enrichment rate. Obtaining information on the development of land cover conditions. | lensity (including protected and tates or increased by >15%. fair: Fauna diversity and flora lensity (including protected and tates) at HCV sites has increased by 5 up to 15%. Poor: Fauna diversity and flora lensity (including protected and tates) at HCV sites has lecreased or increased by >5%. |

| ID 14 - Tumau River and the Riparian Zone The upstream part is in Mount Mendam, most of the vegetation conditions around the riparian zone are still good (no disturbance) in the form of shrubs, there are few community oil palm plantations, downstream there is the Ung Tumau waterfall Type; 4 | a. Disturbance intensity to the HCV location includes fire hazards, illegal logging, wildlife hunting and encroachment. b. Number and composition of flora & fauna species. c. Species growth rate (power of life) in rehabilitation/ enrichment activities d. The development of land cover conditions. e. Monitoring and safeguarding the habitat conditions to the area such as boundary conditions, nameplates installed. | intensity of disturbance to HCV location including fire dangers. b. Obtaining information on the population of species of flora/fauna that are threatened with extinction. c. Obtaining information on enrichment rate. d. Obtaining information on the development of land cover conditions. e. Obtaining information on the realization of monitoring and lensity (in RTE species increased by the poor: Fau density (in RTE species increased by the poor: Fau density (in RTE species increased by the poor: Fau density (in RTE species increased by the poor in RTE species states or in RTE species state | a. Once in a month. b. Once in 6 months. c. Once in 3 months d. Once in 6 months. e. Once a month. diversity and flora cluding protected and s) at HCV sites has by 5 up to 15%. and diversity and flora cluding protected and es) at HCV sites has or increased by >5%. |
|---|--|--|--|
| steep slopes east of the Banggeh River • Vegetation condition | a. Intensity of disturbance to areas with HCV 4 type, including hazards from fire, illegal logging and encroachment. b. Development of land cover conditions. c. Monitoring to width of river riparian in which one of indicators of encrichment program success. d. Monitoring of surface water quality such as turbidity level (soluble residue), pH, and BOD, DO reflecting the erosion rate of river riparian. This in accordance with Government Regulation number 82/2001 on Water Quality Management and Water Pollution Control (Class II Water Criteria). e. Monitoring and safeguarding habitat conditions especially on areas with HCV 4 types. Activities undertaken such as monitoring to | intensity of disturbance to areas with HCV 4 types b. Obtaining information on the development of land cover conditions. c. Predicting erosion rates from river width measurement d. Obtaining information on pollution indicators of surface water surface water quality variable to surface water quality standard. e. Monitoring and safeguarding habitat conditions especially on surface with HCVA types. Good: If the width of rividence is the width of rividenc | b. Once in 6 months. c. Once in 6 months. d. Once in 6 months. d. Once in 6 months. e. Once a month. e. Once a month. e. Once a month. e. Once a month. e. Once a month. e. Once a month. e. Once a month. e. Once a month. e. Once a month. e. Once a month. e. Once a month. e. Once a month. e. Once a month. e. Once a month. e. Once a months. e. Once a months. e. Once in 6 months. d. Once in 6 months. e. Once in 6 months. e. Once in 6 months. e. Once in 6 months. d. Once in 6 months. e. Once in 6 mon |

| ecosystems in the form of lowland forest ecosystems | boundary conditions, nameplates installed. | | | |
|--|--|--|---|--|
| Type: 1; 4 | | | | |
| ID 16 - Sengen River and the Riparian Zone • The upstream part of the Sengen River is a forested area outside the MU area, very fluctuating flow conditions (floods in the rainy season and relatively shallow in the dry season), vegetation conditions around the riparian zone in the form of community farming land and shrubs. • Important area as habitat for endangered species Ambon tortoise (Coura amboinensis), Orlitia borneensis, Amyda cartilaginea, Cuora amboinensis, Heosemys spinose Tomistoma schlegelii Type: 1; 4; 5 | a. Intensity of disturbance to areas with HCV 4 type, including hazards from fire, illegal logging and encroachment. b. Development of land cover conditions c. Monitoring to width of river riparian in which one of indicators of encrichment program success. d. Monitoring to surface water quality, this in accordance with Government Regulation number 82/2001 on Water Quality Management and Water Polution Control (Class I Water Criteria). e. Monitoring and safeguarding habitat conditions especially on areas with HCV 4 type. Activities undertaken such as monitoring to boundary conditions, nameplates installed. | a. Obtaining information on intensity of disturbance to areas with HCV 4 type b. Obtaining information on the development of land cover conditions. c. Predicting erosion rates from river width measurement d. Obtaining information on pollution indicators of surface water surface water quality variable to surface water quality standard. e. Monitoring and safeguarding habitat conditions especially on areas with HCV 4 type | River Riparian Width: Good: If there is an increase in the width of river riparian Fair: If there is no increase in the width of river riparian. Poor: If the width. Class I surface water quality Good: In accordance with the quality standard. Poor: Exceed the quality standard determined. | a. Once a month. b. Once in 6 months. c. Once in 6 months. d. Once in 6 months. e. Once a month. |
| ID 17 - Banggeh River and the Riparian Zone The upstream part is in Mount Mendam and its surroundings. The condition of the vegetation around the | a. Intensity of disturbance to areas with HCV 4 type, including hazards from fire, illegal logging and encroachment. b. Development of land cover conditions | a. Obtaining information on intensity of disturbance to areas with HCV 4 type. b. Obtaining information on the development of land cover conditions. c. Predicting erosion rates from river width measurement. | River Riparian Width: Good: If there is an increase in the width of river riparian Fair: If there is no increase in the width of river riparian. | a. Once a month. b. Once in 6 months. c. Once in 6 months. d. Once in 6 months. a. Once a month. |

| riparian zone is still good in the form of shrubs. Type: 4 | d. Obtaining information on riparian in which one of indicators of encrichment program success. d. Monitoring to surface water quality, this in accordance with Government Regulation number 82/2001 on Water Quality Management and Water Polution Control (Class I Water Criteria). e. Monitoring and safeguarding habitat conditions especially on areas with HCV 4 type. Activities undertaken such as monitoring to boundary conditions, nameplates installed. d. Obtaining information on pollution indicators of surface water quality variable to surface water quality standard. e. Monitoring and safeguarding habitat conditions especially on areas with HCV 4 type. Good: In accordance with the quality standard. Poor: Exceed the quality standard determined. | |
|--|--|----------------------|
| ID 18 - Ritan River Riparian Located in the lower reaches of the Ritan River, Important area as habitat for endangered species Ambon tortoise (Coura amboinensis), Orlitia borneensis, Amyda cartilaginea, Cuora amboinensis, Heosemys spinose Tomistoma schlegelii Type: 1; 4 | a. Intensity of disturbance to areas with HCV 4 type, including hazards from fire, illegal logging and encroachment. b. Monitoring of erosion rate by taking plots sample randomly and periodically. c. The development of land cover conditions. d. Monitoring and safeguarding habitat conditions especially on areas with HCV 4 type. Activities undertaken such as monitoring to boundary conditions, nameplates installed. a. Obtaining information on intensity of disturbance to areas with HCV 4 type. b. Obtaining information on the development of land cover conditions. c. Predicting erosion rates from river width measurement d. Obtaining information on pollution indicators of surface water quality variable to surface water quality standard. e. Monitoring and safeguarding habitat conditions especially on areas with HCV 4 type. | |
| HCS Conservation Areas The type of land cover varied, consisting of low- medium density forest, young regenerated forest, and shrubs. are scattered within the MU | a. Disturbance intensity to the HCS location includes fire hazards, illegal logging, wildlife hunting and encroachment. b. Number and composition of flora & fauna species. a. Obtaining information on the intensity of disturbance to HCS location including fire dangers. b. Obtaining information on the population of species of flora/ fauna that are threatened with extinction. Good: Fauna diversity and flora density (including protected and states or increased by >15%. Fair: Fauna diversity and flora density (including protected and density (including prot | b. Once in 6 months. |

| | | area, referring to the ICLUP HCSA study C. Species growth rate (power of life) in rehabilitation/ enrichment activities d. The development of land cover conditions. e. Monitoring and safeguarding the habitat conditions to the area such as boundary conditions, nameplates installed. C. Obtaining information on enrichment rate. d. Obtaining information on the development of land cover conditions. e. Obtaining information on the realization of monitoring and security activities. C. Obtaining information on the development of land cover conditions on the realization of monitoring and security activities. RTE species) at HCV sites has increased by 5 up to 15%. Poor: Fauna diversity and flora density (including protected and RTE species) at HCV sites has decreased or increased by >5%. |
|---|---|--|
| 3 | Social impact, stakeholder and local people engagement (FPIC process) | The presence and operation of PT Prasetia Utama oil palm plantations has the potential to give social impact on the communities in the surrounding villages of the company's HGU areas and associated employees. The impacts arise from various activities undertaken relating to the development process and operations of the estate. Discussion of impacts are identified from the facts or sources of occurring impact within the employee, community surrounding the company, as well as within the scope of neighbourhood, village, sub-district and district and can have both negative and positive dimensions on Pentagonal Assets. The explanation are as follows: Social impacts are positive or negative changes to one or more of social pentagon assets occurred at the time of the assessment as a direct or indirect result due to company operations (estates and mill); policies of management practices or corporate social management performance. Potential social impacts are positive or negative changes to one, or more, possible social pentagon assets that may occur in the future as a direct or indirect result due to company operations (estate and mill); policies of management practices or corporate social management performance. Social risks are social conditions, social issues or social reactions that are likely to disrupt the performance of the company's operations and or sustainability. Social issue in this case is the perception of a particular social group about a matter. Explanation on the relation and explanation on social impacts of PT Prasetia Utama's existence to society, social impact on employees, and on the end, on social risks, and social issues faced by the company. Explanations on impact relationships, potential impacts, social risks and social issues need to be done so that we can understand the cause-and-effect relationship between these three issues and the source of the cause. |

Social Risk

Social risk is a social condition that has the potential to cause material or immaterial losses/damage for the company so that the company is forced to stop operating or has to bear high social cost due to social issues. The source of the risk in question comes from the surrounding community as an outside party. Based on the social conditions in the study area and the conditions of the people who have interaction with the company, it was found that there are social risks faced by the company. There are three risks identified by reviewing the condition of the community:

- Prohibition of any activities until the request of the Buluq Sen Village community is approved, which stems from the failure to reach an initial agreement with the Buluq Sen Village community. The problem is that there are some requests or expectations that are quite demanding from certain individuals or groups.
- Low land acquisition rates and high social costs due to land disputes and conflicts. The low level of land acquisition is classified as operational risk, but because the source comes from the community who controls the land in the HGU area, it can be categorized as social risk.
- Disturbance from the community which has high social costs originating from the development of plasma plantations which if not carried out in conjunction with the nucleus plantations.

The level of risk is highly dependent on the company's attitude, leadership policies/decisions, and ways of communicating. The level of risk is categorized as high if the land acquisition is far below the target and the company's plantation development planning is hampered. In addition to the risks mentioned above, there are other risks with a medium or low level, the sources of which are the internal environment itself or the control measures tend to be less complex which do not depend on external parties or factors:

- Did not get full support from all community groups. There are community groups in Buluq Sen Village who feel that the company is only communicating with a certain person or community group. This group feels less involved in matters related to PT PU.
- Reputational risk. The long process of developing the plantations and the lack of communication and openness have made the community view that the new management of PT PU is the same as other companies that are not serious about investing in the village area.

Social impact management plan

The aspect of social management undoubtedly has a very important function for the company, both now and in the future. Meanwhile, social issues are a necessity, which will always occur, are broad and dynamic in accordance with environmental changes that occur.

Social impact management is intended to mitigate, minimize or eliminate negative impacts (mitigating adverse effects) and increase positive impacts (advancing benefits). Likewise, with social risks, which need to be followed up and managed properly to minimize negative issues, social problems, and conflicts. The proposed recommendations refer to the principles of social justice and human rights as well as ecological principles that include sustainability, diversity, and balance.

Recommendations for mitigating negative impacts and social risks are:

- a. Conduct social mapping and document profiles and descriptions of each village; including important stakeholders and figures, Company partners, forms of interaction between the Company and villages and villagers, social issues/issues with the Company, and other important information in order to maintain good social relations.
- b. Completely map out stakeholders to help manage social aspects and maintain social relations with key figures, and compile them in the stakeholder list and developing communication with all affected parties
- c. Mapping each issue, identify actors and community leaders, and provide complete data and information needed for strategic decision making.
- d. Avoiding land conflicts between the Company and the community by asking the community and villages to resolve their own internal land claims and overlapping land claims before starting the land acquisition process.
- e. Continue the plantation development plan or consider relinquishing HGU status on uncultivated land and hold joint discussions with the villages concerned, local government, and possibly mining companies.
- f. Ensure the application of the principle of FPIC in the process of land acquisition, land clearing, and other processes in the future that are related to the community.
- g. Implement best practices in plantation management and oil palm processing and consistently comply with all laws and regulations in the fields of land, labor and environment.
- h. Ensure to carry out monitoring and evaluation of negative impact mitigation and risk mitigation on a regular basis and document any developments, changes, and countermeasures.

Recommendations for strengthening positive impacts include:

- a. Facilitate the establishment of village cooperatives that will partner with the Company for plasma plantation management and facilitate the selection of competent and balanced management of cooperatives not controlled by one particular group.
- b. Establish plasma plantations within the HGU area considering the limited community land remaining.
- c. Implement the development of plasma plantations together with the nucleus estates.
- d. Examine alternatives to land rights for plasma plantations to be jointly registered with cooperatives and plasma farmers (in line with the extension of PT Prasetia Utama's HGU).

| sit | | | | | | | | | Po | Positiv | ve Ir | mpa | act | | r | Impa Magni | | | | Spe Loca | | | Respo (Predic | nse | | | Miti | gation | | |
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| pr PU tio shi | Incr and dev PT plai owi KAL pos | e Ire a and det Pof pe oct K | Ir a d P o o K p | Index and desperation of the position of the p | Ind an de PT pla ow KA | Indian de PT pla ow KA | In ar de P1 pl ov KA | Inc and dev PT pla ow KA | Social Increa and Increa and Idevelc PT Iplanta owner KALTIN positiv | easing hope elopme PU tation ership TIM v | nent of ns p will | opor with t pland oil by lea | n the an o paln with REA | ty le of m ch A | This show out begin prep | Ild be fror nning, aratio ematic | acti carı m , on a | the and | All vill | aages | ffecte | 2 | Negative positive to resur PT developing In The to the from promanage that communito regatives to grant to grant In The constill transpar communities communities processi Unclear plasma unclear ownersh farmers to prownersh | relating to the content of the conte | ng of DU ue re DU so ne ds eir DU in & ne ne of d, by | • | Re-ident current condition assessing and existing Changes perception occur is today in today in today in today in the community of the communi | ns incompany are develors noted to the second of the seco | social cludes mpact to ssues. In that field to be the second mong and the FGD egular collect clating public | At the dev plan initi (200 |

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| | | | | community | |
| | | | | perceptions surveys | |
| | | | | • Adopt an | |
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| | | | | accountable | |
| | | | | Community | |
| | | | | development | |
| | | | | program, such as | |
| | | | | donations of religious | |
| | | | | activities, | |
| | | | | communication and | |
| | | | | coordination | |
| | | | | assistance, superior | |
| | | | | fruit seed support, | |
| | | | | national day activities | |
| | | | | assistance, provision | |
| | | | | | |
| | | | | of working capital | |
| | | | | such vegetable carts, | |
| | | | | community economic | |
| | | | | improvement in the | |
| | | | | form of women | |
| | | | | group assistance, fish | |
| | | | | farming assistance, | |
| | | | | home finance | |
| | | | | management | |
| | | | | training, educational | |
| | | | | assistance, assisting | |
| | | | | women's groups in | |
| | | | | home industry | |
| | | | | | |
| | | | | products, indigenous | |
| | | | | activities assistance, | |
| | | | | financial assistance | |
| | | | | for youth | |
| | | | | organization | |
| | | | | 3. Building public trust | |
| | | | | back through | |
| | | | | socialization and/ or | |
| | | | | community activities | |
| | | | | prior to plantation | |
| | | | | development plan at | |
| | | | | PT PU is commenced | |
| | | | | 4. Establishment of a | |
| | | | | | |
| | | | | committee to resolve | |
| | | | | the status of plasma | |
| | | | | land | |
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| T | | | | | | | |
|--------------------------|--|---|--|-----------------------|---|---|--|
| | | | | | | 5. Transparency and socialization of plasma location | |
| | | | | | | development plan (location map). | |
| Permit | NA | NA | NA | NA | NA | NA | NA |
| Land acquisition process | 1. Sosial capital: increase social problem conflicts. 2. Decline local community's cultivated land, potential disturbance of ecosystem and environment due to land clearing plan (natural capital) | 1. Financial capital: where people get additional income from land acquisition by the company. 2. Physical capital: the resumption of plantation development plan means the opening access road areas which previously are inaccessible. | Relatively large, although the intensity of land disputes is still quite high, which comes from land acquisition, unfinished dispute resolution, threats identified against the company is still weak due to lack of supporting data and others. | All affected villages | Plan to change community livelihood pattern (traditional to modern). There are areas at stake Unclear land acquisition system Implemented community development program Plasma program that is not transparent. | Implementation of FPIC to: 1. Develop a participatory mechanism in handling conflict / complaints. 2. Socialization, FGD. 3. Participatory mapping during land acquisition including joint review for HCV determination & SIA review. 4. Transparent land acquisition process 5. Implement an accountable community development program. 6. Preparing the community for the changes that will occur and their implications 7. Plans/ system / model of lasma | During land acquisition process is undertaken. |
| Nursery | Natural capital: Has the potential to | Financial capital: creation of | At moderate scale. | All affected villages | Land acquisition issue for nursery site will | division 1. Informing nursery jobs to affected | During nursery |
| | cause soil erosion | employment | Nursery activities | villages | be an important issue | villages in accordance | activities |
| | due to land clearing | opportunity and | will have an | | in the community. | with skills and | undertaken. |
| | for the nursery area | business for | impact on | | Development can | expertise required. | |
| | and employee | surrounding | environmental | | create employment | For local people who | |
| | housing site. | communities*). | and social | | and business | are not recruited to | |
| | . | | governance, | | opportunity for the | work in the company, | |
| | | | | 1 | | | |

| Damage and/ or | 2. Human capital: | economic but not | community in the | can be developed | |
|-----------------------|----------------------|-------------------|---------------------|------------------------|--|
| loss of biodiversity | increased local | very significant. | surrounding areas, | through the | |
| (flora fauna) in the | community skills in | | such as opening a | community | |
| areas used as | terms of | | coffee shop, | empowerment | |
| nursery sites. | application of good | | groceries, workshop | program through | |
| Exploitation of river | oil palm nursery | | and become | improving self-skills | |
| water resources as | practices. Skill is | | company's partners | training and soft | |
| for oil palm | adopted by local | | (contractor). | capital loans | |
| seedlings utilization | community who | | (contractor). | 2. Establishing | |
| and the potential to | work in the | | | environmental | |
| cause | | | | management | |
| environmental | company. *) Woman | | | • | |
| | | | | aspects, policies and | |
| pollution (land, | empowerment is on of | | | procedures. | |
| water & air) | Gender Programme | | | Environmental | |
| | form. | | | management and | |
| 2. Physical capital: | | | | monitoring are | |
| reduced | | | | conducted | |
| community's | | | | periodically including | |
| cultivated land. | | | | HCV/ flora fauna | |
| 3. Social capital: | | | | studies prior to land | |
| occurrence of | | | | clearing for nursery | |
| occupational | | | | 3. Ensuring that the | |
| health and safety | | | | aspects of OHS & | |
| issues to local | | | | environment | |
| community who | | | | management are | |
| work in the | | | | properly | |
| company. | | | | implemented and | |
| | | | | monitored. | |
| | | | | Environmental | |
| | | | | programs that can be | |
| | | | | applied such as road | |
| | | | | watering especially | |
| | | | | on the village roads | |
| | | | | that are located | |
| | | | | within company | |
| | | | | immediate vicinity | |
| | | | | and often used by the | |
| | | | | company as access | |
| | | | | road. | |
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|---------------|-------------------------|-----------------------|---------------------|--------------|------------------------|-------------------------|-------------|
| Land clearing | 1. Natural capital: has | 1. Financial capital: | Relatively large if | All affected | Land clearing will | Implementation of FPIC | During land |
| | the potential to | Creation of | land clearing | villages | encourage shift in | for: | clearing |
| | cause soil erosion | employment and | program is not | | social and | 1. Ensure that the | activities |
| | and /or land fires | business | integrated with | | environmental order | community has a | undertaken. |
| | due to land clearing | opportunities for | environmental | | in the society. The | perceptual | |
| | for oil palm | surrounding local | aspec impact | | existence of groups | understanding of | |
| | planting, damage | people. *) | management. | | from community | land clearing plans. | |
| | and/ or loss of | 2. Human capital: | | | activities such as: | 2. Local communities | |
| | biodiversity (flora | Increased local | | | Farmer groups, | accept land clearing | |
| | fauna), exploitation | community skills in | | | smallholder's | plan. 3. Conduct HCV | |
| | of river water | terms of | | | cooperative groups, | & SIA studies prior to | |
| | resources, | application of good | | | local contractors that | land clearing. | |
| | potentially causing | land clearing | | | supply logistic to the | 3. Develop program and | |
| | environmental | practices. Skill is | | | company and store | mitigation plan of | |
| | pollution (land, | adopted by local | | | traders. | social impact arising | |
| | water & air) | community who | | | | from land clearing. | |
| | resulting from the | work in the | | | | 4. Strengthening local | |
| | operation of | company. | | | | institutional capacity | |
| | company vehicles | *) Woman | | | | and intensive | |
| | and heavy | empowerment is | | | | assistance for the | |
| | equipment. | on of Gender | | | | independence of | |
| | 2. Physical capital: | Programme form. | | | | local organizations. | |
| | Reduced | | | | | 5. Land clearing | |
| | community's | | | | | activities are done in | |
| | cultivated land. | | | | | stages | |
| | 3. Social capital: high | | | | | 6. Ensuring the aspects | |
| | social interaction is | | | | | of OHS & | |
| | also a source of | | | | | environment | |
| | conflict within the | | | | | management are | |
| | community in the | | | | | properly | |
| | form of public | | | | | implemented and | |
| | unrest due to | | | | | monitored. | |
| | workforce | | | | | Environmental | |
| | recruitment that | | | | | programs that can be | |
| | does not come | | | | | applied such as road | |
| | from the | | | | | watering, especially | |
| | surrounding | | | | | village roads that are | |
| | villages will have | | | | | located within | |
| | implication on OHS | | | | | immediate vicinity of | |
| | issue for local | | | | | company's location | |
| | people working in | | | | | and often used by the | |
| | the company. | | | | | company. | |
| Planting | Natural capital: has | 1. Financial capital: | Relatively large if | All affected | Local community also | Implementation of FPIC | During |
| | the potential to | Creation of | land clearing | villages | want to have their | for: | planting |

| | | | | | |
|--------------------------|---------------------|-----------------|-----------------------|-------------------------|-------------|
| cause soil erosion | employment and | program is not | own oil palm | 1. Developing a | activities |
| and /or land fires | business | integrated with | plantation. | program and | undertaken. |
| due to land clearing | opportunities for | environmental | | mitigation plan social | |
| for oil palm | surrounding local | aspec impact | Homogeneity of oil | impact, one of which | |
| planting, damage | people. *) | management. | palm will bring pests | is counseling, | |
| and/ or loss of | 2. Human capital: | | and diseases | socialization | |
| biodiversity (flora | Increased local | | problems in crops | Strengthening local | |
| fauna), exploitation | community skills in | | that are now the | institutional capacity | |
| | | | | l | |
| of river water | terms of | | community has | and intensive | |
| resources, | application of good | | developed | facilitation for local | |
| potentially causing | land clearing | | | organizational | |
| environmental | practices. Skill is | | | independence | |
| pollution (land, | adopted by local | | | 3. Ensuring the aspects | |
| water & air) | community who | | | of OHS & | |
| resulting from the | work in the | | | environment are | |
| operation of | company. | | | implemented and | |
| company vehicles | *) Woman | | | monitored properly | |
| and heavy | empowerment is | | | | |
| equipment. | on of Gender | | | | |
| 2. Physical capital: has | Programme form. | | | | |
| the potential to | | | | | |
| cause occupational | | | | | |
| accident and | | | | | |
| reduce level of | | | | | |
| public health and | | | | | |
| • | | | | | |
| environment. | | | | | |
| 3. Social capital: high | | | | | |
| social interaction is | | | | | |
| also a source of | | | | | |
| conflict within the | | | | | |
| community in the | | | | | |
| form of public | | | | | |
| unrest due to | | | | | |
| workforce | | | | | |
| recruitment that | | | | | |
| does not come | | | | | |
| from the | | | | | |
| surrounding | | | | | |
| villages will have | | | | | |
| implication on OHS | | | | | |
| issue for local | | | | | |
| people working in | | | | | |
| | | | | | |
| the company. | | | l | | |

| | Plant upkeep | 1. Natural capital | 1. Financial capital: | Relatively large, if | All affected | Oil palm upkeep | 1. Company must have | During the |
|---|--------------|---------------------------------------|-----------------------|----------------------|--------------|-----------------------|----------------------------|---------------|
| | | where the use of | Creation of | plant upkeep does | villages | activities by the | all clear working | operations of |
| | | chemicals | employment and | not implement | | company can absorb | procedures on the oil | the company. |
| | | (pesticides) in | business | best management | | labours extensively. | palm plantations | |
| | | weed and pest & | opportunities for | practices | | Has the potential to | upkeep activities. | |
| | | diseases control | surrounding local | consistently. | | environmental | 2. Socialization and | |
| | | can damage the | people. *) | , | | degradation | training activities to | |
| | | quality of river | 2. Human capital: | | | specifically to river | workers. | |
| | | water and soil if not | Increased local | | | waterquality? | 3. Ensure | |
| | | controlled | community skills in | | | waterquanty: | environmental | |
| | | properly, the | terms of | | | | management and | |
| | | potential of air | application of good | | | | monitoring are | |
| | | · · · · · · · · · · · · · · · · · · · | | | | | <u> </u> | |
| | | pollution (air | land clearing | | | | implemented well. | |
| | | emission and | practices. Skill is | | | | 4. Provision of PPE to all | |
| | | ambient) from the | adopted by local | | | | workers and | |
| | | vehicles operations | community who | | | | installation of traffic | |
| | | and supporting | work in the | | | | signs at estate roads | |
| | | machinery | company. | | | | and housing and | |
| | | including the | *) Woman | | | | periodic health | |
| | | management of | empowerment is | | | | checks to all workers. | |
| | | hazardous and | on of Gender | | | | | |
| | | toxic waste | Programme form. | | | | | |
| | | resulted from mill | | | | | | |
| | | maintenance and | | | | | | |
| | | plant upkeep | | | | | | |
| | | activities which | | | | | | |
| | | used chemicals/ | | | | | | |
| | | pesticide is a critical | | | | | | |
| | | point that can | | | | | | |
| | | create negative | | | | | | |
| | | impact. | | | | | | |
| | | 2. Social capital, | | | | | | |
| | | where the | | | | | | |
| | | occurrence of | | | | | | |
| | | social interaction is | | | | | | |
| | | high due to the | | | | | | |
| | | process of | | | | | | |
| | | employment can | | | | | | |
| | | lead to new social | | | | | | |
| | | problems such | | | | | | |
| | | social jealousy in | | | | | | |
| | | the layers of | | | | | | |
| | | society, jeopardize | | | | | | |
| | | the safety and | | | | | | |
| 1 | | the salety allu | | | | | | |

| | T | | | | | 1 | 1 | | | |
|---|-------------------------|---|----|-----------------------|----------------------|--------------|-------------------------------|----|-------------------------|---------------|
| | | health aspects of | | | | | | | | |
| | | workers | | | | | | | | |
| | Harvesting and | Social capital, where | 1. | Financial capital: | Relatively large, if | All affected | Oil palm upkeep | 1. | Company should | During the |
| t | transportation of FFB's | the occurrence of | | Creation of | harvesting and | villages | activities by the | | have clear working | operations of |
| | | social interaction due | | employment and | transportation of | | company can absorb | | procedures on | the company |
| | | to the process of | | business | FFB's do not | | labours extensively. | | harvesting and | |
| | | employment can lead | | opportunities for | implement best | | | | transportation of | |
| | | to new social | | surrounding local | management | | Has the potential to | | FFB's | |
| | | problems such as | | people. | practices | | environmental | 2. | Socialization and | |
| | | social jealousy in the | | Human capital: | consistently. | | degradation due to | | training activities for | |
| | | layers of society, | | Increased local | | | air and hazardous | | workers. | |
| | | jeopardize the safety | | community skills in | | | waste pollution? | 3. | Ensure good | |
| | | and health aspects of | | terms of | | | | | environmental | |
| | | workers | | application of good | | | | | management and | |
| | | 2. Natural capital, air | | land clearing | | | | | monitoring including | |
| | | pollution potential | | practices. Skill is | | | | | the provision of | |
| | | due to operation of | | adopted by local | | | | | environmental | |
| | | FFB's transporting | | community who | | | | | management | |
| | | vehicle and from | | work in the | | | | | infrastructure. | |
| | | hazardous waste | | company. | | | | 4. | Provision of PPE to all | |
| | | management. FFB's | | | | | | | workers. | |
| | | transportation is | | | | | | 5. | Installation of traffic | |
| | | critical point that can | | | | | | | signs on estate and | |
| | | create negative | | | | | | | residential roads. | |
| | | impact. | | | | | | | | |
| | Estate infrastructure | 1. Physical capital: | 1. | Financial capital | Relaitvely large | All affected | , , , , , , , , , , , , , , , | 1. | Give priority to local | During the |
| c | construction | Reduced | | Creation of | due to massive | villages | due to external | | workforce and | operations of |
| | | community's | | employment and | project that affect | | contractor | | contractors. | estate |
| | | cultivated land for | | business | both environment | | operations. | 2. | | |
| | | building estate | | opportunities for | and social. | | 2. Uninformed job | | opportunities are | |
| | | infrastructure. | | surrounding local | | | opportunities to | | informed to villages | |
| | | 2. Social capital: has | | community. | | | local | 3. | Company's policy not | |
| | | the potential to | 2. | Physical capital: | | | communities 3 | | to employ minors | |
| | | cause work | | addition of | | | Employment | | (SOP). | |
| | | accidents and | | transporation | | | opportunities will | 4. | Company's policy in | |
| | | reduce the level of | | means and/or | | | invite minors to | | relation to OHS and | |
| | | public health and | | other facilities will | | | work. | | employment | |
| | | the environment as | | lead to improved | | | 4. Local | | contract. (SOP) | |
| | | well as high social | | community | | | communities do | | | |
| | | interaction is also a | | governance | | | not understand | | | |
| | | source of conflict in | | pattern. | | | occupational | | | |
| | | the community in | | | | | safety standard. | | | |
| | | the form of public | | | | | 5. Work contract is | | | |
| | | unrest due to the | | | | | not undertsood | | | |
| | | unrest due to the | | | | | not undertsood | | | |

| | use of contractors in the development of estate infrastructure. | | | | | | |
|--|---|--|---|-----------------------|---|--|--------------------------------------|
| Oil palm planting activities | Has impact on social capital where community perceptions are considered untrustworthy by the company. | Financial capital Creation of employment for surrounding local community. With the company's direct management system, it also helps the condition of the community around the company, in terms of increased sense of security. | Relatively small impact by developing personal, interpersonal and group approaches through community | All affected villages | Company's lack of trust in governance of each village. | Approaches are conducted intensively both personally, interpersonally and in groups through community representation. | During estate operations undertaken. |
| Transportation and equipment management. | Negative impacts on this activity at its core are included in the part of the company's work program such as land clearing, planting, production, infrastructure development involving the use of transpotation and equipment | . Enhancement and development of positive impacts are in line with impacts management at company's operations area. | At medium to large scale if the management does not implement best management practices standard including effective social approaches. | All affected villages | 1. The company has resources in terms of procurement of transportation means and equipment. 2. Communities require the use of more of these resources for improvement of their welfare | 1. Company should have clear working policies and procedures pertaining to technical operations and/ or handling of social problems. 2. The socialization program must be conducted periodically and simultaneously 3. Management and monitoring of environmental impacts primarily through monitoring of environmental quality and social impacts through an accountable Community Development program. | During estate operations undertaken. |

| Type of Act | ivities (Impact source): Mill activities: | | | | | | | | | |
|---------------|---|--------------|-----------------------|--------------------|--------------|-----|------------------|-----|---------------------------|-------------|
| Construction | n of palm oil 1. Social capital: | 1. | Financial capital: | Large. Impacts | All affected | 1. | Pollution a | nd | 1. Implementation of | During mill |
| mill | Potential for social | | Labor absorption, | resulted are | villages | | degradation | of | Good Manufacturing | operations |
| | conflicts from land | | creating business | potentially | | | environmental | | Practices by | |
| | acquisition process | | opportunities both | contributing to | | | quality, especia | lly | implementing | |
| | for palm oil mill | | formal and | environmental | | | waste and odor | S | sustainability aspect | |
| | construction and | | informal sectors for | and social value | | 2. | Community's | | 2. Ensure that all FPIC | |
| | potentially to cause | | goods and services, | shift. | | | expectation to | be | processes during land | |
| | occupational | | increase per capita | | | | able to work | at | clearing has been | |
| | accidents, declining | | income and | | | | the mill. | | declared clean and | |
| | worker and | | increase local | | | | | | clear. | |
| | environmental health | | taxes. | | | | | | 3. Ensuring the legality/ | |
| | status. | 2. | Physical & human | | | | | | permit aspects, | |
| | | | capital, | | | | | | especially the | |
| | 2. Natural capital: | 1 | development of | | | | | | environmental | |
| | Potentially to cause | | palm oil mill will | | | | | | aspects (permits and | |
| | erosion around the | | also have an impact | | | | | | environmental | |
| | mill construction site | | on road | | | | | | documents) has been | |
| | due to land clearing, | | infrastructure | | | | | | implemented well. | |
| | decreased | | development for | | | | | | 4. Socialization to the | |
| | biodiversity sources, | | palm oil mill access. | | | | | | community on mill | |
| | degrading | | Beside that this will | | | | | | construction and | |
| | environmental | | affect the village | | | | | | operations plan | |
| | quality (ambient air | | governance into | | | | | | 5. Ensure that all mill's | |
| | and emissions) due to | | modern pattern. | | | | | | operating procedures | |
| | operations of vehicles | | | | | | | | are prepared | |
| | and milling machines. | | | | | | | | 6. Improving the | |
| | | | | | | | | | competence of all | |
| | | | | | | | | | mill operators | |
| | | | | | | | | | 7. HSE Policies & | |
| | | | | | | | | | Programs are applied | |
| | | | | | | | | | and communicated | |
| | | | | | | | | | intensively to both | |
| | | | | | | | | | workers and | |
| | | | | | | | | | communities. | |
| Transportat | | | nancial capital: | Relatively large. | All affected | | cal commun | | 1. Companies must | During mill |
| acceptance | | | creased local | Impact resulted | villages. | | | lly | have clear working | operations |
| | ne purchase to employment | | mmunity's income | potentially affect | | | anage produ | ıct | procedures on | |
| of communi | , i | wh | | environmental | | tra | ansportation. | | transportation | |
| | can lead to new social | | ntractors for | quality and social | | | | | activities. | |
| | problems in the form | | insporting FFB's and | value. | | | | | 2. Socialization and | |
| | of social jealousy in | | eate employment | | | | | | training to workers. | |
| | the community layer, | op | portunity for | | | | | | 3. Ensuring | |
| | besides the | 1 | | | | | | | environmental | |

| | competition between | surrounding | | | | management and | |
|-----------------|-----------------------------------|---------------------------|---------------|--------------|---------------------|----------------------------|-------------|
| | local contractors and | community. | | | | monitoring are | |
| | migrant contractors | , | | | | implemented well. | |
| | are individual | | | | | 4. Provision of PPE to all | |
| | concentration areas | | | | | workers. | |
| | in impact | | | | | 5. Installation of traffic | |
| | management and | | | | | signs at estate and | |
| | potential aspects of | | | | | residential roads. | |
| | workers' safety and | | | | | 6. Relevant Community | |
| | health and traffic | | | | | • | |
| | | | | | | development | |
| | accidents are | | | | | program such as road | |
| | potentially large. | | | | | watering and road | |
| | 2. Natural capital: | | | | | repair/ road | |
| | potential pollution to | | | | | hardening. | |
| | the environment and | | | | | 7. Implementation of | |
| | the dangers of | | | | | effective, transparent | |
| | hazardous and toxic | | | | | and mutually | |
| | waste at the time of | | | | | benefitting | |
| | activities on progress. | | | | | cooperation model | |
| | | | | | | with the community | |
| | | | | | | 8. Developing | |
| | | | | | | cooperation through | |
| | | | | | | cooperative model | |
| | | | | | | 9. Socialization of | |
| | | | | | | cooperation system | |
| | | | | | | and registration of | |
| | | | | | | FFB's potential | |
| | | | | | | suppliers | |
| | | | | | | 10. Timely payment. | |
| | | | | | | '' ' | |
| Mill processing | 1. Affecting natural | Financial capital: | Large: due to | All affected | 1. Pollution and | 1. Implementation of | During mill |
| 1 | capital, potentially | Labor absorption, | impact mainly | villages | degradation of | Good Manufacturing | operations |
| | degrade | creating business | affects | | environmental | Practices by | undertaken. |
| | environmental | opportunities both | environmental | | quality, especially | implementing | |
| | quality (ambient air | formal and | quality. | | waste and odors | sustainability aspect. | |
| | and emissions), | informal sectors for | quanty. | | 2. Community's | 2. Socialization to the | |
| | ground and surface | goods and services, | | | expectation to be | community on mill | |
| | water quality due to | increase per capita | | | able to work at | construction and | |
| | the operations of | income and | | | the mill. | operations plan | |
| | vehicles and milling | income and increase local | | | the iiiii. | 3. Ensure that all mill's | |
| | machines. | taxes. | | | | operating procedures | |
| | | 2. The absorption of | | | | | |
| | ! | labor from local | | | | are prepared | |
| | potentially causeing occupational | community as the | | | | | |
| | occupational | community as the | | | 1 | l | |

| Transpota CPKO pro | occurrence of social interaction due to the process of employment can lead to new social problems such as social jealousy in the layers of society, jeopardize the safety and health aspects of workers, traffic accident risks are potential to occur. 2. Natural capital, potential of ambient air pollution due to CPO transporting activities include the management of hazardous and toxic waste management. These are critical | operator in the mill will increase the skill / quality in terms of operating machines and mill processing through training activities held. Financial capital: creation of employment and business opportunities for surrounding communities*) | Relatively large if transportation of CPO/ PKO does not implement Besa Management Practices consistently | All affected villages | Potentially reduce the environmental quality especially from air pollution and hazardous and toxic waste sources. | 4. Improving the competence of all mill operators 5. HSE Policies & Programs are applied and communicated intensively to both workers and communities. 1. Company must have clear working procedures on transportation activities. 2. Socialization and training to workers. 3. Ensuring environmental management and monitoring are implemented well. 4. Provision of PPE to all workers. 5. Installation of traffic signs at estate and residential roads. | During mill operations undertaken |
|-----------------------|---|---|---|-----------------------|---|---|------------------------------------|
| Poly Oil | points that can create negative impact. Mill Effluent 1. Natural capital, | Natural capital: | Relatively large. | All affected | The company is not | Establishment of | During mill |
| | Mill Effluent anagement. 1. Natural capital, potentially degrading environmental quality, surface water and groundwater quality, odor pollution around the land application areas. | Natural capital: Increased plantation's soil fertility therefore increasing productivity. | Relatively large. Impacts potentially contributes to environmental pollution which very sensitive to trigger social conflict. | All affected villages | serious in handling waste. | Establishment of policies in environmental management. Ensure that all aspects of management have been accommodated in environmental | During mill operations undertaken. |

| | 2. Impact on social | | | | | documents (AMDAL, | |
|-------------------------|------------------------|----|----|----|----|---------------------------|----|
| | capital in the form of | | | | | RKL-RPL, UKL-UPL), | |
| | public unrest due to | | | | | understood and | |
| | potential pollution | | | | | implemented | |
| | that may occur | | | | | according to | |
| | | | | | | applicable | |
| | | | | | | regulations. | |
| | | | | | | 3. Establish a PIC in | |
| | | | | | | environmental | |
| | | | | | | management and | |
| | | | | | | monitoring. | |
| | | | | | | 4. Coordination and | |
| | | | | | | intensify | |
| | | | | | | communication with | |
| | | | | | | related institutions in | |
| | | | | | | environmental | |
| | | | | | | management and | |
| | | | | | | monitoring. | |
| | | | | | | 5. Socialization and | |
| | | | | | | training for workers6. | |
| | | | | | | 6. Socialization involves | |
| | | | | | | relevant institutions | |
| | | | | | | to communities | |
| | | | | | | relating to | |
| | | | | | | environmental | |
| | | | | | | management and | |
| | | | | | | handling of aspects | |
| | | | | | | and impacts. | |
| | | | | | | 7. Accountable | |
| | | | | | | community | |
| | | | | | | development | |
| | | | | | | program, such as | |
| | | | | | | clean water | |
| | | | | | | assistance program | |
| | | | | | | and public health | |
| | | | | | | assistance. | |
| Bulking and shipping of | NA | NA | NA | NA | NA | NA | NA |
| CPO and PKO | | | | | | | |
| | | | | | | | |

| Topography | Map | Soil Series | Slope (%) | Brief Description | Sustainability for Oil | Total E | |
|------------|--------|----------------|----------------------|--|---|---------|----|
| | Symbol | Jon Series | Stope (70) | | Palm (Main Limitations) | Ha | % |
| | Sdg/3 | Serdang | Rolling (12-24) | Deep (>100 cm) brownish yellow to strong brown fine sandy clay loams. Weak medium subangular blocky; friable. Patchy clayskins. Well drained. Soils developed over sandstones. | Suitable (Low fertility) | 832 | 8, |
| | Kbg/3 | Kuala Brang | Rolling (12-24) | Moderately deep (50-100 cm) brownish yellow to strong brown fine sandy clays. Moderate medium subangular blocky; friable to firm. Patchy clayskins. Moderately well | Suitable (Low fertility, moderate depths) | 2.039 | 20 |
| | Kbg/4 | Rudia Brung | Hilly (24-38) | drained. Soils developed over shales with minor sandstones. | Marginal (Soil erosion, low fertility, moderate depth) | 733 | 7 |
| | Nmi/3 | Nami | Rolling (12-24) | Moderately deep (50-100 cm) brownish yellow fine sandy clay loam. Weak medium to fine subangular blocky; friable. Patchy clayskins. Weathered rocks around 70 cm depths. Well drained. Soils developed over sandstones | Suitable (Low fertility, soil eroson, moderate depths) | 5.880 | 59 |
| | Nmi/4 | | Hilly (24-38) | with minor shales. | Marginal (Soil erosion, low fertility, moderate soil depth) | 119 | 1 |
| | Kuh/4 | Kuah | Hilly (24-38) | Shallow (<50 cm) brownish yellow to strong brown fine sandy clays. Moderate medium subangular blocky; friable to firm. No clayskins. Weathered rocks around 40 cm depth. Moderately well drained. Soils developed over shales with minor sandstones. | Marginal (Shallow, soil depth, soil erosion, low fertility) | 119 | 1 |
| | Gck/2 | Gong Chenak | Undulating (4-12) | Deep (>100 cm) brownish yellow to light gray fine sandy clay. Moderate medium subangular blocky; friable to sticky with depth. Patchy clayskins. Imperfectly drained, occasional flooding. Soils on Sub-Recent Alluvium. | Suitable (Low fertility, minor flooding) | 9.900 | 1 |

| Table 8. Managemen plan for soil conservation | | | | | | | | |
|---|---|--|--|--|--|--|--|--|
| Objective(s) | Action(s) | Timeline | | | | | | |
| Based on significant impact evaluation results indicate that impact parameters on occurrence of disruption on surface flow in which the impact is negative and direct due to micro and macro flow cut off on natural surface during cut and fill process. | Carry out land clearing for plantations road network in a planned and efficient manner. Constructing culvert at each intersection equipped with drainage ditch with appropriate size. Creating bridge on areas with river flowing. Conduct routine maintenance on bridges and culverts constructed. | Once during road network construction and evaluated once a year for improvements against damaged sections or material. | | | | | | |
| Erosion Rates | Development of Estate Emplacement. Implementation of estate emplacement development should be carried out in a planned manner and does not allow open land to be neglected for long term. Land clearing carried out to construct estate emplacement should be done in a planned manner and according to the needs. Immediately plant land cover crops on areas cleared for emplacement. On sloping area with gradient > 8% should have terraces to avoid erosion prone areas. Road network construction Land clearing should be done in a planned and efficient manner. Construct terraces on runoff areas near river riparian. Immediately plant land cover crops on areas cleared. Surfacing the road with coral mixture. Preparation of nursery site Establish nursery site on sloping area. | Once during work on progress and evaluated once in 6 months. | | | | | | |

| | Development of nursery land should be conducted in a planned and efficient manner. Setting the pre-nursery site that cuts the slope. Immediately plant land cover crops on nursery site that have been left. Preparation of planting site Land preparation should be conducted in a well and planned manner. Land clearing remnants should be stacked lengthwise and cut into the slope. Immediately plant oil palm & LCC on areas planned. Do not carry out land clearing by burning. Preparation of mill site Land clearing should be conducted in a planned and gradual manner. Land clearing should be carried out during dry season. Do not carry out land clearing by burning. Immediately commence construction activities after land clearing completed. Immediately conduct reforestation on surrounding area of the ste with fast-growth plant type and LCC to minimize erosion. | |
|---|---|--|
| Based on significant impact evaluation results indicate that impact parameters on occurrence of land cover decreased in which the impact is negative, significant and direct. Impact intensity that exceed environmental quality standard can cause further impacts in the form of increased erosion rate and wildlife migration. | Environmental management activities for estate emplacement development, road network construction, Preparation of nursery site, preparation of planting area and preparation of mill site. Planting area preparation should be done gradually and planned according to the needs. Land clearing is conducted only on areas designated for estate emplacement development (± 18,06 Ha), | Once a year, conducted gradually adjucted tol and cleared on each división and evaluated twice, first evaluation at the age of 6 months and second at the age of 1 year to obtain sucess rate. |

| road network construction (± 9,06 Ha), preparation of nursery area (± 30 Ha), Preparation of planting area (± 8,819, 755 Ha), preparation of mill site (± 20 Ha). |
|---|
| Enriching and maintaining conservation areas. Warning board installation to prohibit hunting on protected wildlife and land clearing on protected areas. Immediately plant the areas cleared with LCC. |
| Employee training by incorporating environmental impact control programs. Slope maintained at 8% on road network construction. |
| Road signs installation according to the needs. Maintain road surfacing to prevent slippery road. Protect trees that can be protected as home for wildlife. |
| Land rehabilitation ad restoration. Land reclamation activities are carried out after the location permit has expired. Immediately undertake reclamation by conducting reforestation on the location. Land that has been restored is surfaced with top soil |
| then planted with LCC. Conducting land regeneration with plant spacing of 3x3m on areas that have been restored with fast growing plant species. On regeneration areas need to be planted with local fruit rambutan, cempedak, durian etc. Plants maintenance and fertilizing include: |
| |

| | | Planting hole measuring 30x30 cm – Dose of SP 36 fertilizer is 150 gr/tree Dose of NPK fertilizer is 100 gr/tree Dose of calcium provided is 1 ton/Ha Plant insertion is done <1 month on dead plants 1 year old plant maintenance is done every 3 months by weeding on the circle. 2 year old plant maintenance is done every 6 months by weeding on the circle. Fertilization for local fruit crops is done until the age of 3 years. Perform insertion on growing vegetation plants with growing percentage of 90% Installing signing board on re-vegetation areas measuring of 200x80 cm Intensify patrol activities to prevent destruction on areas restored and rehabilitated. |
|---|-----|--|
| 5 | GHG | The objects of mitigation and monitoring within the scope of new plantations are divided into three categories, namely (1) land clearing, (2) use of fuel, and (3) use of fertilizers. Land clearing is one of the mitigation objects because potential lands for new plantations (land that have not been planted) have potential for biomass carbon stocks, especially on lands covered with forest and scrub. The use of fuel and fertilizers is also the main object of mitigation because they are a significant source of GHG emissions. In the calculation, the production rate of fresh fruit bunches (FFB) per hectare is obtained from data from surrounding companies (Group Rea Kaltim), which is on average 14-15 tons-FFB/ha. Explanation of the mitigation object, as follows: Plantations scope: 1. High Carbon Stock (HCS) and High Conservation Value (HCV) areas Biomass carbon stocks on potential lands for new planting were identified through the HCSA assessment and high value areas were determined from the HCV assessment results. Low-medium density secondary forest (HKR) is the area with the highest AGB carbon stock in the PT PU area, followed by young regeneration forest (HRM) or Shrubs. Meanwhile, open land (shrubs and inland swamps) is the area with the lowest AGB carbon stock. In the GHG emission mitigation plan, the company's management unit decided to exclude areas of conservation value and high carbon stock from the development plan (defined as non-development areas). This mitigation plan is embodied in the land use plan in the field for new developments and conservation. |

2. Projected fuel use in plantation area

GHG emission mitigation plans through fuel use planning are carried out based on projections of fuel use based on the planned area of new plantation development. The amount of fuel used is a variable in plant maintenance that depends on the area of the new plantation. Therefore, land use plans in GHG mitigation efforts have a direct effect on the projection of fuel use.

Table 9. Projected fuel use in plantation areas

| No | Fuel Type | Usage per Year per Hectare (liter/ha) | Total Usage per Year (liter)* | Projected GHG Emissions (ton CO₂e/Year) |
|----|-----------|--|----------------------------------|--|
| 1 | Diesel | 99.37 | 571,780.87 | 1,784 |
| 2 | Premium | 1.88 | 10,817.63 | 30 |

3. Projected use of fertilizers in plantation areas

The GHG emission mitigation plan through fuel use planning is carried out based on the projected use of fertilizers based on the types of fertilizers used and the area of new plantations. Like the projected use of fuel, the amount of fertilizer use is also directly proportional to the area of land use for new plantations.

Table 10. Projected use of fertilizers in plantation areas

| | Fertiliser | Heaga Bar Vaar nor | Total Usaga oar | Projected GHG Emissions (ton CO₂e) | | | |
|----|------------|--|--------------------------------|------------------------------------|------------------|-----------------|--|
| No | Type | Usage Per Year per Hectare (ton/ha) | Total Usage oer Year (ton)* | Transport | N₂O Emissions | CO ₂ | |
| 1 | Urea | 0.314 | 1,806.8 | 2,861.75 | 5,152.21 | 1,324.97 | |
| 2 | RP | 0.203 | 1,168.1 | 971.72 | - | - | |
| 3 | MOP | 0.321 | 1,847.1 | 819.91 | 1 | = | |
| 4 | Kieserite | 0.149 | 857.4 | 380.58 | - | - | |

Milling scope:

PT PU does not plan to build a palm oil mill. The results of the FFB will be brought to the nearest PKS, namely Perdana POM. Therefore, GHG mitigation originating from mill s is not under the authority PT PU, but in the management of the Perdana POM unit. The amount of emission from this mill depends on the contribution of FFB supplied by PT PU's plantation. The parameters used in estimating GHG emissions from the scope of palm oil (CPO) production are presented in **Table 11**.

| Table 11. | Available data from Perdana POM | | |
|-----------|---|---|---|
| Mill Pro | ofile | | |
| 1.1. | Mill names | : | Perdana Palm Oil Mill (PT. REA Kaltim Plantations) |
| 1.2. | Address | : | Pulau Pinang Village, Kembang Janggut District, Kutai Kartanegara Regency, East Kalimantan |
| 1.3. | Coordinate | : | 00°15'27.5"; 116°09'00.1" |
| 1.4. | CPO's production (Ton) | : | 66,016.47(OER 21.7%)* |
| 1.5. | PK's production (Ton) | : | 14,88.22 (KER 4.89%)** |
| 1.6. | Export of electricity to grid (KWh) | : | 5,645,361 |
| 1.7. | Export of palm kernel shell (Ton) | : | 21,298.2 |
| 1.8. | Export of EFB (Ton) | : | 69,981 (EFB/FFB 23%)*** |
| Mill Op | erations Data | | |
| 2.1. | FFB's processed (Ton) | : | 304,264.61 |
| 2.2. | Fuel usage for FFB's transportation from estate to mill | : | N.A |
| 2.2.1. | Diesel (liter) | : | 847,027.77 |
| 2.2.2. | Premium (liter) | : | 2,708 |
| 2.2.3. | Other fuel | : | N.A |
| 2.3. | Distance estate – mill (km) | : | +/- 57 km |
| 2.4. | Grid electricity (KWh) | : | 1,553,050 |
| 2.5. | Mill diesel usage (liter) | : | 62,207 |
| 2.6. | Water usage (M3) | : | 477,766 |
| 2.7. | Lubricant usage (Liter) | : | 2,326 |
| 2.8. | Cycle-Hexane suage (kg) | : | 385 |
| 2.9. | Soda Ash usage (kg) | : | 26,150 |
| 2.10. | Coustic Soda Liuid usage (L) | : | 51.450 |

| 2.11. | Natrium Hidroksida usage (kg) | : | N.A |
|-------|---|---|--------------------------|
| 2.12. | Asam Klorida usage(kg) | : | 25,850 |
| 2.13. | Calcium Karbonat usage (kg) | : | N.A |
| 2.14. | NaCl usage (kg) | : | N.A |
| 2.15. | Fosfat usage (kg) | : | N.A |
| 2.16. | Sulphite usage (kg) | : | N.A |
| 2.17. | Alum usage (kg) | : | 34,835 |
| POME | | | |
| 3.1. | POME production (m³) | : | 192,232 (POME/FFB 63.1%) |
| 3.2. | POME distributed to Methane Capture (m³) | : | 192,232 |
| 3.3. | POME distributed to Composting (m³) | : | 0 |
| 3.4. | COD yang dikurangi oleh Kolam Terbuka (ton/m³) | : | 0 |

Mitigation and monitoring plan

GHG emissions strategic

The GHG emission mitigation strategy is prepared based on practical achievements that can be realized as part of the company's operational activities. In addition, the GHG emission mitigation strategy also considers increasing productivity. In other words, an increase in productivity without an increase in the amount of significant emissions is also a form of reducing GHG emissions relative to the level of production, while a decrease in GHG emissions that causes a decrease in productivity will increase the amount of GHG emissions relative to the level of production.

Mitigation and monitoring plans can be divided into two, namely specific mitigation and monitoring plans, and general mitigation and monitoring plans. In the new plantation development plan stage, specific GHG emission mitigation plans are focused on land use as the main variable affecting the amount of emissions from other operational activities (the scope of FFB production and the scope of palm oil production). Mitigation plans for other operational activities are implemented through planning the use of measurable emission source materials. In other words, the implementation of specific GHG emission mitigation and monitoring plans can be carried out in a practical and measurable manner by following the land use plan and the amount of fertilizer and fuel use that has been determined.

A general mitigation and monitoring plan is made for components of GHG emission sources that cannot be projected by the company. In this case, the components of GHG emission sources from the palm oil production process. The company does not yet have a mill, so measurable measures to reduce GHG emissions from mill operational activities are not yet relevant.

General mitigation plan

General GHG emission mitigation activities apply to all aspects within the company's operational scope. The successful implementation of general mitigation activities will be recorded in periodic records in management, for example the decrease in fuel use due to rearrangement of FFB transport routes, decrease in fertilizer use due to technology application, etc.

The success achieved in the implementation of a general mitigation plan can also be applied as a specific and measurable mitigation plan to be implemented in the next period. Therefore, recording in management is important. In simple terms, a general mitigation plan is an experimental space for companies to implement new innovations in an effort to reduce emissions, either directly or by increasing productivity.

Some of the recommended general mitigation plans include:

- 1. Arrangement of FFB transport routes in the plantation.
- 2. Turning off vehicle engines when not in use for transportation.
- 3. Save electricity consumption, especially those that are generated with fuel.
- 4. Preventing fires.
- 5. Maintain and manage conservation areas.
- 6. Maintain and/or enhance oil palm growth.
- 7. Implementing new technologies that support GHG emission mitigation efforts.
- 8. Implementing the use of alternative materials that support GHG emission mitigation efforts.

Spesific mitigation plan

Specific GHG emission mitigation and monitoring activity plans are presented in Table 12.

Table 12. Matrix of GHG emission management activity plans in the scope of FFB production (plantations) for the period 2022-2025*

| No | Objective | Indicator | Basic Data | Target | Management Plan | PIC |
|----|-----------------|----------------------|--------------------|-------------------|-----------------------------------|---------------------------|
| 1 | Protection of | 1.1 Quality of stand | 1.1 Condition of | 1.1 There is no | 1.1 Protecting the conservation | Internal company: Estate, |
| | conservation | canopy cover is | boundary | decrease in stand | area from disturbance (fire, | Conservation Dept, LC&C, |
| | areas (high | maintained. | markings and | canopy cover | encroachment, etc.) | Survey Mapping Dept |
| | conservation | 1.2 Number of | warning boards of | area in the | 1.2 Dissemination of conservation | |
| | value areas and | disturbances | conservation | conservation | areas and their protection to | Relevant stakeholder: |
| | | | areas in the field | area. | | |

| high carbor stock areas) | 1.3 Condition of boundary markings and warning boards of conservation areas in the field 1.4 Size of conservation area | 1.2 Photos of stand canopy cover at conservation area monitoring locations 1.3 Minutes of disturbance findings in conservation areas (example: fire, encroachment, etc.) 1.4 Mapping progress of land clearing | 1.2 Sustainably reduce to eliminate the number of disturbances occurring in conservation areas 1.3 Land clearing does not enter the conservation area | workers, communities and land clearing contractors 1.3 Creation and maintenance of physical boundary signs (demarcations) and warning boards of conservation areas in the field. 1.4 Protecting the conservation area from contamination by maintenance activities in the plantation area | Government (distric, sub distric, regency), Police, BKSDA, Dinas Perkebunan, NGO |
|--|--|--|---|---|---|
| 2 Oil palm plan biomass growth | | 2.1. Palm oil principal survey data in each block 2.2. Palm oil principal | 2.1. Pest and/or disease attacks are within normal limits 2.2. The dynamics of the principal amount in one block are within the normal threshold | 2.1. Optimal plant maintenance 2.2. Prevention/and/or overcoming of pest and disease attacks in a responsive and effective manner 2.3. Thinning and/or insertion where necessary to optimize oil palm tree growth | Internal company: Estate, TSD Agronomy Dept, Survey Mapping Dept Relevant stakeholder: Dinas Perkebunan, palm oil practitioner, University |
| 3 Land fire prevention | 3.2. Burnt area | 3.1. BA of the fire 3.2. Data collection of areas/blocks affected by fire | Progressive to reduce the number of fire incidents from the previous year. | 3.1. Training and socialization of fire prevention and control 3.2. Implement fire prevention actions including fire patrol 3.3. Preparation of reservoirs/water sources in scattered locations in the plantation to combat fires 3.4. Making minutes in the event of a fire | Internal company: Estate, Safety Dept, Conservation Dept, LC&C Dept, Survey Mapping Dept Relevant stakeholde: Government (distric, sub distric, regency), Police, BKSDA, Dinas Perkebunan, NGO |
| 4 Use of fuel ir plantation operations | 4.1. Amount of fuel used for plantation operations | 4.1. Amount of fuel used for plantation operations | 4.1. Optimal use of fuel in plantation operations for productivity | 4.1. Management of fuel use through regulation (rations) | Internal company: Estate, Workshop & Transportation Dept |

| | | | | | | 4.2. | Undertake general activities to reduce vehicle fuel use (see general mitigation activities) | Relevant stakeholde: Government (distric, sub distric, regency), transportation contractor |
|---|----------------|-------------------------------|-------------------------|-------|--|------|---|---|
| 5 | Fertilizer use | 5.1. Amount of fertilizer use | 5.1. Fertilizer data | usage | 5.1. Optimal use of fertilizers for productivity | 5.1. | Optimal use of fertilizers | Internal company: Estate, TSD Agronomy Dept, Survey Mapping Dept Relevant stakeholder: Dinas Perkebunan, palm oil |
| | | | | | | | | practitioner, University |

Table 13. Matrix of GHG emission monitoring activity plans in the scope of FFB production (plantations) for the period 2022-2025*

| No | Objective | Indicator | Basic Data | Target | Monitoring Plan | PIC | Monitoring Schedule |
|----|--|---|---|--|--|--|------------------------|
| 1 | Protection of conservation areas (high conservation value areas and high carbon stock areas) | 1.1 Quality of stand canopy cover is maintained. 1.2 Number of disturbances 1.3 Condition of boundary markings and warning boards of conservation areas in the field 1.4 Size of conservation area | 1.1 Condition of boundary markings and warning boards of conservation areas in the field 1.2 Photos of stand canopy cover at conservation area monitoring locations | decrease in stand canopy cover area in the conservation area. 1.2 Sustainably reduce to eliminate the number of disturbances occurring in | of the condition of conservation area boundary signs and warning boards 1.2 Monitoring land clearing activities adjacent to conservation areas 1.3 Photographs of stand canopy cover at monitoring locations in conservation areas 1.4 Monitoring threats | Internal company: Estate, Conservation Dept, LC&C, Survey Mapping Dept Relevant stakeholder: Government (distric, sub distric, regency), Police, BKSDA, Dsibun, NGO | Every 6 months |
| | | | 1.3 Minutes of disturbance findings in conservation areas (example: fire, encroachment, etc.) | conservation areas 1.3 Land clearing does not enter the conservation area | and disturbances to conservation areas with regular patrols. This can also be done by involving workers in the garden and the community | | |

| | | 1.4 Mapping progress of land clearing | | | | |
|--|---|---|--|---|---|--|
| 2 Oil palm plant biomass growth | 2.1. Plant health 2.2. Number of plants (in blocks) | 2.1. Palm oil principal survey data in each block 2.2. Palm oil principal survey data in each block | 2.1. Pest and/or disease attacks are within normal limits 2.2. The dynamics of the principal amount in one block are within the normal threshold | 2.1. Regular basic health surveys and reports on pest/disease attacks 2.2. Survey the number of principals on a regular basis and the minutes of thinning / insertion of the principal | Internal company: Estate, TSD Agronomy Dept, Survey Mapping Dept Relevant stakeholder terkait: Dinas Perkebunan, palm oil practitioner, University | Every 1 month |
| 3 Land fire prevention | 3.1. Number of fires 3.2. Burnt area | 3.1. BA of the fire 3.2. Data collection of areas/blocks affected by fire | Progressive to reduce the number of fire incidents from the previous year. | 3.1. Socialization of fire prevention and control 3.2. Fire hazard patrol 3.3. Check the availability of water in water reservoirs for extinguishing 3.4. Organization of fire records | Internal company: Estate, Safety Dept, Conservation Dept, LC&C Dept, Survey Mapping Dept Relevant stakeholde: Government (distric, sub distric, regency), Police, BKSDA, Dinas Perkebunan, NGO | Daily hotspot data monitoring for other monitoring is done every 6 months |
| 4 Use of fuel in plantation operations | 4.1. Amount of fuel used for plantation operations | 4.1. Amount of fuel used for plantation operations | 4.1. Optimal use of fuel in plantation operations for productivity | 4.1. Recording of fuel usage 4.2. Recording of plantation operational vehicles | Internal company: Estate, Workshop & Transportation Dept Relevant stakeholde: Government (distric, sub distric, regency), | Every 1 month |

| | | | | | | transportation contractor | |
|---|----------------|-------------------------------|-------------------------------|--|--|---|---------------|
| 5 | Fertilizer use | 5.1. Amount of fertilizer use | 5.2. Fertilizer usage data | 5.2. Optimal use of fertilizers for productivity | 5.1. Monitoring and regulation of fertilizer use with reference to the amount of use that has been planned 5.2. Periodic recording of productivity dynamics (as an implication of the use of fertilizers) | Internal company: Estate, TSD Agronomy Dept, Survey Mapping Dept Relevant stakeholder: Dinas Perkebunan, palm oil practitioner, University | Every 1 month |

| 6 | Acceptance of Management | Name of Person Responsible | A Fattah Ibrahim | |
|---|--------------------------|----------------------------|--|--|
| | Plans | Designation | Management Representative (Compliance & Certification Manager) | |
| | | Signature | A. Fattah Ibrahim | |
| | | Date | 01 February 2024 | |